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IN-SITU MONITORING DATA

STILL A CHALLENGING REALITY!?

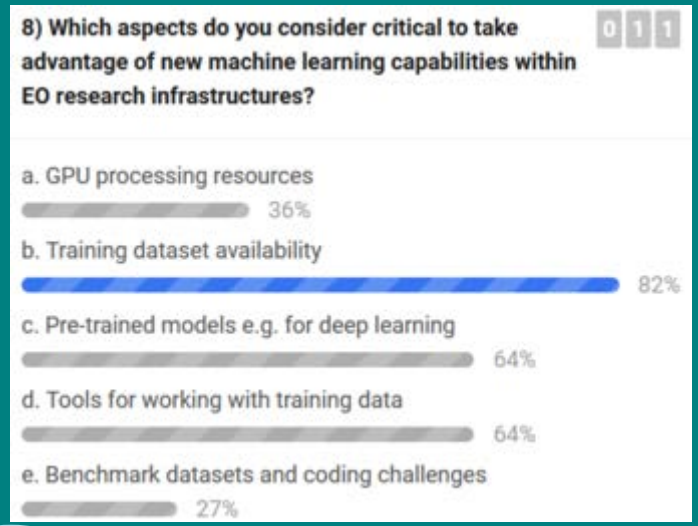
This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 641762

ENVIRONMENT AGENCY AUSTRIA umweltbundesamt

In-situ data needs …

- Availability of in-situ training data still an important issue
  - Validation of derived EO products
  - Calibration of EO data
  - Using EO and in-situ data in modeling approaches
- Acquisition of in-situ data
  - Targeted acquisition
  - Using existing research infrastructures and data collections to retrieve data

https://twitter.com/pdgriffiths81?lang=en
ESA EarthObservation phi-week 09/2019



In-situ monitoring data are important inputs in various EO workflows. In-situ data can either be acquired by targeted collections or accessed from existing data repositories. FAIR data sharing is therefore a key aspect.

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IN-SITU DATA

- **Protected areas** as well as **long term observation networks / infrastructures** are key player in data acquisition and data provision
- Measurement of a given characteristic in the field either by **humans or devices (e.g. sensors)**
- This might include
  - Presence (or absence) or abundance of the target species
  - Presence (or absence) or coverage of habitat and vegetation types, vegetation characteristics
  - Land cover and land use
  - Soil type and soil characteristics
  - Climate data and energy balance
  - Bio-geochemistry data
- Integrated fine scaled data covering various ecosystem characteristics

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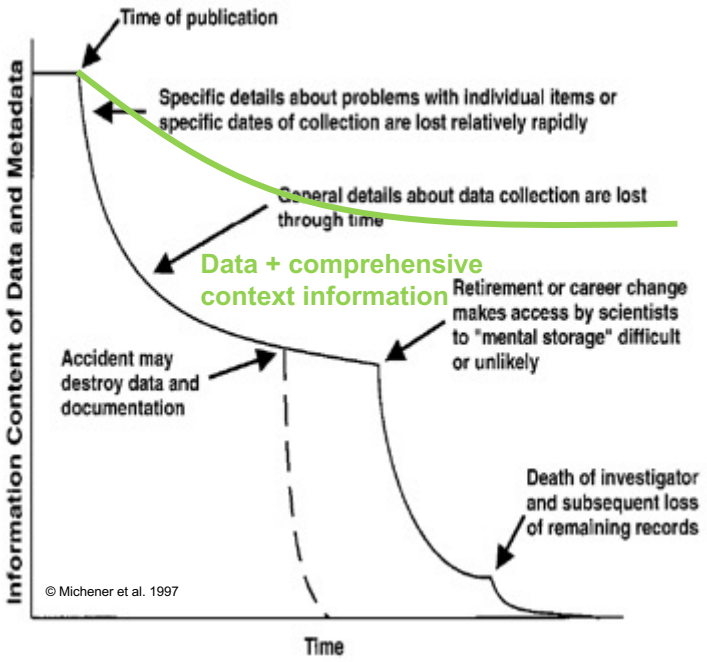
… APPROACHES TAKEN BY ECOPOTENTIAL



- Provide recommendations for the harmonised **documentation and provision** of in-situ data facilitating **FAIR data management**
- Provide and **overview and access** to relevant in-situ used or collected in the context of ECOPOTENTIAL
- **Collection and analysis** of data integration remote sensing and in-situ data filling dedicated knowledge gaps
- **Providing of in-situ data** from ECOPOTENTIAL partners (PAs and research groups) for the different processes conducted in ECOPOTENTIAL

  Documentation using standard metadata editor (e.g. DEIMS-SDR https://deims.org)

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DEIMS-SDR

Site and Dataset Registry (SDR) providing an editor and comprehensive catalogue to edit and share information on relevant components of research infrastructures.

DEIMS-SDR is adopted by ECOPOTENTIAL and is used by LTER Europe and ILTER to manage their site network. DEIMS-SDR is developed by contributions from different European scale projects.

