Basic Information

Full title of the Regional GEO
European Group on Earth Observations

Short Title or Acronym
EUROGEO

Please list the key priorities of the Regional GEO.
The Initiative will focus on the following strategic actions:

i. Engaging with a broad range of users in Europe for identifying their needs for EO based services or products, building on the wide range of European EO assets, and addressing also the inter-connections between various groups and policy areas.

ii. Demonstration, incubation, upscaling, downscaling, or replication of existing EO services and products across Europe (and beyond), also through streamlining innovation instruments available at EU, national or sub-national levels and actively promote synergies;

iii. Connecting European EO research communities, service providers, including the private sector, and users to allow for mutual learning and spreading of good practices and successful business models across Europe;

iv. Further the design of a European digital ecosystem that supports access and inter-operability of EO data and provides benefits to businesses, citizens, and scientists/researchers and promotes the GEO vision in Europe to realise a future where decisions and actions are informed by evidence;

v. Supporting the consolidation of national GEO management structures across Europe and ensure alignment of EuroGEO with the GEO engagement priorities.

Have these priorities changed since the 2020-2022 Implementation Plan?
No

Have these priorities been approved by the Regional Caucus?
Yes

Please indicate when they were approved.
Open consultation of the EuroGEO Coordination Meeting in May 2022 by e-mail and presentation to the GEO European High Level Working Group on the 30th of June 2022.

Points of Contact
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<th>First Name</th>
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**Engagement**

For each member of the GEO Caucus listed below, please indicate their level of participation in the activities of the Regional GEO.

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Do any GEO Members from other Caucuses participate in this Regional GEO?
No

Do any non-GEO Member countries participate in the Regional GEO?
No

For those countries in the Region that are not involved in the Regional GEO or are not active, please identify the most important barriers.
- Involved in GEO but do not see benefits of engagement with the Regional GEO
- Resource constraints

Has the Regional GEO identified specific countries to engage more actively in the Regional GEO?
Yes

Please list them.
- Lithuania is the only EU27 country not member of GEO
- EU Candidate countries do not know sufficiently well the benefits of GEO or have reduced their engagement into the initiative: Serbia, Turkey, North Macedonia
- Ukraine is very committed to engage with the European Regional Caucus but struggles to operationalise its engagement following the on-going Russian war of aggression against Ukraine.

Are any Participating Organizations actively involved in this Regional GEO?
Yes

Please select them
- EARSC
- ECMWF
- EEA
• ESA
• EU SatCen
• EUMETSAT
• Eurisy
• EuroGeographics
• EuroGeoSurveys
• GEANT
• IIASA
• Mercator Ocean
• OGC
• Plan4all
• WGIC
• WMO

Please list any international organizations that are involved with the Regional GEO but which are not GEO Participating Organizations.
- no answer given -

Please provide any further observations or comments you may have regarding engagement of international organizations.

Engagement should be pursued with the regional representations of some of the GEO Participating Organisations or Observers such as UN-GGIM, FAO, UNECE or the World Bank which all have groups and structures committed to SDI and EO and often have a regional representation such as UN-GGIM Europe.

International organisations are also involved and supported through EuroGEO actions funded and implemented by the EU (e.g. H2020 projects).

Has the Regional GEO identified specific international organizations (whether they are currently GEO POs or not) to engage more actively in the Regional GEO?
Yes

Please list them.

Being coordinated by the European Commission, the engagement of EuroGEO with international organisations is a natural path, and efforts are put forward to strengthen the cooperation with the various bodies of the European Union, including its departments such as DG DEFIS, CNECT, the Joint Research Centre or ESTAT, the last one being critical to foster the use of EO data for official statistics.

Special efforts are deployed towards the European Space Agency via a working arrangement on Earth System Science and with the WMO via a Working Arrangement and via dedicated Horizon Europe calls in the WP2023-2024 to coordinate and support action to increase synergies in the dissemination and exploitation of climate observation by WMO and its subsidiary bodies.

Please describe the methods the Regional GEO intends to use to increase engagement.

