



Linking from Earth Observation Data and Products to executable web-based Algorithms based on Metadata

J. Eberle, S. Hese, and C. Schmullius

Department for Earth Observation, University of Jena, Germany (jonas.eberle@uni-jena.de)

The Siberian Earth System Science Cluster (SIB-ESS-C) is a spatial data infrastructure for earth observation products for Siberia implemented at the University of Jena (Germany), Department for Earth Observation. Using standards for data discovery, data access and data processing, earth observation data is described with standards from the International Organization for Standardization (ISO). ISO-19115 and ISO-19115 part 2 was used to describe this data and products in a very detail. Working with raster data every band was described precisely to have a possibility to link this kind of data as input data of algorithms, implemented as web processing services.

With an integrated catalogue system data can be searched, found, visualised and downloaded. But the integration of raw earth observation data and derived products leads also to a processing of this data, for example if a user wants another projection, another format or further analysis. Having a pool of algorithms it should be possible to find an algorithm which can be used with given or available input data. For the description of each in- and output of an algorithm, metadata similar to the description of possible input data was used. Unfortunately in- and outputs of OGC-compliant Web Processing Services doesn't have much metadata, so own metadata keys were integrated to fit with the before described ISO-compliant metadata.

The main objective of this work was to implement a system which knows what kind of data is available and what data is needed to run algorithms. The final system knows which algorithms can be executed with the available data and which data is needed to execute specific algorithms. Whenever new data is ingested into the system, it executes automatically applicable algorithms to have final earth observation products or further analysis on the fly and in real-time.