



## The role of data intermediaries to facilitate the interaction between in-situ data users and providers

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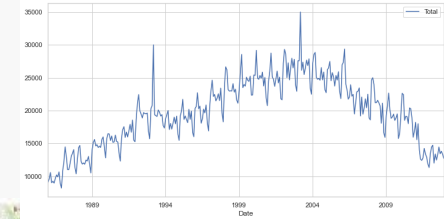
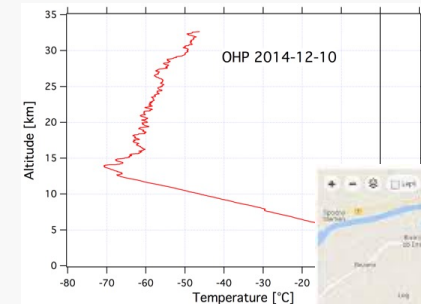
# Outline

1. The role (and value and issues) of intermediaries for in-situ data interoperability
2. Previous experiences: GEOSS, WMO WHOS, community infrastructures
3. Intermediaries in the GREAT Project Technical Blueprint for the Green Deal Data Space

# In-situ data sharing challenges

## 1. Variety

- Observations vs. geospatial reference data
- Feature types: profiles, trajectories, timeseries,...
- Format
- Coordinate Reference Systems



## 2. Policy

- some in-situ data need protection (commercial value, embargo time, privacy,...)
- New European regulations on Data (Data Act, Data Governance Act,...)

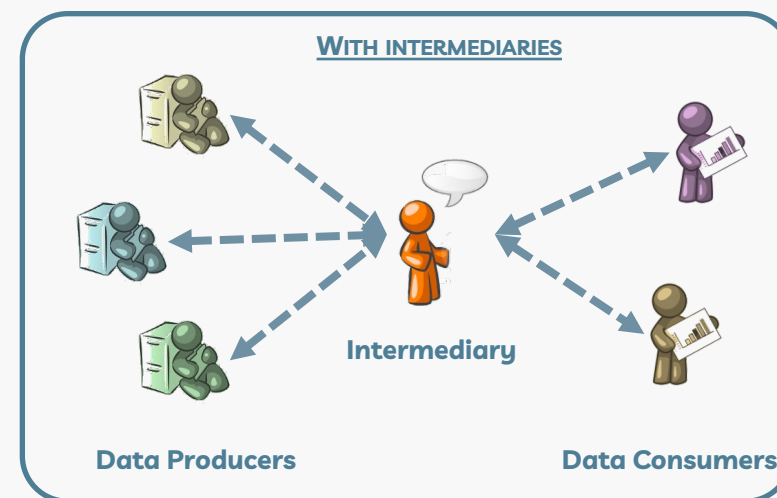
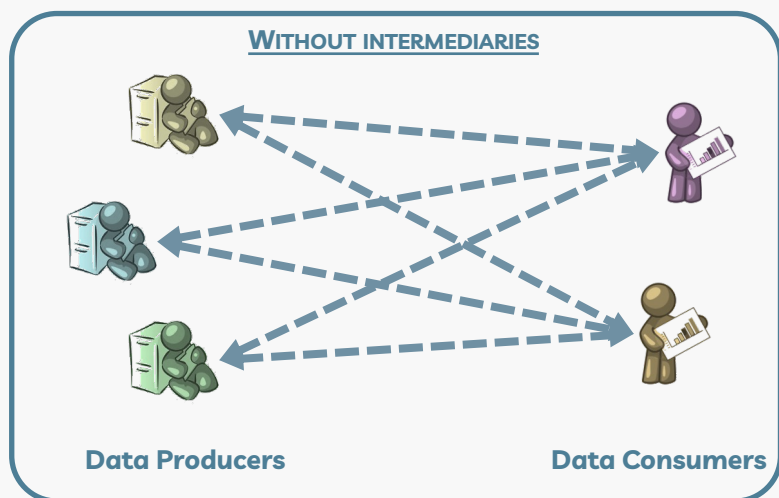
## 3. Accessibility and sustainability:

- Some organizations do not have a repository

Challenge	In-situ	Satellite-based remote sensing
Variety: feature type	Heterogeneous	Mostly coverages (imagery)
Policy	Heterogeneous	Free and open for many public products; Clear policies for commercial products
Accessibility and sustainability	Complex	Available from producers or on clouds

# Intermediaries

1. Data Intermediaries are third parties mediating between data producers/providers and data users
  - a. Technological and governance issues
2. For metadata/data mediation:
  - a. complexity reduction (M+N vs. MxN interoperability agreements)
  - b. separation of concerns ('expert' pattern, with one dedicated component for interoperability)
  - c. Value-added services (transformation, metadata augmentation, ...)
  - d. ...but sub-optimal, multiple transfers, (logical) single point of failure
3. For providing open repositories



# Experiences (GEOSS)

<https://www.geoportal.org/>



## International Data Providers\*

### Environment



### Disasters



### Biodiversity



### Energy



### Health



### Regional and National Providers\*

#### Chile



#### New Zealand



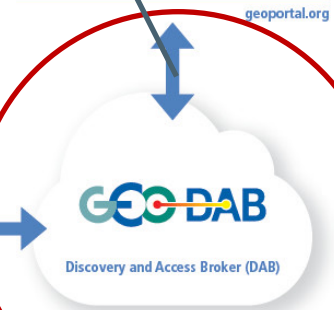
#### Norway



#### Private Sector Providers



Standard interfaces and APIs



Standard, legacy and proprietary interfaces/APIs

Intermediary

- More than 200 infrastructures/data sources currently brokered
- More than 400 millions of metadata fields
- Tenth of standards/profiles supported
- Access through Portal, standard interfaces (OGC/ISO), APIs
- Data transformations supported (reprojection, resampling, reformat) with bulk download