DEIMS-SDR has also been adopted as a GEO pilot for a global registry of in-situ observation sites (2017–2019 GEO Work Programme)

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DEIMS-SDR SITE AND DATASET REGISTRY

ASSOCIATED INFORMATION

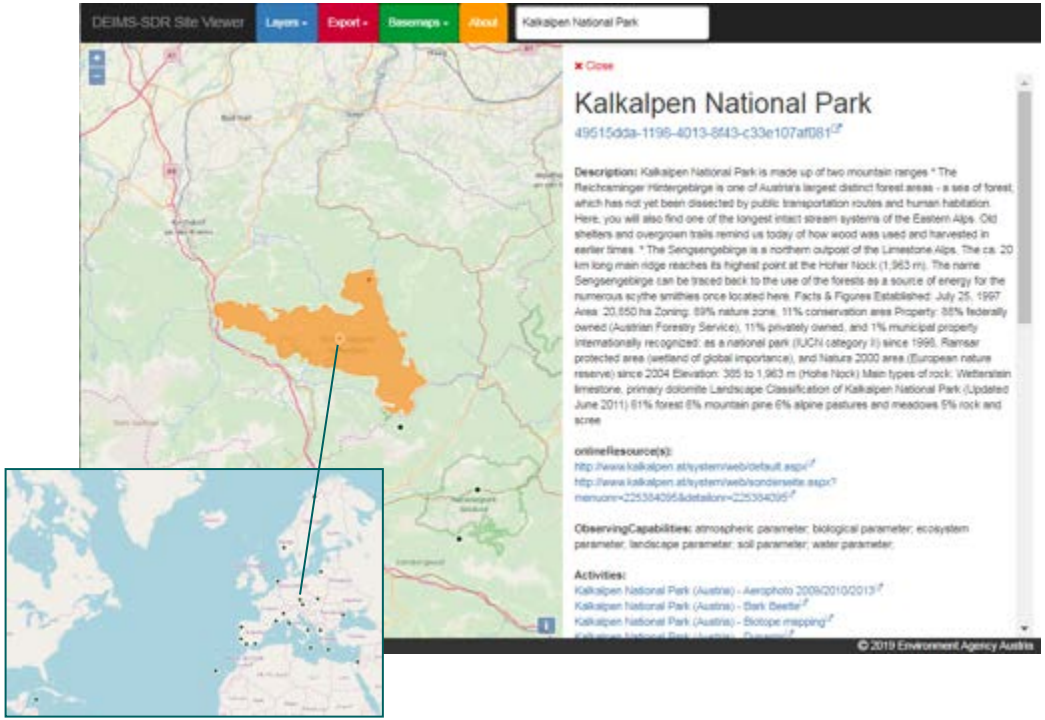
DEIMS-SDR (https://deims.org) is a **light-weight metadata solution** to document research sites, datasets, sensors and related personnel. Information is exposed through various metadata formats:

- ISO19115/19139, EML, BDP, INSPIRE EF, SensorML

and services:

- OGC CSW, OAI-PMH, WMS, WFS

ensuring **interoperability and reusability** linked to **data repositories** (B2SHARE, CDN)



Wohner, C., Peterseil, J., Poursanidis, D., Kliment, T., Wilson, M., Mirtl, M., & Chrysoulakis, N. (2019). DEIMS-SDR – A web portal to document research sites and their associated data. Ecological Informatics, 51, 15–24. https://doi.org/10.1016/j.ecoinf.2019.01.005

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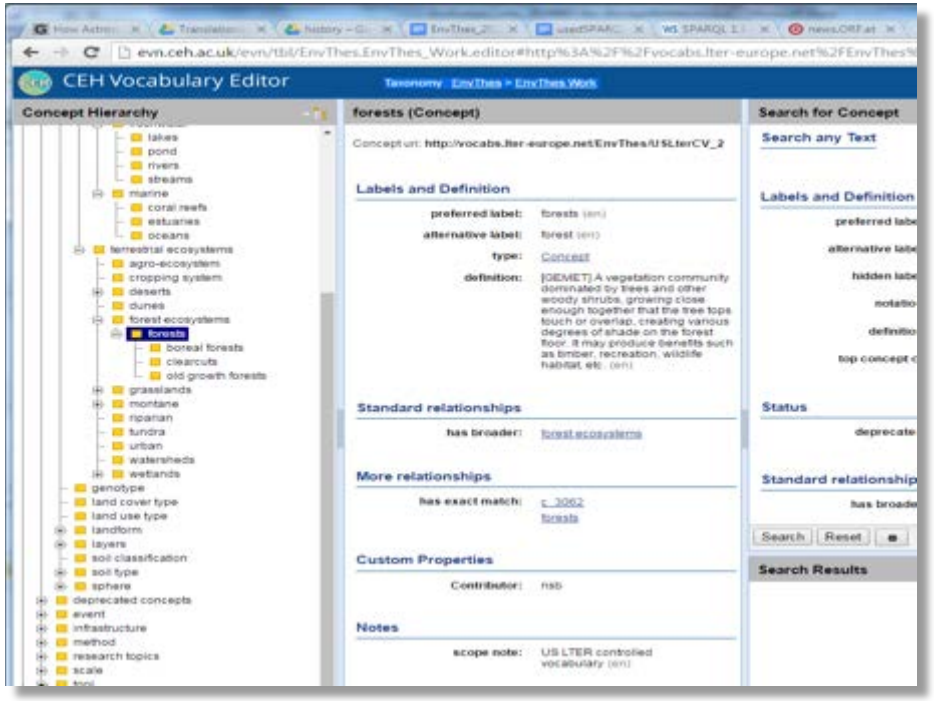
Common vocabulary



EnvThes (Environmental Thesaurus) focuses on environmental observations and provides a common vocabulary for keywords and parameter naming.

