ALAMEDA

A scalable multi-domain metadata management platform

HMC project, March 2022 - February 2024
Vision: Features

A pilot application to manage *measurement* and *sampling related* metadata for *soil moisture* and *stable isotope geochemistry*.

- Provision of interfaces for a standards-based dissemination of aggregated information
- Integration into the DataHub (Hub Terra)
- Category based metadata management system
- Adoption of well-established standards
- Use of domain-controlled vocabularies
- Metadata curation with intuitive graphical user interfaces
Vision: Application

Use across organization-, system- and domain-boundaries

search, access, and compare meta-information across databases

Alameda

compilation, visualization, administration, storage, and sharing of datasets from the field, laboratory or modeling
Categories

- **Observations & Measurements**
  Includes information that directly pertains to the data

- **Samples & Data**
  Covers sample information and provenance, in compliance with IGSN

- **Sensors & Devices**
  Includes information on measuring devices and analyzing processes, such as the instrument type, manufacturer, and the physical principles behind the measurement

- **Methods & Processing**
  Includes information on the methods & settings (e.g. sample preparation, instrument and software settings) and post-processings procedures

- **Spatio-temporal characteristics**
  Includes information on spatial and temporal content of a sample or datapoint (e.g. age range of a sediment, catchment area/size of a river system)

- **Operator**
  Includes information on the institution (e.g. Centre), facility (e.g. Lab) and person (e.g. scientist, technician)
Communities

- Pilot will involve researchers of the target communities to evaluate its operational readiness, to identify gaps and needs.
  - GFZ Section Geomorphology (GM) with its Organic Surface Geochemistry Lab
  - UFZ Departments Monitoring and Exploration Technologies (MET), Computational Hydrosystems (CHS) and Remote Sensing
  - Remote Sensing Centre for Earth System Research at Leipzig University
  - ...

Project Partners

▪ Helmholtz Centre Potsdam - German Research Centre for Geosciences (GFZ)
  – Geomorphology
    *(Oliver Rach, Jens Turowski, Dirk Sachse, Gunnar Pruß)*
  – eScience Centre
    *(Tobias Weiβ, Martin Hammitzsch, Rainer Häner)*

▪ Helmholtz Centre for Environmental Research (UFZ)
  – Monitoring- and Exploration
    *(Peter Dietrich)*
  – Computational Hydrosystems
    *(Claudia Schütze)*
HMC Linkage and Integration

- ALAMEDA will act as an example implementation that can be adopted, further developed, and re-used by other domains.

- The main benefits of the implementation can result in establishing...
  - interactive processing of information,
  - seamless integration of new resources,
  - composability and re-use of functionalities,
  - scalability in terms of systems and domains.

- ALAMEDA will be implemented at the DataHub (Hub Terra)

- Software code will be open source