RESOLUCIÓN

En relación con la solicitud de tramitación de expediente de Generación de Créditos en el Presupuesto del Ayuntamiento de Málaga de 2024, realizada por el Área Gestión de Fondos de la Unión Europea, proponiendo la incoación de un expediente de generación de créditos en el Estado de Gastos del Presupuesto del Ayuntamiento de Málaga de 2024, como consecuencia del ingreso recibido correspondiente al proyecto europeo “HORIZON OCEANIDS”, por importe de **75.000,00 €**.

Proyecto de gasto: 2024 2 50EHO 1

Vistas las informaciones contenidas en la solicitud de tramitación del oportuno Expediente de Generación de Créditos y emitido el correspondiente informe por la Intervención General Municipal, según la Base de Ejecución 9ª. de las de Ejecución del Presupuesto del Ayuntamiento de Málaga, será remitido al Servicio de Presupuestos que elevará al Concejal Delegado de Economía y Hacienda, la resolución aprobatoria de la Generación de Crédito, órgano competente para dictar dicha resolución, según la mencionada Base de Ejecución vigente.

RESUELVO:

La aprobación del Décimo Tercer Expediente de Generación de Créditos del Presupuesto de 2024, de conformidad con lo establecido en los artículos 43 del R. D. 500/90 y 181 del Real Decreto Legislativo 2/2004 de 5 de marzo, por el que se aprueba el Texto Refundido de la Ley Reguladora de las Haciendas Locales.

CONFORME CON LOS ANTECEDENTES
La Staff del Servicio de Presupuestos
Esperanza Rodríguez López

EL CONCEJAL DELEGADO DEL ÁREA
DE ECONOMÍA Y HACIENDA.
Carlos Mª. Conde O’Donnell

DOY FE:
EL TITULAR DEL ORGANO DE APOYO
A LA JUNTA DE GOBIERNO LOCAL
o funcionario delegado

Ayuntamiento de Málaga
Área de Gestión de Fondos de la Unión Europea

Generación de crédito del proyecto europeo HORIZON OCEANIDS. User-driven applications and tools for Climate-Informed Maritime Spatial Planning and integrated seascape management, towards a resilient & inclusive Blue economy: Aplicaciones y herramientas manejadas por el usuario para la gestión de la planificación espacial marítima basada en el clima y del paisaje marino integrado, enfocada a una economía azul resiliente e inclusiva

El programa HORIZON EUROPE es el programa de investigación e innovación de la Unión Europea. El Ayuntamiento de Málaga fue invitado a formar parte del consorcio en la convocatoria de septiembre de 2022. En una primera resolución, en febrero de 2023, el proyecto quedó en lista de reserva, y en septiembre de 2023 se ha aprobado su puesta en marcha.

OCEANIDS tiene como objetivo crear aplicaciones y herramientas gestionadas por el usuario que actuarán como una capa tecnológica para facilitar que las autoridades regionales y locales, y las partes interesadas, consigan un camino sistémico más resiliente e inclusivo hacia una Economía Azul en las regiones costeras.

El proyecto cuenta con un total de 27 socios –instituciones- del mundo académico, la empresa, la administración pública y la sociedad civil (cuádruple hélice) provenientes de Grecia –el coordinador del proyecto es la empresa griega Geosystem Hellas, S.A-, Bélgica, Alemania, Finlandia, Polonia, Rumanía, Lituania, Suiza, Francia, Portugal y España -que cuenta con la Universidad de Sevilla y el Ayuntamiento de Málaga.

La duración del proyecto es de 32 meses a contar desde su lanzamiento, que tuvo lugar en diciembre de 2023.

Presupuesto total del Proyecto según propuesta presentada 3.433.470,00 €
Presupuesto total Aprobado del Proyecto 3.096.345,00 €
Presupuesto del Ayuntamiento de Málaga 100.000,00€ (financiado al 100% por los fondos Horizon de la Convocatoria) desglosado como sigue:

- Personal 74.900,00€
- Gastos de viaje 3.200,00
- Otros gastos de equipamiento 750,00€
- Otros gastos de trabajos y servicios 1.150,00€
- Costes indirectos 20.000,00€

El reparto por anualidades del proyecto es el siguiente:

	2024	2025	2026	TOTAL
TOTAL	**14.666,00**	**43.666,00**	**41.668,00**	**100.000,00**
Personal	4.900,00	35.000,00	35.000,00	74.900,00
Viajes y alojamientos	3.100,00	100,00		3.200,00
Otros gastos de equipamientos		750,00		750,00
Trabajos y servicios		1.150,00		1.150,00
SUBTOTAL	***8.000,00***	***37.000,00***	***35.000,00***	***80.000,00***
Financiación UE	*8.000,00*	*37.000,00*	*35.000,00*	*80.000,00*
Costes indirectos	***6.666,00***	***6.666,00***	***6.668,00***	***20.000,00***
Financiación UE	*6.666,00*	*6.666,00*	*6.668,00*	*20.000,00*

Dada la temática del proyecto está previsto que en el mismo participe Miguel Méndez Pozo Asesor de la Concejalía Delegada de Servicios Operativos, Régimen Interior, Playas y Fiestas, siendo el detalle por conceptos, anualidades y financiación el siguiente:

	2024	2025	2026	TOTAL
TOTAL	**4.900,00**	**35.000,00**	**35.000,00**	**74.900,00**
Sueldo bruto	3.769,23	26.923,08	26.923,08	57.615,39
SS empresa	1.130,77	8.076,92	8.076,92	17.284,61
Financiación UE	**4.900,00**	**35.000,00**	**18.725,00**	**74.900,00**

Con fecha 27 de febrero de 2024 se ha recibido ingreso por 75.000 euros correspondiente al anticipo del proyecto.

SOLICITUD:

Por tanto, se procede a la solicitud de la tramitación del correspondiente expediente de generación de crédito por importe de 7.900,00 € correspondiente a la anualidad 2024, dado que se ha producido la aportación de ingresos para poder financiar el citado proyecto. La partida que se necesita incrementar generando el crédito son las siguientes, asignándole un nuevo número de proyecto y PAM:

PARTIDAS	IMPORTE
02.9333.11000	3.769,23
02.9333.16000	1.130,77
50.9206.23120	1.200,00
50.9206.23020	800,00
00.1511.41000	1.100,00

En Málaga a fecha de la firma electrónica

La Jefe del Servicio de Programas
Fdo. Montserrat Blanco Nieto

El Concejal Delegado del Área de Gestión
de Fondos de la Unión Europea
Fdo. Carlos María Conde O´Donnell

SERVICIO DE PRESUPUESTOS

Ayuntamiento de Málaga
Área de Gestión de Fondos de la Unión Europea

CORRECCIÓN ERROR MATERIAL Generación de crédito del proyecto europeo HORIZON OCEANIDS. User-driven applications and tools for Climate-Informed Maritime Spatial Planning and integrated seascape management, towards a resilient & inclusive Blue economy: Aplicaciones y herramientas manejadas por el usuario para la gestión de la planificación espacial marítima basada en el clima y del paisaje marino integrado, enfocada a una economía azul resiliente e inclusiva

Con fecha 6 de junio de 2024 se emite escrito solicitando la Generación de Crédito del proyecto europeo HORIZON OCEANIDS, con el consiguiente tenor literal en la solicitud "*Por tanto, se procede a la solicitud de la tramitación del correspondiente expediente de generación de crédito por importe de 7.900,00 € correspondiente a la anualidad 2024, dado que se ha producido la aportación de ingresos para poder financiar el citado proyecto".*

Por error se indica que el importe solicitado es 7.900,00 euros, cuando el importe correcto es de 8.000,00 euros.

El texto correcto de la solicitud es:

Por tanto, se procede a la solicitud de la tramitación del correspondiente expediente de generación de crédito por importe de 8.000,00 € correspondiente a la anualidad 2024, dado que se ha producido la aportación de ingresos para poder financiar el citado proyecto. La partida que se necesita incrementar generando el crédito son las siguientes, asignándole un nuevo número de proyecto y PAM:

PARTIDAS	IMPORTE
02.9333.11000	3.769,23
02.9333.16000	1.130,77
50.9206.23120	1.200,00
50.9206.23020	800,00
00.1511.41000	1.100,00

Málaga a fecha de la firma electrónica

La Jefe del Servicio de Programas
Fdo. Montserrat Blanco Nieto

SERVICIO DE PRESUPUESTO

MDG/mjl

En respuesta a su escrito de fecha 07 de mayo de 2024 por el que se solicita, a este Área de Recursos Humanos y Calidad, las aplicaciones presupuestarias de los conceptos económicos relativos al Sueldo Bruto y Seguridad Social del empleado D. Miguel Méndez Pozo, Asesor de la Concejalía Delegada de Servicios Operativos, Régimen Interior, Playas y Fiestas para el desarrollo del programa HORIZON EUROPE se informa, a efectos de poder imputar a dicho proyecto los gastos autorizados conforme a su escrito de petición, lo que sigue:

Las aplicaciones presupuestarias correspondientes a las nóminas del empleado indicado en su solicitud son: 02.9333.11000 para las retribuciones y 02.9333.16000 para la Seguridad Social a efectos de poder solicitar la oportuna generación de crédito.

No obstante y, de conformidad con lo expuesto, se significa asimismo de la necesidad de tener copia tanto de la petición de la solicitud de generación de crédito como de la aprobación de la misma para esta anualidad 2024, si bien, para el resto de anualidades dichos fondos externos se irán dotando en los correspondientes presupuestos anuales de Capítulo I conforme a su petición.

En Málaga a la fecha de la firma electrónica
LA JEFA DE SERVICIO DE GESTIÓN ECONÓMICA
Fdo.: Mª Dolores Godoy Palma.

ÁREA DE GESTIÓN DE FONDOS DE LA UNIÓN EUROPEA
SRA. JEFA DE SRVICIO DE PROGRAMAS

Ayuntamiento de Málaga
Área de Sostenibilidad Medioambiental

Ayuntamiento de Málaga
Área de Gestión de Fondos de la Unión Europea

RESOLUCIÓN

Programa: HORIZON EUROPE

Proyecto: HORIZON OCEANIDS. *User-driven applications and tools for Climate-Informed Maritime Spatial Planning and integrated seascape management, towards a resilient & inclusive Blue economy:* Aplicaciones y herramientas manejadas por el usuario para la gestión de la planificación espacial marítima basada en el clima y del paisaje marino integrado, enfocada a una economía azul resiliente e inclusiva

Convocatoria: HORIZON-MISS-2022-CLIMA-01-01 - *User driven applications and tools for regional and local authorities, and other end users focusing on climate impacts, data and knowledge*: Aplicaciones y herramientas manejadas por el usuario para autoridades locales y regionales y otros usuarios finales, focalizadas en impactos, datos y conocimiento del clima.

Asunto: Aceptación de Participación del Ayuntamiento de Málaga en Proyecto Subvencionado Aprobado y dar cuenta a la Junta de Gobierno Local

ANTECEDENTES

El programa HORIZON EUROPE es el programa de investigación e innovación de la Unión Europea. El Ayuntamiento de Málaga fue invitado a formar parte del consorcio en la convocatoria de septiembre de 2022. En una primera resolución, en febrero de 2023, el proyecto quedó en lista de reserva, y en septiembre de 2023 se ha aprobado su puesta en marcha. Las líneas generales del proyecto son:

RESUMEN

OCEANIDS tiene como objetivo crear aplicaciones y herramientas gestionadas por el usuario que actuarán como una capa tecnológica para facilitar que las autoridades regionales y locales, y las partes interesadas, consigan un camino sistémico más resiliente e inclusivo hacia una Economía Azul en las regiones costeras.
Al reunir datos y servicios espaciales y no espaciales en una plataforma de acceso único para la planificación espacial marítima basada en el clima (CI-MSP), el proyecto permitirá una gestión más integrada del paisaje marino de las regiones costeras.
La idea global es recopilar, armonizar y supervisar los servicios de datos climáticos existentes para hacer estos datos accesibles, reutilizables e interoperables para el desarrollo de estrategias locales de adaptación.
El proyecto ofrece una herramienta de apoyo a la toma de decisiones (la Plataforma de apoyo a la decisión OCEANIDS - O-DSP), y facilita el acceso al conocimiento, los datos y los servicios digitales fundamentales para comprender y gestionar mejor los riesgos climáticos, mejorar las capacidades de adaptación y apoyar las innovaciones transformadoras.

Además, OCEANIDS ve la **inclusión** como un factor habilitante y necesario hacia una Economía Azul. El proyecto tiene un fuerte enfoque en el cambio de comportamiento, tanto a nivel individual como sistémico, permitiendo a las regiones y comunidades participantes comprender y utilizar mejor los posibles puntos de inflexión social y puntos de influencia sistémicos para acelerar los cambios transformadores hacia la resiliencia climática. Para lograrlo, promueve una gobernanza inclusiva y deliberativa a través de un compromiso y un diálogo significativos entre los ciudadanos y las partes interesadas. Esto se logrará utilizando herramientas específicas para cada caso (es decir, redes sociales efímeras) aprovechando las asambleas ciudadanas locales para la deliberación de abajo hacia arriba, cultivando una cultura de compromiso cívico y empoderando así a las personas para que tomen medidas en sus propias comunidades.
Finalmente, el proyecto contribuirá a movilizar finanzas y recursos sostenibles para la adaptación a escala y cerrar la brecha de protección climática.

CONSORCIO

El proyecto cuenta con un total de 27 socios –instituciones- del mundo académico, la empresa, la administración pública y la sociedad civil (cuádruple hélice) provenientes de Grecia –el coordinador del proyecto es la empresa griega Geosystem Hellas, S.A-, Bélgica, Alemania, Finlandia, Polonia, Rumanía, Lituania, Suiza, Francia, Portugal y España -que cuenta con la Universidad de Sevilla y el Ayuntamiento de Málaga.

CALENDARIO GENERAL

La duración del proyecto es de 32 meses a contar desde su lanzamiento, que tendrá lugar en diciembre de 2023.

FUNCIONES DEL AYUNTAMIENTO DE MÁLAGA

Málaga (MLG) participará en los siguientes paquetes de trabajo (WP).

WP2 Identificación y compromisos de las partes interesadas

Tareas:

T2.1 Comunidad de stakeholders de OCEANIDS: intercambio de buenas prácticas, desarrollo de capacidades y trabajo en red entre grupos

El objetivo es ampliar el alcance del ecosistema con el fin de lograr un mayor impacto científico y socioeconómico, para lo cual es crucial que el consorcio consiga **involucrar a los potenciales usuarios finales**. Esta tarea se llevará a cabo en paralelo con la Tarea 2.4, que se centra en la participación ciudadana.
Las regiones, municipios y autoridades públicas piloto de OCEANIDS compartirán sus riesgos y vulnerabilidades costeras relacionados con el clima, sus estrategias de adaptación o de resiliencia y otros datos relevantes, a través de la campaña anual de divulgación de CDP`(Carbon Disclosure Project, Proyecto de Divulgación del Carbono, https://www.cdp.net/en) en todo el mundo.

T2.2 Evaluación de las actuales brechas entre las necesidades de las partes interesadas (regiones y comunidades) y las aplicaciones/servicios existentes disponibles

Esta tarea comprende:

- Conocer los posibles servicios de observación terrestre para la adaptación al cambio climático en las zonas costeras a disposición de los municipios, las regiones, y partes interesadas y desarrollar un enfoque comunitario.
- Estrechar el vínculo con el Servicio de Cambio Climático Copernicus (C3S) y el Servicio de Monitorización del Medio Marino Copernicus (CMEMS)
- Identificar los retos de las diferentes regiones y revisar las brechas entre ellas.
- Generar debate e interacción entre regiones, autoridades y partes interesadas miembro de la plataforma NEREUS entre sí y con otras no pertenecientes a la red, con el objeto presentar los resultados del proyecto. Con este fin, NEREUS organizará un taller online o presencial en Bruselas (durante el proyecto).

T2.4 Innovación social: inclusión de los ciudadanos y participación en la co-creación a través de redes sociales efímeras

Esta tarea proporcionará a la plataforma la capacidad de crear redes sociales centradas en tareas, efímeras, con disponibilidad ininterrumpida a demanda, cuando los usuarios lo necesiten, fomentando el uso de medios digitales para implicar a las comunidades locales que tendrán capacidad de interactuar mediante encuestas y actividades de concienciación. Estas redes efímeras tendrán capacidad de detección en las principales redes sociales para, por ejemplo, recopilar y analizar hashtags o mensajes específicos relacionados con el proyecto en una determinada ubicación-piloto.

WP5 Actividades de validación sobre el terreno

Tareas:

T5.1 Preparación reglamentaria y técnica para las actividades de validación de la plataforma y para la formación de usuarios finales

Se adoptará la metodología **Agile** de gestión de proyectos, de manera que, una vez iniciado el trabajo, los equipos pasarán por un ciclo de planificación, ejecución y evaluación. Se llevarán a cabo procesos de validación por parte de los desarrolladores y de los usuarios finales para verificar que la plataforma (producto) satisfaga las necesidades de los stakeholders.

T5.2 Demostración de las herramientas y aplicaciones OCEANIDS en 7 regiones costeras

Esta tarea se centrará explícitamente en la demostración de que las soluciones propuestas a través de casos piloto cumplen con los requerimientos de los usuarios.
La plataforma OCEANIDS se centrará en la evaluación y seguimiento de los riesgos de cada región en particular, con la implementación de un modelo basado en imágenes de media, alta o muy alta resolución dependiendo de cada caso, y con inspecciones in situ realizadas para hacer pruebas sobre el terreno

La tarea también tendrá en cuenta la viabilidad a largo plazo de los servicios mediante un análisis PESTLE (Político, Económico, Social, Tecnológico, Legal y Medioambiental)

WP6 Comunicación, difusión y explotación de los resultados del proyecto

Tareas:

T6.1 Difusión, comunicación y garantías de alto impacto

Se definirá un plan de difusión que incluirá las acciones de comunicación, las actividades comerciales, los eventos específicos y las reuniones con posibles inversores, así como el material de apoyo como presentaciones o teasers ejecutados a partir de varios mensajes clave sobre los impactos del proyecto y su propuesta de valor.
El plan se entregará en el mes 12 y se actualizará anualmente, teniendo en cuenta los resultados obtenidos de las acciones de explotación y difusión. La tarea también incluye el diseño y la producción de los materiales promocionales, escritos y audiovisuales digitales (incluidos 2 vídeos) de OCEANIDS.
METIS creará un sitio web antes del mes 6 y lo mantendrá actualizado durante al menos 5 años tras la finalización del proyecto. OCEANIDS también estará presente online a través de Twitter y de LinkedIn para acceder más fácilmente a las audiencias objetivo. La difusión de los resultados incluye la publicación de artículos en publicaciones científicas/técnicas, revistas y blogs.
Al final del proyecto, NEREUS, con el apoyo de CDP, organizará 1 conferencia final en Bruselas para mostrar buenas prácticas y los resultados de OCEANIDS. NEREUS utilizará la cobertura de las redes sociales, la transmisión en directo, así como otros usos innovadores de los canales de comunicación digital para apoyar la promoción de las actividades de divulgación.

T6.3 Planes de explotación, gestión de DPI (IPR) y modelos de negocio y sostenibilidad post-proyecto

Se elaborará un **plan de negocio**, siguiendo los resultados de la validación, destinado a crear la proposición de valor de OCEANIDS siguiendo la conocida metodología BMC "Business Model Canvas" (modelo Canvas). La versión preliminar estará lista en el mes 18, se actualizará en función de la evolución del proyecto (anualmente) y una versión final formará parte de la evaluación posterior a la validación, que se entregará en el mes 36.
Se llevará a cabo un **análisis de viabilidad** que se realizará conjuntamente con los estudios de prueba y validación (WP5). El análisis determinará hasta qué punto los dispositivos y algoritmos/métodos desarrollados cumplen los requisitos del usuario (Ajuste Problema/Solución), el objetivo del proyecto, así como la comparación del sistema con otros sistemas de la competencia, y establecerá sus ventajas/desventajas (Ajuste Producto/Mercado).

PRESUPUESTO

Presupuesto total del Proyecto según propuesta presentada 3.433.470,00 €
Presupuesto total Aprobado del Proyecto 3.096.345,00 €
Presupuesto del Ayuntamiento de Málaga 100.000,00€ (financiado al 100% por los fondos Horizon de la Convocatoria) desglosado como sigue:

- Personal 74.900,00€
- Gastos de viaje 3.200,00
- Otros gastos de equipamiento 750,00€
- Otros gastos de trabajos y servicios 1.150,00€
- Costes indirectos 20.000,00€

A la vista de lo anteriormente expuesto y en base a las atribuciones que confiere el artº 3.1.b) del Título Primero de Disposiciones Generales del Acuerdo de Delegaciones de la Ilma. Junta de Gobierno Local del Excmo. Ayuntamiento de Málaga, acordado en sesión especial de constitución extraordinaria urgente el día 17 de junio de 2023, punto 4 del orden del día, así como en la Resolución del Alcalde-Presidente de misma fecha relativo a la estructura de la Administración Municipal en su dispongo primero

RESUELVO:

PRIMERO.- Aceptar la participación del Ayuntamiento de Málaga en el consorcio HORIZON OCEANIDS para el desarrollo del Proyecto arriba expuesto **HORIZON OCEANIDS.** *User-driven applications and tools for Climate-Informed Maritime Spatial Planning and integrated seascape management, towards a resilient & inclusive Blue economy:* Aplicaciones y herramientas manejadas por el usuario para la gestión de la planificación espacial marítima basada en el clima y del paisaje marino integrado, enfocada a una economía azul resiliente e inclusiva

SEGUNDO.- Dar cuenta de la participación del Ayuntamiento de Málaga en el consorcio HORIZON OCEANIDS para el desarrollo del Proyecto arriba expuesto **HORIZON OCEANIDS** a la Junta de Gobierno Local del Ayuntamiento de Málaga

CONFORME CON LOS ANTECEDENTES	**EL CONCEJAL DELEGADO DEL ÁREA DE GESTIÓN DE FONDOS DE LA UNIÓN EUROPEA**	**EL TITULAR DEL ÓRGANO DE APOYO A LA JUNTA DE GOBIERNO LOCAL, o funcionario delegado**
Jefe del Servicio de Programas Europeos		
Montserrat Blanco Nieto	Carlos María Conde O´Donnell	Francisco Alejandro Merino Cuenca

COMUNICACIÓN OPERACIÓN EN CUENTA

FECHA / HORA	CONCEPTO	MONEDA OPERACIÓN
27/02/2024 11:39	GEOSYSTEMS HELLAS IT KAI EFARMOGES GEOPLIROFORIAKO	EURO

```
ENTIDAD ORDENANTE.:  ERBKGRAA    EUROBANK S.A.
CLAVE TRANSF......:  242Q83525E50CO14
ORDENANTE ........:  GEOSYSTEMS HELLAS IT KAI EFARMOGES GEOPLIROFORIAKON SYSTIMAT
BENEFICIARIO .....:  AYUNTAMIENTO DE MALAGA
REFER.PARA BENEF..:  INNDNL2U20270224000190310000111
CONCEPTO..........:  PREPAYMENT HORIZON EUROPE OCEANIDS
CLAVE GASTOS......:  SHR
```

DATOS DEL ABONO DE LA OPERACIÓN

CUENTA DE ABONO (IBAN)	MONEDA DE LA CUENTA	FECHA VALOR
ES07 2103 0146 91 0030026690	EURO	27/02/2024

TITULAR DE LA CUENTA

AYUNTAMIENTO DE MALAGA

IMPORTE ANOTADO EN CUENTA
75.000,00 EUR

Unicaja Banco, S.A.

EUROPEAN CLIMATE, INFRASTRUCTURE AND ENVIRONMENT EXECUTIVE AGENCY (CINEA)

CINEA.C – Green research and innovation
C.1 – Horizon Europe Climate

GRANT AGREEMENT

Project 101112919 — OCEANIDS

PREAMBLE

This **Agreement** ('the Agreement') is **between** the following parties:

on the one part,

the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and

on the other part,

1. 'the coordinator':

GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH), PIC 943294737, established in IMITTOU 225, ATHINA 116 32, Greece,

and the following other beneficiaries, if they sign their 'accession form' (see Annex 3 and Article 40):

2. **RESEAU DES REGIONS EUROPEENNES UTILISATRICES DES TECHNOLOGIES SPATIALES - NEREUS (NEREUS)**, PIC 923635068, established in RUE MONTOYER 21, BRUSSELS 1000, Belgium,

3. **OHB DIGITAL SERVICES GMBH (OHB)**, PIC 951719381, established in KONRAD ZUSE STRASSE 8, Bremen 28359, Germany,

4. **HELLENIC CENTRE FOR MARINE RESEARCH (HCMR)**, PIC 999577532, established in LEOFOROS ATHENS SOUNIO 46 7KM, ATTIKIA ANAVISSOS 19013, Greece,

5. **EUROPEAN ASSOCIATION OF REMOTE SENSING COMPANIES (EARSC)**, PIC 952204478, established in RUE BERANGER 26, BRUXELLES 1190, Belgium,

6. **ILMATIETEEN LAITOS (FMI)**, PIC 999591306, established in Erik Palmenin aukio 1, HELSINKI 00560, Finland,

7. **EREVNITIKO PANEPISTIMIAKO INSTITOUTO SYSTIMATON EPIKOINONION KAI YPOLOGISTON (ICCS)**, PIC 999654356, established in PATISION 42, ATHINA 106 82, Greece,

8. **CDP WORLDWIDE (EUROPE) GEMEINNUTZIGE GMBH (CDP)**, PIC 938217272, established in POTSDAMER PLATZ KEMPERPLATZ1, BERLIN 10785, Germany,

9. **UNIVERSIDAD DE SEVILLA (USE)**, PIC 999862518, established in CALLE S. FERNANDO 4, SEVILLA 41004, Spain,

10. **IN2 DIGITAL INNOVATIONS GMBH (IN2)**, PIC 912518383, established in AUF DEM HASENBANK 23A, LINDAU BODENSEE 88131, Germany,

11. **WEB2CLIMATE IKE (WTOC)**, PIC 884922465, established in ELEFTHERIOU VENIZELOU 14, AGIA PARASKEVI ATTIKI 15341, Greece,

12. **CREOTECH INSTRUMENTS SPOLKA AKCYJNA (CREO)**, PIC 913776473, established in JANA PAW 321 A II 66, PIASECZNO 05-500, Poland,

13. **DRAKOPOULOS SI ASOCIATII (DRAK)**, PIC 885718059, established in STR LUNEI 5, BUCURESTI 030167, Romania,

14. **UAB METIS BALTIC (METIS)**, PIC 968991589, established in JOGAILOS G 4, VILNIUS 01116, Lithuania,

15. **KRITI (CRETE)**, PIC 961026337, established in Plateia Eleftherias, Heraklion 71201, Greece,

16. **HERAKLION PORT AUTHORITY AE (HPA)**, PIC 924021419, established in PORT OF HERAKLION, HERAKLION 71110, Greece,

17. **MINISTRY OF MARITIME AFFAIRS AND INSULAR POLICY (MMAIP)**, PIC 920781328, established in AKTI VASILEIADI, GATE E1-E2, PIRAEUS 185 10, Greece,

18. **VARSINAIS-SUOMEN LIITTO (V-SML)**, PIC 950866460, established in LINNANKATU 52 B, TURKU 20100, Finland,

19. **HELSINGIN SATAMA OY (PHEL)**, PIC 885707292, established in OLYMPIARANTA 3, HELSINKI 00141, Finland,

20. **RAUMAN SATAMA OY (PRAU)**, PIC 888556570, established in HAKUNINTIE 19, RAUMA 26100, Finland,

21. **RAAHEN SATAMA OY (PRAA)**, PIC 885093379, established in SOVIONKATU 12-14, RAAHE 92100, Finland,

22. **AYUNTAMIENTO DE MALAGA (MLG)**, PIC 983310438, established in AVENIDA CERVANTES 4, MALAGA 29016, Spain,

23. **REGION BRETAGNE (BRET)**, PIC 952793365, established in 283 AV GAL GEORGES PATTON CS 21101, RENNES CEDEX 7 35711, France,

24. **SECRETARIA REGIONAL DO MAR E DAS PESCAS (DRPM)**, PIC 892369640, established in RUA CONSUL DABNEY COLONIA ALEMA, APARTADO 9, HORTA 9900-014, Portugal,

25. **ASSOCIACAO PARA O DESENVOLVIMENTO DO ATLANTIC INTERNATIONAL RESEARCH CENTRE (AIRC)**, PIC 902624480, established in PARQUE DE CIENCIA E TECNOLOGIA DA ILHA TERCEIRA TERINOV TERRA CHA, ILHA TERCEIRA 9700-702, Portugal,

Unless otherwise specified, references to 'beneficiary' or 'beneficiaries' include the coordinator and affiliated entities (if any).

If only one beneficiary signs the grant agreement ('mono-beneficiary grant'), all provisions referring to the 'coordinator' or the 'beneficiaries' will be considered — mutatis mutandis — as referring to the beneficiary.

The parties referred to above have agreed to enter into the Agreement.

By signing the Agreement and the accession forms, the beneficiaries accept the grant and agree to implement the action under their own responsibility and in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

The Agreement is composed of:

Preamble

Terms and Conditions (including Data Sheet)

Annex 1 Description of the action[1]

Annex 2 Estimated budget for the action

Annex 2a Additional information on unit costs and contributions (if applicable)

Annex 3 Accession forms (if applicable)[2]

Annex 3a Declaration on joint and several liability of affiliated entities (if applicable)[3]

Annex 4 Model for the financial statements

Annex 5 Specific rules (if applicable)

[1] Template published on Portal Reference Documents.
[2] Template published on Portal Reference Documents.
[3] Template published on Portal Reference Documents.

TERMS AND CONDITIONS

TABLE OF CONTENTS

DATA SHEET

1. General data

Project summary:

Project summary
OCEANIDS aims at building user-driven applications and tools, which act as an enabling technological layer for regional authorities & stakeholders in order to achieve a more resilient and inclusive systemic pathway to a Blue Economy in coastal regions. Brining spatial and non-spatial data & services under a single-access window platform for Climate-Informed Maritime Spatial Planning (CI-MSP), the project will allow a more integrated seascape management of coastal regions. The project delivers a Decision Support tool (the OCEANIDS Decision Support Platform - O-DSP), with an over-arching target to collect, harmonise and curate existing climate data services, making data accessible, reusable and interoperable for the development of local adaptation strategies. OCEANIDS facilitates access to knowledge, data & digital services critical for better understanding and managing climate risks, enhancing adaptive capacities and sup-porting transformative innovations. In addition, OCEANIDS sees inclusivity as an enabling, and required, factor towards a Blue Economy. The project has a strong focus on behavioural change, both on individual as well as on a systemic level, en-abling participating regions and communities to better understand and use potential social tipping points and systemic leverage points to accelerate transformative changes towards climate resilience. To achieve this, it promotes inclusive and deliberative governance through meaningful engagement and dialogue between citizens and stakeholders. This will be achieved using case-specific tools (i.e. ephemeral social networks) leveraging local citizens assemblies for bot-tom up deliberation, cultivating a culture of civic engagement, thus empowering individuals to take action in their own communities. Finally, the project will contribute to mobilising sustainable finance and resources towards adaptation at scale and closing climate protection gap.

Keywords:

- Climate change adaptation
- Climatology and climate change
- Risk assessment
- Risks assessment, modelling and impact reduction
- S4 - Climate change monitoring (Copernicus service)
- Maritime Spatial Planning, MSP, Coastal regions, DSS

Project number: 101112919

Project name: User-driven applications and tools for Climate-Informed Maritime Spatial Planning and integrated seascape management, towards a resilient & inclusive Blue Economy

Project acronym: OCEANIDS

Call: HORIZON-MISS-2022-CLIMA-01

Topic: HORIZON-MISS-2022-CLIMA-01-01

Type of action: HORIZON Research and Innovation Actions

Granting authority: European Climate, Infrastructure and Environment Executive Agency

Grant managed through EU Funding & Tenders Portal: Yes (eGrants)

Project starting date: fixed date: 1 December 2023

Project end date: 31 July 2026

Project duration: 32 months

Consortium agreement: Yes

2. Participants

List of participants:

N°	Role	Short name	Legal name	Ctry	PIC	Total eligible costs (BEN and AE)	Max grant amount
1	COO	GSH	GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA	EL	943294737	503 000.00	503 000.00
2	BEN	NEREUS	RESEAU DES REGIONS EUROPEENNES UTILISATRICES DES TECHNOLOGIES SPATIALES - NEREUS	BE	923635068	131 237.50	131 237.50
3	BEN	OHB	OHB DIGITAL SERVICES GMBH	DE	951719381	200 440.00	200 440.00
4	BEN	HCMR	HELLENIC CENTRE FOR MARINE RESEARCH	EL	999577532	137 000.00	137 000.00
5	BEN	EARSC	EUROPEAN ASSOCIATION OF REMOTE SENSING COMPANIES	BE	952204478	150 750.00	150 750.00
6	BEN	FMI	ILMATIETEEN LAITOS	FI	999591306	177 125.00	177 125.00
7	BEN	ICCS	EREVNITIKO PANEPISTIMIAKO INSTITOUTO SYSTIMATON EPIKOINONION KAI YPOLOGISTON	EL	999654356	154 875.00	154 875.00
8	BEN	CDP	CDP WORLDWIDE (EUROPE) GEMEINNUTZIGE GMBH	DE	938217272	132 375.00	132 375.00
9	BEN	USE	UNIVERSIDAD DE SEVILLA	ES	999862518	129 105.00	129 105.00
10	BEN	IN2	IN2 DIGITAL INNOVATIONS GMBH	DE	912518383	184 000.00	184 000.00
11	BEN	WTOC	WEB2CLIMATE IKE	EL	884922465	196 500.00	196 500.00
12	BEN	CREO	CREOTECH INSTRUMENTS SPOLKA AKCYJNA	PL	913776473	167 187.50	167 187.50
13	BEN	DRAK	DRAKOPOULOS SI ASOCIATII	RO	885718059	59 000.00	59 000.00
14	BEN	METIS	UAB METIS BALTIC	LT	968991589	237 250.00	237 250.00
15	BEN	CRETE	KRITI	EL	961026337	48 750.00	48 750.00
16	BEN	HPA	HERAKLION PORT AUTHORITY AE	EL	924021419	18 000.00	18 000.00
17	BEN	MMAIP	MINISTRY OF MARITIME AFFAIRS AND INSULAR POLICY	EL	920781328	40 750.00	40 750.00
18	BEN	V-SML	VARSINAIS-SUOMEN LIITTO	FI	950866460	47 750.00	47 750.00
19	BEN	PHEL	HELSINGIN SATAMA OY	FI	885707292	39 000.00	39 000.00
20	BEN	PRAU	RAUMAN SATAMA OY	FI	888556570	39 000.00	39 000.00
21	BEN	PRAA	RAAHEN SATAMA OY	FI	885093379	39 000.00	39 000.00
22	BEN	MLG	AYUNTAMIENTO DE MALAGA	ES	983310438	100 000.00	100 000.00
23	BEN	BRET	REGION BRETAGNE	FR	952793365	70 500.00	70 500.00
24	BEN	DRPM	SECRETARIA REGIONAL DO MAR E DAS PESCAS	PT	892369640	20 750.00	20 750.00
25	BEN	AIRC	ASSOCIACAO PARA O DESENVOLVIMENTO DO ATLANTIC INTERNATIONAL RESEARCH CENTRE	PT	902624480	73 000.00	73 000.00
26	AP	RG	RESILIENCE GUARD GMBH	CH	949987737	0.00	0.00
Total						3 096 345.00	3 096 345.00

Coordinator:

– GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH)

3. Grant

Maximum grant amount, total estimated eligible costs and contributions and funding rate:

Total eligible costs (BEN and AE)	Funding rate (%)	Maximum grant amount (Annex 2)	Maximum grant amount (award decision)
3 096 345.00	100	3 096 345.00	3 096 345.00

Grant form: Budget-based

Grant mode: Action grant

Budget categories/activity types:

- A. Personnel costs
  - A.1 Employees, A.2 Natural persons under direct contract, A.3 Seconded persons
  - A.4 SME owners and natural person beneficiaries

- B. Subcontracting costs

- C. Purchase costs
  - C.1 Travel and subsistence
  - C.2 Equipment
  - C.3 Other goods, works and services

- D. Other cost categories
  - D.2 Internally invoiced goods and services

- E. Indirect costs

Cost eligibility options:

- In-kind contributions eligible costs

- Parental leave

- Project-based supplementary payments

- Average personnel costs (unit cost according to usual cost accounting practices)

- Limitation for subcontracting

- Travel and subsistence:
  - Travel: Actual costs
  - Accommodation: Actual costs
  - Subsistence: Actual costs

- Equipment: depreciation only

- Indirect cost flat-rate: 25% of the eligible direct costs (categories A-D, except volunteers costs, subcontracting costs, financial support to third parties and exempted specific cost categories, if any)

- VAT: Yes

- Other ineligible costs

Budget flexibility: Yes (no flexibility cap)

4. Reporting, payments and recoveries

4.1 Continuous reporting (art 21)

Deliverables: see Funding & Tenders Portal Continuous Reporting tool

4.2 Periodic reporting and payments

Reporting and payment schedule (art 21, 22):

Reporting					Payments	
Reporting periods			Type	Deadline	Type	Deadline (time to pay)
RP No	Month from	Month to				
					Initial prefinancing	30 days from entry into force/10 days before starting date – whichever is the latest
1	1	18	Periodic report	60 days after end of reporting period	Interim payment	90 days from receiving periodic report
2	19	32	Periodic report	60 days after end of reporting period	Final payment	90 days from receiving periodic report

Prefinancing payments and guarantees:

Prefinancing payment	
Type	Amount
Prefinancing 1 (initial)	2 477 076.00

Reporting and payment modalities (art 21, 22):

Mutual Insurance Mechanism (MIM): Yes

MIM contribution: 5% of the maximum grant amount (154 817.25), retained from the initial prefinancing

Restrictions on distribution of initial prefinancing: The prefinancing may be distributed only if the minimum number of beneficiaries set out in the call condititions (if any) have acceded to the Agreement and only to beneficiaries that have acceded.

Interim payment ceiling (if any): 90% of the maximum grant amount

Exception for revenues: Yes

No-profit rule: Yes

Late payment interest: ECB + 3.5%

Bank account for payments:

GR7002600160000150200714541

Conversion into euros: Double conversion

Reporting language: Language of the Agreement

4.3 Certificates (art 24):

Certificates on the financial statements (CFS):

Conditions:

Schedule: only at final payment, if threshold is reached

Standard threshold (beneficiary-level):

- financial statement: requested EU contribution to costs ≥ EUR 430 000.00

Special threshold for beneficiaries with a systems and process audit(see Article 24): financial statement: requested EU contribution to costs ≥ EUR 725 000.00

4.4 Recoveries (art 22)

First-line liability for recoveries:

Beneficiary termination: Beneficiary concerned

Final payment: Each beneficiary for their own debt

After final payment: Beneficiary concerned

Joint and several liability for enforced recoveries (in case of non-payment):

Individual financial responsibility: Each beneficiary is liable only for its own debts (and those of its affiliated entities, if any)

Joint and several liability of affiliated entities — n/a

5. Consequences of non-compliance, applicable law & dispute settlement forum

Suspension and termination:

Additional suspension grounds (art 31)

Additional termination grounds (art 32)

Applicable law (art 43):

Standard applicable law regime: EU law + law of Belgium

Dispute settlement forum (art 43):

Standard dispute settlement forum:

EU beneficiaries: EU General Court + EU Court of Justice (on appeal)

Non-EU beneficiaries: Courts of Brussels, Belgium (unless an international agreement provides for the enforceability of EU court judgements)

6. Other

Specific rules (Annex 5): Yes

Standard time-limits after project end:

Confidentiality (for X years after final payment): 5

Record-keeping (for X years after final payment): 5 (or 3 for grants of not more than EUR 60 000)

Reviews (up to X years after final payment): 2

Audits (up to X years after final payment): 2

Extension of findings from other grants to this grant (no later than X years after final payment): 2

Impact evaluation (up to X years after final payment): 5 (or 3 for grants of not more than EUR 60 000)

CHAPTER 1 GENERAL

ARTICLE 1 — SUBJECT OF THE AGREEMENT

This Agreement sets out the rights and obligations and terms and conditions applicable to the grant awarded for the implementation of the action set out in Chapter 2.

ARTICLE 2 — DEFINITIONS

For the purpose of this Agreement, the following definitions apply:

Actions — The project which is being funded in the context of this Agreement.

Grant — The grant awarded in the context of this Agreement.

EU grants — Grants awarded by EU institutions, bodies, offices or agencies (including EU executive agencies, EU regulatory agencies, EDA, joint undertakings, etc.).

Participants — Entities participating in the action as beneficiaries, affiliated entities, associated partners, third parties giving in-kind contributions, subcontractors or recipients of financial support to third parties.

Beneficiaries (BEN) — The signatories of this Agreement (either directly or through an accession form).

Affiliated entities (AE) — Entities affiliated to a beneficiary within the meaning of Article 187 of EU Financial Regulation 2018/1046[4] which participate in the action with similar rights and obligations as the beneficiaries (obligation to implement action tasks and right to charge costs and claim contributions).

Associated partners (AP) — Entities which participate in the action, but without the right to charge costs or claim contributions.

Purchases — Contracts for goods, works or services needed to carry out the action (e.g. equipment, consumables and supplies) but which are not part of the action tasks (see Annex 1).

Subcontracting — Contracts for goods, works or services that are part of the action tasks (see Annex 1).

In-kind contributions — In-kind contributions within the meaning of Article 2(36) of EU Financial

[4] For the definition, see Article 187 Regulation (EU, Euratom) 2018/1046 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union, amending Regulations (EU) No 1296/2013, (EU) No 1301/2013, (EU) No 1303/2013, (EU) No 1304/2013, (EU) No 1309/2013, (EU) No 1316/2013, (EU) No 223/2014, (EU) No 283/2014, and Decision No 541/2014/EU and repealing Regulation (EU, Euratom) No 966/2012 ('EU Financial Regulation') (OJ L 193, 30.7.2018, p. 1): "**affiliated entities** [are]:
(a) entities that form a sole beneficiary [(i.e. where an entity is formed of several entities that satisfy the criteria for being awarded a grant, including where the entity is specifically established for the purpose of implementing an action to be financed by a grant)];
(b) entities that satisfy the eligibility criteria and that do not fall within one of the situations referred to in Article 136(1) and 141(1) and that have a link with the beneficiary, in particular a legal or capital link, which is neither limited to the action nor established for the sole purpose of its implementation".

Regulation 2018/1046, i.e. non-financial resources made available free of charge by third parties.

Fraud — Fraud within the meaning of Article 3 of EU Directive 2017/1371[5] and Article 1 of the Convention on the protection of the European Communities' financial interests, drawn up by the Council Act of 26 July 1995[6], as well as any other wrongful or criminal deception intended to result in financial or personal gain.

Irregularities — Any type of breach (regulatory or contractual) which could impact the EU financial interests, including irregularities within the meaning of Article 1(2) of EU Regulation 2988/95[7].

Grave professional misconduct — Any type of unacceptable or improper behaviour in exercising one's profession, especially by employees, including grave professional misconduct within the meaning of Article 136(1)(c) of EU Financial Regulation 2018/1046.

Applicable EU, international and national law — Any legal acts or other (binding or non-binding) rules and guidance in the area concerned.

Portal — EU Funding & Tenders Portal; electronic portal and exchange system managed by the European Commission and used by itself and other EU institutions, bodies, offices or agencies for the management of their funding programmes (grants, procurements, prizes, etc.).

CHAPTER 2 ACTION

ARTICLE 3 — ACTION

The grant is awarded for the action **101112919 — OCEANIDS** ('action'), as described in Annex 1.

ARTICLE 4 — DURATION AND STARTING DATE

The duration and the starting date of the action are set out in the Data Sheet (see Point 1).

CHAPTER 3 GRANT

ARTICLE 5 — GRANT

5.1 Form of grant

The grant is an action grant[8] which takes the form of a budget-based mixed actual cost grant (i.e. a

[5] Directive (EU) 2017/1371 of the European Parliament and of the Council of 5 July 2017 on the fight against fraud to the Union's financial interests by means of criminal law (OJ L 198, 28.7.2017, p. 29).
[6] OJ C 316, 27.11.1995, p. 48.
[7] Council Regulation (EC, Euratom) No 2988/95 of 18 December 1995 on the protection of the European Communities financial interests (OJ L 312, 23.12.1995, p. 1).
[8] For the definition, see Article 180(2)(a) EU Financial Regulation 2018/1046: '**action grant**' means an EU grant to finance "an action intended to help achieve a Union policy objective".

grant based on actual costs incurred, but which may also include other forms of funding, such as unit costs or contributions, flat-rate costs or contributions, lump sum costs or contributions or financing not linked to costs).

5.2 Maximum grant amount

The maximum grant amount is set out in the Data Sheet (see Point 3) and in the estimated budget (Annex 2).

5.3 Funding rate

The funding rate for costs is 100% of the action's eligible costs.

Contributions are not subject to any funding rate.

5.4 Estimated budget, budget categories and forms of funding

The estimated budget for the action is set out in Annex 2.

It contains the estimated eligible costs and contributions for the action, broken down by participant and budget category.

Annex 2 also shows the types of costs and contributions (forms of funding)[9] to be used for each budget category.

If unit costs or contributions are used, the details on the calculation will be explained in Annex 2a.

5.5 Budget flexibility

The budget breakdown may be adjusted — without an amendment (see Article 39) — by transfers (between participants and budget categories), as long as this does not imply any substantive or important change to the description of the action in Annex 1.

However:

- changes to the budget category for volunteers (if used) always require an amendment
- changes to budget categories with lump sums costs or contributions (if used; including financing not linked to costs) always require an amendment
- changes to budget categories with higher funding rates or budget ceilings (if used) always require an amendment
- addition of amounts for subcontracts not provided for in Annex 1 either require an amendment or simplified approval in accordance with Article 6.2
- other changes require an amendment or simplified approval, if specifically provided for in Article 6.2
- flexibility caps: not applicable.

[9] See Article 125 EU Financial Regulation 2018/1046.

ARTICLE 6 — ELIGIBLE AND INELIGIBLE COSTS AND CONTRIBUTIONS

In order to be eligible, costs and contributions must meet the **eligibility** conditions set out in this Article.

6.1 General eligibility conditions

The **general eligibility conditions** are the following:

(a) for actual costs:

(i) they must be actually incurred by the beneficiary

(ii) they must be incurred in the period set out in Article 4 (with the exception of costs relating to the submission of the final periodic report, which may be incurred afterwards; see Article 21)

(iii) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2

(iv) they must be incurred in connection with the action as described in Annex 1 and necessary for its implementation

(v) they must be identifiable and verifiable, in particular recorded in the beneficiary's accounts in accordance with the accounting standards applicable in the country where the beneficiary is established and with the beneficiary's usual cost accounting practices

(vi) they must comply with the applicable national law on taxes, labour and social security and

(vii) they must be reasonable, justified and must comply with the principle of sound financial management, in particular regarding economy and efficiency

(b) for unit costs or contributions (if any):

(i) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2

(ii) the units must:

- be actually used or produced by the beneficiary in the period set out in Article 4 (with the exception of units relating to the submission of the final periodic report, which may be used or produced afterwards; see Article 21)

- be necessary for the implementation of the action and

(iii) the number of units must be identifiable and verifiable, in particular supported by records and documentation (see Article 20)

(c) for flat-rate costs or contributions (if any):

(i) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2

(ii) the costs or contributions to which the flat-rate is applied must:

- be eligible
- relate to the period set out in Article 4 (with the exception of costs or contributions relating to the submission of the final periodic report, which may be incurred afterwards; see Article 21)

(d) for lump sum costs or contributions (if any):

(i) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2

(ii) the work must be properly implemented by the beneficiary in accordance with Annex 1

(iii) the deliverables/outputs must be achieved in the period set out in Article 4 (with the exception of deliverables/outputs relating to the submission of the final periodic report, which may be achieved afterwards; see Article 21)

(e) for unit, flat-rate or lump sum costs or contributions according to usual cost accounting practices (if any):

(i) they must fulfil the general eligibility conditions for the type of cost concerned

(ii) the cost accounting practices must be applied in a consistent manner, based on objective criteria, regardless of the source of funding

(f) for financing not linked to costs (if any): the results must be achieved or the conditions must be fulfilled as described in Annex 1.

In addition, for direct cost categories (e.g. personnel, travel & subsistence, subcontracting and other direct costs) only costs that are directly linked to the action implementation and can therefore be attributed to it directly are eligible. They must not include any indirect costs (i.e. costs that are only indirectly linked to the action, e.g. via cost drivers).

In-kind contributions provided by third parties free of charge may be declared as eligible direct costs by the beneficiaries which use them (under the same conditions as if they were their own, provided that they concern only direct costs and that the third parties and their in-kind contributions are set out in Annex 1 (or approved ex post in the periodic report, if their use does not entail changes to the Agreement which would call into question the decision awarding the grant or breach the principle of equal treatment of applicants; 'simplified approval procedure').

6.2 Specific eligibility conditions for each budget category

For each budget category, the **specific eligibility conditions** are as follows:

Direct costs

A. Personnel costs

A.1 Costs for employees (or equivalent) are eligible as personnel costs if they fulfil the general eligibility conditions and are related to personnel working for the beneficiary under an employment contract (or equivalent appointing act) and assigned to the action.

They must be limited to salaries (including net payments during parental leave), social security contributions, taxes and other costs linked to the remuneration, if they arise from national law or the employment contract (or equivalent appointing act) and be calculated on the basis of the costs actually incurred, in accordance with the following method:

{daily rate for the person

multiplied by

number of day-equivalents worked on the action (rounded up or down to the nearest half-day)}.

The daily rate must be calculated as:

{annual personnel costs for the person

divided by

215}.

The number of day-equivalents declared for a person must be identifiable and verifiable (see Article 20).

The actual time spent on parental leave by a person assigned to the action may be deducted from the 215 days indicated in the above formula.

The total number of day-equivalents declared in EU grants, for a person for a year, cannot be higher than 215, minus time spent on parental leave (if any).

For personnel which receives supplementary payments for work in projects (project-based remuneration), the personnel costs must be calculated at a rate which:

- corresponds to the actual remuneration costs paid by the beneficiary for the time worked by the person in the action over the reporting period
- does not exceed the remuneration costs paid by the beneficiary for work in similar projects funded by national schemes (‘national projects reference’)
- is defined based on objective criteria allowing to determine the amount to which the person is entitled

and

- reflects the usual practice of the beneficiary to pay consistently bonuses or supplementary payments for work in projects funded by national schemes.

The national projects reference is the remuneration defined in national law, collective labour agreement or written internal rules of the beneficiary applicable to work in projects funded by national schemes.

If there is no such national law, collective labour agreement or written internal rules or if the project-based remuneration is not based on objective criteria, the national project reference will be the average

remuneration of the person in the last full calendar year covered by the reporting period, excluding remuneration paid for work in EU actions.

If the beneficiary uses average personnel costs (unit cost according to usual cost accounting practices), the personnel costs must fulfil the general eligibility conditions for such unit costs and the daily rate must be calculated:

- using the actual personnel costs recorded in the beneficiary's accounts and excluding any costs which are ineligible or already included in other budget categories; the actual personnel costs may be adjusted on the basis of budgeted or estimated elements, if they are relevant for calculating the personnel costs, reasonable and correspond to objective and verifiable information

and

- according to usual cost accounting practices which are applied in a consistent manner, based on objective criteria, regardless of the source of funding.

A.2 and **A.3 Costs for natural persons working under a direct contract** other than an employment contract and costs for **seconded persons by a third party against payment** are also eligible as personnel costs, if they are assigned to the action, fulfil the general eligibility conditions and:

(a) work under conditions similar to those of an employee (in particular regarding the way the work is organised, the tasks that are performed and the premises where they are performed) and

(b) the result of the work belongs to the beneficiary (unless agreed otherwise).

They must be calculated on the basis of a rate which corresponds to the costs actually incurred for the direct contract or secondment and must not be significantly different from those for personnel performing similar tasks under an employment contract with the beneficiary.

A.4 The work of **SME owners** for the action (i.e. owners of beneficiaries that are small and medium-sized enterprises[10] not receiving a salary) or **natural person beneficiaries** (i.e. beneficiaries that are natural persons not receiving a salary) may be declared as personnel costs, if they fulfil the general eligibility conditions and are calculated as unit costs in accordance with the method set out in Annex 2a.

B. Subcontracting costs

Subcontracting costs for the action (including related duties, taxes and charges, such as non-deductible or non-refundable value added tax (VAT)) are eligible, if they are calculated on the basis of the costs actually incurred, fulfil the general eligibility conditions and are awarded using the

[10] For the definition, see Commission Recommendation 2003/361/EC: micro, small or medium-sized enterprise (SME) are enterprises

- engaged in an economic activity, irrespective of their legal form (including, in particular, self- employed persons and family businesses engaged in craft or other activities, and partnerships or associations regularly engaged in an economic activity) and

- employing fewer than 250 persons (expressed in 'annual working units' as defined in Article 5 of the Recommendation) and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million.

beneficiary's usual purchasing practices — provided these ensure subcontracts with best value for money (or if appropriate the lowest price) and that there is no conflict of interests (see Article 12).

Beneficiaries that are 'contracting authorities/entities' within the meaning of the EU Directives on public procurement must also comply with the applicable national law on public procurement.

Subcontracting may cover only a limited part of the action.

The tasks to be subcontracted and the estimated cost for each subcontract must be set out in Annex 1 and the total estimated costs of subcontracting per beneficiary must be set out in Annex 2 (or may be approved ex post in the periodic report, if the use of subcontracting does not entail changes to the Agreement which would call into question the decision awarding the grant or breach the principle of equal treatment of applicants; 'simplified approval procedure').

C. Purchase costs

Purchase costs for the action (including related duties, taxes and charges, such as non-deductible or non-refundable value added tax (VAT)) are eligible if they fulfil the general eligibility conditions and are bought using the beneficiary's usual purchasing practices — provided these ensure purchases with best value for money (or if appropriate the lowest price) and that there is no conflict of interests (see Article 12).

Beneficiaries that are 'contracting authorities/entities' within the meaning of the EU Directives on public procurement must also comply with the applicable national law on public procurement.

C.1 Travel and subsistence

Purchases for **travel, accommodation** and **subsistence** must be calculated as follows:

- travel: on the basis of the costs actually incurred and in line with the beneficiary's usual practices on travel
- accommodation: on the basis of the costs actually incurred and in line with the beneficiary's usual practices on travel
- subsistence: on the basis of the costs actually incurred and in line with the beneficiary's usual practices on travel .

C.2 Equipment

Purchases of **equipment, infrastructure or other assets** used for the action must be declared as depreciation costs, calculated on the basis of the costs actually incurred and written off in accordance with international accounting standards and the beneficiary's usual accounting practices.

Only the portion of the costs that corresponds to the rate of actual use for the action during the action duration can be taken into account.

Costs for **renting or leasing** equipment, infrastructure or other assets are also eligible, if they do not exceed the depreciation costs of similar equipment, infrastructure or assets and do not include any financing fees.

C.3 Other goods, works and services

Purchases of **other goods, works and services** must be calculated on the basis of the costs actually incurred.

Such goods, works and services include, for instance, consumables and supplies, promotion, dissemination, protection of results, translations, publications, certificates and financial guarantees, if required under the Agreement.

D. Other cost categories

D.2 Internally invoiced goods and services

Costs for internally invoiced goods and services directly used for the action may be declared as unit cost according to usual cost accounting practices, if and as declared eligible in the call conditions, if they fulfil the general eligibility conditions for such unit costs and the amount per unit is calculated:

- using the actual costs for the good or service recorded in the beneficiary's accounts, attributed either by direct measurement or on the basis of cost drivers, and excluding any cost which are ineligible or already included in other budget categories; the actual costs may be adjusted on the basis of budgeted or estimated elements, if they are relevant for calculating the costs, reasonable and correspond to objective and verifiable information

and

- according to usual cost accounting practices which are applied in a consistent manner, based on objective criteria, regardless of the source of funding.

'Internally invoiced goods and services' means goods or services which are provided within the beneficiary's organisation directly for the action and which the beneficiary values on the basis of its usual cost accounting practices.

This cost will not be taken into account for the indirect cost flat-rate.

Indirect costs

E. Indirect costs

Indirect costs will be reimbursed at the flat-rate of 25% of the eligible direct costs (categories A-D, except volunteers costs, subcontracting costs, financial support to third parties and exempted specific cost categories, if any).

Contributions

Not applicable

6.3 Ineligible costs and contributions

The following costs or contributions are **ineligible**:

(a) costs or contributions that do not comply with the conditions set out above (Article 6.1 and 6.2), in particular:

(i) costs related to return on capital and dividends paid by a beneficiary

(ii) debt and debt service charges

(iii) provisions for future losses or debts

(iv) interest owed

(v) currency exchange losses

(vi) bank costs charged by the beneficiary's bank for transfers from the granting authority

(vii) excessive or reckless expenditure

(viii) deductible or refundable VAT (including VAT paid by public bodies acting as public authority)

(ix) costs incurred or contributions for activities implemented during grant agreement suspension (see Article 31)

(x) in-kind contributions by third parties: not applicable

(b) costs or contributions declared under other EU grants (or grants awarded by an EU Member State, non-EU country or other body implementing the EU budget), except for the following cases:

(i) Synergy actions: not applicable

(ii) if the action grant is combined with an operating grant[11] running during the same period and the beneficiary can demonstrate that the operating grant does not cover any (direct or indirect) costs of the action grant

(c) costs or contributions for staff of a national (or regional/local) administration, for activities that are part of the administration's normal activities (i.e. not undertaken only because of the grant)

(d) costs or contributions (especially travel and subsistence) for staff or representatives of EU institutions, bodies or agencies

(e) other :

(i) country restrictions for eligible costs: not applicable

(ii) costs or contributions declared specifically ineligible in the call conditions.

6.4 Consequences of non-compliance

If a beneficiary declares costs or contributions that are ineligible, they will be rejected (see Article 27).

This may also lead to other measures described in Chapter 5.

[11] For the definition, see Article 180(2)(b) of EU Financial Regulation 2018/1046: '**operating grant**' means an EU grant to finance "the functioning of a body which has an objective forming part of and supporting an EU policy".

CHAPTER 4 GRANT IMPLEMENTATION

SECTION 1 CONSORTIUM: BENEFICIARIES, AFFILIATED ENTITIES AND OTHER PARTICIPANTS

ARTICLE 7 — BENEFICIARIES

The beneficiaries, as signatories of the Agreement, are fully responsible towards the granting authority for implementing it and for complying with all its obligations.

They must implement the Agreement to their best abilities, in good faith and in accordance with all the obligations and terms and conditions it sets out.

They must have the appropriate resources to implement the action and implement the action under their own responsibility and in accordance with Article 11. If they rely on affiliated entities or other participants (see Articles 8 and 9), they retain sole responsibility towards the granting authority and the other beneficiaries.

They are jointly responsible for the *technical* implementation of the action. If one of the beneficiaries fails to implement their part of the action, the other beneficiaries must ensure that this part is implemented by someone else (without being entitled to an increase of the maximum grant amount and subject to an amendment; see Article 39). The *financial* responsibility of each beneficiary in case of recoveries is governed by Article 22.

The beneficiaries (and their action) must remain eligible under the EU programme funding the grant for the entire duration of the action. Costs and contributions will be eligible only as long as the beneficiary and the action are eligible.

The **internal roles and responsibilities** of the beneficiaries are divided as follows:

(a) Each beneficiary must:

(i) keep information stored in the Portal Participant Register up to date (see Article 19)

(ii) inform the granting authority (and the other beneficiaries) immediately of any events or circumstances likely to affect significantly or delay the implementation of the action (see Article 19)

(iii) submit to the coordinator in good time:

- the prefinancing guarantees (if required; see Article 23)
- the financial statements and certificates on the financial statements (CFS) (if required; see Articles 21 and 24.2 and Data Sheet, Point 4.3)
- the contribution to the deliverables and technical reports (see Article 21)
- any other documents or information required by the granting authority under the Agreement

(iv) submit via the Portal data and information related to the participation of their affiliated entities.

(b) The coordinator must:

(i) monitor that the action is implemented properly (see Article 11)

(ii) act as the intermediary for all communications between the consortium and the granting authority, unless the Agreement or granting authority specifies otherwise, and in particular:

- submit the prefinancing guarantees to the granting authority (if any)
- request and review any documents or information required and verify their quality and completeness before passing them on to the granting authority
- submit the deliverables and reports to the granting authority
- inform the granting authority about the payments made to the other beneficiaries (report on the distribution of payments; if required, see Articles 22 and 32)

(iii) distribute the payments received from the granting authority to the other beneficiaries without unjustified delay (see Article 22).

The coordinator may not delegate or subcontract the above-mentioned tasks to any other beneficiary or third party (including affiliated entities).

However, coordinators which are public bodies may delegate the tasks set out in Point (b)(ii) last indent and (iii) above to entities with 'authorisation to administer' which they have created or which are controlled by or affiliated to them. In this case, the coordinator retains sole responsibility for the payments and for compliance with the obligations under the Agreement.

Moreover, coordinators which are 'sole beneficiaries'[12] (or similar, such as European research infrastructure consortia (ERICs)) may delegate the tasks set out in Point (b)(i) to (iii) above to one of their members. The coordinator retains sole responsibility for compliance with the obligations under the Agreement.

The beneficiaries must have **internal arrangements** regarding their operation and co-ordination, to ensure that the action is implemented properly.

If required by the granting authority (see Data Sheet, Point 1), these arrangements must be set out in a written **consortium agreement** between the beneficiaries, covering for instance:

- the internal organisation of the consortium
- the management of access to the Portal
- different distribution keys for the payments and financial responsibilities in case of recoveries (if any)
- additional rules on rights and obligations related to background and results (see Article 16)

[12] For the definition, see Article 187(2) EU Financial Regulation 2018/1046: "Where several entities satisfy the criteria for being awarded a grant and together form one entity, that entity may be treated as the **sole beneficiary**, including where it is specifically established for the purpose of implementing the action financed by the grant."

- settlement of internal disputes
- liability, indemnification and confidentiality arrangements between the beneficiaries.

The internal arrangements must not contain any provision contrary to this Agreement.

ARTICLE 8 — AFFILIATED ENTITIES

Not applicable

ARTICLE 9 — OTHER PARTICIPANTS INVOLVED IN THE ACTION

9.1 Associated partners

The following entities which cooperate with a beneficiary will participate in the action as 'associated partners':

- **RESILIENCE GUARD GMBH (RG)**, PIC 949987737

Associated partners must implement the action tasks attributed to them in Annex 1 in accordance with Article 11. They may not charge costs or contributions to the action and the costs for their tasks are not eligible.

The tasks must be set out in Annex 1.

The beneficiaries must ensure that their contractual obligations under Articles 11 (proper implementation), 12 (conflict of interests), 13 (confidentiality and security), 14 (ethics), 17.2 (visibility), 18 (specific rules for carrying out action), 19 (information) and 20 (record-keeping) also apply to the associated partners.

The beneficiaries must ensure that the bodies mentioned in Article 25 (e.g. granting authority, OLAF, Court of Auditors (ECA), etc.) can exercise their rights also towards the associated partners.

9.2 Third parties giving in-kind contributions to the action

Other third parties may give in-kind contributions to the action (i.e. personnel, equipment, other goods, works and services, etc. which are free-of-charge) if necessary for the implementation.

Third parties giving in-kind contributions do not implement any action tasks. They may not charge costs or contributions to the action, but the costs for the in-kind contributions are eligible and may be charged by the beneficiaries which use them, under the conditions set out in Article 6. The costs will be included in Annex 2 as part of the beneficiaries' costs.

The third parties and their in-kind contributions should be set out in Annex 1.

The beneficiaries must ensure that the bodies mentioned in Article 25 (e.g. granting authority, OLAF, Court of Auditors (ECA), etc.) can exercise their rights also towards the third parties giving in-kind contributions.

9.3 Subcontractors

Subcontractors may participate in the action, if necessary for the implementation.

Subcontractors must implement their action tasks in accordance with Article 11. The costs for the subcontracted tasks (invoiced price from the subcontractor) are eligible and may be charged by the beneficiaries, under the conditions set out in Article 6. The costs will be included in Annex 2 as part of the beneficiaries' costs.