EnvThes is adopted by ILTER/LTER Europe and is used as basic semantic source for DEIMS-SDR. EnvThes is managed using TopBraid. http://vocabs.ceh.ac.uk/edg/tbl/EnvThes.editor

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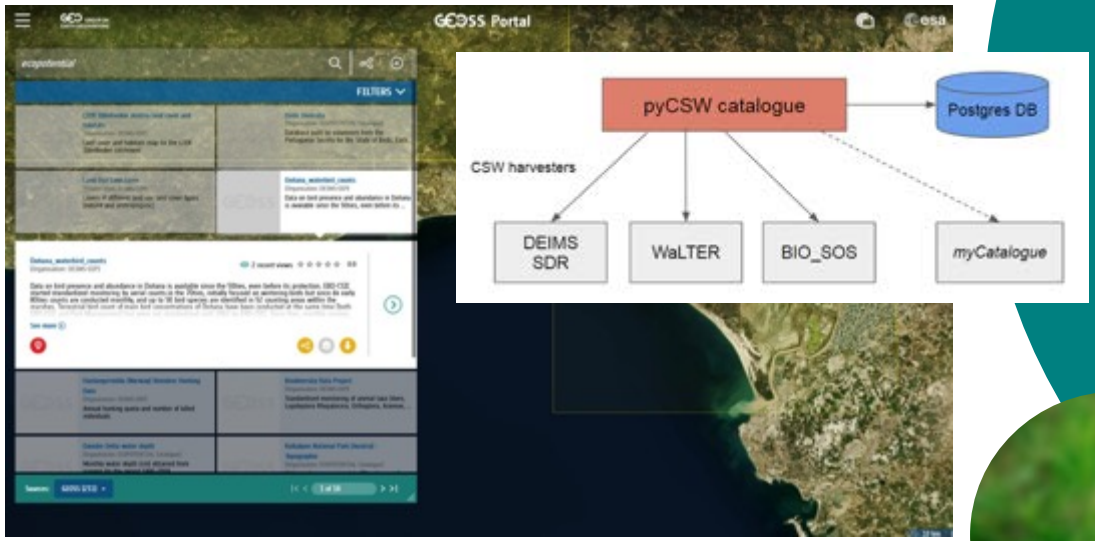
ECOPOTENTIAL IN-SITU MD CATALOGUE



Providing an **integrated catalogue**, harvesting metadata from DEIMS-SDR and available metadata catalogues from protected areas as **single point of access**. This catalogue is implemented using **pyCSW** which easily can be plugged into the **GEOSS data ecosystem**.

The catalogues follow the rules and the framework defined by the OGC CSW and have the ability to publish and search metadata in different formats (DC, ISO19115/19139, ISO 19119, NASA DIF) for (geospatial) data and services.

https://data.ecopotential-project.eu/
https://geoportal.org/?f:phrase=ecopotential

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SUMMARY

Mobilisation of in-situ data from existing data sources (e.g. protected areas) is still an issue

This addresses different aspects …

- Technical issues – related to standards, tools, maintenance, service level
- Social issues - willingness to share data, governance, data stewardship
- Financial issue – sustainability and long term support

DEIMS-SDR and **IN-SITU DATA CATALOGUE** are pieces in the puzzle to support **FAIR data management and provision**

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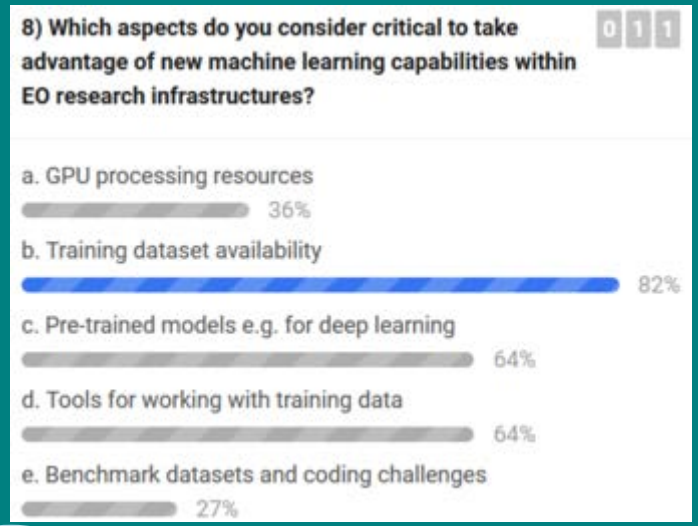

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Thank you …

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