Via the EU R&I Framework Programme open to all countries which is currently supporting a broad range of activities, including for examples observing networks in the Arctic, or citizen science projects.
via the EuroGEO dedicated outreach activities: EC Knowledge Centre on Earth Observation, EuroGEO annual workshop, administrative agreements with JRC, Service Level Agreements with EEA and reach out to the EIONET network, Synergies with the EU Space Programme (example of the cross-cutting coordination on access to In Situ data and the development of an In Situ Strategy), etc. Another example is the visibility given to the Blue Planet Initiative with the setting up of a European dedicated Secretariat via EU4OCEANOBS. Regular contacts are taken in the EuroGEO Coordination Group a subgroup of the High-Level Working Group bringing together all European GEO members and Participating Organisations.
Are any commercial sector organizations (including GEO Associates) regularly involved in this Regional GEO?
Yes

Please list them.
CREAF, EVERSIS, TERRADUE, Eurisy or EARSC as representative of European EO commercial sector and a large number of commercial companies engaged in Horizon 2020 and Horizon Europe projects such as GMV, DRAXIS S.A., CLS, HPC International or DEIMOS.

What is the general level of engagement of commercial sector organizations in the Regional GEO?
- Quite active

Has the Regional GEO taken actions to increase engagement of the commercial sector in the activities of the Regional GEO?
Yes

Please list them.
Commercial companies are eligible to join consortia bidding for Horizon 2020/Horizon Europe calls as individual entities or via the voice of the EO industry in Europe, the European Association of Remote Sensing Companies (EARSC, a GEO Participating Organisation). The R&I framework programme remains the main European mechanism to engage with the EO community: calls cover the development of pre-operational EO-derived services. EARSC organises regular events such as the EO Café where representatives of the European Commission are invited to present the funding opportunities targeting their community.

Please describe the effectiveness of the actions taken.
Many companies, including in particular SMEs, have been involved in action supported through EuroGEO, and have successfully developed applications for public use and the market. (See Cordis results pack: https://cordis.europa.eu/article/id/421641-environmental-observations-informing-citizens-and-supporting-policymaking-through-innov or the Eurisy success stories https://www.eurisy.eu/stories/ for more details).
In 2023-2024, the European Commission is introducing pre-commercial procurements (PCPs) and public procurements of innovative solutions (PPIs) in different fields: health, security, energy, climate change, ICT, AI, satellite and research infrastructures etc.

Coordination

Has the Regional GEO set thematic priorities (for example, biodiversity, disaster resilience, agriculture, etc.)?
Yes

Please list the priorities.
While the overarching European Green Deal policy drives the priorities and orients the themes developed by EuroGEO, nine action groups (open innovation partnerships) have been created by EuroGEO following a call for expression of interest towards the European EO community around the following themes: Applications for Agriculture/Food; Applications for general Land use/land coverage; Urban applications (including urban air quality and urban health); Applications for Disaster Resilience; Applications for Biodiversity & Ecosystems; Marine applications; Applications for Climate (including impacts on Cultural Heritage); Applications for Atmosphere; Applications for Energy. EuroGEO already has an impact on the EO landscape in Europe since its inception in 2017. In the coming years, new activities are planned to continue and strengthen the initiative in Europe, and thus together with
the Copernicus Programme and the legislative European package (INSPIRE and Open Data Directives, Data Act, Data Strategy, …), further strengthen the European contribution to GEO.

This will be done in close cooperation with the EuroGEO Coordination Group and the Action Groups. Close interactions with the GEO Flagships, Initiatives, Pilot Initiatives and the Foundational Tasks have been and will be pursued.

The main spheres of activities to be conducted by the EuroGEO Initiative are as follows:

- Coordination of GEO-relevant activities undertaken in Europe to ensure a coherent European contribution to the GEO initiatives and priorities;
- Implementing a user-driven research and innovation agenda to maximise uptake and engagement of EO applications that are addressing the GEO priorities, and require further demonstration, incubation, up-scaling, or replication
- Supporting cooperation among individual European and national programmes and user communities (e.g. Copernicus, ESA, NMHIs, European observing networks and Research infrastructures, etc.);
- Cooperation with other Regional GEOs, in particular with view to sharing data, applications and good practices globally.