The beneficiaries must ensure that their contractual obligations under Articles 11 (proper implementation), 12 (conflict of interest), 13 (confidentiality and security), 14 (ethics), 17.2 (visibility), 18 (specific rules for carrying out action), 19 (information) and 20 (record-keeping) also apply to the subcontractors.

The beneficiaries must ensure that the bodies mentioned in Article 25 (e.g. granting authority, OLAF, Court of Auditors (ECA), etc.) can exercise their rights also towards the subcontractors.

9.4 Recipients of financial support to third parties

If the action includes providing financial support to third parties (e.g. grants, prizes or similar forms of support), the beneficiaries must ensure that their contractual obligations under Articles 12 (conflict of interest), 13 (confidentiality and security), 14 (ethics), 17.2 (visibility), 18 (specific rules for carrying out action), 19 (information) and 20 (record-keeping)also apply to the third parties receiving the support (recipients).

The beneficiaries must also ensure that the bodies mentioned in Article 25 (e.g. granting authority, OLAF, Court of Auditors (ECA), etc.) can exercise their rights also towards the recipients.

ARTICLE 10 — PARTICIPANTS WITH SPECIAL STATUS

10.1 Non-EU participants

Participants which are established in a non-EU country (if any) undertake to comply with their obligations under the Agreement and:

- to respect general principles (including fundamental rights, values and ethical principles, environmental and labour standards, rules on classified information, intellectual property rights, visibility of funding and protection of personal data)

- for the submission of certificates under Article 24: to use qualified external auditors which are independent and comply with comparable standards as those set out in EU Directive 2006/43/EC[13]

- for the controls under Article 25: to allow for checks, reviews, audits and investigations (including on-the-spot checks, visits and inspections) by the bodies mentioned in that Article (e.g. granting authority, OLAF, Court of Auditors (ECA), etc.).

Special rules on dispute settlement apply (see Data Sheet, Point 5).

10.2 Participants which are international organisations

[13] Directive 2006/43/EC of the European Parliament and of the Council of 17 May 2006 on statutory audits of annual accounts and consolidated accounts or similar national regulations (OJ L 157, 9.6.2006, p. 87).

Participants which are international organisations (IOs; if any) undertake to comply with their obligations under the Agreement and:

- to respect general principles (including fundamental rights, values and ethical principles, environmental and labour standards, rules on classified information, intellectual property rights, visibility of funding and protection of personal data)

- for the submission of certificates under Article 24: to use either independent public officers or external auditors which comply with comparable standards as those set out in EU Directive 2006/43/EC

- for the controls under Article 25: to allow for the checks, reviews, audits and investigations by the bodies mentioned in that Article, taking into account the specific agreements concluded by them and the EU (if any).

For such participants, nothing in the Agreement will be interpreted as a waiver of their privileges or immunities, as accorded by their constituent documents or international law.

Special rules on applicable law and dispute settlement apply (see Article 43 and Data Sheet, Point 5).

10.3 Pillar-assessed participants

Pillar-assessed participants (if any) may rely on their own systems, rules and procedures, in so far as they have been positively assessed and do not call into question the decision awarding the grant or breach the principle of equal treatment of applicants or beneficiaries.

'Pillar-assessment' means a review by the European Commission on the systems, rules and procedures which participants use for managing EU grants (in particular internal control system, accounting system, external audits, financing of third parties, rules on recovery and exclusion, information on recipients and protection of personal data; see Article 154 EU Financial Regulation 2018/1046).

Participants with a positive pillar assessment may rely on their own systems, rules and procedures, in particular for:

- record-keeping (Article 20): may be done in accordance with internal standards, rules and procedures

- currency conversion for financial statements (Article 21): may be done in accordance with usual accounting practices

- guarantees (Article 23): for public law bodies, prefinancing guarantees are not needed

- certificates (Article 24):

    - certificates on the financial statements (CFS): may be provided by their regular internal or external auditors and in accordance with their internal financial regulations and procedures

    - certificates on usual accounting practices (CoMUC): are not needed if those practices are covered by an ex-ante assessment

and use the following specific rules, for:

- recoveries (Article 22): in case of financial support to third parties, there will be no recovery if the participant has done everything possible to retrieve the undue amounts from the third party receiving the support (including legal proceedings) and non-recovery is not due to an error or negligence on its part

- checks, reviews, audits and investigations by the EU (Article 25): will be conducted taking into account the rules and procedures specifically agreed between them and the framework agreement (if any)

- impact evaluation (Article 26): will be conducted in accordance with the participant's internal rules and procedures and the framework agreement (if any)

- grant agreement suspension (Article 31): certain costs incurred during grant suspension are eligible (notably, minimum costs necessary for a possible resumption of the action and costs relating to contracts which were entered into before the pre-information letter was received and which could not reasonably be suspended, reallocated or terminated on legal grounds)

- grant agreement termination (Article 32): the final grant amount and final payment will be calculated taking into account also costs relating to contracts due for execution only after termination takes effect, if the contract was entered into before the pre-information letter was received and could not reasonably be terminated on legal grounds

- liability for damages (Article 33.2): the granting authority must be compensated for damage it sustains as a result of the implementation of the action or because the action was not implemented in full compliance with the Agreement only if the damage is due to an infringement of the participant's internal rules and procedures or due to a violation of third parties' rights by the participant or one of its employees or individual for whom the employees are responsible.

Participants whose pillar assessment covers procurement and granting procedures may also do purchases, subcontracting and financial support to third parties (Article 6.2) in accordance with their internal rules and procedures for purchases, subcontracting and financial support.

Participants whose pillar assessment covers data protection rules may rely on their internal standards, rules and procedures for data protection (Article 15).

The participants may however not rely on provisions which would breach the principle of equal treatment of applicants or beneficiaries or call into question the decision awarding the grant, such as in particular:

- eligibility (Article 6)

- consortium roles and set-up (Articles 7-9)

- security and ethics (Articles 13, 14)

- IPR (including background and results, access rights and rights of use), communication, dissemination and visibility (Articles 16 and 17)

- information obligation (Article 19)

- payment, reporting and amendments (Articles 21, 22 and 39)

- rejections, reductions, suspensions and terminations (Articles 27, 28, 29-32)

If the pillar assessment was subject to remedial measures, reliance on the internal systems, rules and procedures is subject to compliance with those remedial measures.

Participants whose assessment has not yet been updated to cover (the new rules on) data protection may rely on their internal systems, rules and procedures, provided that they ensure that personal data is:

- processed lawfully, fairly and in a transparent manner in relation to the data subject
- collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes
- adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed
- accurate and, where necessary, kept up to date
- kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the data is processed and
- processed in a manner that ensures appropriate security of the personal data.

Participants must inform the coordinator without delay of any changes to the systems, rules and procedures that were part of the pillar assessment. The coordinator must immediately inform the granting authority.

Pillar-assessed participants that have also concluded a framework agreement with the EU, may moreover — under the same conditions as those above (i.e. not call into question the decision awarding the grant or breach the principle of equal treatment of applicants or beneficiaries) — rely on the provisions set out in that framework agreement.

SECTION 2 RULES FOR CARRYING OUT THE ACTION

ARTICLE 11 — PROPER IMPLEMENTATION OF THE ACTION

11.1 Obligation to properly implement the action

The beneficiaries must implement the action as described in Annex 1 and in compliance with the provisions of the Agreement, the call conditions and all legal obligations under applicable EU, international and national law.

11.2 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 12 — CONFLICT OF INTERESTS

12.1 Conflict of interests

The beneficiaries must take all measures to prevent any situation where the impartial and objective implementation of the Agreement could be compromised for reasons involving family, emotional life, political or national affinity, economic interest or any other direct or indirect interest (‘conflict of interests’).

They must formally notify the granting authority without delay of any situation constituting or likely to lead to a conflict of interests and immediately take all the necessary steps to rectify this situation.

The granting authority may verify that the measures taken are appropriate and may require additional measures to be taken by a specified deadline.

12.2 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28) and the grant or the beneficiary may be terminated (see Article 32).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 13 — CONFIDENTIALITY AND SECURITY

13.1 Sensitive information

The parties must keep confidential any data, documents or other material (in any form) that is identified as sensitive in writing (‘sensitive information’) — during the implementation of the action and for at least until the time-limit set out in the Data Sheet (see Point 6).

If a beneficiary requests, the granting authority may agree to keep such information confidential for a longer period.

Unless otherwise agreed between the parties, they may use sensitive information only to implement the Agreement.

The beneficiaries may disclose sensitive information to their personnel or other participants involved in the action only if they:

(a) need to know it in order to implement the Agreement and

(b) are bound by an obligation of confidentiality.

The granting authority may disclose sensitive information to its staff and to other EU institutions and bodies.

It may moreover disclose sensitive information to third parties, if:

(a) this is necessary to implement the Agreement or safeguard the EU financial interests and

(b) the recipients of the information are bound by an obligation of confidentiality.

The confidentiality obligations no longer apply if:

(a) the disclosing party agrees to release the other party

(b) the information becomes publicly available, without breaching any confidentiality obligation

(c) the disclosure of the sensitive information is required by EU, international or national law.

Specific confidentiality rules (if any) are set out in Annex 5.

13.2 Classified information

The parties must handle classified information in accordance with the applicable EU, international or national law on classified information (in particular, Decision 2015/444[14] and its implementing rules).

Deliverables which contain classified information must be submitted according to special procedures agreed with the granting authority.

Action tasks involving classified information may be subcontracted only after explicit approval (in writing) from the granting authority.

Classified information may not be disclosed to any third party (including participants involved in the action implementation) without prior explicit written approval from the granting authority.

Specific security rules (if any) are set out in Annex 5.

13.3 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 14 — ETHICS AND VALUES

14.1 Ethics

The action must be carried out in line with the highest ethical standards and the applicable EU, international and national law on ethical principles.

Specific ethics rules (if any) are set out in Annex 5.

14.2 Values

The beneficiaries must commit to and ensure the respect of basic EU values (such as respect for human dignity, freedom, democracy, equality, the rule of law and human rights, including the rights of minorities).

Specific rules on values (if any) are set out in Annex 5.

14.3 Consequences of non-compliance

[14] Commission Decision 2015/444/EC, Euratom of 13 March 2015 on the security rules for protecting EU classified information (OJ L 72, 17.3.2015, p. 53).

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 15 — DATA PROTECTION

15.1 Data processing by the granting authority

Any personal data under the Agreement will be processed under the responsibility of the data controller of the granting authority in accordance with and for the purposes set out in the Portal Privacy Statement.

For grants where the granting authority is the European Commission, an EU regulatory or executive agency, joint undertaking or other EU body, the processing will be subject to Regulation 2018/1725[15].

15.2 Data processing by the beneficiaries

The beneficiaries must process personal data under the Agreement in compliance with the applicable EU, international and national law on data protection (in particular, Regulation 2016/679[16]).

They must ensure that personal data is:

- processed lawfully, fairly and in a transparent manner in relation to the data subjects
- collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes
- adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed
- accurate and, where necessary, kept up to date
- kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the data is processed and
- processed in a manner that ensures appropriate security of the data.

The beneficiaries may grant their personnel access to personal data only if it is strictly necessary for implementing, managing and monitoring the Agreement. The beneficiaries must ensure that the personnel is under a confidentiality obligation.

The beneficiaries must inform the persons whose data are transferred to the granting authority and provide them with the Portal Privacy Statement.

[15] Regulation (EU) 2018/1725 of the European Parliament and of the Council of 23 October 2018 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data, and repealing Regulation (EC) No 45/2001 and Decision No 1247/2002/EC (OJ L 295, 21.11.2018, p. 39).

[16] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (‘GDPR’) (OJ L 119, 4.5.2016, p. 1).

15.3 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 16 — INTELLECTUAL PROPERTY RIGHTS (IPR) — BACKGROUND AND RESULTS —ACCESS RIGHTS AND RIGHTS OF USE

16.1 Background and access rights to background

The beneficiaries must give each other and the other participants access to the background identified as needed for implementing the action, subject to any specific rules in Annex 5.

'Background' means any data, know-how or information — whatever its form or nature (tangible or intangible), including any rights such as intellectual property rights — that is:

(a) held by the beneficiaries before they acceded to the Agreement and

(b) needed to implement the action or exploit the results.

If background is subject to rights of a third party, the beneficiary concerned must ensure that it is able to comply with its obligations under the Agreement.

16.2 Ownership of results

The granting authority does not obtain ownership of the results produced under the action.

'Results' means any tangible or intangible effect of the action, such as data, know-how or information, whatever its form or nature, whether or not it can be protected, as well as any rights attached to it, including intellectual property rights.

16.3 Rights of use of the granting authority on materials, documents and information received for policy, information, communication, dissemination and publicity purposes

The granting authority has the right to use non-sensitive information relating to the action and materials and documents received from the beneficiaries (notably summaries for publication, deliverables, as well as any other material, such as pictures or audio-visual material, in paper or electronic form) for policy, information, communication, dissemination and publicity purposes — during the action or afterwards.

The right to use the beneficiaries' materials, documents and information is granted in the form of a royalty-free, non-exclusive and irrevocable licence, which includes the following rights:

(a) **use for its own purposes** (in particular, making them available to persons working for the granting authority or any other EU service (including institutions, bodies, offices, agencies, etc.) or EU Member State institution or body; copying or reproducing them in whole or in part, in unlimited numbers; and communication through press information services)

(b) **distribution to the public** (in particular, publication as hard copies and in electronic or digital format, publication on the internet, as a downloadable or non-downloadable file, broadcasting

by any channel, public display or presentation, communicating through press information services, or inclusion in widely accessible databases or indexes)

(c) **editing or redrafting** (including shortening, summarising, inserting other elements (e.g. meta-data, legends, other graphic, visual, audio or text elements), extracting parts (e.g. audio or video files), dividing into parts, use in a compilation)

(d) **translation**

(e) **storage** in paper, electronic or other form

(f) **archiving**, in line with applicable document-management rules

(g) the right to authorise **third parties** to act on its behalf or sub-license to third parties the modes of use set out in Points (b), (c), (d) and (f), if needed for the information, communication and publicity activity of the granting authority

(h) **processing**, analysing, aggregating the materials, documents and information received and **producing derivative works**.

The rights of use are granted for the whole duration of the industrial or intellectual property rights concerned.

If materials or documents are subject to moral rights or third party rights (including intellectual property rights or rights of natural persons on their image and voice), the beneficiaries must ensure that they comply with their obligations under this Agreement (in particular, by obtaining the necessary licences and authorisations from the rights holders concerned).

Where applicable, the granting authority will insert the following information:

"© – [year] – [name of the copyright owner]. All rights reserved. Licensed to the [name of granting authority] under conditions."

16.4 Specific rules on IPR, results and background

Specific rules regarding intellectual property rights, results and background (if any) are set out in Annex 5.

16.5 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such a breach may also lead to other measures described in Chapter 5.

ARTICLE 17 — COMMUNICATION, DISSEMINATION AND VISIBILITY

17.1 Communication — Dissemination — Promoting the action

Unless otherwise agreed with the granting authority, the beneficiaries must promote the action and its results by providing targeted information to multiple audiences (including the media and the public), in accordance with Annex 1 and in a strategic, coherent and effective manner.

Before engaging in a communication or dissemination activity expected to have a major media impact, the beneficiaries must inform the granting authority.

17.2 Visibility — European flag and funding statement

Unless otherwise agreed with the granting authority, communication activities of the beneficiaries related to the action (including media relations, conferences, seminars, information material, such as brochures, leaflets, posters, presentations, etc., in electronic form, via traditional or social media, etc.), dissemination activities and any infrastructure, equipment, vehicles, supplies or major result funded by the grant must acknowledge EU support and display the European flag (emblem) and funding statement (translated into local languages, where appropriate):

The emblem must remain distinct and separate and cannot be modified by adding other visual marks, brands or text.

Apart from the emblem, no other visual identity or logo may be used to highlight the EU support.

When displayed in association with other logos (e.g. of beneficiaries or sponsors), the emblem must be displayed at least as prominently and visibly as the other logos.

For the purposes of their obligations under this Article, the beneficiaries may use the emblem without first obtaining approval from the granting authority. This does not, however, give them the right to exclusive use. Moreover, they may not appropriate the emblem or any similar trademark or logo, either by registration or by any other means.

17.3 Quality of information — Disclaimer

Any communication or dissemination activity related to the action must use factually accurate information.

Moreover, it must indicate the following disclaimer (translated into local languages where appropriate):

> "Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or [name of the granting authority]. Neither the European Union nor the granting authority can be held responsible for them."

17.4 Specific communication, dissemination and visibility rules

Specific communication, dissemination and visibility rules (if any) are set out in Annex 5.

17.5 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 18 — SPECIFIC RULES FOR CARRYING OUT THE ACTION

18.1 Specific rules for carrying out the action

Specific rules for implementing the action (if any) are set out in Annex 5.

18.2 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such a breach may also lead to other measures described in Chapter 5.

SECTION 3 GRANT ADMINISTRATION

ARTICLE 19 — GENERAL INFORMATION OBLIGATIONS

19.1 Information requests

The beneficiaries must provide — during the action or afterwards and in accordance with Article 7 — any information requested in order to verify eligibility of the costs or contributions declared, proper implementation of the action and compliance with the other obligations under the Agreement.

The information provided must be accurate, precise and complete and in the format requested, including electronic format.

19.2 Participant Register data updates

The beneficiaries must keep — at all times, during the action or afterwards — their information stored in the Portal Participant Register up to date, in particular, their name, address, legal representatives, legal form and organisation type.

19.3 Information about events and circumstances which impact the action

The beneficiaries must immediately inform the granting authority (and the other beneficiaries) of any of the following:

(a) **events** which are likely to affect or delay the implementation of the action or affect the EU's financial interests, in particular:

(i) changes in their legal, financial, technical, organisational or ownership situation (including changes linked to one of the exclusion grounds listed in the declaration of honour signed before grant signature)

(ii) linked action information: not applicable

(b) **circumstances** affecting:

(i) the decision to award the grant or

(ii) compliance with requirements under the Agreement.

19.4 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 20 — RECORD-KEEPING

20.1 Keeping records and supporting documents

The beneficiaries must — at least until the time-limit set out in the Data Sheet (see Point 6) — keep records and other supporting documents to prove the proper implementation of the action in line with the accepted standards in the respective field (if any).

In addition, the beneficiaries must — for the same period — keep the following to justify the amounts declared:

(a) for actual costs: adequate records and supporting documents to prove the costs declared (such as contracts, subcontracts, invoices and accounting records); in addition, the beneficiaries' usual accounting and internal control procedures must enable direct reconciliation between the amounts declared, the amounts recorded in their accounts and the amounts stated in the supporting documents

(b) for flat-rate costs and contributions (if any): adequate records and supporting documents to prove the eligibility of the costs or contributions to which the flat-rate is applied

(c) for the following simplified costs and contributions: the beneficiaries do not need to keep specific records on the actual costs incurred, but must keep:

(i) for unit costs and contributions (if any): adequate records and supporting documents to prove the number of units declared

(ii) for lump sum costs and contributions (if any): adequate records and supporting documents to prove proper implementation of the work as described in Annex 1

(iii) for financing not linked to costs (if any): adequate records and supporting documents to prove the achievement of the results or the fulfilment of the conditions as described in Annex 1

(d) for unit, flat-rate and lump sum costs and contributions according to usual cost accounting practices (if any): the beneficiaries must keep any adequate records and supporting documents to prove that their cost accounting practices have been applied in a consistent manner, based on objective criteria, regardless of the source of funding, and that they comply with the eligibility conditions set out in Articles 6.1 and 6.2.

Moreover, the following is needed for specific budget categories:

(e) for personnel costs: time worked for the beneficiary under the action must be supported by declarations signed monthly by the person and their supervisor, unless another reliable time-record system is in place; the granting authority may accept alternative evidence supporting the time worked for the action declared, if it considers that it offers an adequate level of assurance

(f) additional record-keeping rules: not applicable

The records and supporting documents must be made available upon request (see Article 19) or in the context of checks, reviews, audits or investigations (see Article 25).

If there are on-going checks, reviews, audits, investigations, litigation or other pursuits of claims under the Agreement (including the extension of findings; see Article 25), the beneficiaries must keep these records and other supporting documentation until the end of these procedures.

The beneficiaries must keep the original documents. Digital and digitalised documents are considered originals if they are authorised by the applicable national law. The granting authority may accept non-original documents if they offer a comparable level of assurance.

20.2 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, costs or contributions insufficiently substantiated will be ineligible (see Article 6) and will be rejected (see Article 27), and the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 21 — REPORTING

21.1 Continuous reporting

The beneficiaries must continuously report on the progress of the action (e.g. **deliverables, milestones, outputs/outcomes, critical risks, indicators,** etc; if any), in the Portal Continuous Reporting tool and in accordance with the timing and conditions it sets out (as agreed with the granting authority).

Standardised deliverables (e.g. progress reports not linked to payments, reports on cumulative expenditure, special reports, etc; if any) must be submitted using the templates published on the Portal.

21.2 Periodic reporting: Technical reports and financial statements

In addition, the beneficiaries must provide reports to request payments, in accordance with the schedule and modalities set out in the Data Sheet (see Point 4.2):

- for additional prefinancings (if any): an **additional prefinancing report**
- for interim payments (if any) and the final payment: a **periodic report**.

The prefinancing and periodic reports include a technical and financial part.

The technical part includes an overview of the action implementation. It must be prepared using the template available in the Portal Periodic Reporting tool.

The financial part of the additional prefinancing report includes a statement on the use of the previous prefinancing payment.

The financial part of the periodic report includes:

- the financial statements (individual and consolidated; for all beneficiaries/affiliated entities)
- the explanation on the use of resources (or detailed cost reporting table, if required)
- the certificates on the financial statements (CFS) (if required; see Article 24.2 and Data Sheet, Point 4.3).

The **financial statements** must detail the eligible costs and contributions for each budget category and, for the final payment, also the revenues for the action (see Articles 6 and 22).

All eligible costs and contributions incurred should be declared, even if they exceed the amounts indicated in the estimated budget (see Annex 2). Amounts that are not declared in the individual financial statements will not be taken into account by the granting authority.

By signing the financial statements (directly in the Portal Periodic Reporting tool), the beneficiaries confirm that:

- the information provided is complete, reliable and true
- the costs and contributions declared are eligible (see Article 6)
- the costs and contributions can be substantiated by adequate records and supporting documents (see Article 20) that will be produced upon request (see Article 19) or in the context of checks, reviews, audits and investigations (see Article 25)
- for the final periodic report: all the revenues have been declared (if required; see Article 22).

Beneficiaries will have to submit also the financial statements of their affiliated entities (if any). In case of recoveries (see Article 22), beneficiaries will be held responsible also for the financial statements of their affiliated entities.

21.3 Currency for financial statements and conversion into euros

The financial statements must be drafted in euro.

Beneficiaries with general accounts established in a currency other than the euro must convert the costs recorded in their accounts into euro, at the average of the daily exchange rates published in the C series of the *Official Journal of the European Union* (ECB website), calculated over the corresponding reporting period.

If no daily euro exchange rate is published in the *Official Journal* for the currency in question, they must be converted at the average of the monthly accounting exchange rates published on the European Commission website (InforEuro), calculated over the corresponding reporting period.

Beneficiaries with general accounts in euro must convert costs incurred in another currency into euro according to their usual accounting practices.

21.4 Reporting language

The reporting must be in the language of the Agreement, unless otherwise agreed with the granting authority (see Data Sheet, Point 4.2).

21.5 Consequences of non-compliance

If a report submitted does not comply with this Article, the granting authority may suspend the payment deadline (see Article 29) and apply other measures described in Chapter 5.

If the coordinator breaches its reporting obligations, the granting authority may terminate the grant or the coordinator's participation (see Article 32) or apply other measures described in Chapter 5.

ARTICLE 22 — PAYMENTS AND RECOVERIES — CALCULATION OF AMOUNTS DUE

22.1 Payments and payment arrangements

Payments will be made in accordance with the schedule and modalities set out in the Data Sheet (see Point 4.2).

They will be made in euro to the bank account indicated by the coordinator (see Data Sheet, Point 4.2) and must be distributed without unjustified delay (restrictions may apply to distribution of the initial prefinancing payment; see Data Sheet, Point 4.2).

Payments to this bank account will discharge the granting authority from its payment obligation.

The cost of payment transfers will be borne as follows:

- the granting authority bears the cost of transfers charged by its bank
- the beneficiary bears the cost of transfers charged by its bank
- the party causing a repetition of a transfer bears all costs of the repeated transfer.

Payments by the granting authority will be considered to have been carried out on the date when they are debited to its account.

22.2 Recoveries

Recoveries will be made, if — at beneficiary termination, final payment or afterwards — it turns out that the granting authority has paid too much and needs to recover the amounts undue.

Each beneficiary's financial responsibility in case of recovery is in principle limited to their own debt and undue amounts of their affiliated entities.

In case of enforced recoveries (see Article 22.4), affiliated entities will be held liable for repaying debts of their beneficiaries, if required by the granting authority (see Data Sheet, Point 4.4).

22.3 Amounts due

22.3.1 Prefinancing payments

The aim of the prefinancing is to provide the beneficiaries with a float.

It remains the property of the EU until the final payment.

For **initial prefinancings** (if any), the amount due, schedule and modalities are set out in the Data Sheet (see Point 4.2).

For **additional prefinancings** (if any), the amount due, schedule and modalities are also set out in the Data Sheet (see Point 4.2). However, if the statement on the use of the previous prefinancing payment shows that less than 70% was used, the amount set out in the Data Sheet will be reduced by the difference between the 70% threshold and the amount used.

The contribution to the Mutual Insurance Mechanism will be retained from the prefinancing payments (at the rate and in accordance with the modalities set out in the Data Sheet, see Point 4.2) and transferred to the Mechanism.

Prefinancing payments (or parts of them) may be offset (without the beneficiaries' consent) against amounts owed by a beneficiary to the granting authority — up to the amount due to that beneficiary.

For grants where the granting authority is the European Commission or an EU executive agency, offsetting may also be done against amounts owed to other Commission services or executive agencies.

Payments will not be made if the payment deadline or payments are suspended (see Articles 29 and 30).

22.3.2 Amount due at beneficiary termination — Recovery

In case of beneficiary termination, the granting authority will determine the provisional amount due for the beneficiary concerned. Payments (if any) will be made with the next interim or final payment.

The **amount due** will be calculated in the following step:

Step 1 — Calculation of the total accepted EU contribution

Step 1 — Calculation of the total accepted EU contribution

The granting authority will first calculate the 'accepted EU contribution' for the beneficiary for all reporting periods, by calculating the 'maximum EU contribution to costs' (applying the funding rate to the accepted costs of the beneficiary), taking into account requests for a lower contribution to costs and CFS threshold cappings (if any; see Article 24.5) and adding the contributions (accepted unit, flat-rate or lump sum contributions and financing not linked to costs, if any).

After that, the granting authority will take into account grant reductions (if any). The resulting amount is the 'total accepted EU contribution' for the beneficiary.

The **balance** is then calculated by deducting the payments received (if any; see report on the distribution of payments in Article 32), from the total accepted EU contribution:

{total accepted EU contribution for the beneficiary

minus

{prefinancing and interim payments received (if any)}}.

If the balance is **positive**, the amount will be included in the next interim or final payment to the consortium.

If the balance is **negative**, it will be **recovered** in accordance with the following procedure:

The granting authority will send a **pre-information letter** to the beneficiary concerned:

- formally notifying the intention to recover, the amount due, the amount to be recovered and the reasons why and
- requesting observations within 30 days of receiving notification.

If no observations are submitted (or the granting authority decides to pursue recovery despite the observations it has received), it will confirm the amount to be recovered and ask this amount to be paid to the coordinator (**confirmation letter**).

If payment is not made to the coordinator by the date specified in the confirmation letter, the granting authority may call on the Mutual Insurance Mechanism to intervene, if continuation of the action is guaranteed and the conditions set out in the rules governing the Mechanism are met.

In this case, it will send a **beneficiary recovery letter**, together with a **debit note** with the terms and date for payment.

The debit note for the beneficiary will include the amount calculated for the affiliated entities which also had to end their participation (if any).

If payment is not made by the date specified in the debit note, the granting authority will **enforce recovery** in accordance with Article 22.4.

The amounts will later on also be taken into account for the next interim or final payment.

22.3.3 Interim payments

Interim payments reimburse the eligible costs and contributions claimed for the implementation of the action during the reporting periods (if any).

Interim payments (if any) will be made in accordance with the schedule and modalities set out the Data Sheet (see Point 4.2).

Payment is subject to the approval of the periodic report. Its approval does not imply recognition of compliance, authenticity, completeness or correctness of its content.

The **interim payment** will be calculated by the granting authority in the following steps:

Step 1 — Calculation of the total accepted EU contribution

Step 2 — Limit to the interim payment ceiling

Step 1 — Calculation of the total accepted EU contribution

The granting authority will calculate the 'accepted EU contribution' for the action for the reporting period, by first calculating the 'maximum EU contribution to costs' (applying the funding rate to the accepted costs of each beneficiary), taking into account requests for a lower contribution to costs, and CFS threshold cappings (if any; see Article 24.5) and adding the contributions (accepted unit, flat-rate or lump sum contributions and financing not linked to costs, if any).

After that, the granting authority will take into account grant reductions from beneficiary termination (if any). The resulting amount is the 'total accepted EU contribution'.

Step 2 — Limit to the interim payment ceiling

The resulting amount is then capped to ensure that the total amount of prefinancing and interim payments (if any) does not exceed the interim payment ceiling set out in the Data Sheet (see Point 4.2).

Interim payments (or parts of them) may be offset (without the beneficiaries' consent) against amounts owed by a beneficiary to the granting authority — up to the amount due to that beneficiary.

For grants where the granting authority is the European Commission or an EU executive agency, offsetting may also be done against amounts owed to other Commission services or executive agencies.

Payments will not be made if the payment deadline or payments are suspended (see Articles 29 and 30).

22.3.4 Final payment — Final grant amount — Revenues and Profit — Recovery

The final payment (payment of the balance) reimburses the remaining part of the eligible costs and contributions claimed for the implementation of the action (if any).

The final payment will be made in accordance with the schedule and modalities set out in the Data Sheet (see Point 4.2).

Payment is subject to the approval of the final periodic report. Its approval does not imply recognition of compliance, authenticity, completeness or correctness of its content.

The **final grant amount for the action** will be calculated in the following steps:

Step 1 — Calculation of the total accepted EU contribution

Step 2 — Limit to the maximum grant amount

Step 3 — Reduction due to the no-profit rule

Step 1 — Calculation of the total accepted EU contribution

The granting authority will first calculate the 'accepted EU contribution' for the action for all reporting periods, by calculating the 'maximum EU contribution to costs' (applying the funding rate to the total accepted costs of each beneficiary), taking into account requests for a lower contribution to costs, CFS threshold cappings (if any; see Article 24.5) and adding the contributions (accepted unit, flat-rate or lump sum contributions and financing not linked to costs, if any).

After that, the granting authority will take into account grant reductions (if any). The resulting amount is the 'total accepted EU contribution'.

Step 2 — Limit to the maximum grant amount

If the resulting amount is higher than the maximum grant amount set out in Article 5.2, it will be limited to the latter.

Step 3 — Reduction due to the no-profit rule

If the no-profit rule is provided for in the Data Sheet (see Point 4.2), the grant must not produce a profit (i.e. surplus of the amount obtained following Step 2 plus the action's revenues, over the eligible costs and contributions approved by the granting authority).

'Revenue' is all income generated by the action, during its duration (see Article 4), for beneficiaries that are profit legal entities (— with the exception of income generated by the exploitation of results, which are not considered as revenues).

If there is a profit, it will be deducted in proportion to the final rate of reimbursement of the eligible costs approved by the granting authority (as compared to the amount calculated following Steps 1 and 2 minus the contributions).

The **balance** (final payment) is then calculated by deducting the total amount of prefinancing and interim payments already made (if any), from the final grant amount:

{final grant amount

minus

{prefinancing and interim payments made (if any)}}.

If the balance is **positive**, it will be **paid** to the coordinator.

The amount retained for the Mutual Insurance Mechanism (see above) will be released and **paid** to the coordinator (in accordance with the rules governing the Mechanism).

The final payment (or part of it) may be offset (without the beneficiaries' consent) against amounts owed by a beneficiary to the granting authority — up to the amount due to that beneficiary.

For grants where the granting authority is the European Commission or an EU executive agency,

offsetting may also be done against amounts owed to other Commission services or executive agencies.

Payments will not be made if the payment deadline or payments are suspended (see Articles 29 and 30).

If — despite the release of the Mutual Insurance Mechanism contribution — the balance is **negative**, it will be **recovered** in accordance with the following procedure:

The granting authority will send a **pre-information letter** to the coordinator:

- formally notifying the intention to recover, the final grant amount, the amount to be recovered and the reasons why
- requesting a report on the distribution of payments to the beneficiaries within 30 days of receiving notification and
- requesting observations within 30 days of receiving notification.

If no observations are submitted (or the granting authority decides to pursue recovery despite the observations it has received) and the coordinator has submitted the report on the distribution of payments, it will calculate the **share of the debt per beneficiary**, by:

(a) identifying the beneficiaries for which the amount calculated as follows is negative:

{{{total accepted EU contribution for the beneficiary

divided by

total accepted EU contribution for the action}

multiplied by

final grant amount for the action},

minus

{prefinancing and interim payments received by the beneficiary (if any)}}

and

(b) dividing the debt:

{{amount calculated according to point (a) for the beneficiary concerned

divided by

the sum of the amounts calculated according to point (a) for all the beneficiaries identified according to point (a)}

multiplied by

the amount to be recovered}.

and confirm the amount to be recovered from each beneficiary concerned (**confirmation letter**), together with **debit notes** with the terms and date for payment.

The debit notes for beneficiaries will include the amounts calculated for their affiliated entities (if any).

If the coordinator has not submitted the report on the distribution of payments, the granting authority will **recover** the full amount from the coordinator (**confirmation letter** and **debit note** with the terms and date for payment).

If payment is not made by the date specified in the debit note, the granting authority will **enforce recovery** in accordance with Article 22.4.

22.3.5 Audit implementation after final payment — Revised final grant amount — Recovery

If — after the final payment (in particular, after checks, reviews, audits or investigations; see Article 25) — the granting authority rejects costs or contributions (see Article 27) or reduces the grant (see Article 28), it will calculate the **revised final grant amount** for the beneficiary concerned.

The **beneficiary revised final grant amount** will be calculated in the following step:

Step 1 — Calculation of the revised total accepted EU contribution

Step 1 — Calculation of the revised total accepted EU contribution

The granting authority will first calculate the 'revised accepted EU contribution' for the beneficiary, by calculating the 'revised accepted costs' and 'revised accepted contributions'.

After that, it will take into account grant reductions (if any). The resulting 'revised total accepted EU contribution' is the beneficiary revised final grant amount.

If the revised final grant amount is lower than the beneficiary's final grant amount (i.e. its share in the final grant amount for the action), it will be **recovered** in accordance with the following procedure:

The **beneficiary final grant amount** (i.e. share in the final grant amount for the action) is calculated as follows:

{{total accepted EU contribution for the beneficiary

divided by

total accepted EU contribution for the action}

multiplied by

final grant amount for the action}.

The granting authority will send a **pre-information letter** to the beneficiary concerned:

- formally notifying the intention to recover, the amount to be recovered and the reasons why and
- requesting observations within 30 days of receiving notification.

If no observations are submitted (or the granting authority decides to pursue recovery despite the observations it has received), it will confirm the amount to be recovered (**confirmation letter**), together with a **debit note** with the terms and the date for payment.

Recoveries against affiliated entities (if any) will be handled through their beneficiaries.

If payment is not made by the date specified in the debit note, the granting authority will **enforce recovery** in accordance with Article 22.4.

22.4 Enforced recovery

If payment is not made by the date specified in the debit note, the amount due will be recovered:

(a) by offsetting the amount — without the coordinator or beneficiary's consent — against any amounts owed to the coordinator or beneficiary by the granting authority.

In exceptional circumstances, to safeguard the EU financial interests, the amount may be offset before the payment date specified in the debit note.

For grants where the granting authority is the European Commission or an EU executive agency, debts may also be offset against amounts owed by other Commission services or executive agencies.

(b) financial guarantee(s): not applicable

(c) joint and several liability of beneficiaries: not applicable

(d) by holding affiliated entities jointly and severally liable (if any, see Data Sheet, Point 4.4)

(e) by taking legal action (see Article 43) or, provided that the granting authority is the European Commission or an EU executive agency, by adopting an enforceable decision under Article 299 of the Treaty on the Functioning of the EU (TFEU) and Article 100(2) of EU Financial Regulation 2018/1046.

If the Mutual Insurance Mechanism was called on by the granting authority to intervene, recovery will be continued in the name of the Mutual Insurance Mechanism. If two debit notes were sent, the second one (in the name of the Mutual Insurance Mechanism) will be considered to replace the first one (in the name of the granting authority). Where the MIM intervened, offsetting, enforceable decisions or any other of the above-mentioned forms of enforced recovery may be used mutatis mutandis.

The amount to be recovered will be increased by **late-payment interest** at the rate set out in Article 22.5, from the day following the payment date in the debit note, up to and including the date the full payment is received.

Partial payments will be first credited against expenses, charges and late-payment interest and then against the principal.

Bank charges incurred in the recovery process will be borne by the beneficiary, unless Directive 2015/2366[17] applies.

For grants where the granting authority is an EU executive agency, enforced recovery by offsetting or enforceable decision will be done by the services of the European Commission (see also Article 43).

22.5 Consequences of non-compliance

[17] Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC (OJ L 337, 23.12.2015, p. 35).

22.5.1 If the granting authority does not pay within the payment deadlines (see above), the beneficiaries are entitled to **late-payment interest** at the rate applied by the European Central Bank (ECB) for its main refinancing operations in euros ('reference rate'), plus the rate specified in the Data Sheet (Point 4.2). The reference rate is the rate in force on the first day of the month in which the payment deadline expires, as published in the C series of the *Official Journal of the European Union*.

If the late-payment interest is lower than or equal to EUR 200, it will be paid to the coordinator only on request submitted within two months of receiving the late payment.

Late-payment interest is not due if all beneficiaries are EU Member States (including regional and local government authorities or other public bodies acting on behalf of a Member State for the purpose of this Agreement).

If payments or the payment deadline are suspended (see Articles 29 and 30), payment will not be considered as late.

Late-payment interest covers the period running from the day following the due date for payment (see above), up to and including the date of payment.

Late-payment interest is not considered for the purposes of calculating the final grant amount.

22.5.2 If the coordinator breaches any of its obligations under this Article, the grant may be reduced (see Article 28) and the grant or the coordinator may be terminated (see Article 32).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 23 — GUARANTEES

Not applicable

ARTICLE 24 — CERTIFICATES

24.1 Operational verification report (OVR)

Not applicable

24.2 Certificate on the financial statements (CFS)

If required by the granting authority (see Data Sheet, Point 4.3), the beneficiaries must provide certificates on their financial statements (CFS), in accordance with the schedule, threshold and conditions set out in the Data Sheet.

The coordinator must submit them as part of the periodic report (see Article 21).

The certificates must be drawn up using the template published on the Portal, cover the costs declared on the basis of actual costs and costs according to usual cost accounting practices (if any), and fulfil the following conditions:

(a) be provided by a qualified approved external auditor which is independent and complies with Directive 2006/43/EC[18] (or for public bodies: by a competent independent public officer)

(b) the verification must be carried out according to the highest professional standards to ensure that the financial statements comply with the provisions under the Agreement and that the costs declared are eligible.

The certificates will not affect the granting authority's right to carry out its own checks, reviews or audits, nor preclude the European Court of Auditors (ECA), the European Public Prosecutor's Office (EPPO) or the European Anti-Fraud Office (OLAF) from using their prerogatives for audits and investigations under the Agreement (see Article 25).

If the costs (or a part of them) were already audited by the granting authority, these costs do not need to be covered by the certificate and will not be counted for calculating the threshold (if any).

24.3 Certificate on the compliance of usual cost accounting practices (CoMUC)

Not applicable

24.4 Systems and process audit (SPA)

Beneficiaries which:

- use unit, flat rate or lump sum costs or contributions according to documented (i.e. formally approved and in writing) usual costs accounting practices (if any) or

- have formalised documentation on the systems and processes for calculating their costs and contributions (i.e. formally approved and in writing), have participated in at least 150 actions under Horizon 2020 or the Euratom Research and Training Programme (2014-2018 or 2019-2020) and participate in at least 3 ongoing actions under Horizon Europe or the Euratom Research and Training Programme (2021-2025 or 2026-2027)

may apply to the granting authority for a systems and process audit (SPA).

This audit will be carried out as follows:

Step 1 – Application by the beneficiary.

Step 2 – If the application is accepted, the granting authority will carry out the systems and process audit, complemented by an audit of transactions (on a sample of the beneficiary's Horizon Europe or the Euratom Research and Training Programme financial statements).

Step 3 – The audit result will take the form of a risk assessment classification for the beneficiary: low, medium or high.

Low-risk beneficiaries will benefit from less (or less in-depth) ex-post audits (see Article 25) and a higher threshold for submitting certificates on the financial statements (CFS; see Articles 21 and 24.2 and Data Sheet, Point 4.3).

[18] Directive 2006/43/EC of the European Parliament and of the Council of 17 May 2006 on statutory audits of annual accounts and consolidated accounts or similar national regulations (OJ L 157, 9.6.2006, p. 87).

24.5 Consequences of non-compliance

If a beneficiary does not submit a certificate on the financial statements (CFS) or the certificate is rejected, the accepted EU contribution to costs will be capped to reflect the CFS threshold.

If a beneficiary breaches any of its other obligations under this Article, the granting authority may apply the measures described in Chapter 5.

ARTICLE 25 — CHECKS, REVIEWS, AUDITS AND INVESTIGATIONS — EXTENSION OF FINDINGS

25.1 Granting authority checks, reviews and audits

25.1.1 Internal checks

The granting authority may — during the action or afterwards — check the proper implementation of the action and compliance with the obligations under the Agreement, including assessing costs and contributions, deliverables and reports.

25.1.2 Project reviews

The granting authority may carry out reviews on the proper implementation of the action and compliance with the obligations under the Agreement (general project reviews or specific issues reviews).

Such project reviews may be started during the implementation of the action and until the time-limit set out in the Data Sheet (see Point 6). They will be formally notified to the coordinator or beneficiary concerned and will be considered to start on the date of the notification.

If needed, the granting authority may be assisted by independent, outside experts. If it uses outside experts, the coordinator or beneficiary concerned will be informed and have the right to object on grounds of commercial confidentiality or conflict of interest.

The coordinator or beneficiary concerned must cooperate diligently and provide — within the deadline requested — any information and data in addition to deliverables and reports already submitted (including information on the use of resources). The granting authority may request beneficiaries to provide such information to it directly. Sensitive information and documents will be treated in accordance with Article 13.

The coordinator or beneficiary concerned may be requested to participate in meetings, including with the outside experts.

For **on-the-spot visits**, the beneficiary concerned must allow access to sites and premises (including to the outside experts) and must ensure that information requested is readily available.

Information provided must be accurate, precise and complete and in the format requested, including electronic format.

On the basis of the review findings, a **project review report** will be drawn up.

The granting authority will formally notify the project review report to the coordinator or beneficiary concerned, which has 30 days from receiving notification to make observations.

Project reviews (including project review reports) will be in the language of the Agreement.

25.1.3 Audits

The granting authority may carry out audits on the proper implementation of the action and compliance with the obligations under the Agreement.

Such audits may be started during the implementation of the action and until the time-limit set out in the Data Sheet (see Point 6). They will be formally notified to the beneficiary concerned and will be considered to start on the date of the notification.

The granting authority may use its own audit service, delegate audits to a centralised service or use external audit firms. If it uses an external firm, the beneficiary concerned will be informed and have the right to object on grounds of commercial confidentiality or conflict of interest.

The beneficiary concerned must cooperate diligently and provide — within the deadline requested — any information (including complete accounts, individual salary statements or other personal data) to verify compliance with the Agreement. Sensitive information and documents will be treated in accordance with Article 13.

For **on-the-spot** visits, the beneficiary concerned must allow access to sites and premises (including for the external audit firm) and must ensure that information requested is readily available.

Information provided must be accurate, precise and complete and in the format requested, including electronic format.

On the basis of the audit findings, a **draft audit report** will be drawn up.

The auditors will formally notify the draft audit report to the beneficiary concerned, which has 30 days from receiving notification to make observations (contradictory audit procedure).

The **final audit report** will take into account observations by the beneficiary concerned and will be formally notified to them.

Audits (including audit reports) will be in the language of the Agreement.

25.2 European Commission checks, reviews and audits in grants of other granting authorities

Where the granting authority is not the European Commission, the latter has the same rights of checks, reviews and audits as the granting authority.

25.3 Access to records for assessing simplified forms of funding

The beneficiaries must give the European Commission access to their statutory records for the periodic assessment of simplified forms of funding which are used in EU programmes.

25.4 OLAF, EPPO and ECA audits and investigations

The following bodies may also carry out checks, reviews, audits and investigations — during the action or afterwards:

- the European Anti-Fraud Office (OLAF) under Regulations No 883/2013[19] and No 2185/96[20]

- the European Public Prosecutor's Office (EPPO) under Regulation 2017/1939

- the European Court of Auditors (ECA) under Article 287 of the Treaty on the Functioning of the EU (TFEU) and Article 257 of EU Financial Regulation 2018/1046.

If requested by these bodies, the beneficiary concerned must provide full, accurate and complete information in the format requested (including complete accounts, individual salary statements or other personal data, including in electronic format) and allow access to sites and premises for on-the-spot visits or inspections — as provided for under these Regulations.

To this end, the beneficiary concerned must keep all relevant information relating to the action, at least until the time-limit set out in the Data Sheet (Point 6) and, in any case, until any ongoing checks, reviews, audits, investigations, litigation or other pursuits of claims have been concluded.

25.5 Consequences of checks, reviews, audits and investigations — Extension of results of reviews, audits or investigations

25.5.1 Consequences of checks, reviews, audits and investigations in this grant

Findings in checks, reviews, audits or investigations carried out in the context of this grant may lead to rejections (see Article 27), grant reduction (see Article 28) or other measures described in Chapter 5.

Rejections or grant reductions after the final payment will lead to a revised final grant amount (see Article 22).

Findings in checks, reviews, audits or investigations during the action implementation may lead to a request for amendment (see Article 39), to change the description of the action set out in Annex 1.

Checks, reviews, audits or investigations that find systemic or recurrent errors, irregularities, fraud or breach of obligations in any EU grant may also lead to consequences in other EU grants awarded under similar conditions ('extension to other grants').

Moreover, findings arising from an OLAF or EPPO investigation may lead to criminal prosecution under national law.

25.5.2 Extension from other grants

Results of checks, reviews, audits or investigations in other grants may be extended to this grant, if:

(a) the beneficiary concerned is found, in other EU grants awarded under similar conditions, to have committed systemic or recurrent errors, irregularities, fraud or breach of obligations that have a material impact on this grant and

[19] Regulation (EU, Euratom) No 883/2013 of the European Parliament and of the Council of 11 September 2013 concerning investigations conducted by the European Anti-Fraud Office (OLAF) and repealing Regulation (EC) No 1073/1999 of the European Parliament and of the Council and Council Regulation (Euratom) No 1074/1999 (OJ L 248, 18/09/2013, p. 1).

[20] Council Regulation (Euratom, EC) No 2185/96 of 11 November 1996 concerning on-the-spot checks and inspections carried out by the Commission in order to protect the European Communities' financial interests against fraud and other irregularities (OJ L 292, 15/11/1996, p. 2).

(b) those findings are formally notified to the beneficiary concerned — together with the list of grants affected by the findings — within the time-limit for audits set out in the Data Sheet (see Point 6).

The granting authority will formally notify the beneficiary concerned of the intention to extend the findings and the list of grants affected.

If the extension concerns **rejections of costs or contributions**: the notification will include:

(a) an invitation to submit observations on the list of grants affected by the findings

(b) the request to submit revised financial statements for all grants affected

(c) the correction rate for extrapolation, established on the basis of the systemic or recurrent errors, to calculate the amounts to be rejected, if the beneficiary concerned:

(i) considers that the submission of revised financial statements is not possible or practicable or

(ii) does not submit revised financial statements.

If the extension concerns **grant reductions**: the notification will include:

(a) an invitation to submit observations on the list of grants affected by the findings and

(b) the **correction rate for extrapolation**, established on the basis of the systemic or recurrent errors and the principle of proportionality.

The beneficiary concerned has **60 days** from receiving notification to submit observations, revised financial statements or to propose a duly substantiated **alternative correction method/rate**.

On the basis of this, the granting authority will analyse the impact and decide on the implementation (i.e. start rejection or grant reduction procedures, either on the basis of the revised financial statements or the announced/alternative method/rate or a mix of those; see Articles 27 and 28).

25.6 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, costs or contributions insufficiently substantiated will be ineligible (see Article 6) and will be rejected (see Article 27), and the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 26 — IMPACT EVALUATIONS

26.1 Impact evaluation

The granting authority may carry out impact evaluations of the action, measured against the objectives and indicators of the EU programme funding the grant.

Such evaluations may be started during implementation of the action and until the time-limit set out

in the Data Sheet (see Point 6). They will be formally notified to the coordinator or beneficiaries and will be considered to start on the date of the notification.

If needed, the granting authority may be assisted by independent outside experts.

The coordinator or beneficiaries must provide any information relevant to evaluate the impact of the action, including information in electronic format.

26.2 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the granting authority may apply the measures described in Chapter 5.

CHAPTER 5 CONSEQUENCES OF NON-COMPLIANCE

SECTION 1 REJECTIONS AND GRANT REDUCTION

ARTICLE 27 — REJECTION OF COSTS AND CONTRIBUTIONS

27.1 Conditions

The granting authority will — at beneficiary termination, interim payment, final payment or afterwards — reject any costs or contributions which are ineligible (see Article 6), in particular following checks, reviews, audits or investigations (see Article 25).

The rejection may also be based on the extension of findings from other grants to this grant (see Article 25).

Ineligible costs or contributions will be rejected.

27.2 Procedure

If the rejection does not lead to a recovery, the granting authority will formally notify the coordinator or beneficiary concerned of the rejection, the amounts and the reasons why. The coordinator or beneficiary concerned may — within 30 days of receiving notification — submit observations if it disagrees with the rejection (payment review procedure).

If the rejection leads to a recovery, the granting authority will follow the contradictory procedure with pre-information letter set out in Article 22.

27.3 Effects

If the granting authority rejects costs or contributions, it will deduct them from the costs or contributions declared and then calculate the amount due (and, if needed, make a recovery; see Article 22).

ARTICLE 28 — GRANT REDUCTION

28.1 Conditions

The granting authority may — at beneficiary termination, final payment or afterwards — reduce the grant for a beneficiary, if:

(a) the beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed:

(i) substantial errors, irregularities or fraud or

(ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions, submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.), or

(b) the beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant (see Article 25).

The amount of the reduction will be calculated for each beneficiary concerned and proportionate to the seriousness and the duration of the errors, irregularities or fraud or breach of obligations, by applying an individual reduction rate to their accepted EU contribution.

28.2 Procedure

If the grant reduction does not lead to a recovery, the granting authority will formally notify the coordinator or beneficiary concerned of the reduction, the amount to be reduced and the reasons why. The coordinator or beneficiary concerned may — within 30 days of receiving notification — submit observations if it disagrees with the reduction (payment review procedure).

If the grant reduction leads to a recovery, the granting authority will follow the contradictory procedure with pre-information letter set out in Article 22.

28.3 Effects

If the granting authority reduces the grant, it will deduct the reduction and then calculate the amount due (and, if needed, make a recovery; see Article 22).

SECTION 2 SUSPENSION AND TERMINATION

ARTICLE 29 — PAYMENT DEADLINE SUSPENSION

29.1 Conditions

The granting authority may — at any moment — suspend the payment deadline if a payment cannot be processed because:

(a) the required report (see Article 21) has not been submitted or is not complete or additional information is needed

(b) there are doubts about the amount to be paid (e.g. ongoing audit extension procedure, queries

about eligibility, need for a grant reduction, etc.) and additional checks, reviews, audits or investigations are necessary, or

(c) there are other issues affecting the EU financial interests.

29.2 Procedure

The granting authority will formally notify the coordinator of the suspension and the reasons why.

The suspension will **take effect** the day the notification is sent.

If the conditions for suspending the payment deadline are no longer met, the suspension will be **lifted** — and the remaining time to pay (see Data Sheet, Point 4.2) will resume.

If the suspension exceeds two months, the coordinator may request the granting authority to confirm if the suspension will continue.

If the payment deadline has been suspended due to the non-compliance of the report and the revised report is not submitted (or was submitted but is also rejected), the granting authority may also terminate the grant or the participation of the coordinator (see Article 32).

ARTICLE 30 — PAYMENT SUSPENSION

30.1 Conditions

The granting authority may — at any moment — suspend payments, in whole or in part for one or more beneficiaries, if:

(a) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed or is suspected of having committed:

(i) substantial errors, irregularities or fraud or

(ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions, submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.), or

(b) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant.

If payments are suspended for one or more beneficiaries, the granting authority will make partial payment(s) for the part(s) not suspended. If suspension concerns the final payment, the payment (or recovery) of the remaining amount after suspension is lifted will be considered to be the payment that closes the action.

30.2 Procedure

Before suspending payments, the granting authority will send a **pre-information letter** to the beneficiary concerned:

- formally notifying the intention to suspend payments and the reasons why and
- requesting observations within 30 days of receiving notification.

If the granting authority does not receive observations or decides to pursue the procedure despite the observations it has received, it will confirm the suspension (**confirmation letter**). Otherwise, it will formally notify that the procedure is discontinued.

At the end of the suspension procedure, the granting authority will also inform the coordinator.

The suspension will **take effect** the day after the confirmation notification is sent.

If the conditions for resuming payments are met, the suspension will be **lifted**. The granting authority will formally notify the beneficiary concerned (and the coordinator) and set the suspension end date.

During the suspension, no prefinancing will be paid to the beneficiaries concerned. For interim payments, the periodic reports for all reporting periods except the last one (see Article 21) must not contain any financial statements from the beneficiary concerned (or its affiliated entities). The coordinator must include them in the next periodic report after the suspension is lifted or — if suspension is not lifted before the end of the action — in the last periodic report.

ARTICLE 31 — GRANT AGREEMENT SUSPENSION

31.1 Consortium-requested GA suspension

31.1.1 Conditions and procedure

The beneficiaries may request the suspension of the grant or any part of it, if exceptional circumstances — in particular *force majeure* (see Article 35) — make implementation impossible or excessively difficult.

The coordinator must submit a request for **amendment** (see Article 39), with:

- the reasons why
- the date the suspension takes effect; this date may be before the date of the submission of the amendment request and
- the expected date of resumption.

The suspension will **take effect** on the day specified in the amendment.

Once circumstances allow for implementation to resume, the coordinator must immediately request another **amendment** of the Agreement to set the suspension end date, the resumption date (one day after suspension end date), extend the duration and make other changes necessary to adapt the action to the new situation (see Article 39) — unless the grant has been terminated (see Article 32). The suspension will be **lifted** with effect from the suspension end date set out in the amendment. This date may be before the date of the submission of the amendment request.

During the suspension, no prefinancing will be paid. Costs incurred or contributions for activities implemented during grant suspension are not eligible (see Article 6.3).

31.2 EU-initiated GA suspension

31.2.1 Conditions

The granting authority may suspend the grant or any part of it, if:

(a) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed or is suspected of having committed:

(i) substantial errors, irregularities or fraud or

(ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions, submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.), or

(b) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant

(c) other:

(i) linked action issues: not applicable

(ii) the action has lost its scientific or technological relevance, for EIC Accelerator actions: the action has lost its economic relevance, for challenge-based EIC Pathfinder actions and Horizon Europe Missions: the action has lost its relevance as part of the Portfolio for which it has been initially selected

31.2.2 Procedure

Before suspending the grant, the granting authority will send a **pre-information letter** to the coordinator:

- formally notifying the intention to suspend the grant and the reasons why and
- requesting observations within 30 days of receiving notification.

If the granting authority does not receive observations or decides to pursue the procedure despite the observations it has received, it will confirm the suspension (**confirmation letter**). Otherwise, it will formally notify that the procedure is discontinued.

The suspension will **take effect** the day after the confirmation notification is sent (or on a later date specified in the notification).

Once the conditions for resuming implementation of the action are met, the granting authority will formally notify the coordinator a **lifting of suspension letter**, in which it will set the suspension end date and invite the coordinator to request an amendment of the Agreement to set the resumption

date (one day after suspension end date), extend the duration and make other changes necessary to adapt the action to the new situation (see Article 39) — unless the grant has been terminated (see Article 32). The suspension will be **lifted** with effect from the suspension end date set out in the lifting of suspension letter. This date may be before the date on which the letter is sent.

During the suspension, no prefinancing will be paid. Costs incurred or contributions for activities implemented during suspension are not eligible (see Article 6.3).

The beneficiaries may not claim damages due to suspension by the granting authority (see Article 33).

Grant suspension does not affect the granting authority's right to terminate the grant or a beneficiary (see Article 32) or reduce the grant (see Article 28).

ARTICLE 32 — GRANT AGREEMENT OR BENEFICIARY TERMINATION

32.1 Consortium-requested GA termination

32.1.1 Conditions and procedure

The beneficiaries may request the termination of the grant.

The coordinator must submit a request for **amendment** (see Article 39), with:

- the reasons why
- the date the consortium ends work on the action ('end of work date') and
- the date the termination takes effect ('termination date'); this date must be after the date of the submission of the amendment request.

The termination will **take effect** on the termination date specified in the amendment.

If no reasons are given or if the granting authority considers the reasons do not justify termination, it may consider the grant terminated improperly.

32.1.2 Effects

The coordinator must — within 60 days from when termination takes effect — submit a **periodic report** (for the open reporting period until termination).

The granting authority will calculate the final grant amount and final payment on the basis of the report submitted and taking into account the costs incurred and contributions for activities implemented before the end of work date (see Article 22). Costs relating to contracts due for execution only after the end of work are not eligible.

If the granting authority does not receive the report within the deadline, only costs and contributions which are included in an approved periodic report will be taken into account (no costs/contributions if no periodic report was ever approved).

Improper termination may lead to a grant reduction (see Article 28).

After termination, the beneficiaries' obligations (in particular Articles 13 (confidentiality and security), 16 (IPR), 17 (communication, dissemination and visibility), 21 (reporting), 25 (checks,

reviews, audits and investigations), 26 (impact evaluation), 27 (rejections), 28 (grant reduction) and 42 (assignment of claims)) continue to apply.

32.2 Consortium-requested beneficiary termination

32.2.1 Conditions and procedure

The coordinator may request the termination of the participation of one or more beneficiaries, on request of the beneficiary concerned or on behalf of the other beneficiaries.

The coordinator must submit a request for **amendment** (see Article 39), with:

- the reasons why
- the opinion of the beneficiary concerned (or proof that this opinion has been requested in writing)
- the date the beneficiary ends work on the action ('end of work date')
- the date the termination takes effect ('termination date'); this date must be after the date of the submission of the amendment request.

If the termination concerns the coordinator and is done without its agreement, the amendment request must be submitted by another beneficiary (acting on behalf of the consortium).

The termination will **take effect** on the termination date specified in the amendment.

If no information is given or if the granting authority considers that the reasons do not justify termination, it may consider the beneficiary to have been terminated improperly.

32.2.2 Effects

The coordinator must — within 60 days from when termination takes effect — submit:

(i) a **report on the distribution of payments** to the beneficiary concerned

(ii) a **termination report** from the beneficiary concerned, for the open reporting period until termination, containing an overview of the progress of the work, the financial statement, the explanation on the use of resources, and, if applicable, the certificate on the financial statement (CFS; see Articles 21 and 24.2 and Data Sheet, Point 4.3)

(iii) a second **request for amendment** (see Article 39) with other amendments needed (e.g. reallocation of the tasks and the estimated budget of the terminated beneficiary; addition of a new beneficiary to replace the terminated beneficiary; change of coordinator, etc.).

The granting authority will calculate the amount due to the beneficiary on the basis of the report submitted and taking into account the costs incurred and contributions for activities implemented before the end of work date (see Article 22). Costs relating to contracts due for execution only after the end of work are not eligible.

The information in the termination report must also be included in the periodic report for the next reporting period (see Article 21).

If the granting authority does not receive the termination report within the deadline, only costs and contributions which are included in an approved periodic report will be taken into account (no costs/ contributions if no periodic report was ever approved).

If the granting authority does not receive the report on the distribution of payments within the deadline, it will consider that:

- the coordinator did not distribute any payment to the beneficiary concerned and that
- the beneficiary concerned must not repay any amount to the coordinator.

If the second request for amendment is accepted by the granting authority, the Agreement is **amended** to introduce the necessary changes (see Article 39).

If the second request for amendment is rejected by the granting authority (because it calls into question the decision awarding the grant or breaches the principle of equal treatment of applicants), the grant may be terminated (see Article 32).

Improper termination may lead to a reduction of the grant (see Article 31) or grant termination (see Article 32).

After termination, the concerned beneficiary's obligations (in particular Articles 13 (confidentiality and security), 16 (IPR), 17 (communication, dissemination and visibility), 21 (reporting), 25 (checks, reviews, audits and investigations), 26 (impact evaluation), 27 (rejections), 28 (grant reduction) and 42 (assignment of claims)) continue to apply.

32.3 EU-initiated GA or beneficiary termination

32.3.1 Conditions

The granting authority may terminate the grant or the participation of one or more beneficiaries, if:

(a) one or more beneficiaries do not accede to the Agreement (see Article 40)

(b) a change to the action or the legal, financial, technical, organisational or ownership situation of a beneficiary is likely to substantially affect the implementation of the action or calls into question the decision to award the grant (including changes linked to one of the exclusion grounds listed in the declaration of honour)

(c) following termination of one or more beneficiaries, the necessary changes to the Agreement (and their impact on the action) would call into question the decision awarding the grant or breach the principle of equal treatment of applicants

(d) implementation of the action has become impossible or the changes necessary for its continuation would call into question the decision awarding the grant or breach the principle of equal treatment of applicants

(e) a beneficiary (or person with unlimited liability for its debts) is subject to bankruptcy proceedings or similar (including insolvency, winding-up, administration by a liquidator or court, arrangement with creditors, suspension of business activities, etc.)

(f) a beneficiary (or person with unlimited liability for its debts) is in breach of social security or tax obligations

(g) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has been found guilty of grave professional misconduct

(h) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed fraud, corruption, or is involved in a criminal organisation, money laundering, terrorism-related crimes (including terrorism financing), child labour or human trafficking

(i) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) was created under a different jurisdiction with the intent to circumvent fiscal, social or other legal obligations in the country of origin (or created another entity with this purpose)

(j) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed:

  (i) substantial errors, irregularities or fraud or

  (ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions, submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.)

(k) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant (extension of findings from other grants to this grant; see Article 25)

(l) despite a specific request by the granting authority, a beneficiary does not request — through the coordinator — an amendment to the Agreement to end the participation of one of its affiliated entities or associated partners that is in one of the situations under points (d), (f), (e), (g), (h), (i) or (j) and to reallocate its tasks, or

(m) other:

  (i) linked action issues: not applicable

  (ii) the action has lost its scientific or technological relevance, for EIC Accelerator actions: the action has lost its economic relevance, for challenge-based EIC Pathfinder actions and Horizon Europe Missions: the action has lost its relevance as part of the Portfolio for which it has been initially selected

32.3.2 Procedure

Before terminating the grant or participation of one or more beneficiaries, the granting authority will send **a pre-information letter** to the coordinator or beneficiary concerned:

- formally notifying the intention to terminate and the reasons why and
- requesting observations within 30 days of receiving notification.

If the granting authority does not receive observations or decides to pursue the procedure despite the observations it has received, it will confirm the termination and the date it will take effect (**confirmation letter**). Otherwise, it will formally notify that the procedure is discontinued.

For beneficiary terminations, the granting authority will — at the end of the procedure — also inform the coordinator.

The termination will **take effect** the day after the confirmation notification is sent (or on a later date specified in the notification; 'termination date').

32.3.3 Effects

(a) for **GA termination**:

The coordinator must — within 60 days from when termination takes effect — submit a **periodic report** (for the last open reporting period until termination).

