

The EU Horizon Europe programme: Opportunities for meteorology and climate

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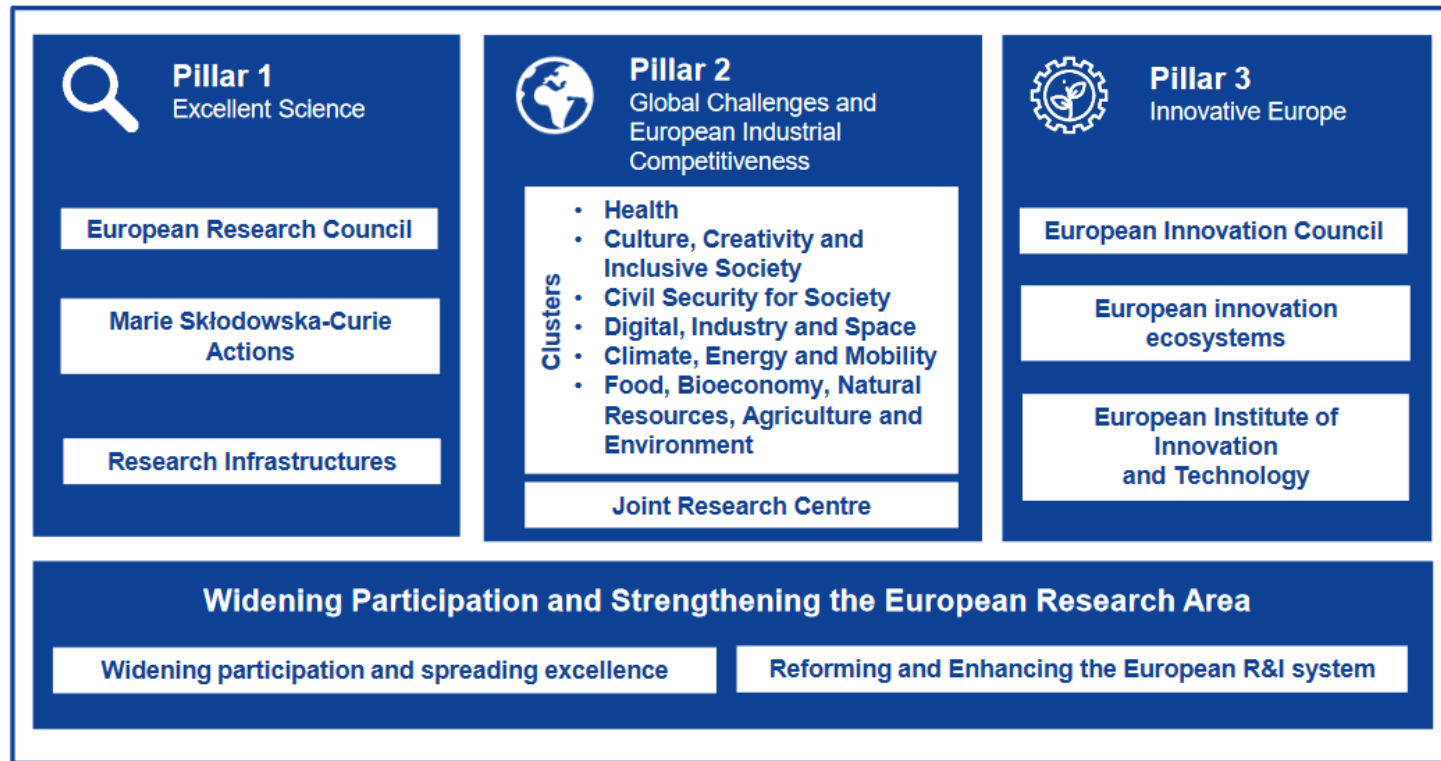
Talk structure

Introduction to:

- 1) The 3 main Pillars of Horizon Europe
- 2) Areas / example topics of most relevance to met / climate
- 3) The 3 most relevant Horizon Europe “Missions”
- 4) Connections with other relevant EU programmes

Annex: Listing of many relevant topics – 44 (and more)

1) Three main Pillars of HE



7 year Budget (2021-27): Pillar 1 ~ €25Bn; Pillar 2 ~ €53.5Bn; Pillar 3 ~ €13.5Bn

Met Office 1) Three main Pillars of HE

Pillar 1

EXCELLENT SCIENCE:

reinforcing and extending the excellence of the Union's science base

European Research Council

- Frontier research by the best researchers and their teams

Marie Skłodowska-Curie Actions

- Equipping researches with new knowledge and skills through mobility and training

Research Infrastructures

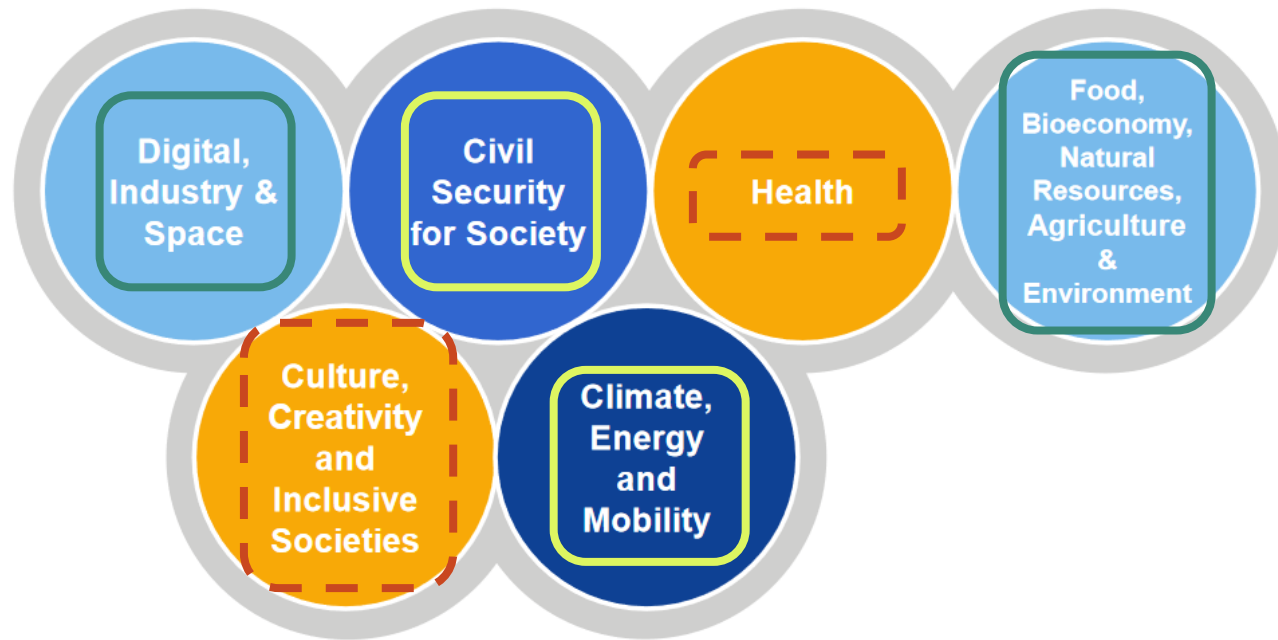
- Integrated and inter-connected world-class research infrastructures

Met Office 1) Three main Pillars of HE

Pillar 2 - Clusters

Global Challenges & European Industrial

Competitiveness: boosting key technologies and solutions underpinning EU policies & Sustainable Development Goals



Met Office 1) Three main Pillars of HE

Pillar 3

INNOVATIVE EUROPE:

stimulating market-creating breakthroughs and ecosystems conducive to innovation

European Innovation Council

- Support to innovations with breakthrough and market creating potential

European innovation ecosystems

- Connecting with regional and national innovation actors

European Institute of Innovation and Technology (EIT)

- Bringing key actors (research, education and business) together around a common goal for nurturing innovation

Met Office 2) Pillar 2 – Areas of interest

Clusters in 'Global Challenges and European Industrial Competitiveness'