How often does the Regional GEO review its priorities / work plan structure?
- As needed/no regular review period

Which of the GEO engagement priorities does the Regional GEO address?
- Sustainable Development
- Climate Action
- Disaster Risk Reduction
- Resilient Cities and Human Settlements

For each engagement priority checked, please describe the key activities/projects/actions the Regional GEO has put in place to address this priority.

EuroGEO engages in the GEO priorities via its Action Groups or by issuing project calls targeting one or more of the GEO engagement priorities. Some examples are listed below along the four engagement priorities.

**Sustainable Development**
- e-shape pilots on GEOGLAM, EU-CAP support, vegetation-index crop-insurance, service for SDG 2.4.1 and 15.3.1 indicators assessment, EO-based surveillance of mercury pollution, EO-based pollution health risks profiling in the urban environment, ecosystem pilots mySpace/mySite/myVariable, monitoring fishing activities
- GEOEssential Variables workflows for resource efficiency and environmental management (ERA-PLANET)
- ENVISION: CAP environmental monitoring – organic farming
- VITIGEOSS: wine industry production in a sustainable way and addressing climate change impact

**Climate Action**
- e-shape pilots on solar energy nowcasting and short-term forecasting system, high photovoltaic penetration at urban scale, merging offshore wind products, first class input data for wind energy models, EO based phytoplankton biomass for WFD reporting, Aquaculture
- Africultures – EO for food security in Africa
- TWIGA – in situ based services for weather, water and climate in Africa
- Earth Observation applications for climate change adaptation & mitigation (EIFFEL Project)
- Development of a Support System for Improved Resilience and Sustainable Urban areas to cope with Climate Change and Extreme Events based on GEOSS and Advanced Modelling Tools (Harmonia Project)
- Promotion of the implementation of GEO Data Sharing and Management Principles in the context of in-situ data
- A number of showcases focused on promoting better access to in situ and ancillary data related to climate adaptation (climate losses due to extreme weather and climate events, climate adaptation indicators relevant for the urban context, climate adaptation and health and well-being, hydrological data for nature restoration,
in situ data on wetlands).

**o Disaster Risk Reduction**

- e-shape pilots on Early Warning system for Mosquito-borne diseases, EO-derived water bodies and floodwater record over Europe, sargassum detection for seasonal planning, EO data for detection – discrimination and distribution of volcanic ash, resilient and sustainable ecosystem including agriculture and food, flood risks, mountain hazards, etc.
- SMart URBan Solutions for air quality, disasters and city growth (SMURBS/ERA-PLANET H2020 Project)

**o Resilient Cities and Human Settlements**

- GEOSS for disasters in urban environment, assessing Geo-hazard vulnerability of cities and critical infrastructures

**Please describe the key lessons learned from the Regional GEO experience in implementing actions to address the engagement priorities.**

**o Positive**

- Created community in Europe looking at service-oriented products for SDG’s, Climate transition building on EO and focussing on the last miles of the value chain in complement to Copernicus services
- Made more proactive the European contribution to GEO and GEOSS
- More efficient and coordinated, avoiding duplication of efforts and unnecessary overlaps
- Provide more justification to the engagement of Europe in GEO as the GEO engagement priorities are fitting the objectives of the European Green Deal
- Better/clearer branding vis a vis interfacing other initiatives in Europe

**o To be improved**

- The governance of the initiative that should benefit from a more structured secretariat (secretariat functions are for the time being covered by the Commission which cannot be viable on the mid-term to long term)
- The underpinning IT infrastructure required for the development of applications needs to be strengthened as it is for the time being depending on many individual entities, EuroGEO is considering the opportunity to develop an EuroGEOSS digital ecosystem connecting the existing infrastructures.
- The transfer and leveraging of European applications/products at the level of the “Global” GEO should be improved through the use/development of the GEOSS infrastructure