The granting authority will calculate the final grant amount and final payment on the basis of the report submitted and taking into account the costs incurred and contributions for activities implemented before termination takes effect (see Article 22). Costs relating to contracts due for execution only after termination are not eligible.

If the grant is terminated for breach of the obligation to submit reports, the coordinator may not submit any report after termination.

If the granting authority does not receive the report within the deadline, only costs and contributions which are included in an approved periodic report will be taken into account (no costs/contributions if no periodic report was ever approved).

Termination does not affect the granting authority's right to reduce the grant (see Article 28) or to impose administrative sanctions (see Article 34).

The beneficiaries may not claim damages due to termination by the granting authority (see Article 33).

After termination, the beneficiaries' obligations (in particular Articles 13 (confidentiality and security), 16 (IPR), 17 (communication, dissemination and visibility), 21 (reporting), 25 (checks, reviews, audits and investigations), 26 (impact evaluation), 27 (rejections), 28 (grant reduction) and 42 (assignment of claims)) continue to apply.

(b) for **beneficiary termination**:

The coordinator must — within 60 days from when termination takes effect — submit:

(i) a **report on the distribution of payments** to the beneficiary concerned

(ii) a **termination report** from the beneficiary concerned, for the open reporting period until termination, containing an overview of the progress of the work, the financial

statement, the explanation on the use of resources, and, if applicable, the certificate on the financial statement (CFS; see Articles 21 and 24.2 and Data Sheet, Point 4.3)

(iii) a **request for amendment** (see Article 39) with any amendments needed (e.g. reallocation of the tasks and the estimated budget of the terminated beneficiary; addition of a new beneficiary to replace the terminated beneficiary; change of coordinator, etc.).

The granting authority will calculate the amount due to the beneficiary on the basis of the report submitted and taking into account the costs incurred and contributions for activities implemented before termination takes effect (see Article 22). Costs relating to contracts due for execution only after termination are not eligible.

The information in the termination report must also be included in the periodic report for the next reporting period (see Article 21).

If the granting authority does not receive the termination report within the deadline, only costs and contributions included in an approved periodic report will be taken into account (no costs/ contributions if no periodic report was ever approved).

If the granting authority does not receive the report on the distribution of payments within the deadline, it will consider that:

- the coordinator did not distribute any payment to the beneficiary concerned and that
- the beneficiary concerned must not repay any amount to the coordinator.

If the request for amendment is accepted by the granting authority, the Agreement is **amended** to introduce the necessary changes (see Article 39).

If the request for amendment is rejected by the granting authority (because it calls into question the decision awarding the grant or breaches the principle of equal treatment of applicants), the grant may be terminated (see Article 32).

After termination, the concerned beneficiary's obligations (in particular Articles 13 (confidentiality and security), 16 (IPR), 17 (communication, dissemination and visibility), 21 (reporting), 25 (checks, reviews, audits and investigations), 26 (impact evaluation), 27 (rejections), 28 (grant reduction) and 42 (assignment of claims)) continue to apply.

SECTION 3 OTHER CONSEQUENCES: DAMAGES AND ADMINISTRATIVE SANCTIONS

ARTICLE 33 — DAMAGES

33.1 Liability of the granting authority

The granting authority cannot be held liable for any damage caused to the beneficiaries or to third parties as a consequence of the implementation of the Agreement, including for gross negligence.

The granting authority cannot be held liable for any damage caused by any of the beneficiaries or other participants involved in the action, as a consequence of the implementation of the Agreement.

33.2 Liability of the beneficiaries

The beneficiaries must compensate the granting authority for any damage it sustains as a result of the implementation of the action or because the action was not implemented in full compliance with the Agreement, provided that it was caused by gross negligence or wilful act.

The liability does not extend to indirect or consequential losses or similar damage (such as loss of profit, loss of revenue or loss of contracts), provided such damage was not caused by wilful act or by a breach of confidentiality.

ARTICLE 34 — ADMINISTRATIVE SANCTIONS AND OTHER MEASURES

Nothing in this Agreement may be construed as preventing the adoption of administrative sanctions (i.e. exclusion from EU award procedures and/or financial penalties) or other public law measures, in addition or as an alternative to the contractual measures provided under this Agreement (see, for instance, Articles 135 to 145 EU Financial Regulation 2018/1046 and Articles 4 and 7 of Regulation 2988/95[21]).

SECTION 4 FORCE MAJEURE

ARTICLE 35 — FORCE MAJEURE

A party prevented by force majeure from fulfilling its obligations under the Agreement cannot be considered in breach of them.

'Force majeure' means any situation or event that:

- prevents either party from fulfilling their obligations under the Agreement,
- was unforeseeable, exceptional situation and beyond the parties' control,
- was not due to error or negligence on their part (or on the part of other participants involved in the action), and
- proves to be inevitable in spite of exercising all due diligence.

Any situation constituting force majeure must be formally notified to the other party without delay, stating the nature, likely duration and foreseeable effects.

The parties must immediately take all the necessary steps to limit any damage due to force majeure and do their best to resume implementation of the action as soon as possible.

CHAPTER 6 FINAL PROVISIONS

ARTICLE 36 — COMMUNICATION BETWEEN THE PARTIES

36.1 Forms and means of communication — Electronic management

[21] Council Regulation (EC, Euratom) No 2988/95 of 18 December 1995 on the protection of the European Communities financial interests (OJ L 312, 23.12.1995, p. 1).

EU grants are managed fully electronically through the EU Funding & Tenders Portal ('Portal').

All communications must be made electronically through the Portal, in accordance with the Portal Terms and Conditions and using the forms and templates provided there (except if explicitly instructed otherwise by the granting authority).

Communications must be made in writing and clearly identify the grant agreement (project number and acronym).

Communications must be made by persons authorised according to the Portal Terms and Conditions. For naming the authorised persons, each beneficiary must have designated — before the signature of this Agreement — a 'legal entity appointed representative (LEAR)'. The role and tasks of the LEAR are stipulated in their appointment letter (see Portal Terms and Conditions).

If the electronic exchange system is temporarily unavailable, instructions will be given on the Portal.

36.2 Date of communication

The sending date for communications made through the Portal will be the date and time of sending, as indicated by the time logs.

The receiving date for communications made through the Portal will be the date and time the communication is accessed, as indicated by the time logs. Formal notifications that have not been accessed within 10 days after sending, will be considered to have been accessed (see Portal Terms and Conditions).

If a communication is exceptionally made on paper (by e-mail or postal service), general principles apply (i.e. date of sending/receipt). Formal notifications by registered post with proof of delivery will be considered to have been received either on the delivery date registered by the postal service or the deadline for collection at the post office.

If the electronic exchange system is temporarily unavailable, the sending party cannot be considered in breach of its obligation to send a communication within a specified deadline.

36.3 Addresses for communication

The Portal can be accessed via the Europa website.

The address for paper communications to the granting authority (if exceptionally allowed) is the official mailing address indicated on its website.

For beneficiaries, it is the legal address specified in the Portal Participant Register.

ARTICLE 37 — INTERPRETATION OF THE AGREEMENT

The provisions in the Data Sheet take precedence over the rest of the Terms and Conditions of the Agreement.

Annex 5 takes precedence over the Terms and Conditions; the Terms and Conditions take precedence over the Annexes other than Annex 5.

Annex 2 takes precedence over Annex 1.

ARTICLE 38 — CALCULATION OF PERIODS AND DEADLINES

In accordance with Regulation No 1182/71[22], periods expressed in days, months or years are calculated from the moment the triggering event occurs.

The day during which that event occurs is not considered as falling within the period.

'Days' means calendar days, not working days.

ARTICLE 39 — AMENDMENTS

39.1 Conditions

The Agreement may be amended, unless the amendment entails changes to the Agreement which would call into question the decision awarding the grant or breach the principle of equal treatment of applicants.

Amendments may be requested by any of the parties.

39.2 Procedure

The party requesting an amendment must submit a request for amendment signed directly in the Portal Amendment tool.

The coordinator submits and receives requests for amendment on behalf of the beneficiaries (see Annex 3). If a change of coordinator is requested without its agreement, the submission must be done by another beneficiary (acting on behalf of the other beneficiaries).

The request for amendment must include:

- the reasons why
- the appropriate supporting documents and
- for a change of coordinator without its agreement: the opinion of the coordinator (or proof that this opinion has been requested in writing).

The granting authority may request additional information.

If the party receiving the request agrees, it must sign the amendment in the tool within 45 days of receiving notification (or any additional information the granting authority has requested). If it does not agree, it must formally notify its disagreement within the same deadline. The deadline may be extended, if necessary for the assessment of the request. If no notification is received within the deadline, the request is considered to have been rejected.

An amendment **enters into force** on the day of the signature of the receiving party.

An amendment **takes effect** on the date of entry into force or other date specified in the amendment.

[22] Regulation (EEC, Euratom) No 1182/71 of the Council of 3 June 1971 determining the rules applicable to periods, dates and time-limits (OJ L 124, 8/6/1971, p. 1).

ARTICLE 40 — ACCESSION AND ADDITION OF NEW BENEFICIARIES

40.1 Accession of the beneficiaries mentioned in the Preamble

The beneficiaries which are not coordinator must accede to the grant by signing the accession form (see Annex 3) directly in the Portal Grant Preparation tool, within 30 days after the entry into force of the Agreement (see Article 44).

They will assume the rights and obligations under the Agreement with effect from the date of its entry into force (see Article 44).

If a beneficiary does not accede to the grant within the above deadline, the coordinator must — within 30 days — request an amendment (see Article 39) to terminate the beneficiary and make any changes necessary to ensure proper implementation of the action. This does not affect the granting authority's right to terminate the grant (see Article 32).

40.2 Addition of new beneficiaries

In justified cases, the beneficiaries may request the addition of a new beneficiary.

For this purpose, the coordinator must submit a request for amendment in accordance with Article 39. It must include an accession form (see Annex 3) signed by the new beneficiary directly in the Portal Amendment tool.

New beneficiaries will assume the rights and obligations under the Agreement with effect from the date of their accession specified in the accession form (see Annex 3).

Additions are also possible in mono-beneficiary grants.

ARTICLE 41 — TRANSFER OF THE AGREEMENT

In justified cases, the beneficiary of a mono-beneficiary grant may request the transfer of the grant to a new beneficiary, provided that this would not call into question the decision awarding the grant or breach the principle of equal treatment of applicants.

The beneficiary must submit a request for **amendment** (see Article 39), with

- the reasons why
- the accession form (see Annex 3) signed by the new beneficiary directly in the Portal Amendment tool and
- additional supporting documents (if required by the granting authority).

The new beneficiary will assume the rights and obligations under the Agreement with effect from the date of accession specified in the accession form (see Annex 3).

ARTICLE 42 — ASSIGNMENTS OF CLAIMS FOR PAYMENT AGAINST THE GRANTING AUTHORITY

The beneficiaries may not assign any of their claims for payment against the granting authority to

any third party, except if expressly approved in writing by the granting authority on the basis of a reasoned, written request by the coordinator (on behalf of the beneficiary concerned).

If the granting authority has not accepted the assignment or if the terms of it are not observed, the assignment will have no effect on it.

In no circumstances will an assignment release the beneficiaries from their obligations towards the granting authority.

ARTICLE 43 — APPLICABLE LAW AND SETTLEMENT OF DISPUTES

43.1 Applicable law

The Agreement is governed by the applicable EU law, supplemented if necessary by the law of Belgium.

Special rules may apply for beneficiaries which are international organisations (if any; see Data Sheet, Point 5).

43.2 Dispute settlement

If a dispute concerns the interpretation, application or validity of the Agreement, the parties must bring action before the EU General Court — or, on appeal, the EU Court of Justice — under Article 272 of the Treaty on the Functioning of the EU (TFEU).

For non-EU beneficiaries (if any), such disputes must be brought before the courts of Brussels, Belgium — unless an international agreement provides for the enforceability of EU court judgements.

For beneficiaries with arbitration as special dispute settlement forum (if any; see Data Sheet, Point 5), the dispute will — in the absence of an amicable settlement — be settled in accordance with the Rules for Arbitration published on the Portal.

If a dispute concerns administrative sanctions, offsetting or an enforceable decision under Article 299 TFEU (see Articles 22 and 34), the beneficiaries must bring action before the General Court — or, on appeal, the Court of Justice — under Article 263 TFEU.

For grants where the granting authority is an EU executive agency (see Preamble), actions against offsetting and enforceable decisions must be brought against the European Commission (not against the granting authority; see also Article 22).

ARTICLE 44 — ENTRY INTO FORCE

The Agreement will enter into force on the day of signature by the granting authority or the coordinator, depending on which is later.

SIGNATURES

For the coordinator

For the granting authority

ANNEX 1

Horizon Europe (HORIZON)

Description of the action (DoA)

Part A

Part B

DESCRIPTION OF THE ACTION (PART A)

COVER PAGE

Part A of the Description of the Action (DoA) must be completed directly on the Portal Grant Preparation screens.

PROJECT *Grant Preparation (General Information screen) — Enter the info.*	
Project number:	101112919
Project name:	User-driven applications and tools for Climate-Informed Maritime Spatial Planning and integrated seascape management, towards a resilient & inclusive Blue Economy
Project acronym:	OCEANIDS
Call:	HORIZON-MISS-2022-CLIMA-01
Topic:	HORIZON-MISS-2022-CLIMA-01-01
Type of action:	HORIZON-RIA
Service:	CINEA/C/01
Project starting date:	fixed date: 1 December 2023
Project duration:	32 months

TABLE OF CONTENTS

PROJECT SUMMARY

Project summary

Grant Preparation (General Information screen) — Provide an overall description of your project (including context and overall objectives, planned activities and main achievements, and expected results and impacts (on target groups, change procedures, capacities, innovation etc)). This summary should give readers a clear idea of what your project is about.

Use the project summary from your proposal.

OCEANIDS aims at building user-driven applications and tools, which act as an enabling technological layer for regional authorities & stakeholders in order to achieve a more resilient and inclusive systemic pathway to a Blue Economy in coastal regions.
Brining spatial and non-spatial data & services under a single-access window platform for Climate-Informed Maritime Spatial Planning (CI-MSP), the project will allow a more integrated seascape management of coastal regions. The project delivers a Decision Support tool (the OCEANIDS Decision Support Platform - O-DSP), with an over-arching target to collect, harmonise and curate existing climate data services, making data accessible, reusable and interoperable for the development of local adaptation strategies. OCEANIDS facilitates access to knowledge, data & digital services critical for better understanding and managing climate risks, enhancing adaptive capacities and sup-porting transformative innovations.
In addition, OCEANIDS sees inclusivity as an enabling, and required, factor towards a Blue Economy. The project has a strong focus on behavioural change, both on individual as well as on a systemic level, en-abling participating regions and communities to better understand and use potential social tipping points and systemic leverage points to accelerate transformative changes towards climate resilience. To achieve this, it promotes inclusive and deliberative governance through meaningful engagement and dialogue between citizens and stakeholders. This will be achieved using case-specific tools (i.e. ephemeral social networks) leveraging local citizens assemblies for bot-tom up deliberation, cultivating a culture of civic engagement, thus empowering individuals to take action in their own communities. Finally, the project will contribute to mobilising sustainable finance and resources towards adaptation at scale and closing climate protection gap.

LIST OF PARTICIPANTS

PARTICIPANTS

Grant Preparation (Beneficiaries screen) — Enter the info.

Number	Role	Short name	Legal name	Country	PIC
1	COO	GSH	GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA	EL	943294737
2	BEN	NEREUS	RESEAU DES REGIONS EUROPEENNES UTILISATRICES DES TECHNOLOGIES SPATIALES - NEREUS	BE	923635068
3	BEN	OHB	OHB DIGITAL SERVICES GMBH	DE	951719381
4	BEN	HCMR	HELLENIC CENTRE FOR MARINE RESEARCH	EL	999577532
5	BEN	EARSC	EUROPEAN ASSOCIATION OF REMOTE SENSING COMPANIES	BE	952204478
6	BEN	FMI	ILMATIETEEN LAITOS	FI	999591306
7	BEN	ICCS	EREVNITIKO PANEPISTIMIAKO INSTITOUTO SYSTIMATON EPIKOINONION KAI YPOLOGISTON	EL	999654356

PARTICIPANTS

Grant Preparation (Beneficiaries screen) — Enter the info.

Number	Role	Short name	Legal name	Country	PIC
8	BEN	CDP	CDP WORLDWIDE (EUROPE) GEMEINNUTZIGE GMBH	DE	938217272
9	BEN	USE	UNIVERSIDAD DE SEVILLA	ES	999862518
10	BEN	IN2	IN2 DIGITAL INNOVATIONS GMBH	DE	912518383
11	BEN	WTOC	WEB2CLIMATE IKE	EL	884922465
12	BEN	CREO	CREOTECH INSTRUMENTS SPOLKA AKCYJNA	PL	913776473
13	BEN	DRAK	DRAKOPOULOS SI ASOCIATII	RO	885718059
14	BEN	METIS	UAB METIS BALTIC	LT	968991589
15	BEN	CRETE	KRITI	EL	961026337
16	BEN	HPA	HERAKLION PORT AUTHORITY AE	EL	924021419
17	BEN	MMAIP	MINISTRY OF MARITIME AFFAIRS AND INSULAR POLICY	EL	920781328
18	BEN	V-SML	VARSINAIS-SUOMEN LIITTO	FI	950866460
19	BEN	PHEL	HELSINGIN SATAMA OY	FI	885707292
20	BEN	PRAU	RAUMAN SATAMA OY	FI	888556570
21	BEN	PRAA	RAAHEN SATAMA OY	FI	885093379
22	BEN	MLG	AYUNTAMIENTO DE MALAGA	ES	983310438
23	BEN	BRET	REGION BRETAGNE	FR	952793365
24	BEN	DRPM	SECRETARIA REGIONAL DO MAR E DAS PESCAS	PT	892369640
25	BEN	AIRC	ASSOCIACAO PARA O DESENVOLVIMENTO DO ATLANTIC INTERNATIONAL RESEARCH CENTRE	PT	902624480
26	AP	RG	RESILIENCE GUARD GMBH	CH	949987737

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LIST OF WORK PACKAGES

Work packages

Grant Preparation (Work Packages screen) — Enter the info.

Work Package No	Work Package name	Lead Beneficiary	Effort (Person-Months)	Start Month	End Month	Deliverables
WP1	Project Management	1 - GSH	57.00	1	32	D1.1 – MoM of Kick-off Meeting D1.2 – Risk Identification Management & Quality assurance plan D1.3 – Ethics D1.4 – Report on technical requirements for the core technology modules D1.5 – Data Management Plan D1.6 – Updated OCEANIDS Data Management Plan D1.7 – OCEANIDS - Policy Brief D1.8 – Final OCEANIDS Data Management Plan D1.9 – Updated Ethics
WP2	Stakeholders identification & engagement	11 - WTOC	104.00	1	32	D2.1 – Stakeholders engagement plan and existing applications/services report D2.2 – Societal impact and weather risk response quantification D2.3 – Citizen engagement & awareness co-creation via ephemeral social networks
WP3	Core technology modules for data & services federation and curation	4 - HCMR	75.00	1	31	D3.1 – Data harmonisation, federation & exchange framework D3.2 – Earth observation (EO) data services requirements & specifications D3.3 – Climatic models and CC impact assessment in coastal regions D3.4 – Meteorological models curation & environmental impact assessment

Work packages

Grant Preparation (Work Packages screen) — Enter the info.

Work Package No	Work Package name	Lead Beneficiary	Effort (Person-Months)	Start Month	End Month	Deliverables
						D3.5 – Data validation for the integration to C3S Climate Data Store
WP4	OCEANIDS user-driven tools & applications development	26 - RG	64.00	9	31	D4.1 – Preliminary Report on design and implementation of each platform component D4.2 – Hazard risk and CC impact assessment platform D4.3 – Integrated EO and spatial data platform D4.4 – Multi-level governance and O-DSP platform architecture
WP5	Demonstration of the OCEANIDS tools & applications (Field validation activities)	1 - GSH	83.50	22	32	D5.1 – Platform validation activities and end-user training D5.2 – Performance evaluation, impact assessment and usability analysis
WP6	Communication, Dissemination, and Exploitation of project results	14 - METIS	70.00	1	32	D6.1 – Website and project logo D6.2 – Dissemination and Communication Plan (version 1) D6.3 – Dissemination and Communication Plan (version 2) D6.4 – Dissemination and Communication Plan (Version 3) D6.5 – Communication, Dissemination and Exploitation Report (version 1) D6.6 – Communication, Dissemination and Exploitation Report (version 2) D6.7 – Report on Standards and Liaison Activities with relevant organisations (version 1) D6.8 – Report on Standards and Liaison

Work packages

Grant Preparation (Work Packages screen) — Enter the info.

Work Package No	Work Package name	Lead Beneficiary	Effort (Person-Months)	Start Month	End Month	Deliverables
						Activities with relevant organisations (version 2) D6.9 – Exploitation Strategy (version 1) D6.10 – Exploitation Strategy (version 2) D6.11 – Exploitation Strategy (version 3)

Associated with document Ref. Ares(2023)8556628 - 13/12/2023

Work package WP1 – Project Management

Work Package Number	WP1	Lead Beneficiary	1 - GSH
Work Package Name	Project Management		
Start Month	1	End Month	32

Objectives
Overall project management towards objectives; Ensure compliance of all activities with Grant Agreement and Consortium Agreement; Handling of all administrative, financial and legal aspects; Enforcement of the Quality assurance plan; Communication with the EC and within partners.

Description
T1.1 Project management and coordination towards objectives (Leader: GSH; Contributors: All partners) [M1-M32] The task falls under the responsibility of the Project Coordinator (GSH), assisted by the Management Support Team, which acts as the first point of reference for the partners. GSH has longstanding experience with EU research projects. The coordinator, supported by the WP leaders and contributions from all partners, will be responsible for the overall coordination of financial, administrative, and scientific activities, monitor progress towards overall objectives against schedule and overall adherence to budgets, ensure alignment between WPs, prepare periodic reports, and ensure timely delivery to the EC. The coordinator will act as a liaison to the EC in all communication between the supervisory board and WPs and manage all internal communications and project meetings. The coordinator ensures compliance with the GA and CA, will be handling conflict issues, and will follow the rules set for conflict resolution in the CA. Inherent in this task is also the continuous evaluation of risks and the preparation of contingency plans to keep the project on track and meet the defined objectives. GSH will be specifically responsible for: overall control of progress, ensuring that the project schedule is met; handling of the project correspondence and the day-to-day requests from partners and external bodies; reviewing project progress against the economic, industrial, and operational objectives and targets; organizing consortium meetings; and providing the minutes taken at these meetings. The quality assurance and risk management task, led by GSH with the contribution of all partners, includes activities such as decision-making mechanisms, deliverables, internal review and quality assurance processes, project monitoring, internal communication guidelines, and risk management. Internal deadlines will be set. Activities will be well described in the Quality Assurance Plan (QAP) to be compiled early in the project. Deliverables will be first submitted to the coordinator for review and quality assurance, and then forwarded to the EC. Version control of documents, as well as the naming of the files, will also be described in the QAP. The correct application of these quality rules will be managed through this task. Project communication and file exchange will be handled through a dedicated platform. Templates will be made available for project deliverables and task reports. The use of the platform and the templates will be described in the QAP. Outcomes: The results of this task will be elaborated upon in detail in Deliverable D1.1 [Lead Beneficiary: GSH] "MoM of Kick-Off Meeting", which will include the Minutes of the Meeting from the Kick-Off Meeting, and in Deliverable D1.2 [Lead Beneficiary: GSH] "Risk Identification Management & Quality Assurance Plan,", which will include quality rules and indicators set, templates, internal deadlines, project communication and file exchange platform, report analysis for risk management and management procedures, and disclosure of QA procedures and assessment. Moreover, in D1.7 [Lead Beneficiary: GSH] "OCEANIDS: Policy Brief" the structure, content, and objectives of a forthcoming policy brief document will be described. It includes a clear description of the policy issue to be addressed, the target audience, key stakeholders, and the proposed format and timeline for the final policy brief. This document serves as a roadmap, ensuring alignment with project goals and facilitating effective communication and decision-making throughout the policy development process. T1.2 Data management plan (Leader: GSH) [M1-M32] A plan will be prepared detailing the archiving strategies to be followed for all data collected and generated during the project. Data generated through the project lifetime will be analyzed, and a data management plan will be delivered, which will identify best practices and specific standards, taking into account fundamental rights and ethically related constraints, for the access, storage, and curation of the data that will be collected in the project. Outputs: A Data Management Plan (DMP) will be generated, addressing in full the lifecycle of the data to be generated at various phases of OCEANIDS. A first version of the plan will be delivered in M6, and a final plan will be delivered at the end of the project, covering the post-project period as well. Outcomes: The results of this task will be elaborated upon in detail in Deliverable D1.5 [Lead Beneficiary: GSH]

"Data Management Plan", which will be a report describing the way data is generated, collected, and handled. This is a living document, evolving during the lifetime of the project. The updated version of the Data Management Plan will be described in Deliverable D1.6 [GSH] "Updated ODEANIDS Data Management Plan". The "Final OCEANIDS Data Management Plan" will be delivered in M32, in D1.8. Moreover, deliverable D1.4 "Report on technical requirements for the core technology modules" will include the essential technical requirements for the development and implementation of the core technology modules in WP3. Meeting these requirements is crucial to ensuring the success and reliability of the core technology modules.

T1.3 GDPR and Ethics (social, gender and inclusivity) aspects (Leader: DRAK, Contributors: GSH, USE) [M1-M32]
Special attention will be given to ethical barrier issues wherever they arise by implementing principles such as data protection and privacy awareness. The focus will be to comply with existing rules, laws, and regulations on the handling of personal data. (General Data Protection Regulation, Directive 2002/58/EC, etc.). This task will also take responsibility for the specification and preparation of necessary legal documentation (for agreement with participants). Privacy and Ethics approval for each pilot will be secured by the relevant consortium member from the relevant authorities. The OCEANIDS team considers the impact of gender, inclusion, and social norms throughout the project life cycle while respecting local culture.

Outcomes: The results of this task will be elaborated upon in detail in Deliverable D1.3 [Lead Beneficiary: GSH] "Ethics", which will be a report describing the compliance with ethics regulations and guidelines of the EC. The ethics issues described in D1.3 will be updated in Deliverable D1.9 [Lead Beneficiary: GSH] "Updated Ethics".

Work package WP2 – Stakeholders identification & engagement

Work Package Number	WP2	**Lead Beneficiary**	11 - WTOC
Work Package Name	Stakeholders identification & engagement		
Start Month	1	**End Month**	32

Objectives
Establish new communities of stakeholders and enhance existing ones; Understand the potential EO services for Climate adaptation in coastal areas to be used by municipalities, regions or communities of interest-business sectors; Organize and promote EO service requirements for the regions and develop a community approach; Quantifying societal impacts and responses to weather risks; Citizen's engagement and co-creation of awareness via ephemeral social networks.

Description
T2.1 OCEANIDS stakeholders Community: Exchange of best practices, capacity building and networking between groups (Leader: CDP; Contributors: GSH, NEREUS, OHB, HCMR, EARSC, FMI, IN2, WTOC, METIS, RG, CRETE, HPA, MMAIP, V-SML, PHEL, PRAU, PRAA, MLG, BRET, DPRM, AIRC) [M1-M32] The primary objective of this task is to grow the size, reach, and expand the activities of the ecosystem in order to increase its scientific and socio-economic impact. It is crucial that the consortium engages with potential end-users and group stakeholders; this includes local authorities and public agencies at the sub-national, national, European, and Inter-national levels. This task will be performed in step with Task 2.4, which focuses on citizen engagement, to ensure cohesion and exploit synergies in stakeholder engagement activities. To achieve this, OCEANIDS will facilitate a set of liaison activities by capitalizing on the links its participants have with relevant authorities, agencies, and stakeholders, their participation in events and fora in the field of biodiversity, the CC mitigation plan, and more. Additionally, OCEANIDS plans to connect with the local stakeholders in and near the area of the validation activities, as well as areas with potential where the OCEANIDS approach will be implemented in the future. Towards this purpose, OCEANIDS plans to advance three main activity routes. The OCEANIDS pilot regions, municipalities, and public authorities will share their climate-related coastal risks and vulnerabilities, adaptation or resilience strategies, and any other relevant data through the CDP world-wide annual disclosure campaign. This will enable the drawing of very useful conclusions and the mapping of said entities' status, needs, and gaps efficiently throughout the project. CDP's Questionnaires for Cities, States, Regions, and Public Authorities are completed by more than 1,100 organizations every year and are officially endorsed by the UN-FCCC, ICLEI, C40, Global Covenant of Mayors, Under2Coalition, Regions4, EU Climate Pact, Union of the Baltic Cities, Association of Portuguese Municipalities for Adaptation, and the Italian and Dutch Governments, among others.

The efficient use of social media leverages partner METIS's several social media tools and approaches, better described in Section 2, as well as tasks 2.3 and 2.4.
More specifically, the activities undertaken in Task 2.1: i) Exchange of Best Practices: OCEANIDS plans to facilitate the exchange of best practices among its partners. This likely involves sharing successful approaches, strategies, and solutions related to climate-related coastal risks and adaptation. ii) Capacity Building: The task aims to build the capacity of the stakeholders involved. This could include training programs, workshops, or knowledge-sharing initiatives to enhance the ability of these stakeholders to address climate-related challenges. iii) Networking Between Groups: OCEANIDS intends to create networking opportunities among various groups. This networking can foster collaboration, information sharing, and the creation of a supportive community focused on biodiversity and climate change mitigation. iv) Liaison Activities: The task involves conducting liaison activities by leveraging the connections and relationships that OCEANIDS participants have with relevant authorities, agencies, and stakeholders. This may include participation in events, conferences, and forums related to biodiversity and climate change mitigation. v) Local Stakeholder Engagement: OCEANIDS plans to connect with local stakeholders in areas where validation activities are taking place and in potential future implementation areas. This engagement likely involves gathering input, feedback, and data from local communities and authorities. vi) Data Sharing: OCEANIDS pilot regions, municipalities, and public authorities will share climate-related coastal risk data, vulnerability assessments, adaptation strategies, and other relevant information. This data sharing will likely be part of the CDP world-wide annual disclosure campaign, which involves the completion of questionnaires by various organizations. vii) Social Media and Communication: The task will make efficient use of social media platforms to communicate and engage with stakeholders. METIS, one of the partners, will contribute its social media tools and approaches for effective communication.
In summary, Task 2.1 of the OCEANIDS project involves various activities aimed at expanding the project's impact through stakeholder engagement, data sharing, capacity building, and effective communication. The ultimate goal is to enhance the resilience of coastal regions in the face of climate change and promote biodiversity conservation.

Outcomes: The results of this task will be elaborated upon in detail in Milestone M1 [Lead Beneficiary: CDP] "Stakeholders identification and system specifications definition". Moreover, the results will be documented in Deliverable D2.1 [Lead Beneficiary: CDP] "Stakeholder engagement plan and existing applications/services report" which will include plans for engaging and consulting stakeholders, identification of challenges in the regions, and prioritization of gaps.

T2.2 Assessment of current gaps between stakeholders needs (regions and communities) and existing applications and services available (Leader: EARSC; Contributors: FMI, ICCS, USE, WTOC, IN2, METIS, RG, CRETE, MMAIP, V-SML, MLG, BRET, DPRM, AIRC) [M1-M6]
This task will include the following key sub-activities: Understand the potential EO services for climate adaptation in coastal areas to be used by municipalities, regions, or communities of interest-business sectors (i.e., aquaculture, tourism, and fisheries). Specifically, to work with partners and the EO service industry to gather, organize, and promote the EO service requirements for the regions and develop a community approach. Perform a review of EO services serving the Mari-time Spatial Planning (MSP) and Climate Adaptation Planning (CAP) in coastal regions (+ insights for literature analysis) and develop links with regional stakeholders. Strengthen liaison with Copernicus Climate Change Service (C3S), implemented by European Centre for Medium-Range Weather Forecasts (ECMWF) and Copernicus Marine Environment Monitoring Service (CMEMS), implemented by Mercator Océan International Review of existing gaps: Identification of challenges in the regions and prioritization of gaps. Discussion with stakeholders and session engagement: NE-REUS platform utilization provides contact and interaction with regions and local/regional authorities, namely with NEREUS' member regions or regions beyond our membership. As part of its advocacy and outreach activities, NERE-US will bring together regions, public and other authorities, policy/decision makers, and relevant maritime stakeholders and organizations with the objective of presenting the outcomes of the project in the context of territorial and maritime challenges and highlighting how these can impact the different stakeholder communities at regional and European levels. To this end, NEREUS will reinvigorate the political dialogue between public users and European stakeholders and multipliers by organizing: a) 1 physical or online workshop in Brussels (during the project) to: i) raise awareness for more sustainable coastal and maritime management; ii) advocate for climate change adaptation in coastal areas; iii) report on the users' needs concerning services and applications; iv) invite LRA to present best practices that use space data for coastal management and help identify gaps. NEREUS platform utilization provides contact and interaction with regions and local/regional authorities, namely with NEREUS' member regions or regions beyond NEREUS membership.

Outcomes: The results of this task will be elaborated upon in detail in Milestone M1 [Lead Beneficiary: CDP] "Stakeholders identification and system specifications definition". Moreover, the results will be documented in Deliverable D2.1 [Lead Beneficiary: CDP] "Stakeholder engagement plan and existing Applications/services report"

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which will include plans for engaging and consulting stakeholders, identification of challenges in the regions, and prioritization of gaps.

T2.3 Quantifying societal impacts and responses to weather risks (Leader: WTOC; Contributors: USE) [M1-M32]
The primary objective is to quantify the societal impacts of weather risks and responses to them using a data-driven approach. For the quantification of societal impacts and responses to weather risks, a combination of social media and publicly available sources will be used. Linked Data projects have historically followed three large directions: (i) publishing large Linked financial or social sciences data sets based on the SDMX format, e.g., Eurostat, the World Bank, as well as datasets extracted from DBpedia and Wikidata; (ii) creating Virtual Knowledge Graph tools for transforming existing databases into Linked Data and (iii) tools for publishing Linked Data such as ELDA. One small part of the ontology-based data access movement has focused on extracting data from tables in order to transform it into structured data. Unfortunately, most of these solutions have been project-specific, and the collected data lacked context, e.g., metadata on where it was published or why. This means that in many cases, it was not possible to extract the entire content of the page but rather only the information from the tables themselves. Extracting the entire content of the page will yield additional context needed to understand the collected data. OCEANIDS will significantly extend the existing functionality by transforming extracted table data into indicators using the following: (i) Evaluation and improvement of existing extraction capabilities; (ii) Combination of extracting capabilities from multiple publicly available sources: (ii-a) label findings based on keyword matching; (ii-b) restrict results to acceptable types; (ii-c) generate results based on specific searches. The data will be captured from news sites, wikis, etc. The results will all be stored in a scalable distributed index, enabling further analysis. Thereby, the project will serve as the glue between open data sources, initiatives, and keyword-based results.
More specifically, the activities undertaken in Task 2.3: 1) Data Sources: i) Social media platforms will be a key source of data. These platforms are rich in real-time information and public sentiments related to weather events and their impacts. ii) Publicly Available Sources: Data will also be collected from publicly available sources, which may include news sites, wikis, and other online repositories. 2) Linked Data Framework: The project leverages the Linked Data Framework, which has historically been used in various ways: i) Publishing Linked Data Sets: This involves sharing structured data in standardized formats like SDMX. Examples include financial and social sciences data from Eurostat and the World Bank. ii) Creating Virtual Knowledge Graphs: Tools will be used to transform existing databases into linked data, allowing for more flexible and interconnected data access.
Tools for Publishing Linked Data: Tools like ELDA will be employed to publish Linked Data, making it accessible and usable. 3) Data Extraction and Transformation: i) Improvement of Extraction Capabilities: Existing data extraction capabilities will be evaluated and improved. This includes refining techniques to capture data from various sources. ii) Combination of Extraction Capabilities: The project will combine capabilities from multiple publicly available sources. This involves: Keyword Matching: Identifying relevant data through keyword matching, ensuring the extracted data is contextually relevant. Data Type Filtering: Filtering the extracted data to include only acceptable data types or categories improving data quality. -Specific Searches: Conducting targeted searches to extract information related to weather risks and their societal impacts.
4) Contextual Information: Unlike previous solutions that focused primarily on extracting data from tables, OCEANIDS aims to capture the entire content of web pages. This includes metadata about where and why the data was published, providing crucial context for the collected data. 5) Data Storage and Indexing: All the collected data and results will be stored in a scalable distributed index. This centralized repository enables further analysis and data retrieval. 6) Bridge Between Open Data Sources and Keyword-Based Results: OCEANIDS aims to act as a bridge between open data sources and initiatives and keyword-based results. It connects and contextualizes data from various open data sources to provide meaningful insights into societal impacts and responses to weather risks.
In summary, Task 2.3 involves an extensive data collection and analysis effort to understand and quantify the societal impacts of weather risks and the responses to these risks. The project utilizes Linked Data principles, enhances data extraction capabilities, and focuses on capturing contextual information from various sources, including social media and publicly available data. The results are stored in a centralized index for further analysis and decision-making.

Outcomes: The results of this task will be elaborated upon in detail in Deliverable D2.2 [Lead Beneficiary: WTOC] "Societal impact and weather risk response quantification" which will include linked data extraction and indicator definition.

T2.4 Social innovation: inclusion of citizens and engagement in co-creation via ephemeral social networks (Leader: IN2; Contributors: USE, DRAK, MLG, BRET, DPRM, AIRC) [M10-M31]
The primary objective of Task 2.4 is to empower the OCEANIDS platform to create short-lived, location-based social networks. These networks are intended to facilitate citizen engagement, co-creation, and data collection related to climate action and environmental initiatives. This task will provide the platform with the ability to create task-focused, ephemeral

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(i.e., short-lived and only available for a specific duration) location-based social networks. We aim to offer these networks as a service of the OCEANIDS platform and allow the seamless provision of them on demand, as stakeholders wish, or when a need requires. The service will cater to the complex dynamics of on-the-fly local interaction and the use of digital media to engage local communities. Part of engagement is the use of a mix of easy-to-set-up polls and open-ended, targeted questions to measure acceptance, induce change, and quantify the impact individual actions have on the climate. The provided ephemeral networks will include listening capabilities on mainstream social media networks that will, for example, allow the harvesting and analysis of specific pilot-related hashtags or posts from a specified pilot location. This will make it a) easier to reach out to wider audiences within pilot regions and b) provide a familiar way for users to interact with OCEANIDS. Once the local action necessitating the social network is finished, the outcomes can be exported (e.g., aggregated data or statistics) and the network can be disassembled.
More specifically, the activities undertaken in Task 2.4: 1) Ephemeral Social Networks: The task aims to develop the capability within the OCEANIDS platform to create short-lived social networks. These networks are designed to exist for a specific duration and serve a particular purpose or task. 2) On-Demand Provisioning: The service will be designed to offer these ephemeral networks on-demand. Stakeholders can request the creation of such networks when needed or when specific tasks require them. This flexibility allows for timely engagement with local communities.3) Local Interaction and Digital Media: The networks will cater to the complex dynamics of on-the-fly local interaction. They will leverage digital media to engage with and mobilize local communities effectively. 4) Polls and Questions: The engagement process will include the use of polls, open-ended questions, and targeted inquiries. These tools will help measure the acceptance of climate-related initiatives, encourage behavior change, and quantify the impact of individual actions on climate and the environment. 5) Listening Capabilities: The provided ephemeral networks will have the ability to monitor mainstream social media networks. This includes tracking and analyzing specific hashtags or posts related to pilot activities in designated locations. This feature serves two purposes: i) Widening Outreach: It makes it easier to reach a broader audience within the pilot regions by tapping into existing social media platforms. ii) Familiar User Interaction: Users are provided with a familiar way to interact with OCEANIDS through mainstream social media channels. 6) Data Export: Once the specific local action that necessitated the social network is completed, the outcomes and data collected can be exported. This may include aggregating and exporting data or statistics gathered during the network's existence. In summary, Task 2.4 is focused on enhancing citizen engagement and co-creation within the OCEANIDS project. It involves the creation of short-lived, location-based social networks that use digital media, polls, and questions to engage with local communities. These networks can monitor mainstream social media for relevant content and are designed to be flexible, exportable, and disassembled when their purpose is served.

Outcomes: The results of this task will be elaborated upon in detail in Deliverable D2.3 [Lead Beneficiary: IN2] "Citizen engagement and awareness co-creation via ephemeral social networks", which includes the creation of location-based social networks and their integration in a service for the OCEANIDS platform.

Work package WP3 – Core technology modules for data & services federation and curation

Work Package Number	WP3	**Lead Beneficiary**	4 - HCMR
Work Package Name	Core technology modules for data & services federation and curation		
Start Month	1	**End Month**	31

Objectives
Data harmonization that serves the OCEANIDS Data Cubes (ODC) as a paradigm aiming to realise the full potential of EO and non-EO auxiliary geolocated data use; Climatic models, forecasting and CC impact and Meteorological models curation & quantitative environmental impact assessment in coastal regions; New Earth observation (EO) data services requirements and specifications by making a survey of state-of-the-art services; Definition of EO data services that address the actual needs of stakeholders, require the development of the right services and data process, and call for an integrated engineering lifecycle; Development of better services - Data validation for integration into the C3S Climate Data Store.

Description
T3.1 Data harmonization (OCEANIDS Data Cubes), federation and exchange framework for increased data consumption (Leader: ICCS; Contributors: OHB, IN2, WTOC, CREO, RG) [M1-M20] In this task, data harmonization will be used with the OCEANIDS Data Cubes (ODC) as a method aiming to realize

the full potential of EO and non-EO auxiliary geolocated data, lowering the barriers caused by Big data challenges and providing access to large spatiotemporal data for ready-to-use analysis by both policy designers and governance bodies. The integration of EO technologies with other data will be exploited in OCEANIDS through the development of data applications and their implementation in the port and transportation markets. Such data will be collected from multiple data sources and market segments (e.g., real-time data). Copernicus Services and other earth observation and remote sensing techniques will be used. Consequently, an abundance of data related to the environmental impact of port and maritime-related operations will be gathered and analyzed in order to identify environmental impact, operational gaps, and sustainability. A complete and market-ready AI-based system enabling prediction and decision-making based on satellite image processing, image analytics, and IoT sensor's data will be developed. Sustainability and optimization applications will combine environmental monitoring and other data with IoT and satellite image processing in order to address the environmental and other potential impacts of the port's operations. OCEANIDS improved user-defined data manipulation tools will contribute to an ecosystem of readily available tools and integrated information services, both through usage and further improvement. The data platform harmonizes and mobilizes data from disparate data sources. OCEANIDS will aspire to become an associate participant in the GBIF initiative and also to connect with and provide connections to the GBIF datasets using commonly agreed standards. The final products and maps will be stored in a geospatial database that can be easily provided to external parties and SW via commonly used OGC formats and services such as WMS and/or WMTS, WFS, etc. The development phase consists of the data collection and preparation step and the ML/DL analysis step. The aim of the proposed workflow is to achieve homogeneity among the various satellite and non-satellite data used in OCEANIDS. The complete list of the new EO services functionalities and work plan includes: Management and organization of data sources Integration, testing, running, and management of applications (processes), work-flow definition via process chaining to produce the products, systematic execution of workflows to enable utilization of scalable processing resources and process parallelization, visualization capabilities, and means of accessing delivered products.

Outcomes: The results of this task will be elaborated upon in detail in Deliverable D3.1 [Lead Beneficiary: ICCS], "Data harmonisation, federation and exchange framework", which includes data source management, applications testing, processing workflows definition, and execution. Reporting on visualization capabilities and the provision of the means to access the delivered products.

T3.2 New Earth observation (EO) data services requirements and specifications (Leader: OHB; Contributors: GSH, ICCS, CDP) [M1-M22]
Cloud computing enables EO data services. Requirements engineering for EO data aims to capture data service users' needs, assess the provider's capabilities, and identify value-added service use cases for big data technology. The main objective of requirements engineering for EO data is to capture data service users' needs and provider's capabilities and identify value-added service use cases for big data technology. Major objectives may include collecting real-time data about the world, searching through large data sets for useful information, gaining insight about given problems through data analytics, predicting possible trends of interest, and making decisions for immediate actions. Data service requirements analysis aims to provide useful guidelines for eliciting service requirements, selecting the right service architectures, and evaluating the available technological service implementations. The interoperability of spatial data services is characterized by their capability to communicate, execute, or transfer data among them. Therefore, the spatial data services need to be further documented with additional metadata. To a lesser degree, it also concerns the harmonization of the content of the service contrary to the spatial data sets implementing rules. Requirements: Determine appropriate hardware configuration and software system components; Automated EO data services component selection according to the user's needs; Develop a friendly web user interface which is user-oriented to Climate adaptation and Marine Spatial Planning methodologies and practices; Follow INSPIRE and OGC standards; Maximize the value of all structured and unstructured data with functionalities on data integration, quality, and cleansing. This task derives software-related and technical requirements from T2.2 that lead to specifications for new EO data services, developed in WP4, to address actual stakeholder needs and to maximize the value of structured and unstructured data with data integration, quality, and cleansing functionalities. The requirements and specifications analysis will include the assessment of appropriate hardware configuration and software system components, data management strategies, storage capacities, technology provider (cloud, frameworks), data availability, technical risk, and standards (as INSPIRE and OGC standards). It will also provide initial high-level architecture designs, including processing workflows and main technical decisions, as well as continuous integration and deployment strategies. Besides stakeholder-oriented data processing workflows, the new EO data services will also aggregate existing EO data services (and products) as Copernicus Services (e.g., Climate Change, Land, Atmosphere, Marine), Copernicus Open Access Hub, DIAS, and other data hubs together with their processing workflows, when relevant. It will also consider interfaces to upcoming data products (e.g., CO2M 2024 Q4, EnMAP 2022 Q2, Sentinel-4 2023 Q1) when they are accessible. The design of the EO data service shall be independent of specific cloud frameworks, where the feasibility is supported by the fact that every well-established cloud provider offers similar core cloud components (although the transfer still drains effort), and core

algorithms for data integration, processing, and analysis can be containerized (e.g., via Docker). Additionally, in this way, the integration of new workflows into existing platforms (e.g., DIAS) is possible.

Outcomes: The results of this task will be elaborated upon in detail in Deliverable D3.2 [Lead Beneficiary: OHB] "Earth observation (EO) data services requirements and specifications", which includes a document that contains requirements and specifications, including interface designs and main technical decisions regarding implementation technologies.

T3.3 Climatic models and CC impact in coastal regions (Leader: HCMR; Contributors: FMI, WTOC) [M1-M22]
Port-affecting climate change impacts include: changes in sea level extremes/flooding; windstorms wind (routing thresholds); precipitation (cargo loading); and sea ice conditions (ice breaking needs). Maritime planning in general is also invested in maritime routes conditions, shallow water wind farms, aquaculture sites, and commercial fisheries. A multi-model approach will be applied to produce probabilities for crossing threshold values relevant to impacts (in collaboration with WP2). No model data will be produced in this Task, instead, existing climate model data will be used from (SSP2-)RCP4.5 and (SSP5-)RCP8.5 Representative Concentration Pathway simulations. This approach may benefit from high-resolution dynamically downscaled datasets such as Euro-CORDEX simulations, which are available through Copernicus C3S and/or the Nordic Convection Permitting Climate Projections (NorCP) data over the Nordic domain. (See Table as examples of such datasets.)

More specifically, the work conducted under Task T3.3 includes: 1) Port-Related Climate Change Impacts: The task considers climate change impacts on various aspects related to ports and maritime activities, including: i) Changes in Sea Level Extremes/Flooding: Understanding how rising sea levels and extreme weather events may impact coastal regions and port facilities; ii) Wind Conditions (Routing Thresholds): Assessing changes in wind patterns and strengths that can affect maritime routes and operations; iii) Precipitation (Cargo Loading): Evaluating changes in precipitation patterns and their effects on cargo loading and port operations; iv) Sea Ice Conditions (Ice Breaking Needs): Analyzing shifts in sea ice conditions, particularly relevant for regions with ice-covered waters and icebreaking requirements. 2) Maritime Planning Considerations: The task also takes into account broader maritime planning factors, including: i) Maritime Route Conditions: Assessing how climate change may impact the conditions of maritime routes, taking into account changing sea and weather conditions, ii) Shallow Water Wind Farms: Considering the suitability of shallow water locations for wind farms in the context of changing climate conditions, iii) Aquaculture Sites and Commercial Fisheries: Evaluating the effects of climate change on aquaculture sites and commercial fisheries, including shifts in fishery habitats and conditions. 3) Probabilistic Assessment: The task utilizes a multi-model approach to produce probabilities for crossing threshold values for various climate-related variables. This involves assessing the likelihood of extreme events or significant changes in climate conditions that could impact coastal regions and maritime activities. 4) Data Sources and Downscaling: No model data will be produced in this Task. Existing climate model data corresponding to Representative Concentration Pathways (RCPs)—specifically (SSP2-)RCP4.5 and (SSP5-)RCP8.5—are used. This approach may benefit from high-resolution dynamically downscaled datasets such as Euro-CORDEX simulations, which are available through Copernicus C3S and/or the Nordic Convection Permitting Climate Projections (NorCP) data over the Nordic domain. In summary, Task 3.3 aims to assess the impacts of climate change on coastal regions, with a focus on factors relevant to maritime activities and planning.

Outcomes: The results of this task will be elaborated upon in detail in Deliverable D3.3 [Lead Beneficiary: HCMR] "Climatic models and CC impact assessment in coastal regions", which includes the creation of indicators based on existing climate models and WP2 outputs.

T3.4 Meteorological models curation and quantitative environmental impact assessment in coastal regions (Leader: FMI; Contributors: HCMR, WTOC) [M1-M22]
Information will be periodically produced both from climate prediction and seasonal forecasting, with the latter being available on a monthly basis for predictions of 6–12 months. Both are ensemble-based systems that produce probabilistic distributions. These systems produce information at coarse resolution, and end users need local information. To remedy that, machine learning-based downscaling via sub-grid-scale earth observation-based information will be utilized. The service will include the probabilities for crossing threshold values relevant to impacts, developed in T3.2 for climate predictions, to make end users connect more frequently with climate information. Establishing a routine review of local conditions for planning on multiple time scales is also planned. Further analysis of downscaled ocean products and available observational products will support environmental impact assessments based on end-user needs. The model data is based on CMEMS Baltic Sea Physical/Biogeochemical Reanalysis and downscaled climate change scenarios. To every possible extent, assessment will be based on physical quantities that are related to environmental factors prioritized by the end users.
More specifically, the work conducted under Task T3.4 includes: Produce information from climate prediction and seasonal forecasting; Use machine learning-based downscaling for more localized data. (Key Components): Periodic

information generation; Coarse-resolution climate prediction and seasonal forecasting; Downscaling using sub-grid-scale earth observations; Inclusion of climate indicators for user engagement; Routine review of local conditions for planning on different time scales; Analysis of downscaled ocean and observational data; Focus on environmental impact assessments based on end-user priorities. (Data Sources): CMEMS Baltic Sea Physical/Biogeochemical Reanalysis; Downscaled climate change scenarios.

Outcomes: The results of this task will be elaborated upon in detail in Deliverable D3.4 [Lead Beneficiary: FMI] "Meteorological models curation & environmental impact assessment", which includes climate prediction and seasonal forecasting combined with the use of output from T3.3. Analysis of downscaled ocean products and available observational products based on end-user needs.

T3.5 Data validation for the integration into the C3S Climate Data Store (DIAS, Copernicus, ESA TEP, GEOSS, EMODNET and other EU research infrastructure) (Leader: CREO; Contributors: HCMR, ICCS) [M10-M31]
The main objective of Task 3.5 is to ensure that the data gathered for the OCEANIDS project, obtained from various geodata providers, is valid, reliable, and accessible for the project's mission users. OCEANIDS will gather information and data from various geodata providers to create tools tailored to Mission users' needs (CREO). This includes beyond-state-of-the-art relevant climate, socio-economic, and demographic information services. Access to selected data sources will be ensured by relevant APIs or by keeping the data on a dedicated cloud storage space (CREODIAS platform https://creodias.eu/). Before being handled by OCEANIDS's backend infrastructure and services, all data will need to pass data validation (file error detection, project's validity criteria). All data will be accessible via a common API designed by CREO. Basic query parameters will be available thanks to metadata extraction from the internal Data Base.
More specifically, the work conducted under Task T3.5 includes: 1) Data Gathering and Tailoring: OCEANIDS will collect information and data from multiple geodata providers. The collected data will be used to create specialized tools that meet the specific needs of the OCEANIDS mission users, with a focus on climate, socio-economic, and demographic information services. 2) Data Source Accessibility: To access the required data sources, OCEANIDS will utilize relevant Application Programming Interfaces (APIs) or store the data in a dedicated cloud storage space, particularly on the CREODIAS platform (https://creodias.eu/). 3) Data Validation: Before any data is integrated into OCEANIDS' backend infrastructure and services, a thorough data validation process will be carried out. This validation process includes detecting and addressing file errors and ensuring that the data meets the project's validity criteria. 4) API for Data Access: OCEANIDS will provide access to all validated data through a common Application Programming Interface (API) designed by CREO. This API will enable users to query and retrieve data from various sources seamlessly.
5) Metadata Extraction: To enhance data accessibility and usability, OCEANIDS will extract metadata from the collected data. This metadata extraction will enable the creation of basic query parameters for easier data retrieval and internal database usage.
In summary, Task 3.5 involves the comprehensive process of gathering, validating, and making data accessible for the OCEANIDS project. It ensures that the data is error-free, complies with project criteria, and can be easily accessed and queried by users through a standardized API. Metadata extraction enhances data usability and searchability.

Outcomes: The results of this task will be elaborated upon in detail in Deliverable D3.5 [Lead Beneficiary: CREO] "Data Validation for the Integration with the C3S Climate Data Store", which includes a report on data gathering from various geodata providers and data validation.

Work package WP4 – OCEANIDS user-driven tools & applications development

Work Package Number	WP4	**Lead Beneficiary**	26 - RG
Work Package Name	OCEANIDS user-driven tools & applications development		
Start Month	9	**End Month**	31

Objectives
CC risk and hazard risk assessment platform with integrated EO and spatial data platform as part of the Multi-level governance platform for coastal regions; Decision Support System for better integrating Urban and Maritime Spatial Planning with Climate Adaptation Planning in order to facilitate decision-makers.

Description

T4.1 Climate Change (CC) risk and hazard risk assessment platform for regional stakeholders (Leader: RG; Contributors: ICCS) [M9-M28]
The primary objective of Task 4.1 is to create a system that allows regional stakeholders to model various planning options in response to climate change scenarios. This system aims to mitigate the effects of Climate Change (CC) in coastal areas. One of the project objectives is the measurement and assessment of various policies, local practices, and impacts of CC at the regional level. To facilitate this, a separate system will be developed. That system allows stakeholders to model a range of planning options against a number of CC scenarios for targeted applications in order to mitigate CC effects in coastal areas. It is essential to grasp the concept of risk, recognizing its systemic and dynamic characteristics, while acknowledging that the growing complexity and interconnections within societies serve to magnify these risks, thereby necessitating a reevaluation and redefinition. The effective communication of risk will then be updated based on that knowledge and "fed into the design of the coastal regions" as policy, converting thinking about risk into language and guidance. OCEANIDS exploits advances in deep learning methods to assess the applicability and impact (new features, cost reduction, risk mitigation) of using deep learning techniques and models in urban applications. In this task, OCEANIDS aims to increase the resilience of coastal environments against foreseen or unforeseen incidents, crises, and climate impacts by using a vulnerability- and risk-based approach. OCEANIDS will be able to demonstrate a scalable methodology and offer practical, easy-to-implement, and consultative tools for risk assessment to be used in coastal environments for environment-level decision-making regarding incident management as well as resilience investments as needed. This implementation will comply with International Standards like ISO22316:2017 Societal Security – Organizational Resilience Management and Other Relevant Standards for Urban Resilience. This task will oversee the design and implementation of a hazard risk assessment platform serving a Decision Support System (DSS) based on a holistic planning process. This process will address multi-hazard risk factors and streamline the process of preparing for and responding to CC-related events. This system will consider the community goals related to the Vulnerability Assessment and Risk Management approach. The aim of the DSS is to make the benefits of Risk Mitigation clear and precise in order to enable decision-makers to work by demystifying the risk, frequency, consequences (impact), and magnitude of hazards and how these may change over time.

More specifically, the work conducted under Task 4.1 includes: 1) Assessment of Policies and Local Practices: OCEANIDS aims to measure and assess the effectiveness of policies, local practices, and the impacts of climate change at the regional level. 2) Development of a Separate System: A separate system will be developed to facilitate the modeling of planning options against different climate change scenarios. This system is designed to help mitigate the impacts of climate change in coastal regions. 3) Understanding Risk: The task acknowledges the systemic and dynamic nature of risk and aims to understand how increasing complexity and interconnectedness in societies amplify risk. 4) Effective Communication of Risk: The project focuses on improving the communication of risk based on a deeper understanding of risk dynamics. This knowledge will inform policy design and decision-making in coastal regions. 5) Utilizing Deep Learning: OCEANIDS explores the use of deep learning methods and models to assess the applicability and impact of these techniques in urban applications, particularly for assessing climate change risks and impacts. 6) Enhancing Coastal Resilience: The project's goal is to increase the resilience of coastal environments by using a vulnerability- and risk-based approach. This approach considers foreseen and unforeseen incidents, crises, and climate impacts. 7) Scalable Methodology and Practical Tools: OCEANIDS plans to develop a scalable methodology and practical tools for risk assessment. These tools will be easy to implement and consult, aiding decision-making regarding incident management and resilience investments for coastal environments.
8) Compliance with International Standards: The implementation of this risk assessment platform will adhere to international standards, including ISO22316:2017 for organizational resilience management and other relevant standards for urban resilience.
9) Decision Support System (DSS): The task involves the design and implementation of a hazard risk assessment platform that serves as a Decision Support System (DSS). This DSS will facilitate a holistic planning process for multi-hazard risk factors and help prepare for and respond to climate change-related events.

Outcome: This task will provide input for D4.1 [Lead Beneficiary: RG] "Preliminary Report on Design and Implementation of Each Platform Component," which represents a short report containing a brief description of each platform component, mock-up schematic representations and workflows, as well as some initial expected results. This deliverable will be in line with Milestone 3 (MS3), "Start of design and implementation of each platform component" [Lead beneficiary: RG], delivered in M9. The results of this task will be elaborated upon in detail in Deliverable D4.2 [Lead Beneficiary: RG] "Hazard Risk and CC Impact Assessment Platform", which includes the development of a Decision Support System (DSS) for responding to CC-related events in order to facilitate decision-makers.

T4.2 Integrated EO and spatial data platform – A single access window for spatially-enabled data (Leader: OHB; Contributors: ICCS, CDP) [M9-M28]

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The main objective of Task 4.2 is to create an integrated EO and spatial data platform that provides comprehensive access to spatially-enabled data for decision-making support in climate change management, mitigation, and adaptation actions. Based on the specifications for new EO data services from T3.2, an integrated EO and spatial data platform cloud solution will be implemented. This platform will provide information, data products, and necessary metadata for decision-making support in climate change-related enhanced management, mitigation, and adaptation actions. This will be facilitated via a single-access user-oriented graphical user interface that allows for easy access and visual support of spatially enabled data (e.g., time series, historical data, near real-time data) with all necessary metadata. Technical access (mainly addressed to experts) is additionally guaranteed by APIs (e.g., following OGC standards). Being implemented as a cloud solution provides multiple advantages, like scalable resources for storage and processing components. The platform will contain processing workflows (e.g., periodic and on-demand), data storage management, and should comply with high security standards, e.g., following established authentication and authorization principles. Moreover, meaningful data from EO processing components and algorithms for the assessment of climate change and environmental impact in coastal regions will be provided. An elaborated plan for the platform architecture and a design plan for the graphical user interfaces will be designed to guarantee high usability (e.g., supported by stakeholder interviews using mock-ups or sequence diagrams describing user interactions).

More specifically, the work conducted under Task 4.2 includes: 1) Platform Implementation: Based on the specifications for new EO data services from Task 3.2, the task aims to implement an integrated EO and spatial data platform in a cloud-based solution. 2) Data and Metadata Accessibility: The platform will provide access to a wide range of information, data products, and metadata necessary for supporting decisions related to climate change management. Users will have a single-access point and a user-oriented graphical user interface for easy access to spatially enabled data, including time-series, historical data, and near real-time data, along with all relevant metadata. 3) Technical Access via APIs: Additionally, technical experts will have access to the platform through APIs that adhere to OGC (Open Geospatial Consortium) standards. 4) Cloud-Based Solution: Being implemented as a cloud-based solution offers several advantages, including scalability for storage and processing components. 5) Platform Components: The platform will encompass processing workflows, both periodic and on-demand, and manage data storage efficiently. It will adhere to high security standards, ensuring data security through established authentication and authorization principles. 6) Data from EO Processing: The platform will provide meaningful data derived from EO processing components and algorithms designed for assessing climate change and environmental impact in coastal regions. 7) Platform Architecture and User Interface Design: An elaborate plan for the platform's architecture and user interfaces will be developed. Stakeholder interviews, mock-ups, or sequence diagrams will be used to design user interactions and ensure high usability.

Outcome: This task will provide input for D4.1 [Lead Beneficiary: RG] "Preliminary Report on Design and Implementation of each Platform Component," which represents a short report containing a brief description of each platform component, mock-up schematic representations and workflows, as well as some initial expected results. This deliverable will be in line with Milestone 3 (MS3), "Start of design and implementation of each platform component" [Lead beneficiary: RG], delivered in M9.The results of this task will be elaborated upon in detail in Deliverable D4.3 [Lead Beneficiary: OHB] "Integrated EO and spatial data platform", which includes a description of the architecture design and development of the prototype with a brief report on its functionality.

T4.3 The OCEANIDS Decision Support Platform (O-DSP): A Decision Support Platform for CI-MSP in Coastal regions (Leader: GSH; Contributors: ICCS, CDP, USE, WTOC, RG) [M13-M31]
The primary objective of Task 4.3 is to create the OCEANIDS Decision Support Platform (O-DSP), which is designed to support operational optimization for climate impacts, data, and knowledge in coastal regions, particularly for port cities and local authorities. The OCEANIDS Decision Support Platform (O-DSP) shall secure port's, port cities, regional, and local authorities' operational optimization on climate impacts, data, and knowledge. O-DSP forms better access to and transformation of the already openly available climate data in the C3S Climate Data Store and other initiatives, e.g., GEOSS, into user-relevant climate change services in combination with locally sourced data and information. O-DSP's building components will follow a methodological approach so that each component will recurrently interact with inputs derived from the other additional OCEANIDS platforms. The overall design will be based on a UML framework so that O-DSP will be interoperable and easily accessed by other tools and components. A special emphasis on the design will be placed on the computational execution time, the levels and ranges of precision and recall values for the assessment, and the security and privacy trust issues of the architecture. O-DSP is envisaged to be integrated into the operational infrastructure and services of the Climate Data Store. Finally, O-DSP shall support a set of relevance feedback mechanisms that can automatically update the system's response to users' wishes and preferences as implicitly described by the users. In this direction, we will develop (i) Recommendation engines, (ii) Decision Support Tools and (iii) Relevance Feedback mechanisms. For the recommendation engines, multi-criteria analysis and dynamic programming methods will be exploited. These tools give different rules and weights to different criteria, leading to the development of a reliable recommendation map. Regarding the decision support tools, O-DSP integrates Artificial Intelligence Tools

including deep Machine Learning algorithms, which are able to process huge amounts of data with different properties and characteristics to extract semantic entities and information from a dataset. Supported and maintained local quality-controlled climate data services will enhance C3S EU services as user-oriented components of the O-DSP.