Clusters	Areas of intervention	
Health	<ul style="list-style-type: none"> Health throughout the life course Non-communicable and rare diseases Tools, technologies and digital solutions for health and care, including personalised medicine 	<ul style="list-style-type: none"> Environmental and social health determinants Infectious diseases, including poverty-related and neglected disease Health care systems
Culture, creativity and inclusive society	<ul style="list-style-type: none"> Democracy and Governance Social and economic transformations 	<ul style="list-style-type: none"> Culture, cultural heritage and creativity
Civil security for society	<ul style="list-style-type: none"> Disaster-resilient societies Protection and Security 	<ul style="list-style-type: none"> Cybersecurity
Digital, Industry and space	<ul style="list-style-type: none"> Manufacturing technologies Advanced materials Next generation internet Circular industries Space, including Earth Observation Emerging enabling technologies 	<ul style="list-style-type: none"> Key digital technologies, including quantum technologies Artificial Intelligence and robotics Advanced computing and Big Data Low-carbon and clean industry Emerging enabling technologies
Climate, Energy and Mobility	<ul style="list-style-type: none"> Climate science and solutions Energy systems and grids Communities and cities Industrial competitiveness in transport Smart mobility 	<ul style="list-style-type: none"> Energy supply Buildings and industrial facilities in energy transition Clean, safe and accessible transport and mobility Energy storage
Food, bioeconomy, natural resources, agriculture and environment	<ul style="list-style-type: none"> Environmental observation Agriculture, forestry and rural areas Circular systems Food systems 	<ul style="list-style-type: none"> Biodiversity and natural resources Seas, oceans and inland waters Bio-based innovation systems in the EU Bioeconomy

Met Office **2) Pillar 2 – Some 2021/22 specific topics**

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

RIA €7-8M EU funding per project proposed 06/10/2021 deadline

Actions should aim at developing innovative approaches to address only one of the following options:

- a) Regional & global components of the Atlantic Meridional Overturning Circulation (AMOC)
- b) Improving understanding and observation of Antarctic key processes and the Southern Ocean Circulation

- **HORIZON-CL5-2022-D1-01-02: Socio-economic risks of climate change in Europe**

RIA €5M EU funding per project proposed 27/09/2022 deadline

Improve the understanding of the nature and extent of physical risks from a changing climate and their integrated socio-economic implications in Europe in 2030, 2050 and 2100 timeframes.

Met Office **2) Pillar 2 – Some specific 21/22 topics**

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

RIA €10M EU funding per project proposed

21/09/2021 deadline

Public authorities and surveillance organisations have access to predictive and early warning systems for direct and indirect health impacts caused by climate-change induced events.

- **HORIZON-CL3-2021-DRS-01-02: Integrated Disaster Risk Reduction for extreme climate events: from early warning systems to long term adaptation and resilience building**

IA €6M EU funding per project proposed

23/11/2021 deadline

Improved dialogue and cooperation among scientific and technical communities, stakeholders, policy-makers and local communities in the field of extreme climate events and associated events (e.g. forest fires, droughts, floods, heatwaves and storms) and disaster risk reduction.

Met Office **2) Pillar 2 – Some 2021/22 specific topics**

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

RIA €6-7.5M EU funding per project proposed 16/02/2022 deadline

Development of efficient and reliable new product chains, calling for new paradigms in data fusion, data processing and data visualisation and implementing Big Data & analytics modern solutions.

- **HORIZON-CL5-2021-D3-03-04: Physics and aerodynamics of atmospheric flow of wind for power production**

RIA €6M EU funding per project proposed 23/02/2022 deadline

Lead to the development of numerical models capable of accurately forecasting high wind flow and power production. It will also improve wakes modelling and the integration of models with real condition wind farm data.

3) HE - Missions



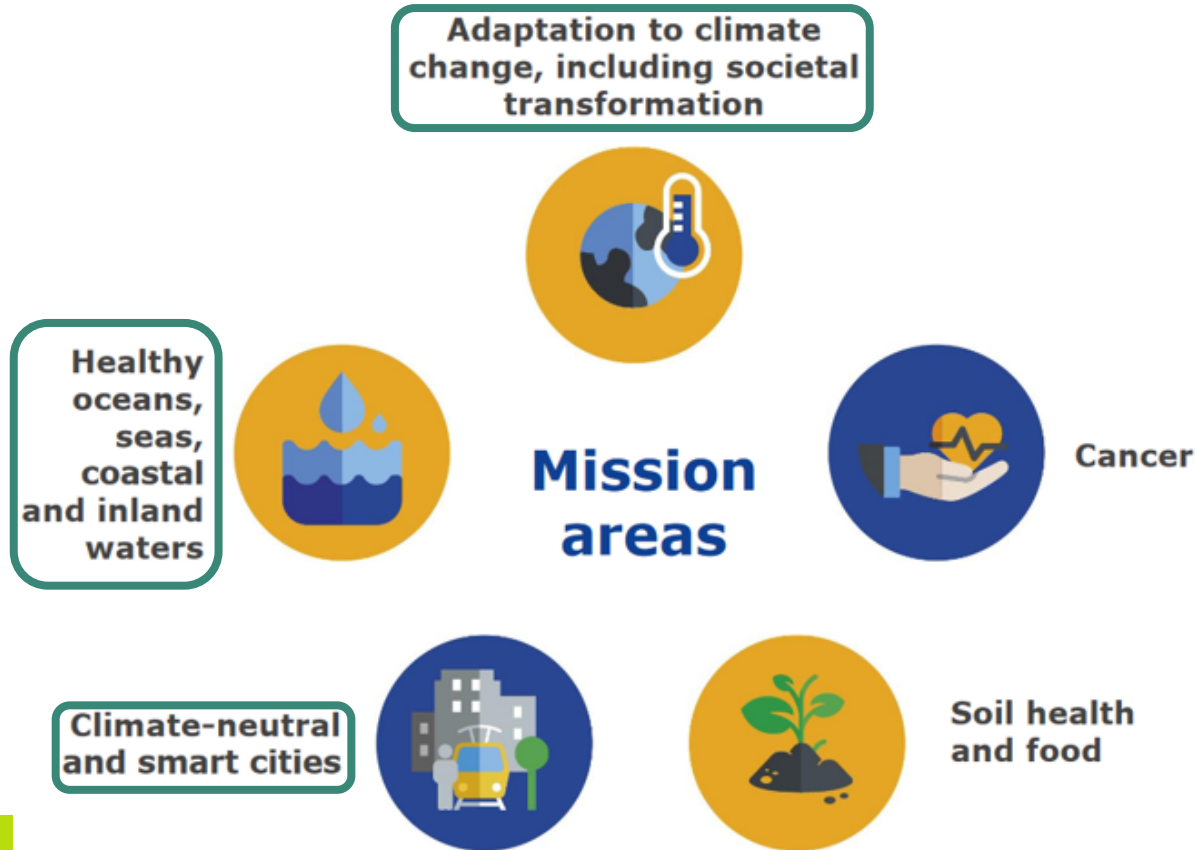
R&I Missions

Relating EU's research and innovation better to society and citizens' needs; with strong visibility and impact

A mission is a portfolio of actions across disciplines intended to achieve a **bold and inspirational and measurable goal** within a set timeframe, with **impact** for society and policy making as well as relevance for a significant part of the European population and wide range of European citizens.

Missions will be programmed within Pillar 2 primarily, but will draw upon activities funded under Pillars 1 & 3, including Research Infrastructures and implementing the [European Strategy Framework for Research Infrastructures \(ESFRI\) roadmap](#).

