



## **Multi-Disciplinary Data Services: Standards-based Coverage Services Fostering Integration; The EarthServer approach**

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Within the EU coordinated efforts to build the spatial data infrastructures for hosting the ever growing datasets collected within, around and beyond our planet, the EarthServer project involves five data providers. Four of these providers host data in the geoscience domain and one on planetary science. All of them are providing data over web services interfaces; among others, we focus on the Web Coverage Service (WCS) and the Web Coverage Processing Service (WCPS) interfaces. A peculiar characteristic of both these interfaces is the reliance on a standard open data model to represent content: the GML Coverage Application Profile (GMLCOV) standard. This standard defines a data model well suited for spatio-temporal data in a semantically rich, machine readable way. The data can be laid out along multiple axes, allowing for high domain dimensionality and each data value can be structured, allowing advanced grouping of measurements. The semantically rich data model allows automated collection and indexing of data service offerings. In particular, the rangeType element (an swe:DataRecord instance) provides knowledge about the structure of each measurement offered in a coverage. Collection of this information into a catalog allows knowing, for example, in which data services a given physical property or measurement type is accessible, among several data provider offerings. Harvesting such metadata and making it available to answer searches over the web is an activity being tackled by one of the project partners. A joint effort is directed towards definition of a query system that builds on top of such harvested catalog and leverages the query language approach in processing data provided by the WCPS interface. Answering a request which addresses metadata while also giving processing directives, with mixed data/metadata queries is the focus of such effort with the aim of performing advanced, provider independent, data analysis in a compact way. The development of a mixed data/metadata query language over a standardized data model increases the potential for an integrated use of data coming from a variety of sources. This writing elaborates on the suitability of the EarthServer infrastructure and its current developments to promote creation of multi-disciplinary data access and processing services.