More specifically, the work conducted under Task 4.3 includes: 1) Integration of Climate Data: O-DSP aims to provide better access to climate data, including openly available data in the C3S Climate Data Store and other initiatives like GEOSS. It will combine this data with locally sourced information to offer climate change services that are relevant to users. 2) Interconnected Building Components: The platform's building components will follow a methodological approach, ensuring that each component interacts with inputs from other OCEANIDS platforms. The overall design will adhere to a UML (Unified Modeling Language) framework, promoting interoperability with other tools and components. 3) Design Emphasis: Special attention will be given to the computational execution time, precision/recall values for assessment, and security and privacy trust issues within the platform's architecture. 4) Integration with the Climate Data Store: O-DSP is intended to be integrated into the operational infrastructure and services of the Climate Data Store, enhancing its capabilities. 5) Relevance Feedback Mechanisms: The platform will support relevance feedback mechanisms that can automatically update the system's response to user preferences. This includes the development of (i) Recommendation engines, (ii) Decision Support Tools, and (iii) Relevance Feedback mechanisms. 6) Recommendation Engines: Multi-criteria analysis and dynamic programming methods will be utilized for recommendation engines, allowing for the development of reliable recommendation maps.
7) Decision Support Tools: O-DSP will integrate Artificial Intelligence (AI) tools, including deep Machine Learning algorithms, to process large and diverse datasets, extracting semantic entities and information. 8) Enhanced Climate Data Services: The platform will support and maintain local quality-controlled climate data services, enhancing the overall climate services provided by the European Union's Climate Data Store.

Outcome: This Task will provide input for D4.1 [Lead Beneficiary: RG] "Preliminary Report on Design and Implementation of each Platform Component," which represents a short report containing a brief description of each platform component, mock-up schematic representations and workflows, as well as some initial expected results. This deliverable will be in line with Milestone 3 (MS3), "Start of design and implementation of each platform component" [Lead beneficiary: RG], delivered in M9.The results of this task will be elaborated upon in detail in Deliverable D4.4 [Lead Beneficiary: GSH] "Multi-level governance and O-DSP platform architecture", which includes the development of a multi-level governance platform and decision support system. Development of (i) Recommendation engines, (ii) Decision Support Tools and (iii) Relevance Feedback mechanisms.

Work package WP5 – Demonstration of the OCEANIDS tools & applications (Field validation activities)

Work Package Number	WP5	**Lead Beneficiary**	1 - GSH
Work Package Name	Demonstration of the OCEANIDS tools & applications (Field validation activities)		
Start Month	22	**End Month**	32

Objectives
Execution of necessary preparatory actions for the identification of stakeholders' needs and interests before the demonstration activities; Implementation of Pilot activities, workshops and events in all case studies; Decision Support Platform assessment; Performance validation of pilot demonstrations with regards to the user requirements.

Description
T5.1: Regulatory and technical preparation for platform validation activities and end-user training (Leader: GSH; Contributors: IN2, CRETE, HPA, MMAIP, V-SML, PHEL, PRAU, PRAA, MLG, BRET, DPRM, AIRC) [M22-M29] The OCEANIDS platform will make use of different services and applications, so validation techniques and best practices should be implemented. The Agile project management methodology is adopted, so once the work begins, teams will cycle through a process of planning, executing, and evaluating. Continuous collaboration is vital, both among team members and project stakeholders. Validation processes will be performed by developers and end-users so that the platform (product) satisfies stakeholder needs. Validation will eliminate ambiguities and ensure the proper use of the technology that is developed. The following steps will be implemented in order to deliver a successful system or platform: Review or verification if: Platform meets the requirements (T3.1) (verification); Ability to check data from different data sources: user input, REST calls, etc.; Showing clear, localized messages to a user and following OGC (Open Geospatial

Consortium) and INSPIRE standards. End-user testing: users are given the opportunity to interact with the software before its official release to see if any features have been overlooked or if it contains any bugs. A comprehensive overview of existing activities and actions taken until project end for all pilot areas will be done; Create a collection of "lessons learned" from the developing experience; Create an online manual for the OCEANIDS platform's functionality and end-user training.

Outcome: The results of this task will be elaborated upon in detail in Deliverable D5.1 [Lead Beneficiary: GSH] "Platform validation activities and end-user training", which will include the validation processes that will be performed by developers and end-users so that the platform satisfies stakeholder needs and OGC standards. Execution of test cases, performance validation of the pilot demonstrations, and results management are all based on end-user requirements. The output of D5.1 will be in line with MS5.

T5.2: Demonstration of the OCEANIDS tools and applications in 7 coastal regions (Leader: GSH; Contributors: OHB, HCMR, USE, WTOC, CREO, DRAK, METIS, CRETE, HPA, MMAIP, V-SML, PHEL, PRAU, PRAA, MLG, BRET, DPRM, AIRC) [M26-M31]
This task will focus explicitly on the demonstration of the proposed solutions via pilots (test cases of the regions) in terms of compliance with the user requirements. The OCEANIDS platform will focus on risk evaluation, monitoring, and assessment related to the risks and problems of its particular region, with the model implementation based on medium, high, or very high-resolution imagery depending on each case study and integrated with in-situ inspections performed for ground-truth testing. In further detail, the task will include: An assessment of whether data acquisition, integration and handling, together with the AI tools developed, can deliver on the expectations of the end users; Execute test cases when possible (individual tests that will be applied to specific sets of testable elements); Comparison and correlation of several variables at the same time; Performance validation of the pilot demonstrations in regards to the user requirements; Manage the results of validation, which includes managing the test records that are generated as a result of the validation activity. All of this information must be carefully recorded and held under effective configuration management and control; Cost-benefit analysis from the user community's point of view. The task will also look at the longer-term viability of the services through a PESTLE (Political, Economic, Social, Technological, Legal, and Environmental) analysis. For instance, to what extent will governments influence climate services at a local level? Are local-level climate services of high priority, given the results of the pilots? Will environmental factors increase pressure to adopt such services? Decision Support Platform Assessment: Is it in line with the MSP in each region? Related challenges regarding the implementation of climate change indicators in view of fulfilling adaptation and mitigation measures; Specific preparatory actions in view of the demonstration activities towards identification of bodies, institutions, or groups of interests, as well as stakeholders who have knowledge and skills necessary for research in test areas and/or might be future end-users.

Outcome: The results of this task will be elaborated upon in detail in Deliverable D5.1 [Lead Beneficiary: GSH] "Platform validation activities and end-user training", which will include the validation processes that will be performed by developers and end-users so that the platform satisfies stakeholder needs and OGC standards. Execution of test cases, performance validation of the pilot demonstrations, and results management are all based on end-user requirements. The output of D5.1 will be in line with MS5.

T5.3: Performance evaluation, impact assessment and usability analysis (Leader: USE; Contributors: GSH, EARSC) [M30-M32]
The demonstration activity will be articulated in specific actions, tailor-made for each of the selected test cases, and in a logical flow. These will be conducted in the following steps: Step 1. Taking into consideration the preparatory activities in T5.1 and the outcomes of WP4, a detailed configuration in terms of possible additional useful measurements and observations will be defined. Step 2. OCEANIDS applications (WP3) will be tested for effectiveness based on the performance analysis and requirements defined with the involved stakeholders (identified in T2.1). Step 3. Improved and tested knowledge will provide input for fine-tuning the OCEANIDS risk resilience platform (WP4). Step 4. Social aspects of the research (including gender) will be considered for the final validation and usability of the results. The usability analysis will: Organize groups according to business functions, entities, and use. Co-locate items that belong to the same group; Delineate groups using the least visible means; Support meaningful comparisons; Discourage meaningless comparisons. Impact assessment will be supported by an analysis of WP3 tools and data towards end-user needs. The assessment will be based on both physical quantities, stakeholders' necessities, and other environmental factors important for end users.
Outcome: The results of this task will be elaborated upon in detail in Deliverable D5.2 [Lead Beneficiary: USE] "Performance evaluation, impact assessment, and usability analysis", which includes the report on OCEANIDS platform performance evaluation based on user groups and usability, covering all aspects of the OCEANIDS components and demonstrators. The output of D5.2 will be in line with MS6.

Work package WP6 – Communication, Dissemination, and Exploitation of project results

Work Package Number	WP6	Lead Beneficiary	14 - METIS
Work Package Name	Communication, Dissemination, and Exploitation of project results		
Start Month	1	End Month	32

Objectives
To produce and update the dissemination and exploitation plan; To produce a business model, a business plan and marketing plan; To communicate widely the progress, achievements, and results through multiple channels.

Description
T6.1 Dissemination, Communication and high impact collateral (Leader: METIS; Contributors: GSH, NEREUS, OHB, HCMR, EARSC, FMI, ICCS, CDP, USE, IN2, WTOC, RG, MLG, BRET, AIRC) [M1-M32] In the OCEANIDS dissemination plan, two types of activities will be undertaken: communication actions targeting the selected audience by the chosen means and dedicated meetings with potential users, industrial partners, and investors. During this task, several key messages regarding the project's impacts will be defined, as well as the project's value proposition, including supporting material like presentations or teasers. With this information, communication actions, commercial activities, specific events, and meetings with potential investors will be defined, becoming part of the dissemination plan. The OCEANIDS dissemination plan will be delivered at M6 (version 1) and will be updated on a yearly basis (M18 and M32), considering the feedback and results gathered in the exploitation and dissemination actions. 1) It comprises the internal (within the Consortium) and external (outside the Consortium) spheres, involving the following: - Identification and selection of relevant audiences. - Identification and selection of adequate communication channels. - Definition of messages to communicate at each stage. - Identification of key public organizations and professional operators within the EU and at the national level that are influential in the sector. 2) Dissemination targets, stakeholders, means, and channels will be identified in the plan. 3) Design and production of OCEANIDS promotional, written, and audio-visual digital materials, including 2 videos. 4) Establishment of a website by METIS before M6, to be kept updated for at least 5 years after the project ends. 5) Representation of OCEANIDS online through Twitter and LinkedIn pages for easier access to targeted audiences. 6) The dissemination of results includes: - Publication of articles in scientific and technical journals, magazines, and blogs. - Participation of OCEANIDS partners in scientific conferences and events related to the project's mission and application. 7) OCEANIDS will utilize CDP's network of cities, regions, and public authorities for dissemination. - CDP works with NEREUS to raise the project's profile via EU and global policy networks. - This includes case studies, webinars, infographics, insights, and policy reports. 8) A final conference will be organized in Brussels at the end of the project, targeting public users, regional representatives in Brussels, stakeholder associations, and high-level EU representatives. The final conference will serve as the main dissemination event for the exploitation of the Oceanids project. It will discuss how Copernicus data and integrated applications for climate adaptation strategies can benefit local and regional authorities and EU citizens based on the OCEANIDS results. The conference will involve relevant EU institutions and partnerships with Mercator Ocean and ECMWF to provide a holistic approach to changes in coastal areas linked to climate impact. 9) To reach non-specialist user communities, NEREUS will use social media coverage, live streaming, and innovative digital communication channels. 10) NEREUS will publish a summary report on findings, recommendations, and best practices based on the outcomes of outreach activities. 11) OCEANIDS will explore contributions to the European Commission's network and coordination activities among projects funded for the Climate Adaptation Mission under the Horizon 2020 European Green Deal and Horizon Europe. This may include participation in joint workshops, knowledge exchange, the development and adoption of best practices, or joint communication activities. Outcome: In Deliverable D6.1 [Lead Beneficiary: METIS] "Website and project logo", the website and logo will be developed under this task. In D6.2 [Lead Beneficiary: METIS], "Dissemination and Communication Plan (version 1)" in M6 will include the preliminary results of this task. This

deliverable will be updated in M18 and M32 (D6.3 [Lead Beneficiary: METIS] and D6.4 [Lead Beneficiary: METIS], respectively). Moreover, this task's outcome will provide input for D6.5 [Lead Beneficiary: METIS] "Communication, Dissemination, and Exploitation Report (version 1)" and D6.6 [Lead Beneficiary: METIS] "Communication, Dissemination, and Exploitation Report (version 3)". The final report will summarize all activities conducted within OCEANIDS.

T6.2 Liaising with other EU projects, initiatives, and lessons learned: Defining the role of OCEANIDS in the EU Mission (Leader: EARSC; Contributors: GSH, CDP, USE, METIS) [M1-M32] This task involves the interaction with other EU projects and initiatives in order to exchange experiences, lessons learned, and best practices related to the EU Mission and further support its systemic adoption. This task will entail:
1) Monitor relevant EU policies related to Maritime Spatial Planning (MSP) and Climate Adaptation Planning (CAP).
2) Advocate for increased use of EO services to support policymakers in MSP and CAP.
3) Provide guidance and expert opinions (statements) in response to EU policies where EO plays a significant role.
4) Participation in the Integrated Maritime Policy of the European Union (IMP) and the Marine Strategy Framework Directive (MSFD).
5) Contribution to the update of the EU maritime security strategy and its action plan.
6) Engagement with EU initiatives and projects related to land-sea interaction, incorporating insights from OCEANIDS pilots.
7) Promotion of EO services for coastal management at national and regional levels, across vertical markets, and among key user communities.
8) Mapping of initiatives to collect feedback from the stakeholder community.
9) Collaboration with the Copernicus program on marine services and global initiatives like GEO Blue Planet.
10) Involvement in various EU projects, networks, and clusters, such as EOMODnet and EuroGOOS.
11) Participation in the Mission Cluster Collaboration Platform to foster cooperation among different stakeholders.
12) Contribution to the Mission Adaptation Platform, specifically in the area of climate adaptation knowledge sharing for a resilient Europe.

Outcome: The results of this task will be elaborated upon in detail in Deliverable D6.7 [Lead Beneficiary: EARSC] "Report on Standards and Liaison Activities with Relevant Organizations (Version 1)" in M12 and D6.8 [Lead Beneficiary: EARSC] "Report on Standards and Liaison Activities with Relevant Organizations (Version 2)" in M32.

T6.3 Exploitation plans, IPR management business models and post-project sustainability (Leader: GSH; Contributors: IN2, CREO, METIS, RG, MLG, BRET, AIRC) [M1-M32]
A business plan will be prepared following validated results, aiming to build the value proposition of OCEANIDS following the well-known “business model canvas” (BMC) methodology. Said plan will be used as a key reference for the definition of the business model, which will take as a reference the dissemination and exploitation plan for the definition of the customer segments, customer relations model, and sales channels. GSH will apply its own methodologies as well as standard management approaches to the development of this business plan. As the OCEANIDS concept involves many different technological advances and potential products and services, parts of the system can be considered optional (add-on) products in relation to the possible use of the system, such as the EO services (urban planning, land use analysis for biodiversity assessment, etc.). In this context, different marketing and product sales options will be considered. The OCEANIDS sustainable business strategy and operations will observe crisis management and social market trends, leverage benchmarking and business competitive intelligence analyses, and determine viable business models for the project’s results. This task will also accommodate a continuous analysis of the OCEANIDS potential impact and opportunity in the market without neglecting the continuous monitoring and observation of competitors’ technologies and approaches. Additionally, the wide deployment of OCEANIDS technologies will be investigated. An evaluation of system components will be performed with respect to different targeted groups to investigate weaknesses and strengths and derive opportunities and threats.
More specifically, the business plan for OCEANIDS:

1) Preparation of a business plan following validated results.
2) Utilization of the "business model canvas" (BMC) methodology.
3) Plan used as a reference for the business model, customer segments, customer relations, and sales channels.
4) GSH applies methodologies and standard management approaches.
5) A preliminary version will be ready at M6, an intermediate version at M20, and a final version at M32.
6) Includes studies on potential users and acquirers.
7) Considers different marketing and product sales options, including optional add-on products.
8) Observes crisis management and social market trends.
9) Leverages benchmarking and business competitive intelligence analyses.

10) Determines viable business models for project results.
11) Continuous analysis of OCEANIDS' potential impact and market opportunities.
12) Monitors competitors' technologies and approaches.
13) Investigates the wide deployment of OCEANIDS technologies.
14) Evaluates system components for weaknesses, strengths, opportunities, and threats.
15) Viability analysis report conducted in conjunction with testing and validation studies (WP5).
16) Reviews project developments every 6 months regarding legal and regulatory issues at the European level.
17) Ensures optimal exploitation of project results in terms of Intellectual Property Rights (IPR).
18) Includes IP-specific training throughout the project.
19) Produces reports on the above issues, including recommendations, on a yearly basis.
20) Reports at M12 and M32.

Outcome: The results of this task will be elaborated upon in detail in Deliverables D6.9 "Exploitation Strategy (version 1)", D6.10 "Exploitation Strategy (version 2)", and D6.11 "Exploitation Strategy (version 3)" [Lead Beneficiary: GSH] in M6, M20, and M32. Moreover, this task's outcome will provide input for D6.5 [Lead Beneficiary: METIS] "Communication, Dissemination, and Exploitation Report (version 1)" and D6.6 [Lead Beneficiary: METIS] "Communication, Dissemination, and Exploitation Report (version 2)". The final report will summarize all activities conducted within OCEANIDS.

STAFF EFFORT

Staff effort per participant

Grant Preparation (Work packages - Effort screen) — Enter the info.

Participant	WP1	WP2	WP3	WP4	WP5	WP6	Total Person-Months
1 - GSH	26.00	1.00	1.00	10.00	13.00	11.00	62.00
2 - NEREUS	1.00	4.00				5.00	10.00
3 - OHB	1.00	1.00	8.00	10.00	2.00	1.00	23.00
4 - HCMR	2.00	4.00	17.00		9.00	4.00	36.00
5 - EARSC	1.00	8.00			0.50	9.00	18.50
6 - FMI	1.00	2.00	13.00			1.00	17.00
7 - ICCS	1.00	1.00	12.00	6.00		1.00	21.00
8 - CDP	1.00	12.00	1.00	3.00		2.00	19.00
9 - USE	2.00	2.00		2.00	8.00	4.00	18.00
10 - IN2	1.00	15.00	1.00		1.00	2.00	20.00
11 - WTOC	1.00	15.00	7.00	1.00	3.00	1.00	28.00
12 - CREO	1.00		13.00		2.00	1.00	17.00
13 - DRAK	5.00	2.00			2.00		9.00
14 - METIS	1.00	6.00			2.00	19.00	28.00
15 - CRETE	1.00	2.50			5.00		8.50
16 - HPA	1.00	0.50			2.50		4.00
17 - MMAIP	1.00	4.50			5.00		10.50
18 - V-SML	1.00	1.00			3.00		5.00
19 - PHEL	1.00	0.50			2.50		4.00

Staff effort per participant

Grant Preparation (Work packages - Effort screen) — Enter the info.

Participant	WP1	WP2	WP3	WP4	WP5	WP6	Total Person-Months
20 - PRAU	1.00	0.50			2.50		4.00
21 - PRAA	1.00	0.50			2.50		4.00
22 - MLG	1.00	6.00			5.00	2.00	14.00
23 - BRET	1.00	4.00			7.00	2.00	14.00
24 - DRPM	1.00	2.00			2.00		5.00
25 - AIRC	1.00	6.00			4.00	2.00	13.00
26 - RG	1.00	3.00	2.00	32.00		3.00	41.00
Total Person-Months	57.00	104.00	75.00	64.00	83.50	70.00	453.50

LIST OF DELIVERABLES

Deliverables

Grant Preparation (Deliverables screen) — Enter the info.

The labels used mean:

Public — fully open (⚠ automatically posted online)
Sensitive — limited under the conditions of the Grant Agreement
EU classified —RESTREINT-UE/EU-RESTRICTED, CONFIDENTIEL-UE/EU-CONFIDENTIAL, SECRET-UE/EU-SECRET under Decision 2015/444

Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D1.1	MoM of Kick-off Meeting	WP1	1 - GSH	R — Document, report	SEN - Sensitive	1
D1.2	Risk Identification Management & Quality assurance plan	WP1	1 - GSH	R — Document, report	SEN - Sensitive	3
D1.3	Ethics	WP1	1 - GSH	R — Document, report	PU - Public	3
D1.4	Report on technical requirements for the core technology modules	WP1	1 - GSH	R — Document, report	PU - Public	4
D1.5	Data Management Plan	WP1	1 - GSH	DMP — Data Management Plan	PU - Public	6
D1.6	Updated OCEANIDS Data Management Plan	WP1	1 - GSH	DMP — Data Management Plan	PU - Public	18
D1.7	OCEANIDS - Policy Brief	WP1	1 - GSH	R — Document, report	PU - Public	32
D1.8	Final OCEANIDS Data Management Plan	WP1	1 - GSH	DMP — Data Management Plan	PU - Public	32
D1.9	Updated Ethics	WP1	1 - GSH	R — Document, report	PU - Public	32
D2.1	Stakeholders engagement plan and existing applications/services report	WP2	8 - CDP	R — Document, report	PU - Public	6

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Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D2.2	Societal impact and weather risk response quantification	WP2	11 - WTOC	R — Document, report	PU - Public	22
D2.3	Citizen engagement & awareness co-creation via ephemeral social networks	WP2	10 - IN2	OTHER	SEN - Sensitive	31
D3.1	Data harmonisation, federation & exchange framework	WP3	7 - ICCS	R — Document, report	PU - Public	20
D3.2	Earth observation (EO) data services requirements & specifications	WP3	3 - OHB	R — Document, report	PU - Public	22
D3.3	Climatic models and CC impact assessment in coastal regions	WP3	4 - HCMR	R — Document, report	SEN - Sensitive	22
D3.4	Meteorological models curation & environmental impact assessment	WP3	6 - FMI	R — Document, report	SEN - Sensitive	22
D3.5	Data validation for the integration to C3S Climate Data Store	WP3	12 - CREO	R — Document, report	SEN - Sensitive	31
D4.1	Preliminary Report on design and implementation of each platform component	WP4	26 - RG	R — Document, report	PU - Public	9
D4.2	Hazard risk and CC impact assessment platform	WP4	26 - RG	DEM — Demonstrator, pilot, prototype	PU - Public	28
D4.3	Integrated EO and spatial data platform	WP4	3 - OHB	DEM — Demonstrator, pilot, prototype	PU - Public	28

Deliverables

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Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D4.4	Multi-level governance and O-DSP platform architecture	WP4	1 - GSH	DEM — Demonstrator, pilot, prototype	PU - Public	31
D5.1	Platform validation activities and end-user training	WP5	1 - GSH	R — Document, report	PU - Public	31
D5.2	Performance evaluation, impact assessment and usability analysis	WP5	9 - USE	R — Document, report	PU - Public	32
D6.1	Website and project logo	WP6	14 - METIS	DEC —Websites, patent filings, videos, etc	PU - Public	2
D6.2	Dissemination and Communication Plan (version 1)	WP6	14 - METIS	R — Document, report	PU - Public	6
D6.3	Dissemination and Communication Plan (version 2)	WP6	14 - METIS	R — Document, report	PU - Public	18
D6.4	Dissemination and Communication Plan (Version 3)	WP6	14 - METIS	R — Document, report	PU - Public	32
D6.5	Communication, Dissemination and Exploitation Report (version 1)	WP6	14 - METIS	R — Document, report	PU - Public	18
D6.6	Communication, Dissemination and Exploitation Report (version 2)	WP6	14 - METIS	R — Document, report	PU - Public	32
D6.7	Report on Standards and Liaison Activities with relevant organisations (version 1)	WP6	5 - EARSC	R — Document, report	PU - Public	12

Deliverables

Grant Preparation (Deliverables screen) — Enter the info.

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Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D6.8	Report on Standards and Liaison Activities with relevant organisations (version 2)	WP6	5 - EARSC	R — Document, report	PU - Public	32
D6.9	Exploitation Strategy (version 1)	WP6	1 - GSH	R — Document, report	PU - Public	6
D6.10	Exploitation Strategy (version 2)	WP6	1 - GSH	R — Document, report	PU - Public	20
D6.11	Exploitation Strategy (version 3)	WP6	1 - GSH	R — Document, report	PU - Public	32

Deliverable D1.1 – MoM of Kick-off Meeting

Deliverable Number	D1.1	Lead Beneficiary	1 - GSH
Deliverable Name	MoM of Kick-off Meeting		
Type	R — Document, report	Dissemination Level	SEN - Sensitive
Due Date (month)	1	Work Package No	WP1

Description
The minutes from the kick-off meeting will serve as a valuable deliverable, providing a comprehensive record of the meeting's discussions, decisions, and action items for reference and accountability.

Deliverable D1.2 – Risk Identification Management & Quality assurance plan

Deliverable Number	D1.2	Lead Beneficiary	1 - GSH
Deliverable Name	Risk Identification Management & Quality assurance plan		
Type	R — Document, report	Dissemination Level	SEN - Sensitive
Due Date (month)	3	Work Package No	WP1

Description
Quality rules and indicators set, templates, internal deadlines, project communication and file exchange platform, report analysis for risk management and management procedures, and disclosure of QA procedures and assessment. (Output of Task 1.1)

Deliverable D1.3 – Ethics

Deliverable Number	D1.3	Lead Beneficiary	1 - GSH
Deliverable Name	Ethics		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	3	Work Package No	WP1

Description
Compliance with ethics regulations and guidelines of the EC.

Deliverable D1.4 – Report on technical requirements for the core technology modules

Deliverable Number	D1.4	Lead Beneficiary	1 - GSH
Deliverable Name	Report on technical requirements for the core technology modules		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	4	Work Package No	WP1

Description
This report outlines the essential technical requirements for the development and implementation of the core technology

modules in WP3. Meeting these requirements is crucial to ensure the success and reliability of the core technology modules.

Deliverable D1.5 – Data Management Plan

Deliverable Number	D1.5	**Lead Beneficiary**	1 - GSH
Deliverable Name	Data Management Plan		
Type	DMP — Data Management Plan	**Dissemination Level**	PU - Public
Due Date (month)	6	**Work Package No**	WP1

Description
Report describing the way data is generated, collected, and handled. This is a living document evolving during the lifetime of the project. (Output of Task1.2)

Deliverable D1.6 – Updated OCEANIDS Data Management Plan

Deliverable Number	D1.6	**Lead Beneficiary**	1 - GSH
Deliverable Name	Updated OCEANIDS Data Management Plan		
Type	DMP — Data Management Plan	**Dissemination Level**	PU - Public
Due Date (month)	18	**Work Package No**	WP1

Description
Updated report describing the way data is generated, collected, and handled. This is a living document evolving during the lifetime of the project. (Output of Task1.2)

Deliverable D1.7 – OCEANIDS - Policy Brief

Deliverable Number	D1.7	**Lead Beneficiary**	1 - GSH
Deliverable Name	OCEANIDS - Policy Brief		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	32	**Work Package No**	WP1

Description
The planned policy brief is a critical deliverable that outlines the structure, content, and objectives of a forthcoming policy brief document. It includes a clear description of the policy issue to be addressed, the target audience, key stakeholders, and the proposed format and timeline for the final policy brief. This document serves as a roadmap, ensuring alignment with project goals and facilitating effective communication and decision-making throughout the policy development process.

Deliverable D1.8 – Final OCEANIDS Data Management Plan

Deliverable Number	D1.8	**Lead Beneficiary**	1 - GSH

Deliverable Name	Final OCEANIDS Data Management Plan		
Type	DMP — Data Management Plan	Dissemination Level	PU - Public
Due Date (month)	32	Work Package No	WP1

Description
Final (updated) version of the Data Management Plan(DMP). (Output of Task1.2)

Deliverable D1.9 – Updated Ethics

Deliverable Number	D1.9	Lead Beneficiary	1 - GSH
Deliverable Name	Updated Ethics		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	32	Work Package No	WP1

Description
The finalization of ethical issues that were addressed in D1.7 at the beginning of the project

Deliverable D2.1 – Stakeholders engagement plan and existing applications/services report

Deliverable Number	D2.1	Lead Beneficiary	8 - CDP
Deliverable Name	Stakeholders engagement plan and existing applications/services report		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	6	Work Package No	WP2

Description
Plans for engaging and consulting stakeholders and identification of challenges of the regions and prioritization of gaps. (Output of Task 2.1 and Task 2.2)

Deliverable D2.2 – Societal impact and weather risk response quantification

Deliverable Number	D2.2	Lead Beneficiary	11 - WTOC
Deliverable Name	Societal impact and weather risk response quantification		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	22	Work Package No	WP2

Description
Linked data extraction and indicator definition. (Output of Task 2.3)

Deliverable D2.3 – Citizen engagement & awareness co-creation via ephemeral social networks

Deliverable Number	D2.3	**Lead Beneficiary**	10 - IN2
Deliverable Name	Citizen engagement & awareness co-creation via ephemeral social networks		
Type	OTHER	**Dissemination Level**	SEN - Sensitive
Due Date (month)	31	**Work Package No**	WP2

Description
Creation of location-based social networks and their integration in a service for OCEANIDS platform (Output of Task 2.4)

Deliverable D3.1 – Data harmonisation, federation & exchange framework

Deliverable Number	D3.1	**Lead Beneficiary**	7 - ICCS
Deliverable Name	Data harmonisation, federation & exchange framework		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	20	**Work Package No**	WP3

Description
Data sources management, applications testing, processing workflows definition and execution. Reporting on visualization capabilities and the provision of the means to access the delivered products. (Output of Task 3.1)

Deliverable D3.2 – Earth observation (EO) data services requirements & specifications

Deliverable Number	D3.2	**Lead Beneficiary**	3 - OHB
Deliverable Name	Earth observation (EO) data services requirements & specifications		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	22	**Work Package No**	WP3

Description
Document that contains requirements and specifications including interface designs and main technical decisions regarding implementation technologies. (Output of Task 3.2)

Deliverable D3.3 – Climatic models and CC impact assessment in coastal regions

Deliverable Number	D3.3	**Lead Beneficiary**	4 - HCMR
Deliverable Name	Climatic models and CC impact assessment in coastal regions		
Type	R — Document, report	**Dissemination Level**	SEN - Sensitive
Due Date (month)	22	**Work Package No**	WP3

Description
Creation of indicators based on existing climate models and WP2 outputs. (Final output of Task 3.3)

Deliverable D3.4 – Meteorological models curation & environmental impact assessment

Deliverable Number	D3.4	**Lead Beneficiary**	6 - FMI
Deliverable Name	Meteorological models curation & environmental impact assessment		
Type	R — Document, report	**Dissemination Level**	SEN - Sensitive
Due Date (month)	22	**Work Package No**	WP3

Description
Climate prediction and seasonal forecasting combined with use of output from T3.3. Analysis of downscaled ocean products and available observational products based on the end-user needs. (Output of Task 3.4)

Deliverable D3.5 – Data validation for the integration to C3S Climate Data Store

Deliverable Number	D3.5	**Lead Beneficiary**	12 - CREO
Deliverable Name	Data validation for the integration to C3S Climate Data Store		
Type	R — Document, report	**Dissemination Level**	SEN - Sensitive
Due Date (month)	31	**Work Package No**	WP3

Description
Report on data gathering from various geodata providers and data validation. (Output of Task 3.5)

Deliverable D4.1 – Preliminary Report on design and implementation of each platform component

Deliverable Number	D4.1	**Lead Beneficiary**	26 - RG
Deliverable Name	Preliminary Report on design and implementation of each platform component		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	9	**Work Package No**	WP4

Description
Preliminary Report including information regarding the design and implementation of each platform component. This will be a short report containing a brief description of each platform component, mock-up schematic representations and workflows, as well as some initial expected results.

Deliverable D4.2 – Hazard risk and CC impact assessment platform

Deliverable Number	D4.2	**Lead Beneficiary**	26 - RG
Deliverable Name	Hazard risk and CC impact assessment platform		
Type	DEM — Demonstrator, pilot, prototype	**Dissemination Level**	PU - Public
Due Date (month)	28	**Work Package No**	WP4

Description

Development of Decision Support System (DSS) for responding to CC-related events in order to facilitate the Decision Makers. (Output of Task 4.1)

Deliverable D4.3 – Integrated EO and spatial data platform

Deliverable Number	D4.3	**Lead Beneficiary**	3 - OHB
Deliverable Name	Integrated EO and spatial data platform		
Type	DEM — Demonstrator, pilot, prototype	**Dissemination Level**	PU - Public
Due Date (month)	28	**Work Package No**	WP4

Description
Description of the architecture design and development of the prototype with brief report on its functionality. (Output of Task 4.2)

Deliverable D4.4 – Multi-level governance and O-DSP platform architecture

Deliverable Number	D4.4	**Lead Beneficiary**	1 - GSH
Deliverable Name	Multi-level governance and O-DSP platform architecture		
Type	DEM — Demonstrator, pilot, prototype	**Dissemination Level**	PU - Public
Due Date (month)	31	**Work Package No**	WP4

Description
Development of multi-level governance platform and decision support system. Development of (i) Recommendation engines, (ii) Decision Support Tools and (iii) Relevance Feedback mechanisms. (Output of Task 4.3)

Deliverable D5.1 – Platform validation activities and end-user training

Deliverable Number	D5.1	**Lead Beneficiary**	1 - GSH
Deliverable Name	Platform validation activities and end-user training		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	31	**Work Package No**	WP5

Description
Validation processes will be performed from developers and end-users so as the platform satisfies the stakeholder needs and OGCs standards. Execution of test cases, performance validation of the pilot demonstrations and results management, all based on end-user requirements (Output of Task 5.1 and Task 5.2).

Deliverable D5.2 – Performance evaluation, impact assessment and usability analysis

Deliverable Number	D5.2	**Lead Beneficiary**	9 - USE
Deliverable Name	Performance evaluation, impact assessment and usability analysis		

Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	32	**Work Package No**	WP5

Description
Report on OCEANIDS platform performance evaluation based on user groups and usability covering all aspects of the OCEANIDS components and demonstrators. (Output of Task 5.3)

Deliverable D6.1 – Website and project logo

Deliverable Number	D6.1	**Lead Beneficiary**	14 - METIS
Deliverable Name	Website and project logo		
Type	DEC —Websites, patent filings, videos, etc	**Dissemination Level**	PU - Public
Due Date (month)	2	**Work Package No**	WP6

Description
Creation of project website, and project graphical identity (logo). (Output of Task 6.1)

Deliverable D6.2 – Dissemination and Communication Plan (version 1)

Deliverable Number	D6.2	**Lead Beneficiary**	14 - METIS
Deliverable Name	Dissemination and Communication Plan (version 1)		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	6	**Work Package No**	WP6

Description
Iterative versions of the DCP. This is version 1. (Output of Task 6.1)

Deliverable D6.3 – Dissemination and Communication Plan (version 2)

Deliverable Number	D6.3	**Lead Beneficiary**	14 - METIS
Deliverable Name	Dissemination and Communication Plan (version 2)		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	18	**Work Package No**	WP6

Description
Iterative versions of the DCP. This is version 2. (Output of Task 6.1)

Deliverable D6.4 – Dissemination and Communication Plan (Version 3)

Deliverable Number	D6.4	**Lead Beneficiary**	14 - METIS
Deliverable Name	Dissemination and Communication Plan (Version 3)		

Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	32	**Work Package No**	WP6

Description
Iterative versions of the DCP. This is version 3. (Output of Task 6.1)

Deliverable D6.5 – Communication, Dissemination and Exploitation Report (version 1)

Deliverable Number	D6.5	**Lead Beneficiary**	14 - METIS
Deliverable Name	Communication, Dissemination and Exploitation Report (version 1)		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	18	**Work Package No**	WP6

Description
A report on all project activities towards dissemination and exploitation of project results and an update to the Dissemination and Exploitation Plan (version 1).

Deliverable D6.6 – Communication, Dissemination and Exploitation Report (version 2)

Deliverable Number	D6.6	**Lead Beneficiary**	14 - METIS
Deliverable Name	Communication, Dissemination and Exploitation Report (version 2)		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	32	**Work Package No**	WP6

Description
A report on all project activities towards dissemination and exploitation of project results and an update to the Dissemination and Exploitation Plan (version 2).

Deliverable D6.7 – Report on Standards and Liaison Activities with relevant organisations (version 1)

Deliverable Number	D6.7	**Lead Beneficiary**	5 - EARSC
Deliverable Name	Report on Standards and Liaison Activities with relevant organisations (version 1)		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	12	**Work Package No**	WP6

Description
It will be the direct and main outcome of Task 6.2 (version 1).

Associated with document Ref. Ares(2023)8556628 - 13/12/2023

Deliverable D6.8 – Report on Standards and Liaison Activities with relevant organisations (version 2)

Deliverable Number	D6.8	**Lead Beneficiary**	5 - EARSC
Deliverable Name	Report on Standards and Liaison Activities with relevant organisations (version 2)		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	32	**Work Package No**	WP6

Description
It will be the direct and main outcome of Task 6.2 (version 2).

Deliverable D6.9 – Exploitation Strategy (version 1)

Deliverable Number	D6.9	**Lead Beneficiary**	1 - GSH
Deliverable Name	Exploitation Strategy (version 1)		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	6	**Work Package No**	WP6

Description
This deliverable will provide three versions of the exploitation plans (version 1).

Deliverable D6.10 – Exploitation Strategy (version 2)

Deliverable Number	D6.10	**Lead Beneficiary**	1 - GSH
Deliverable Name	Exploitation Strategy (version 2)		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	20	**Work Package No**	WP6

Description
This deliverable will provide three versions of the exploitation plans (version 2).

Deliverable D6.11 – Exploitation Strategy (version 3)

Deliverable Number	D6.11	**Lead Beneficiary**	1 - GSH
Deliverable Name	Exploitation Strategy (version 3)		
Type	R — Document, report	**Dissemination Level**	PU - Public
Due Date (month)	32	**Work Package No**	WP6

Description
This deliverable will provide three versions of the exploitation plans (version 3).

Associated with document Ref. Ares(2023)8556628 - 13/12/2023

LIST OF MILESTONES

Milestones

Grant Preparation (Milestones screen) — Enter the info.

Milestone No	Milestone Name	Work Package No	Lead Beneficiary	Means of Verification	Due Date (month)
1	Stakeholders identification and system specifications definition	WP2	8 - CDP	Specifications agreed upon by all partners and end-users. [Means of verification: D2.1]	6
2	Data services, Climate and meteorological models	WP3	4 - HCMR	Successful validation of models & integration of services (Outputs of T3.2, T3.3, T3.4, T3.5) [Means of verification: D3.2, D3.3, and D3.4]	22
3	Development of individual platforms	WP4	26 - RG	Start of design and implementation of each platform component (Outputs: T4.1, T4.2, T4.3) [Means of verification: D4.1]	9
4	Hazard risk assessment, EO and spatial data and DSS platforms	WP4	26 - RG	Successful first demonstration and optimization of platforms pre-integration [Means of verification: D4.1, D4.2, and D4.3]	28
5	OCEANIDS Platform prototype	WP5	1 - GSH	Demonstration of final OCEANIDS platform with all components integrated. [Means of verification: D5.1]	31
6	OCEANIDS platform validation	WP5	1 - GSH	Successfully completed a pilot using the OCEANIDS solutions at the pilot sites. The system meets the user requirements and complies with specifications. Successful validation against selected evaluation metrics and scenarios. Dissemination/exploitation handbook. [Means of verification: D5.2]	32

Associated with document Ref. Ares(2023)8556628 - 13/12/2023

LIST OF CRITICAL RISKS

Critical risks & risk management strategy

Grant Preparation (Critical Risks screen) — Enter the info.

Risk number	Description	Work Package No(s)	Proposed Mitigation Measures
1	Delays/issues regarding tasks & work packages [M/M]	WP1	The planning of WPs has been done with specific time margins and a rational succession. In case other parts of the project are impacted by a delay, re-planning will be initiated immediately. In any case, the execution of the non-inflicted tasks will continue as planned.
2	Underperforming partners. [L/H]	WP1, WP4, WP2, WP3, WP6, WP5	Low quality of work or deliverables; systematic delays, etc. Such issues will be clarified in the Quality Plan and CA. Proper internal peer review procedures will be in place to ensure the quality of the deliverables and their preparation in a timely manner. Regular WP and technical meetings will be held to ensure that activities are streamlined and that lessons learned are shared.
3	No consensus on the OCEANIDS specifications [L/H]	WP4, WP2, WP3	The specifications and overall expectations will be lowered to be set by the technology providers. Alternative solutions not described in OCEANIDS will be sought.
4	Unexpected costs during key stages [L/H]	WP1, WP4, WP3	Data utilization, core modules development and O-DSP validation could prove to be costlier than expected. Partners will lower requirements, focus on key aspects for each region, use open source technologies and utilize their contact network.
5	Lack of access to pilot regions hinders validation [L/H]	WP5	Create another pilot demo taking place under simulated conditions (at a lower TRL 4/5), where resources will be transferred; The consortium shall seek external collaborators and synergies.
6	Lack of engagement by stakeholders. [M/H]	WP4, WP2, WP3, WP6, WP5	The partners have large networks and can build on substantial track records in engaging stakeholders in research projects. The consortium and the advisory board include relevant associations that can mobilize members. Specific identification and activation measures are foreseen in WP 2. If these are not successful enough initially, the effort of the partners for stakeholder activation can be increased.
7	Partners do not agree on the IPR of the results of the project. [M/M]	WP1, WP6	An exploitation plan will be developed within the first months of OCEANIDS, identifying the expected results (foreground) and who will be the owner. In addition, a CA will be signed by all partners before the project starts, establishing the basic rules for the management of the IPR issues regarding the results of the project.

Critical risks & risk management strategy

Grant Preparation (Critical Risks screen) — Enter the info.

Risk number	Description	Work Package No(s)	Proposed Mitigation Measures
8	Limited acceptance of OCEANIDS solution by the end-users and relevant stakeholders. [M/M]	WP3, WP5	Well defined user requirements and baseline, along with cost-benefit validation of the solution. The evaluation of the solution during WP5 will assess user/ stakeholder acceptance and identify room for improvements. Also, various dissemination activities will be carried out to raise the awareness and increase the interest into the project results.
9	Inability of technologies to perform as per desired parameters [L/H]	WP4, WP3	Some of the technologies utilized for core modules and O-DSP development may be difficult to be integrated together, yet the responsible partners have previous experience proving this feasibility.
10	Measurements accuracy is not as high as required [L/H]	WP4, WP3	Measurements are expected to be accurate for validation, given partners' know-how and relevant literature. Based on the partners' experience, smart methodologies will be utilized to extract the best possible results.
11	Failure to engage stakeholders with O-DSP and digital twin models to provide useful insight for policies and decision-making [L/H]	WP4, WP6	The engagement of the end-users process will be supplemented by simple conventional tools and models, while CRETE, HPA, MMAIP, V-SML, PHEL, PRAU, PRAA, MLG, BRET, DRPM, and AIRC as stakeholders are involved in the user requirements, validation, dissemination, and communication activities, ensuring wide adoption through the OCEANIDS handbook and promotional materials.

PROJECT REVIEWS

Project Reviews

Grant Preparation (Reviews screen) — Enter the info.

Review No	**Timing** (month)	**Location**	**Comments**
RV1	21	tbc	
RV2	32	tbc	

History of Changes

Version 6.0 (Submitted on 10/11/2023)

Annex 2 - Part A

Changes	Justification
Changed the name of Task "T3.3 Climatic models, Forecasting and CC impact in coastal regions (Leader: HCMR; Contributors: FMI, WTOC) [M1-M22]" to "T3.3 Climatic models and CC impact in coastal regions (Leader: HCMR; Contributors: FMI, WTOC) [M1-M22]"	To be more accurate as these are not forecasting models.
This phrase was erased from the Task 3.3 "Data will be downscaled statistically and dynamically, from regional climate models to high resolution at 3km" and added this phrase instead "This approach may benefit from high-resolution dynamically downscaled datasets such as Euro-CORDEX simulations, which are available through Copernicus C3S and/or the Nordic Convection Permitting Climate Projections (NorCP) data over the Nordic domain. (See Table as examples of such datasets.)" which does not alter the activities undertaken in Task 3.3, but instead provide clarity.	No model datasets will be produced in Task 3.3. This is clearly stated in the text. We deleted the contradictory phrase that states that "data will be downscaled...at 3km". Here it was meant that we will use already available datasets as the ones in the table which are indeed downscaled datasets and may reach to very high resolutions such as 3 km.

Annex 1 - Part B

Changes	Justification
Tables 3.1g and Table 3.1h were further adjusted.	Minor adjustments to Tables 3.1g and 3.1h (subcontracting and purchase costs) to follow HE RIA/IA Part B template

Version 5.0 (Submitted on 05/11/2023)

Annex 2 - Part A

Changes	Justification
Made corrections on the requested amount in the "Financial Information" tab for GSH in Annex 2.	After the re-allocation of budget (because of 15/BREMEN leaving the project) some complementary corrections were required in order to be consistent with the initial total and requested amount during the proposal phase
In the "Financial Information" the 60,000.00 EUR in 12/CREO were transferred to the category "Other goods, works and services" instead of "Equipment" to be in line with Table 3.1h from Part B.	To match information in Part B (Table 3.1h)

Annex 1 - Part B

Changes	Justification
Changed the order in the Table named "List of abbreviations" to be in alphabetical order	To be clearer and more efficient
Adder some additional abbreviations in Table named "List of abbreviations" found in Part B	To be clearer and more efficient

Version 4.0 (Submitted on 02/11/2023)

Annex 2 - Part A

Changes	Justification
Removed 15/BREMEN partner from the Beneficiaries Tab.	BREMEN was not able to proceed with signing the GA on time, given their complex legal structure (holding company with subsidiary performing all technical tasks). They therefore decided to withdraw from the consortium. Their activities will be undertaken by a subcontracted 3rd party, and their budget transferred to the Coordinating beneficiary, who

	will oversee the subcontracted activities.
Adjusted the financial part of 1/GSH, including the subcontracting costs of 15/BREMEN partner	Due to 15/BREMEN leaving the project and to ensure implementation of tasks as planned. 1/GSH is taking responsibility for the contribution in tasks and budget of 15/BREMEN, and we move on with the subcontract solution
Changed deliverable D1.5 (Ethics) to month 3 (now D1.3) and added deliverable D1.9 "Updated Ethics" at month 32 Renumbered deliverables D1.3 to D1.9.	To ensure compliance with ethics principles from the start of the project
Changed leader of D2.1 "Stakeholders engagement plan and existing applications/services report" from WTOC to CDP, as CDP is leading the Task	Incorrectly assigned to WTOC instead of task leader CDP during proposal submission
Updated name of WP5 "Demonstration of the OCEANIDS tools & applications (Field activities)"	The name of the WP5 has been updated in order to give a clearer idea of what is included in this WP
Removed references to BREMEN in all related Tasks (Task 2.1, 2.2, 5.1, 5.2)	Due to 15/BREMEN leaving the project and to ensure that everything is in line with part B
Annex 1 - Part B	
Changes	**Justification**
Made minor formatting changes/corrections	Improve the readability of Part B, and correct issues resulting from moving sections to Part A
Changed where Bremen in the document, to "Subcontractor" which refers to a Potential Subcontractor Port Authority. That is in the objectives section (1.1.2 Project Objectives) and in section 1.2.4.3 Pilot region description and application of OCEANIDS.	Due to 15/BREMEN leaving the consortium
Corrected in table 6b. 12/CREO the total amount	To match information in Annex 2
Change of numbering for beneficiaries: removed 15/BREMEN, hence remaining 15/CRETE, 16/HPA, 17/MMAIP, 18/V-SML, 19/PHEL, 20/PRAU, 21/PRAA, 22/MLG, 23/BRET, 24/DRPM, and 25/AIRC	Due to 15/BREMEN leaving the consortium
Added in Table 3.1g more details about the subcontracting costs of 1/GSH, that were initially written.	To clarify the work to be performed by the subcontractor
Updated "Figure 13. Timing of the different work packages and their components (Gantt chart)" due to the addition of D1.9 "Updated Ethics" at month 32	To ensure the updated Gantt Chart is available, in line with Part A additions
Updated table 3.1g regarding the new subcontracting costs related to 1/GSH, because of the step out of 15/BREMEN partner	Due to re-allocation of the budget of former partner BREMEN
Updated Ethics Self-assessment part	To ensure that all the related ethical issues are addressed
Version 3.0 (Submitted on 18/10/2023)	
Annex 2 - Part A	
Changes	**Justification**
Removed D1.3 (Mid-term report), D1.4 (Final Reporting), D1.6 (Mid-term Technical/Scientific Review) and D1.7 (Final Technical/Scientific Review)	Deliverables were not necessary because project's progress will be reported in 2 periodic reports
Added D1.3 "Report on technical requirements for the core technology modules" at M4	To support milestone 4 and to ensure reporting on tasks performed in WP3 and WP4
Renumbered D1.3 to D1.8 due to the addition of D1.3 "Report on technical requirements for the core technology modules"	Due to the addition of D1.3 "Report on technical requirements for the core technology modules"
Renamed D1.7 from "Planned Policy Brief" to "OCEANIDS – Policy Brief"	For better clarity
Added D1.7 "OCEANIDS - Policy Brief" as an outcome of T1.1	To better demonstrate linkages between deliverables and tasks
D1.1" MoM of Kick-off Meeting" was added as an output in Task1.1 "Project management and coordination towards objectives (Leader: GSH)"	To better demonstrate linkages between deliverables and tasks

Reference to D6.5 was added in WP6	To better demonstrate linkages between deliverables and tasks
References in the 'outcomes' section for T6.2 were also added	To better demonstrate linkages between deliverables and tasks
D6.3 "Dissemination and Communication Plan (version 2)" was transferred from M19 to M18	To better demonstrate linkages between deliverables and tasks

Annex 1 - Part B	
Changes	**Justification**
Made minor formatting changes/corrections	Improve the readability of Part B, and correct issues resulting from moving sections to Part A
An explanation about the selection of pilot case studies/climate change impacts targeted was added in section 1.2.4.3 of Part B of DoA.	Clarifying a shortcoming from ESR
The details on which communication means will be used for each target group were added in section 2.1.1 and details regarding the private sector.	Clarifying a shortcoming from ESR
The clarifications on the specific activities that tackle facilitation of replication in regions/communities that are not specifically targeted in OCEANIDS were added in section 2.1.1, as well as details regarding the private sector.	Clarifying a shortcoming from ESR
Inserted details regarding the way social sciences and humanities are integrated in the methodology, in section 1.2.7.	Clarifying a shortcoming from ESR
Allocation of PMs for HCMR partner. From 25PMs to 36PMs in total (+1 in WP1, +4 WP2, +3 in WP5, and +3 in WP6). Changed the allocation in WP1, WP2, WP5, and WP6.	HCMR request; HCMR request; HCMR is leading WP3, Task 3.3. and is also contributing to a series of tasks from other WPs. Splitting the workload to less senior personnel would optimise scientific production; it would be more cost-efficient and greatly ease management and implementation.
Updated Table 5 ("justification for purchase costs..")	To explain only the amount above 15% threshold.
Made changes in section 4 "Ethics self-assessment" and added context regarding the way we plan to address those issues.	Clarify ethics issues in EthSR

Version 2.0 (Submitted on 26/09/2023)

Annex 2 - Part A	
Changes	**Justification**
Added D1.1 "MoM of Kick-off Meeting	To ensure notes are available to CINEA
D1.1 changed to D1.2 "Risk identification Management & Quality assurance Plan"	DoA Guidelines
D1.2 changed to D1.3 "Data Management Plan"	DoA Guidelines
D1.5 "Updated OCEANIDS Data Management Plan" was named into D1.4.	For consistent numbering of deliverables
Added D1.5 "Ethics" due Month 32 to be in accordance with Task 1.3	To address shortcoming in ESR
Added D1.6 "Planned Policy Brief" due Month 32	CINEA's request to ensure better visibility of OCEANIDS policy-relevant results
Added D1.7 "Final OCEANIDS Data Management Plan" due Month 32 to be in accordance with Task 1.3	DoA Guidelines
Removed RPx Technical/scientific review meeting documents for reporting periods 1, 2 (D1.6, D1.7)	Intermediate results and project's progress will be reported in periodic reports
Removed deliverables related to Reporting Periods (RPx) update of the management plan 1, 2 (D1.3, D1.4)	Intermediate results and project's progress will be reported in periodic reports
The tasks T2.1, T2.3, T2.4, T3.3, T3.4, T3.5, T4.1, T4.2 and T4.3, were described in more clarity, also indicating their output	To better demonstrate linkages between deliverables and tasks, and to provide more clarity on the planned work
Allocation of effort in WP1 for DRAK to WP6. Previously	Improve the allocation of effort because in

WP1=7 and WP6=0, and now WP1=5 and WP6=2.	WP6 DRAK is involved
Allocation of effort in WP1 for GSH to WP6. Previously WP1=24 and WP6=11, and now WP1=21 and WP6=14.	Improve the allocation of the effort because in WP6 GSH has a subcontractor.
Added WTOC as a contributor to T2.2 as the WP2 Leader and responsible for D2.1	Improve the coherence between Part A and Part B. Make sure deliverables and Tasks are correctly related.
Added information from WTOC in Task 2.3 where they are the leader	Improved clarity of description of Task 2.3
Added D4.1 "Preliminary Report on design and implementation of each platform component" due to M9	Adding this deliverable, a means of verification for Milestone 3 is provided
D6.1 "Website and project logo" has changed to "DEC".	To comply with HE deliverable types
D6.2 "Dissemination and Communication Plan (version 1) changed delivery month in M6	To ensure the plan is available earlier given the project's duration and importance of outreach activities
D6.3 "Dissemination and Communication Plan (version 2) changed delivery month in M19	To ensure an update of the plan is available
Added D6.4 "Dissemination and Communication Plan (version 3) due to M32	To ensure updates towards the end of the project will be recorded
Renamed D6.4 and D6.5 Communication, Dissemination, and Exploitation Report (version 1 and version 2, respectively) to D6.5 and D6.6	DoA Guidelines
Renamed D6.6 and D6.7 Report on Standards and Liaison Activities with relevant organisations (version 1 and 2, respectively) to D6.7 and D6.8	DoA Guidelines
Renamed D6.8 and D6.9 Plan for Exploitation Strategy (version 1 and version 2, respectively) to D6.9 to D6.10	DoA Guidelines
Renumbered deliverables to accommodate the new deliverables	DoA Guidelines
Updated linked tasks and deliverables to milestones	DoA Guidelines

Annex 1 - Part B

Changes	Justification
For all specific objectives references to deliverables and Milestones were provided in section 1.1.2 "Project objectives"	To address shortcomings in ESR
Made minor formatting changes/corrections	Improve the readability of Part B, and correct issues resulting from moving sections to Part A
Table 4 has been updated including references to tasks and providing more information regarding the work done by CRETE.	To ensure clarity on the tasks and roles
Updated Table 5 ("justification for purchase costs..") which now includes information from Table 6 that has been removed. Now we have 4 separate Tables for each partner which will be numbered accordingly (Table 5a, 5b, 5c, and 5d).	To follow Part B template table
Removed "Table 6. Table showing travel and related costs required for the implementation of OCEANIDS", since it includes information also for participants that do not exceed the 15% threshold	To follow Part B template table
Made changes in section 4 "Ethics self-assessment" and added the relevant text of the proposal Part A, as a table	DoA guidelines

Version 1.0 (Submitted on 01/09/2023)

Annex 1 - Part A

Changes	Justification
Added the related tasks on the respective deliverables	To ensure better clarity on linkages between tasks and their outputs
Added Reporting Periods (RPx) update of the management plan for reporting periods 1, 2 (D1.3, D1.4)	DoA Guidelines
Added RPx Technical/scientific review meeting documents for reporting periods 1, 2 (D1.6, D1.7)	DoA Guidelines
Added D1.5 "Updated OCEANIDS Data Management Plan"	DoA Guidelines
Added deliverable D6.1 "Website and project logo" due Month 2	DoA Guidelines

D6.1 became D6.2 and D6.3 Plan for Dissemination and Communication Activities in compliance with instructions (version 1 and version 2, respectively)	DoA Guidelines
Added D6.4 and D6.5 Communication, Dissemination, and Exploitation Report (version 1 and version 2, respectively)	DoA Guidelines
Added D6.6 and D6.7 Report on Standards and Liaison Activities with relevant organisations (version 1 and 2, respectively)	DoA Guidelines
Added D6.8 and D6.9 Plan for Exploitation Strategy (version 1 and version 2, respectively)	DoA Guidelines
Renumbered deliverables to accommodate the new deliverables	DoA Guidelines
Added linked tasks to milestones	To ensure better clarity between tasks and milestones
A lead beneficiary was assigned to each milestone	DoA Guidelines
Annex 1 - Part B	
Changes	**Justification**
Made minor formatting changes/corrections	Improve the readability of Part B, and correct issues resulting from moving sections to Part A
Introduced “History of Changes” at the beginning of the document	DoA Guidelines
Removed cover page	DoA Guidelines
Removed list of participants from the first page	DoA Guidelines
Added table of contents	DoA Guidelines
Added list of Abbreviations	DoA Guidelines
Removed document header	DoA Guidelines
Changed the document’s footer to include the following information: "[Proposal number] - [Proposal acronym] - Part B - [Page number (starting at 1 for Part B)]"	DoA Guidelines
Removed table 3.1a of Horizon Europe template	DoA Guidelines (It is now included in Part A)
Removed table 3.1b of Horizon Europe template	DoA Guidelines (It is now included in Part A)
Removed table 3.1c of Horizon Europe template	DoA Guidelines (It is now included in Part A)
Removed table 3.1d of Horizon Europe template	DoA Guidelines (It is now included in Part A)
Removed table 3.1e of Horizon Europe template	DoA Guidelines (It is now included in Part A)
Removed table 3.1f of Horizon Europe template	DoA Guidelines (It is now included in Part A)
Added a section 4 “ethics self-assessment” and added the relevant text of the proposal Part A	DoA Guidelines

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List of Abbreviations

Term	Description
CAP	Climate Adaptation Planning
CC	Climate Change
CCAPs	Climate Change Action Plans
CI-MSP	Climate-Informed MSP
C3S	Copernicus Climate Change Services
CMEMS	Copernicus Marine Environment Monitoring Service
CMS	Copernicus Marine Service
DL	Deep Learning
EMFF	European Maritime and Fisheries Fund
EO	Earth Observation
GES	Good Environmental Status
GIS	Geographical Information System
ICZM	Integrated Coastal Zone Management
IMP	Integrated Maritime Policy
LSI	Land-Sea Interaction
ML	Machine Learning
MSFD	Marine Strategy Framework Directive
NBS	Nature-Based Solutions
DSS	Decision Support System
ODC	OCEANIDS Data Cubes
O-DSP	OCEANIDS Decision Support Platform
TEP	Thematic Exploitation Platforms (by ESA)

1 Excellence

1.1 Objectives and Ambition

OCEANIDS aims at building **user-driven applications and tools**, which act as an enabling technological layer for **regional authorities & stakeholders** in order to achieve **a more resilient and inclusive systemic pathway to a Blue Economy in coastal regions**. Under a single-access window platform for **Climate-Informed Maritime Spatial Planning (CI-MSP),** the project will allow a more integrated seascape management of coastal regions. The over-arching concept is to **collect, harmonise and curate existing climate data services**, making data accessible, reusable and interoperable for the development of local adaptation strategies. OCEANIDS facilitates access to knowledge, data & digital services critical for better understanding and managing climate risks, enhancing adaptive capacities and supporting transformative innovations. In addition, OCEANIDS sees inclusivity as an enabling, and required, factor towards a Blue Economy. The project has a strong focus on behavioural change, both on individual as well as on a systemic level, enabling participating regions and communities to better understand and use potential social tipping points and systemic leverage points to accelerate transformative changes towards climate resilience. To achieve this, it promotes **inclusive and deliberative governance** through meaningful engagement and **dialogue between citizens and stakeholders**. This will be achieved using case-specific tools (i.e. ephemeral social networks) leveraging local citizens assemblies for bottom up deliberation, cultivating a culture of civic engagement, thus empowering individuals to take action in their own communities. Finally, the project will contribute to mobilising sustainable finance and resources towards adaptation at scale and closing climate protection gap.

1.1.1 Challenges and Motivation of OCEANIDS

1.1.1.1 The importance of coastal zones, regional seas, and maritime development for the EU

We live in the age of blue growth. The use of the sea and coastal areas intensifies, both because of tightening couplings thus busier traffic in the global economy and because coastal zones serve as staging areas for emerging marine economies as economic boundaries expand more and more into the marine realm. The EU has 68,000 km of coastline, spanning more than 20 Member States and half of the total continental population and more than 1,000 ports and shipyards. Marine environments and coastal settlements are, therefore, fundamental components of the European geopolitical context. With approximately 140,000 km^2 of land located 1 meter below mean sea level, it is crucial to address the climate-related coastal vulnerabilities to avoid damage to the economy, society, and the environment

1.1.1.2 CC impacts on Coastal regions - Risks & opportunities

Coastal regions are often characterised by strategic socio-economic assets (i.e., linked to tourism, fisheries, harbours, and shipyards). This makes coasts particularly sensitive to **Climate Change (CC**) impacts, which primarily expose infrastructure and local population. Human activities are also responsible for additional pressures on coastal ecosystems, often generating more immediate impacts than those expected from CC by aggravating existing vulnerabilities. The need for CC adaptation in coastal areas is evident and is predicted to become progressively more significant over time due to the grim long-term forecasts of climate variables. Coastal area adaptation strategies should be iterative and dynamic, due to the evolving dynamics of coastal territorial systems. Furthermore, CC adaptation measures should consider local ecology, economy, society, politics, and technology. Therefore, the definition of **Climate Adaptation Planning (CAP)** must consider specific local socio-economic contexts.

1.1.1.3 Seascape planning and governance of coastal areas - A multi-disciplinary and multi-actor task

Coastal governance needs to change, adapting to the new needs and associated of all stakeholders involved. Reactive and spatially isolated efforts are generally recognised as less effective than proactive and integrated coastal management. For example, European and international policy strategies recognise the central role of **Integrated Coastal Zone Management (ICZM)**, which is considered the most appropriate process to deal with climate change impacts, such as sea-level rises. Integration refers to measures that combine adaptation with various planning sectors and multi-scalar policies. It is argued that governing **Land-Sea Interaction (LSI)** and the coastal zones is particularly prone to problems of observation (between land and sea, between the centre and coastal margin) and complex interdependencies (between social and ecological systems, between actors managing risk) at different levels (landscape, regime, and niche). Governing LSI requires a multi-actor and multi-level perspective applied as methodological frameworks to governance and new forms of policy integration, which means, an explicitly coastal governance arena, semi-autonomous yet subjected to the checks and balances of the multi-level approach. There are significant problems of coordination in coastal governance, issues of inclusion/exclusion, risk & uncertainty, diverse knowledge, methodology and observations. Therefore, **the growth of the pressures induced on the global marine environment urgently requires more sustainable coastal and maritime management**. At present, the current paucity of integrated strategies between land and sea management and holistic management practices are hindered by the following barriers: ⭘ Lack of comparable local information systems; ⭘ Extensive and inaccurate forecasting systems; ⭘ Lack

of integrated governance between the land and sea systems; ⭘ Multilevel governance organisation; ⭘ Inertia of public administrations in the adoption of medium- to long-term knowledge systems; ⭘ Absence of guiding regulations. **OCEANIDS focuses on solving these challenges, by providing a set of tools and applications that enable a more integrated seascape management, respecting climatic information**.

