



July 2021

Horizon Europe funding opportunities 2021-2022 for Earth & Environmental Observation

Introduction

This factsheet aims to guide the **environmental and Earth observation** community, including the global Group on Earth Observations (GEO), through the first Horizon Europe work programme (2021 – 2022). It covers the different topics directly or indirectly related to **environmental and Earth observation** and offers an overview of the different **funding opportunities** available.

Horizon Europe will contribute to a better uptake and broader use of **environmental and Earth observations**, building on the work of previous R&I Framework Programmes (notably Horizon 2020). The topics related to **environmental and Earth observations** cover a broad array of domains. Some of them relate to applications in specific fields, like biodiversity or health, while some focus on interoperability issues or citizen science and engagement.

While this factsheet provides you with a compass to navigate the Horizon Europe work programme 2021 – 2022, we invite you to refer to the [Funding and Tenders Portal](#) for the official and applicable content and to read carefully the full topic texts before applying.

Global challenges need global solutions – and environmental and Earth observations can be part these solutions!

Horizon Europe, the 9th European Framework Programme for Research and Innovation (2021 – 2027), has a budget of **€95.5 billion** over 7 years. The first work programme (2021 – 2022) has a budget of **€14.7 billion**.

Reading guide

This factsheet consists of three parts

- Listing of topics with strong and direct references to environmental and/or Earth observations
- Listing of other topics with references to environmental and/or Earth observations or to the Group on Earth Observations (GEO) and/or the Global Earth Observation System of Systems (GEOSS)
- Other topics of interest

This list is not exhaustive – next to the topics listed in this factsheet, you are encouraged to look through all topics in the work programme.

Topics with strong and direct references to environmental and/or Earth observations

Cluster - Food, Bioeconomy, Natural Resources, Agriculture and Environment

Destination – Innovative governance, environmental observations and digital solutions in support of the Green Deal

Deploying and adding value to Environmental Observations

HORIZON-CL6-2021-GOVERNANCE-01-14: User-oriented solutions building on environmental observation to monitor critical ecosystems and biodiversity loss and vulnerability in the European Union Specific conditions

Budget: €20 million – Estimated EU contribution per project between €3 and 5 million

Type of Action: Research and Innovation Actions

Short description: A successful proposal will support the delivery of services and solutions for the implementation of the European Green Deal and the biodiversity strategy, through the deployment and exploitation of environmental observations, benefiting a broad range of end users and helping them restore biodiversity and ecosystems under threat, thus contributing to the global observation and monitoring of the living realm.

Deadline for applying: 06 Oct 2021 at 17:00 Brussels local time

HORIZON-CL6-2021-GOVERNANCE-01-15: Preparing for pre-commercial procurement (PCP) for end-user services based on environmental observation in the area of climate change adaptation and mitigation

Budget: €2 million – Estimated EU contribution per project €2 million

Type of Action: Coordinating and Support Actions

Short description: The successful proposal will support the preparation, facilitation and pavement of the way for pre-commercial procurement in the area of climate change adaptation and mitigation to enable up-scaling and wide use of end-user services to respond to common needs in this area. The successful

proposal will be contributing to the European Green Deal objectives by further deploying and exploiting the use of environmental observations.

Deadline for applying: 06 Oct 2021 at 17:00 Brussels local time

HORIZON-CL6-2021-GOVERNANCE-01-16: Tools to support the uptake and accessibility/exploitability of environmental observation information at European and global level

Budget: €13 million – Estimated EU contribution per project €13 million

Type of Action: Innovation Actions - activities are expected to achieve TRL 6-8 by the end of the project

Short description: A successful proposal will enhance access and usability of environmental observation information and promote pre-operational European services through global infrastructures in line with the objectives of the European Green Deal, the European strategy for data and the European digital strategy, thus deploying and adding value to environmental observations and contributing to a strengthened Global Earth Observation System of Systems (GEOSS).

