



OGC SWE compliant implementation of the model web in the climate change domain

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One of the key challenges of environmental informatics today is assuring the existing resources can be re-used in various applications across domain and administrative borders. This is equally true for the sensor observations and for the services, and requires establishment of a standardized service oriented architecture (SOA) featuring the service interfaces and data models that are easily accessed over internet and interpreted by machines. Unsurprisingly, the development of the “Model Web” is an essential part of the GEOSS (The Global Earth Observation System of Systems)[1] work plan.

Sensor Service Architecture (SensorSA)[2], which was developed by the SANY consortium, proposed the use of OGC Sensor Web Enablement services and data encodings for accessing and managing both sensors and models. Based on this approach, SUDPLAN team[3] has developed prototype services allowing the use of OGC Sensor Observation Service and Sensor Planning Service (SOS, SPS) for encapsulation of the climate change models. The implementation used in this project is based on AIT’s Time Series Toolbox (TS-Toolbox) framework [4,5,6], which was initially developed in SANY as a way to simplify the development of applications encapsulating sensors and models in SOA environments.

This year we shall present the TS-Toolbox extensions and related SUDPLAN developments allowing us to encapsulate various climate change models behind SOS 2.0 and SPS 2.0 service interface, as well as to present time series of 2D observation coverage’s over SOS. In addition, we shall discuss: (1) the model types and observation types used in SUDPLAN; (2) reasons for using the SPS rather than Web Processing Service (WPS) for model encapsulation; and (3) describing of the models and parameters in OGC Sensor Modelling Language (SensorML) and Observation and Measurements (O&M) encoding of time series.

Keywords: Model Web; Climate Change; OGC standards; TimeSeries Toolbox

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