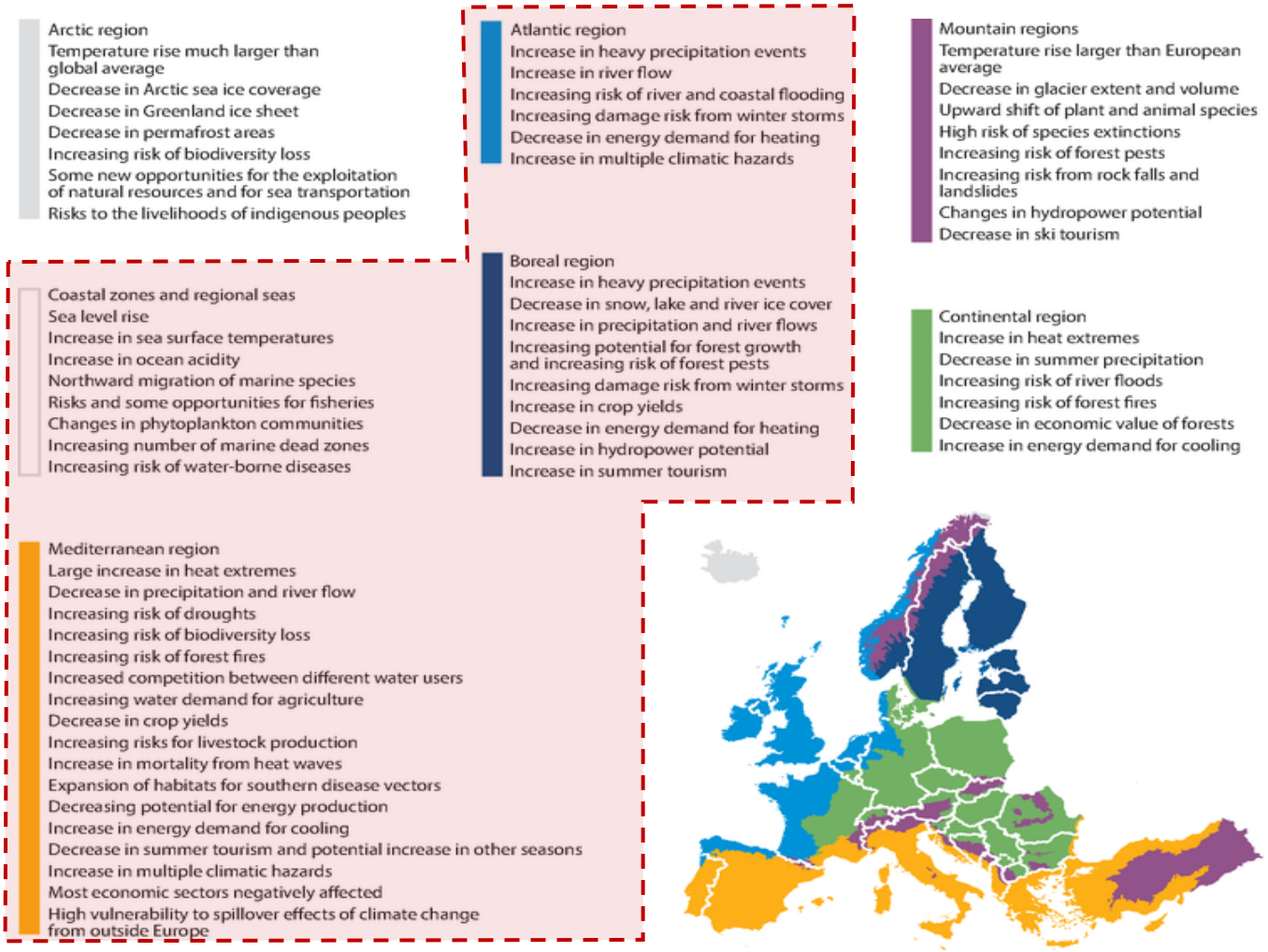


Figure 1. Observed/projected climate change impacts for the main biogeographical regions in Europe[1]. *In red the zones targeted by OCEANIDS*

1.1.2 Project objectives

The overall project objective is to develop the tools and applications which enable a more resilient and inclusive society in Coastal regions, via better-informed and integrated seascape management. More specifically, the project objectives are:

Strategic objectives

⭘ **SO-1 Improve access to existing data and services via application related to CC-induced impacts on the coastal region:** **How to measure:** Integration of **existing data and services** in the 7 pilot sites. **How to verify:** Successful completion of T4.2. [D4.2] ⭘ **SO-2 Create beyond State-of-the-Art re-usable information tools tailored to users' needs:** **How to measure:** Effectively deploy the core modules and OCEANIDS tools and applications. **How to verify:** Successful completion of WP3 & 4 activities. ⭘ **SO-3 Novel climate services, fully integrated into operational EU infrastructure, to be further used by the Mission:** **How to measure:** Deployment of all OCEANIDS tools and applications in existing datastores and infrastructures (i.e., DIAS, GEOSS). **How to verify:** Successful completion of T3.5, T6.2 & T6.3 activities. [D3.5, D6.2, D6.3, D6.4] ⭘ **SO-4 Providing a data-exchange framework that will allow efficient flow and validation of data from both local and central sources:** **How to measure:** Deployment and validation of the Data Cubes and the data curation & exchange framework in the 7 pilot sites. **How to verify:** Successful completion of T3.1 activities. [All deliverables of WP3 and Milestone 2] ⭘ **SO-5 Demonstrate the OCEANIDS tools and application by 12 end users in 7 EU different regions, ensuring vulnerable and challenged regions are represented:** **How to measure:** Deploy the OCEANIDS approach in the 7 pilot sites. **How to verify:** Successful completion of WP5 activities. [D5.1 and D5.2 and Milestone 5]

[1] https://www.eea.europa.eu/data-and-maps/figures/key-past-and-projected-impacts-and-effects-on-sectors-for-the-main-biogeographic-regions-of-europe-5

Scientific and Technological objectives

STO-1 Identify all key stakeholders related to the final tools and applications of OCEANIDS: How to measure objective: Establish the OCEANIIDS stakeholders' community with **at least 200 users**. **How to verify objective:** Successful completion of T2.1[D2.1]. **STO-2 Perform an in-depth gap analysis in the root causes of poor data consumption and application uptake by regional stakeholders: How to measure objective:** Finalise the interactive discovery of needs and requirements with the stakeholder's community. **How to verify objective:** Successful completion of T2.2 [D2.2]. **STO-3 Social innovation - Develop a citizen engagement framework allowing multi-participatory and co-creation, towards a more inclusive society: How to measure objective:** Engagement of citizens & awareness co-creation via ephemeral social networks. **How to verify objective:** Successful completion of T2.4 [D2.3]. **STO-4 Identify the use of New Earth observation (EO) data services requirements & specifications: How to measure:** Provide specification of new required workflows, EO data services, and other data hubs together with their processing workflows. **How to verify:** Successful completion of T3.2 [D3.2]. **STO-5 Climatic models, forecasting & Meteorological models curation & quantitative environmental impact assessment in coastal regions: How to measure objective:** Acquire better predictions than the current state-of-the-art by using the in-project developed modules (federated and curated data & services). **How to verify objective:** Successful completion of T3.2 & 3.4 [D3.3]. **STO-6 Develop a platform for assessing the impacts and risks of climate change on key community systems, as highlighted in the Mission Implementation Plan, including multi-hazard assessment: How to measure objective:** Provide the algorithms for assessing multi-hazard compounding and cascading hazard risks. **How to verify objective:** Successful completion of T4.1 [D4.2]. **STO-7 Develop an integrated EO and spatial data platform (single-access window) for CC-related data and services for regional stakeholders: How to measure objective:** Produce a single access window for spatially-enabled data and engage a **minimum of 50 users** in the pilot activities. **How to verify objective:** Successful completion of T4.2 [D4.3]. **STO-8 Develop a DSS towards enabling CI-MSP in coastal regions: How to measure objective:** Demonstrate the OCEANIDS Decision Support Platform (O-DSP). **How to verify objective:** Successful completion of T4.3 [D4.4]. **STO-9 Deploy the OCEANIDS tools, modules, applications and platforms on operational infrastructure in a modular, reusable and user-friendly way: How to measure objective:** Demonstrate the OCEANIDS tools and application in 7 regions (Subcontractor's (to be decided), Bretagne, Azores, Crete, Aegean Islands, Southern Finland and Malaga). **How to verify objective:** Successful completion of T5.2. Engage a minimum of 100 citizens in each pilot activity, and region 10 users to be trained and use O-DSP and handbook. [D5.2] **STO-10 Ensure project results replication in other regions, dissemination results of results to a wide audience and sustainability of the approach in real-life conditions: How to measure objective:** Finalise the demo activities assessment, and disseminate results to at **least 500 regional and other stakeholders** from the community (T2.1). **How to verify objective:** Successful completion of T5.3, T6.1, T6.3 [D6.5 and D6.6]. **STO-11 Liaising with other EU projects & initiatives & lessons learnt: How to measure objective:** Engage in all planned activities by the EC and produce a "mission statement" for the role of OCEANIDS. **How to verify objective:** Successful completion of task 6.2 [D6.7 and D6.8].

1.1.2.1 *Pertinence of objectives to Work Programme topic*

Work Programme topic description	Objective
Better access to, and transformation of, the already openly available climate data in the C3S Climate Data Store, Climate ADAPT and relevant Horizon 2020 projects or other initiatives (such as GEOSS) into user-relevant climate change services, in combination with locally sourced data and information, where available. Long-term safeguarding of developed solutions by integration into **the operational infrastructure and services of the Climate Data Store should also be explored.**	SO-1 & 3
Beyond-state-of-the-art relevant information (including climate, socio-economic, and **demographic information) services and tools tailored to Mission users' needs (…), with customizable data-manipulation tools available for use and re-use.**	SO-2
Quality-controlled climate data services that the Mission could build upon, support **and** maintain **as customizable, user-oriented components of operationally supported EU services (such as the C3S).**	SO-3
Tested FAIR data governance and management mechanisms that enable the sharing, community validation and use of locally sourced data and information, in combination with authoritative data and information as part of the European Green Deal Data Space.	SO-4
Demonstrated application in at least 5 EU regions or communities.	SO-5
Develop new technologies addressing access to key climate data and information services; such technologies will use improved user-defined and user-friendly tools tailored to regional and community	STO-5,

level applications for adaptation to climate change able to build climate resilience in all sectors/services involved.	6, 7, 8
I**mproved user-defined data manipulation tools that can be used, reused and further developed, thereby contributing to an ecosystem of readily available tools and integrated information services. The tools developed should be designed as a component of decision support** tools **for public authorities integrating socio-economic aspects and allowing them to assess risk-reduction benefits of various adaptation solutions across several regions.**	STO-5, 10
Consider the **impacts of climate change on key community systems highlighted in the Mission Implementation Plan, across several climate regions and how their functioning might be affected by climate** change-induced **risks.**	STO-6
Develop a gap analysis of accessibility, usability, customization and adaptability of existing European relevant information (including climate, socio-economic, and **demographic information) services with respect to user needs at regional and community levels. Prepare and implement training and capacity building, adapted for non-**experts' **local end-users (beyond the 5 regions where the tools are demonstrated) to support them in using or tailoring the tools developed by the project.**	STO-2
Identify data availability and data accessibility gaps, and overcome barriers and limitations of existing approaches. In particular, takes into account: Consistency in the definition of climate risk indicators given **the Mission objectives and projects addressing climate change risks; Socio-economic data at the local level and integrating it to the tools and services developed or improved for regional and local end-users; The experience from the Sectoral Information System demonstrators of the Copernicus Climate Change Service and relevant Horizon 2020 projects; Access to EU digital infrastructures; Destination Earth, European Open Science Cloud, Copernicus DIAS and GEOSS.**	STO-1 & 2
Address the provision of user-relevant climate change indicators linked to socio-economic and demographic data to public authorities and Mission end users.	STO-1
Factor in the effect of multiple hazards (including complex, cascading and compound disasters) in support of the activities set out in the topic «HORIZON-MISS-2021-CLIMA-02-01»	STO-5
Give due regard to the Commission's **technical guidance on the climate proofing of infrastructure in the period 2021-2027, notably as regards climate resilience, climate vulnerability and risk assessment, as well as the identification, economic and technical appraisal, and implementation of relevant adaptation measures.**	STO-5
Provide coordination between the targeted regions/communities with respect to their climate data needs, to identify overlaps, synergies and cost-sharing opportunities.	STO-1 & 2
Ensure the solutions' long-term viability through integration within the toolbox of the Climate Data Store and/or other operationally supported technical infrastructures.	SO-3 STO9
Discuss with and engage local communities and all relevant stakeholders (e.g., **experts, policy-makers etc.) in a given region, in knowledge-sharing and production, testing the technology itself and making sure all knowledge, relevant to climate resilience, is represented.**	STO-1, 2 & 3
Priority should be given to regions or communities with high vulnerability, limited resources and/or low adaptive capacity to climate change impacts. Demand for this type of service **could be higher than what can be supplied within the limits of this action. Therefore, proposals** for **this call should present the process and criteria** for **how the target regions and communities are identified. These criteria will ensure that a variety of locations are represented, in as many countries as possible, reflecting the diversity in climatic risks in Europe, as well as differences in socio-economic and demographic conditions, and in approaches to mitigating such risks. Such criteria should also take into account the characteristics of the populations concerned and the vulnerability of the locations, as well as the priority attributed by national and regional governments. Consultation of national and regional governments in selecting the regions and communities is recommended (for example, by providing a letter of support by the relevant authorities as an annex to the proposal).**	SO-6 STO-1 & 2
Dedicated activities should be included for facilitating replication in further regions/communities	STO-10
In line with the overall principles of the Mission, proposals should take into **full consideration the local dimension of climate change and climate adaptation strategies, clarify how they would ensure a meaningful engagement with local communities as well as stakeholders to ensure, among others, the mobilization of local knowledge, and outline how they would contribute to achieving a just transition to climate resilience**	STO-1, 2 & 3

This topic requires the effective contribution of Social Sciences and Humanities (SSH) disciplines and the involvement of SSH experts, and **institutions as well as the inclusion of relevant SSH expertise, in order to produce meaningful and significant effects enhancing the societal impact of the related research activities.** STO-1, 2 & 3

1.1.3 Progress beyond the State-of-the-Art (SotA) in technology and products

1.1.3.1 SotA in existing tools & applications related to CC and coastal management

Below is a list of tools used towards efficient and climate-informed coastal management. The tools are categorised also based on the MSP process most relevant to their usage (**M - Making the Case, P - Planning, I - Implementation):**

Tool name	Process	Access	Format
Adaptation Design Tool: Corals and Climate Adaptation Planning	P	Open	Document & Software
ARIES	M - P	Open	Software
Capturing Coral Reef & Related Ecosystem Services (CCRES) project tools	P - I	Open	Software & Cloud
Changing Tides: Climate Adaptation Methodology for Protected Areas	P - I	Open	Document & Software
Climate Adaptation Toolkit for Marine and Coastal Protected Areas	P - I	Open	Software
Coastal Climate Adaptation Decision Support	P - I	Open	Document
Decision Support Tool for Blue Economy in Marine Protected Areas	P - I	Open	Software
DEVOTES	P - I	Open	Software
Earth Blox	P - I	-	Web/Cloud
EcoImpact Mapper	P - I	Open	Software
Ecopath with Ecosim (EwE)	M - P - I	Open	Software
EO4SD Marine and Coastal Resources Portfolio	P	n/a	Advisory service
ExtendSIM	P - I	Paid	Software
Google Earth 3D Timelapse Tool	M - P	Open	Web/Cloud
Guide for Planners and Managers to Design Resilient Marine Protected Area Networks in a Changing Climate	P	Open	Document
iMarine	P - I	Open	Software
Living Standards Measurement Study (LSMS)	M - P	Open	Document
Marxan	M - P - I	Open	Software
Monitoring climate-related responses in Mediterranean Marine Protected Areas and beyond	P - I	Open	Document
Natural Capital Project (£ Integrated Valuation of Ecosystem Services and Tradeoffs (InVEST) £ Restoration Opportunities Optimization Tool (ROOT) £ Offset Portfolio Analyzer and Locator (OPAL) £ Mapping Ecosystem Services to Human well-being (MESH)	M - P - I	Open	Software
North American Marine Protected Area Rapid Vulnerability Assessment Tool	P - I	Open	Document & Software
ODEMM (£ Linkage Framework £ Pressure Assessment £ Ecological Risk Assessment £ Nested Governance Structures£ Alternative Governance Models £ Cost Benefit Analyses £ Integrated Management Strategy Evaluation (iMSE))	M - P	Open	Document & Software
Reef Resilience Toolkit	P	Open	Document & Software
The Marine Spatial Planning Challenge	M - P	Open	Document & Software
Tools4MSP (£ Cumulative Effects Assessment Tool £ Maritime User Conflict Tool £ Marine Ecosystem Services Threat (MES-Threat) Assessment £ Decision Support Tool for Blue Economy in Marine Protected Areas)	M - P	Open	Cloud
Online GIS Mapping Tools and Portals			
ArcGIS Online	M - P - I	Paid	Cloud
ARIES for SEEA Explorer	M	Open	Cloud
Baltic Explorer	M - P	Open	Cloud
Caribbean Marine Atlas	M - P	Open	Cloud
Caribbean Marine Maps	M - P	Open	Cloud
Climate Engine	M - P	-	Cloud
Coastal Explorer (Belgium)	M - P - I	Open	Cloud
Coastal Resilience	M - P	Open	Cloud
Earth Map	M - P	Open	Cloud
European Atlas of the Sea	M - P	Open	Cloud
Google Earth Engine	M - P	Open	Cloud

IPCC WGI Interactive Atlas	M - P	Open	Cloud
Marine Protection Atlas	M - P	Open	Cloud
MESH Seabed Habitat Maps (EMODnet)	P - I	Open	Cloud
Ocean+ Habitats	P	Open	Cloud
Ocean Wealth Explorer	M - P	Open	Cloud
PEDDR Opportunity Mapping Tool	M - P	Open	Cloud
SeaSketch	M - P	Paid	Cloud
Spatial Agent	M - P	Open	Cloud
Tools4MSP Geoplatform	M - P	Open	Cloud
The World Bank Maps	M - P	Open	Cloud

1.1.3.2 Progress beyond the SotA by OCEANIDS

SotA: EO and GEOSS data are not sufficiently accessible to stakeholders to ensure incorporation in CC mitigation planning. **OCEANIDS breakthrough:** The project will utilise satellite data and auxiliary data available from GEOSS, as well as a variety of other sources, to increase the precision in the analysis, and the reliability of the performance and simultaneously achieve an interoperable framework. This will result in a faster more reliable and flexible delivery of the EO data.

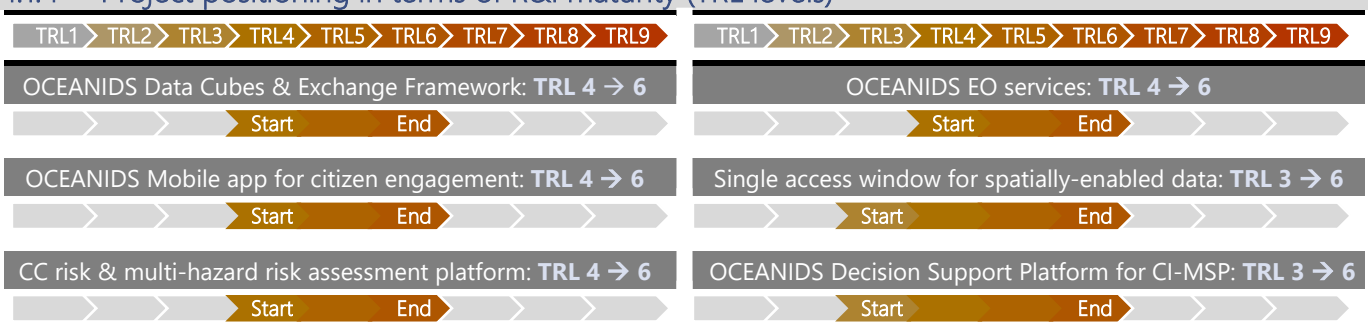
SotA: Current climatic and atmospheric indicators for CC scenarios are not directly applicable for impact assessment on coastal areas, in an intuitive manner. **OCEANIDS breakthrough:** OCEANIDS will identify, federate, and curate an optimal set of quantitative primary parameters and impact indicators to quantify CC impacts in coastal areas, encompassing climate extremes, hydrological factors, and other stress indicators. These will be defined according to a reliability-based approach of durability to identify the most appropriate parameters and their sensitivity. The project will provide a data service to the end users, ensuring that the clutter of data is removed.

SotA: Conventional Data Cubes with limited processing capabilities regarding multi-layered analysis of CC. **OCEANIDS breakthrough:** OCEANIDS supports advanced image analysis and machine learning algorithms to process multi-dimensional image cubes. The project supports methods for (i) dimensionality reduction, (ii) shadow detection and compensation, and (iii) deep learning models for semantically characterization of the image cube content. (iv) tensors-based learning for improving the analysis especially when the amount of data in the training sets is small (a usual problem due to the high effort and time required to get labelled data samples) and (v) alignment of the image cube content with the environmental and climate change data information.

SotA: There is no open-source software on multi-hazard resilience assessment; only proprietary tools are under development. **OCEANIDS breakthrough:** OCEANIDS will enable an unprecedented increase in the number of available models, data, and network simulators available to end-users, engineers, catastrophe risk modelers, and stakeholders, via the integrated platform for CC resilience and multi-hazard impact assessment, embracing existing open-source/ free software (QGIS, OpenQuake, EPANET etc.) and allowing interconnectivity with proper simulators via standardized APIs.

SotA: Lack of user-driven and friendly tools to assess CC impacts on coastal areas at the regional scale. **OCEANIDS breakthrough:** The multi-hazard impact assessment platform, the single-access window, and the OCEANIDS Decision Support Platform, all provide much-needed tools to the regional authorities and decision makers. The new tools will be user-driven and will be friendly-by-design, in order to ensure maximum uptake.

1.1.4 Project positioning in terms of R&I maturity (TRL levels)



1.2 Methodology

1.2.1 Introduction

1.2.1.1 Maritime Spatial Planning (MSP) under the Integrated Maritime Policy of the European Union (IMP)

Maritime Spatial Planning (MSP) is a relatively new planning approach that aims at analysing and organizing human activities in the sea space to achieve ecological, economic, and social objectives. The adoption of the MSP approach enriched, in the marine spatial dimension, coastal territorial planning, with the possibility of combining different necessities and solutions within the Blue Economy framework. In this context, the **Integrated Maritime Policy (IMP)** of the European Union was adopted to provide a more coherent approach to maritime issues, calling for an increased coordination between different policy areas under a comprehensive policy "umbrella". The backbone of the environmental aspect of the IMP is the **Marine Strategy Framework Directive (MSFD)**, regulated by Directive 2008/56/EC, which considers the marine environment from an integrated perspective. The directive requires each coastal EU Member State to develop a strategy to prevent and restore damaged ecosystems to **Good Environmental Status (GES).** The MSP pillar of the EU's IMP is regulated by European Directive 2014/89/EU and makes MSP mandatory in planning policies of all coastal Member States. MSP is defined Directive as a process by which the relevant Member State's authorities analyse and organise human activities in marine areas to achieve ecological, economic and social objectives. The MSP Directive required EU Member States to develop a national maritime spatial plan by 31 March 2021, with a minimum review period of 10 years, and establishes an MSP framework, aimed at i) promoting the sustainable growth of maritime economies; ii) the sustainable development of marine areas; iii) the sustainable use of marine resources. Moreover, the Directive states that the minimum requirements for maritime spatial plans must include land-sea interactions, an ecosystem-based approach, coherence between MSP and other processes such as integrated coastal management, the involvement of stakeholders, the use of the best available data, transboundary cooperation between Member States, and cooperation with third countries.

Therefore, initiatives aiming at integrating land-based and maritime spatial planning are promoted by the Directive. Aiming to aid the MSP directive implementation, the **EU MSP Platform**[2] is a service for Member States to share relevant knowledge and experiences, designed to offer support with the implementation of MSP. It is funded by the EC Directorate-General for Maritime Affairs and Fisheries (DG MARE) through the European Maritime and Fisheries Fund (EMFF). European Sea Basins served via the MSP platform include ⚬ the Baltic Sea the North Sea the Atlantic the Western Mediterranean the Eastern Mediterranean; d ⚬ the Black Sea. **OCEANIDS has planned pilot activities in 5 out of the 6 basins**. Figure 2 depicts how OCEANIDS complements the standard MSP process workflow.[3]

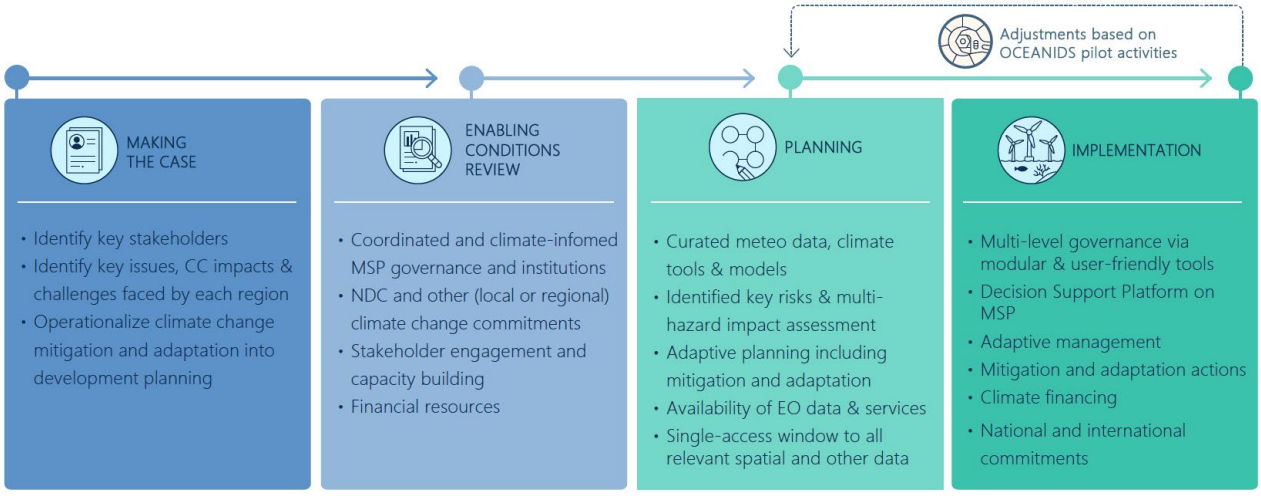


Figure 2. The MSP creation lifecycle, and how OCEANIDS components address each cycle

1.2.1.2 Integrated seascape management - A multi-participatory approach

⚬ **Authorities & Policy Makers:** CC considerations apply at all phases of MSP and across all sectors, therefore, discussions and collaborations among policymakers and decision makers are key to finding appropriate MSP actions to address climate impacts. ⚬ **Civil Society & Active Citizens' Engagement:** CC affects people in different ways, and they need a mechanism or tool to share concerns, experiences and solutions and to collaborate on ways to mitigate and adapt to impending CC. Therefore, participation of beneficiaries (i.e., coastal communities) throughout the MSP process is critical. There is little research and hardly any empirical evidence on what inspires engagement in different

[2] https://maritime-spatial-planning.ec.europa.eu/msp-practice/seabasins
[3] PEROBLUE initiative by the World Bank (INTEGRATED SEASCAPE MANAGEMENT, Knowledge Factsheet Series #4 April 2022)

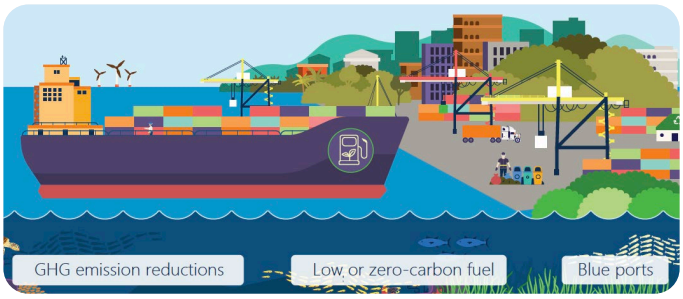
citizen groups to support CC mitigation. OCEANIDS is proposing a citizen inclusivity & engagement framework to address this issue and further engage citizens via optimised/personalised content and novel ICT tools acting as the seeding ground for this new approach. OCEANIDS seeks to explore novel ways to monitor and assess CC and environmental impact in the coastal regions, via the use of advanced technologies and active citizen engagement. ⭘ **Private Sector:** Private sector actors have a better understanding of how CC can impact their sector. They also need certainty to access marine resources in the face of CC and take part in CC mitigation and adaptation efforts.

1.2.1.3 Integrated seascape management via Climate-informed Maritime Spatial Planning (CI-MSP)

OCEANIDS will explore an innovative and integrated approach, consisting of advanced tools and applications aimed at bridging the knowledge and communication gaps between regional and local stakeholders, developed to address two of the primary issues which affect European coastal areas: climate change impacts and anthropogenic pressure on the coastal and marine environment. This methodology **combines MSP and CAP** knowledge framework development into a single planning approach: **Climate-Informed Maritime Spatial Planning (CI-MSP)**. CI-MSP is a multi-participatory process that considers current and future climate risks and opportunities during design, planning, and implementation. While CI-MSP is key to realizing the Blue Economy, this process supports stakeholders in meeting their national and international climate targets and enables them to implement their **Climate Change Action Plans (CCAPs)**. Climate considerations in MSP harness the economic opportunities of the decarbonization pathway while responding to the growing challenges of climate change through adaptive and integrated ocean management.

Key benefits of CI-MSP: Key benefits of CI-MSP include: ⭘ **Low-carbon pathways** by allocating space and specifying uses that contribute to mitigation efforts in the different marine sectors, such as offshore renewable energy, low carbon fuel bunkering, decarbonized maritime transport and port infrastructure, carbon capture and storage, sequestration of blue carbon and limiting areas used by sectors with high greenhouse gas emissions. ⭘ **Adaptive marine spatial plans** that prepare for and dynamically respond to changes in resource distribution and abundance, and ecosystem services resulting from climate change impacts. ⭘ **Enhanced climate resilience** in coastal-marine areas through nature-based solutions and other hybrid infrastructure that maintains and restores biodiversity and ecosystem services essential to protect people from CC events (storms, sea-level rise, etc.). ⭘ **Prevent loss of life and property** from coastal flooding through the establishment of early warning systems for tsunamis, and tropical storms, and include coastal setbacks to protect property and communities from erosion. ⭘ **Effective processes to explore synergies and trade-offs** between climate mitigation and adaptation measures to reduce vulnerabilities, increase resilience and plan and implement these measures across sectors at varying geographic scales. ⭘ **Investments that account for key climate change impacts** at the planning stage and support sectors to transition to lower carbon pathways, thus de-risking and leveraging the private sector. ⭘ **Blue sectors are addressed in Nationally Determined Contributions (NDCs)** on climate. Countries can improve their understanding and commitments to implement NDCs in blue sectors. ⭘ **Climate Change Action Plans** successfully implemented.

1.2.1.4 Key areas addressed by the CI-MSP concept and the OCEANIDS approach

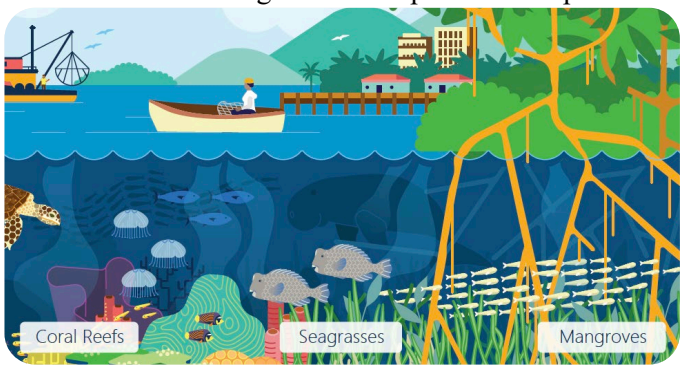


Shipping and transportation: Climate focus in the shipping sector is mostly on mitigation measures to reduce ships' GHG emissions by at least 50% by 2050.[4] Blue ports are important to reaching the target since 45%-55% of the emissions occur while ships are in port.[5] Transitioning to low or zero-carbon fuel is key to achieving this target. It is also important to include fishing vessels in this transition since MSP can support siting new bunkering facilities and shipping channels and preventing and reducing climate, social and environmental risks. Adaptation is also important, particularly for blue ports, because of sea-level rise, flooding, wave heights and changing wind and current patterns.[6] Blue ports can contribute to mitigation and adaptation efforts by ensuring projects include GHG emission reductions, energy use and climate change resilience. MSPs also consider suitable marine areas for nature-based solutions to reduce the impacts of dredge spoils, rebuild or relocate climate-proofed blue ports and reconsider shipping channels.

Nature-Based Solutions (NBS): Rehabilitation and restoration of healthy ecosystems and their services can return many benefits to humans and nature. Marine habitats such as seagrasses, mangroves, and benthic macroalgae play

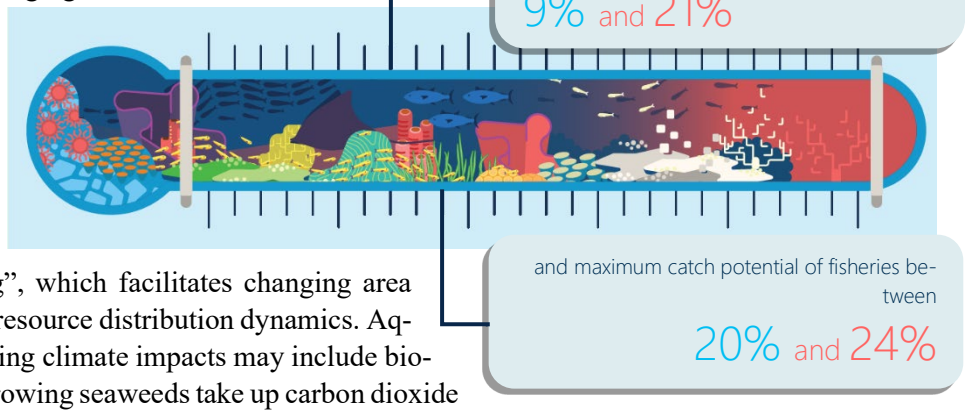
[4] International Maritime Organization. 2020. IMO Fourth Greenhouse Gas Study. London, UK
[5] United Nations Conference on Trade and Development. 2020. Climate Change Impacts and Adaptation for Coastal Transport Infrastructure: A Compilation of Policies and Practices. Geneva; UNCTAD.
[6] J. Chen, et al. 2019. "Constructing Governance Framework of a Green and Smart Port". Journal of Marine Science and Engineering 7(4).

an important role in climate change mitigation, accounting for 50% of carbon buried in marine sediments. Mangroves and seagrasses dissipate wave energy and trap sediments to build and maintain the seafloor and buffer the impacts of rising sea levels and wave action from climate change. Healthy coral reefs can protect against climate hazards by reducing wave energy by an average of 97%.[8] Corals and other calcareous algae also provide the major building material of white sand beaches and coastal dunes, with the benefit of being the last line of protection between the sea and land. Mangroves are expected to adapt to about 7mm of annual sea level rise, but this may not be enough.[9]



Establishing limits to urban sprawl and removing or relocating barriers (hard structures such as seawalls, roads, and buildings) will allow ecosystems to shift inland if space is available, and therefore increase their adaptability to sea-level rise.[10] MSP can help mainstream solutions such as extending marine protected area boundaries and restoring native species. Protecting habitats against other stressors will also increase the overall health and resilience of existing coastal habitats and thus their provision of climate change benefits.

Fisheries and aquaculture: The latest IPCC report predicts climate impacts on fish production will differ regionally. Some countries will see increased fish production while others will have decreased production. These changes, along with changing fish distributions and migration patterns, risk the food security of coastal communities that rely on coastal fisheries. MSPs can use marine protected areas, other closures and fish management measures to adapt to these impacts. Other approaches include "dynamic zoning", which facilitates changing area uses and regulations in response to resource distribution dynamics. Aquaculture's potential role in mitigating climate impacts may include bioextraction using seaweeds. Many growing seaweeds take up carbon dioxide and nutrients from their environment, removing dissolved acid and nutrients and sequestering carbon on the sea floor.[11] MSP can allocate geographic areas for these important activities that are sited away from critical habitats, transport lanes and offshore infrastructure to avoid habitat degradation. Species diversification can contribute to reducing climate change impacts, as well as other measures such as using feed-efficient species or genetic strains that reduce GHG emissions, and tolerate a wide range of temperature and salinity levels. Adoption of climate-smart aquaculture technologies in the marine space may increase species adaptive capacity, and reduce disease incidences and loss of fish through natural disasters. These benefits ultimately enhance community resilience.



Nearshore and Offshore Renewable energy: Offshore renewable energy encompasses a range of technologies: offshore wind turbines, floating solar photovoltaic, wave, tidal, salt gradient and ocean thermal conversion energy technologies. Currently, offshore wind (34.4 GW in 2020) has considerable mitigation potential.[12] It also has a role in achieving the 1.5°C pathway by contributing to mitigating carbon emissions. The International Renewable Energy Agency (IRENA) envisions around 2,000 GW of installed offshore wind capacity by 2050, which would avoid around 4 gigatons of CO2 per annum.[13] Realizing this

[7] C. Duarte, et al. 2013. The role of coastal plant communities for climate change mitigation and adaptation. Nature Climate Change 3, 961–968
[8] F. Ferrario, et al. 2014. "The effectiveness of coral reefs for coastal hazard risk reduction and adaptation". Nature Communication 5, 3794
[9] N. Saintilan, et al. 2020. Thresholds of mangrove survival under rapid sea level rise. Science, 368(6495):1118-1121
[10] Land Trust Alliance. 2021. "Manage Coastal Ecosystems for Climate Change". https://climatechange.lta.org/manage-coastal-habitats-forclimate-change/
[11] C. Duarte, et al. 2017. "Can Seaweed Farming Play a Role in Climate Change Mitigation and Adaptation?" Frontiers of Marine Science.
[12] IRENA. 2021. Renewable capacity statistics 2021. Abu Dhabi; International Renewable Energy Agency (IRENA).
[13] IRENA. 2021. World Energy Transitions Outlook: 1.5°C Pathway. Abu Dhabi; IRENA.

offshore wind potential requires investments of USD 177 billion annually by 2050.[14] This investment will primarily be from the private sector, which requires certainty to access areas for development, preventing environmental and social risks. The MSP process can provide certainty while supporting climate mitigation. Other offshore infrastructures with significant decarbonization potential include submerged data centres, as the ocean temperatures can be used to cool sealed units to reduce energy consumption.[15]

1.2.2 Tools (OCEANIDS Modules) for better access to, the transformation of, and increased consumption of existing climate data & services

1.2.2.1 Harmonisation & mobilisation of existing data & services: collection, curation & exchange

EUBON led to the creation of an effective registry system which builds on existing major resources such as Global Biodiversity Information Facility (GBIF)[16], LTER, DataOne, EuMon, etc., and links them using the GEOSS Data Access Broker system.[17,18] The GBIF is an international network and data infrastructure funded by the world's governments and aimed at providing anyone, anywhere, open access to data about all types of life on Earth. OCEANIDS will seek to become an associate participant in the GBIF initiative, and will also seek to connect with and provide connection to, the GBIF datasets, using commonly agreed standards. **CDP Europe** (a global non-profit that runs the world's environmental disclosure system for companies, cities, regions and public authorities) has joined OCEANIDS to help the mobilisation of existing, self-reported, data on climate adaptation. CDP's cities and regions datasets are available on the CDP Open Data Portal https://data.cdp.net/. OCEANIDS builds on top of such activities in order to further expand the data integration capabilities and to include more data types & sources leading, finally, to a single access window on biodiversity aspects. Local databases will be assessed early in the project in order to collect their interaction specifications and identify possible gaps to be covered. In addition, in line with GDPR, an effective data anonymization mechanism will allow to avoid any high risk of privacy and security that usually constitute a key concern. These data interoperability and management mechanisms developed within WP3 will allow the reduction of the costs for data maintenance and permit the transformation of data into useful information within WP4. Finally, in line with the EU strategy for data spaces, the exposition of open standard API will allow bidirectional data exchange with external platforms and digital services.

Table 1. a non-exhaustive list of Datasets that are being used by EU stakeholder for the management of coastal regions

Name	Coverage
World Ocean Atlas	Global
GEBCO	Global
EEA Database	European
EMODnet Thematic Lots	European
SeaDataNet	European
European Atlas of the Sea	European
Eurostat Database	European
ESPON 2013 Database	European
INSPIRE Geoportal	European
ICES Data Portal	European
Copernicus MEMS	European
SHOM Marine Data Portal	Global French maritime areas
Spanish Harbours Authority	Atlantic, West Mediterranean Sea
Balearic Islands Coastal Observing and Forecasting System	
HELCOM Map and Data Service	Baltic Sea
Baltic Sea Bathymetry Database	Baltic Sea
SMHI Open Data Catalogue	Baltic Sea
SEAGIS	Baltic Sea
GeoSea-Portal	Germany
Marine Data Infrastructure Germany	Germany
CONTIS	Germany
POSEIDON	Greece
THAL-CHOR WebGIS	Greece, Cyprus
Cyprus Coastal Ocean Forecasting Observing System	Cyprus
SHAPE Adriatic Atlas	Adriatic Sea
ADRIPLAN Data Portal	Adriatic Sea
Flemish Banks Monitoring Network	Belgium
Marine Atlas	Belgium
Belgian Coastal Atlas	Belgium
Noordzeeloket	Netherlands
Marine Information House	Netherlands
Marine Spatial Data Infrastructure	Denmark
MMO Marine Planning Evidence	UK

[14] IRENA. 2020. Fostering a blue economy: Offshore renewable energy. Abu Dhabi; IRENA.
[15] Roach, J. 2020. "Microsoft finds underwater datacenters are reliable, practical and use energy sustainably"
[16] https://www.gbif.org
[17] RJ Scholes, et al, (2012). Building a global observing system for biodiversity. Current Opinion in Environmental Sustainability 4: 139-146. Elsevier.
[18] H. Saarenmaa, et al. (2013). Development of extended content standards for biodiversity data. European Geosciences Union (EGU) General Assembly 2013. Vienna, 8-12 April 2013. Geophysical Research Abstracts, Vol. 15, EGU2013-6968, 2013.

Capitalising existing datasets & space assets/infrastructure: Earth Observation (EO) datasets and services - including GEOSS, Copernicus, ESA TEPs services and other ESA data and services, as well as National Data Cubes - with ensemble modelling, biodiversity, socio-economic and in-situ data at the spatial and temporal scales relevant for the urban environment. Local satellite data time series, spatial information and auxiliary data (e.g., in situ sensors, crowdsourced environmental data, bases using spatial and non-spatial data etc.) will integrate detailed information on a local level of neighbourhoods/districts/city level with the broader macro-scale. OCEANIDS will assess the use of specific satellite processing chains based on Copernicus services, image processing methodologies (change detection, image segmentation, feature extraction etc.) and evaluate the use of the Euro Data Cube Platforms and API services: https://www.eurodatacube.com/marketplace and the Ellip user algorithm hosting: https://ellip.terradue.com for hosting OCEANIDS data sets and algorithms as services.

Data cubes for developing novel EO services & user-driven applications: The Euro Data Cube[19] is a multi-dimensional array with two spatial dimensions and one temporal and one spectral dimension. These time series of data capture the dynamics that occur in geographic space and are beneficial for better decisions (government, agencies, business). The spatial dimensions refer to a spatial reference system, the temporal reference denotes the temporal intervals and the spectral dimensions to spectral properties of the data. On top of this, the created OCEANIDS image data cubes are further processed and analysed using advanced deep learning and AI methods and Biodiversity and other auxiliary data. The purpose of these deep learning and AI methods software tools is to extract meaningful information from the high dimensional datasets and to efficiently structure the collected data into a semantically enriched framework through the application of classification (supervised approach) and cluttering methodologies (unsupervised approach). Generative adversarial neural networks (GANs) are exploited to fill data inconsistencies and incompleteness where they exist. The GAN models produce high-dimensionality data sets, through appropriate training, in order to correct missing or erroneous information from the initially collected data sets. In this way, the created data cubes of OCEANIDS are well structured and consistent and therefore optimization of processing, analysis and classification performance is achieved. Finally, the project will develop a common API for EO data cubes processing and analysis. OCEANIDS Data Cubes (ODC) is a paradigm aiming to realise the full potential of EO and auxiliary data by lowering the barriers caused by these Big data challenges and providing access to large spatio-temporal data in an analysis-ready form.

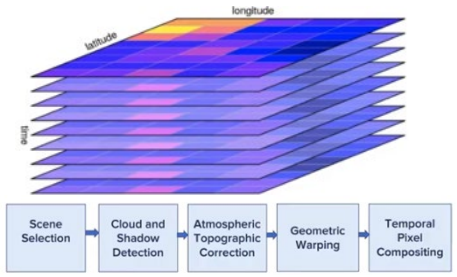


Figure 3. how an image data cube is constructed

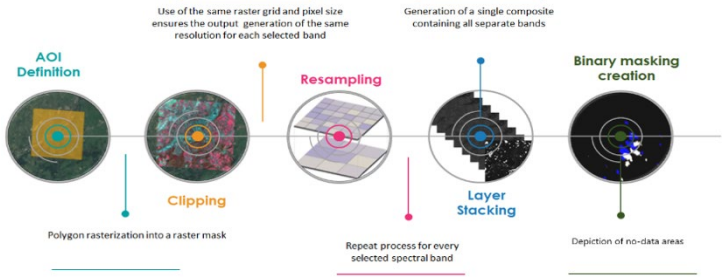


Figure 4. Indicative EO-pipeline for data preprocessing

EO services & mapping tools: The development and integration of new EO services and mapping tools should be the main core of *WP 5: Uptake of environmental data & mapping services: OCEANIDS EO applications*. These works include the definition of the system requirements, the development of the applications as well as the generation of maps highlighting possible biodiversity hazards and promoting mitigation plans. The development phase consists of the data collection and preparation step and the ML/DL analysis step. It is expected that both steps will be developed with open access and/or open-source SW solutions such as Python scripts and ESA's SNAP commands - especially useful for preparing radar data - (again with Python calls in a unified programming environment). The proposed Python pipelines would be implemented utilizing all relevant libraries (e.g., GDAL, fiona, RasterIO), ESA's SNAP[20] and other open tools (e.g., GRASS GIS), if needed. The proposed workflow aims to achieve homogeneity among the various satellite and non-satellite data exploited by OCEANIDS. The complete list of the new EO services functionalities and work plan shall include: Managing and organise the data sources ⭘ Integrate, testing, running, and managing applications (processes) ⭘ Define workflows by chaining processes to produce the products ⭘ Systematically executing the workflows to create the products taking advantage of scalable processing resources parallelising the processing ⭘ Visualization capabilities and provision of the means to access the delivered products. The processing analysis will focus on different biodiversity parameters, based on the specific KPIs and environmental indexes that will be finalized during the project, resulting in separate EO services. The ML/DL analysis will focus on classification and pattern recognition procedures and to this end various frameworks and setups are considered for deployment -

[19] https://eurodatacube.com/
[20] Sentinel Application Platform (SNAP) https://step.esa.int/main/toolboxes/snap/

all presenting adequate results in terms of accuracies: ○ Convolutional Neural Networks (CNNs), ○ Semantic segmentation based on deep learning, such as UNET[21] algorithms and network Transformers for future forecasting for the evolution of the selected CC impact case studies. The final products and maps will be stored in a geospatial database easily provided to external parties and SW via commonly OGC formats and services such as WMS and/or WMTS, WFS etc.

Satellite Data Utilization: In order to enhance the climate change impact awareness, supplementary sources to satellite data, shall be used. There are number of space-based technologies and assets available or becoming available in the mid-term future which may complement other existing and new data, such as nano- and micro-satellite constellations providing persistent monitoring with enhanced resolution, or satellites providing interactive real-time video. In this scenario, digitalization shall play a major role in optimizing the port and port cities/regions organization, regional and local authorities and other end users' facilitation. Earth observation data, combined with in situ measurements and artificial intelligence, will help to visualise and forecast natural and human activity and more[22]. The Digital Twin Earth model will be able to monitor the CC, perform simulations of Earth's interconnected system with human behavior, and help support environmental policies. Is a technical and operational challenge regarding the OCEANIDS Digital Twin Earth including the role of artificial intelligence and consistent data, stakeholder engagement scientific credibility and the role of sectorial models and Information and Communication Technology (ITC) infrastructure. OCEANIDS offer a complete, integrated, scalable and "turnkey" solution that will enable rapid adoption of the users. OCEANIDS shall secure ports, port cities, and regional and local authorities' operational optimization on climate impacts, data and knowledge. OCEANIDS forms better access to and transformation of, the already openly available climate data in the C3S Climate Data Store[23], Climate ADAPT [24]and relevant Horizon 2020 projects e.g., HARMONIA [25]and euPOLIS[26] and other initiatives e.g., GEOSS[27] into user-relevant climate change services, in combination with locally sourced data and information. OCEANIDS is envisaged to be integrated into the operational infrastructure and services of the Climate Data Store.

Optical EO Assets: Optical imagery is a powerful tool providing information in different spectral bands but suffers from dependency on solar illumination and weather changes, resulting in fragmented observations depending on the season and the area observed. The use of ESA optical satellites and Copernicus Contributing Missions which complement the Sentinel data can offer a response to specific Maritime Service needs, in particular with the use of very high resolution (VHR) data11. The missions include operations from European and International VHR satellites. There has been a huge increase in the number of VHR optical satellites already existing or planned for the near future years due to numerous launches of micro- and nano-satellites, improving the temporal resolution and enabling frequent monitoring of the same areas. Notable examples include SkySat, Pléiades-Neo, WorldView, Earth-i, DMC-3, Jilin-1, UrtheDaily, Planet12 (Planet operates more than 200 satellites that together provide an unprecedented dataset of Earth observation imagery) as well as new constellations such an EAGLET 2 or NAOS, the first Luxembourg dual use EO satellite. The problem with VHR data is the "cost" and "coverage": the sensors' narrow swath (spatial coverage) and relatively high costs to cover an area can be a disruptive factor. In the past, VHR images were generally utilised in small regions and were hardly applied to larger areas, so HR images were more frequently used (e.g., Sentinel-2 and Landsat). The increasing spatial resolution (now under 1m) and radiometric resolution (expressed in number of bits so higher radiometric resolution enables differentiation of smaller details in the image) of optical satellite sensors for both PAN and MS sensors allow detection of greater details in the image, thus enabling a more complex analysis, whilst on the other hand presenting a bigger processing challenge due to the larger quantity of data (proposed image size depending on the resolution varies from 50 to 250km2). Revisit times of VHR satellites have also substantially decreased, so some satellites are able to point their sensors to the same area between different satellite passes (e.g., WorldView-2), others are launched in constellations in order to be able to increase revisit frequency etc. It is also notable that PAN and MS are acquired simultaneously, so can be fused and detect ship objects and wake (trace). A new opportunity to investigate is the possible utilization of VHR data as an add-on to the micro- and nano-satellites, some of which have video capability. Focusing on the European missions, the potential use of all available optical imagery is a challenge. New projects are launching e.g., the New ESA project with the Greek CubeSats In-Orbit Validation Projects13 which includes optical among the 12 missions (Grant Number: 1-11498,

[21] [Su2019] Su, R., & Chen, R. (2019). Land Cover Change Detection via Semantic Segmentation. arXiv preprint arXiv:1911.12903.
[22] https://www.esa.int/Applications/Observing_the_Earth/Working_towards_a_Digital_Twin_of_Earth
[23] https://cds.climate.copernicus.eu/#!/home
[24] https://climate-adapt.eea.europa.eu/
[25] http://harmonia-project.eu/
[26] https://eupolis-project.eu/
[27] https://earthobservations.org/geoss.php

announcement date 05/08/2022) and the on-orbit successful study of NEMO-HD, the first Slovenian microsatellite that explores a new Earth observation concept by combining interactive real-time video streaming and multispectral imaging at 2.8 m ground resolution,[28] are good paradigms to be followed. A challenge in the present day is also the use of video, so NEMO-HD can be a European example of a fusion of real-time video streaming and multispectral imaging combined with artificial intelligence as an add-on to ESA optical Satellites and Copernicus Contributing Missions.

Synthetic Aperture Radar (SAR) Assets: The key benefit of SAR imagery is that it is independent of weather conditions, enabling frequent monitoring (bypassing the problem of cloud cover). The most frequently utilised non-commercial radar satellites are ESA's Sentinel-1A & 1B, which has led to a big availability of already trained datasets for ML models. The use of other ESA SAR Satellites and Copernicus Contributing Missions offer complementarity to the Sentinel-1 satellite's data, with very high-resolution data and support to operational failures e.g., the end of the mission for the Copernicus Sentinel-1B satellite.[29] The fleet of Missions contributing to the fulfilment of on-demand users' requests includes[30] Italy's COSMOSkyMED, Germany's TerraSAR-X, RADARSAT, SAOCOM, but also ICEYE missions. There is a SAR synergy[31] which, including the ICEYE's constellation of SAR satellites, opens access to entirely new levels of data for the persistent monitoring of large and small locations around the globe - every few hours, day and night, and in any weather, like all SAR satellites. The use of ICEYE's constellation enables persistent monitoring that can be quickly activated and flexibly manoeuvred,[32] thus proving a valuable asset for the project's scope. All of these satellites provide data in various spatial resolutions, ranging from 100m to under 1m, thus achieving agility in the orders of magnitude of the smallest object that can be depicted in the image. Another useful source for SAR data and derived products comes from Capella Space[33], an information services company providing very high-resolution SAR imagery. Through a constellation of small satellites that scan the Earth 24/7, Capella gives access to frequent, timely, on-demand data with a spatial resolution of up to 0.5 m, through an anonymized and secure satellite tasking. Capella Space also provides specific services for a variety of sectors: regarding disaster response & recovery, Capella offers monitoring of extreme weather events such as hurricanes, floods, and wildfires as an enrichment to foundational data, which could prove to be a very beneficial addition to the rest of the datasets that will be utilized. A combination of each group's (optical/SAR) results seems a feasible method that gives better coverage, going from a scale of weeks to a day or even hours, tracks change very quickly and very often and can potentially make predictions, have fast response, save time, effort, money and enable faster decision making. It is well known that a combination of results even with the use only of ESA satellites is useful, with two optical Sentinel-2 satellites in orbit it is possible to observe coasts every 5 days at the Equator and every 2-3 days at mid-latitudes34- which is however still surpassed by the pair of Sentinel-1 radar satellites that reach 1-3 days thanks to their wider image swath and day/night operation. A further incorporation of more data -that is, VHR with video data regarding optical imagery and more SAR data, while also utilizing micro- and nano-satellites in both cases-, will improve the correlation between them and maximize temporal coverage.

1.2.2.3 Meteorological models curation & quantitative environmental impact assessment in coastal regions

In Oceanids, we will provide tailored information to stakeholders with the aim of more efficient decision-making on climate risks and short-term, imminent hazards. For this reason, we will perform three main tasks: **(1)** Identify weather-related risks in various climatological datasets from CMIP6 (including different future scenarios and different models). The main focus will be given on extracting statistical and physical diagnostics (e.g., extremes, physical indexes) based on atmospheric and ocean variables, namely precipitation, wind, temperature, ocean waves and sea level (including storm surges). **(2.)** We will gather information about the same atmospheric variables from an ensemble of weather forecasts from different institutions. This will be done daily and will aim to put weather forecasting into a climatological context. Apart from the variables, we will also provide information about storm tracks which are expected to make landfall close to the selected sites and therefore provoke relevant socio-economic impacts. **(3)** Public information will provide tailored information at the interface of weather forecasting and climate prediction. This information will come in three forms and concerns imminent high-impact weather events: (i) Forecast variable will be compared to climatological values. Information will be provided in the form of return periods replying to the

[28] NEMO-HD – Next generation Earth Monitoring and Observation | Vesolje-SI (space.si)
[29] https://www.esa.int/Applications/Observing_the_Earth/Copernicus/Sentinel-1/Mission_ends_for_Copernicus_Sentinel-1B_satellite
[30] https://www.esa.int/Applications/Observing_the_Earth/Copernicus/Copernicus_contributing_missions, https://earth.esa.int/eogateway/missions/third-party-missions
[31] https://earth.esa.int/eogateway/news/sar-synergy-data-for-maritime-surveillance
[32] https://www.iceye.com/the-applications, https://www.iceye.com/daily-coherent-gtr, https://www.iceye.com/ai4sar
[33] https://www.capellaspace.com
[34] Aschbacher J., Milagro-Pérez M.P. The European Earth monitoring (GMES) programme: status and perspectives. Remote Sens. Environ. 2012;120:3–8.

question of how often we experience such weather variables. (ii) Forecast variables will be attributed or not to climate change. We will try to provide insights into the contribution of climate change to the weather experienced by the locals. (iii) Similar magnitudes of weather variables will be identified in past climatological datasets and information will be provided to the public about past socio-economic impacts (WTOC will do this part I guess). Special attention needs to be given so that this information is not communicated as a forecast of damages or as a tool for issuing early warnings.

1.2.3 OCEANIDS Application applications for Climate-Informed Maritime Spatial Planning and Integrated seascape management, towards a resilient & inclusive Blue Economy

1.2.3.1 Conceptual architecture of the OCEANIDS tools and applications

Figure 5 illustrates the conceptual architecture of OCEANIDS, and how components and stakeholders interact.

1.2.3.2 CC risk & hazard risk assessment platform for regional stakeholders

A holistic hazard & risk assessment platform will be elaborated, assimilating data from all available sources in OCEANIDS, including asset exposure datasets, population statistics, long-term hazard simulations, short-term hazard forecasting, vulnerability information (both historical and simulation-based) as well as impact assessment data from past and forecasted events. The modelling framework for assessing the magnitude of impacts will ensure accurate propagation of aleatory and epistemic uncertainties from all pertinent sources, e.g., data, methods, models, and parameters, all the way to the final quantification of risk. The applied modelling and simulation tools will estimate the state of assets, either single or in portfolios, depending on their currently reported state and/or the states of interconnected assets, where available. The state of an interconnected asset is thus a result of the nature of the hazard pressure affecting the originating asset, the characteristics of the asset under consideration (risk mitigation, means of immediate response, safety equipment) and the type of interconnection between the assets. This approach is the basis for accurately quantifying the risk over a region, allowing the improvement and optimization of the safety of the complex infrastructures related to their operation processes and their inside and outside interactions, while offering actionable metrics for regional planning, insurance, and natural catastrophe prevention/mitigation.

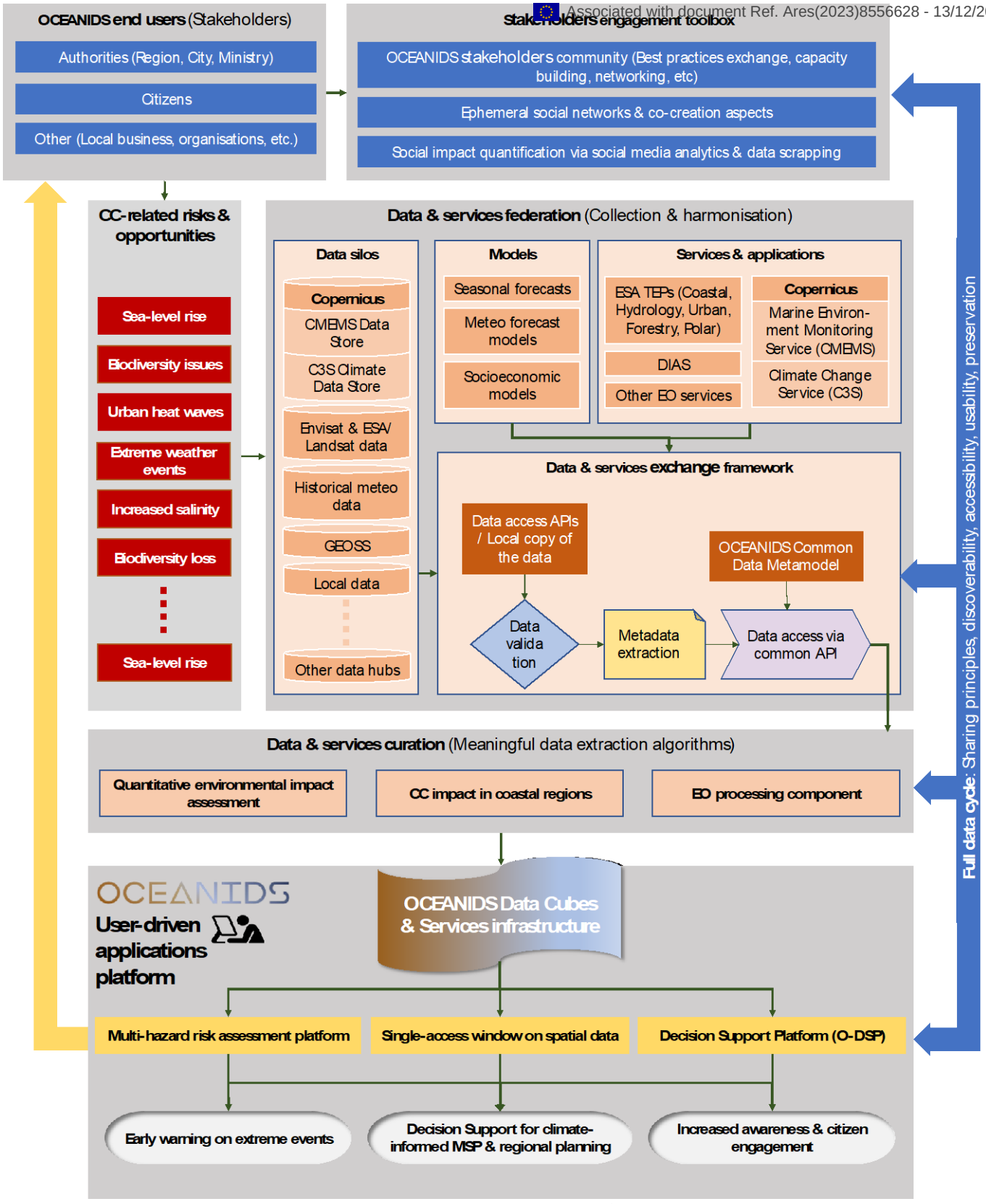


Figure 5. Proposed conceptual architecture of OCEANIDS

1.2.3.3 Integrated EO and spatial data platform - A single access window for spatially-enabled data

OCEANIDS' EO and spatial data platform will aspire to act as the single-access interface for the visualization, handling and extraction of the project's added-value information. Such a platform will provide information, data products and necessary metadata for decision-making support in climate change-related enhanced management, mitigation, and adaptation actions of OCEANIDS' other two platforms. It will offer an easy-to-use Graphical User Interface (GUI) combining many graphical representations, including graphic icons such as menus, cursors, tabs, mouse, windows, and scroll bars that will enable data handling, metadata extraction and processing techniques even for non-experts. An important key feature of this solution will be the incorporation of crowdsourced data that will derive

from public engagement campaigns (e.g., mobile app usage). Additionally, it will greatly complement existing applications and data repositories (Copernicus Services, DIAS etc.) with similar functionalities and purposes, in addition to boosting cross-referential feedback loops from technical partners in order to effectively produce new EO products. The platform's new extracted information will be recurrently generated through iterative processing workflows. It will utilize widely used and open-access EO data repositories as well as exploit the operational infrastructure, data and services of the Climate Data Store, whose assets have not yet sufficiently been capitalized from current initiatives. The outputs of the EO and spatial data platform will feed the O-DSP platform.

1.2.3.4 The OCEANIDS Decision Support Platform (O-DSP) - Decision Support for CI-MSP in Coastal Regions

OCEANIDS Decision Support Platform (O-DSP) will be implemented to give reliable recommendations to the end-users regarding spatiotemporal changes and the impact of climate change on the environment. The Digital Twin Earth model[35] will be used and be able to monitor CC, perform simulations of Earth's interconnected system and human behaviour, and help support environmental policies. O-DSP brings together disparate data sources, services and systems, capitalising on existing EO services, in order to address the needs of marine and coastal EU stakeholders. This high-level front-end platform will take into consideration all integrated data and derived products in order to calculate and assess the overall impact on the urban and coastal environment, providing the end-users with an assessment of hazards in their respective region and leading to subsequent multi-scale planning: ⭘ At a local level, local authorities and citizens shall investigate immediate risks and mitigation measures; ⭘ Urban & Maritime Spatial planning adjusted for each region to be utilized by regional authorities; ⭘ Coupled with Climate Adaptation Planning, National authorities may then work upon high-level strategies, action plans and better legislations and regulatory guidelines to tackle the dangers of CC. O-DSP moves beyond the state-of-the-art, by taking into consideration: a) climate change b) climate impacts c) socio-economic and demographic information. Thus, delivering services and tools tailored to the users' needs (port decision-makers, local and regional authorities and other end users), with customizable data-manipulation tools available for use and re-use. This platform will be openly structured so that all stakeholders will understand the policy chain and how they can participate. When addressing the scale and scope of solutions necessary to address the complex global challenge of climate change, effective Multi-Level Governance procedures can be a key asset to accelerate cost-effective and socially inclusive actions. Through intercommunication and transparency in the information flow will allow for the exchange of crucial insights between stakeholders, leading to the implementation of comprehensive, robust, efficient and cost-effective policies.