Met Office **3) HE - Missions**



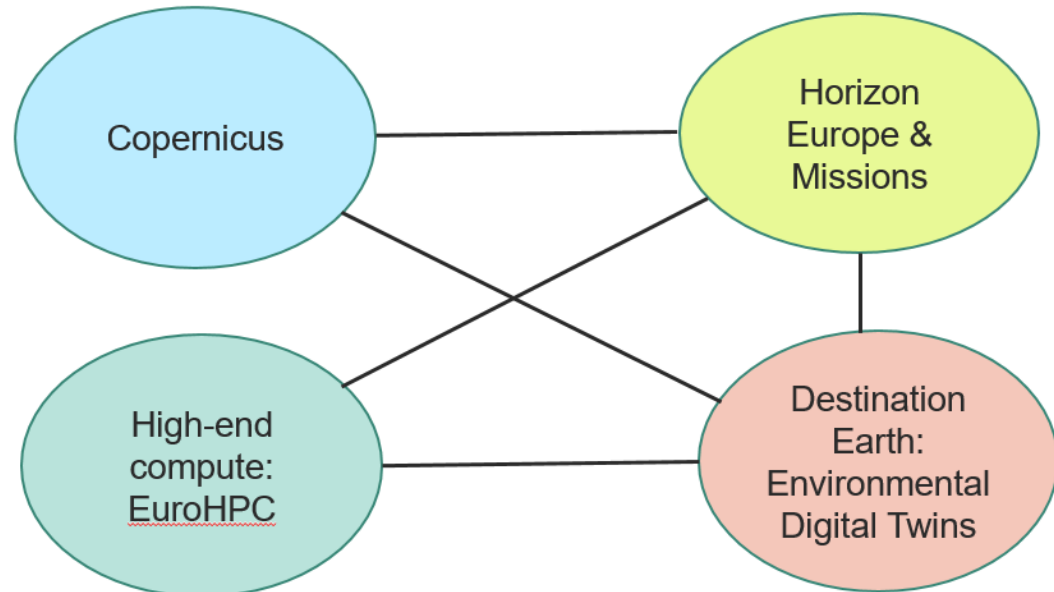
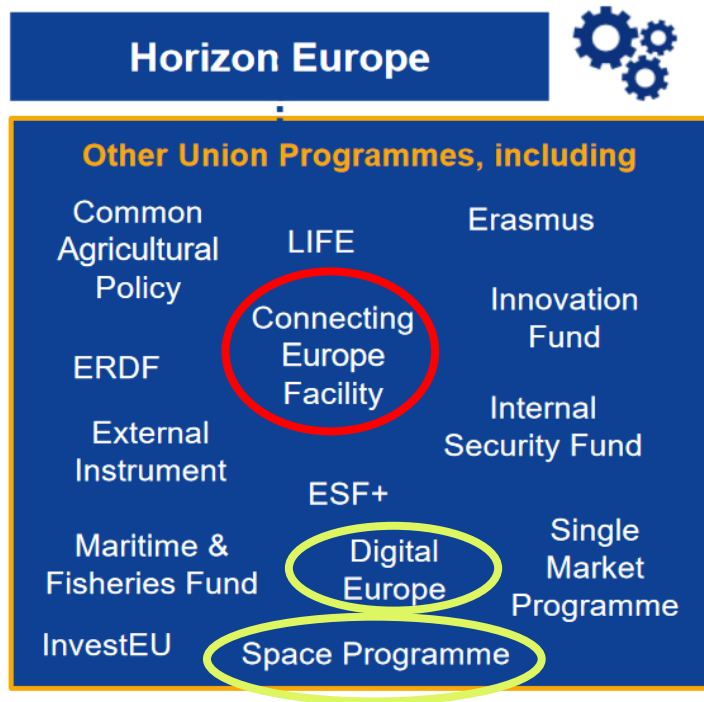
3) HE - Missions

“Cities” mission: By 2030 support, promote and showcase 100 European cities in their systemic transformation towards climate neutrality.

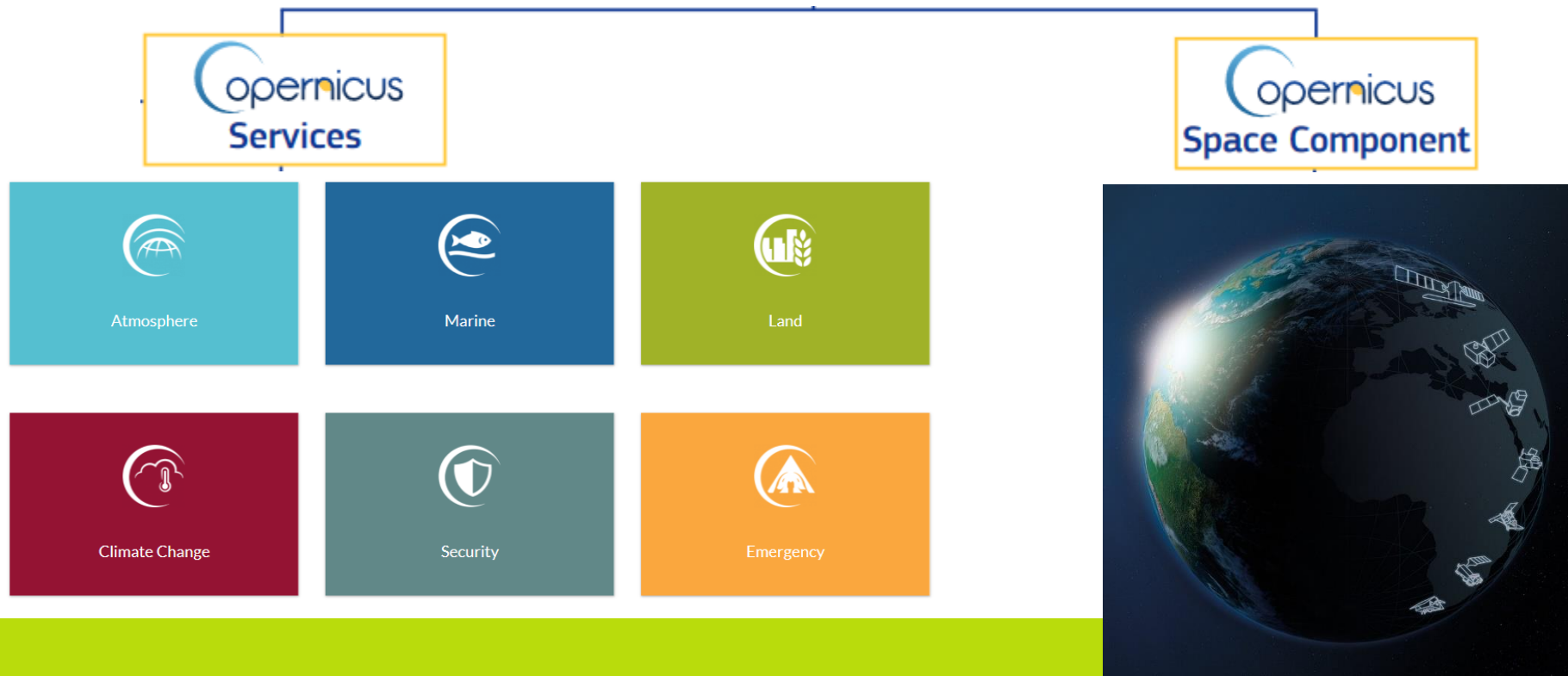
“Climate” mission: By 2030 prepare Europe to deal with climate disruption and transform to a climate resilient future through 100 deep demonstrators.

“Waters” mission: By 2030 restore and protect our ocean and waterways by reducing human pressures on marine & freshwater environments and restoring degraded ecosystems.