**Please identify the GEO Initiatives that the Regional GEO interacts with regularly**

- AQUAWATCH - AquaWatch
- ARCTIC-GEOSS - Arctic GEOSS
- AOGEO - Asia-Oceania Group on Earth Observations
- CAMS - Copernicus Atmosphere Monitoring Service
- C3S - Copernicus Climate Change Service
- EO4SENDAI-MONITORING - Earth Observation and Copernicus in support of Sendai Monitoring
- EO4DRM - Earth Observations for Disaster Risk Management
- EO4EA - Earth Observations for Ecosystem Accounting
- EO4HEALTH - Earth Observations for Health
- ATLANTIC-EO - Earth Observations for the Atlantic Region
- EO4SDG - Earth Observations for the Sustainable Development Goals
- AFRICULTURES - Enhancing Food Security in African Agricultural Systems with the Support of Remote Sensing
- GEO BON - GEO Biodiversity Observation Network
- GEO-CRADLE - GEO Capacity Building in North Africa, Middle East, Balkans and Black Sea Region
- GEO Engagement Priorities Coordination - GEO Engagement Priorities Coordination
- GEO-EV - GEO Essential Variables
- GEOGLAM - GEO Global Agricultural Monitoring
- GEOGLOWS - GEO Global Water Sustainability
For each GWP Initiatives checked, please describe the focus of these interactions (for example, topics, projects, localities, etc.)

EuroGEO increases the visibility given to the GWP initiatives where European entities are participating and sustains their activities by including in its R&I Framework Programme resources for projects contributing to the GEO priorities.

Please describe the key challenges the Regional GEO has experienced in working with GEO Work Programme activities?

Data and results from the GEO WP activities are not anymore systematically made available via the existing GEOSS infrastructure components limiting their re-use by other communities or activities, and restricting the added-value of pooling resources and know-how.

Please identify the key benefits that have been realized for the Region through working with GEO Initiatives.

- no answer given -

Are there GEO Initiatives or other GEO groups (Working Groups, Foundational Tasks, etc.) that the Regional GEO would like to engage with more?

No

Does the Regional GEO see opportunities for other collaborations within GEO other than within the GEO Work Programme?

No

Lessons from the 2020-2022 Period

Please describe the key objectives of the Regional GEO for the 2020-2022 period.

The main spheres of activities conducted by EuroGEO for the period 2020-2022 relate to Coordination, Combination and Collaboration (EuroGEO 3Cs):
- Coordination of GEO-relevant activities undertaken in Europe to ensure a coherent European contribution to GEOSS;
- Combination or integration of activity outputs to provide added value and to reach maximize user uptake and engagement;
- Collaboration beyond individual programmes and user communities;
- Coordination with other regional activities.

In addition, the EuroGEO initiative mobilized via its Horizon 2020/Europe programme resources to help the EO community in Europe to develop concrete and practical EO derived services complementing the core Copernicus
To what extent have these key objectives been achieved or are expected to be achieved?

- On track to being achieved by the end of 2022

What were the key challenges faced by the Initiative in the 2020-2022 period?

Being an initiative where coordination and cooperation are the main drivers for success, the COVID crisis impacted the effectiveness of the networking as for example the last physical meeting of the EuroGEO community dating back to June 2019. Activating the action groups in a virtual environment proved to be quite challenging. The lack of a dynamic and stable solution to host the EuroGEO initiative made it difficult to communicate on the initiative and its achievements.

What changes are proposed for the next planning period?

- With the launch of the EC Knowledge Centre on Earth Observation that should include a Science Service, there is an opportunity to revise the EuroGEO branding, present the results of the projects funded under the EU Framework Programme and better anchor strategic research domains with user and policy requirements.
- Increased synergies between the different instruments made available by the European Commission, such as the Space Programme (and in particular its Copernicus component), Horizon Europe or Digital Europe (with the Destination Earth Initiative and the development of EU Data Spaces) will be pursued to better coordinate the overall support to the EO community in Europe. Calls are in the making in the next Work Programme of Horizon Europe (2023-2024) to look at the future of the EuroGEO Initiative, and how it could possibly become self-sustaining and engage further European GEO members and Participating Organisations.
- Increase the visibility and exploitation of the European open data policy and related infrastructures (e.g. GEOSS Portal, European Open Science Cloud).
- Increased efforts to promote the European assets will be at the core of the next planning period, including towards the global EO community.
- Opening to the in situ major data providers (e.g. ESFRIs) to exchange on good practises in sharing data, identify gaps and challenges and look for solutions, contribute in integrating in situ more efficiently and sustainable in GEO.
- Create a mechanism for monitoring impacts, both in terms of assessing the maturity of EO activities at country level (see EOMI methodology from eShape), improving and tracking progress in countries positioning in exploiting EO assets, as well as in terms of impacts of projects and activities on economy, societies, science etc.

