GEO WEEK & MINISTERIAL SUMMIT 2023

Flash Talks

#TheEarthTalks
In-situ observations requirements database

A tool to search for data that fit for the needs of the GEO initiatives

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Joan Maso
Alba Brobia
What we have and what we need

The GEO Portal is a tool to discover and access what data GEO has

Users submit their queries with a hope that they will find what their need

What happens if "their" needs are not covered?

How we can know and organize user needs?
G-reqs: Geospatial in-situ requirements

As part of the strategy of the in-situ subgroup of the data working group, we want to work towards fulfilling user needs.

G-reqs is a database tool and a standard methodology to collect requirements for in-situ data for the benefit of GEO activities.

We want to know if current in-situ datasets meet user needs, if current data is only partially useful, if there are barriers to access and use, or if new data should be collected.
From a conceptual data model to a relational database

G-reqs is based on ISO 19101-1:2014 reference data model for standardization in the field of geographical information and previous practical implementation for collecting requirements such as WMS OSCAR and Copernicus CIS².

The G-reqs conceptual data model was elaborated in Unified Modelling Language (UML) focusing on precisely defining the concepts their relations and their properties. It is agnostic on the technological implementation.

From this conceptual data model, a logical data model was derived to describe G-reqs database structure of tables.

Finally a physical data model encoded in SQL tables was defined.
Conceptual data model

Based on four main classes:

**Need**: problem or issue that can be addressed by using in-situ data

**Task**: process to be executed to cover the need

**UserRequirement**: technical characteristics expressed as metadata parameters to describe potential in-situ datasets

**Product**: output to be created by using in-situ data.
A Need is the problem or issue to be addressed using in-situ data used for:

- Calibration and validation of Remote Sensing products
- Calibration and validation of other in-situ data
- Input and assessment for a numerical model
- Demonstrate a scientific hypothesis (scientific research)
- Preparation of a harmonized Essential Variable product or matrix
- Deploy a sharing data system or service

- Calculate a policy monitoring indicator
- Assist in a decision-making process
- Provision of a commercial service or product derived from the data
- Other...
User Requirements

In G-reqs, you will be asked for "simple" metadata properties about the in-situ data you require.

**Topic**
- Essential Variables classes and names

**Area**
- Geographic scope and specific area

**Quality**
- Thematic uncertainty
- Spatial resolution

**Time**
- Update frequency
- Timeliness
- Historical data

**Barriers**
- Data access
- Privacy

**Specifics**
- Even distribution
- Coordinated measures
- Representability radius
Implementation

G-reqs is available at: https://www.g-reqs.grumets.cat/

A web application was developed and can be accessed at: https://maps.eea.europa.eu/EuroGEO/dev/

You can also ask for an interview where we will guide you in the process.

We provide FAIR access to the user requirements.
GWP Initiatives involved in G-reqs design/testing so far. THANKS!
Where Are We Headling?
User has a need

Identifies the process to realize the need

Looks for necessary in-situ data

Checks for available data in GEO portal

GEO aggregates requirements

Providers respond with the existing data, barriers, instructions or recognizing a gap

Addresses barriers and makes FAIR recommendation

Promotes capturing more data

Provides precise requirements

G-reqs contacts in-situ data providers that could know about this kind of data

Lack of appropriate data
Scientific Paper in Remote Sensing

If you want to know more about this work:

- DOI: [https://doi.org/10.3390/rs15061589](https://doi.org/10.3390/rs15061589)
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