Met Office 4) Connections with other EU programmes



4) Connections with other EU programmes: Copernicus



4) Connections with other EU programmes: Destination Earth

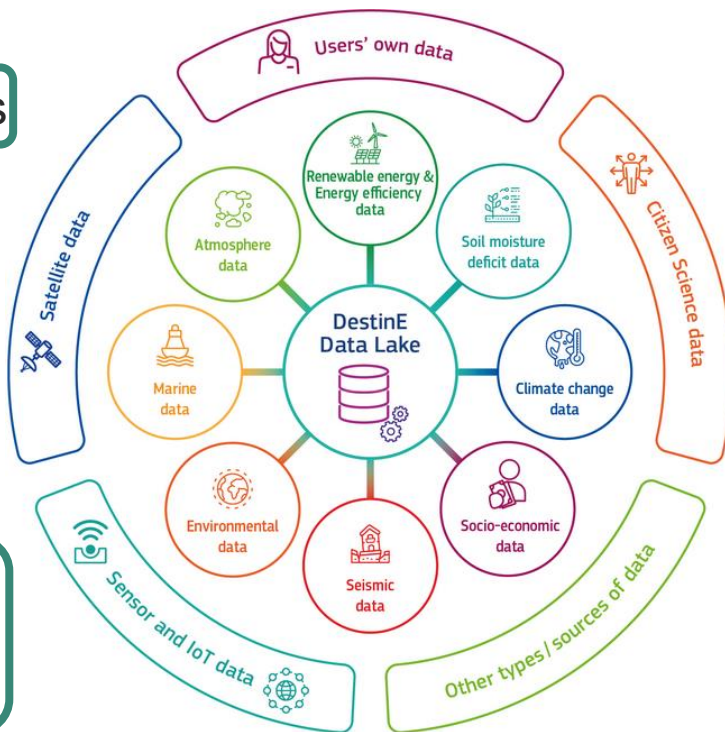
Proposed
Digital Twins



Copernicus



Horizon
Europe &
Missions



- ***Destination Earth Initiative - Digital Twins***

€60m euros over 2 ½ years, starting Q1 2022

Two fully operational digital twins contributing to the EU's ability to anticipate and make decisions in natural disaster and climate-related domains and help address crisis situations related to weather, natural disasters and other hazards. It will encompass i) new observation and simulation capabilities, and ii) new observation and simulation capabilities

- 1) Digital Twin on Weather-induced and Geophysical Extremes
- 2) Digital Twin on Climate Change Adaptation

Met Office

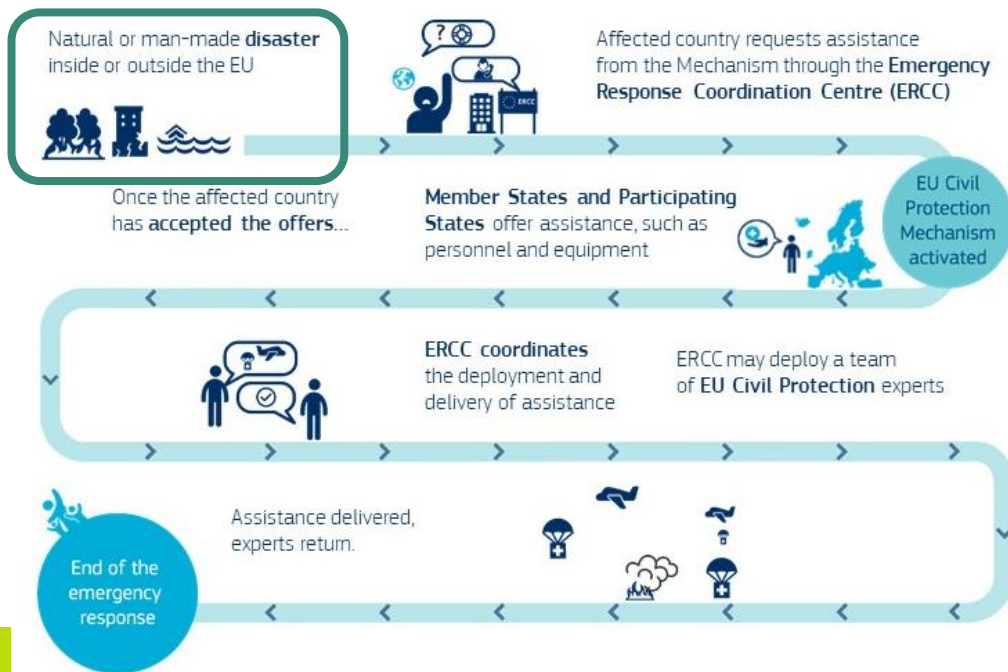
4) Connections with other EU programmes: Civil Protection Mechanism

Horizon
Europe



Copernicus

How does the **EU Civil Protection Mechanism** work?



Met Office **Useful European Commission webpages**

- Horizon Europe reference documents – all programmes: <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/reference-documents>
- Horizon Europe Missions: https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/missions-horizon-europe_en

Questions ?

Additional slides with details of relevant topics



Annex: Pillar 1 - Some topic opportunities for met & climate: 2021 and 2022

Research Infrastructures

Topicnr	Topic naam	Projecttype	Budget totaal	Budget per project	Deadline
DESTINATION – DEVELOPING, CONSOLIDATING AND OPTIMISING EUROPEAN RESEARCH INFRASTRUCTURES LANDSCAPE, MAINTAINING GLOBAL LEADERSHIP (INFRADEV)					
<i>Call - Developing, consolidating and optimising European Research Infrastructures to maintain global leadership (2021)</i>					
HORIZON-INFRA-2021-DEV-01-01	Support to the European Strategy Forum on Research Infrastructures	CSA	2.5	1.5-2.5	9/23/2021
HORIZON-INFRA-2021-DEV-01-02	Strengthen the bilateral cooperation on research infrastructures with Africa: improving the knowledge base on climate change in Africa	CSA	1.5	0.8-1.5	9/23/2021
HORIZON-INFRA-2021-DEV-01-03	Transition to digital/remote research infrastructure service provision: lessons learnt, needs and best practices	CSA	1.5	0.8-1.5	9/23/2021
HORIZON-INFRA-2021-DEV-01-04	Support to National Contact Points (NCPs) for Research Infrastructures	CSA	2	1.5-2	9/23/2021
HORIZON-INFRA-2021-DEV-01-05	Support to the e-Infrastructure Reflection Group (e-IRG)	CSA	0.3	0.3	9/23/2021
<i>Call - Developing and consolidating the European research infrastructures landscape, maintaining global leadership (2021)</i>					
HORIZON-INFRA-2021-DEV-02-01	Preparatory phase of new ESFRI Research Infrastructure projects	CSA	26	1.5-3	1/20/2022
HORIZON-INFRA-2021-DEV-02-02	Consolidation of the research infrastructure landscape – Individual support for ESFRI projects	CSA	7.5	1-1.5	1/20/2022
<i>Call - Developing the European research infrastructures landscape, maintaining global leadership (2022)</i>					
HORIZON-INFRA-2022-DEV-01-01	Research infrastructure concept development	RIA	21.8	1-3	20-4-2022
DESTINATION – ENABLING AN OPERATIONAL, OPEN AND FAIR EOSC ECOSYSTEM (INFRAEOSC)					
<i>Call - Enabling an operational, open and FAIR EOSC ecosystem (2021)</i>					
Open Science practices and a digitally-skilled workforce					
HORIZON-INFRA-2021-EOSC-01-01	Supporting an EOSC-ready digitally skilled workforce	CSA	7	7	23-9-2021
HORIZON-INFRA-2021-EOSC-01-02	Supporting the development and coordination of activities of the EOSC Partnership	CSA	4	4	23-9-2021