Capacity Development

Does the Regional GEO have a documented strategy for capacity development?

Yes

Please describe this strategy or upload the document.

Horizon 2020/Europe projects can help increasing capacity in some European countries and some of our projects have third countries in their consortia, especially in Africa that benefit directly with respect to their local capacity from the know-how developed during the project lifetimes: https://op.europa.eu/en/publication-detail/-/publication/483efef5-cd83-11eb-ac72-01aa75ed71a1/language-en/format-PDF/source-214473085

- no supporting documents provided -

Has this strategy changed over time?

No

At which levels of capacity development does the Regional GEO develop specific
actions?
  • Institutional (facilitating cooperation and collaboration across institutions)

Please provide some examples of activities organized by the Regional GEO since 2019 to develop institutional capacity.

The service level agreement signed between EC DG Research and Innovation with the European Environment Agency can be an example when it comes to capacity building on Data Sharing and Management Principles in Europe. They have been promoted for example in the European neighbourhood countries via presentations at the UNECE Working Group on Environmental Monitoring and Assessment meetings, raising awareness about the GEO Data Sharing and Management Principles.

Are there any lessons learned from its experience with capacity development that the Regional GEO would like to share?

Yes

Please describe these lessons learned or upload one or more relevant documents.

Experience with capacity development is difficult to evaluate as it relies on long-term investments and awareness raising across communities of the potential of earth observation.

- no supporting documents provided -

Governance

Please describe the governance structure of the Regional GEO, including the relationship with the Regional Caucus and the mandates of steering/advisory/management committees, if applicable.

The EuroGEO governance aims to be as simple and flexible as possible while allowing for increased inclusion, greater engagement and leadership. It is structured around working groups on two levels addressing the EuroGEO 3Cs: Coordinate Combine and Cooperate.

The Coordination Group (Coordinate)
The Coordination Group (co-chaired by the Commission) oversees the implementation of the EuroGEO strategic actions, assesses progress against identified objectives and regularly report to the GEO High Level Working Group, which governs the European GEO Caucus. Particular focus shall be on:

• Monitoring the implementation of the EuroGEO roadmap;
• Reviewing and selecting EuroGEO pilot applications/services to be developed and scaled up;
• Ensuring synergies between selected EuroGEO pilot applications, relevant GEO actions, Copernicus and Horizon 2020 activities;
• Monitoring and documenting user uptake and engagement by the Caucus members;
• Establishing ad-hoc implementation working groups as appropriate and facilitating cross-communication between these groups;
• Based on an Impact Plan, monitoring the impact of EuroGEO, as part of a continuous monitoring and progress evaluation process including a quantification of committed and used resources;
• Providing recommendations for the evolution of the EuroGEO framework.

Action Groups (Combine and Cooperate)
The Action Groups are voluntary bottom-up groups that are overseen by the EuroGEO Coordination Group, to either develop the selected EuroGEO application pilots or conduct other actions foreseen in the EuroGEO roadmap. These groups comprise representatives identified by the supporting Caucus’ members depending on the relevance of their activities. The Action Groups report to the Coordination Group and, when appropriate,
Nine Action Groups were set up in 2018 and are currently ongoing with further developing applications in the topical areas of agriculture/food, land use/land coverage, urban, disaster resilience, biodiversity and ecosystems, marine, climate, atmosphere and energy. This governance structure has been established in 2017 and could, on the base of current experiences, be revised in the coming years if appropriate, and better aligned with priorities set by GEO.

In addition to those Action Groups, GEO European Member States and Participating organisations are active in the different working groups established by GEO in domains as different as In Situ, ethics, climate change, or data management.

The key communication channel is the EuroGEO Website to be progressively complemented by the Knowledge Centre on Earth Observation, which presents the initiative, its aims and activities, the members and links to both the pilot applications and the resources and data. Communication between participants and stakeholders takes place via dedicated meetings and workshops, in particular the annual EuroGEO Workshop.