1.2.4 Citizen inclusivity & engagement

1.2.4.1 OCEANIDS Mobile app for citizen engagements & co-participation

The main sections of the mobile app will be a content feed and a story feed as well as the respective tools to create content and stories. Advanced search functionalities will be available to filter and find posts and stories. We plan to interlink stories in story spaces based on user interests and recommendation profiles and allow citizens to consume, browse, and find relevant, educative, purpose-driven content that is motivating for biodiversity loss mitigation, and activities related to CC. One important aspect of the Mock-up of the UX/UI envisaged for the OCEANIDS app interaction we foresee from end-users is allowing them to "Favorite", "Share", and "Comment" on posts and stories to engage further and promote their own. The mobile app will take advantage of modern smartphone features (e.g., location, proximity) and push notifications to engage with citizens on relevant topics on the spot. As a main vehicle for interaction with citizens, we see curated campaign posts that will be included on the mobile app content feed as "pinned posts" that will be designed to request user feedback on dedicated

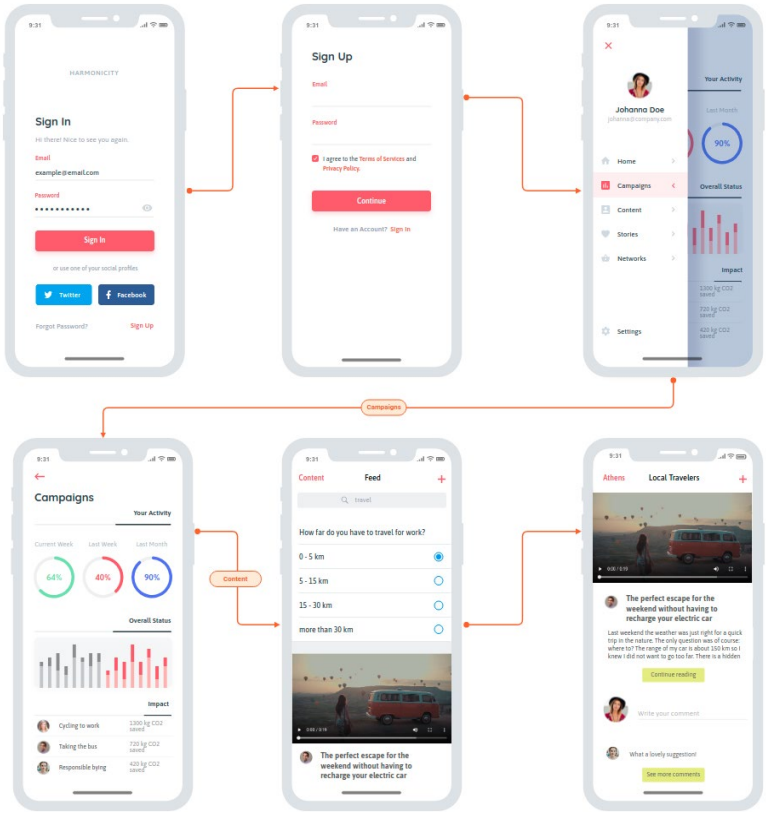


Figure 6. Mock-up of the UX/UI envisaged for the OCEANIDS app

[35] https://www.esa.int/Applications/Observing_the_Earth/Working_towards_a_Digital_Twin_of_Earth

CC mitigation topics. These pinned posts could be easy-to-answer polls (yes/no, select a range, rate from 1 to 10, short answer text), that don't necessarily require a lot of time investment from the citizens. We believe that by cleverly designing these posts and targeting them when they are relevant, citizens will be more willing to invest a couple of seconds to answer each of them throughout the campaign period instead of committing to a 45-minute-long multi-page survey (e.g., from SurveyMonkey) that would also require access to a regular keyboard, even office space and desktop PC. In addition to pinned posts being part of the content feed, we also plan to link to them as call-to-actions from the curated bioblitz campaign stories. This will allow campaign managers to make a compelling standpoint or introduce a specific issue using visuals, videos and captions and end with a relevant call to action to elucidate citizen feedback.

1.2.4.2 Gender aspects related to OCEANIDS - Gender, Marginalized People and Marine Spatial Planning

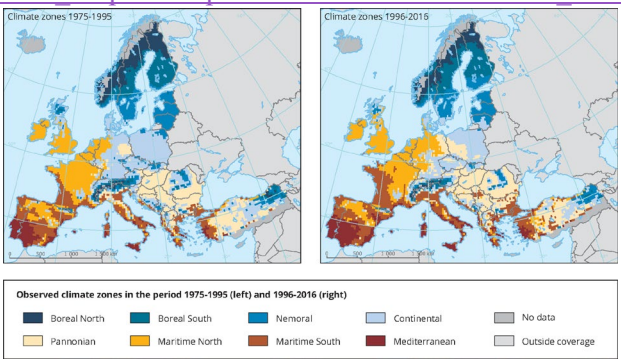
Inclusivity in MSP: Marine spatial planning (MSP) is a public process that should be participatory, transparent, adaptive, and inclusive, *balancing social, economic, and environmental needs*. Building relationships and collaborating with all stakeholders, including traditionally underrepresented and marginalized groups, is key to the long-term success of MSP. An inclusive MSP process is key for creating economic opportunities in new and existing coastal and maritime sectors and enables governments to meet their social targets and employment goals. This can result in better outcomes because involving a wide range of stakeholders can create a diversity of perspectives, new ideas, and innovative solutions.

Who are the marginalized stakeholders? Many people who depend on marine resources for their incomes and livelihoods regularly have their views and needs ignored in marine resource decision-making. These marginalized users include youth and elderly adults, individuals in small-scale fishing and coastal communities, Indigenous peoples, migrants (including seasonal migrants and displaced people), and women and girls. Other major resource users tend to consider these groups as unimportant or unaffected by marine planning decisions. Women, despite their key role in processing, are often not included in fisheries management or ocean-related decision-making bodies and do not have equal access to resources, financing, market information, training, and technology. This is important because gender is a critical organising category for coastal activities, and is of significant relevance and legitimacy to the MSP process.

Gender dimension in technology developments: The development and adoption of the OCEANIDS technologies, apps and platforms do not create any gender inequalities per se, but aim at improving environmental conditions, and the general urban environment, for all people equally. However, the consortium is aware that there may be differences in the way genders perceive the use of technology and its applications. In addition, across the globe, there are significant differences with regard to the responsibility and role of genders in environmental health-related activities. Hence the integration of multi-stakeholders and multi-gender perspectives into planning and implementation activities is a pre-condition to ensure that gender issues are adequately identified and treated throughout the project. Moreover, the OCEANIDS supports a work environment in which all genders bring their experiences as an integral dimension so as to benefit equally and thus comply with EU policy on equal opportunities. The consortium respects the EU's objectives in Articles 2 and 3 of the Amsterdam Treaty with respect to the balanced participation of women and men in the decision-making process. OCEANIDS gender strategy: ⭘ All partners are committed to promoting equal employment opportunities. ⭘ Establishing a set of gender indicators to measure progress towards gender equality. ⭘ Establishing links with the European platform of women scientists to promote gender equality in scientific research. In general terms no gender-specific issues are affected by the overall topic of OCEANIDS; however, if gender-specific issues will arise, they will be addressed to ensure equality. The responsibility to take action in this respect is given to the Project Steering Board. The responsibility to ensure gender equality in all actions is distributed to all beneficiaries.

1.2.4.3 Pilot region description and application of OCEANIDS

OCEANIDS has chosen 10 pilot cases in various coastal areas across Europe. The selection of pilot case studies and climate change impacts underwent a thorough and detailed evaluation process that took into account various factors to ensure a comprehensive and representative approach. We aimed to create a diverse portfolio of case studies that could effectively capture different aspects of climate change impacts across various regions. The key considerations and criteria used in the selection process were Geographic Distribution, Diverse characteristics, and Climate Zones (as mentioned in the EEA https://www.eea.europa.eu/data-and-maps/figures/observed-climate-zones-in-the/observed-climate-zones-in-the/105066_Map4.1-map-CC-ADAPT-Climate-zones_V1.eps.75dpi.gif/download).



By incorporating these criteria and considerations into our selection process, we ensured that our pilot case studies and climate change impacts encompassed a broad spectrum of scenarios, thereby providing a robust foundation for our research and project outcomes. The CC-related impacts (hazards as well as some opportunities, i.e., increased tourism for boreal regions) per use case are depicted in the table below:

	Atlantic			Mediterranean			Borreal
Observed and/or projected CC impacts	**Subcon-tractor**	**Bretagne Region**	**Azores**	**Malaga City**	**Crete Region**	**Greek Islands**	**Coastal Finland**
Sea level rise	✓	✓	✓	✓	✓	✓	✓
Increase in sea surface temperature	✓	✓	✓	✓	✓	✓	✓
Increase in acidity	✓	✓	✓	✓	✓	✓	✓
Migration of marine species & introduction of invasive species	✓	✓	✓	✓	✓	✓	✓
Changes in phytoplankton communities	✓	✓	✓	✓	✓	✓	✓
Increasing number of marine dead zones	✓	✓	✓	✓	✓	✓	✓
Increasing risk of water-borne diseases	✓	✓	✓	✓	✓	✓	✓
Increase in multiple climatic hazards	✓	✓	✓	✓	✓	✓	✗
Large increase in heat extremes & mortality from heat-waves	✗	✗	✗	✓	✓	✓	✗
Decrease in summer tourism (potential increase in other seasons)	✗	✗	✗	✓	✓	✓	✗
Increase in summer tourism	✗	✗	✗	✗	✗	✗	✓
Increasing risk of droughts	✗	✗	✗	✓	✓	✓	✗
Increasing risk of biodiversity loss	✗	✗	✓	✓	✓	✓	✓
Increasing risk of forest fires	✗	✗	✗	✓	✓	✓	✗
Increased competition between different water users	✗	✗	✗	✓	✓	✓	✗
Increasing water demand for agriculture	✗	✗	✗	✓	✓	✓	✗
Decrease in crop yields	✗	✗	✗	✓	✓	✓	✗
Increase in crop yields	✗	✗	✗	✗	✗	✗	✓
Increasing potential for forest growth & increasing risk of forest pests	✗	✗	✗	✗	✗	✗	✓
Decrease in precipitation and river flow	✗	✗	✗	✓	✓	✓	✗
Increase in heavy precipitation events	✓	✓	✓	✗	✗	✗	✓
Increase in river flow	✓	✓	✓	✗	✗	✗	✓
Increasing risk of river and coastal flooding	✓	✓	✓	✗	✗	✗	✓
Increasing damage risk from winter storms	✓	✓	✓	✗	✗	✗	✓
Increasing risks for livestock production	✗	✗	✗	✓	✓	✓	✗
Expansion of habitats for southern disease vectors	✗	✗	✗	✓	✓	✓	✗
Decreasing potential for energy production	✗	✗	✗	✓	✓	✓	✗
Near-shore & offshore wind farms being affected	✓	✓	✓	✓	✓	✓	✓
Increase in hydropower potential	✗	✗	✗	✗	✗	✗	✓

Increase in energy demand for cooling	✓	✓	✓	✓	✓	✓	✓
Decrease in energy demand for heating	✓	✓	✓	×	×	×	✓
Most economic sectors are negatively affected	×	×	×	✓	✓	✓	×
High vulnerability to spillover effects of CC from outside Europe	×	×	×	✓	✓	✓	×
Decrease in snow, lake and river ice cover	×	×	×	×	×	×	✓
Changes in wind/waves for maritime transport	✓	✓	✓	✓	✓	✓	✓

How OCEANIDS addresses these challenges, per use case and regional specificities, are elaborated in the table below:

1. *Potential Subcontractor Port Authority*

Harbours are particularly exposed to the effects of rising water levels and strong winds. In most ports rising sea levels are counteracted to a certain extent using coastal protection measures. Cargo handling in the ports can only take place at certain wind strengths. Damage as a result of extreme weather events, such as damaged roofs, is not unusual. In the past, there have also been isolated cases of overturned empty containers. The growth in ship sizes has increased their direct-wind exposure area (windage). This increase in the size of ships increases not only the windage area but also their mooring needs, which in turn increases the use of tugs. Furthermore, ports' hinterland connectivity can be disrupted if the connecting train's overhead contact line is damaged during extreme weather events. The occurrence of heat waves has different effects on harbours. For employees working in non-air-conditioned areas, rising air temperatures are problematic. Air-conditioning systems, e.g., in handling equipment, are subjected to additional loads on the electric grid and supporting power generation systems, and temperature-controlled goods have inflated energy requirements. Heat stress can negatively impact port infrastructure, by softening of pavement, which can then be substantially damaged by yard equipment such as straddle carriers or impair the operation of movable steel bridges. Furthermore, high temperatures impair the construction and maintenance of port infrastructure by further restricting work conditions. Heavy precipitation can locally cause temporary flooding, especially in low-lying areas, which are particularly at risk if high tide prevails at the same time. Furthermore, the handling of moisture-sensitive goods is restricted during precipitation. Lack of precipitation can necessitate drought stress management actions for green and compensation areas. To ensure that harbours are equipped to meet both economic and environmental demands in the future, their vulnerability to climate change must be analysed at an early stage and measures to increase their resilience must be taken into consideration by port management. A comprehensive data and forecasting tool can help rectify this exposure, by prompting timely warnings & reactions and informing future management decisions.

2. *Region of Crete (partners CRETE & HPA)*

Figure 7. Region of Crete

The region of Crete was chosen, due to the fact that the local economy significantly relies on the exploitation of coastal and marine areas. Crete is an exclusively insular Region, located in the eastern Mediterranean (Figure 8). It is the largest of the Greek islands and the fifth largest in the Mediterranean Sea. Its coastline spans 1,300 km, and with a total area of 8,335,882 km2, Crete represents 6.3% of the territory of Greece, with a population of 682,928 people (EL-STAT 2011). The tertiary sector is the pillar of the local economy. Seated in Heraklion, the Decentralized Administration of Crete is one of the seven decentralized administrations of Greece, managing singularly the entirety of the Crete region. The expansion of human-induced activities, combined with CC, exerts significant pressure on Crete's marine and coastal areas[36]. Coastal zones attract a variety of people and productive activities. The resulting pressure on ecosystems affects the organization of local economies, having a negative impact on social cohesion **and** coherence. This is accentuated complexity of coastal socio-spatial systems and the fact that coastal zones, and islands in particular, are considered vulnerable areas. The following CC threats are present in the Island of Crete and can benefit from the proposed actions: **Tourism**: Tourism, an important economic activity, has been increasingly associated with vacationing at entirely, or partially coastal locations and recreational activities on beaches, according to the Sun-Sea-Sand (3S) model. The development of mass tourism and increased demand for vacation homes has led to residential pressure, mainly in exurban areas, where the spatial planning system is less coordinated. **Climate change**: Climate change comprises many threats, including rising sea levels, increasingly more frequent and severe extreme weather events (e.g., storms and storm surges), altered precipitation and runoff, elevated sea surface temperatures and ocean

[36] Becker, Austin; Ng, Adolf K.Y.; McEvoy, Darryn; Mullett, Jane (2018): Implications of climate change for shipping. Ports and supply chains. In: WIREs Clim Change 9 (2), S. 683.
UNCTAD: Port Industry Survey on Climate Change Impacts and Adaptation. UNCTAD Research Paper No. 18.

acidification. **Global mean sea level rise (GMSLR)**: Islands like Crete are particularly susceptible to both global mean sea level rise (GMSLR) and episodic SLRs due to (i) their narrow widths (about 59 % of the beaches have maximum widths < 20 m), (ii) their finite terrestrial sediment supply, (iii) the substantial coastal development and (iv) the limited means of coastal protection The accelerating GMSLR coupled with episodic flooding and storm events aggravates on the existing beach erosion problem, with severe impacts on infrastructure and assets as well as the beach carrying capacity for recreation/tourism and coastal activities. Other less commonly mentioned effects related to sea level rise (SLR) are salinization of surface and ground waters (e.g., coastal underground aquifers) and degradation of coastal habitats such as wetlands. These influence many aspects of the human environment, including land use, food supplies and population distribution. **Erosion**: Climate change, and particularly the sea level rising, affects beach erosion, as beaches respond to rising sea levels through either retreat or drowning[37]. Research in the Crete region (Monioudi et al., 2016) showed that SLR poses a significant threat to the eastern beaches of Crete[38]. Projections by the unified ensemble suggest that for the period 2081-2100 (a) in the case of a 0.26 m rise estimate are predicted to retreat by more than 20 % (b) In the case of a 0.82 m SLR (the high IPCC estimate), the effects are predicted to be very damaging (about 99 % of the examined beaches are predicted to retreat by more than 20 % of their maximum width) and (c) the worst case scenario examined, i.e., SLR of a 1.86 m represents a 'doom' scenario for the Eastern Cretan beaches, as all tested beaches are predicted to retreat by more than 20 % of their maximum 'dry' width, about 96 % by more than 50 %, and 75 % face retreats that surpass their maximum width. **Pollution**: One of the challenges in the marine environment is the rate at which pollution instances expand and migrate. This is due to the compound nature of the marine environment pollution, to multitude of emitting sources and the difficulties in enforcing mitigating measures. Whether marine pollution is the result of an accident, a one-off occurrence or a constant process, reducing and managing its effects is extremely challenging without dedicated monitoring. **Marine litter**: The three projects aim to sensitize and motivate local communities in Crete in order to reduce the generation of marine litter particularly of plastics including single-use plastics (SUPs) by improving waste management. This endeavour involves many target groups including fishermen, owners and staff of businesses pertaining to tourism and leisure, but also the education community[39] **Fisheries**: Coastal states are responsible for managing fisheries stocks and protecting other Resources. Spatiotemporal restrictions of fishing activities and technical measures are the main tools used in the Mediterranean Sea for the management of fish stocks.

3. *Greek Islands (partner MMAIP)*

The General Secretariat for the Aegean and Island Policy (GSAIP) of the Ministry of Maritime Affairs and Insular Policy is involved in the harmonization and adoption of governmental policies for the Greek islands and supervises the activities and legislation of the Greek sea regions (Aegean Sea and part of the Ionian Sea). With headquarters located in Mytilene (Lesvos Island). The **Aegean Sea** is an elongated embayment of the Mediterranean Sea between Europe and Asia. It is located between the Balkans and Anatolia covering an area of roughly 215,000 square kilometres. In the north, the Aegean is connected to the Marmara Sea and the Black Sea by the straits of the Dardanelles and the Bosporus. The Aegean Islands are located within the Aegean Sea, and some are located near the southern bounds, including Crete and Rhodes. The Thracian Sea and the Sea of Crete are its main subdivisions. The **Ionian Sea** is also an elongated bay of the Mediterranean Sea. It is connected to the Adriatic Sea to the north and is bounded by Southern Italy, including Calabria, Sicily, and the Salento peninsula to the west, southern Albania (and western Apulia, Italy) to the north, and the west coast of Greece, including the Peloponnese as its eastern bounds. **Climatic impact:** The Greek Seas and near-shore areas, both coastal and marine, face problems of constantly increasing severity, due to deteriorating environmental quality, loss of critical habitats, diminishing levels of fish and shellfish populations, reduced biodiversity and increased natural hazard risks. Responding to climate change effects requires increasing awareness on the part of environmental planners, especially by those working in marine and coastal environments where such effects are keenly felt. Actions like increasing preparedness and capacity to deal with the impacts of climate change at local and regional levels help formulate a coherent approach and improve coordination. The trends in climate change observed during the last decades indicate that CC will probably affect coastal processes, especially in small, catchment areas, characterized by rapid hydrological cycles. Beach erosion levels are particularly alarming in the Greek islands. Island beaches are increasingly vulnerable to erosion due to their finite dimensions and diminishing sediment supply. Sea levels will most likely continue to rise around Small Islands, resulting in shorter shorelines that retreat along sandy coasts which can lead to eventual extinction. Additionally, strong

[37] Cooper, J.A.G., Masselink, G., Coco, G. *et al.* Sandy beaches can survive sea-level rise.*Nat. Clim. Chang.* **10**, 993–995 (2020). https://doi.org/10.1038/s41558-020-00934-2

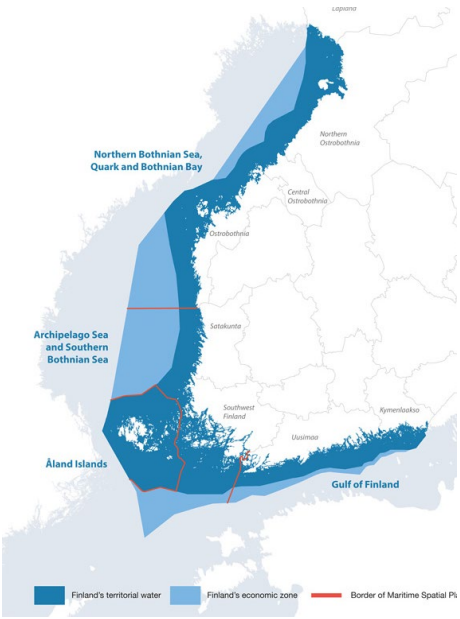
[38] Monioudi, I.N., et al. Assessment of vulnerability of the eastern Cretan beaches (Greece) to sea level rise. Reg Environ Change 16, 1951–1962 (2016) Zotou M., et al. (2020). Pinna nobilis in the Greek seas (NE Mediterranean): on the brink of extinction?. Mediterranean Marine Science.

[39] https://medies.net/project/three-projects-for-marine-litter-in-crete/

atmospheric heat waves have been observed in recent years. The sea surface temperature (SST) is also an important indicator of seawater quality, with various ecological and anthropogenic implications (Androulakis & Krestenitis, 2022). The most recent temperature-rising phenomenon that took place over Greece during the last third of June 2021, was accompanied by a significant warming of the Aegean Sea, with sea surface temperature (SST) exceeding 28 degrees Celsius. Temperature at 1m-depth as recorded by the POSEIDON's network of buoys and satellite SST observations, show that marine heat waves (MHW) occur in the Eastern Med and particularly in the Aegean Sea, lasting from 8 to 15 days[40]. Furthermore, this observed increase in temperature has resulted in the accelerated invasion of "Lesepsian immigrants", fish and other marine organisms, that is, from the Red Sea through the Suez Canal to the waters of the Mediterranean. Also, the increase in temperature allowed the spread of the parasite *Haplosporidium pinna*e which decimated the population of *Pina nobilis* in the Greek (and European) seas, constituting an unprecedented ecological disaster. **Marine Policies:** Aware of the problems leading to the economic regression of the Aegean islands, the Greek Government sets the goals of a socio-economic policy based on a long-term plan adapted to the particular characteristics and unique character of the archipelago and each island separately. The General Secretariat for the Aegean and Island Policy of the Ministry of Maritime Affairs will adopt the tools and products that OCEANIDS will be developing to the new strategies that will include pioneering measures and modern actions towards sustainable island development.[41]

4. ***Finland's coastal areas (partners, V-SML, PHEL, PRAU, PRAA)***

The Finnish Sea area in the Northern Baltic Sea covers 54,130 km² of territorial waters, 4,330 km² islands, and 29,080 km² of Exclusive Economic Zone. The sea area is divided into three maritime spatial planning areas (see figure) and excludes the autonomous area of Åland. The three regions are the Northern Bothnian Sea, Quark and Bothnian Bay; the Archipelago Sea and Southern Bothnian Sea; and the Gulf of Finland. The OCEANIDS partner ports (Helsinki, Raahe and Rauma) represent these three planning areas and are all publicly owned by the city they are located. The Baltic Sea is a shallow (mean depth of 54m) seasonally ice-covered brackish water body, with the surface salinity decreasing from 7 g/kg in the Baltic proper, to 2 g/kg at the end of Bothian Bay and Gulf of Finland due to the large local river discharge. Salinity plays an important role for a number of originally marine/freshwater species, limiting their possible habitat, growth, and reproductive ability (e.g., bladderwrack and blue mussel). The large catchment area of the Baltic Sea with its sizeable human population and large agricultural sector, has led to extensive eutrophication of the water body with wide dead zones at the bottom. Despite the progress in limiting nutrient fluxes, the Archipelago Sea region remains on the HELCOM hot spot list as a source of agricultural nutrient flux. The future projections of freshening and warming have the potential to increase nutrient fluxes and act as an extra stressor for the marine life that in many cases already lives at the edge of its possible habitats. The Gulf of Finland region is home to approximately 1.9 million people (in Finland) and the maritime livelihoods focus particularly on the maritime logistics and tourism sectors and their related industries. The Gulf of Finland has the largest volumes of goods and passenger transport by sea of all Finnish marine areas, and the country's largest ports Helsinki, Kotka and Hamina are located in the region. **Port of Helsinki**: The OCEANIDS partner Port of Helsinki is the largest passenger harbour in Europe by number of passengers as approximately 12.6 million passengers pass through it every year. The Port of Helsinki is also Finland's leading general port for foreign trade. In 2021, the Ports's total cargo traffic was 14,4 million tonnes. The Port of Helsinki Ltd is a limited company owned by the City of Helsinki and it manages eight harbours in the Helsinki region. The Helsinki seascape has many islands, which makes the maritime routes challenging. Especially for high cruise ships, routes can become difficult when winds are strong from certain directions. **Rauma Port**: Approximately 700,000 people live in the coastal regions of the Archipelago Sea and Southern Bothnian Sea. The region hosts nationally important passenger (Turku) and freight ports such as Pori and Rauma. The OCEANIDS partner, Port of Rauma, is a significant export port for the forest industry and cereals, and the largest container port on Finland's west coast (5th largest general port in Finland). In 2021 total port traffic amounted to 5,1 million tonnes and the port of Rauma handled 209,000 container units (TEU). The company is publicly owned by the city of Rauma. **Raahe port**: The Northern Bothnian Sea, Quark and Bothnian



[40] https://poseidon.hcmr.gr/news/marine-heat-wave-aegean-sea-june-2021

[41] Androulidakis, Y.S.; Krestenitis, Y.N. Sea Surface Temperature Variability and Marine HeatWaves over the Aegean, Ionian, and Cretan Seas from 2008–2021. J. Mar. Sci. Eng. **2022**, 10, 42.

Bay is the northernmost of the Finnish Sea areas and except mild winters, the sea freezes over throughout the entire area, with the Bay of Bothnia being ice-covered for the longest. The defining characteristic of the Gulf of Bothnia is the nearly fresh water and land uplift, as a result of which the shoreline areas and their vegetation are in a constant state of change. The decrease in the depth of the sea will cause a need for the dredging of ports as well as shipping and boating routes. The largest coastal cities are the regional centres Oulu, Vaasa and Kokkola with approximately 400 000 people living in the coastal area. Maritime transport, recreational use and commercial fishing are currently the most important forms of use in the marine area. The area has several ports for freight traffic and the routes linked to these the draught of which have been improved with dredging in recent years. The OCEANIDS partner Port of Raahe is one of Finland's busiest ports with approximately 600 vessel calls every year 11 berths and a ro-ro ramp. Imports to and exports from the global steel conglomerate SSAB guarantee a steady stream of cargo through the port all year round. The company is publicly owned by the city of Raahe.

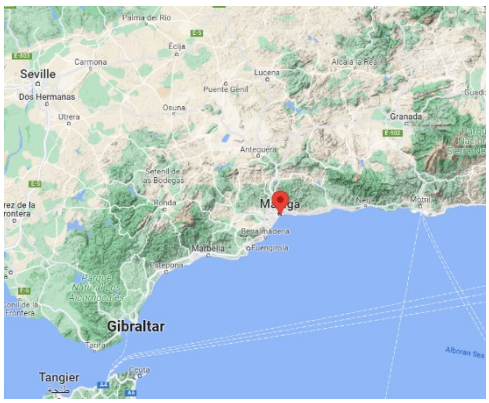
5. *Région Bretagne (partner BRET)*

Brittany Region is home to 3,329,000 inhabitants (2019) and is located in the western part of France with an area of 27,208 km². It is surrounded by the sea on the north, west and south borders. Brittany is divided into four sub-administrative zones called "Départments": "Ille et Vilaine" in the east, "Côtes d'Armor" in the north, "Finistère" in the west and "Morbihan" in the south. CC has numerous, multisectoral impacts, as it threatens the viability of economic activities and also questions the potential of current environmental policies to effectively address environmental issues. In Brittany, some changes in **precipitation** patterns have already occurred, as well as changes in **temperatures**: annual mean temperatures have risen by 0.8 up to 1.2°C since 1959, while summer rainfall has risen by 10% in the western part. **Water management** has historically been a central issue in Brittany as there are major eutrophication issues. The evaluation for the Water Framework Directive's objectives assessment recalls that only 5% of lakes and 35% of rivers are in good ecological condition and 58% of the groundwater is in good chemical condition.[42] In 2013, 86 beaches and mud flats in Brittany were affected during the summer by green algae blooms on the 137 sites surveyed by CEVA and 118 water bodies were monitored for cyanobacteria blooms. Summer droughts, more or less severe, are not uncommon; severe events took place during the twentieth century (1906, 1921, 1976, 1989) and more recently (2003, 2006, 2019). While 5% of the observed rivers were dried out or non-visible flow in September 2012, much higher figures were reached in September 2018 (25%), and September 2019 (24%). On top of these, unusual climate events, like the winter drought in 2017, have led to the emergence of quantitative concerns. CC exacerbates these issues as it is expected that river flows and groundwater stocks will be reduced in the future, with consequences on the availability of drinking water, or water for ecosystems. Research has shown that on the Vilaine catchment (1/3 of Brittany's area), river flows of sub-catchments could be reduced by half during the summer months.[43] **Storms** are possible and sometimes cause significant damage, such as Storm Zeus in 2017, Eleanor in January 2018 or Eberhard in March 2019. The cumulative cost of storms Carment and Eleanor reached 200 million euros in France. More generally, studies show that the coastline is constantly changing due to these events and the natural dynamics of coastal sediments. A recent study showed that one-third of the coastline is stable; another third is accreting; while another third is regressing. **Sea level rise** of 1m will amplify the consequences of any extreme events, especially in low-lying areas (33,904 buildings and 2159 kilometres of transport), and three areas of the region are at severe risk of flooding/submersion (Quimper / South coast Finistère, Vilaine de Rennes to Redon, Saint-Malo / Bay of Mont Saint-Michel). Ports are also particularly vulnerable to CC which is critical to the economy (7 million tonnes of fret in 2017). **Biodiversity:** Ecosystems are threatened by habitat fragmentation, intensive agriculture and urbanization (see roadmap section 2B5). 73% of the species evaluated in Brittany have a known risk of extinction including 9 species of mammals; 69 breeding bird species; 2 species of freshwater fish.[42] 82% of vertebrate species, particularly sensitive to spatial fragmentation, are already in unfavourable conservation status, like Bombinavariegata, Pelobatescultripes, Myotis Myotis Rhinolophushipposideros[44]. Some fish populations have already moved northwards due to temperature rises (i.e., an increase in the population of Zeus Faber between 1978 and 2005 around Brittany.[45] This clearly pleads for habitat restoration and increased efforts to improve ecosystem health as CC induces an additional source of stress on ecosystems and species. **Cities:** Beyond the flood risk, some cities are at risk regarding heat island effects. It was shown as part of a research program in 2014 that this effect is around 2°C in Rennes (http://www.theses.fr/2015REN20027). This can lead to an increasing energy use (air cooling); a higher level of air pollution and also to health effects for the population (discomfort, respiratory issues), especially for sensitive populations (children, elderly, people with an existing health condition). **Forestry**: Forests suffer from exposition to

[42] Observatoire de l'environnement en Bretagne – L'environnement en Bretagne, Cartes et chiffres clés 2018
[43] https://professionnels.afbiodiversite.fr/fr/node/44
[44] https://eur-lex.europa.eu/legal-content/FR/TXT/PDF/?uri=CELEX:31992L0043&from=FR
[45] http://www.cseb-bretagne.fr/index.php/component/remository/func-startdown/153/?Itemid=167

pathogens, as well as forest fires. They will also have to face water stress, which will in turn lower forest production performance, as well as impact forest ecosystems (http://www.bretagne.developpement-durable.gouv.fr/le-schema-regional-du-climat-de-l-air-et-de-l-a2086.html). **Farming:** Brittany is characterized by a very strong influence of agriculture. Agriculture takes the majority form of livestock polyculture. Vegetable crops are well established on the northern coasts of the region and in Morbihan. Agriculture can suffer from droughts, as in 1976, 1989, 1990, 2003, 2005, 2011, 2019, 2017 and 2018. These droughts cause yield losses, crop fires and difficulties in feeding animals. Studies on the effects of climate change show unequivocally that temperatures will rise in all seasons. While uncertainties remain about future precipitation levels, it seems obvious from the analysis of scientific knowledge that summer droughts will become more frequent and more severe.

6. *Andalucia Region - Málaga City/area (partner MLG)*



Málaga is a port city in the region of Andalusia, Spain. With a population of 578,460 in 2020, it is the second-largest city in Andalusia and the sixth in Spain. Despite its historical importance as an industrial port side area, the lack of native materials, dependency on external energy resources and decreased land availability for new developments resulted in the decline of such activities. The rise of the tourism sector contributed to economic growth paired with severe consequences for the local coastal ecosystems. Housing and urban development, the advent of sun and beach tourism and transport infrastructures have resulted in a collapsed waterfront. The intense developmental focus on the maritime border applied more pressure for urban development in an already fragile area, against other traditional land uses such as agriculture, fisheries, or aquaculture. Historical gardens, urban forests and green belt zones are key to a more sustainable urban environment. Tourism, ports, cruises and coastal recreation, gentrification and commuting, desalinization and fisheries are key facts on land and sea interactions in the Málaga area. Restoring polluted soils (from old industrial areas into other urban land uses), urban gardens/parks recovering, forests (fires), green belt zones and renewable energy initiatives are urgent priorities for this maritime city where the multitude of environmental risk factors amalgamate. The population and the corresponding economic activities that are moving towards the coast due to current climate conditions will soon face the brunt of CC risks that the area is not prepared for. Málaga area (**MLG**) as a partner, stakeholder and user community will contribute to the OCEANIDS work packages. Experts and actors will manage and analyse data to plan for climate resilience and a better understanding of climate change-related risks. Methodology testing and new technologies will ensure access to key climate data and information services from a bottom-up approach. The focus will be on case-specific climatological and physical conditions that are critical for the area. **Erosion**: Malaga's physical configuration consists of a mountain range with steep slopes that end in a virtually 100% urbanized plain. In cases of heavy rains, floods displace the surface layer of the soil. This results in the de-nutrification of the soil and loss of biodiversity, sometimes even trees. The sliding of materials sometimes causes stream overflow and, regularly, deposition of mud to the streets, beaches, and even seawater. Work is being done on the installation of a separate sewage network, but it is not working to date, so that in episodes of torrential rains the sanitation network collapses, and wastewater is dumped into the sea. **Beaches**: Winter storms usually displace soil from the beaches (the beaches of Malaga are not natural but created with sentiment imports), so beach regeneration campaigns must be undertaken yearly before the summer period. **Sea warming**: The Oceanographic Center, the International Union for the Conservation of Nature (IUCN), the Aula del Mar and the Junta de Andalucía have recently identified that there is already evidence that the increase in seawater temperature caused by climate change, is causing alterations in the ecosystems of the Alborán Sea, such as the reduction of fishing; the proliferation of invasive and other species, such as jellyfish; the increased risk of stranding of dolphins and other cetaceans, that come closer to the coast in search of food; the increasingly frequent laying of sea turtle eggs in the area; the arrival and settlement of invasive fauna, like poisonous puffer fish from the Indian Ocean; or the disappearance of marine plants due to the lower CO2 capacity. Other risks related to climate change that directly affect the coastline are: ⭘ Flooding of coastal areas and damage due to rising sea levels; ⭘ Alteration of the sedimentary balance in hydrographic basins and coastline. Also, due to the geographical location in the southern Mediterranean: ⭘ Alterations in the health of citizens due to heat waves; ⭘ Processes of soil degradation, erosion, and desertification; and Increased drought. Loss of availability and quality of water resources; ⭘ Loss of biodiversity, natural heritage & ecosystem services. Increase in invasive species and pests.

7. *The Azores (partners DRPM & AIRC)*

The Azores Archipelago, an autonomous region of Portugal, is an isolated group of islands located at the centre of

the North Atlantic, about 1,400 km from Western Europe. The archipelago is composed of nine islands belonging to three groups: the Western Group (with Flores and Corvo islands), Central Group (with Terceira, Graciosa, São Jorge, Pico and Faial islands) and Eastern Group (with Santa Maria and São Miguel islands). The climate is temperate, with mild but wet temperatures all year round, due to the influence of the midlatitude North Atlantic storm track. The islands are located at the northern border of the Subtropical Ocean Gyre of the North Atlantic and are largely influenced by the Gulf Stream, which transports the warmer surface water of subtropical origin from the west towards the Azores. The archipelago has a population of 242,497 (2020) and the islands are distributed over more than 600 km, resulting in one of the largest exclusive economic zones (954,496 km^2) of the European Union. The islands are of volcanic origin, characterised by green landscapes and pastures, fishing villages and a blue pristine ocean. Agriculture, fishing and tourism are central to the local economy. The agricultural sector has a strong focus on livestock farming and dairy farming, with the Azores representing about 30% of the overall Portuguese dairy production. The fishing industry, including foreign fishing vessels, is constituted by a small-net fishery for small pelagic species, a pole-and-line tuna fishery, bottom longline and handline targeting demersal fishes and pelagic longline targeting swordfish. The tourism sector has recently received an increasing number of awards and recognitions, such as being in the top 100 Most Sustainable World Destinations in 2017, the Most Beautiful Destinations for Whale Watching In Europe By European Best Destination, and the number 1 travel destination in 2016 by the National Geographic Traveler. Aggregation of whales near the islands, which once supported a whale fishing industry, now supports a thriving whale-watching tourism industry. Marine ecotourism activities in 2014 were estimated to account for 2.2% of the regional Gross Domestic Product, but this contribution is very likely to have recently increased due to the awarded prizes, until the more recent drop due to COVID-19 pandemic restrictions. The Azores, like most oceanic islands, are highly sensitive to the effects of climate change. This is because any adaption strategy, involving relocation of activities and resources, is restricted to the physical limits of the islands. Furthermore, the islands largely rely on their coastal areas, which are particularly vulnerable to climate change. Effects of climate change, such as increasing temperatures, changes in precipitation patterns, rising sea levels, ocean acidification, and changes in biodiversity, have been outlined by recent studies and by the regional plan for climate change from the Azores Government (resolution 123/2011). Temperature increases in the air and ocean (up to 2 ºC) are predicted, although extreme temperature events, as those predicted for continental regions, are less likely, due to the ocean thermal regulatory effect. Associated shifts in seasonal climate will impact phenological and production cycles, the spatial distributions of the endogenous species and the possible loss of their suitable habitat. Modelled progressive decreases in precipitation, as well as a greater probability of weather extremes, namely intense precipitation events from more localized convective cells, and more prolonged drought periods, have repercussions, particularly for the managing of water resources and risk assessment (e.g., floods and landslides). Due to increasing ocean temperatures, conditions are created for tropical storms to move higher in the Atlantic, reaching more frequently Azores latitudes. Rises in mean sea level could reach 1 meter by the end of the century, which together with the superposition (storm surge) of the passage of extratropical depressions, or even hurricanes given the previous arguments, can lead to sea level rises of up to 1.5 meters. Such sea-level changes will have a direct effect on the Azorean population both economically and socially, leading to the destruction of infrastructures, private households and commercial establishments. A trend of ocean acidification in response to atmospheric CO2 increases is also expected, with implications for marine ecosystems, primary productivity, the food chain and fisheries resources. Changes in ocean vertical stratification and currents are also expected to drive a northward expansion of the less-productive subtropical ocean gyres, which would impact the Azores islands given their location at the northern edge of the subtropical gyre. The regional effects of climate change started to be considered over a wide range of sectors, under the elaboration of the Regional Plan for Climate Change, including territorial spatial management, hydric resources, biodiversity and natural heritage, marine environment and fisheries, agriculture and forests, human health, security, tourism and industry. Delineating prevention measures is essential to address the negative impacts of climate change, and the Azores, as a Portuguese autonomous region, has the power to adopt the regional budget for the economic and social climate-related necessities, and to legislate within the several sectors affected by climate change.

1.2.5 Project compliance with the 'do no significant harm' principle

The EU's new Taxonomy Regulation is designed to support the transformation of the EU economy to meet its European Green Deal objectives, including the 2050 climate-neutrality target. The six environmental objectives of the Taxonomy are: (1) climate change mitigation, (2) climate change adaptation, (3) sustainable use and protection of water and marine resources, (4) transition to a circular economy, (5) pollution prevention and control, and (6) protection and restoration of biodiversity and ecosystems. At the core of the Taxonomy Regulation is the definition of

sustainable economic activity. This definition is based on two criteria. An activity must: **A. Contribute to at least one of six environmental objectives listed in the Taxonomy:** It is evident that OCEANIDS contributes to four out of the six environmental objectives, namely objectives number 1, 2, 3 and 6, while the main focus of the project revolves primarily around objective 3 (sustainable use and protection of water and marine resources). **B) Do no significant harm to any of the other objectives, while respecting basic human rights and labour standards:** OCEANIDS does lead not to any significant harm to any of the taxonomy's objectives, as can be seen by the proposed technologies, activities and work plan. In addition, all human rights and labour standards are respected by all partners. **Contribute to the SDGs**, **Goal 13**: Take urgent action to combat climate change and its impacts, **Goal 11**: Make cities and human settlements inclusive, safe, resilient and sustainable & **Goal 14** among others for the **Target 14.1**: By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution. (EO services based on integrated data & monitoring for marine pollution. **Indicator 14.1.1**: Coastal marine pollution), **Target 14.3:** Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels. (EO services based on Planning for setting targets for ocean acidification. **Indicator 14.3.1**: Ocean acidification) **Target 14.4**: By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics (EO services based on Support fish stocks assessments).

1.2.6 National & international research and innovation activities related to the project

HARMONIA- Funding: H2020 - [OCEANIDS partners: GSH, CREO, FMI, EARSC]: HARMONIA integrates GEOSS urban and climate data with other local, regional and global datasets to develop applications that support adaptation and mitigation measures of the Paris Agreement for urban environments, in a state-of-the-art seamless holistic solution. CMEMS - Funding: EU Space - [OCEANIDS partners: FMI]: CMEMS Produces Baltic Sea forecast and reanalysis. NextGEOSS- Funding: H2020 - [OCEANIDS partners: EARSC]: The NextGEOSS project implements a federated data hub for access and exploitation of Earth Observation data, including user-friendly tools for data mining, discovery, access and exploitation. Project findings will be used towards the OCEANIDS project objectives to avoid replicating work on data federation and EO services connection. In addition, the network developed by EARSC will be used to disseminate the project results. e-SHAPE - Funding: EuroGEO - [OCEANIDS partners: EARSC, FMI] (formerly EuroGEOSS Showcases): e-shape is the flagship project part of EuroGEO (European coordination of GEO, Copernicus and national EO assets). This project will see the development of 27 pilots in 7 showcases, with new projects onboarded during the call, and provide an example of value delivered to European industry across 7 sectors, in alignment with the three main priorities of GEO (SDGs, Paris Agreement and Sendaï Framework). Within e-shape EARSC is leading user uptake and plays a key role in sustainability. As national GEO Principals and Participating Organizations of GEO, EARSC ensures close coordination with GEO and Copernicus. euPOLIS - Funding: H2020 - [OCEANIDS partners: GSH]: Integrated NBS-based Urban Planning Methodology for Enhancing the Health and Well-being of Citizens - to address city challenges an NBS-based Urban Planning Methodology offers the synergy of people-centred approach with significant environmental and economic benefits of Blue Green Solutions. Remote sensing and sensor networks will be used to monitor microclimate and biodiversity, amongst others. HEART - Funding: H2020 - [OCEANIDS partners: GSH]: HEART's integrated approach aims to systematically improve urban health and reduce health disparities through innovative Blue-Green-Solutions-based implementation mechanisms of urban planning. The project aims to use medical evidence in clinical and non-clinical settings. Additional sources will be used, coming from the existing environmental sensors (through the participating city/regional authorities and health institutes), satellite/remote-sensing data, as well as European services, such as Copernicus). This way, the necessary evidence will be produced to prove the effects of various Blue-Green Solutions on public health and well-being **to** provide stakeholders (health/city/regional authorities) **with** well-proven innovative urban planning methodologies. SEN4RUS - Funding: ERA.Net-RUS plus - [OCEANIDS partners: GSH]: SEN4RUS uses urban planning requirements to develop indicators that effectively exploit the information content provided by the Copernicus Sentinel missions, supporting urban planning. SEN4RUS develops Sentinel-based services for planners, examining and mapping urban heat islands, urban water bodies, vegetation extent and parks etc FIRE - Funding: H2020 - [OCEANIDS partners: EARSC]: A Forum funded (1M€) by EC to identify gaps between challenges faced by 6 markets (Agriculture, Energy, Infrastructure, Marine, Raw Material, Urban) and Earth Observation downstream current capabilities. The project, coordinated by EARSC, supports DG-RTD in defining future R&D activities.

1.2.7 Integration of social sciences and humanities

Global change impacts, such as changing climate conditions, altering natural environments, migration, unsustainable

consumption patterns, conflicting values associated with nature, and diverse perceptions on why and how to mitigate human-induced climate change, involve changing decision-making and governance processes as a response to the transformation of societies worldwide. These changes provide new opportunities, but - and at the same time - they anticipate emerging challenges: How can evidence-based policy measures be developed through a multi-stakeholder approach to ensure that specific circumstances and needs prevailing at local, national, regional and global scales are considered? Required societal and institutional changes and their (potential) impacts also must be considered throughout the development of science-based options for decision-making on the conservation and sustainable use of biodiversity. In OCEANIDS the social sciences and humanities have a very critical role to play. The project's Stakeholders identification & engagement (WP2) highlights the central role of drivers, anthropogenic assets, and institutions, and implicitly the concept of economic and social values, which are the domain of the social sciences and humanities. Three project areas of work where the role of social sciences is crucial are: ⭘ the conceptual framework, which will acknowledge diverse world views on Climate Change mitigation, and model the interactions between people and nature, and nature's contributions to people (WP2); ⭘ the diverse conceptualization of values, which recognizes that values placed on nature and nature's contributions to people vary with cultural and institutional context. The project's engagement approach recognizes the importance of an integrative and pluralistic valuation point of view that considers diverse world views and a social-ecological perspective where nature's contributions to people and good quality of life are seen as interdependent, compared to a single world view, which tends to be an economic-dominated valuation. OCEANIDS also recognizes that decision-making should take intrinsic, instrumental and relational values into account; and an evolution of the concept of ecosystem services (provisioning, regulation and cultural) which is based on the concept of nature's contribution to people, embracing a more inclusive and diverse interpretation of human-nature interactions, reflecting the greater involvement of the social sciences, humanities and other knowledge systems, including indigenous and local knowledge, in the science-policy interface. **The integration of social sciences and humanities into the OCEANIDS methodology relies on the following fact:** Social Science and Humanities (SSH) disciplines are used in a seamless digital environment (cloud and mobile services) in which questionnaires and smart "games" are helping to collect the user need and in parallel the user shows acknowledgement of the critical problem/s in a neighbour, where the user lives, without being asked to give personal data - GDPR protected – and also during the validation period the user is advising with comments on the OCEANIDS service, so that the service fulfils the user needs, while in parallel the user can ask for enhancements and updates. This is a critical point of societal involvement. Qualitative and quantitative analyses incorporate both natural/environmental and human systems, allowing us to produce holistic findings. The information is enhancing the OCEANIDS services and OCEANIDS platform tools and is giving a viral input that serves the project sustainability and the project exploitation. Moreover, the involvement of SSH experts extends to the development of recommendations and policy proposals.

1.2.8 Open Sciences Practices

1.2.8.1 General aspects of Open Science practices & open research

Open science practices will be employed in OCEANIDS. All publications (including scientific papers, posters, newsletters etc.) will be published as "**open access**" papers following the "**Gold**" or the "**Green**" model. As explained in the next Section, a Zenodo.org community will be set up for openly sharing project data, including research outputs, such as datasets to allow others to build on our work. The **multi-participatory nature of the project**, in addition to the strong involvement of citizens (via the adoption scheme of urban green spaces, as well as the implementation of "bioblitz" campaigns in the study areas) demonstrates the open nature of the OCEANIDS project, and the general intention s of the consortium to share data/outputs through inclusion. **Early and open sharing of research**: Early detection of opportunities is enabled through the continuous monitoring of dissemination activities by METIS (leading dissemination, communication & exploitation activities) automatically triggering openness assessment, through the philosophy of "As open as possible. As closed as necessary". The project is an opportunity to gradually implement the practice of depositing pre-prints, posters, and presentations in open repositories at their submission to the journal/event committee when feasible. Having accompanying information and data in digital format will speed up sharing. It should also be highlighted that the project will be directly engaging with different stakeholder groups. After establishing stakeholders' communities, (Task 2.1), OCEANIDS will involve such stakeholders in requirements collection (Task 2.2), impact and assessment (WP5) and participation in communication activities (WP6). Particular emphasis is put on the Inclusion of citizens & engagement in co-creation via ephemeral social networks (Task 2.4), which will allow systematic sharing of knowledge and provision of tools for the wide adoption of project results and exploitation of its outcomes.

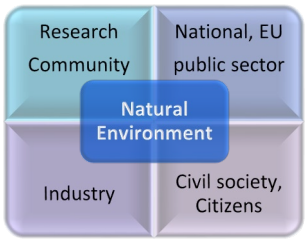
1.2.9 Research data management and management of other research outputs

The project-generated data that can be shared will be made available as Open Access research data; this refers to the right to access and re-use digital research data under the terms and conditions set out in the Grant Agreement. Openly accessible research data can typically be accessed, mined, exploited, reproduced and disseminated free of charge for the user. A data management plan (DMP), for making data/research outputs findable, accessible, interoperable and reusable (FAIR), will be prepared by M6. The DMP is not a fixed document but will evolve during the lifespan of the project. A final version will be submitted at the end of the project. All shareable data will be published and hosted as per individual availability on the project's online repository to be set up under **Zenodo.org**. The consortium will make sure that available data will be easily recoverable by any interested party. The Zenodo community is already acting as a one-stop-shop for data generated by EU projects and, thus, makes it easier for the data to be discovered by interested parties. The data will be formatted according to its type and will be presented for access along with the necessary links to download the appropriate software tools, if necessary. Zenodo is free of charge. The community will be curated by GSH, and new data might be added even after the project ends. The pages will be available in the public domain, enriched with the necessary metadata and will be open to web crawlers for search engine listing, so they will be available to the public through standard web searches. Downloadable formats will be compliant with OGC Standards and specifically: 1) PNG, BMP, XML, GML, SAFE, GeoTIFF and GeoJPEG JPG 2000, GML file formats, 2) WFS, WMS, 3)2D /3D shp and GeoJSON for geospatial data. 4) ZIP / MrsID and other public domain compressed archives, 5) PDF/GEOPDF formatted documents, 6) WMV, MP4 or AVI formats for possible videos, 7) CSV, GRIB2, NetCDF for climate and meteorological data. Links to some of the data, especially in terms of publications, posters, videos etc. will also be available on the project website. The following types of data are expected to be generated by the project (updates and details in the Data Management Plan): a) Data from the requirements collection activities (WP2), b) Existing data on key taxa and biodiversity issues (datasets) (WP2), c) Experimental data and specifications on the EO technologies developed (datasets, models & reports) (WP3, WP4), d) Validation data from the pilots (datasets) (WP5), f) Dissemination and exploitation plan (document and digital content) (WP6). Most of them will be openly shared with the scientific community. Certain categories of data (for example the Business plan) will not be shared since it is confidential information. Standard data models and vocabularies already in use in the context of EO and biodiversity data will be adopted to ensure the knowledge will be widely diffused to be processable and reused by external platforms and digital services. Attention will be paid to IP protection issues, prior to any publication.

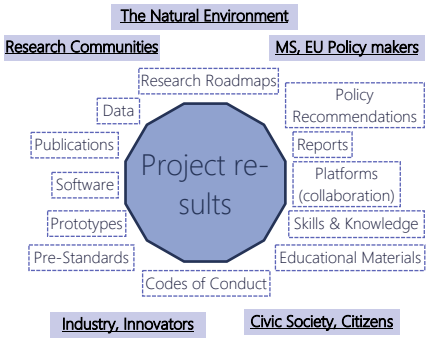
2 Impact

2.1 Project's pathways towards impact

2.1.1 Project contribution towards outcomes specified in the topic



The expected outcomes and the impacts of the call are discussed in this paragraph, providing evidence of to what extent the project will achieve such results for its beneficiaries and the wider society. Barriers, related mitigation actions and specific requirements are discussed in sections **2.1.2 & 2.1.3.** The table below has been organised by linking the **expected Outcomes** [**OUTx**] with the **expected Impacts** [**IMPx**] as defined in the call HORIZON-MISS-2022-CLIMA-01-01with **the project's Results** [**RESx**] and the related project's WPs/Tasks/Metrics. To this end, we follow the logical pathway that the project's results should provide clear & measurable benefits for all stakeholders & beneficiaries. To do so, we adopted **the approach/model of Horizon Europe about projects' Impact** [see for instance: June 2021: **Novelties of Horizon Europe on Dissemination & Exploitation**][46] that it is epitomized in the so-called Quadruple Helix model adding an additional, necessary dimension. More specifically, the results of OCEANIDS are affecting the full range of the so-called **Quintuple Helix Innovation model**[47] [based on the Quadruple Helix model adding as fifth helix the "natural environment"] within the time frame of the project, and then benefits can directly generate Impacts in a longer term for the coastal stakeholders and society as a whole. The following OUTx and IMPx are addressed [as defined in the Call]:



OUT 1. Better access to, and transformation of, the already openly available climate data in the C3S Climate Data Store, Climate ADAPT and relevant Horizon 2020 projects or other initiatives (such as GEOSS) into user-relevant climate change services, in combination with locally sourced data and information, where available. Long-term safeguarding of developed solutions by integration into the operational infrastructure and services of the Climate Data Store should also be explored.

OUT 2. Beyond-state-of-the-art relevant information (including climate, socio-economic, and demographic information) services and tools tailored to Mission users' needs (decision-makers, local and regional authorities and other end users), with customizable data-manipulation tools available for use and re-use.

OUT 3. Quality-controlled climate data services that the Mission could build upon, support and maintain as customizable, user-oriented components of operationally supported EU services (such as the C3S). Projects might want to refer to, and follow guidance, from the project under the topic of "Supporting and standardising climate services"[3].

OUT 4. Tested FAIR data governance and management mechanisms that enable the sharing, community validation and use of locally sourced data (e.g., citizen-generated data) and information, in combination with authoritative data and information as part of the European Green Deal Data Space.

OUT 5. Demonstrated application in at least 5 EU regions or communities

IMP 1 Provide general support to European regions and communities to better understand, prepare for and manage climate risks and opportunities

IMP 2 Accelerate transformations to climate resilience: Cooperate with at least 150 regions and communities to accelerate their transformation to a climate-resilient future, supporting them in the co-creation of innovation pathways and the testing of solutions

IMP 3 Demonstrate systemic transformations to climate resilience: deliver at least 75 large-scale demonstrations of systemic transformations to climate resilience across European regions and communities

IMP 4 Provide state-of-the-art knowledge and data on climate impacts and risks

IMP 5 Support the development and testing of solutions capable of addressing one or more of the systems identified as key for climate resilience building

IMP 6 Demonstrate solutions to transform coastal areas, towards climate neutrality and climate resilience, while protecting water.

It follows the analytical table where we have identified **six [6] major project results [RES1-RES6]** as follows:

[46] https://ec.europa.eu/research/participants/docs/h2020-funding-guide/other/event210609.htm

[47] See for instance: **(A) The Quintuple Helix innovation model: global warming as a challenge and driver for innovation,** Elias G Carayannis, Thorsten D Barth & David FJ Campbell, Journal of Innovation and Entrepreneurship, Aug. 2012; **(B) Smart Quintuple Helix Innovation Systems: How Social Ecology and Environmental Protection are Driving Innovation, Sustainable Development and Economic Growth**, Carayannis, Elias G., Campbell, David F. J., Springer, Dec 2018; **(C) Unveiling the Evolution of Innovation Ecosystems: An Analysis of Triple, Quadruple, and Quintuple Helix Model Innovation Systems in European Case Studies** Rallou Taratori, Paulina Rodriguez-Fiscal, Marie Abigail Pacho, Sesil Koutra, Montserrat Pareja-Eastaway and Dimitrios Thomas, MDPI, July 2021

RES #	OCEANIDS Project Results	RES #	OCEANIDS Project Results
RES 1	Data & services gap analysis output	RES 2	Oceanids data curation services
RES 3	Oceanids Data Cubes (ODC)	RES 4	Integrated CI-MSP platform
RES 5	Oceanids Decision Support Platform (O-DSP)	RES 6	Citizen engagement framework

… targeting primarily the following target groups:

A. Public sector	A.1	Regulation bodies & policymakers
	A.2	Public Authorities (EU, National) especially coastal Regions & Communities
B. Private Sector	B.1	Earth Observation & Satellite data and services providers
	B.2	Maritime economic sectors (fisheries, shipping, tourism, etc.)
	B.3	CC impact and risk assessment specialists
	B.4	Insurance companies
	B.5	Environmental engineering & other engineering principles
	B.6	Financiers (Bank, Business Angel, VC, etc.) & Investors in Climate Change services
C. Academia	C.1	Universities & other Research Communities
D. Civil Society	D.1	Citizens - Social organisations & bodies active in climate and the environment

Communication means that will be used for each Target Group:

1) Public Sector (Public Authorities, Especially Coastal Regions): Host regional workshops and seminars, with a focus on coastal regions, to address localized climate change impacts on oceans and coastal communities and adaptation strategies and collaborate closely with coastal authorities and municipalities to ensure that project findings are integrated into local coastal management policies and initiatives.

2) Private Sector: Collaborate with industry associations and chambers of commerce to reach a broader range of private sector stakeholders. Moreover, establish direct communication channels with key private sector players through corporate liaisons or industry-specific conferences.

3) Academia: Present research at conferences and symposiums within the scientific community and publish research papers and findings in peer-reviewed academic journals. Moreover, through engagement with research networks and collaboration platforms to share knowledge and findings.

4) Civil Society: Organize community meetings or town hall-style gatherings to engage with civil society organizations and achieve sharing of project findings and progress in formats that are easily accessible to civil society organizations and the general public.

Tackle facilitation of replication in regions/communities that are not specifically targeted in OCEANIDS:

1) Documentation and Knowledge Sharing: Create detailed documentation of the OCEANIDS project, including its processes, best practices, and lessons learned.

2) Capacity Building: OCEANIDS can offer training and capacity-building programs to organizations and individuals in non-targeted regions or communities, such as workshops, webinars, or mentoring sessions to transfer skills and knowledge necessary for replication.

3) Toolkits and Guidelines: Develop toolkits, guidelines, and manuals based on the project's experiences and successes, which can provide step-by-step guidance on how to implement similar projects in different regions.

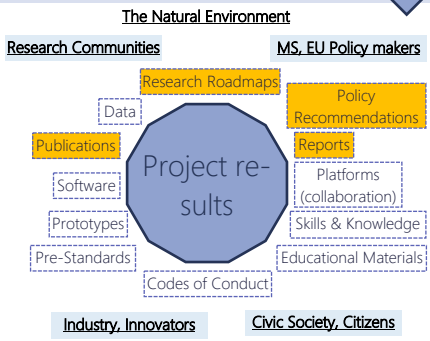
Their interconnection and reflection on the **Project pathways toward outcomes and impact follows:**

RES 1: OCEANIDS Data & services gap analysis output

OUT1

IMP1 | IMP 2

- ✓ **The RES1 is the outcome of WP2/T2.2 delivering Data & Gap Analysis between stakeholders needs (regions & communities) and existing applications/services available.**
- ✓ **Related WPs: WP2**
- ✓ **Outcomes Metrics: Deliverable D2.2 of T2.2. The final outcomes of Result 1 will provide Research Roadmaps, Policy recommendations, Reports & Publications supporting the** Policymakers **& the Research Community as shown in the diagram**



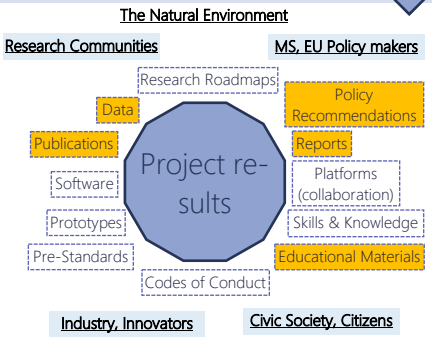
Wider Impact Metrics: The comprehensive & innovative gap analysis models and tools will facilitate the necessary road mapping and modelling both for academics and policymakers **of end-users setting a clear point of departure for future initiatives and research activities in this area.**

RES2: OCEANIDS data curation services

OUT2 | OUT 3 | OUT 4

IMP1 | IMP2 | IMP 3 | IMP4

- ✓ **RES2 is the outcome of T3.4 in WP3 providing meteorological models curation & quantitative environmental impact assessment in coastal regions for Climate Change mitigation assessment services**
- ✓ **Related WPs: WP3**
- ✓ **Outcomes Metrics: Deliverable D3.4 of task T3.4. The final outcomes of Result 2 will provide Policy recommendations, Reports, Data, Educational material & Publications supporting the** Policymakers **& the Research Community as shown in the diagram and Educational material for all stakeholders including Civil Society**
- ✓ **Wider Impact Metrics: The Res 2 aims to increase environmental impact assessment in coastal regions by policy designers & governance bodies.**

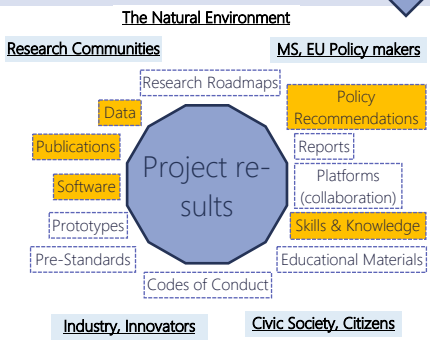


RES 3: OCEANIDS Data Cubes (ODC)

OUT3 | OUT 6 | OUT 7

IMP1 | IMP2 | IMP3 | IMP4

- ✓ **The RES3 is the outcome of WP3/T3.1 delivering the Data harmonisation (OCEANIDS Data Cubes), federation & exchange framework for increased data consumption contributing** to **the OCEANIDS Decision Support System.**
- ✓ **Related WPs: WP3**
- ✓ **Outcomes Metrics: Deliverables D3.1 of task T3.1. The final outcomes of Result 3 will provide Data, Policy recommendations, S/W, and Publications supporting the** Policymakers **& the Research Community & the Industry as shown in the diagram as well as Skills & Knowledge for all target groups as shown in the table above.**
- ✓ **Wider Impact Metrics: The ODC is a tool for data harmonization in the area of CC supporting the operation of the OCEANIDS DSS providing customized and targeted** data sets **for multiple stakeholders**

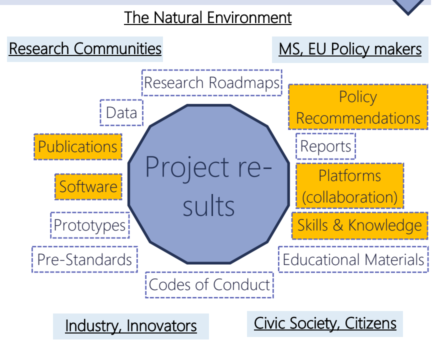


RES 4: OCEANIDS Integrated CI-MSP platform

OUT3 | OUT4

IMP1 | IMP 2

- ✓ **The RES4 is the outcome of WP4/T4.2 & T4.3 delivering an Integrated CI-MSP platform**
- ✓ **Related WPs: WP2**
- ✓ **Outcomes Metrics: Deliverable D4.2 of T4.2 & T4.3. The final outcomes of Result 4 will provide S/W, a Collaboration platform, Policy recommendations, Skills and Knowledge & Publications supporting all stakeholder groups.**
- ✓ **Wider Impact Metrics: The comprehensive & innovative gap analysis models and tools will facilitate the necessary road mapping and modelling both for academics and policy makers of end-users setting a clear point of departure for future initiatives and research activities in this area.**

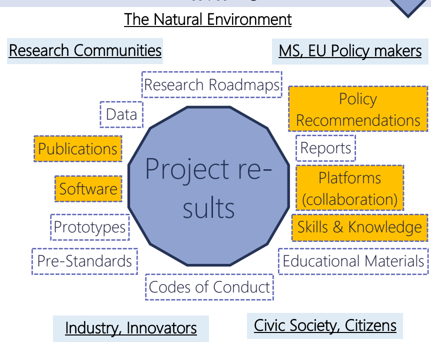


RES 5: OCEANIDS Decision Support Platform (O-DSP)

OUT2 | OUT3 | OUT4 | OUT5

IMP3 | IMP4 | IMP5 | IMP 6

- ✓ **The RES5 is the outcome of WP4/T4.3 & WP5/T5.3 delivering The OCEANIDS Decision Support System**
- ✓ **Related WPs: WP4 & WP5**
- ✓ **Outcomes Metrics: Deliverables D4.3 of task T4.3 and deliverable D5.3 of task T5.3. The final outcomes of Result 5 will provide Policy recommendations, S/W, a Collaboration platform, Publications supporting the Policymakers & the Research Community & Industry as shown in the diagram as well as Skills & Knowledge and Educational material for all stakeholders including the Civil Society and general audience activities**
- ✓ **Wider Impact Metrics: The OCEANIDS Decision Support System provides an integrated tool-set and** know-how **on CC conservation in Coastal areas affecting all stakeholders in this area.**

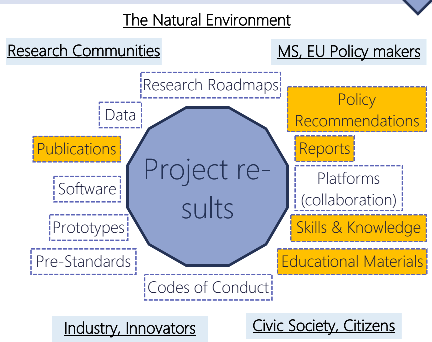


RES 6: OCEANIDS Citizen engagement framework

OUT1

IMP1 | IMP2

- ✓ **The RES6 is the outcome of WP5/T5.3 & WP6/T6.1 & T5.3 delivering The OCEANIDS Citizen engagement framework delivering the OCEANIDS methodology & the OCEANIDS Stakeholders community** set-up **and activation tools and services**
- ✓ **Related WPs: WP5 & WP6**
- ✓ **Outcomes Metrics: Deliverables D5.3 of task T5.3 and D6.1 & D6.3 of task T6.1 & T6.3. The final outcomes of Result-6 will provide Policy recommendations, Reports & Publications supporting the** Policymakers & **the Research Community, as well as Skills & Knowledge and Educational material for all stakeholders including the Civil Society and general audience activation**



- ✓ **Wider Impact Metrics: The OCEANIDS engagement framework & methodology** offer **valuable** tools **for CC conservation in the Coastal areas** where **the** set-up **and activation of** the **OCEANIDS** stakeholders **community will act as an acceleration in** diffusing project **outcomes to selected audiences and the general public**

2.1.2 Project contribution towards wider impacts, in the longer term, specified in the Mission

The project provides the means and the methodology to uptake the application of user driven tools for climate impacts, data and knowledge in the EU since: ○ **Engages leading industrial, academic partners and end-users in a participatory development** of new methods and services for the design of a holistic framework on monitoring and assessing climate change challenges in coastal areas; ○ **Delivers novel apps & platforms for policy making and defines a clear roadmap** that boosts the European leadership in biodiversity mitigation methods and strategies for the urban environment contributing at the same time to job creation [as it makes more "intelligent" a new market segment] and economic growth, both for the private & the public sector; ○ **Structures and harmonises disparate**

data sources of past initiatives on biodiversity, delivering a single access window to this world of data together with the necessary metadata / indicators for enhanced management, adaptation and mitigation actions; **Delivers seven [7] clear exploitable outcomes** [see section 2.2.1.1.] supporting with tangible means the social change, new social practices & social ownership through a complete toolset for all interested parties / stakeholders; **Engages citizens, schools, policy designers and biodiversity experts in a massive way** by applying SOTA dissemination and communication tools [see section 2.2.1.5.]