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Research Infrastructures

Topicnr	Topic naam	Projecttype	Budget totaal	Budget per project	Deadline
<i>Supporting EOSC-Core: Enabling access to the Web of FAIR data and services</i>					
HORIZON-INFRA-2021-EOSC-01-03	Deploying EOSC-Core components for FAIR	RIA	10	10	23-9-2021
HORIZON-INFRA-2021-EOSC-01-04	Innovative and customizable services for EOSC	RIA	20	3-5	23-9-2021
<i>Building with the scientific community a Web of FAIR data for open science</i>					
HORIZON-INFRA-2021-EOSC-01-05	Enabling discovery and interoperability of federated research objects across scientific communities	CSA	10	10	23-9-2021
HORIZON-INFRA-2021-EOSC-01-06	FAIR and open data sharing in support of cancer research	RIA	8	8	23-9-2021
<i>Call - Enabling an operational, open and FAIR EOSC ecosystem (2022)</i>					
<i>Open Science practices and a digitally-skilled workforce</i>					
HORIZON-INFRA-2022-EOSC-01-01	Services and tools to underpin a research assessment system that incentivises open science practices	RIA	6	2-3	20-4-2022
HORIZON-INFRA-2022-EOSC-01-02	Improving and coordinating technical infrastructure for institutional open access publishing across Europe	RIA	5	5	20-4-2022
<i>Building with the scientific community a Web of FAIR data for open science</i>					
HORIZON-INFRA-2022-EOSC-01-03	FAIR and open data sharing in support of healthy oceans, seas, coastal and inland waters	RIA	16	6-8	20-4-2022
HORIZON-INFRA-2022-EOSC-01-04	Support for initiatives helping to generate global standards, specifications and recommendations for open sharing of FAIR research data, publications and software	CSA	3	3	20-4-2022
DESTINATION – RESEARCH INFRASTRUCTURE SERVICES TO SUPPORT HEALTH RESEARCH, ACCELERATE THE GREEN AND DIGITAL TRANSFORMATION, AND ADVANCE FRONTIER KNOWLEDGE (INFRA-SERV)					
<i>Call - Research Infrastructure services to support health research, accelerate the green and digital transformation, and advance frontier knowledge (2021)</i>					
<i>A challenge-driven provision of Research Infrastructure services</i>					
HORIZON-INFRA-2021-SERV-01-01	Research Infrastructures services to support research addressing cancer	RIA		10-15	23-9-2021
HORIZON-INFRA-2021-SERV-01-02	Research Infrastructures services for a sustainable and resilient agriculture and agro-ecological transitions	RIA		10-15	23-9-2021
HORIZON-INFRA-2021-SERV-01-03	Research Infrastructures services for responding to climate-related risks on the environment	RIA		10-15	23-9-2021
HORIZON-INFRA-2021-SERV-01-04	Research Infrastructures services enabling the development of materials for a circular economy	RIA		10-15	23-9-2021
HORIZON-INFRA-2021-SERV-01-05	Research Infrastructures services for sustainable and inclusive Global Value Chain and Europe recovery from socio-economic crises	RIA		7-10	23-9-2021
HORIZON-INFRA-2021-SERV-01-06	Enabling research infrastructure services for better use of imaging data to address challenges in thematic research areas	RIA	9	2.5-4.5	23-9-2021



Research Infrastructures

Topicnr	Topic naam	Projecttype	Budget totaal	Budget per project	Deadline
<i>Research Infrastructures services advancing frontier knowledge</i>					
HORIZON-INFRA-2021-SERV-01-07	Research Infrastructures services advancing frontier knowledge	RIA	43.5	10-14.5	23-9-2021
<i>Call - Research Infrastructure services to support health research and accelerate the digital transformation (2022)</i>					
HORIZON-INFRA-2022-SERV-01-01	Implementing digital services to empower neuroscience research for health and brain inspired technology via EBRAINS	RIA	38	38	21-9-2022
DESTINATION – NEXT GENERATION OF SCIENTIFIC INSTRUMENTATION, TOOLS AND METHODS AND ADVANCED DIGITAL SOLUTIONS (INFRA TECH)					
<i>Call - Next generation of scientific instrumentation, tools and methods (2021)</i>					
HORIZON-INFRA-2021-TECH-01-01	Interdisciplinary digital twins for modelling and simulating complex phenomena at the service of research infrastructure communities	RIA	36	9-12	23-9-2021
<i>Call - Next generation of scientific instrumentation, tools and methods (2022)</i>					
HORIZON-INFRA-2022-TECH-01-01	R&D for the next generation of scientific instrumentation, tools and methods	RIA	110	5-10	20-4-2022
DESTINATION – NETWORK CONNECTIVITY IN RESEARCH AND EDUCATION - ENABLING COLLABORATION WITHOUT BOUNDARIES (INFRA NET)					
<i>Call - Network connectivity in Research and Education - Enabling collaboration without boundaries (2021)</i>					
HORIZON-INFRA-2021-NET-01-01-FPA	Framework Partnership Agreement (FPA) for Research and Education Networks	FPA			22-6-2021



Annex: Pillar 2 - Some topic opportunities for met & climate: 2021 and 2022

Cluster 1: Health

Topicnr	Topic naam	Projecttype	Budget totaal	Budget per project	Deadline	Deadline 2e stap
Destination 2. Living and working in a health-promoting environment			350			
Call HORIZON-HLTH-2021-ENVHLTH-02 - Environment and health (2021)			130		21/09/2021	
HORIZON-HLTH-2021-ENVHLTH-02-01	Exposure to electromagnetic fields (EMF) and health	RIA	30	8	21/09/2021	n.v.t.
HORIZON-HLTH-2021-ENVHLTH-02-02	Indoor air quality and health	RIA	40	8	21/09/2021	n.v.t.
HORIZON-HLTH-2021-ENVHLTH-02-03	Health impacts of climate change, costs and benefits of action and inaction	RIA	60	10	21/09/2021	n.v.t.
Call HORIZON-HLTH-2021-ENVHLTH-03 - Partnerships in Health (2021)			200		21/09/2021	
HORIZON-HLTH-2021-ENVHLTH-03-01	European partnership for the assessment of risks from chemicals (PARC)	Co-Fund Part.	200	200	21/09/2021	n.v.t.
Call HORIZON-HLTH-2022-ENVHLTH-04 - Environment and health (Single Stage - 2022)			20		21/04/2022	
HORIZON-HLTH-2022-ENVHLTH-04-01	Methods for assessing health-related costs of environmental stressors	RIA	20	4	21/04/2022	n.v.t.
Destination 3. Tackling diseases and reducing disease burden			490			
Call HORIZON-HLTH-2021-DISEASE-04 - Tackling diseases (2021)			263		21/09/2021	
HORIZON-HLTH-2021-DISEASE-04-01	Improved supportive, palliative, survivorship and end-of-life care of cancer patients	RIA	50	6	21/09/2021	n.v.t.
HORIZON-HLTH-2021-DISEASE-04-02	Building a European innovation platform for the repurposing of medicinal products	RIA	50	25	21/09/2021	n.v.t.
HORIZON-HLTH-2021-DISEASE-04-03	Innovative approaches to enhance poverty-related diseases research in sub-Saharan Africa	RIA	40	8	21/09/2021	n.v.t.
HORIZON-HLTH-2021-DISEASE-04-04	Clinical validation of artificial intelligence (AI) solutions for treatment and care	RIA	60	6	21/09/2021	n.v.t.
HORIZON-HLTH-2021-DISEASE-04-07	Personalised medicine and infectious diseases: understanding the individual host response to viruses (e.g. SARS-CoV-2)	RIA	60	7	21/09/2021	n.v.t.
HORIZON-HLTH-2021-DISEASE-04-05	A roadmap towards the creation of the European partnership on One Health antimicrobial resistance (OH AMR)	CSA	1	1	21/09/2021	n.v.t.
HORIZON-HLTH-2021-DISEASE-04-06	Building a European partnership for pandemic preparedness	CSA	2	2	21/09/2021	n.v.t.
Call HORIZON-HLTH-2022-DISEASE-06-two-stage - Tackling diseases (Two Stage - 2022)			160		01/02/2022	06/09/2022
HORIZON-HLTH-2022-DISEASE-06-02-two-stage	Pre-clinical development of the next generation of immunotherapies for diseases or disorders with unmet medical needs	RIA	60	6	01/02/2022	06/09/2022
HORIZON-HLTH-2022-DISEASE-06-03-two-stage	Vaccines 2.0 - developing the next generation of vaccines	RIA	40	8	01/02/2022	06/09/2022
HORIZON-HLTH-2022-DISEASE-06-04-two-stage	Development of new effective therapies for rare diseases	RIA	60	8	01/02/2022	06/09/2022



