



AquaDiva Metadata: Towards Achieving FAIRness in the AquaDiva Data Portal

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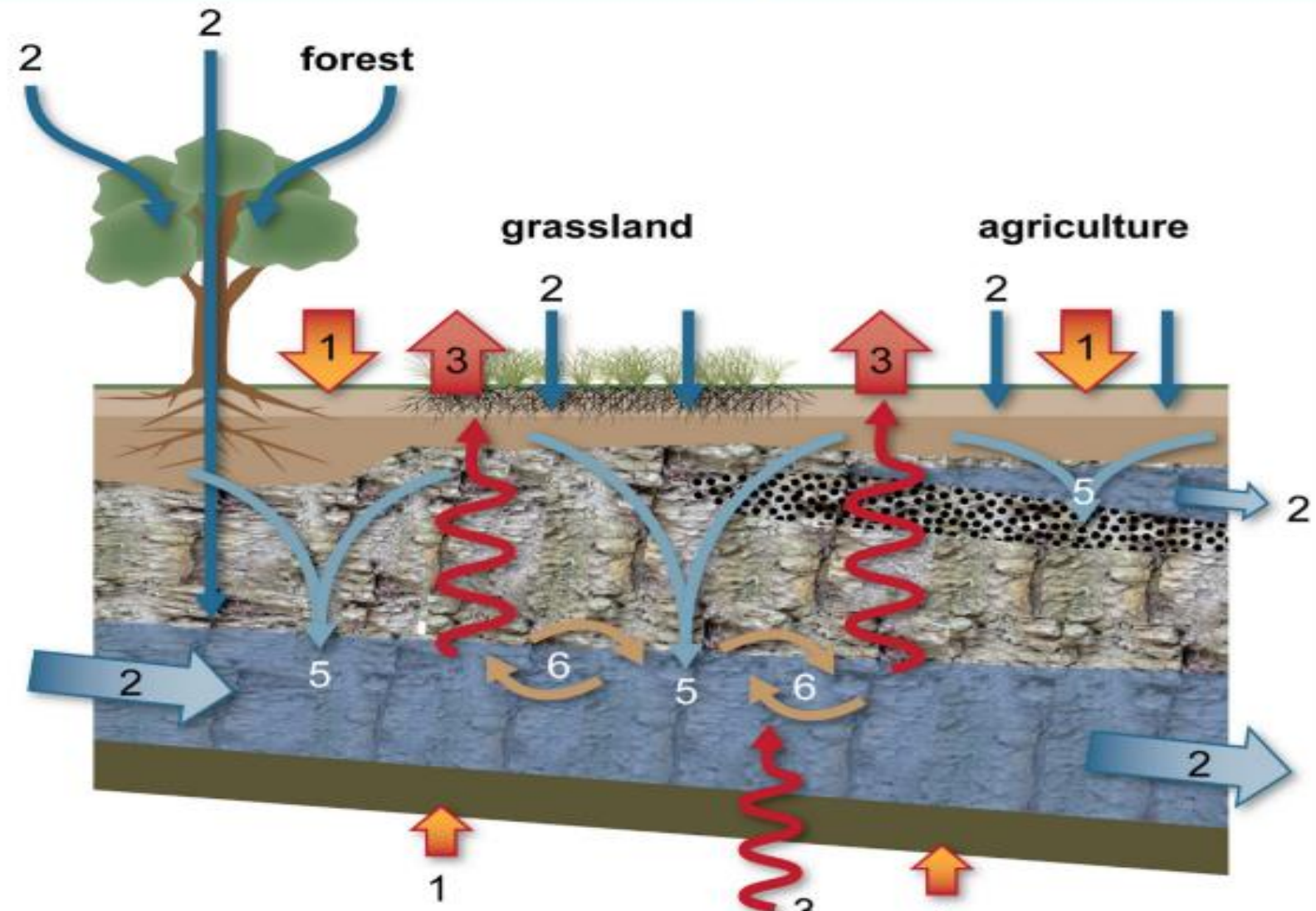
<https://www.fusion.uni-jena.de/> | <https://www.aquadiva.uni-jena.de/>

Introduction

- The **CRC AquaDiva** focuses on the important roles of water (**Aqua**) and biodiversity (**Diva**) for shaping the structure, properties and functions of the subsurface, defined here as the zone that begins below the highest density of plant roots (~0.3 meters) and extends down into the first aquifers (~100 meters)

Aiming to address the following research question

How do surface conditions and local geology set the functional biodiversity of the subsurface?