Deadline for applying: 06 Oct 2021 at 17:00 Brussels local time

HORIZON-CL6-2021-GOVERNANCE-01-17: Common European Green Deal data space to provide more accessible and exploitable environmental observation data in support of the European Green Deal priority actions

Budget: €10 million – Estimated EU contribution per project between €3 and 5 million

Type of Action: Innovation Actions - activities are expected to achieve TRL 6-8 by the end of the project

Short description: A successful proposal will contribute to unleashing the potential of environmental and climate data through dedicated European data spaces in line with the objectives of the European Green Deal and the European strategy for data, by further deploying digital and data technologies as key enablers and strengthening EU and international science-policy interfaces as well as contributing to the Global Earth Observation System of Systems (GEOSS).

Deadline for applying: 06 Oct 2021 at 17:00 Brussels local time

HORIZON-CL6-2022-GOVERNANCE-01-07: New technologies for acquiring in-situ observation datasets to address climate change effects

Budget: €20 million – Estimated EU contribution per project €3 million

Type of Action: Innovation Actions - activities are expected to achieve TRL 6-8 by the end of the project

Short description: Through the development of new technologies a successful proposal will contribute to addressing the lack of ground observation (in-situ observation) necessary to cope with climate change effects in hard-to-reach areas, areas facing extreme physical conditions and critical areas for human health and security. As such contributing to the European Green Deal objectives and a strengthened Global Earth Observation System of Systems (GEOSS), by deploying and adding value to environmental observation.

Opening of the call: 28 Oct 2021

Deadline for applying: 15 Feb 2022 at 17:00 Brussels local time

HORIZON-CL6-2022-GOVERNANCE-01-08: Uptake and validation of citizen observations to complement authoritative measurement within the urban environment and boost related citizen engagement

Budget: €14 million – Estimated EU contribution per project between €3 and 5 million

Type of Action: Innovation Actions - activities are expected to achieve TRL 6-8 by the end of the project

Short description: A successful proposal will contribute to the wide deployment of and adding value to environmental observations, by improving the uptake and validation of data collected by citizens and by increasing citizen involvement and engagement, thus contributing to the European Green Deal objectives and a strengthened Global Earth Observation System of Systems (GEOSS).

Opening of the call: 28 Oct 2021

Deadline for applying: 15 Feb 2022 at 17:00 Brussels local time

HORIZON-CL6-2022-GOVERNANCE-01-09: Environmental observations solutions contributing to meeting “One Health” challenges

Budget: €10 million – Estimated EU contribution per project €5 million

Type of Action: Research and Innovation Actions

Short description: A successful proposal will contribute to the deployment of and adding value to environmental observations, focussing on how the use of environmental observation can contribute to the ‘One Health’ domain, in line with the European Green Deal objectives.

Opening of the call: 28 Oct 2021

Deadline for applying: 15 Feb 2022 at 17:00 Brussels local time

Innovating with governance models and supporting policies

HORIZON-CL6-2022-GOVERNANCE-01-02: European Partnership for a climate neutral, sustainable and productive Blue Economy

Budget: €23 million – Estimated EU contribution between €23 and 150 million

The total indicative budget for the duration of the partnership is €150 million

Type of Action: Programme Co-fund Action

Short description: In line with the objectives of the European Green Deal and Digital Europe priorities, the successful proposal will contribute to the sustainability and resilience of the blue economy by supporting the establishment of innovative governance models. It will also contribute to strengthening the EU and international science-policy interfaces in marine- and maritime- related domains as well as the Global Earth Observation System of Systems (GEOSS) by supporting the further deployment and exploitation of Environmental Observation data and products and of digital and data technologies.

Opening of the call: 28 Oct 2021

Deadline for applying: 15 Feb 2022 at 17:00 Brussels local time

Innovating with governance models and supporting policies

HORIZON-CL6-2022-GOVERNANCE-01-05: Innovative tools and methods to evaluate the design and support, monitoring and implementation of effective CAP strategic plans

Budget: €4 million – Estimated EU contribution per project €4 million

Type of Action: Coordination and Support Actions

Short description: The successful proposal will contribute to innovative governance and sound decision making in agricultural policies for the green transition. In particular, they will contribute to achieving better informed decision-making processes, to establishing and monitoring innovative governance models enabling sustainability and resilience through enhanced and shared use of new knowledge, tools, foresight, and environmental observations as well as digital, modelling and forecasting capabilities. They will also contribute to strengthened EU science-policy interfaces to support the European Green Deal and to achieve the sustainable development goals.