Annex: Pillar 2 - Some topic opportunities for met & climate: 2021 and 2022

Cluster 2: Culture Creativity and Inclusive Society

Topicnr	Topic naam	Projecttype	Budget totaal	Budget per project	Deadline
Destination 2. European Cultural Heritage and the Cultural and Creative Industries					
HORIZON-CL2-2021-HERITAGE-01-01	Green technologies and materials for cultural heritage	RIA	12	3,5 - 4	07/10/2021
HORIZON-CL2-2021-HERITAGE-01-02	New ways of participatory management and sustainable financing of museums and other cultural institutions	RIA	9	2 - 3	07/10/2021
HORIZON-CL2-2021-HERITAGE-01-03	Cultural and creative industries as a driver of innovation and competitiveness	RIA	12	3,5 - 4	07/10/2021
HORIZON-CL2-2021-HERITAGE-01-04	Preserving and enhancing cultural heritage with advanced digital technologies	RIA	12	3,5 - 4	07/10/2021
HORIZON-CL2-2021-HERITAGE-02-01	Mobilising the network of National Contact Points in Cluster 2	CSA	3,5	2,5 - 3,5	07/10/2021
HORIZON-CL2-2021-HERITAGE-02-02	Coordination of European cultural heritage research and innovation among Member States	CSA	3	2,5 - 3	07/10/2021
HORIZON-CL2-2022-HERITAGE-01-01	Safeguarding endangered languages in Europe	CSA	3	2 - 3	20/04/2022
HORIZON-CL2-2022-HERITAGE-01-02	Europe's cultural heritage and arts - promoting our values at home and abroad	RIA	9	2 - 3	20/04/2022
HORIZON-CL2-2022-HERITAGE-01-03	The role of perceptions, formed by traditions, values and beliefs, in shaping European societies and politics in the 21st century	RIA	9	2 - 3	20/04/2022
HORIZON-CL2-2022-HERITAGE-01-04	Traditional crafts for the future: a new approach	RIA	12	3 - 4	20/04/2022
HORIZON-CL2-2022-HERITAGE-01-05	Towards a competitive, fair and sustainable European music ecosystem	RIA	9	2 - 3	20/04/2022
HORIZON-CL2-2022-HERITAGE-01-06	Increase the potential of the international competitiveness of the European filmmaking industry	RIA	12	3 - 4	20/04/2022
HORIZON-CL2-2022-HERITAGE-01-07	Protection of artefacts and cultural goods from anthropogenic threats	RIA	12	3 - 4	20/04/2022
HORIZON-CL2-2022-HERITAGE-01-08	Effects of climate change and natural hazards on cultural heritage and remediation	RIA	12	3 - 4	20/04/2022
HORIZON-CL2-2022-HERITAGE-01-09	Games and culture shaping our society	RIA	9	2 - 3	20/04/2022
HORIZON-CL2-2022-HERITAGE-01-10	The New European Bauhaus – shaping a greener and fairer way of life in creative and inclusive societies through Architecture, Design and Arts	RIA	6	Around 3	20/04/2022



Annex: Pillar 2 - Some topic opportunities for met & climate: 2021 and 2022

Cluster 3: Civil Security for Society

Topicnr	Topic naam	Projecttype	TRL	Budget per project	Deadline
Destination: Disaster-Resilient Society for Europe					
→ HORIZON-CL3-2021-DRS-01-01	Improved understanding of risk exposure and its public awareness in areas exposed to multi-hazards	RIA	-	5	23/11/2021 →
→ HORIZON-CL3-2021-DRS-01-02	Integrated Disaster Risk Reduction for extreme climate events: from early warning systems to long term adaptation and resilience building	IA	-	6	23/11/2021 →
→ HORIZON-CL3-2021-DRS-01-03	Enhanced assessment of disaster risks, adaptive capabilities and scenario building based on available historical data and projections	RIA	-	5	23/11/2021 →
HORIZON-CL3-2021-DRS-01-04	Developing a prioritisation mechanism for research programming in standardisation related to natural hazards and/or CBRN-E sectors	CSA	-	2	23/11/2021
HORIZON-CL3-2021-DRS-01-05	Fast deployed mobile laboratories to enhance situational awareness for pandemics and emerging infectious diseases	IA	6-8	4	23/11/2021
Destination: Disaster-Resilient Society for Europe					
HORIZON-CL3-2022-DRS-01-01	Enhanced citizen preparedness in the event of a disaster or crisis-related emergency	IA	-	5	23/11/2022
→ HORIZON-CL3-2022-DRS-01-02	Enhanced preparedness and management of High-Impact Low-Probability or unexpected events	RIA	4-5	5	23/11/2022 →
HORIZON-CL3-2022-DRS-01-03	Improved quality assurance / quality control of data used in decision-making related to risk management of natural hazards, accidents and CBRN events	IA	6-8	5	23/11/2022
HORIZON-CL3-2022-DRS-01-04	Better understanding of citizens' behavioural and psychological reactions in the event of a disaster or crisis situation	RIA	-	5	23/11/2022
→ HORIZON-CL3-2022-DRS-01-05	Improved impact forecasting and early warning systems supporting the rapid deployment of first responders in vulnerable areas	IA	6-8	5	23/11/2022 →

Cluster 4: Digital - Industry - Space

Topicnr	Section	Topic naam	Projecttype	TRL bij einde	Budget totaal	Budget per project	Deadline
Destination 5							
HORIZON-CL4-2021-SPACE-01-11	Foster competitiveness of space systems	End-to-end satellite communication systems and associated services	RIA	5-6	12	4 - 6	16/02/2022
HORIZON-CL4-2021-SPACE-01-12	Foster competitiveness of space systems	Future space ecosystems: on-orbit operations, new system concepts	RIA	5-6	6	1 - 2	16/02/2022
HORIZON-CL4-2021-SPACE-01-21	Reinforce EU capacity to access and use space	Reusability for European strategic space launchers - technologies and operation maturation including flight test demonstration	RIA	5-6	39	30 - 39	16/02/2022
HORIZON-CL4-2021-SPACE-01-22	Reinforce EU capacity to access and use space	Low cost high thrust propulsion for European strategic space launchers - technologies maturation including ground tests	RIA	5-6	19,8	15 - 19	16/02/2022
HORIZON-CL4-2021-SPACE-01-23	Reinforce EU capacity to access and use space	New space transportation solutions and services	RIA	5-6	3	1 - 1,5	16/02/2022
→ HORIZON-CL4-2021-SPACE-01-41	Evolution of Copernicus services	Copernicus Climate Change Service evolution	RIA	5-6	11	10 - 11	16/02/2022 ←
→ HORIZON-CL4-2021-SPACE-01-42	Evolution of Copernicus services	Copernicus Atmosphere Monitoring Service evolution	RIA	5-6	7,5	6 - 7,5	16/02/2022 ←
→ HORIZON-CL4-2021-SPACE-01-43	Evolution of Copernicus services	Copernicus Security and Emergency Services evolution	RIA	5-6	5	4 - 5	16/02/2022 ←
→ HORIZON-CL4-2021-SPACE-01-44	Evolution of Copernicus services	Copernicus evolution for cross-services thematic domains	RIA	5-6	5,6	± 3.00	16/02/2022 ←
HORIZON-CL4-2021-SPACE-01-62	Innovative space capabilities: SSA, GOVSATCOM, Quantum	Quantum technologies for space gravimetry	RIA	5	17	15 - 17	16/02/2022
HORIZON-CL4-2021-SPACE-01-81	Targeted and strategic actions supporting the EU space sector	Space technologies for European non-dependence and competitiveness	RIA	6-7	10,3	2 - 3	16/02/2022

Annex: Pillar 2 - Some topic opportunities for met & climate: 2021 and 2022

Cluster 4: Digital - Industry - Space

Topicnr	Section	Topic naam	Projecttype	TRL bij einde	Budget totaal	Budget per project	Deadline
HORIZON-CL4-2022-SPACE-01-11	Foster competitiveness of space systems	Future space ecosystems: on-orbit operations, preparation of orbital demonstration mission	RIA	6	26	20 - 26	16/02/2022
HORIZON-CL4-2022-SPACE-01-12	Foster competitiveness of space systems	Technologies and generic building blocks for Electrical Propulsion	IA	5-6	5,1	1 - 2	16/02/2022
HORIZON-CL4-2022-SPACE-01-13	Foster competitiveness of space systems	End-to-end Earth observation systems and associated services	IA	6	8,1	2 - 3	16/02/2022
HORIZON-CL4-2022-SPACE-01-21	Reinforce EU capacity to access and use space	Multi sites flexible industrial platform and standardised technology for improving interoperability of European access to space ground facilities	IA	5-6	2	1 - 2	16/02/2022
→ HORIZON-CL4-2022-SPACE-01-41	Evolution of services of the EU space programme components: Copernicus	Copernicus Marine Environment Monitoring Service evolution	RIA	5-6	10	8 - 10	16/02/2022 ←
→ HORIZON-CL4-2022-SPACE-01-42	Evolution of services of the EU space programme components: Copernicus	Copernicus Anthropogenic CO ₂ Emissions Monitoring & Verification Support (MVS) capacity	RIA	5-6	6	5 - 6	16/02/2022 ←
HORIZON-CL4-2022-SPACE-01-43	Evolution of services of the EU space programme components: Copernicus	Copernicus Land Monitoring Service evolution	RIA	5-6	5	4 - 5	16/02/2022
→ HORIZON-CL4-2022-SPACE-01-62	Innovative space capabilities: SSA, GOVSATCOM, Quantum	Space Weather	RIA	3-4	2	0,5 - 1	16/02/2022 ←
HORIZON-CL4-2022-SPACE-01-72	Space entrepreneurship ecosystems (including "New Space" and start-ups) and skills	Education and skills for the EU space sector	CSA		3	2 - 3	16/02/2022
HORIZON-CL4-2022-SPACE-01-81	Targeted and strategic actions supporting the EU space sector	Space technologies for European non-dependence and competitiveness	RIA	5-7	10,5	2 - 3	16/02/2022