2.1.2.1 Societal Impact

OCEANIDS tangible outcomes will: **Take into account EU policy priorities & global challenges through R&I** as defined in the Call but also the overall EU policy framework, especially in all methodological and policymaking offerings, Will **deliver tangible benefits and impact via R&I tools and practices** in the area of CC in coastal areas; Will **strengthen the uptake of R&I in a challenging topic** by applying tools and methods that affect society in multiple levels [green economy, environment policies, well-being, European leadership]. Last but not least, we are aiming through our dissemination activities to **communicate the OCEANIDS results in a large number of stakeholders**, potential beneficiaries and a great number of EU citizens becoming a reference point for CC dialogue amongst non-specialists, e.g., the media and the public.

2.1.2.2 Scientific Impact

OCEANIDS achieves several scientific impacts aligned with the OCEANIDS vision for the deployment of framework & services for the effective management and monitoring of the CC challenges in coastal areas, namely: The development of gap analysis models on CC trajectories in coastal areas; The development of a set of three novel "tools" [DSS, CI-MSP Platform & an engagement framework for the general public] that addresses specific needs of governance authorities and policymakers as well as of the research community and the general public. The delivery of data services and mapping tools aims to strengthen the decision-making of all key stakeholders in this domain; The design, validation, and implementation of all the above tools in seven [7] real-life test beds.

2.1.2.3 Innovation Capacity

OCEANIDS supports the introduction of SOTA technologies and processes through the cooperative effort amongst different actors and the provision of a comprehensive framework. It is based on a sound Innovation Model as described in Section 2.1.1. and it will positively impact the innovation capacity of all stakeholders in Climate Change, the support of new linkages through the sharing and exploitation of knowledge and information, and the creation of new mechanisms, alternative approaches and strong synergies. For this, it will study the needs and interaction of stakeholders' environments in order to make use of lessons learnt, thus promoting social & business innovation through social innovation activities. Different types of social innovation can emerge such as social businesses and public-private partnerships that fund effective social services (e.g., social impact bonds).

2.1.2.4 New Market Opportunities

The deployment of the project outcomes brings new light to this evolving market area of Climate Change in coastal areas. The modular nature of all project outcomes permits the application of multiple delivery models in the full deployment stage [Know-how transfer, Platform-as-a-Service, customized studies etc.]. Although this will be the subject of a comprehensive analysis in the post-TRL6 stage WP6/T6.3 will set the basis of a targeted business plan and all the road-to-market pathways.

2.1.2.5 Strengthen competitiveness and growth of companies.

OCEANIDS ultimately aims to create the foundation for a sustainable application of CC actions and initiatives that address the needs of coastal areas and it will contribute by tangible outcomes towards the optimization of existing initiatives by harmonising dispersed data sources setting up the ground for the transition to a continuous and effective policy making, management, adaptation and mitigation actions.

2.1.3 Requirements and Potential Barriers

	Barriers	OCEANIDS Counter Actions
Political	No support for the OCEANIDS methodologies validation and use by the central and/or local governments that are participating (CRETE, HPA, MMAIP, V-SML, PHEL, PRAU, PRAA, MLG, BRET, DRPM, AIRC) due to lack of manpower.	Supplementary support from the private sector, organisations and funding schemes can be exploited as well.
Ethical	OCEANIDS approach limits the availability of ground truth data for evaluation of CC effects.	Several factors are implemented in the OCEANIDS platform to estimate such adverse effects along with mitigation plans and constraints on methodology.
Social	OCEANIDS tools face social non-acceptance	The OCEANIDS approach ensures that a multi-participatory and inclusive methodology is followed, where society as a whole is represented.
Technological	No major technological barriers are foreseen.	The OCEANIDS methodology is already validated in tools available in the climate data in the C3S Climate Data Store. However, further improvement of the approach is sought to fit the stakeholders/end-user needs. Training and handbook to be delivered.
Cultural	The OCEANIDS methodology faces challenges when applied in CC events in the coastal regions vs. socio-economic and general acceptance of use.	Several factors can be implemented in the OCEANIDS platform to estimate such adverse effects along with mitigation plans and constraints of the methodology.
Economical	The high perceived cost of associated services and products of OCEANIDS	Positive outcomes of OCEANIDS vastly outperform the use of socio-economic resources. The comparison and/or balancing and acceptance of the two (technological and socio-economic) will be part of the OCEANIDS platform, and the active participation of 12 end users ensures that all tools and applications will be developed with the users' constraints in mind (including financial constraints).

Barriers that may affect **OCEANIDS** vary and derive from cultural, political, financial, individual, technological, regional and other perspectives. The table above depicts important barriers identified that may impede project success.

2.1.4 Scale and significance of the project's contribution to the expected outcomes and impacts

Paying extra attention to the Call priorities and synergies OCEANIDS posits that CC mitigation-based products and services are crucial in the development of green and blue coastal areas that have an effective toolset in place together with a dynamic decision-making process to enable a more resilient and inclusive society in Coastal regions, via better-informed and integrated seascape management. Climate Change has caused and will continue to cause pressures and uncertainties that will pose challenges to society, the economy, and the environment. The repercussions of each crisis and/or emergency depend on the key stakeholder's preparedness to respond to specific predictable impacts. As such, CC stakeholders and end-users are taking steps towards becoming more resilient to protect their residents and bio-assets, but also to remain functional during challenges derived from CC, fostered by global agreements and local policies or regulations. Within this scenario, the high-level scope of OCEANIDS products is the protection of the CC challenges supported by innovative planning and the safekeeping of citizens' health and well-being. This has been elaborated greatly throughout this document. The end users' / citizen's involvement and training will generate as a by-product the growth of a better awareness of the impacts and the need for effective adaptation policies. To this end, OCEANIDS products will help communities, planners and policymakers to tackle Public Health Surveillance and Biodiversity and Ecosystem Sustainability and take the key actions to address urgent challenges. Furthermore, OCEANIDS will, in turn, bring significant benefits to a wide range of stakeholders (e.g., from Municipalities/Prefectures/Nations to climate- institutions and research communities) while also accomplishing societal impact as a whole in terms of reduction of social and economic damages improving the quality of life, bio-economy, health and safety of the citizens.

2.2 Measures to maximise impact - Dissemination, exploitation and communication

2.2.1 Tentative plan for the dissemination and exploitation including communication activities

2.2.1.1 Exploitation strategy

Table 2. OCEANIDS results at proposal preparation stage

1	**Data & services gap analysis output** -Delivered in WP2
2	**OCEANIDS data curation services** - Delivered in WP3
3	**OCEANIDS Data Cubes (ODC)** - Delivered in WP3
4	**OCEANIDS Integrated CI-MSP platform** - Delivered in WP4
5	**OCEANIDS Decision Support Platform (O-DSP)** - Delivered in WP4 &WP5
6	**OCEANIDS Citizen engagement framework** - Delivered in WP5 & WP6

One of the major activities involved in **OCEANIDS** is the exploitation of the expected outcomes. As a result, in close coordination with **the project** dissemination strategy and activities, **OCEANIDS** will follow an effective, concrete and dynamic exploitation strategy that will be regularly reviewed and expanded as the project proceeds and new opportunities, or obstacles arise. To this end, an **OCEANIDS** exploitation team will be formed to deal with succession and long-term exploitation and continuation issues that arise, with a view to secure the sustainability of the project's services and dissemination scheme. All partners will nominate qualified persons as exploitation managers to coordinate the relative activities and scheme. The exploitation team will continuously try to use the stakeholders' community (within and outside the consortium), and all foreseen events and engagement activities to promote the project within an active network aiming at establishing strong working relationships with key people and organisations involved in or having an interest in **OCEANIDS** domain of relevance. The exploitation activities will be thoroughly planned as **OCEANIDS** unfolds and reviles its value and will continue throughout the entire lifecycle of **OCEANIDS**. Within a specific activity in the exploitation WP (6), each partner will also develop its individual exploitation plan, documenting how it will contribute to the sustainability of **OCEANIDS** services or how it may exploit them directly at the local, regional or international level, taking into account the IPR strategy of the consortium. The foreseen Business Models & Exploitation Plans in **T6.3** will also provide the means to the consortium partners to bring their innovative solutions closer to the market ensuring the sustainability of the project after its lifetime. A list of exploitable assets will be refined during the project duration, whereas at **OCEANIDS** preparation time, there are already specific exploitable assets expected to be available within the project**,** aligned with the main project objectives, listed in Table 2.

2.2.1.2 Exploitation objectives

The exploitation strategy of **OCEANIDS** will follow three main stages of expansion with specific short-term, medium-term and long-term objectives: ⭘ ***Short-term objectives***: This first stage corresponds to a period beginning with the start of **OCEANIDS** activities and ends in parallel with the project. During this period, the main objective is to verify and validate the quality and effectiveness of the **OCEANIDS** results, concepts, models, tools and services. ⭘ ***Medium-term objectives***: This second stage corresponds to a period beginning with the end of **OCEANIDS** and ending after two or three years, depending on the maturity and completion of the project results. The main objective includes the full deployment of the "to date" results and developments of semi-commercial products and services, while it further relates to potential fine-tuning or expansion of the **OCEANIDS** framework. ⭘ ***Long-term objectives***: Corresponds to the scale-up of the application of the **OCEANIDS** framework and services as derived from the first and second stages.

2.2.1.3 Planned exploitation measures & activities

OCEANIDS exploitation strategy will comprise of a list of exploitation activities which include: 1) the ***identification of the innovative exploitable assets***, which **OCEANIDS** will deliver through its results to its target users, 2) the ***conduction of a thorough analysis of all technological, market, financial and societal challenges*** (which will comprise of an initial and a final analysis) which will aim at the identification of the key drivers towards which **OCEANIDS** is targeted, its segmentation, the positioning and all corresponding emerging trends, 3) the ***documentation of an analytical IPR management strategy*** based on the principles outlined in the project CA which will guide the joint and individual exploitation capabilities of the project partners, 4) the ***analytical definition of a risk management strategy***, aiming not only at managing research, technical, financial, management, exploitation and other related risks as they appear, but mainly at proactively acting so as to avoid the appearance of these risks, 5) the ***analytical definition of all possible commercial and non-commercial exploitation models***, 6) the ***analytical definition and evaluation of the sustainability and viability of possible business models*** and alternative solutions that may be followed for the provision of the project solution and services to the identified stakeholders, including licensing schemes, pricing, etc., and the corresponding tactical revisions as deemed necessary throughout **OCEANIDS** lifecycle, 7) the ***establishment of tactical alliances with other industrial and research organisations*** that hold the potential of

promoting the results, 8) the ***establishment of relationships of trust with stakeholders early within the project***, who can facilitate the quicker adoption of the solution and provide valuable feedback which can be used in the exploitation phase, 9) the ***identification of financial support*** from diversified funds that can be used to support direct and/or indirect transformation, ranging from additional research activities and to technology integration in existing or future solutions, and 10) the ***validation of the aforementioned exploitation activities*** through **OCEANIDS**'s validation campaigns. **Path to exploit project innovations:** All project partners will participate in common dissemination and communication events and activities, as well as in the exploitation and business sustainability tasks of the project. Technology providers together with industrial partners will have a key role in applying the developed research results in real-life cases. In general, and although the project results will have been deployed up to TRL6 level the consortium aims in WP6/T6.3 to define a complete road-to-market roadmap for all the key project outcomes separately or as a whole as they have been grouped in section 2.1.1. Multiple delivery channels and methods will be assessed taking into account the feedback from the multiple and numerous dissemination activities. **Exploitation in non-associated third countries:** The exploitation strategy and the relevant business analysis will identify the key priorities, the timing and the characteristics of the project's outcomes exploitation at the global level including non-associated countries in this plan. However, by establishing a strong knowledge base and skillset together with tangible outcomes on the Supply level [Technology-Push] together with the prioritization of our road-to-market strategy based on EU vision, targets and needs in this area [Demand-Pull]. We are aiming to enhance the European leadership in a breakthrough health technological area creating at the same time a competitive advantage compared with similar initiatives in non-associated countries. **Standardization activities:** EUBON led to the creation of an effective registry system that builds on existing major resources such as Global Biodiversity Information Facility (GBIF), LTER, DataOne, EuMon, etc., and links them using the GEOSS Data Access Broker system. OCEANIDS builds on this, as well as on other past activities, related to biodiversity data harmonization and mobilization aiming to increase data consumption and facilitate the adoption of existing and creation of new services & tools. The ultimate outcome will be to expand current standards in this area.

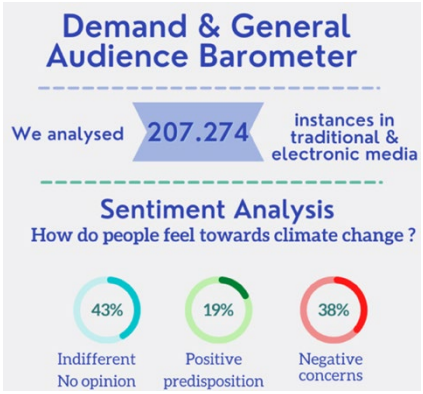
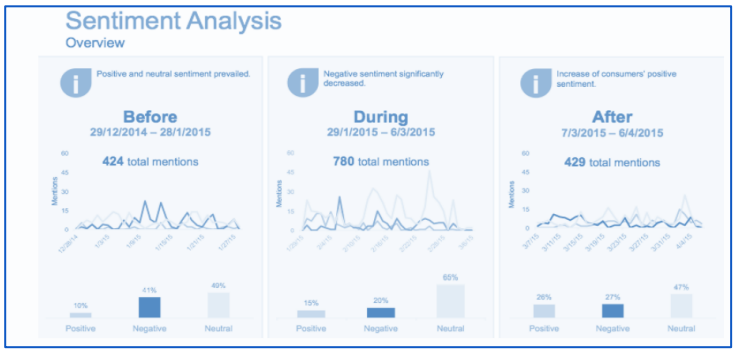


Figure 8. Market sentiment study overview

2.2.1.4 Planned Dissemination Strategy

Dissemination, communication and exploitation activities, including proper and careful management of IPR and data, will be essential to ensure the achievement of the project objectives and will be closely coordinated among all work packages, to ensure a cohesive plan of action that will assist the partners in the promotion of **OCEANIDS** solutions and its sustainability beyond the project lifetime. The dissemination and communication will foster a constructive, ongoing technology-enabled dialogue between the involved stakeholders. ***The main objectives*** of the **OCEANIDS** dissemination and communication strategy are to: (1) ***Define a clear and distinctive brand identity*** for **OCEANIDS** that will be consistent online and offline and will represent the cornerstone values of the project; (2) ***Ensure broad visibility of*** **OCEANIDS** ***work*** and disseminate its results towards the targeted stakeholder groups to effectively promote the **OCEANIDS** offering for large uptake; (3) ***Facilitate the exploitation of OCEANIDS outcomes*** for the partners, together and individually and for the overall research communities by promoting the development of innovative solutions based on **OCEANIDS** for effective socio-economic impact creation; (4) ***Ensure broad visibility and promotion of*** **OCEANIDS,** beyond the programme via strategic and operational coordination of specific communities through efforts embracing all target stakeholders; (5) ***Support the sustainability of*** **OCEANIDS** beyond the project lifetime. The ***key target audiences*** identified at the proposal's preparation time are: regulation bodies & policy makers, public authorities (EU, National) especially coastal regions & communities, earth observation & Satellite data and services providers, maritime economic sectors (fisheries, shipping, tourism, etc.) CC impact and risk assessment specialists, Insurance companies, environmental engineering & other engineering principles, financiers (banks, business angels, VCs, etc.) & investors on climate change services, universities & other research communities, citizens, social organisations & bodies active in climate and the environment.



2.2.1.5 Communication strategy

OCEANIDS will engage in a comprehensive and

well-structured dissemination, communication and community building plan to ensure a broad promotion of the design studies conducted, the developed concepts, technologies and future implementation potential results. The consortium will follow a phased approach to defining, planning, organising and exploiting a rich set of activities and instruments most effectively. While this plan and specific actions will be refined in the first months of the project, the core structure and main activities have already been organised as follows. **OCEANIDS'** approach to public outreach, community building and engagement starts with outlining key activities and dependencies that should be considered to increase the effectiveness of the public outreach strategy succeeding at the same time the engagement of all key stakeholders. In order to achieve more meaningful interactions with different target groups, a set of principles has been adopted and oriented towards the long-term sustainability of **OCEANIDS**: **Long-term relationship building and earning trust. OCEANIDS** will build research, academia and society respect and recognition, as well as cultivate trust in its ecosystem by leveraging topic-specific expertise and experience to research market the **OCEANIDS** offerings to target audiences; **Personalized, multi-channel communication. OCEANIDS** will enhance interactions and foster closer links with its targeted audiences by delivering relevant and personalized messages, across various touch points of identified ecosystem stakeholders based among others on **Sentiment Analysis, Machine Learning & Natural Language Processing Techniques** for a continuous data collection, analysis & reporting on the targeted audiences' perceptions and priorities before, & during the project's lifetime; **Empowerment. OCEANIDS** will interact with target audiences in a mutually beneficial environment, empowering members of its ecosystem to bypass obstacles in their digital transformation journey.

Stakeholders' engagement: OCEANIDS has already defined and implemented a set of actions starting from a more in-depth analysis of the needs and priorities of the various stakeholders. The specific task leader Metis Baltic has extensive expertise in this area applying state-of-the-art communication practices and AI algorithms for more than a decade in EC projects effectively identifying the key pathways for the stakeholder's engagement and succeeding in the optimum projects' communication results. Therefore, before actually implementing a communication and dissemination plan, **OCEANIDS** will go through a preparation phase. **By applying this know-how and tools we have already implemented an initial study [24/08/22 - 24/09/22] of more than 200K posts throughout the EU** both in traditional and new media sources in order to analyse the current public sentiment, top influencers and trends in the area of Climate Change for coastal areas. The study was based on anonymized publicly available mentions from online and traditional media. Based on that data we have analysed the current public sentiment, top influencers and trends in the proposal's focus area. As Figure 9 shows, practically the majority of the audience has no opinion or is not engaged in this topic (43%) while the rest 57% is divided among those with a positive predisposition (19%) and highly concerned citizens (38%). Furthermore, OCEANIDS went deeper in analyzing citizens' perception of climate change in coastal areas where we found several statements and prejudices that should be also taken into account in our dissemination & communication campaigns. Our study focused also on key subjects currently in the social dialogue, as well as current perceptions on the under-discussion priorities. As shown in Figure 10, people highlight the role of data as well as predictive models towards better, more effective, timely and accurate climate change predictions. The above study was carried out to provide us with a "big picture" for the start. It has high granularity, i.e., it reflects sentiments and trends in the general audience, not in the specific target groups as defined in 2.2. Nevertheless, it gives us a good overview in terms of societal relevance and sub-topics related to electromobility. With this result in our hands, we have been able to formulate the basic cornerstones of our communication and dissemination strategy as follows. Overall and throughout the project we will apply more **multilayer market sentiment study methods** and we will "run" targeted as well as general audiences' web analytics campaigns in order to identify in detail key indicators for stakeholders' engagement: like the latest top trends, top news & quires, top influencers, buzz evolution, social & traditional media reach etc. The outcome will be a holistic demand and general audience observatory as well as the best and most effective pathways to reach all stakeholders and communicate the project's key outcomes. The primary objective is to identify the best modalities of reach, interaction and communication with each group of relevant stakeholders for more effective promotion of the project's outcomes to maximize its scientific and socio-economic impact. This will be supported by a spectrum of actions that includes: ***Establishment and management of liaisons and synergies*** with relevant initiatives, both on local/national and pan-European levels, leveraging on existing communities. ***Participation in and***

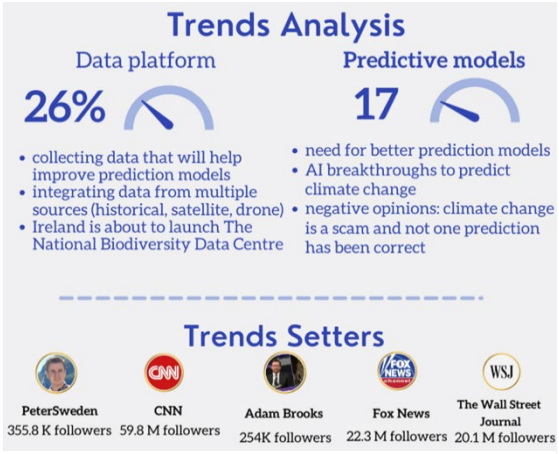


Figure 9. Trends Analysis & Trends Setters

organisation of events. More details will be added according to the development of the work plan. ***Support of the stakeholders' engagement, community and capacity building***. **OCEANIDS** will define and implement a strategy for multidisciplinary user community engagement considering the needs and priorities of the various stakeholders. The primary objective is to grow the size, reach and activities of the ecosystem for increased scientific and socio-economic impact. The task will build on the strong existing networks of **OCEANIDS** partners. Our point of departure will be the consortium's established social impact and reach. In Figure 11 we have counted the cumulative outreach of the OCEANIDS consortium via their own company social media outlets amounting to 950K followers, with **Twitter** being the **strongest channel.**

2.2.1.6 Planned Dissemination and Communication Measures & Activities

The partners will present **OCEANIDS** through major international fairs & conferences [see below some examples] in which they regularly participate and attract the sector shareholders. The SMEs and industrial partners will also directly approach prospective clients through their sales networks.

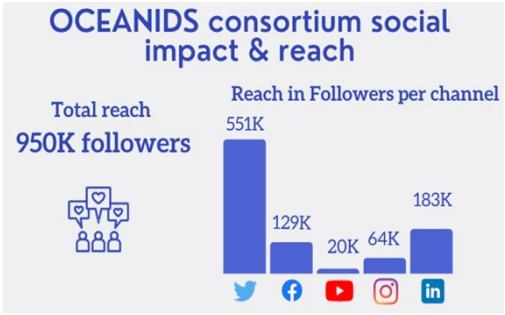


Figure 10. Current OCEANIDS social impact & reach

Event	Location	Periodicity	Visitors	Topic of event
Nature World Conservation Congress	France	4 years	1000	Biodiversity and Ecology Restoration
EU Space Week	Hybrid/Prague	Annual	1000	Conference on Downstream Space Technologies (EUSPA)
Living Planet	Hybrid/Europe	Bi-Annual	1000	International Conference on EO (ESA)
Phi week	Hybrid/Frascatti	Annual	1000	International Conference on EO Applications (ESA)
INTERGEO	Hybrid/Germany	Annual	3000	International on Geosciences
World Biodiversity Forum	Davos, SH	Annual	1000	International Conference on Climate Change
GEO and EuroGEO workshops	Geneva/Europe	Annual	500	International workshops on EO
AGU (Advancing Earth and Space Science)	USA	Annual	3000	International Conference
Copernicus General Assembly/ C3S Assembly	Europe	Annual	1000	International Conference on Copernicus services
RAMON	Israel	Bi-Annual	3000	International Conference on Space
EARSeL Symposium	Europe	Bi-Annual	1000	International Conference on EO services

Journals	Website
Sustainable Cities and Society	https://www.journals.elsevier.com/sustainable-cities-and-society/
Remote Sensing	https://www.mdpi.com/journal/remotesensing
Urban Climate	https://www.journals.elsevier.com/urban-climate/
Atmospheric Pollution Research	www.journals.elsevier.com/atmospheric-pollution-research
Remote Sensing of Environment	https://www.journals.elsevier.com/remote-sensing-of-environment
Urban Policy and Research	https://www.tandfonline.com/toc/cupr20/current
Air Quality, Atmosphere & Health	link.springer.com/journal/11869
Geosciences	https://www.mdpi.com/journal/geosciences
Terra Nova	https://onlinelibrary.wiley.com/journal/13653121
International Journal of Spatial Data Infrastructures Research (IJSDIR)	https://ijsdir.sadl.kuleuven.be/index.php/ijsdir

Indicative organisations/initiatives/forums etc. to be contacted	Website
Ministries of Environment of all EU countries	http://www.eurogentest.org/index.php?id=690
European Environment Agency (EEA)	https://europa.eu/european-union/about-eu/agencies/eea_en
GEO - Group on Earth Observations & EuroGEO	http://www.earthobservations.org/index.php
European Strategy Forum on Research Infrastructures	https://www.esfri.eu/
ESA	https://www.esa.int/
NASA	https://www.nasa.gov/
USGS	https://www.usgs.gov/
EASME - LIFE	https://ec.europa.eu/easme/en/life
Europa Biodiversity Observation Network	https://europabon.org/
Covenant of Mayors for Climate and Energy	www.covenantofmayors.eu
Reinventing Cities	www.c40reinventingcities.org/en/

To properly support the dissemination and impact creation effectively, especially considering the ambition of **OCEANIDS**, it is crucial to set up a well-tailored and far-reaching set of communication activities and tools that can effectively promote the **OCEANIDS** approach and initiatives in amplifying their communication efforts towards both the targeted scientific and research communities and the relevant communities and the policymakers. Towards this aim, a series of actions will be taken to present **OCEANIDS**'s results tangibly and comprehensively to diverse audiences and run targeted communication campaigns. **OCEANIDS** will 1) ***set in place innovative communication tools as described before***, 2) ***amplify the reach*** through each partner's communication channels and contacts, 3) ***ensure proper promotion*** through existing EC media services, channels and tools and 4) ***create an active OCEANIDS stakeholder's community***. New communication/community-building tools and techniques, such as co-creative techniques, use of photography, artwork, social media, etc., will be evaluated at the beginning of **OCEANIDS** and presented in the relevant deliverable. A list of specific communication activities is foreseen, including the following: ***Project website***: guaranteeing continuous updating and improvements, which **METIS** will host, design, curate and manage. The Portal will be the main platform connecting the project and its stakeholders. ***Social media analysis & promotion***: Social media channels are essential to empower dissemination efforts and reach a wide audience, to facilitate an interactive dialogue with key stakeholders. The project will establish a presence on several public social networking sites, e.g., the Project webpage, LinkedIn, and Twitter setting up at the same time a **"live" dashboard where our reports will be published.** ***TV spots miniseries:*** **OCEANIDS** will create TV spots and mini-series in order to engage and train the general public and to build awareness about **OCEANIDS** key messages among a wide audience will establish strong connections with local press, online blogs and social press to improve the media interest and coverage about the social innovation and key issues/trends in the area of green pharmaceuticals. ***Press releases*** will be written during the project for public communication on main project outcomes having an important impact on society and/or dedicated communities. ***Promotional material***: During the lifetime of the project, several deliverables, technical reports, flyers/posters, videos, webinars, and **OCEANIDS** presentations will be produced based on the project's need for better communication impact. Videos will be created and distributed via the appropriate channels to target key stakeholders (e.g., YouTube channel, VideoLectures.net). ***Project Newsletter***: **OCEANIDS** will create a biannual e-newsletter after year One, describing the evolution of the project framework, and announcing interesting news and initiatives. ***Presentations*** on the project and outcomes where the content of the presentations varies on the target groups selected. However, presentations are applicable to reach any of the identified target groups. ***Scientific papers*** provide a detailed description of selected project outcomes - usually for a dedicated community. As it will be defined in the Grant Agreement, the consortium will strive at least for "green access" for publications generated by **OCEANIDS** members. Where appropriate, "gold access" will be aimed for. The authoring organization will decide on the preferred model considering the budget reserved and possible organizational rules in place. Participation in ***standardization activities*** targeting the transfer of the main **OCEANIDS** outcomes in the relevant future standards.

Key performance indicators for dissemination and communication: Defining key performance indicators to assess the progress of dissemination and communication in line with the overall project's approach is important to closely monitor the progress of our activities and measure their impact (as far as this is feasible from a quantitative point of view). We defined a set of key performance indicators, and KPIs, which, with respect to dissemination and communication, will be monitored and managed by the WP leader. This will allow corrective measures to be taken and enforced, whenever the performance and progress marked by the consortium are not aligned with the set objectives. Table 2.6 gives figures for the Key Performance Indicators (KPIs) related to communication activities as defined by the project at proposal preparation time. This will of course be duly updated once the project starts and any other relevant KPIs might be considered and monitored at the project's run-time.

Table 3. Key Performance Indicators for dissemination and communication (PIs)

Measure	Indicators	Target	Means of verification
OCEANIDS Website	# of unique visitors	10000+ by M32	Google official metrics/reports
Social networks	Web analytics Number of followers on Twitter, LinkedIn, and YouTube	10000+ by M32	Official metrics/reports by the relevant social media
OCEANIDS Workshops	# of workshops and # of participants	One Workshop by M31	Proceedings & Media Coverage
Videos	#of videos published on the project's YouTube channel and average number of views	One [1] to be released in M31	Videos & Media Coverage
TV spots	# of TV spots on TV	One [1] to be released in 31	Media space reports
Scientific publications	# of peer-reviewed papers/articles	About 10	The publications
OCEANIDS brochures	# of brochures distributed	500+ by M32	Proceedings & media material of the events
Posters	# of posters produced	Two [2] in M16, M32	The original posters
High-level materials for policymakers	# of sets (mission statement, slide deck, brochure)	Two [2] the last two years of the project	Targeted meetings-Proceedings & media material

2.2.2 Strategy for the management of intellectual property

The consortium recognises that management of knowledge and Intellectual Property Rights (IPR) are fundamental for the smooth collaboration among the consortium members in the successful exploitation and sustainability of **OCEANIDS** outcomes within and after the end of the project. Through knowledge management and the protection of partners' interests, we will avoid information bottlenecks related to confidentiality, and thus maximise the chances for elevated market visibility and successful exploitation of the project results. Management of knowledge and IPR issues will be integrated within the framework of the Consortium Agreement (CA), drawn to be aligned with the policies and context for EC-funded projects under Horizon Europe and will be further addressed by the IPR Management Plan. The CA will specify how and under which terms and conditions partners access existing or generated by other partners' knowledge. It will, also, elaborate on the terms and conditions of access to such IP in the case of exploitation beyond the scope and duration of the project. The CA will carefully identify the Foreground and Background Knowledge and will address: a) **Confidentiality**, i.e., issues related to the disclosure of confidential information in accordance with applicable laws and EU regulations; b) **Ownership of knowledge**; c) **Legal protection of results**; d) **Access rights to Foreground and Background**; e) **Obligation for use specifying the responsibilities of the Partners to meet the EC Model Contract**; f) **Dissemination of knowledge**, according to regulations about IPR and reflecting the EC Model Contract. The consortium will ensure that the scientific results of **the project**, comprising scientific papers, algorithm implementations and datasets, will be openly accessible to the research community. For scientific papers, a "green" open access model will be adopted, making the papers available through the project website, and additionally through a publication repository (e.g., Zenodo) that will be specified at the beginning of the project.

2.3 Summary of key elements of the impact section

SPECIFIC NEEDS	EXPECTED RESULTS	D&E&C MEASURES
○ Better access to, and transformation of, the already openly available climate data in combination with locally sourced data and information, where available. ○ Beyond-state-of-the-art relevant information (including climate, socio-economic, demographic information) services and tools tailored to Mission users' needs ○ Quality-controlled climate data services that the Mission could build upon, supported and maintained as customizable, user-oriented components of operationally supported EU services ○ Tested FAIR data governance and management mechanisms that enable the sharing, community validation and use of locally sourced data as part of the European Green Deal Data Space. ○ Demonstrated application in at least 5 EU regions or communities	○ Data & services gap analysis output -Delivered in WP2 ○ OCEANIDS data curation services - Delivered in WP3 ○ OCEANIDS Data Cubes (ODC) - Delivered in WP3 ○ OCEANIDS Integrated CI-MSP platform - Delivered in WP4 ○ OCEANIDS Decision Support Platform (O-DSP) - Delivered in WP4 &WP5 □ OCEANIDS Citizen engagement framework - Delivered in WP5 & WP6 ○ Publications for all specific needs defines ○ Three to Five PhD students to be trained.	○ An integrated digital marketing strategy by applying AI algorithms for the identification of the trends and perception of all stakeholders ○ Clustering activities with all other projects funded by the specific Calls ○ Eight to Ten publications ○ Digital marketing material and organisation of workshops ○ Digital material for selected and general audiences [TV spots, videos, paper material] ○ Participation in key conferences and events as defined in 2.2.1.6
TARGET GROUPS	**OUTCOMES**	**IMPACTS**
○ All 27 partners from 12 countries spanning several research and commercial domains in a comprehensive interdisciplinary approach. ○ The targeted - out of dissemination activities-stakeholders meaning: Regulation bodies & policymakers, Public Authorities especially coastal Regions, Maritime economic sectors (fisheries, shipping, tourism, etc.), CC data providers, impact and risk assessment specialists, Environmental engineering, Financiers (Bank, Business Angel, VC, etc.) & Investors on Climate Change services, the Academia, - Social organisations & bodies active in climate and the environment.	○ Clear pathways and relation to the Call priorities and six [6] tangible exploitable assets as defined in 2.2.1. ○ Engagement of a large number of stakeholders & beneficiaries through advanced digital promotion practices setting up a dynamic communication base ○ High use of the scientific articles published (measured with the relative rate of citation index of project publications) since we are establishing a new research framework.	**Scientific**: Breakthrough scientific data sets, models & tools towards CC monitoring and effective decision-making practices. **Economic**: New market opportunities and tools for sustainable activities to manage CC for coastal regions. **Economic**/Technological: A new market for novel data services' application in regional development & sustainability. **Societal**: SOTA practices for social engagement for effective diffusion of the project results to general audiences.

3 Quality and efficiency of the implementation

3.1 Work plan and resources

3.1.1 Brief presentation of the overall structure of the work plan

The OCEANIDS project plans to integrate a comprehensive and holistic approach for the realization of the objectives following a multi-disciplinary approach, orchestrating synergy between earth observation approaches, forecasting algorithms, models, in-situ monitoring mechanisms and citizen engagement in an impactful and efficient manner. Primarily a data-driven project, OCEANIDS emphasizes the harmonisation of existing data sources and infrastructure, via a single window system. Within 32 months, OCEANIDS plans to implement a robust, detailed scheme in three phases: 1) the gap analysis phase, identifying key barriers to applications & the uptake of the provided tools by the stakeholders, 2) the development and deployment phase of OCEANIDS tools and platform, and 3) the field validation phase. The work plan is briefly presented in the Pert Chart. The OCEANIDS implementation scheme has been designed to ensure the optimized development of the individual components and technologies, allowing for adjusted duration of each task and WP, sufficient overlap between inter-rated components and also margins to allow for compensation of unforeseen delays or, if required, the activation of planned mitigation schemes.

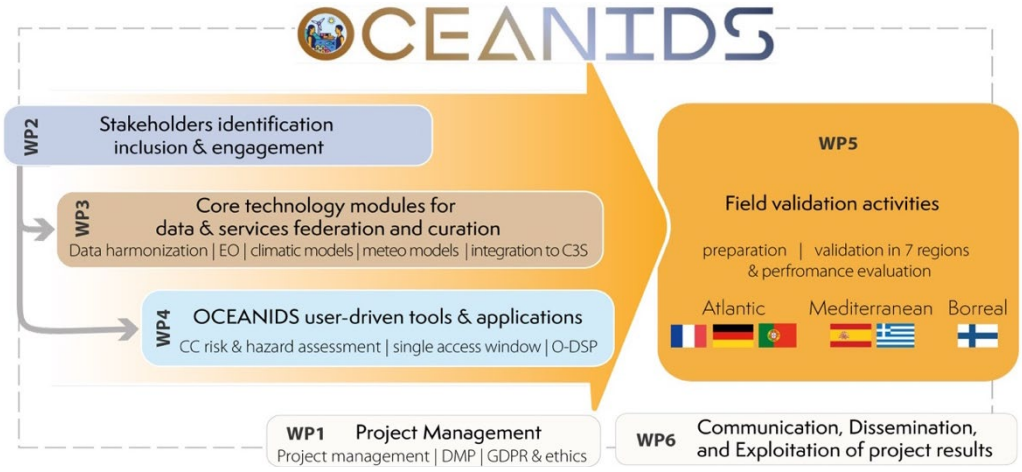


Figure 11. Graphical presentation of the components showing how they inter-relate (Pert chart)

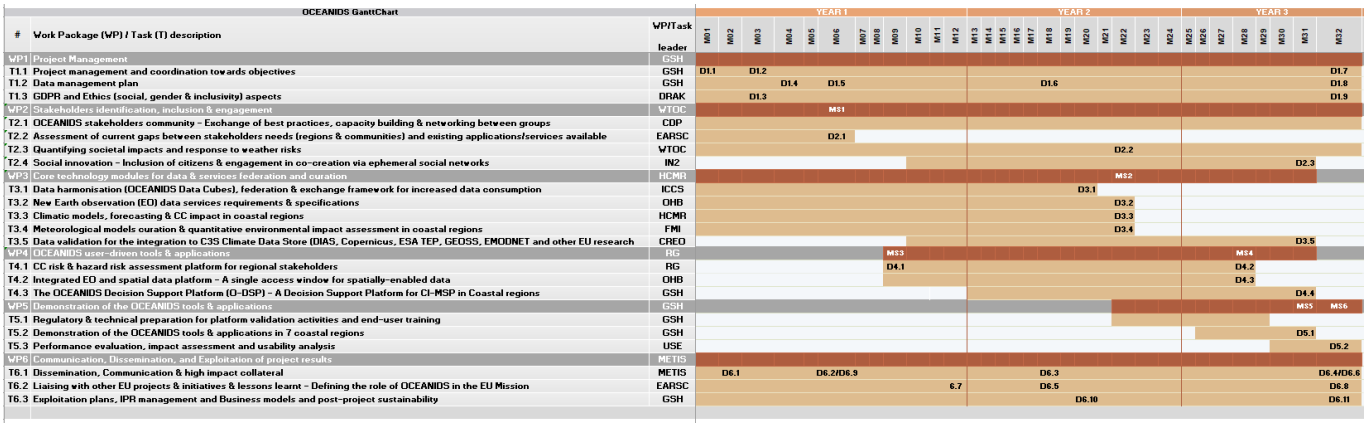


Figure 12. Timing of the different work packages and their components (Gantt chart)

3.1.2 Detailed work description

Table 3.1g. Table showing description and justification of subcontracting costs for each participant.

1/GSH		
	Cost (€)	**Description of tasks and justification**
Subcontracting	98,200	20 000 € Subcontract to support dissemination activities and exploitation plan development (market studies). **T6.3** The subcontractor shall be a company working in the field of Market Analysis and Econometric validation and will support the Exploitation plans and Business models to secure a sustainable continuation also after the completion of the project. 78,200 € Subcontract to Port Authority for demonstration activities. Demonstration of OCEANIDS Tools (**T5.2**): The subcontractor shall participate in digital meetings for the tasks that is involved and write reports on the tasks, as contribution. The subcontractor shall support with data and information on environmental issues. The subcontractor will assist in the user requirements collection. The subcontractor will assist in the demonstration of OCEANIDS tools and applications in coastal regions. This involves testing and validating the proposed solutions, according to the user requirements, assessing user acceptance, and conducting communication and dissemination activities to raise project awareness. The subcontractor will also contribute to a Viability Analysis report. They will cover the initial proposal tasks and deliverables with specific contribution (under a table of conformity), including travel expenses costs for the subcontractor participation to the field work to other case studies, where needed.
16/CRETE		
Subcontracting	15,000	Subcontract to support the integration of the OCEANIDS platform in the regions. **T5.1 and T5.2** The subcontractor's role involves critical tasks in the OCEANIDS project: 1) Regulatory & Technical Preparation (T5.1): They will contribute to regulatory and technical preparations for platform validation activities and end-user training. The Agile methodology will guide continuous collaboration among team members and stakeholders, ensuring the platform meets stakeholder needs. 2) Demonstration of OCEANIDS Tools (T5.2): The subcontractor will assist in the demonstration of OCEANIDS tools and applications in coastal regions. This involves testing and validating the proposed solutions, assessing user acceptance, and conducting dissemination activities to raise project awareness. The subcontractor will also contribute to a Viability Analysis report.

The beneficiaries must base their contracts/subcontracts according to the principles for the best value for money and the absence of any conflict of interest (according to Articles 6.2 and 9.3 of GA). Beneficiaries that are 'contracting authorities' or 'contracting entities' (within the meaning of the EU public procurement Directives 2004/18/EC and 2004/17/EC or any EU legislation that replaces these Directives) must moreover comply with the applicable national law on public procurement.

2/NEREUS		
	Cost (€)	**Justification**
Other goods, works and services	36.800	Dissemination costs for organizing a Hybrid event in Brussels (7,8000.00EUR) and organising the main project event in Brussels (29,000.00 EUR) **Justification:** "Hybrid event in Brussels" includes Travel cost for speakers, Room booking costs, Catering (lunch cold dish), promotion of the workshop, which includes design costs for the programme, webposts, report and newflash. **Justification: "Organizing the main project event"** refers to the planning and execution of the final event in Brussels for the OCEANIDS project. This event is often designed to achieve specific project objectives, such as disseminating findings, engaging stakeholders, or showcasing project outcomes. The expenses associated with organizing the main project event will include a) Room Booking (if not at the Committee of Regions (CoR)): The cost of securing a suitable location or venue for the event, which may include meeting rooms, conference halls, or other event spaces. b) Catering (lunch cold dish): Expenses related to providing food and beverages for attendees, such as breakfast, lunch, snacks, and beverages. Catering costs may also cover dietary restrictions and preferences of attendees. c) Audiovisual and Technical Support (Web streaming): Costs for audiovisual equipment, technical support, and presentation materials necessary for delivering speeches, presentations, or multimedia content. d) Marketing and Promotion: Expenses related to promoting the event, including webposts, reports, newsflash, advertising, printing promotional materials, and online marketing efforts. e) Event Materials: The cost of producing event materials, such as brochures, banners, and any promotional items provided to attendees. f) Event Evaluation and Feedback: Costs associated with gathering feedback from attendees and evaluating the success of the event.
Remaining purchase costs (<15% of pers. costs)	7.000	
Total	43.800	
12/CREO		

	Cost (€)	Justification
Other goods, works and services	60.000	Use of IaaS (Infrastructure as a service mode; this is a cloud computing service that offers computation, storage, and networking resources) and purchase of the required resources in flexible mode, with monthly charges for the configuration used (as per the CREODIAS offer).
Remaining purchase costs (<15% of pers. costs)	3.200	
Total	63.200	

14/METIS		
	Cost (€)	**Justification**
Other goods, works and services	20.000	Dissemination costs for producing the main media and content (website, brochures, articles) **"Producing the main media"** typically refers to creating and distributing the primary communication materials or media assets associated with the OCEANIDS project. The expenses related to producing the main media can include: a) Website Development: Costs for web design and development of the website and continuous updates. b)Hosting and Server Fees: Expenses related to hosting and maintaining websites. c)Video Production: Expenses for shooting, editing, and producing video content. d) Content creation: Costs associated with the development of the content for the main media, including written materials, graphics, images, videos, online help manuals or multimedia elements using the end-users' local languages. e) Graphic Design: Fees for graphic designers or design software used to create visual elements, such as logos, infographics, or branding materials for the media. f) Printing and Reproduction: Expenses for printing physical copies of materials, such as banners, brochures, flyers, posters, reports, or promotional materials using the end-users' local languages. g) Publication and Distribution: Costs associated with publishing and distributing physical or digital copies of reports, newsletters, magazines, or other publications.
Remaining purchase costs (<15% of pers. costs)	15.800	
Total	35.800	

16/HPA		
	Cost (€)	**Justification**
Travel and subsistence	3.200	To cover essential expenses such as travel and accommodation to ensure productive and impactful participation in project-related activities. **A total of 4 trips (3 person per travel)** are planned to support the end user view on climate change issues that a port identifies. **Consortium meetings** are essential to foster effective communication, coordination, and collaboration among project partners, ensuring the successful execution of complex collaborative projects.
Remaining purchase costs (<15% of pers. costs)	0	
Total	3.200	

3.2 Capacity of participants and consortium as a whole

3.2.1 Consortium Description:

OCEANIDS' multi-faceted innovation objectives can only be achieved via a consortium with the creation of a platform that facilitates access to knowledge, data & digital services critical for better understanding and managing

climate risks. The creation of a Decision Support Platform will give reliable recommendations to the end-users regarding spatiotemporal changes and the impact of climate change on the environment. Evidence-based assessment platform and risk stratification, down to the development of a DSS that enables stakeholders & decision makers to make more educated decisions on climate adaptation and coastal planning. To cover all these aspects, a team of **27 partners from 11 different countries**, ensures that the critical mass of expertise and experience required to achieve the ambitious goals of OCEANIDS is present. The 27 partners stem from Greece (6), Finland (4), Germany (3), Belgium (2), France (2), Spain (2), Poland (1), Romania (1), Lithuania (1) and Portugal (1), giving the project a truly European dimension. The OCEANIDS consortium comprises **10 Public entities** (CRETE, HPA, MMAIP, V-SML, PHEL, PRAU, PRAA, MLG, BRET, DRPM), 7 SMEs (GSH, IN2, WTOC, CREO, DRAK, METIS, RG), **1 LE** (OHB), **3 research institutes** (HCMR, FMI, ICCS), **1 university research groups** (USE), **3 Non-Governmental Organizations** (NEREUS, CDP, AIRC), and **1 AISBL** (EARSC). The complementarity of the partners ensures that all aspects of the topic are addressed with clear, well-defined roles. Although implementation becomes more complicated when working with other partners and organizations, finally it is worth it. The richer database and more utilitarian system allow further applications and services to be created.

3.2.2 Partner access to critical infrastructure

Access to data, infrastructure & EO services: The majority of satellite data sets are provided free of charge from Copernicus Services while the required data from commercial missions will be acquired using the common research budget managed by the coordinator. All the participants will provide computational infrastructures for software development, licensed software and access to external facilities and data. **GSH** will also coordinate and manage OCEANIDS Platform WebGIS and front-end interface design & development and as well as system Calibration and validation. **CREO** will take care of all issues related to satellite data access, taking full use of the Copernicus data repository, processing resources and advanced features of the CREODIAS platform, such as automated data download, efficient processing chain setup and multidimensional analysis supported by AI/ML methodologies. **HPA** will provide a METEO station and small vessels for work at sea. **AIR Centre** provides a data centre with a direct Receiving Station (DRS) which receives and processes about 290 GBytes daily, while its network consists of well-established institutions and collaborative laboratories, such as CoLAB +ATLANTIC (Earth Observation and Energy) and CoLAB DTX (Data Science), Earth Observation Laboratory, ESA_LAB@Azores provide access to know-how, equipment and research infrastructures (e.g., research vessels, autonomous vehicles). **CDP** will provide aggregated climate data via their Open Data Portal, with datasets as far back as 2011 on climate-related risks and opportunities, emissions, mitigation, adaptation, energy, water and more in cities and regions worldwide. **IN2** will provide the necessary server infrastructure, with experience in scaling out on demand to AWS & Google Cloud.

Access to study areas & critical infrastructure: The consortium includes partners CRETE, HPA, MMAIP, V-SML, PHEL, PRAU, PRAA, MLG, BRET, DRPM and AIRC. These are all end users, which will be actively involved in providing functional and non-functional requirements for the OCEANID tools and applications. In addition, they are the authorities responsible for activities relevant to OCEANIDS in their respective regions, communities and infrastructure. As such, the consortium has all the capacity and authority needed, to ensure that access to study areas and critical infrastructure is ensured, for the successful implementation of all project activities.

3.2.3 Partner complementarity & Individual partner contribution to project goals

The broad-covering expertise of the consortium minimizes the risks inherent to the proposed R&D while maintaining full research and commercial flexibility. The stability of the consortium is guaranteed by already existing interactions and cooperation among partners. Additionally, Public entity partners like (**CRETE, HPA, MMAIP, V-SML, PHEL, PRAU, PRAA, MLG, BRET, DRPM**) help ensure that the entirety of the relevant stakeholders and decision-makers for the regions are included in the development and design of the proposed risk assessment in coastal areas and mitigation tools due to the climate change. *Project coordination is taken over by **GSH*** which is developing the main platform using its expertise in data aggregation, GIS & databases, in addition to having extensive experience in EU research project coordination. **ICCS** will design the data exchange framework for OCEANIDS. **HCMR, FMI, OHB** and **RG** are technical partners, providing access to relevant data and models, and assisting in the transformation of said data to actionable intelligence, and re-usable tools for regional stakeholders. **CREO** will provide the technological infrastructure to launch the OCEANIDS tools and applications and will ensure that they comply with the various discoverability and exchange standards. **EARSC** and **NEREUS** provide insights evolving Earth Observation sector linked to the EU policies and the use of data and services by regional stakeholders. **CDP** will provide invaluable information regarding the availability and reporting of climatic data by EU regions. **IN2** provides the platform for interacting with the citizens and providing collaborative information exchange, via their proprietary ephemeral social

network platforms. **USE** will provide the socioeconomic analysis data needed to ensure citizen engagement and inclusivity. **WTOC** will monitor the citizen-climate interaction and provide information on how the wider public perceives various climate events. **METIS** will provide the communication and dissemination actions required to maximise project impact. **DRAK** will provide the framework for handling GDPR and other legal aspects of the project. **CRETE, HPA, MMAIP, V-SML, PHEL, PRAU, PRAA, MLG, BRET, DRPM and AIRC** are all end-users of the OCEANIDS applications, providing access to the infrastructure needed for project implementation, as well as for demonstration of the OCEANIDS tools and applications. In addition, **BRET** has a regional CC adaptation policy, coordinating the network of climate change adaptation partners in Brittany. This network is made up of local authorities, civil society and representatives of professional sectors, bringing together around 200 members. Meetings take place once or twice a year where information is exchanged on a sharing platform. Network members can be mobilized as end users of the OCEANIDS project.

3.2.4 Industrial/commercial involvement in the project

Seven (7) of the OCEANIDS partners are SMEs (**GSH, CDP, IN2, WTOC, CREO, METIS, RG**) with clear potential for expansion of their product portfolio on downstream space technologies combined with social science and AI, and one Large Enterprise OHB working in the field. The OCEANIDS outreach opportunities for exporting innovations to Europe and contributing to global market development are well-defined. All partners will approach regional, national and European authorities and policymakers to communicate the OCEANIDS's political, environmental and economic benefits. **DRAK,** as a distinguished firm for providing quality legal services at the highest international standards, will facilitate ethics/legal issues.

3.2.5 Other countries and international organisations

Resilience Guard is a Swiss SME, specialising in crisis management and business continuity. **RG** participates without receiving EC funding with a budget of 337.125€. It is stated here that funding for researchers and innovators based in Switzerland (including SMEs) for their participation in collaborative projects as associated partners from a non-associated third state will be provided by the Swiss Government for all 2022 calls of the Horizon Europe programme. RG is a technical partner leading the CC risk & hazard risk assessment platform task with partners ICCS. There is an active security of information between the EU and Switzerland (OJ L 199, 31.7.2009, p. 24-42).

4 Ethics self-assessment

Ethics & Security

Ethics Issues Table

1. Human Embryonic Stem Cells and Human Embryos		Page
Does this activity involve Human Embryonic Stem Cells (hESCs)?	No	
Does this activity involve the use of human embryos?	No	
2. Humans		**Page**
Does this activity involve human participants?	No	
Does this activity involve interventions (physical also including imaging technology, behavioural treatments, etc.) on the study participants?	No	
Does this activity involve conducting a clinical study as defined by the Clinical Trial Regulation (EU 536/2014)? (using pharmaceuticals, biologicals, radiopharmaceuticals, or advanced therapy medicinal products)	No	
3. Human Cells / Tissues (not covered by section 1)		**Page**
Does this activity involve the use of human cells or tissues?	No	
4. Personal Data		**Page**
Does this activity involve processing of personal data?	Yes	35
Does it involve the processing of special categories of personal data (e.g., genetic, biometric and health data, sexual lifestyle, ethnicity, political opinion, religious or philosophical beliefs)?	No	
Does it involve profiling, systematic monitoring of individuals, or processing of large scale special categories of data or intrusive methods of data processing (such as surveillance, geolocation tracking etc.)?	No	
Does this activity involve further processing of previously collected personal data (including the use of preexisting data sets or sources, merging existing data sets)?	No	
Is it planned to export personal data from the EU to non-EU countries? Specify the type of personal data and countries involved	No	
Is it planned to import personal data from the EU to non-EU countries? Specify the type of personal data and countries involved	No	
Does this activity involve the processing of personal data related to criminal convictions or offences?	No	
5. Animals		**Page**
Does this activity involve animals?	No	
6. Non-EU Countries		**Page**
Will some of the activities be carried out in non-EU countries?	No	
In case non-EU countries are involved, do the activities undertaken in these countries raise potential ethics issues?	No	
It is planned to use the local resources (e.g., animal and/or human tissue samples, genetic material, live animals, human remains, materials of historical value, endangered fauna or flora samples, etc.)?	No	
Is it planned to import any material (other than data) from non-EU countries into the EU or from a non-EU country to another non-EU country? For data imports, see section 4.	No	
Is it planned to export any material (other than data) from the EU to non-EU countries? For data exports, see section 4.	No	

Does this activity involve low and/or lower middle-income countries[48]? (if yes, detail the benefit-sharing actions planned in the self-assessment)	No	
Could the situation in the country put the individuals taking part in the activity at risk?	No	
7. Environment, Health and Safety		**Page**
Does this activity involve the use of substances or processes that may cause harm to the environment, animals or plants (during the implementation of the activity or further to the use of the results, as a possible impact)?	No	
Does this activity deal with endangered fauna and/or flora / protected areas?	No	
Does this activity involve the use of substances or processes that may cause harm to humans, including those performing the activity, (during the implementation of the activity or further to the use of the results, as a possible impact)?	No	
8. Artificial Intelligence		**Page**
Does this activity involve the use of substances or processes that may cause harm to humans, including those performing the activity, (during the implementation of the activity or further to the use of the results, as a possible impact)?	No	
9. Other Ethics Issues		**Page**
Are there any other ethical issues that should be taken into consideration?	No	
I confirm that I have taken into account all ethics issues above and that, if any ethics issues apply, I will complete the ethics self-assessment as described in the guidelines How to Complete your Ethics Self-Assessment[49]	No	

Ethics Self-Assessment

1. Human embryonic stem cells (hESCs) and human embryos (hEs)

Our research activities do not involve human embryonic stem cells(hESCs) and/or human embryos(hEs).

2. Humans

OCEANIDS project has activities involving work with human beings that are not part of the staff of the participants (beneficiaries, affiliated entities, associated partners, subcontractors, etc). More specifically, part of our activities involves interaction with different human beings in several Tasks, such as key stakeholders or citizens as participants, in order to gather valuable insights and feedback. We uphold the highest ethical standards and adhere to applicable international, EU, and national laws. Additionally, our dedication to ethical conduct is evident through the following:

- We ensure the necessary ethics approvals are obtained when required.
- We prioritize obtaining the free and fully informed consent of all participants. Participation in our project is entirely voluntary, and we make this fact explicitly clear.
- We provide participants with project-specific informed consent forms and comprehensive information sheets that are presented in an easily understandable language.
- Participants are explicitly informed that their participation is voluntary, and they have the unequivocal right to refuse to participate or withdraw from the project without any adverse consequences.
- We take measures to ensure that potential participants fully comprehend the information provided and that they are never pressured or coerced into giving consent.
- Consent is typically obtained in writing through the informed consent form and information sheets. In cases where written consent is not feasible, we formally document and

[48] https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/guidance/list-3rd-country-participation_horizon-euratom_en.pdf
[49] https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/guidance/how-to-complete-your-ethics-self-assessment_en.pdf

independently witness the non-written consent process.

Our activities do not involve the participation of children.

3. **Human Cells / Tissues (not covered by point 1)**

   Our research activities do not involve Human Cells/Tissues (not covered by point 1).

4. **Personal Data**

   OCEANIDS is fully committed to upholding the highest ethical standards and complying with all relevant international, EU, and national laws, particularly the General Data Protection Regulation (GDPR) and other applicable data protection legislation, in our research activities that involve the processing of personal data. To address the ethical issues related to personal data processing, as by using dedicated questionnaires that will be used to gain valuable insights and feedback either from citizens or stakeholders, we ensure the following:

   - Appropriate Safeguards: We implement appropriate safeguards to protect personal data, in line with the GDPR and national data protection laws. These safeguards include data encryption, secure storage, and access controls.
   - Anonymization and Pseudonymization: Whenever possible, personal data are processed in anonymized or pseudonymized form. Anonymized data are rendered non-identifiable, while pseudonymized data are separated from direct identifiers, ensuring the protection of individuals' identities.
   - Informed Consent: We obtain free and fully informed consent from individuals whose data is processed. Participants are informed about their rights and potential risks associated with data processing. We maintain transparency in our data processing operations.
   - Data Minimization: We strictly adhere to the data minimization principle, ensuring that we only collect and process data that is essential for our project. We avoid collecting unnecessary or sensitive personal data.
   - Data Security: We maintain a high level of data security to protect participants' data from unauthorized access, disclosure, accidental deletion, or destruction. Our security measures are appropriate to the risks associated with data processing.
   - Consultation with Data Protection Officer (DPO): For complex, sensitive, or large-scale data processing, we consult with our data protection officer (DPO) or a suitably qualified expert to ensure compliance with privacy and data protection requirements.
   - Distinguishing Anonymization and Pseudonymization: We are aware of the distinction between anonymization and pseudonymization and employ the appropriate method for each specific use case.

5. **Animals**

   Our research activities do not involve Animals.

6. **Non-EU Countries**

   Our project is fully committed to adhering to the highest ethical standards and all relevant international, EU, and national laws, especially in situations involving non-EU countries. We address specific ethical considerations associated with activities in non-EU countries as follows:

   - Activities in non-EU Countries: When conducting activities outside the EU, we ensure that these activities not only comply with the legal obligations of the host non-EU country but are also allowed in at least one EU Member State. Our beneficiaries confirm this condition is met in the ethics self-assessment section of our proposal.
   - Utilization of Local Resources: We actively involve local stakeholders as equal partners.

7. **Environment, Health and Safety**

   Our project is fully committed to ensuring the safety of all human participants involved and adheres to the highest ethical standards and all relevant international, EU, and national laws, including those

related to environmental protection and health and safety. In accordance with the provisions of the Grant Agreement:

- Environmental Compliance: We uphold the precautionary principle and adhere to legislation on nature conservation and pollution control. This means we diligently assess potential risks to the environment and take necessary measures to avoid or minimize these risks. We obtain any required environmental authorizations.
- Health and Safety Standards: We are dedicated to following legislation related to public health control and safety at work. The safety of all project teams and staff is a paramount concern. We provide appropriate warnings and advisories, and, if necessary, remove individuals from dangerous situations. We establish and follow a set of safety checks and procedures, including conducting risk assessments, to ensure the well-being of our project teams and staff. We also obtain any necessary health and safety authorizations.

Our project does not involve potentially hazardous materials, toxic chemicals or explosives.

Our project follows recognized procedures to ensure the safety of activities conducted 'in the field.' This includes comprehensive risk assessments, notification of authorities, authorized identification, and the implementation of safety measures to address potential conflicts, threats, abuse, or compromising situations. We also prioritize the health and safety of our participants by conducting debriefings after fieldwork to assess safety, as well as promptly reporting any health and safety incidents.

8. Artificial Intelligence

Our project is fully committed to ensuring compliance with ethical considerations when it comes to the development, deployment, and use of artificial intelligence (AI)-based systems or techniques. We recognize the importance of adhering to the highest ethical standards and all relevant international, EU, and national laws, including the principles and values enshrined in the EU Charter of Fundamental Rights and the EU Treaties. To address these concerns, our project adopts the following key prerequisites for ethically sound AI systems:

- Human Agency and Oversight: We ensure that AI systems support human autonomy and decision-making, allowing users to make informed autonomous decisions regarding the AI systems. We establish appropriate oversight mechanisms to prevent adverse effects and uphold human autonomy. Our AI systems do not subdue, coerce, deceive, manipulate, create attachments, or stimulate addiction.
- Privacy and Data Governance: Our AI systems guarantee privacy and data protection throughout their lifecycle. We implement privacy by design and by default principles in the development process. We rigorously check the quality, integrity, and security of data and ensure data minimization without compromising privacy rights.
- Transparency: We communicate all data sets and processes associated with AI decisions and maintain transparency about system limitations. We ensure that AI systems are explainable and open in their communication about their capabilities and limitations.
- Fairness, Diversity, and Non-discrimination: We strive to avoid unfair bias in AI systems and design them to be user-centric and inclusive. Diverse design teams and the participation of affected stakeholders are encouraged to ensure objectivity and inclusiveness.
- Societal and Environmental Well-being: We carefully evaluate the impact of AI systems on individuals, society, and the environment and take measures to avoid harm. Sustainability and ecological responsibility are promoted, and our AI solutions aim to bring positive transformative changes to society, the environment, and the economy.
- Accountability: We hold ourselves accountable for the way AI applications function and their resulting consequences. We ensure that people are aware they are interacting with an AI system, prevent limitations on human rights and freedoms, and avoid design that may lead to

objectification, dehumanization, or discrimination.

- Ethics Risk Assessment and Mitigation: We perform a thorough ethics risk assessment and develop risk mitigation measures that cover the development, deployment, and post-deployment phases of AI systems.
- Safety and Well-being: We ensure that our AI systems do not compromise the safety and well-being of individuals, and we provide evidence of safety when relevant.
- Human Oversight and Auditability: We design our AI systems to enable human oversight, traceability, and auditability, including providing explanations on how decisions are made.