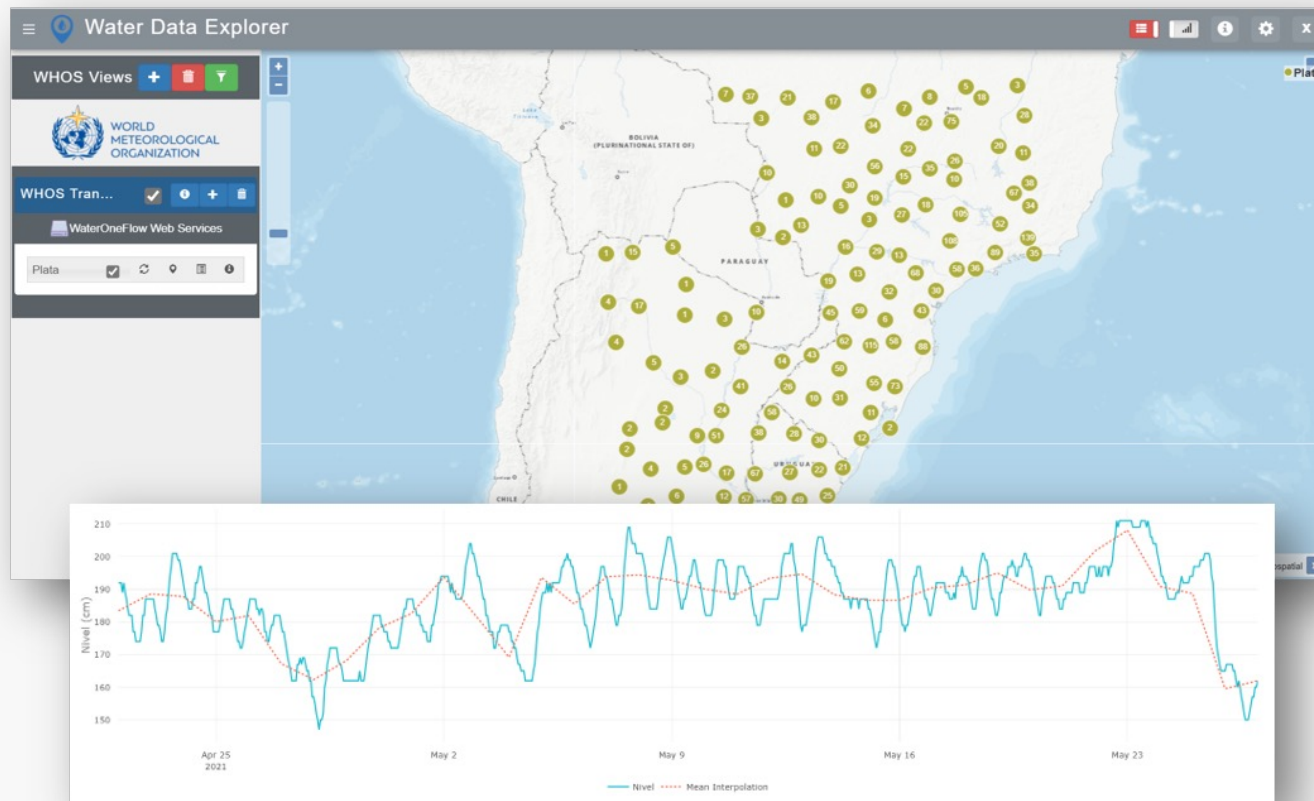
# Experiences (WHOS)

<https://community.wmo.int/en/activity-areas/wmo-hydrological-observing-system-whos>



WORLD  
METEOROLOGICAL  
ORGANIZATION

## WMO Hydrological Observing System (WHOS)



- Three regional systems developed: Plata, Arctic, Global
- Mostly in-situ data from monitoring stations
- Support for multiple clients through APIs
- Interoperability with WMO Information System (WIS) under test

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# The Green Deal Data Space

1. The European Strategy for Data envisions **a Common European Data Space for fostering data-driven innovation** and a single market for data respecting the European values
2. A first step towards the CEDS is the development of sectorial Data Spaces including **the Green Deal Data Space**
3. The **GREAT Project**, funded under the Digital Europe Programme, is a **preparatory action for the implementation of the Green Deal Data Space** (GDDS)
4. **GREAT is developing an architectural framework (technical blueprint)** as an input for the GDDS Roadmap for implementation
5. **The GREAT Project considers Data Intermediaries as GDDS Actors and the Technical Blueprint introduced specific logical building blocks** (i.e., Facilitators)
6. See also research activities in AD4GD, FairiCube, Usage, B3 projects (funded in HORIZON)



**“The GREAT Project” in “Building the Green Deal Data Space in a way that contributes to GEO”, EuroGEO Workshop 2023**

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# Conclusions

1. In-situ data sharing challenges are similar to those for remote-sensing data (but at a higher scale)
2. As a lesson learned from previous experiences, intermediaries can help to address in-situ data interoperability challenges
3. There is no major technical issue hampering the interoperability of in-situ data; major issues are at the governance and sustainability levels



# Thank you!

**Any questions?**

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<https://www.greatproject.eu/>

<https://geossplatformplus.com/>



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