Annex: Pillar 2 - Some topic opportunities for met & climate: 2021 and 2022

Cluster 5: Climate - Energy - Mobility

	Topicnr	Topic naam	Projecttype	TRL bij start	TRL bij einde	Budget totaal	Budget per project	Deadline	Deadline 2e stap
	Call - Climate sciences and responses HORIZON-CL5-2021-D1-01								
→	HORIZON-CL5-2021-D1-01-01	Improved understanding of greenhouse gas fluxes and radiative forcers, including carbon dioxide removal technologies	RIA			24	8	9/14/2021	←
	HORIZON-CL5-2021-D1-01-02	Modelling the role of the circular economy for climate change mitigation	RIA			15	5	9/14/2021	
→	HORIZON-CL5-2021-D1-01-03	Maximising the impact and synergy of European climate change research and innovation	CSA			9	4 - 5	9/14/2021	←
→	HORIZON-CL5-2021-D1-01-04	Enhanced integrated assessment in pursuit of global climate goals	RIA			15	5	9/14/2021	←
→	HORIZON-CL5-2021-D1-01-05	Better understanding of the interactions between climate change impacts and risks, mitigation and adaptation options	RIA			20	6 - 7	9/14/2021	←
→	HORIZON-CL5-2021-D1-01-06	Supporting and standardising climate service	CSA			9	9	9/14/2021	←
	HORIZON-CL5-2021-D1-01-07	Improved economic methods for decision-making on climate and environmental policies	RIA			6	3	9/14/2021	
→	HORIZON-CL5-2021-D1-01-08	Restoration of natural wetlands, peatlands and floodplains as a strategy for fast mitigation benefits; pathways, trade-offs and co-benefits	RIA			20	6 - 7	9/14/2021	←
→	HORIZON-CL5-2021-D1-01-09	The contribution of forest management to climate action: pathways, trade-offs and co-benefits	RIA			18	6	9/14/2021	←



Cluster 5: Climate - Energy - Mobility

Topicnr	Topic naam	Projecttype	TRL bij start	TRL bij einde	Budget totaal	Budget per project	Deadline	Deadline 2e stap
Call - Climate sciences and responses HORIZON-CL5-2022-D1-01-two-stage								
HORIZON-CL5-2022-D1-01-01-two-stage	Carbon Dioxide Removal (CDR) approaches	RIA			21	7	10/02/2022	27/09/2022
HORIZON-CL5-2022-D1-01-02-two-stage	Socio-economic risks of climate change in Europe	RIA			10	5	10/02/2022	27/09/2022
HORIZON-CL5-2022-D1-01-03-two-stage	Social science for land-use strategies in the context of climate change and biodiversity challenges	RIA			20	6 - 7	10/02/2022	27/09/2022
Call - Climate sciences and responses HORIZON-CL5-2022-D1-02								
HORIZON-CL5-2022-D1-02-01	Verification and reconciliation of estimates of climate forcers	RIA			15	5	10/02/2022	
HORIZON-CL5-2022-D1-02-02	Development of high-resolution Earth system models for global and regional climate change projections	RIA			20	10	10/02/2022	
HORIZON-CL5-2022-D1-02-03	Improvement of Integrated Assessment Models in support of climate policies	RIA			15	5	10/02/2022	
HORIZON-CL5-2022-D1-02-04	Supporting the formulation of adaptation strategies through improved climate predictions in Europe and beyond	RIA			20	10	10/02/2022	
HORIZON-CL5-2022-D1-02-05	Let nature help do the job: Rewilding landscapes for carbon sequestration, climate adaptation and biodiversity support	RIA			17	8 - 9	10/02/2022	

Annex: Pillar 2 - Some topic opportunities for met & climate: 2021 and 2022

Cluster 5: Climate - Energy - Mobility

Topicnr	Topic naam	Projecttype	TRL bij einde	Budget totaal (€ mln)	Budget per project	Deadline
HORIZON-CL5-2021-D3-02-08	Electricity system reliability and resilience by design: High-Voltage, Direct Current (HVDC)-based systems and solutions	RIA	5 - 6	15	7 - 8	05/01/2022
HORIZON-CL5-2021-D3-02-09	Demonstration of superconducting systems and elpipes	IA	8	15	± 15	05/01/2022
HORIZON-CL5-2021-D3-02-10	Demonstration of advanced Power Electronics for application in the energy sector	IA	5 - 6	10	± 5	05/01/2022
HORIZON-CL5-2021-D3-02-11	Reinforcing digitalisation related know how of local energy ecosystems	CSA	n.v.t.	4	± 4	05/01/2022
HORIZON-CL5-2021-D3-02-12	Integration of CCUS in hubs and clusters, including knowledge sharing activities	CSA	n.v.t.	2	± 2	05/01/2022
HORIZON-CL5-2021-D3-02-13	Cost reduction of CO2 capture (new or improved technologies)	RIA	6	30	10 - 15	05/01/2022
HORIZON-CL5-2021-D3-02-14	Support to the activities of the European Geological Services	CSA	n.v.t.	20	± 20	05/01/2022
HORIZON-CL5-2021-D3-02-15	Support to the activities of the ETIPs and technology areas of the SET Plan	CSA	n.v.t.	9,8	± 1	05/01/2022
HORIZON-CL5-2021-D3-03-01	AU-EU Water Energy Food Nexus	RIA	4	5	± 2,5	23/02/2022
HORIZON-CL5-2021-D3-03-02	Next generation of renewable energy technologies	RIA	3 - 4	33	± 3	23/02/2022
HORIZON-CL5-2021-D3-03-03	Hybrid catalytic conversion of renewable energy to carbon-neutral fuels	RIA	3 - 4	10	± 3,3	23/02/2022
→ HORIZON-CL5-2021-D3-03-04	Physics and aerodynamics of atmospheric flow of wind for power production	RIA	5	18	± 6	23/02/2022 ←
→ HORIZON-CL5-2021-D3-03-05	Wind energy in the natural and social environment	RIA	5	10	± 3	23/02/2022 ←