Opening of the call: 28 Oct 2021

Deadline for applying: 15 Feb 2022 at 17:00 Brussels local time

Digital and data technologies as key enablers

HORIZON-CL6-2022-GOVERNANCE-01-11: Upscaling (real-time) sensor data for EU-wide monitoring of production and agri-environmental conditions

Budget: €15 million – Estimated EU contribution per project between €5 and 7.50 million

Type of Action: Research and Innovation Actions - activities are expected to achieve TRL 4-5 by the end of the project

Short description: In line with the farm to fork strategy and the headline ambitions of a ‘Digital Age’ and an ‘Economy that works for people’, leaving no one behind, and the biodiversity strategy, the successful proposals will support smart-farming and agri-environmental monitoring. They will therefore contribute a) to the enhancement of the sustainability performance and competitiveness in agriculture through further deployment of digital and data technologies as key enablers, and b) to make agriculture benefit from further deployment and exploitation of Environmental Observation data and products through research and innovation related to sensors and sensor data.

Opening of the call: 28 Oct 2021

Deadline for applying: 15 Feb 2022 at 17:00 Brussels local time

Destination – Biodiversity and ecosystem services

Understanding biodiversity decline

HORIZON-CL6-2021-BIODIV-01-02: Data and technologies for the inventory, fast identification and monitoring of endangered wildlife and other species groups

Budget: €10 million – Estimated EU contribution per project between €3 and 5 million

Type of Action: Research and Innovation Actions

Short description: In support of the implementation of the Green Deal, the EU biodiversity strategy 2030 and the Birds and Habitats Directives, successful proposals will help to bridge taxonomic and monitoring gaps, by providing methods, data, knowledge and models on the conservation status and ecological requirements of species and habitats and help to better understand and address biodiversity decline, its main direct drivers and their interrelations.

Deadline for applying: 06 Oct 2021 at 17:00 Brussels local time

HORIZON-CL6-2022-BIODIV-01-01: Observing and mapping biodiversity and ecosystems, with particular focus on coastal and marine ecosystems

Budget: €14 million – Estimated EU contribution per project between €4 and 14 million

Type of Action: Research and Innovation Actions - activities are expected to achieve TRL 4-5 by the end of the project

Short description: In support of the implementation of the Green Deal and the biodiversity strategy, successful proposals will contribute to the expected outcome “Empowering ocean observations (e.g., citizen science framework, robotics, artificial intelligence, big data analytics) and robust science-based thinking at national and international levels will promote science diplomacy and wider societal actions to support responsible and sustainability thereby enhancing ocean governance” and other expected outcomes, notably to better understand biodiversity decline, its main direct drivers and their interrelations.

Opening of the call: 28 Oct 2021

Deadline for applying: 15 Feb 2022 at 17:00 Brussels local time

Destination Land, ocean and water for climate action

HORIZON-CL6-2021-CLIMATE-01-01: Improved understanding, observation and monitoring of water resources availability

Budget: €10 million – Estimated EU contribution per project between €3 and 5 million

Type of Action: Research and Innovation Actions - activities are expected to achieve TRL 5 by the end of the project

Short description: In support of the European Green Deal and EU water-related policies, successful proposals will contribute to foster the adaptation of water resources to climate change, in particular Destination ‘Land, ocean and water for climate action’ impacts “Advance the understanding and science, and support adaptation and resilience of natural and managed ecosystems, water and soil systems and economic sectors in the context of the changing climate” and “Improve tools and technologies for efficient monitoring, assessment and projections related to climate change impact”.

