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Group on Earth Observations – GEO Week 2021

Statement of the European Commission

2021 marks the start of Horizon Europe (the new EU Framework Programme for Research and Innovation) and the launch of the EU Space Programme (including Copernicus). With these programmes in place, the European Commission is well equipped to continue its support to Earth and environmental observation in Europe, and to sustain our support of the Global Earth System of Systems (GEOSS).

Copernicus

The EU Regulation governing the EU Space Programme 2021 -2027, which includes Copernicus, has been adopted as part of the EU multiannual budget for the same period. This will ensure not only the continuity of the EU's Earth Observation programme, but will help strengthen the existing Copernicus services and the expansion of the dedicated Copernicus Sentinel mission to address important policy objectives and user needs. These include the development of a constellation of three dedicated Copernicus Sentinel satellites (the CO2M), and a new service to monitor anthropogenic CO2 emissions in support of the Paris Agreement.

The full, free and open data policy remains a key feature of Copernicus, which can be used by the GEO community worldwide.

Sentinel-6 Michael Freilich, launched in November 2020 is now operational. It is the outcome of longstanding and fruitful transatlantic cooperation. The mission monitors the oceans worldwide and helps further expand available data and information provided by Copernicus. Its core mission is high-precision ocean altimetry, providing information on sea surface topography including sea level and significant wave height. A second objective is radio occultation, an essential input for climate monitoring and weather forecasting. The Copernicus Sentinel-6 Michael Freilich mission is a joint initiative of ESA (European Space Agency), the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), NASA, and the National Oceanic and Atmospheric Administration (NOAA), with funding made available by the European Commission and support from France's National Centre for Space Studies (CNES).

Horizon Europe

The first Work Programme of Horizon Europe – the European Framework Programme for Research and Innovation (2021-2027) was published in June 2021.

The programme consists of 3 pillars: 1. Excellent science; 2. Global Challenges and European Industrial Competitiveness, and; 3. Innovative Europe.

While opportunities for Earth and environmental observation-related research and innovation projects can be found throughout the entire programme, its centre of gravity is in the second pillar which contains 6 thematic Clusters and supports collaborative research projects. References to Copernicus, GEO, EuroGEO and GEOSS can in particular be found in Cluster 4 (Digital, Industry and

Space), Cluster 5 (Climate, Energy and Mobility) and Cluster 6 (Food, Bioeconomy, Natural Resources, Agriculture and Environment).

Next to the call topics, 49 partnerships between the EC and industry as well as with EU Member States are proposed, intended to tackle challenges that cannot be addressed through a single actor but rather require mobilising the resources of others. While some of the proposed partnerships under Horizon Europe have already started, the majority will be launched in 2023 and 2024. This includes a partnership on Agriculture of Data, which will seek to use the possibilities offered by data technologies in environmental observation/Earth observation to help improve the sustainability performance of agricultural production and improve capacity for policy development, implementation, monitoring and evaluation. 5 EU Research and Innovation Missions are novel features within Horizon Europe. Activities under these missions are designed to enable Europe to achieve a bold, inspirational and measurable goal within a set timeframe and of relevance to all Europeans.

The missions relevant to GEO are:

- A Climate Resilient Europe
- Restoring our Oceans and Waters
- 100 Climate-Neutral Cities by 2030
- Soils

These missions, as well as many of the partnerships, require Earth and environmental observation data and information to deliver on their ambitions. In addition, projects and initiatives started under the predecessor Horizon 2020 programme continue to deliver valuable information and lessons for further developing EO-based applications as well as for feeding into GEOSS. This stems

from projects that are close to finishing (e.g. TWIGA and INTAROS - see their quotes in this statement) as well as from projects that have recently started. Examples include projects awarded in the context of integrated GEOSS climate applications to support adaptation and mitigation measures of the Paris Agreement and the recent European Green Deal Call under Horizon 2020.

EuroGEO initiative

In 2021, the EuroGEO workshop was organised virtually together with the host country France (the French Ministry of Higher Education, Research and Innovation and MINES ParisTech) in September 2021 under the theme: Environmental Observation-based solutions to support the EU Green Deal. Several sessions were divided over 4 days, including 27 demonstrations showcasing their solutions & discussing their feedback/lessons-learnt on co-creation, knowledge sharing & upscaling. Each session was attended by more than 100 participants joining from 58 different countries.

The Horizon 2020 e-shape project (EuroGEO Showcases: Applications Powered by Europe) has continued its efforts to shape EuroGEO (see the e-shape quote).

Knowledge Centre on Earth Observation

In 2021, the European Commission established a new Knowledge Centre on Earth Observation (KCEO – see quote).

The KCEO will provide a central forum for discussion on the involvement and priorities on EO with international partners/organisations, including GEO and other multilateral coordination mechanisms such as CEOS. It will promote good practices for developing tailored products and services for policy in dialogues with partners worldwide.

Other highlights

Actions under EU4OceanObs continue within GEO Blue Planet initiative with the support of Mercator-Ocean International (see example).

In addition, the joint EC-ESA Earth System Science initiative has been developed further in 2021 with ESA and DG RTD continuing their actions to advance Earth system science and promote its contribution in responding to global challenges.

The European Green Deal call has shown that there is enormous interest from the European research and innovation community in the areas covered by the European Green Deal with a massive response to the call topics proposed, including Earth and environmental related topics. €1 billion was made available for research and innovation projects that respond to the climate crisis, help protect Europe's unique ecosystems and biodiversity and to boost the green and digital transitions.

Finally, being the Lead Co-Chair in 2021, the European Commission has been working together with the GEO Secretariat in setting and achieving key goals for the organisation, with large progress being made in particular on Earth observation data (see also EEA example).