Annex: Pillar 2 - Some topic opportunities for met & climate: 2021 and 2022

Cluster 5: Climate - Energy - Mobility

Topicnr	Topic naam	Projecttype	TRL bij einde	Budget totaal (€ mln)	Budget p project	Deadline
HORIZON-CL5-2021-D3-02-08	Electricity system reliability and resilience by design: High-Voltage, Direct Current (HVDC)-based systems and solutions	RIA	5 - 6	15	7 - 8	05/01/2022
HORIZON-CL5-2021-D3-02-09	Demonstration of superconducting systems and elpipes	IA	8	15	± 15	05/01/2022
HORIZON-CL5-2021-D3-02-10	Demonstration of advanced Power Electronics for application in the energy sector	IA	5 - 6	10	± 5	05/01/2022
HORIZON-CL5-2021-D3-02-11	Reinforcing digitalisation related know how of local energy ecosystems	CSA	n.v.t.	4	± 4	05/01/2022
HORIZON-CL5-2021-D3-02-12	Integration of CCUS in hubs and clusters, including knowledge sharing activities	CSA	n.v.t.	2	± 2	05/01/2022
HORIZON-CL5-2021-D3-02-13	Cost reduction of CO2 capture (new or improved technologies)	RIA	6	30	10 - 15	05/01/2022
HORIZON-CL5-2021-D3-02-14	Support to the activities of the European Geological Services	CSA	n.v.t.	20	± 20	05/01/2022
HORIZON-CL5-2021-D3-02-15	Support to the activities of the ETIPs and technology areas of the SET Plan	CSA	n.v.t.	9,8	± 1	05/01/2022
HORIZON-CL5-2021-D3-03-01	AU-EU Water Energy Food Nexus	RIA	4	5	± 2,5	23/02/2022
HORIZON-CL5-2021-D3-03-02	Next generation of renewable energy technologies	RIA	3 - 4	33	± 3	23/02/2022
HORIZON-CL5-2021-D3-03-03	Hybrid catalytic conversion of renewable energy to carbon-neutral fuels	RIA	3 - 4	10	± 3,3	23/02/2022
HORIZON-CL5-2021-D3-03-04	Physics and aerodynamics of atmospheric flow of wind for power production	RIA	5	18	± 6	23/02/2022
HORIZON-CL5-2021-D3-03-05	Wind energy in the natural and social environment	RIA	5	10	± 3	23/02/2022
HORIZON-CL5-2021-D3-03-06	Novel approaches to concentrated solar power (CSP)	RIA	4 - 5	9	± 3	23/02/2022
HORIZON-CL5-2021-D3-03-07	Stable high-performance Perovskite Photovoltaics	RIA	5	15	± 5	23/02/2022
HORIZON-CL5-2021-D3-03-08	Cost-effective micro-CHP and hybrid heating systems	RIA	5	10	3 - 5	23/02/2022
HORIZON-CL5-2021-D3-03-09	Carbon-negative sustainable biofuel production	RIA	4 - 5	15	± 5	23/02/2022
HORIZON-CL5-2021-D3-03-10	Innovative foundations, floating substructures and connection systems for floating PV and ocean energy devices	RIA	4 - 5	10	± 3,5	23/02/2022
HORIZON-CL5-2021-D3-03-11	Development of hydropower equipment for hidden hydropower	RIA	5	10	3 - 5	23/02/2022
HORIZON-CL5-2021-D3-03-12	Innovation on floating wind energy deployment optimized for deep waters and different sea basins (Mediterranean Sea, Black Sea, Baltic Sea, North-east Atlantic Ocean)	IA	7	50	± 16	23/02/2022
HORIZON-CL5-2021-D3-03-13	Demonstration pilot lines for alternative and innovative PV technologies (Novel c-Si tandem, thin film tandem, bifacial, CPV, etc.)	IA	7	45	± 15	23/02/2022
HORIZON-CL5-2021-D3-03-14	Demonstration of large-scale CHP technologies for a shift to the use of biogenic residues and wastes	IA	7	10	± 10	23/02/2022
HORIZON-CL5-2021-D3-03-15	Solutions for more sustainable geothermal energy	RIA	5	10	± 5	23/02/2022



Annex: Pillar 2 - Some topic opportunities for met & climate: 2021 and 2022

Cluster 6: Food, Bioeconomy, Natural Resources, Agriculture and Environment

Topicnr	Topic naam	Projecttype	TRL	Budget totaal (€ mln)	Budget per project	Deadline	Leadline ize stap
HORIZON-CL6-2022-ZEROPOLLUTI-ON-01-02	Piloting innovative governance solutions to limit nitrogen and phosphorus emissions at the interface of rural/coastal and urban/industrial environments	IA	7-8	12	6	15/02/2022	
HORIZON-CL6-2022-ZEROPOLLUTI-ON-01-03	EU-China international cooperation on nature-based solutions for nutrient management in agriculture	IA	7	12	6	15/02/2022	
<i>Protecting drinking water and managing urban water pollution</i>							
HORIZON-CL6-2022-ZEROPOLLUTI-ON-01-04	Securing drinking water quality by protecting water sources against pollution, providing innovative monitoring and treatment solutions and ensuring safe distribution	RIA	5	15	2-4	15/02/2022	
Destination – Land, oceans and water for climate action							
<i>Call - Land, oceans and water for climate action</i>							
HORIZON-CL6-2021-CLIMATE-01-01	Improved understanding, observation and monitoring of water resources availability	RIA	5	10	3-5	06/10/2021	
HORIZON-CL6-2021-CLIMATE-01-02	European Partnership Water Security for the Planet (Water4All)	COFUND		20	20-126	06/10/2021	
HORIZON-CL6-2021-CLIMATE-01-03	Key oceanic and polar processes driving regional & global climate change	RIA	3-5	15	7-8	06/10/2021	
HORIZON-CL6-2021-CLIMATE-01-04	Demonstration network on climate-smart farming – linking pilot farms	CSA		23	23	06/10/2021	
HORIZON-CL6-2021-CLIMATE-01-05	Agroecological approaches for climate change mitigation, resilient agricultural production and enhanced biodiversity	RIA		7	7	06/10/2021	
HORIZON-CL6-2021-CLIMATE-01-06	Resilient livestock farming systems under climate change	RIA		12	12	06/10/2021	
HORIZON-CL6-2021-CLIMATE-01-07	International Research Consortium on (agricultural) soil carbon	CSA		3	3	06/10/2021	
HORIZON-CL6-2021-CLIMATE-01-08	Agroforestry to meet climate, biodiversity and farming sustainability goals	RIA		8	4	06/10/2021	
HORIZON-CL6-2021-CLIMATE-01-09	Enhancing science-based knowledge on EU forests', including old-growth forests, capacities to mitigate climate change	RIA		10	5	06/10/2021	
HORIZON-CL6-2021-CLIMATE-01-10	EU-China international cooperation on increasing the resilience of forests	RIA		10	10	06/10/2021	



Cluster 6: Food, Bioeconomy, Natural Resources, Agriculture and Environment

Topicnr	Topic naam	Projecttype	TRL	Budget totaal (€ mln)	Budget per project	Deadline	Deadline te stap
<i>Call - Land, oceans and water for climate action</i>							
HORIZON-CL6-2022-CLIMATE-01-01	Climate sensitive water allocation systems and economic instruments.	IA	6-8	10	4-5	15/02/2022	
HORIZON-CL6-2022-CLIMATE-01-02	Understanding the oceanic carbon cycle	RIA	3-5	15	15	15/02/2022	
HORIZON-CL6-2022-CLIMATE-01-03	Demonstration network on climate-smart farming – boosting the role of advisory services	CSA		20	20	15/02/2022	
HORIZON-CL6-2022-CLIMATE-01-04	Fostering the resilience of agricultural production: from observation of changes to the development of resilience strategies	RIA		15	15	15/02/2022	
HORIZON-CL6-2022-CLIMATE-01-05	Forestry - European observatory of climate change impacts and demonstration network of climate smart restoration pilots	RIA		15	15	15/02/2022	
<i>Deploying and adding value to Environmental Observations</i>							
HORIZON-CL6-2022-GOVERNANCE-01-07	New technologies for acquiring in-situ observation datasets to address climate change effects	IA	6-8	20	3	15/02/2022	
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	IA	6-8	14	3-5	15/02/2022	
HORIZON-CL6-2022-GOVERNANCE-01-09	Environmental observations solutions contributing to meeting "One Health" challenges	RIA		10	5	15/02/2022	

Widening participation and strengthening the European Research Area Work Programme

- HORIZON-WIDERA-2021-ACCESS-02-01: Twinning Western Balkans Special. [Deadline: 05/10/21; 14 projects of €0.8m – 1.5m](#)
- HORIZON-WIDERA-2021-ACCESS-03-01: Twinning. [Deadline: 18/01/22](#) 100 projects of €0.8m – 1.5m

Missions Work Programme

- HORIZON-MISS-2021-CLIMA-01-01: Better prepared regional and local authorities to adapt to climate change. [Deadline: 14/09/21; 1 project of €5m](#)
- HORIZON-MISS-2021-OCEAN-01-01: Preparation for deployment of lighthouse demonstrators and solution scale ups and cross-cutting citizen and stakeholder involvement. [Deadline: 14/09/21; 1 project of €5m](#)