Deadline for applying: 06 Oct 2021 at 17:00 Brussels local time

HORIZON-CL6-2021-CLIMATE-01-03: Key oceanic and polar processes driving regional & global climate change

Budget: €15 million – Estimated EU contribution per project between €7 and 8 million

Type of Action: Research and Innovation Actions - activities are expected to achieve TRL 3-5 by the end of the project

Short description: In support to the European Green Deal and climate initiatives, and the EU Arctic Policy, successful proposals will contribute to strengthening the ocean - climate nexus and our understanding of the ocean and polar regions, as an integral part of the Earth’s climate system. Successful proposals will further the science for understanding key processes that link the ocean to climate and people. They will allow for a better understanding of the nature and magnitude of these processes, and the impact of human activity on them. Given their specific vulnerability to climate change, this knowledge may help

formulate the appropriate policy action to better protect the ocean and the polar regions and help ensure their health, integrity and resilience.

Deadline for applying: 06 Oct 2021 at 17:00 Brussels local time

Cluster - Digital, Industry and Space

Destination – Open strategic autonomy in developing, deploying and using global space-based infrastructures, services, applications and data

Evolution of Copernicus services

HORIZON-CL4-2021-SPACE-01-41: Copernicus Climate Change Service evolution

Budget: €11 million – Estimated EU contribution per project between €10 and 11 million

Type of Action: Research and Innovation Actions - activities are expected to achieve TRL 5-6 by the end of the project

Short description: Project results are expected to contribute to the “Enhanced quality and efficiency of the current service evolution to respond to (a) policy and/or user requirements (b) technological developments implementing the space regulation (c) complementing the challenges targeted by the Horizon Europe Mission on “Adaptation to climate change including societal transformation” and other expected outcomes.

Opening of the call: 28 Oct 2021

Deadline for applying: 16 Feb 2022 at 17:00 Brussels local time

HORIZON-CL4-2021-SPACE-01-42: Copernicus Atmosphere Monitoring Service evolution

Budget: €7.50 million – Estimated EU contribution per project between €6 and 7.50 million

Type of Action: Research and Innovation Actions - activities are expected to achieve TRL 5-6 by the end of the project

Short description: Project results are expected to contribute to the “Development of new algorithms and processing chains preparing for the use of new types of space observation data (being from new Sentinels, other contributing missions or ESA Earth Explorer missions) in order to allow the development of new products or the improvement of existing ones” and other expected outcomes.

Opening of the call: 28 Oct 2021

Deadline for applying: 16 Feb 2022 at 17:00 Brussels local time

HORIZON-CL4-2021-SPACE-01-43: Copernicus Security and Emergency Services evolution

Budget: €5 million – Estimated EU contribution per project between €4 and 5 million

Type of Action: Research and Innovation Actions - activities are expected to achieve TRL 5-6 by the end of the project

Short description: Project results are expected to contribute to the “Significant improvement in resolution, detection capabilities, timely access to data and delivery of information according to the requirements of emergency and security applications” and other expected outcomes.

Opening of the call: 28 Oct 2021

Deadline for applying: 16 Feb 2022 at 17:00 Brussels local time

HORIZON-CL4-2021-SPACE-01-44: Copernicus evolution for cross-services thematic domains

Budget: €5.60 million – Estimated EU contribution per project €3 million

Type of Action: Research and Innovation Actions - activities are expected to achieve TRL 5-6 by the end of the project

Short description: Project results are expected to contribute to the “Exploitation of the full range of Copernicus core services with a significant improvement in the coordination and integration of data and products between them”, the “Development of services which will support new policy(ies) and will address observational and information gaps” and other expected outcomes.

Opening of the call: 28 Oct 2021

Deadline for applying: 16 Feb 2022 at 17:00 Brussels local time

Evolution of services of the EU space programme components: Copernicus

HORIZON-CL4-2022-SPACE-01-41: Copernicus Marine Environment Monitoring Service evolution

Budget: €10 million – Estimated EU contribution per project between €8 and 10 million

Type of Action: Research and Innovation Actions - activities are expected to achieve TRL 5-6 by the end of the project

Short description: Project results are expected to contribute to the “Enhanced quality and efficiency of the current service to respond to (a) policy and/or user requirements (b) technological developments implementing the space regulation (c) complementing the challenges targeted by the Horizon Europe Mission on “Healthy oceans, seas, coastal and inland waters” and can also contribute to the initiative United Nations Decade of Ocean Science for Sustainable Development” and other expected outcomes.