Metadata is needed to describe primary data

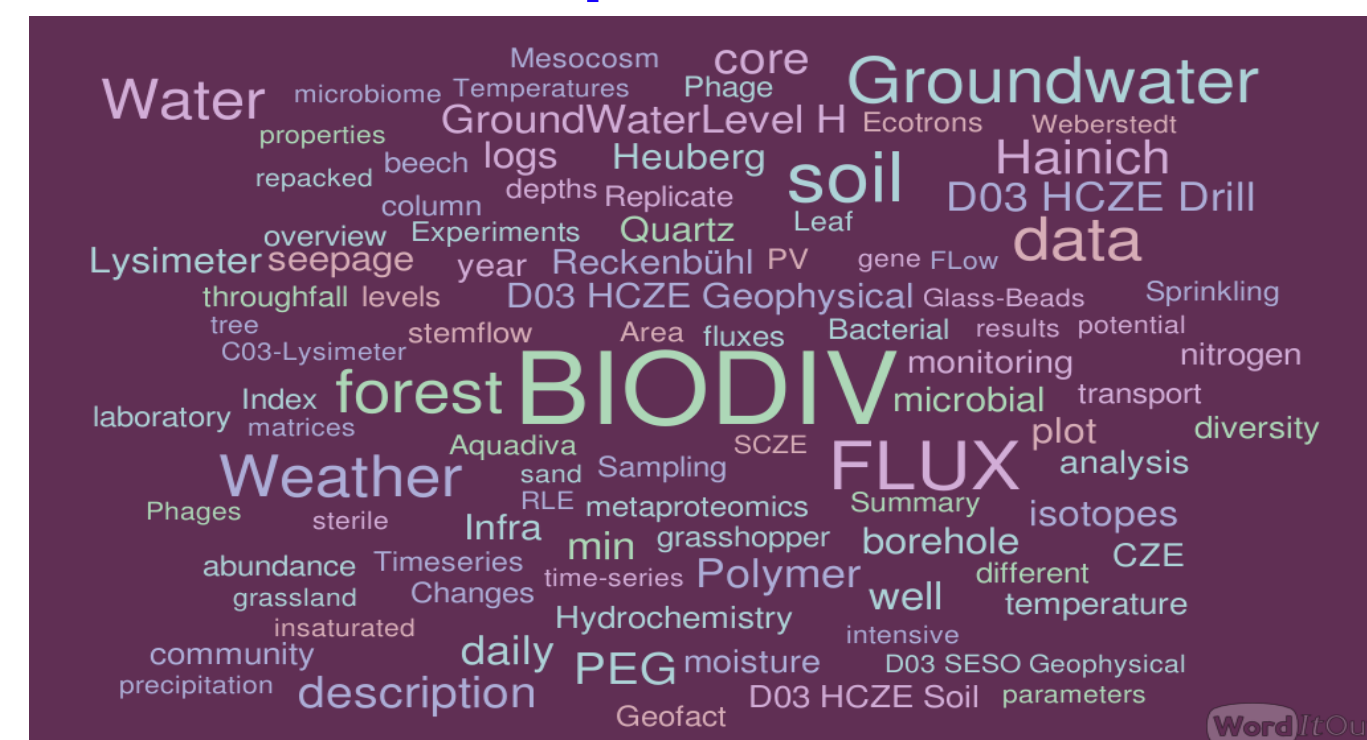
Ecology



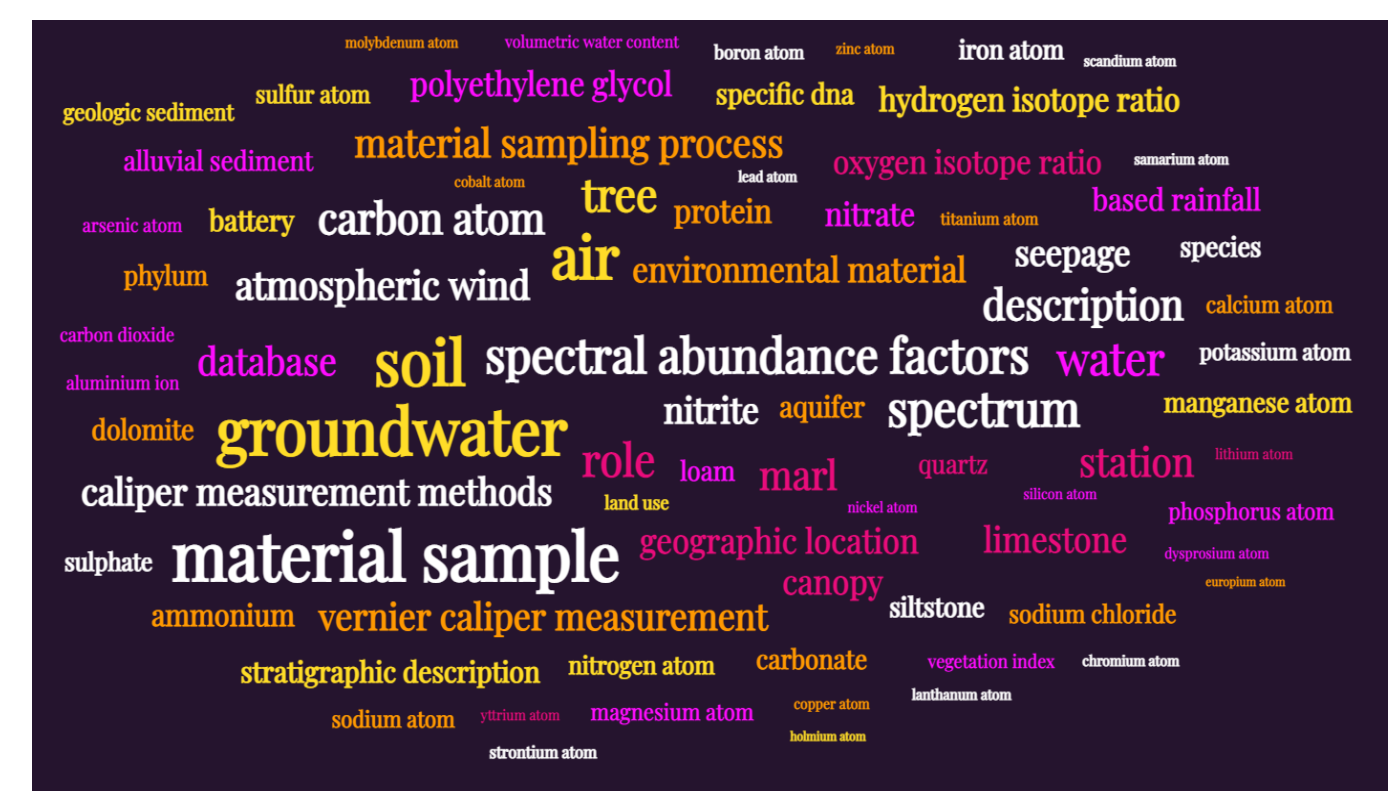
Biology
Basic/ABCD
DataSet
A dataset containing unit data and their shared metadata elements.

