Integrating standard nodes in the GDDS

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Difficulties we face:

- The Green Deal Data Space is the most heterogeneous and multidisciplinary of all.
- Is *data space* the *only* or the *right* solution for ensuring Open Data and at the same time Trust, Governance and Data Sovereignty?
Extending the industry data space definition

• In the industry definition of Data Space (IDSA), static assets are shared between two participants in a secured channel.
  • It requires that both (client and server) have connector software.
  • Data sharing becomes the opposite of open data!!

• Questions
  • How to combine open data (INSPIRE, etc) with secured data in a data space?
  • How to share queryble (dynamic) assets?
  • How to allow for data processing in the data space?
  • How to do loosely coupled and still provide enough trust?
This approach is different from the one presented in: IDS as a Foundation for Open Data Ecosystems, Chapter 14, Kirstein F. and Bohlen V. Designing Data Spaces The Ecosystem Approach to Competitive Advantage, https://link.springer.com/book/10.1007/978-3-030-93975-5
Some solutions to break silos in the GDDS

• Share and combine
  • In situ data using **Sensor Things API** (and STAplus), in collaboration with **USAGE**
  • Gridded data in **datacubes**, in collaboration with **B3** and **FAIRiCUBE**.

• Using semantics. Two approaches
  • The Green Deal Information Model (**GDIM**)
  • Focus on **variables/observedProperties**
    • Tag them with variable **name**, **EV**, **UoM**
    • Report **provenance** of the variables (methodology to obtain the data and applied post-processing)

• Test OGC web services and OGC web APIs **with IDSA connectors**.
**Proposed architecture**

AD4GD GD Data Space foundation

- Interoperability enablers
  - Licensing & data access policies. Personal data, sensible data & commercial protection
  - Open data
  - Protected data
  - Ontologies (Evos) (Task 2.1)
  - Tagged Data models (Part 2)
  - STA and OGC APIs (Task 1.4)
  - IDSA architecture (connectors, etc)

Software

- MD & prov. editors
- Catalogue / broker
- OGC API, STA Access Services
- Open Datacube
- Jupyter / WCS
- Connectors
- DS broker
- Meaning Services
- Rainbow
- AI for Data Quality
- Map Browsers, STA explores, analytics, workflows

The GDDS

- Dissemination, GDSS action group, sustainability
- Standardization (OGC API progress, EV vocab. & maps compositions)

Pilots

- Interviews and use cases definition
- Open data
- Protected data
- IDSA architecture (connectors, etc)

Proposed architecture

- Berlin lakes water quality
- Biodiversity in Catalonia
- Air quality in North Italy

**EUROGEO WORKSHOP 2023** BOLZANO 2-4 OCTOBER 2023
Zero Pollution Pilot (Berlin)

Stressors

- Climate Change
- Densification

Water Quality

Water Availability
Connectivity in Catalonia

Changes in habitat connectivity in the Barcelona peri-urban area. Computed from remote sensing data. Expected impact: habitat usage by breeding and migrating species. How to verify this, and how to ensure consistent connectivity maps over time?
Air Quality in north Italy

- Improving information products:
  - analyses and forecasts of surface concentrations of key air pollutants (PM2.5, NO₂);
  - emissions of pollutants (PM2.5, NO₂) and greenhouse gases (CO₂).

- By complementing currently used data from regulatory/reference/high-quality sensors, satellites & socio-economic activities (traffic, energy production...)
  - by adding high-resolution resolution citizen science data (100m-1km, 1min-1h)

- Issues of IoT/cheap “sensors” data: metrological quality (intrinsic to instruments+how they are operated often by non-specialists), representativeness error (depends where the sensor is), formats...
remote sensing

an Open Access Journal by MDPI

Earth Observation Data in Environmental Data Spaces

Guest Editors
Dr. Joan Masó, Dr. Alaitz Zabala Torres, Dr. Lucy Bastin, Dr. Kaori Otsu

Deadline
31 December 2023

Special Issue
Invitation to submit

mdpi.com/si/172682
Welcome to the EuroGEO Action Group on the Green Deal Data Space (GDDS) created in the EuroGEO workshop in Nov 8th, 2022 in Athens.

Initial list of projects and activities participating

"Sister projects" financed by DG research to develop the GDDS

AD4GD project - AllData4GreenDeal (Joan Masó, CREAT)) (CORDIS Sheet)
The aim is integrate standard data sources in a multi-disciplinary framework.

FAIRCUBE project - F.A.I.R. Information Cubes (Stefan Jetschky, NILU) (CORDIS Sheet)
The core objective is to enable players in Earth Observation to provide access, process, and visualize data and algorithms in a user-friendly manner. We are

USAGE project - Urban Data Space for Green Deal (Oscar Corcho, Universidad Politécnica de Madrid) (CORDIS Sheet)
It will provide solutions for making city-level data (Earth Observation, Internet of Things, authoritative and crowdsourced)

B3 Biodiversity Building Blocks for Policy Making (Quinten Grome, Meise Botanic Garden) (CORDIS Sheet)
Global biodiversity is changing under multiple pressures including climate change.

http://actiongroup.greendealdata.space/
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