9. Other Ethics Issues

Our project is fully committed to addressing any ethical issues that may arise, even those not (fully) covered by standard questions in the Ethics Issue Table. To ensure we are proactive in addressing these issues:

- Identification of Ethical Issues: We are vigilant in identifying any ethically relevant issues that may emerge during our project. This includes issues related to highly innovative activities in areas such as artificial intelligence.
- Ethics by Design Methodology: For highly innovative activities, especially those in the domain of artificial intelligence, we embrace the 'ethics by design' methodology to incorporate ethical considerations into the project from its inception (as outlined in section 8).
- Immediate Reporting: If any unexpected ethical issues surface during our project, we commit to promptly contacting the granting authority through our Funding & Tenders Portal [50]account. We will provide comprehensive information about the issue and our intended approach to addressing it (Two dedicated deliverables).

[50] https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home

ANNEX 2

ESTIMATED BUDGET FOR THE ACTION

	Estimated eligible[1] costs (per budget category)										Estimated EU contribution[2]			
	Direct costs								Indirect costs	Total costs	EU contribution to eligible costs			Maximum grant amount[6]
	A. Personnel costs			B. Subcontracting costs	C. Purchase costs			D. Other cost categories	E. Indirect costs[3]		Funding rate %[4]	Maximum EU contribution[5]	Requested EU contribution	
	A.1 Employees (or equivalent) A.2 Natural persons under direct contract A.3 Seconded persons		A.4 SME owners and natural person beneficiaries	B. Subcontracting	C.1 Travel and subsistence	C.2 Equipment	C.3 Other goods, works and services	D.2 Internally invoiced goods and services	E. Indirect costs					
Forms of funding	Actual costs	Unit costs (usual accounting practices)	Unit costs[7]	Actual costs	Actual costs	Actual costs	Actual costs	Unit costs (usual accounting practices)	Flat-rate costs[8]					
	a1	a2	a3	b	c1	c2	c3	d2	e = 0,25 * (a1 + a2 + a3 + c1 + c2 + c3)	f = a + b + c + d + e	U	g = f * U%	h	m
1 - GSH	285 200.00	0.00	0.00	98 200.00	14 400.00	4 000.00	20 240.00	0.00	80 960.00	503 000.00	100	503 000.00	503 000.00	503 000.00
2 - NEREUS	61 190.00	0.00	0.00	0.00	7 000.00	0.00	36 800.00	0.00	26 247.50	131 237.50	100	131 237.50	131 237.50	131 237.50
3 - OHB	154 652.00	0.00	0.00	0.00	3 200.00	0.00	2 500.00	0.00	40 088.00	200 440.00	100	200 440.00	200 440.00	200 440.00
4 - HCMR	100 000.00	0.00	0.00	0.00	9 600.00	0.00	0.00	0.00	27 400.00	137 000.00	100	137 000.00	137 000.00	137 000.00
5 - EARSC	111 000.00	0.00	0.00	0.00	9 600.00	0.00	0.00	0.00	30 150.00	150 750.00	100	150 750.00	150 750.00	150 750.00
6 - FMI	136 000.00	0.00	0.00	0.00	3 200.00	0.00	2 500.00	0.00	35 425.00	177 125.00	100	177 125.00	177 125.00	177 125.00
7 - ICCS	115 500.00	0.00	0.00	0.00	6 400.00	0.00	2 000.00	0.00	30 975.00	154 875.00	100	154 875.00	154 875.00	154 875.00
8 - CDP	100 700.00	0.00	0.00	0.00	3 200.00	0.00	2 000.00	0.00	26 475.00	132 375.00	100	132 375.00	132 375.00	132 375.00
9 - USE	96 084.00	0.00	0.00	0.00	3 200.00	1 000.00	3 000.00	0.00	25 821.00	129 105.00	100	129 105.00	129 105.00	129 105.00
10 - IN2	144 000.00	0.00	0.00	0.00	3 200.00	0.00	0.00	0.00	36 800.00	184 000.00	100	184 000.00	184 000.00	184 000.00
11 - WTOC	154 000.00	0.00	0.00	0.00	3 200.00	0.00	0.00	0.00	39 300.00	196 500.00	100	196 500.00	196 500.00	196 500.00
12 - CREO	70 550.00	0.00	0.00	0.00	3 200.00	0.00	60 000.00	0.00	33 437.50	167 187.50	100	167 187.50	167 187.50	167 187.50
13 - DRAK	44 000.00	0.00	0.00	0.00	3 200.00	0.00	0.00	0.00	11 800.00	59 000.00	100	59 000.00	59 000.00	59 000.00
14 - METIS	154 000.00	0.00	0.00	0.00	12 800.00	3 000.00	20 000.00	0.00	47 450.00	237 250.00	100	237 250.00	237 250.00	237 250.00
15 - CRETE	23 800.00	0.00	0.00	15 000.00	3 200.00	0.00	0.00	0.00	6 750.00	48 750.00	100	48 750.00	48 750.00	48 750.00
16 - HPA	11 200.00	0.00	0.00	0.00	3 200.00	0.00	0.00	0.00	3 600.00	18 000.00	100	18 000.00	18 000.00	18 000.00
17 - MMAIP	29 400.00	0.00	0.00	0.00	3 200.00	0.00	0.00	0.00	8 150.00	40 750.00	100	40 750.00	40 750.00	40 750.00
18 - V-SML	35 000.00	0.00	0.00	0.00	3 200.00	0.00	0.00	0.00	9 550.00	47 750.00	100	47 750.00	47 750.00	47 750.00
19 - PHEL	28 000.00	0.00	0.00	0.00	3 200.00	0.00	0.00	0.00	7 800.00	39 000.00	100	39 000.00	39 000.00	39 000.00
20 - PRAU	28 000.00	0.00	0.00	0.00	3 200.00	0.00	0.00	0.00	7 800.00	39 000.00	100	39 000.00	39 000.00	39 000.00
21 - PRAA	28 000.00	0.00	0.00	0.00	3 200.00	0.00	0.00	0.00	7 800.00	39 000.00	100	39 000.00	39 000.00	39 000.00
22 - MLG	74 900.00	0.00	0.00	0.00	3 200.00	750.00	1 150.00	0.00	20 000.00	100 000.00	100	100 000.00	100 000.00	100 000.00
23 - BRET	53 200.00	0.00	0.00	0.00	3 200.00	0.00	0.00	0.00	14 100.00	70 500.00	100	70 500.00	70 500.00	70 500.00
24 - DRPM	15 000.00	0.00	0.00	0.00	1 600.00	0.00	0.00	0.00	4 150.00	20 750.00	100	20 750.00	20 750.00	20 750.00
25 - AIRC	52 000.00	0.00	0.00	0.00	6 400.00	0.00	0.00	0.00	14 600.00	73 000.00	100	73 000.00	73 000.00	73 000.00
26 - RG														
Σ consortium	2 105 376.00	0.00	0.00	113 200.00	122 200.00	8 750.00	150 190.00	0.00	596 629.00	3 096 345.00		3 096 345.00	3 096 345.00	3 096 345.00

[1] See Article 6 for the eligibility conditions. All amounts must be expressed in EUR (see Article 21 for the conversion rules).
[2] The consortium remains free to decide on a different internal distribution of the EU funding (via the consortium agreement; see Article 7).
[3] Indirect costs already covered by an operating grant (received under any EU funding programme) are ineligible (see Article 6.3). Therefore, a beneficiary/affiliated entity that receives an operating grant during the action duration cannot declare indirect costs for the year(s)/reporting period(s) covered by the operating grant, unless they can demonstrate that the operating grant does not cover any costs of the action. This requires specific accounting tools. Please immediately contact us via the EU Funding & Tenders Portal for details.

[4] See Data Sheet for the funding rate(s).
[5] This is the theoretical amount of the EU contribution to costs, if the reimbursement rate is applied to all the budgeted costs. This theoretical amount is then capped by the 'maximum grant amount'.
[6] The 'maximum grant amount' is the maximum grant amount decided by the EU. It normally corresponds to the requested grant, but may be lower.
[7] See Annex 2a 'Additional information on the estimated budget' for the details (units, cost per unit).
[8] See Data Sheet for the flat-rate.

ANNEX 2a

ADDITIONAL INFORMATION ON UNIT COSTS AND CONTRIBUTIONS

SME owners/natural person beneficiaries without salary (Decision C(2020) 7115[1])

Type: unit costs

Units: days spent working on the action (rounded up or down to the nearest half-day)

Amount per unit (daily rate): calculated according to the following formula:

{EUR 5 080 / 18 days = **282,22**}
multiplied by
{country-specific correction coefficient of the country where the beneficiary is established}

The country-specific correction coefficients used are those set out in the Horizon Europe Work Programme (section Marie Skłodowska-Curie actions) in force at the time of the call (see Portal Reference Documents).

HE and Euratom Research Infrastructure actions[2]

Type: unit costs

Units[3]: see (for each access provider and installation) the unit cost table in Annex 2b

Amount per unit*: see (for each access provider and installation) the unit cost table in Annex 2b

* Amount calculated as follows:

For trans-national access:

$$\frac{\text{average annual total trans-national access costs to the installation (over past two years[4])}}{\text{average annual total quantity of trans-national access to the installation (over past two years[5])}}$$

For virtual access:

$$\frac{\text{total virtual access costs to the installation (over the last year[6])}}{\text{total quantity of virtual access to the installation (over the last year[7])}}$$

Euratom staff mobility costs[8]

Monthly living allowance

Type: unit costs

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1 Commission Decision of 20 October 2020 authorising the use of unit costs for the personnel costs of the owners of small and medium-sized enterprises and beneficiaries that are natural persons not receiving a salary for the work carried out by themselves under an action or work programme (C(2020)7715).

2 Decision of 19 April 2021 authorising the use of unit costs for the costs of providing trans-national and virtual access in Research Infrastructure actions under the Horizon Europe Programme (2021-2027) and the Research and Training Programme of the European Atomic Energy Community (2021-2025).

3 Unit of access (e.g. beam hours, weeks of access, sample analysis) fixed by the access provider in proposal.

4 In exceptional and duly justified cases, the granting authority may agree to a different reference period.

5 In exceptional and duly justified cases, the granting authority may agree to a different reference period.

6 In exceptional and duly justified cases, the granting authority may agree to a different reference period.

7 In exceptional and duly justified cases, the granting authority may agree to a different reference period.

8 Decision of 15 March 2021 authorising the use of unit costs for mobility in co-fund actions under the Research and Training Programme of the European Atomic Energy Community (2021-2025).

Units: months spent by the seconded staff member(s) on research and training in fission and fusion activities (person-month)

Amount per unit*: see (for each beneficiary/affiliated entity and secondment) the unit cost table in Annex 2b

* Amount calculated as follows from 1 January 2021:
{**EUR 4 300** multiplied by
country-specific correction coefficient** of the country where the staff member is seconded}[9]

**Country-specific correction coefficients as from 1 January 2021[10]

EU-Member States[11]

Country / Place	Coefficient (%)
Bulgaria	59,1
Czech Rep.	85,2
Denmark	131,3
Germany Bonn Karlsruhe Munich	101,9 95,8 98 113,9
Estonia	82,3
Ireland	129
Greece	81,4
Spain	94,2
France	120,5
Croatia	75,8
Italy Varese	95 90,7
Cyprus	78,2
Latvia	77,5
Lithuania	76,6
Hungary	71,9
Malta	94,7
Netherlands	113,9
Austria	107,9
Poland	70,9
Portugal	91,1
Romania	66,6
Slovenia	86,1

[9] Unit costs for living allowances are calculated by using a method of calculation similar to that applied for the secondment to the European Commission of seconded national experts (SNEs).

[10] ⚠ For the financial statements, the amount must be adjusted according to the actual place of secondment.
The revised coefficients were adopted in the Decision authorising the use of unit costs for the Fusion Programme co-fund action under the Research and training Programme of the European Atomic Energy Community 2021-2025. They are based on the 2020 Annual update of the remuneration and pensions of the officials and other servants of the European Union and the correction coefficients applied thereto (OJ C 428, 11.12.2020) to ensure purchasing power parity. The revised coefficient are applied as from 1 January 2021 through an amendment to the grant agreement.

[11] No correction coefficient shall be applicable in Belgium and Luxembourg.

Slovakia	80,6
Finland	118,4
Sweden	124,3

Third countries

Country/place	Coefficient (%)
China	82,2
India	72,3
Japan	111,8
Russia	92,7
South Korea	92,3
Switzerland	129.2
Ukraine	82.3
United Kingdom	97.6
United States	101,4 (New-York) 90,5 (Washington)

Mobility allowance

Type: Unit costs

Units: months spent by the seconded staff member(s) on research and training in fission and fusion activities (person-month)

Amount per unit: **EUR 600** per person-month; see (for each beneficiary/affiliated entity and secondment) the unit cost table in Annex 2b

Family allowance

Type: unit costs

Units: months spent by the seconded staff member(s) on research and training in fission and fusion activities (person-month)

Amount per unit: **EUR 660** per person-month; see (for each beneficiary/affiliated entity and secondment) the unit cost table in Annex 2b

Education allowance

Type: Unit costs

Units: months spent by the seconded staff member(s) on research and training in fission and fusion activities (person-month)

Amount per unit*: see (for each beneficiary/affiliated entity and secondment) the unit cost table in Annex 2b

*Amount calculated as follows from 1 January 2021:
{EUR 283.82 x number of dependent children[12]**}**

[12] For the estimated budget (Annex 2): an average should be used. (⚠ For the financial statements, the number of children (and months) must be adjusted according to the actual family status at the moment the secondment starts.)

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

RESEAU DES REGIONS EUROPEENNES UTILISATRICES DES TECHNOLOGIES SPATIALES - NEREUS (NEREUS), PIC 923635068, established in RUE MONTOYER 21, BRUSSELS 1000, Belgium,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

OHB DIGITAL SERVICES GMBH (OHB), PIC 951719381, established in KONRAD ZUSE STRASSE 8, Bremen 28359, Germany,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

HELLENIC CENTRE FOR MARINE RESEARCH (HCMR), PIC 999577532, established in LEOFOROS ATHENS SOUNIO 46 7KM, ATTIKIA ANAVISSOS 19013, Greece,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

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By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

EUROPEAN ASSOCIATION OF REMOTE SENSING COMPANIES (EARSC), PIC 952204478, established in RUE BERANGER 26, BRUXELLES 1190, Belgium,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

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SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

ILMATIETEEN LAITOS (FMI), PIC 999591306, established in Erik Palmenin aukio 1, HELSINKI 00560, Finland,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

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SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

EREVNITIKO PANEPISTIMIAKO INSTITOUTO SYSTIMATON EPIKOINONION KAI YPOLOGISTON (ICCS), PIC 999654356, established in PATISION 42, ATHINA 106 82, Greece,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

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SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

CDP WORLDWIDE (EUROPE) GEMEINNUTZIGE GMBH (CDP), PIC 938217272, established in POTSDAMER PLATZ KEMPERPLATZ1, BERLIN 10785, Germany,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

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By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

UNIVERSIDAD DE SEVILLA (USE), PIC 999862518, established in CALLE S. FERNANDO 4, SEVILLA 41004, Spain,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

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SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

IN2 DIGITAL INNOVATIONS GMBH (IN2), PIC 912518383, established in AUF DEM HASENBANK 23A, LINDAU BODENSEE 88131, Germany,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

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SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

WEB2CLIMATE IKE (WTOC), PIC 884922465, established in ELEFTHERIOU VENIZELOU 14, AGIA PARASKEVI ATTIKI 15341, Greece,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

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SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

CREOTECH INSTRUMENTS SPOLKA AKCYJNA (CREO), PIC 913776473, established in JANA PAW 321 A II 66, PIASECZNO 05-500, Poland,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

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By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

DRAKOPOULOS SI ASOCIATII (DRAK), PIC 885718059, established in STR LUNEI 5, BUCURESTI 030167, Romania,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

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By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

UAB METIS BALTIC (METIS), PIC 968991589, established in JOGAILOS G 4, VILNIUS 01116, Lithuania,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

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By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

KRITI (CRETE), PIC 961026337, established in Plateia Eleftherias, Heraklion 71201, Greece,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

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SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

HERAKLION PORT AUTHORITY AE (HPA), PIC 924021419, established in PORT OF HERAKLION, HERAKLION 71110, Greece,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

MINISTRY OF MARITIME AFFAIRS AND INSULAR POLICY (MMAIP), PIC 920781328, established in AKTI VASILEIADI, GATE E1-E2, PIRAEUS 185 10, Greece,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

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By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

VARSINAIS-SUOMEN LIITTO (V-SML), PIC 950866460, established in LINNANKATU 52 B, TURKU 20100, Finland,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

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SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

HELSINGIN SATAMA OY (PHEL), PIC 885707292, established in OLYMPIARANTA 3, HELSINKI 00141, Finland,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

RAUMAN SATAMA OY (PRAU), PIC 888556570, established in HAKUNINTIE 19, RAUMA 26100, Finland,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

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By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

RAAHEN SATAMA OY (PRAA), PIC 885093379, established in SOVIONKATU 12-14, RAAHE 92100, Finland,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

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SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

AYUNTAMIENTO DE MALAGA (MLG), PIC 983310438, established in AVENIDA CERVANTES 4, MALAGA 29016, Spain,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

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SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

REGION BRETAGNE (BRET), PIC 952793365, established in 283 AV GAL GEORGES PATTON CS 21101, RENNES CEDEX 7 35711, France,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

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SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

SECRETARIA REGIONAL DO MAR E DAS PESCAS (DRPM), PIC 892369640, established in RUA CONSUL DABNEY COLONIA ALEMA, APARTADO 9, HORTA 9900-014, Portugal,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

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SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

ASSOCIACAO PARA O DESENVOLVIMENTO DO ATLANTIC INTERNATIONAL RESEARCH CENTRE (AIRC), PIC 902624480, established in PARQUE DE CIENCIA E TECNOLOGIA DA ILHA TERCEIRA TERINOV TERRA CHA, ILHA TERCEIRA 9700-702, Portugal,

hereby agrees

to become beneficiary

in Agreement No 101112919 — OCEANIDS ('the Agreement')

between GEOSYSTEMS HELLAS IT KAI EFARMOGESGEOPLIROFORIAKON SYSTIMATON ANONIMIETAIREIA (GSH) **and** the **European Climate, Infrastructure and Environment Executive Agency (CINEA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

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SIGNATURE

For the beneficiary

FINANCIAL STATEMENT FOR [PARTICIPANT NAME] FOR REPORTING PERIOD [NUMBER]

	Eligible[1] costs (per budget category)																	EU contribution[2]				Revenues
	Direct costs															Indirect costs	Total costs	EU contribution to eligible costs			Total requested EU contribution	Income generated by the action
	A. Personnel costs			B. Subcontracting costs	C. Purchase costs			D. Other cost categories								E. Indirect costs[2]		Funding rate %[3]	Maximum EU contribution[4]	Requested EU contribution		
	A.1 Employees (or equivalent) A.2 Natural persons under direct contract A.3 Seconded persons		A.4 SME owners and natural person beneficiaries	B. Subcontracting	C.1 Travel and subsistence	C.2 Equipment	C.3 Other goods, works and services	[D.1 Financial support to third parties]	D.2 Internally invoiced goods and services	[D.3 Transnational access to research infrastructure unit costs]	[D.4 Virtual access to research infrastructure unit costs]	*[OPTION for HE PCP/PPI:* D.5 PCP/PPI procurement costs*]*	*[OPTION for Euratom Programme Cofund Actions:* D.6 Euratom Cofund staff mobility costs*]*	*[OPTION for HE ERC Grants:* D.7 ERC additional funding*]*	*[OPTION for HE ERC Grants:* D.8 ERC additional funding (subcontracting, FSTP and internally invoiced goods and services)*]*	E. Indirect costs						
Forms of funding	Actual costs	Unit costs (usual accounting practices)	Unit costs[5]	Actual costs	Actual costs	Actual costs	Actual costs	[Actual costs]	Unit costs (usual accounting practices)	[Unit costs[5]]	[Unit costs[5]]	[Actual costs]	[Unit costs[5]]	[Actual costs]	[Actual costs]	Flat-rate costs[6]						
	a1	a2	a3	b	c1	c2	c3	[d1a]	d2	[d3]	[d4]	[d5]	[d6]	[d7]	[d8]	e = 0,25 * (a1 + a2 + a3 ~~+b+~~ c1 +c2 + c3 ~~+d1a + d2 + d3 + d4 [+ d5][+ d6]~~ [+d7] ~~[+ d8]~~)	f = a+b+c+d+e	U	g = f*U%	h	m	n
XX – [short name beneficiary/affiliated entity]																						

The beneficiary/affiliated entity hereby confirms that:

The information provided is complete, reliable and true.

The costs and contributions declared are eligible (see Article 6).

The costs and contributions can be substantiated by adequate records and supporting documentation that will be produced upon request or in the context of checks, reviews, audits and investigations (see Articles 19, 20 and 25).

For the last reporting period: that all the revenues have been declared (see Article 22).

① Please declare all eligible costs and contributions, even if they exceed the amounts indicated in the estimated budget (see Annex 2). Only amounts that were declared in your individual financial statements can be taken into account lateron, in order to replace costs/contributions that are found to be ineligible.

[1] See Article 6 for the eligibility conditions. All amounts must be expressed in EUR (see Article 21 for the conversion rules).

[2] If you have also received an EU operating grant during this reporting period, you cannot claim indirect costs - unless you can demonstrate that the operating grant does not cover any costs of the action. This requires specific accounting tools. Please contact us immediately via the Funding & Tenders Portal for details.

[3] See Data Sheet for the reimbursement rate(s).

[4] This is the *theoretical* amount of EU contribution to costs that the system calculates automatically (by multiplying the reimbursement rates by the costs declared). The amount you request (in the column 'requested EU contribution') may be less.

[5] See Annex 2a 'Additional information on the estimated budget' for the details (units, cost per unit).

[6] See Data Sheet for the flat-rate.

ANNEX 5

SPECIFIC RULES

CONFIDENTIALITY AND SECURITY (— ARTICLE 13)

Sensitive information with security recommendation

Sensitive information with a security recommendation must comply with the additional requirements imposed by the granting authority.

Before starting the action tasks concerned, the beneficiaries must have obtained all approvals or other mandatory documents needed for implementing the task. The documents must be kept on file and be submitted upon request by the coordinator to the granting authority. If they are not in English, they must be submitted together with an English summary.

For requirements restricting disclosure or dissemination, the information must be handled in accordance with the recommendation and may be disclosed or disseminated only after written approval from the granting authority.

EU classified information

If EU classified information is used or generated by the action, it must be treated in accordance with the security classification guide (SCG) and security aspect letter (SAL) set out in Annex 1 and Decision 2015/444[1] and its implementing rules — until it is declassified.

Deliverables which contain EU classified information must be submitted according to special procedures agreed with the granting authority.

Action tasks involving EU classified information may be subcontracted only with prior explicit written approval from the granting authority and only to entities established in an EU Member State or in a non-EU country with a security of information agreement with the EU (or an administrative arrangement with the Commission).

EU classified information may not be disclosed to any third party (including participants involved in the action implementation) without prior explicit written approval from the granting authority.

ETHICS (— ARTICLE 14)

Ethics and research integrity

The beneficiaries must carry out the action in compliance with:

- ethical principles (including the highest standards of research integrity)

[1] Commission Decision 2015/444/EC, Euratom of 13 March 2015 on the security rules for protecting EU classified information (OJ L 72, 17.3.2015, p. 53).

and

- applicable EU, international and national law, including the EU Charter of Fundamental Rights and the European Convention for the Protection of Human Rights and Fundamental Freedoms and its Supplementary Protocols.

No funding can be granted, within or outside the EU, for activities that are prohibited in all Member States. No funding can be granted in a Member State for an activity which is forbidden in that Member State.

The beneficiaries must pay particular attention to the principle of proportionality, the right to privacy, the right to the protection of personal data, the right to the physical and mental integrity of persons, the right to non-discrimination, the need to ensure protection of the environment and high levels of human health protection.

The beneficiaries must ensure that the activities under the action have an exclusive focus on civil applications.

The beneficiaries must ensure that the activities under the action do not:

- aim at human cloning for reproductive purposes
- intend to modify the genetic heritage of human beings which could make such modifications heritable (with the exception of research relating to cancer treatment of the gonads, which may be financed)
- intend to create human embryos solely for the purpose of research or for the purpose of stem cell procurement, including by means of somatic cell nuclear transfer, or
- lead to the destruction of human embryos (for example, for obtaining stem cells).

Activities involving research on human embryos or human embryonic stem cells may be carried out only if:

- they are set out in Annex 1 or
- the coordinator has obtained explicit approval (in writing) from the granting authority.

In addition, the beneficiaries must respect the fundamental principle of research integrity — as set out in the European Code of Conduct for Research Integrity[2].

This implies compliance with the following principles:

- reliability in ensuring the quality of research reflected in the design, the methodology, the analysis and the use of resources
- honesty in developing, undertaking, reviewing, reporting and communicating research in a transparent, fair and unbiased way

[2] European Code of Conduct for Research Integrity of ALLEA (All European Academies).

- respect for colleagues, research participants, society, ecosystems, cultural heritage and the environment

- accountability for the research from idea to publication, for its management and organisation, for training, supervision and mentoring, and for its wider impacts

and means that beneficiaries must ensure that persons carrying out research tasks follow the good research practices including ensuring, where possible, openness, reproducibility and traceability and refrain from the research integrity violations described in the Code.

Activities raising ethical issues must comply with the additional requirements formulated by the ethics panels (including after checks, reviews or audits; see Article 25).

Before starting an action task raising ethical issues, the beneficiaries must have obtained all approvals or other mandatory documents needed for implementing the task, notably from any (national or local) ethics committee or other bodies such as data protection authorities.

The documents must be kept on file and be submitted upon request by the coordinator to the granting authority. If they are not in English, they must be submitted together with an English summary, which shows that the documents cover the action tasks in question and includes the conclusions of the committee or authority concerned (if any).

VALUES (— ARTICLE 14)

Gender mainstreaming

The beneficiaries must take all measures to promote equal opportunities between men and women in the implementation of the action and, where applicable, in line with the gender equality plan. They must aim, to the extent possible, for a gender balance at all levels of personnel assigned to the action, including at supervisory and managerial level.

INTELLECTUAL PROPERTY RIGHTS (IPR) — BACKGROUND AND RESULTS — ACCESS RIGHTS AND RIGHTS OF USE (— ARTICLE 16)

Definitions

Access rights — Rights to use results or background.

Dissemination — The public disclosure of the results by appropriate means, other than resulting from protecting or exploiting the results, including by scientific publications in any medium.

Exploit(ation) — The use of results in further research and innovation activities other than those covered by the action concerned, including among other things, commercial exploitation such as developing, creating, manufacturing and marketing a product or process, creating and providing a service, or in standardisation activities.

Fair and reasonable conditions — Appropriate conditions, including possible financial terms or royalty-free conditions, taking into account the specific circumstances of the request for access, for example the actual or potential value of the results or background to which access is requested and/or the scope, duration or other characteristics of the exploitation envisaged.

FAIR principles — ‘findability’, ‘accessibility’, ‘interoperability’ and ‘reusability’.

Open access — Online access to research outputs provided free of charge to the end-user.

Open science — An approach to the scientific process based on open cooperative work, tools and diffusing knowledge.

Research data management — The process within the research lifecycle that includes the organisation, storage, preservation, security, quality assurance, allocation of persistent identifiers (PIDs) and rules and procedures for sharing of data including licensing.

Research outputs — Results to which access can be given in the form of scientific publications, data or other engineered results and processes such as software, algorithms, protocols, models, workflows and electronic notebooks.

Scope of the obligations

For this section, references to ‘beneficiary’ or ‘beneficiaries’ do not include affiliated entities (if any).

Agreement on background

The beneficiaries must identify in a written agreement the background as needed for implementing the action or for exploiting its results.

Where the call conditions restrict control due to strategic interests reasons, background that is subject to control or other restrictions by a country (or entity from a country) which is not one of the eligible countries or target countries set out in the call conditions and that impact the exploitation of the results (i.e. would make the exploitation of the results subject to control or restrictions) must not be used and must be explicitly excluded from it in the agreement on background — unless otherwise agreed with the granting authority.

Ownership of results

Results are owned by the beneficiaries that generate them.

However, two or more beneficiaries own results jointly if:

- they have jointly generated them and
- it is not possible to:
  - establish the respective contribution of each beneficiary, or
  - separate them for the purpose of applying for, obtaining or maintaining their protection.

The joint owners must agree — in writing — on the allocation and terms of exercise of their joint ownership (‘**joint ownership agreement**’), to ensure compliance with their obligations under this Agreement.

Unless otherwise agreed in the joint ownership agreement or consortium agreement, each joint owner may grant non-exclusive licences to third parties to exploit the jointly-owned results (without any right to sub-license), if the other joint owners are given:

- at least 45 days advance notice and
- fair and reasonable compensation.

The joint owners may agree — in writing — to apply another regime than joint ownership.

If third parties (including employees and other personnel) may claim rights to the results, the beneficiary concerned must ensure that those rights can be exercised in a manner compatible with its obligations under the Agreement.

The beneficiaries must indicate the owner(s) of the results (results ownership list) in the final periodic report.

Protection of results

Beneficiaries which have received funding under the grant must adequately protect their results — for an appropriate period and with appropriate territorial coverage — if protection is possible and justified, taking into account all relevant considerations, including the prospects for commercial exploitation, the legitimate interests of the other beneficiaries and any other legitimate interests.

Exploitation of results

Beneficiaries which have received funding under the grant must — up to four years after the end of the action (see Data Sheet, Point 1) — use their best efforts to exploit their results directly or to have them exploited indirectly by another entity, in particular through transfer or licensing.

If, despite a beneficiary's best efforts, the results are not exploited within one year after the end of the action, the beneficiaries must (unless otherwise agreed in writing with the granting authority) use the Horizon Results Platform to find interested parties to exploit the results.

If results are incorporated in a standard, the beneficiaries must (unless otherwise agreed with the granting authority or unless it is impossible) ask the standardisation body to include the funding statement (see Article 17) in (information related to) the standard.

Additional exploitation obligations

Where the call conditions impose additional exploitation obligations (including obligations linked to the restriction of participation or control due to strategic assets, interests, autonomy or security reasons), the beneficiaries must comply with them — up to four years after the end of the action (see Data Sheet, Point 1).

Where the call conditions impose additional exploitation obligations in case of a public emergency, the beneficiaries must (if requested by the granting authority) grant for a limited period of time specified in the request, non-exclusive licences — under fair and reasonable conditions — to their results to legal entities that need the results to address the public emergency and commit to rapidly and broadly exploit the resulting products and services at fair and reasonable conditions. This provision applies up to four years after the end of the action (see Data Sheet, Point 1).

Additional information obligation relating to standards

Where the call conditions impose additional information obligations relating to possible standardisation, the beneficiaries must — up to four years after the end of the action (see Data Sheet, Point 1) — inform the granting authority, if the results could reasonably be expected to contribute to European or international standards.

Transfer and licensing of results

Transfer of ownership

The beneficiaries may transfer ownership of their results, provided this does not affect compliance with their obligations under the Agreement.

The beneficiaries must ensure that their obligations under the Agreement regarding their results are passed on to the new owner and that this new owner has the obligation to pass them on in any subsequent transfer.

Moreover, they must inform the other beneficiaries with access rights of the transfer at least 45 days in advance (or less if agreed in writing), unless agreed otherwise in writing for specifically identified third parties including affiliated entities or unless impossible under the applicable law. This notification must include sufficient information on the new owner to enable the beneficiaries concerned to assess the effects on their access rights. The beneficiaries may object within 30 days of receiving notification (or less if agreed in writing), if they can show that the transfer would adversely affect their access rights. In this case, the transfer may not take place until agreement has been reached between the beneficiaries concerned.

Granting licences

The beneficiaries may grant licences to their results (or otherwise give the right to exploit them), including on an exclusive basis, provided this does not affect compliance with their obligations.

Exclusive licences for results may be granted only if all the other beneficiaries concerned have waived their access rights.

Granting authority right to object to transfers or licensing — Horizon Europe actions

Where the call conditions in Horizon Europe actions provide for the right to object to transfers or licensing, the granting authority may — up to four years after the end of the action (see Data Sheet, Point 1) — object to a transfer of ownership or the exclusive licensing of results, if:

- the beneficiaries which generated the results have received funding under the grant
- it is to a legal entity established in a non-EU country not associated with Horizon Europe, and
- the granting authority considers that the transfer or licence is not in line with EU interests.

Beneficiaries that intend to transfer ownership or grant an exclusive licence must formally notify the granting authority before the intended transfer or licensing takes place and:

- identify the specific results concerned
- describe in detail the new owner or licensee and the planned or potential exploitation of the results, and
- include a reasoned assessment of the likely impact of the transfer or licence on EU interests, in particular regarding competitiveness as well as consistency with ethical principles and security considerations.

The granting authority may request additional information.

If the granting authority decides to object to a transfer or exclusive licence, it must formally notify the beneficiary concerned within 60 days of receiving notification (or any additional information it has requested).

No transfer or licensing may take place in the following cases:

- pending the granting authority decision, within the period set out above
- if the granting authority objects
- until the conditions are complied with, if the granting authority objection comes with conditions.

A beneficiary may formally notify a request to waive the right to object regarding intended transfers or grants to a specifically identified third party, if measures safeguarding EU interests are in place. If the granting authority agrees, it will formally notify the beneficiary concerned within 60 days of receiving notification (or any additional information requested).

Granting authority right to object to transfers or licensing — Euratom actions

Where the call conditions in Euratom actions provide for the right to object to transfers or licensing, the granting authority may — up to four years after the end of the action (see Data Sheet, Point 1) — object to a transfer of ownership or the exclusive or non-exclusive licensing of results, if:

- the beneficiaries which generated the results have received funding under the grant
- it is to a legal entity established in a non-EU country not associated to the Euratom Research and Training Programme 2021-2025 and
- the granting authority considers that the transfer or licence is not in line with the EU interests.

Beneficiaries that intend to transfer ownership or grant a licence must formally notify the granting authority before the intended transfer or licensing takes place and:

- identify the specific results concerned
- describe in detail the results, the new owner or licensee and the planned or potential exploitation of the results, and
- include a reasoned assessment of the likely impact of the transfer or licence on EU interests, in particular regarding competitiveness as well as consistency with

ethical principles and security considerations (including the defence interests of the EU Member States under Article 24 of the Euratom Treaty).

The granting authority may request additional information.

If the granting authority decides to object to a transfer or licence, it will formally notify the beneficiary concerned within 60 days of receiving notification (or any additional information requested).

No transfer or licensing may take place in the following cases:

- pending the granting authority decision, within the period set out above
- if the granting authority objects
- until the conditions are complied with, if the granting authority objection comes with conditions.

A beneficiary may formally notify a request to waive the right to object regarding intended transfers or grants to a specifically identified third party, if measures safeguarding EU interests are in place. If the granting authority agrees, it will formally notify the beneficiary concerned within 60 days of receiving notification (or any additional information requested).

Limitations to transfers and licensing due to strategic assets, interests, autonomy or security reasons of the EU and its Member States

Where the call conditions restrict participation or control due to strategic assets, interests, autonomy or security reasons, the beneficiaries may not transfer ownership of their results or grant licences to third parties which are established in countries which are not eligible countries or target countries set out in the call conditions (or, if applicable, are controlled by such countries or entities from such countries) — unless they have requested and received prior approval by the granting authority.

The request must:

- identify the specific results concerned
- describe in detail the new owner and the planned or potential exploitation of the results, and
- include a reasoned assessment of the likely impact of the transfer or license on the strategic assets, interests, autonomy or security of the EU and its Member States.

The granting authority may request additional information.

Access rights to results and background

Exercise of access rights — Waiving of access rights — No sub-licensing

Requests to exercise access rights and the waiver of access rights must be in writing.

Unless agreed otherwise in writing with the beneficiary granting access, access rights do not include the right to sub-license.

If a beneficiary is no longer involved in the action, this does not affect its obligations to grant access.

If a beneficiary defaults on its obligations, the beneficiaries may agree that that beneficiary no longer has access rights.

Access rights for implementing the action

The beneficiaries must grant each other access — on a royalty-free basis — to background needed to implement their own tasks under the action, unless the beneficiary that holds the background has — before acceding to the Agreement —:

- informed the other beneficiaries that access to its background is subject to restrictions, or

- agreed with the other beneficiaries that access would not be on a royalty-free basis.

The beneficiaries must grant each other access — on a royalty-free basis — to results needed for implementing their own tasks under the action.

Access rights for exploiting the results

The beneficiaries must grant each other access — under fair and reasonable conditions — to results needed for exploiting their results.

The beneficiaries must grant each other access — under fair and reasonable conditions — to background needed for exploiting their results, unless the beneficiary that holds the background has — before acceding to the Agreement — informed the other beneficiaries that access to its background is subject to restrictions.

Requests for access must be made — unless agreed otherwise in writing — up to one year after the end of the action (see Data Sheet, Point 1).

Access rights for entities under the same control

Unless agreed otherwise in writing by the beneficiaries, access to results and, subject to the restrictions referred to above (if any), background must also be granted — under fair and reasonable conditions — to entities that:

- are established in an EU Member State or Horizon Europe associated country

- are under the direct or indirect control of another beneficiary, or under the same direct or indirect control as that beneficiary, or directly or indirectly controlling that beneficiary and

- need the access to exploit the results of that beneficiary.

Unless agreed otherwise in writing, such requests for access must be made by the entity directly to the beneficiary concerned.

Requests for access must be made — unless agreed otherwise in writing — up to one year after the end of the action (see Data Sheet, Point 1).

Access rights for the granting authority, EU institutions, bodies, offices or agencies and national authorities to results for policy purposes — Horizon Europe actions

In Horizon Europe actions, the beneficiaries which have received funding under the grant must grant access to their results — on a royalty-free basis — to the granting authority, EU institutions, bodies, offices or agencies for developing, implementing and monitoring EU policies or programmes. Such access rights do not extend to beneficiaries' background.

Such access rights are limited to non-commercial and non-competitive use.

For actions under the cluster 'Civil Security for Society', such access rights also extend to national authorities of EU Member States for developing, implementing and monitoring their policies or programmes in this area. In this case, access is subject to a bilateral agreement to define specific conditions ensuring that:

- the access rights will be used only for the intended purpose and
- appropriate confidentiality obligations are in place.

Moreover, the requesting national authority or EU institution, body, office or agency (including the granting authority) must inform all other national authorities of such a request.

Access rights for the granting authority, Euratom institutions, funding bodies or the Joint Undertaking Fusion for Energy — Euratom actions

In Euratom actions, the beneficiaries which have received funding under the grant must grant access to their results — on a royalty-free basis — to the granting authority, Euratom institutions, funding bodies or the Joint Undertaking Fusion for Energy for developing, implementing and monitoring Euratom policies and programmes or for compliance with obligations assumed through international cooperation with non-EU countries and international organisations.

Such access rights include the right to authorise third parties to use the results in public procurement and the right to sub-license and are limited to non-commercial and non-competitive use.

Additional access rights

Where the call conditions impose additional access rights, the beneficiaries must comply with them.

COMMUNICATION, DISSEMINATION, OPEN SCIENCE AND VISIBILITY (— ARTICLE 17)

Dissemination

Dissemination of results

The beneficiaries must disseminate their results as soon as feasible, in a publicly available format, subject to any restrictions due to the protection of intellectual property, security rules or legitimate interests.

A beneficiary that intends to disseminate its results must give at least 15 days advance notice to the other beneficiaries (unless agreed otherwise), together with sufficient information on the results it will disseminate.

Any other beneficiary may object within (unless agreed otherwise) 15 days of receiving notification, if it can show that its legitimate interests in relation to the results or background would be significantly harmed. In such cases, the results may not be disseminated unless appropriate steps are taken to safeguard those interests.

Additional dissemination obligations

Where the call conditions impose additional dissemination obligations, the beneficiaries must also comply with those.

Open Science

Open science: open access to scientific publications

The beneficiaries must ensure open access to peer-reviewed scientific publications relating to their results. In particular, they must ensure that:

- at the latest at the time of publication, a machine-readable electronic copy of the published version or the final peer-reviewed manuscript accepted for publication, is deposited in a trusted repository for scientific publications

- immediate open access is provided to the deposited publication via the repository, under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights; for monographs and other long-text formats, the licence may exclude commercial uses and derivative works (e.g. CC BY-NC, CC BY-ND) and

- information is given via the repository about any research output or any other tools and instruments needed to validate the conclusions of the scientific publication.

Beneficiaries (or authors) must retain sufficient intellectual property rights to comply with the open access requirements.

Metadata of deposited publications must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent, in line with the FAIR principles (in particular machine-actionable) and provide information at least about the following: publication (author(s), title, date of publication, publication venue); Horizon Europe or Euratom funding; grant project name, acronym and number; licensing terms; persistent identifiers for the publication, the authors involved in the action and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for any research output or any other tools and instruments needed to validate the conclusions of the publication.

Only publication fees in full open access venues for peer-reviewed scientific publications are eligible for reimbursement.

Open science: research data management

The beneficiaries must manage the digital research data generated in the action ('data') responsibly, in line with the FAIR principles and by taking all of the following actions:

- establish a data management plan ('DMP') (and regularly update it)

- as soon as possible and within the deadlines set out in the DMP, deposit the data in a trusted repository; if required in the call conditions, this repository must be federated in the EOSC in compliance with EOSC requirements

- as soon as possible and within the deadlines set out in the DMP, ensure open access — via the repository — to the deposited data, under the latest available version of the Creative Commons Attribution International Public License (CC BY) or Creative Commons Public Domain Dedication (CC 0) or a licence with equivalent rights, following the principle 'as open as possible as closed as necessary', unless providing open access would in particular:

    - be against the beneficiary's legitimate interests, including regarding commercial exploitation, or

    - be contrary to any other constraints, in particular the EU competitive interests or the beneficiary's obligations under this Agreement; if open access is not provided (to some or all data), this must be justified in the DMP

- provide information via the repository about any research output or any other tools and instruments needed to re-use or validate the data.

Metadata of deposited data must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent (to the extent legitimate interests or constraints are safeguarded), in line with the FAIR principles (in particular machine-actionable) and provide information at least about the following: datasets (description, date of deposit, author(s), venue and embargo); Horizon Europe or Euratom funding; grant project name, acronym and number; licensing terms; persistent identifiers for the dataset, the authors involved in the action, and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for related publications and other research outputs.

Open science: additional practices

Where the call conditions impose additional obligations regarding open science practices, the beneficiaries must also comply with those.

Where the call conditions impose additional obligations regarding the validation of scientific publications, the beneficiaries must provide (digital or physical) access to data or other results needed for validation of the conclusions of scientific publications, to the extent that their legitimate interests or constraints are safeguarded (and unless they already provided the (open) access at publication).

Where the call conditions impose additional open science obligations in case of a public emergency, the beneficiaries must (if requested by the granting authority) immediately deposit any research output in a repository and provide open access to it under a CC BY licence, a Public Domain Dedication (CC 0) or equivalent. As an exception, if the access would be against the beneficiaries' legitimate interests, the beneficiaries must grant non-exclusive licenses — under fair and reasonable conditions — to legal entities that need the research output to address the public emergency and commit to rapidly and broadly exploit the resulting products and services at fair and reasonable conditions. This provision applies up to four years after the end of the action (see Data Sheet, Point 1).

Plan for the exploitation and dissemination of results including communication activities

Unless excluded by the call conditions, the beneficiaries must provide and regularly update a plan for the exploitation and dissemination of results including communication activities.

SPECIFIC RULES FOR CARRYING OUT THE ACTION (— ARTICLE 18)

Implementation in case of restrictions due to strategic assets, interests, autonomy or security of the EU and its Member States

Where the call conditions restrict participation or control due to strategic assets, interests, autonomy or security, the beneficiaries must ensure that none of the entities that participate as affiliated entities, associated partners, subcontractors or recipients of financial support to third parties are established in countries which are not eligible countries or target countries set out in the call conditions (or, if applicable, are controlled by such countries or entities from such countries) — unless otherwise agreed with the granting authority.

The beneficiaries must moreover ensure that any cooperation with entities established in countries which are not eligible countries or target countries set out in the call conditions (or, if applicable, are controlled by such countries or entities from such countries) does not affect the strategic assets, interests, autonomy or security of the EU and its Member States.

Recruitment and working conditions for researchers

The beneficiaries must take all measures to implement the principles set out in the Commission Recommendation on the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers[3], in particular regarding:

- working conditions
- transparent recruitment processes based on merit, and
- career development.

The beneficiaries must ensure that researchers and all participants involved in the action are aware of them.

Specific rules for access to research infrastructure activities

Definitions

Research Infrastructures — Facilities that provide resources and services for the research communities to conduct research and foster innovation in their fields. This definition includes the associated human resources, and it covers major equipment or sets of instruments; knowledge-related facilities such as collections, archives or scientific data infrastructures; computing systems, communication networks, and any other infrastructure, of a unique nature and open to external users, essential to achieve excellence in research and innovation. Where relevant, they may be used beyond research, for example

[3] Commission Recommendation 2005/251/EC of 11 March 2005 on the European Charter for Researchers and on a Code of Conduct for the Recruitment of Researchers (OJ L 75, 22.3.2005, p. 67).

for education or public services, and they may be 'single-sited', 'virtual' or 'distributed'[4]:

When implementing access to research infrastructure activities, the beneficiaries must respect the following conditions:

- for transnational access:
  - access which must be provided:

    The access must be free of charge, transnational access to research infrastructure or installations for selected user-groups.

    The access must include the logistical, technological and scientific support and the specific training that is usually provided to external researchers using the infrastructure. Transnational access can be either in person (hands-on), provided to selected users that visit the installation to make use of it, or remote, through the provision to selected user-groups of remote scientific services (e.g. provision of reference materials or samples, remote access to a high-performance computing facility).

  - categories of users that may have access:

    Transnational access must be provided to selected user-groups, i.e. teams of one or more researchers (users).

    The majority of the users must work in a country other than the country(ies) where the installation is located (unless access is provided by an international organisation, the Joint Research Centre (JRC), an ERIC or similar legal entity).

    Only user groups that are allowed to disseminate the results they have generated under the action may benefit from the access (unless the users are working for SMEs).

    Access for user groups with a majority of users not working in a EU Member State or Horizon Europe associated country is limited to 20% of the total amount of units of access provided under the grant (unless a higher percentage is foreseen in Annex 1).

  - procedure and criteria for selecting user groups:

    The user groups must request access by submitting (in writing) a description of the work that they wish to carry out and the names, nationalities and home institutions of the users.

    The user groups must be selected by (one or more) selection panels set up by the consortium.

[4] See Article 2(1) of the Horizon Europe Framework Programme Regulation 2021/695.

The selection panels must be composed of international experts in the field, at least half of them independent from the consortium (unless otherwise specified in Annex 1).

The selection panels must assess all proposals received and recommend a short-list of the user groups that should benefit from access.

The selection panels must base their selection on scientific merit, taking into account that priority should be given to user groups composed of users who:

- have not previously used the installation and
- are working in countries where no equivalent research infrastructure exist.

It will apply the principles of transparency, fairness and impartiality.

Where the call conditions impose additional rules for the selection of user groups, the beneficiaries must also comply with those.

- other conditions:

The beneficiaries must request written approval from the granting authority for the selection of user groups requiring visits to the installations exceeding 3 months (unless such visits are foreseen in Annex 1).

In addition, the beneficiaries must:

- advertise widely, including on a their websites, the access offered under the Agreement
- promote equal opportunities in advertising the access and take into account the gender dimension when defining the support provided to users
- ensure that users comply with the terms and conditions of the Agreement
- ensure that its obligations under Articles 12, 13, 17 and 33 also apply to the users
- keep records of the names, nationalities, and home institutions of users, as well as the nature and quantity of access provided to them

- for virtual access:
  - access which must be provided:

The access must be free of charge, virtual access to research infrastructure or installations.

'Virtual access' means open and free access through communication networks to digital resources and services needed for research, without selecting the users to whom access is provided.

The access must include the support that is usually provided to external users.

Where allowed by the call conditions, beneficiaries may in justified cases define objective eligibility criteria (e.g. affiliation to a research or academic institution) for specific users.

- other conditions:

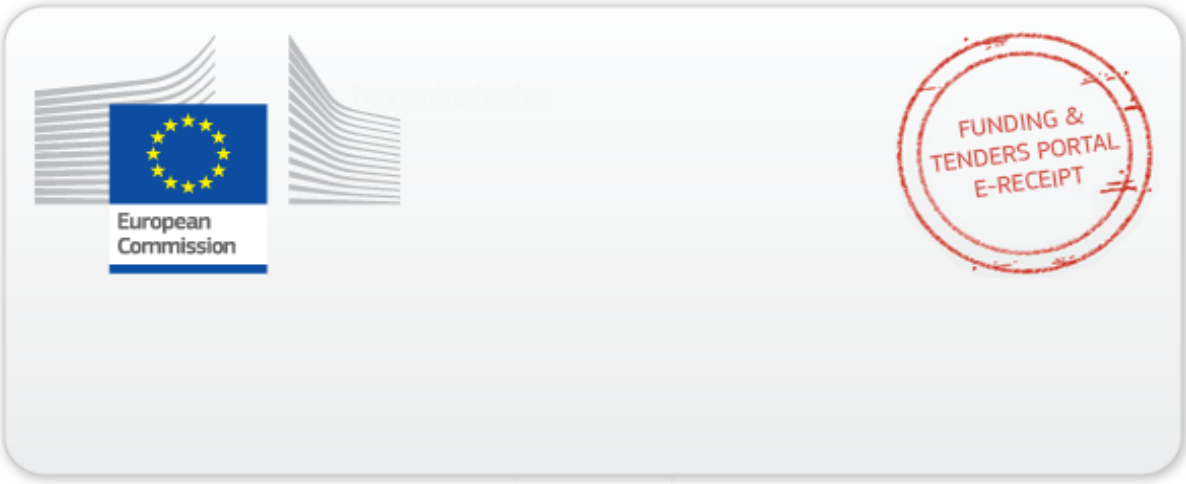
  The beneficiaries must have the virtual access services assessed periodically by a board composed of international experts in the field, at least half of whom must be independent from the consortium (unless otherwise specified in Annex 1). For this purpose, information and statistics on the users and the nature and quantity of the access provided, must be made available to the board.

  The beneficiaries must advertise widely, including on a dedicated website, the access offered under the grant and the eligibility criteria, if any.

  Where the call conditions impose additional traceability[5] obligations, information on the traceability of the users and the nature and quantity of access must be provided by the beneficiaries.

These obligations apply regardless of the form of funding or budget categories used to declare the costs (unit costs or actual costs or a combination of the two).

[5] According to the definition given in ISO 9000, i.e.: "Traceability is the ability to trace the history, application, use and location of an item or its characteristics through recorded identification data." The users can be traced, for example, by authentication and/or by authorization or by other means that allows for analysis of the type of users and the nature and quantity of access provided.



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Ayuntamiento de Málaga

I

Clave operación 814
Signo 0

CONTABILIDAD DEL PRESUPUESTO DE INGRESOS

PRESUPUESTO CORRIENTE

TALON DE CARGO

Naturaleza. Ingreso: 14
Nº. Op.Anterior:
Nº. Expediente:

Fecha Ingreso: 12/06/2024

Ejercicio: 2024

Presupuesto 2024 Tipo de Exacción 4 **Otros Ingresos sin Contraido Previo**

Orgánica	Económica:	Referencia	Importe EUROS	PGCP
00	49700	12024003160	8.000,00	7501

Otras subvenciones corrientes de la Unión Europea

Aplicación no presupuestaria I.V.A. Importe EUROS PGCP

Importe Importe EUROS
OCHO MIL EUROS. 8.000,00

Código de Gasto/Proyecto: 2024 2 50EHO 1 **PROYECTO EUROPEO HORIZON OCEANIDS**

Ordinal:

Código Nombre o razón social
U.E. **UNION EUROPEA**
Domicilio

Población

Cod. Postal
Ordinal Bancario **29000**

Texto libre

FORMALIZACION A PRESUPUESTARIO POR DECIMO TERCER EXPTE. DE GENERACION DE CREDITOS 2024. PROVIENE DEL IPA 320240003667.-

TOMA DE RAZÓN
EN CONTABILIDAD

Nº. Operación: **120240006893**
Número de Ingreso: **320240003667**

Nº. Rel. Cont: /

Sentado en Libro Diario de Contabilidad Presupuestaria con

Fecha **12/06/2024**

RESUMEN DE EXPEDIENTES DE MODIFICACIONES DE CREDITO

Expediente: **13 GEN 2024** Fecha: **12/06/2024** Grupo Apuntes: **GENERACIÓN**

Texto Explicativo: DÉCIMO TERCER EXPTE. DE GENERACIÓN DE CRÉDITOS 2024. PROGRAMAS EUROPEOS

Situación Expediente: **En Elaboración** Fecha Contabilización:

G/I	Aplicación	Proyecto	Agente	Tipo de Modificación	R.F.	Mod. Ingresos	Mod. Gastos	Texto Explicativo
G	00 1511 41000 SUBV. CORRIENTES A OO AA DEPENDIENTES DEL AYTO DE MALAGA	2024 2 50EHO 1		060 + CREDITOS GENERADOS POR INGRESOS	3		1.100,00	
G	02 9333 11000 R BASICAS PERSONAL EVENTUAL	2024 2 50EHO 1		060 + CREDITOS GENERADOS POR INGRESOS	3		3.769,23	
G	02 9333 16000 SEGURIDAD SOCIAL	2024 2 50EHO 1		060 + CREDITOS GENERADOS POR INGRESOS	3		1.130,77	
G	50 9206 23020 DIETAS DEL PERSONAL NO DIRECTIVO	2024 2 50EHO 1		060 + CREDITOS GENERADOS POR INGRESOS	3		800,00	
G	50 9206 23120 LOCOMOCION DEL PERSONAL NO DIRECTIVO	2024 2 50EHO 1		060 + CREDITOS GENERADOS POR INGRESOS	3		1.200,00	
I	00 49700 Otras subvenciones corrientes de la Unión Europea	2024 2 50EHO 1	U.E.	020 + AUMENTO DE LAS PREVISIONES INICIALES DE INGRESOS		8.000,00		
				Suma Total		8.000,00	8.000,00	

ASUNTO: DÉCIMO TERCER EXPEDIENTE DE GENERACIÓN DE CRÉDITOS DEL PRESUPUESTO DEL AYUNTAMIENTO DE MÁLAGA 2024.

Primero:

Se ha recibido informe procedente del Área de Gestión de Fondos de la Unión Europea, proponiendo la incoación de un expediente de generación de créditos en el Estado de Gastos del Presupuesto del Ayuntamiento de Málaga de 2024, como consecuencia del ingreso recibido correspondiente al proyecto europeo "HORIZON OCEANIDS", por importe de **75.000,00 €**.

Proyecto de gasto: 2024 2 50EHO 1

Segundo:

Del examen de la propuesta y de la información complementaria recibida en este Servicio que se adjunta, se deduce que cumplen lo previsto en el R.D. 500/1990, de 20 abril, y en la Base Novena de las de Ejecución del Presupuesto del Ayuntamiento de Málaga de 2024, adjuntándose antecedentes.

Tercero:

Los créditos concedidos deberán ser imputados al concepto de ingreso 49700, denominado: "Otras subvenciones corrientes de la Unión Europea", por importe de **8.000,00 €.**

Cuarto:

Dicho ingreso podrá generar créditos en las siguientes aplicaciones del Estado de Gasto:

02.9333.11000.8042 "Servicios Operativos. Otros Edificios de la Corporación. Retribuciones básicas del personal eventual. Proyecto Europeo Horizon Oceanids", por importe de **3.769,23 €.**

02.9333.16000.8042 "Servicios Operativos. Otros Edificios de la Corporación. Seguridad social. Proyecto Europeo Horizon Oceanids", por importe de **1.130,77 €.**

50.9206.23120.8042 "Gestión de fondos Unión Europea. Servicio de Programas Europeos. Locomoción del personal no directivo. Proyecto Europeo Horizon Oceanids", por importe de **1.200,00 €.**

50.9206.23020.8042 "Gestión de fondos Unión Europea. Servicio de Programas Europeos. Locomoción del personal no directivo. Proyecto Europeo Horizon Oceanids", por importe de **800,00 €.**

00.1511.41000.8042 ”Restantes áreas que no necesitan código orgánico. Gerencia Municipal de Urbanismo, Obras e Infraestructuras. Proyecto Europeo Horizon Oceanids”, por importe de **1.100,00 €.**

Quinto:

La presente propuesta de Generación de Créditos por ingresos deberá ser contrastada por el Servicio de Gestión Contable e informada por la Intervención General Municipal antes de su resolución.

Málaga, fecha y firma electrónica
El Jefe del Servicio de Presupuestos
Juan C. Sondermeyer Martín

ENTIDAD: EXCMO. AYUNTAMIENTO DE MÁLAGA
ASUNTO: 13º Expediente de Generación de créditos subvención proyecto "*Horizon Oceanids*"

Visto la propuesta de aprobación del expediente indicado en el asunto; esta Intervención, de conformidad con lo dispuesto en el Art. 4.1 del Real Decreto 128/2018, de 16 de marzo, por el que se regula el régimen jurídico de los funcionarios de Administración Local con habilitación de carácter nacional, tiene el deber de emitir el siguiente;

INFORME

PRIMERO.- *Expediente de modificación presupuestaria*.
El Ayuntamiento de Málaga participa en el programa HORIZON EUROPE desde la puesta en marcha en septiembre de 2023 con el programa "OCEANIDS", el proyecto cuenta con un total de 27 socios entre los que se encuentra el Ayuntamiento de Málaga. La duración del proyecto es de 32 meses a contar desde su lanzamiento, que tuvo lugar en diciembre de 2023. El Presupuesto total aprobado del proyecto 3.096.345,00 €, del cual le corresponde al Ayuntamiento de Málaga 100.000,00 € financiado al 100% por los fondos Horizon de la convocatoria. Con fecha 27 de febrero se ha recibido ingreso por 75.000,00 € correspondiente al anticipo del proyecto. El reparto por anualidades del proyecto es el siguiente:

	2024	2025	2026	TOTAL
TOTAL	**14.666,00**	**43.666,00**	**41.668,00**	**100.000,00**
Personal	4.900,00	35.000,00	35.000,00	74.900,00
Viajes y alojamientos	3.100,00	100,00		3.200,00
Otros gastos de equipamientos		750,00		750,00
Trabajos y servicios		1.150,00		1.150,00
SUBTOTAL	***8.000,00***	***37.000,00***	***35.000,00***	***80.000,00***
Financiación UE	*8.000,00*	*37.000,00*	*35.000,00*	*80.000,00*
Costes indirectos	***6.666,00***	***6.666,00***	***6.668,00***	***20.000,00***
Financiación UE	*6.666,00*	*6.666,00*	*6.668,00*	*20.000,00*

Según informe del Jefe del Servicio de Presupuestos de fecha 12/06/2024 se propone, a petición del Área de Gestión de Fondos de la Unión Europea mediante informe de la Jefe del Servicio de Programas Europeos de 12/06/2024, **generar** créditos por el importe de 8.000,00 € por el importe previsto ejecutar en el ejercicio 2024.
Se trata de ingresos de naturaleza no tributaria por lo que procede generar créditos en aplicación de lo establecido en el estado de gastos del Presupuesto General art. 181 del TRLRHL, art. 43.1 RD. 500/1990 y la Base 9ª de Ejecución del Presupuesto.

SEGUNDO.- *Aplicaciones presupuestarias.*
Las aplicaciones presupuestarias que figuran en el informe indicado son las correctas de conformidad con la Orden EHA/3565/2008, de 3 de diciembre, por la que se aprueba la estructura de los presupuestos de las entidades locales.
El detalle por aplicaciones presupuestarias, capítulos y proyecto de gasto es el siguiente:

ESTADO DE GASTOS		ESTADO DE INGRESOS	
Cap.	Importe	Cap.	Importe
1	4.900,00	4	8.000,00
2	2.000,00		
4	1.100,00		
TOTAL	8.000,00	TOTAL	8.000,00

ANEXO: MODIFICACIONES DE CRÉDITO DEL EXCMO. AYUNTAMIENTO DE MÁLAGA

				8.000,00					8.000,00	
ESTADO DE GASTOS					ESTADO DE INGRESOS					
	Aplic. GASTOS	Proyecto	R.F.	Importe	Aplic. INGRESOS	Proyecto	Agente	Importe	DESCRIPCIÓN
2024	02 9333 16000 8042	2024 2 50EHO 1	3	1.130,77	2024 00 49700	2024 2 50EHO 1	U.E.	1.130,77	PROYECTO EUROPEO HORIZON OCEANIDS
2024	02 9333 11000 8042	2024 2 50EHO 1	3	3.769,23	2024 00 49700	2024 2 50EHO 1	U.E.	3.769,23	PROYECTO EUROPEO HORIZON OCEANIDS
2024	50 9206 23020 8042	2024 2 50EHO 1	3	800,00	2024 00 49700	2024 2 50EHO 1	U.E.	800,00	PROYECTO EUROPEO HORIZON OCEANIDS
2024	00 1511 41000 8042	2024 2 50EHO 1	3	1.100,00	2024 00 49700	2024 2 50EHO 1	U.E.	1.100,00	PROYECTO EUROPEO HORIZON OCEANIDS
2024	50 9206 23120 8042	2024 2 50EHO 1	3	1.200,00	2024 00 49700	2024 2 50EHO 1	U.E.	1.200,00	PROYECTO EUROPEO HORIZON OCEANIDS

TERCERO.- *Financiación y destino.*
Se trata de ingresos de naturaleza no tributaria correspondientes a subvenciones procedentes de otras Administraciones Públicas y con destino a financiar conjuntamente con el Ayuntamiento gastos que por su naturaleza estén comprendidos en los fines u objetivos de los mismos, en concreto mediante subvenciones procedentes de la Unión Europea por importe de 8.000,00 €.

CUARTO.- *Estabilidad Presupuestaria y Regla de Gasto.*
La Ley Orgánica 2/2012, de 27 de abril, de Estabilidad Presupuestaria y Sostenibilidad Financiera (LOEPSF) establece en su art. 11 que la elaboración, aprobación y ejecución de los presupuestos y demás actuaciones que afecten a los gastos e ingresos de las Administraciones Públicas se someterán al principio de estabilidad presupuestaria especificando que las Corporaciones Locales deberán mantener una posición de equilibrio o superávit presupuestario.

En el ejercicio 2024 se encuentran activas las reglas fiscales. Según el apartado III.9. Ingresos obtenidos del Presupuesto de la Unión Europea del Manual, el tratamiento de los ingresos procedentes del Presupuesto Comunitario a los Estados Miembros, ha establecido como criterio de registro en contabilidad nacional, un principio más cercano al de devengo que al de caja. Así una vez efectuado y certificado el gasto debe reconocerse también el ingreso correspondiente, cuyo importe será el resultado de aplicar el porcentaje de cofinanciación aprobado por la Unión Europea al gasto certificado en el ejercicio, esto es, a las obligaciones reconocidas. Así, la modificación de crédito que ocupa no afecta a la estabilidad presupuestaria al producirse un incremento en los capítulos I a VII del Estado de Gastos por el importe indicado y paralelamente en los capítulos I a VII del Estado de Ingresos ni tampoco a la Regla de Gasto al estar con ingresos procedentes de la Unión Europea ya que en contabilidad nacional los ingresos se reconocerán en función de los gastos producidos.

QUINTO.- *Órgano competente aprobación.*
El órgano competente para aprobar la presente modificación presupuestaria es el Teniente de Alcalde Delegado de Economía y Hacienda según dispone la Base 9ª de Ejecución del Presupuesto.

SEXTO.- *Conclusión.*
Por todo lo anteriormente expuesto se informa por esta intervención el expediente de forma FAVORABLE sin que ello implique la fiscalización favorable de los actos que de su ejecución se deriven.

En Málaga, a fecha firma electrónica

LA JEFA DEL SERVICIO DE CONTROL FINANCIERO NO PLANIFICADO
Fdo.: Josefa María Sánchez Moreno

EL INTERVENTOR GENERAL
Fdo.: Fermín Vallecillo Moreno

A/A DEL SR. TTE. ALCALDE DELEGADO DE ECONOMÍA Y HACIENDA
EXCMO. AYUNTAMIENTO DE MÁLAGA