GROUP ON EARTH OBSERVATIONS

GEO In-situ subgroup
Work Plan 2021-2022

General description

The In-situ subgroup is a component of the Data Working Group. It has been formed to bring together selected experts to focus on topics of direct relevance to the In-situ data community within the context of GEO.

GEO has long recognised the importance of in-situ data, including the necessity for this data in order to calibrate the satellite-based Earth observation as well as relevant simulation models. There have been GEO Ministerial Summit declarations referencing the need for coordination of the in-situ data community, and this document draws on previous recommendations made with regards to in-situ data including those made by the GD-06 Task Team contained in the progress report submitted for the GEO XIII meeting (2016).

This work plan also builds on the concept note produced by the previous ad hoc In-situ group entitled “Steps towards an In-situ Data Coordination within the GEO Community”. This document identified the main hurdles for effective coordination of in-situ data within GEO as being primarily policy issues, but also acknowledged the existence of some technical challenges that may also need to be addressed. A key challenge for coordination of in-situ data within GEO has been the rapidly evolving and fragmented landscape. The initial steps for the In-situ subgroup are to identify priority areas that need to be addressed by GEO with regards to in-situ data in order to better understand and tackle some of these challenges.

The In-situ subgroup recognizes that data providers participate in GEO activities on a voluntary basis, and there is a need to encourage wider participation from in-situ data providers. The subgroup is aware that GEO does not handle data but can expose and share it through the GEO Platform, and also the GEO Knowledge Hub as a demonstrator for exploiting the wealth of available data . The subgroup recognises the heterogeneity among the different communities of data providers across the different domains, and welcomes voluntary contributions from a diverse range of disciplines.

The key focus areas to be considered include:

- Promoting Findable, Accessible, Interoperable, Re-usable (FAIR) and open data
- Encouraging good data management practices, including encouraging use of trusted and sustainable repositories and attribution through use of digital object identifiers
- Defining and promoting interoperable data management strategies and other relevant standards for in-situ data and associated metadata
- Demonstrating and communicating the importance of in-situ data through the GEO Knowledge Hub and other relevant channels;
- Identifying the main challenges and barriers hindering efficient use of in-situ data, and seeking potential solutions for overcoming them
- Justifying the need for continued and sustainable funding of in-situ data gathering, observing networks, and similar capabilities
- Highlighting the increasing role of citizen science for augmentation of in-situ data collection and their QA/QC
- Collaborating with the GEO regional initiatives to support capacity building for in-situ data management

Implementation approach, respective responsibilities

The activities of the In-situ subgroup will be undertaken by its members and other selected contributors, and will be coordinated by the group co-leads with support from the GEO Secretariat. This subgroup will contribute directly to the Data Working Group and seek to coordinate its activities with those of the working group and the other associated subgroups.

The aims and activities of this sub-group are focused on and will seek to engage with in-situ data providers. It will also work closely with the wider GEO community and other relevant standards organisations to achieve greater coordination among in-situ data communities and gain a better understanding of the requirements of in-situ data users.

A number of targeted activities will be undertaken as defined in this work plan that are aligned with the identified areas of focus for in-situ data within GEO. The overall aim of these activities during 2021 will be:

1) to better understand the in-situ data landscape both within GEO and beyond with a particular emphasis on availability and use.

2) undertake initial activities to prepare a white paper on coordinated approach to in-situ data management.

3) highlight the benefits that can be derived from this approach for the in-situ data community via a number of selected use cases based on GEO Flagships that are made available through the GEO Knowledge Hub.

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Planned activities and outputs for 2021

- Review previous relevant documents including previous GEO Plenary and Task Group recommendations
    - **Output:** Summary document of previous recommendations and proposed actions, including a statement on those that remain relevant and/or a priority for GEO
- Develop an In-situ Data Strategy document for presentation at the GEO XVIII Plenary (November 2021)
    - **Output:** presentation outlining In-situ Data Strategy

- Identify GEO initiatives and other relevant projects, i.e. the application areas that can be used to highlight benefits of participation.
    - **Output:** create a commented shortlist of GEO Flagships and other relevant data initiatives for further investigation
- Conduct an initial analysis of in-situ data use, priorities, challenges, and requirements for selected key GEO Flagship and other key initiatives;
    - Collect information based on on-line reports, published articles, and similar documents;
    - Develop a questionnaire and interview experts from the selected GEO Flagships;
    - **Output:** Produce a cross-cutting analysis of the responses to the questionnaire/interviews and recommend further steps and actions.
- Identify/map GEOSS platform brokered in-situ data providers (also considering Citizen Science)
    - Identify in-situ data gaps
    - Develop a strategy to better understand a lack of engagement by key data providers
    - **Output:** documented gap analysis of brokered in-situ data providers including a proposed strategy for encouraging wider engagement of data providers with GEOSS platform
- Identify and showcase specific use cases to illustrate benefits, challenges, wealth of in-situ data use, etc.
    - **Output:** develop an approach for showcasing selected use cases
- Coordinate with other subgroups and external activities for knowledge exchange and to avoid duplication of effort. Key external initiatives to include are Research Data Alliance (RDA); WDS; CODATA; EOSC

Outreach opportunities

When	What	Where	Note
22- 27 April 2021	RDA 17th Plenary	Edinburgh, UK (Virtual)	https://www.egu21.eu/
19-30 April 2021	EGU 2021	Vienna, Austria (Virtual)	https://www.egu21.eu/
8-11 November 2021	International Data Week / RDA 18th Plenary	Seoul, South Korea	https://internationaldataweek.org/
23–26 October 2023	International Data Week / RDA 19th Plenary	Salzburg, Austria	

List of In-situ subgroup members

Role	Organisation	Name	Email
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