CINERGI: Geoscience Use Cases

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Individual Discovery Use Cases

Geoscientists in several disciplinary domains including hydrology, geochemistry, metagenomics, sedimentology, and critical zone science, are interested in finding information for their research. We demonstrate how the CINERGI inventory can be enhanced to support their use cases.

Use case 1: Bedload tracer experiments
Find data from all bedload tracer experiments in the field, and any other studies done at those locations. This aids the active research area to correlate the bedload sediment transport processes with proxy data in the same area.

Use case 2: Global Rivers
Gather information on major dissolved anion (SO4, Cl, Br, HCO3) and cation (Ca, Mg, Na, K) concentrations for rivers at a location close to the coast just outside the tidal influence. This information can help to reassess the uptake of carbon dioxide by mineral weathering reactions.

Use case 3: Biodiversity
Find areas of increased or decreased species diversity, and explore if the change may be related to certain geochemical measures in this area, and correlated with microbiological data from this area.

Working with Data Facilities

Data facilities spend significant manual effort to ensure high quality and completeness of their metadata. We demonstrate how the CINERGI metadata curation pipeline improves existing metadata descriptions using a geoscience-wide ontology, a range of metadata enhancement components, and provenance and validation services.

Facilitating Discovery

A resource (catalog, data set, web page, …) becomes more discoverable if:
- It’s content is rich (i.e., it contains terms and auxiliary information by which it can be searched)
- It has descriptors that are related to the vocabulary that the domain scientists use
- The domain scientists are provided the right tools to specify their request to find all resources that are relevant for their information seeking process

In CINERGI we are doing this by a multidisciplinary collaboration, one use case at a time. We need your participation and use cases – how do you want to ask questions and get results from CINERGI? Sign up below or contact Ilya (zaslavsky@sdsc.edu) or Leslie (lhsu@ldeo.columbia.edu).

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More use cases at the CINERGI GitHub site: github.com/CINERGI/UseCases/issues