How frequently does the Regional GEO steering committee (that is, the primary governance body of the Regional GEO other than the GEO Caucus) meet, including virtually?
- At least once per year

What is the level of engagement of the Regional GEO steering committee?
- Mostly engaged

Please provide more detail on why you selected the above answer.
The EuroGEO Coordination Committee being a subgroup of the European High Level Working Group Expert Group (the “European Caucus”), has a strong mandate to sketch the directions EuroGEO should take. Meetings are closely synchronised with the GEO Executive Committee as to ensure the European Caucus reaches a consensus on the topics discussed in ExCOM. The COVID pandemics has impacted its level of engagement with the EO community, while at the same time more resources have been made available to ensure a high degree of engagement of Europeans in the various GEO Work Programme activities.

How frequently does the Regional GEO send communications to all GEO Principals in the Region?
- At least once per year

What methods are most frequently used for communications with GEO Principals in the Region?
- Common/mass email/newsletter

How frequently does the Regional GEO send communications other stakeholders in the Region?
- At least once per year

What methods are most frequently used for communications with other stakeholders in the Region?
- Common/mass email/newsletter
Is there a Secretariat or similar body that supports the Regional GEO?
Yes

Please describe this body and its roles/functions, and upload related documents.
- no answer given -

- no supporting documents provided -

Participants

Please list the active individual participants in the Initiative

<table>
<thead>
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Data and Knowledge Sharing

Does the Regional GEO have its own policy regarding data sharing or data management (that is, other than the GEO Data Sharing Principles and Data Management Principles), or has it developed practices regarding data sharing or data management to adapt the GEO Principles to Regional needs or circumstances?
Yes

Please describe these policies or practices.

Earth Observation and geospatial data sharing and, up to a certain extent data management from public authorities in Europe falls under prescribed by the EU INSPIRE Directive that sets the legal framework affecting all EU Member States plus a few additional countries (EFTA countries: Iceland, Norway, Liechtenstein and Switzerland are also implementing its principles). The legal framework that governs the access and management of public sector data is also anchored in a number of legislative packages, that include the Open Data and Public Sector Information Directive and its upcoming implementing Act on High Value Datasets, the Data Act, the Data Governance Act, and a number of additional instruments contributing to the definition of a comprehensive legal framework for data sharing in Europe. The Copernicus Programme, one of the main European contributions to GEO, has adopted from its inception and free and open data model.

Activities funded by the Horizon Programme, which includes, support to Observing networks (e.g. ICOS), Earth system modelling activities and GEO initiatives are obliged to follow the FAIR data principles.

Has the Regional GEO undertaken any assessments of the extent to which Regional GEO Members adhere to the GEO Data Sharing Principles and Data Management
Principles?
Yes

Please describe the results of the assessments and/or upload the relevant documents.
Activities funded under the Horizon Programmes are reviewed regularly, including with view to their adherence to the open data obligations. Efforts will nowadays be pursued to make the GEO Data Management Principles more concrete via examples or tools like the eshape DMP tool.

- no supporting documents provided -

Are any key datasets are managed by the Regional GEO?
No

Have any data/information/knowledge infrastructures been developed to support the Regional GEO and/or its Members?
Yes

Please identify the relevant infrastructure(s) and describe its purpose and scope, and upload relevant documents.
While EuroGEO itself has not developed data/information/knowledge infrastructures, some of the projects funded under the Research and Innovation Framework Programme have contributed to do so, such as the infrastructure components developed by NextGEOSS or the services designed by e-shape. In Europe there is a variety of platforms and data infrastructures from the Copernicus DIAS, Climate and Atmosphere Data Stores to the Open Science Cloud and the Destination Earth Initiative (DestinE). In the last two years, EuroGEO has initiated a reflection on the need to better understand the diversity of those infrastructures, identify the possible gaps in terms of services offered and explore the usefulness of developing an EuroGEOSS digital ecosystem which could help better connecting those platforms together. This adds on top of the European efforts (via a Grant to the European Space Agency) to modernize the GEOSS platform (GPP+ project) or improve its searching capabilities (e.g. EIFFEL project).

- no supporting documents provided -

List of co-editors for this initiative

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Please describe how this infrastructure relates to the GEOSS Platform and/or other GEO infrastructural components, and upload relevant documents.
- no answer given -

- no supporting documents provided -