But the problem, even we used multiple metadata, some of domain specific information are still missing and there is a growing need to have a new metadata

What is AquaDiva about?



Keywords extracted from datasets' titles



keywords extracted from datasets' data attribute names



Keywords extracted from publications' abstracts (from Hahn' group: <https://julielab.de/Staff/Hahn/>)

AD metadata

Main components

- Dataset
- Project
- Description
- People
- OMIC Data

People

- Data Owner
- Data content contact
- Data Technical contact
 - Name
 - Email
 - ORCID
 - Role
 - Organization

Dataset

- Dataset ID
- Dataset title
- Short description
- Keywords
- Release Date
- License
- Update date

Description*

Filter: <CZ-Compartments>
Aboveground
(interface canopy- surface)
▪ Above-canopy-atmosphere
▪ Vegetated Surface Zone
 > Canopy-layer
 > Phyllosphere-layer (tree-layer, shrub-layer, herbs)
 > litter layer
 > organic layer
Belowground
(interface: soil surface)
▪ Soil zone (Pedosphere, soils senso strictu)
▪ Aeration Zone
 > Regolith
 > Parent Rock
▪ Phreatic Zone
 > Aquifer
 > Aquitard
 > Aquiclude

Filter: <SampleObject>
Water (aqueous fluid)
▪ Precipitation
 > Solid (snow/ice)
 > liquid
▪ Surfacewater
 > River/Creek
 > Lakes/ponds
 > Reservoir/pool (artificial)
▪ Soilwater
 > Seepage
 > Retained
▪ Aerationzonewater
 > Seepage
 > Retained
▪ Groundwater
 > Mobile
 > immobile
Atmosphere (gas phase)
▪ Aboveground Atmosphere
 > Soil Atmosphere
 > Aeration Zone Atmosphere
Solids
▪ Rock
 > Soil
Biota
▪ Plants
 > Animals
 > Fungi
 > Viruses/Phage
 > Bacteria
 > Archaea
 > Chromista
Non-aqueous fluids

Filter: <Sampletype>
Subcategory of SampleObject
Fluids (both aqueous and non-aqueous)
▪ Ex-situ
 > Withdrawn: pumping
 > Withdrawn: bailing
 > Collected free-flow (springs, artesian, geyser, fountains)
▪ In-situ
 > Well: Loggers/Sensor
Atmosphere (gas phase)
▪ Ex-situ
 > Withdrawn: Stripping / Venting / Collected free-flow
 > In-situ
 > Wells: Gas-Loggers/Sensor
Solids
▪ Ex-situ
 > Core: Ram-coring
 > Core: Drill-coring
 > Dredged material: Excavated/exhumed
 > In-situ/non-invasive
 > Borehole data
 > Remote sensing
Biota
▪ Phenotype/Morphologie/Taxonomic feature
▪ Molecular techniques (DNA/RNA)
▪ Markers

Filter: <AD-OMICS>
(Integral and complementary information on "diversity")
Genom
Metagenom
Metabolom
Proteom
DOM
SOM
Mobile inventory
Fluid composition
 > Organic
 > Inorganic
Colloid
 > Organic
 > Biotic
 > Organo-mineral-associations
Supra-Colloids
 > Organic
 > Biotic
 > Organo-mineral-associations
Volatiles
Solid-composition
Fluid properties
 > Physical
 > Physicochemical
Milieu condition (Environment)
Biodiversity

Project

- Project Name
- Project ID
- Project PI
- Organization

*Recommendation additional filters (collected during joint meeting D01 & D03)