Opening of the call: 28 Oct 2021

Deadline for applying: 16 Feb 2022 at 17:00 Brussels local time

HORIZON-CL4-2022-SPACE-01-42: Copernicus Anthropogenic CO₂ Emissions Monitoring & Verification Support (MVS) capacity

Budget: €6 million – Estimated EU contribution per project between €5 and 6 million

Type of Action: Research and Innovation Actions - activities are expected to achieve TRL 5-6 by the end of the project

Short description: The expected outcome is the continuation of the set up of the new Copernicus element for the monitoring of anthropogenic CO₂ emissions.

Opening of the call: 28 Oct 2021

Deadline for applying: 16 Feb 2022 at 17:00 Brussels local time

HORIZON-CL4-2022-SPACE-01-43: Copernicus Land Monitoring Service evolution

Budget: €5 million – Estimated EU contribution per project between €4 and 5 million

Type of Action: Research and Innovation Actions - activities are expected to achieve TRL 5-6 by the end of the project

Short description: Project results are expected to contribute to the "Development of efficient and reliable new products chains, calling for new paradigms in data fusion, data processing and data visualisation essential for the service to handle more high-volume satellite data sets and product sets. The baseline is to preserve continuity of what has been achieved while keeping the service modern and attractive" and other expected outcomes.

Opening of the call: 28 Oct 2021

Deadline for applying: 16 Feb 2022 at 17:00 Brussels local time

Foster competitiveness of space systems

HORIZON-CL4-2022-SPACE-01-13: End-to-end Earth observation systems and associated services

Budget: €8.10 million – Estimated EU contribution per project between €2 and 3 million

Type of Action: Innovation Actions - activities are expected to achieve TRL 6 by the end of the project

Short description: The expected outcomes of this topic will enable flexible satellite Earth observation end-to-end systems, including the ground segment subsystem with explicit aspects of ground control centres and operations, as a strong subject of the "new space" and a very dynamic market environment with high potential. Competitiveness will be strengthened by providing growing capacity, as well as flexibility and agility to face uncertainties and market evolutions and improving system availability and latency to deliver high-quality experience to end-users.

Opening of the call: 28 Oct 2021

Deadline for applying: 16 Feb 2022 at 17:00 Brussels local time

Topics referring to environmental and/or Earth observations or GEO/GEOSS

Cluster - Food, Bioeconomy, Natural Resources, Agriculture and Environment

Destination – Biodiversity and ecosystem services

Understanding biodiversity decline

HORIZON-CL6-2021-BIODIV-01-03: Understanding and valuing coastal and marine biodiversity and ecosystems services

HORIZON-CL6-2021-BIODIV-01-04: Assess and predict integrated impacts of cumulative direct and indirect stressors on coastal and marine biodiversity, ecosystems and their services

Valuing and restoring biodiversity and ecosystem services

HORIZON-CL6-2021-BIODIV-01-07: Ecosystems and their services for an evidence-based policy and decision-making

HORIZON-CL6-2021-BIODIV-01-08: Supporting the development of a coherent and resilient Trans-European Nature Network

HORIZON-CL6-2021-BIODIV-01-10: Demonstration of measures and management for coastal and marine ecosystems restoration and resilience in simplified socio-ecological systems

HORIZON-CL6-2021-BIODIV-01-12: Improved science based maritime spatial planning and identification of marine protected areas

Enabling transformative change on biodiversity

HORIZON-CL6-2021-BIODIV-01-18: Understanding the impacts of and the opportunities offered by digital transformation, new emerging technologies and social innovation on biodiversity

HORIZON-CL6-2022-BIODIV-01-08: Assessing the nexus of extraction, production, consumption, trade and behaviour patterns and of climate change action on biodiversity in the context of transformative change

Destination – Fair, healthy and environment-friendly food systems from primary production to consumption

Targeted international cooperation

HORIZON-CL6-2022-FARM2FORK-01-13: AU-EU Combatting all forms of malnutrition

HORIZON-CL6-2022-FARM2FORK-01-14: African food cities

Destination Land, ocean and water for climate action

HORIZON-CL6-2022-CLIMATE-01-02: Understanding the oceanic carbon cycle

Cluster - Digital, Industry and Space

Destination – Increased autonomy in key strategic value chains for resilient industry

Raw materials for EU open strategic autonomy and successful transition to a climate neutral and circular economy

HORIZON-CL4-2022-RESILIENCE-01-08: Earth observation technologies for the mining life cycle in support of EU autonomy and transition to a climate-neutral economy

Cluster - Climate, Energy and Mobility

Destination – Climate sciences and responses for the transformation towards climate neutrality

HORIZON-CL5-2022-D1-02-02: Development of high-resolution Earth system models for global and regional climate change projections

HORIZON-CL5-2022-D1-02-04: Supporting the formulation of adaptation strategies through improved climate predictions in Europe and beyond

Research Infrastructures

Destination – Developing, consolidating and optimising the European Research Infrastructures landscape, maintaining global leadership (INFRADEV)

HORIZON-INFRA-2021-DEV-01-02: Strengthen the bilateral cooperation on research infrastructures with Africa: improving the knowledge base on climate change in Africa

Other topics of interest

Cluster - Health

Destination – Living and working in a health-promoting environment

Environment and health

HORIZON-HLTH-2021-ENVHLTH-02-03: Health impacts of climate change, costs and benefits of action and inaction

Cluster - Culture, creativity and inclusive society

Destination – Innovative research on the European cultural heritage and the Cultural and creatives industries

HORIZON-CL2-2021-HERITAGE-01-04: Preserving and enhancing cultural heritage with advanced digital technologies

HORIZON-CL2-2021-HERITAGE-02-02: Coordination of European cultural heritage research and innovation among Member States

Cluster - Civil Security for Society

Destination – Disaster-Resilient Society for Europe

Societal Resilience: Increased risk Awareness and preparedness of citizens

HORIZON-CL3-2021-DRS-01-01: Improved understanding of risk exposure and its public awareness in areas exposed to multi-hazards

Cluster - Digital, Industry and Space

Destination – Increased autonomy in key strategic value chains for resilient industry

Raw materials for EU open strategic autonomy and successful transition to a climate neutral and circular economy

HORIZON-CL4-2022-RESILIENCE-01-04: Developing digital platforms for the small scale extractive industry

Destination – Open strategic autonomy in developing, deploying and using global space-based infrastructures, services, applications and data

Space entrepreneurship ecosystems (including "New Space" and start-ups) and skills

HORIZON-CL4-2022-SPACE-01-72: Education and skills for the EU space sector

Cluster - Climate, Energy and Mobility

Destination – Climate sciences and responses for the transformation towards climate neutrality

Cross-cutting issues

HORIZON-CL5-2022-D1-02-01: Verification and reconciliation of estimates of climate forcings

Destination – Sustainable, secure and competitive energy supply

HORIZON-CL5-2021-D3-01-04: Clean Energy Transition

Cluster - Food, Bioeconomy, Natural Resources, Agriculture and Environment

Destination Land, ocean and water for climate action

HORIZON-CL6-2022-CLIMATE-01-04: Fostering the resilience of agricultural production: from observation of changes to the development of resilience strategies

HORIZON-CL6-2022-CLIMATE-01-05: Forestry - European observatory of climate change impacts and demonstration network of climate smart restoration pilots

Research Infrastructures

Destination – Enabling an operational, open and FAIR EOSC ecosystem (INFRAEOSC)

Building with the scientific community a Web of FAIR data for open science

HORIZON-INFRA-2022-EOSC-01-03: FAIR and open data sharing in support of healthy oceans, seas, coastal and inland waters

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