

Samplings and Monitoring Programs: Synchronizing well defined CSV files with the new Sensor Web Datamodel

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Abstract

The overall objective of the MuDak-WRM project is the development and application of a globally applicable management system for reservoirs and their basins. To succeed in this development, two major sub-goals have to be fulfilled. First, a methodology for a minimum monitoring to assess water quality needs to be developed. Additionally, the complexity of existing models needs to be reduced, to address globally restricted data and budget availability.

The research project will investigate two example reservoirs - the Grosse Dhünn-Talsperre in North Rhine-Westphalia in Germany, and the Passauna reservoir in the state of Paraná in Brazil - and their drainage basins. MuDak-WRM uses innovative remote-sensing techniques to produce key input and validation data. A real-time data network (Sensor Web) will allow the research partners to view the project's progress at any time and make direct use of the collected data and results.

In order to get a better understanding of the water flow processes heterogeneous water quality samplings have been taken in regular time intervals. For interoperable data exchange between data producers and modellers the Sensor Web is utilized.

Although our currently installed Sensor Web Data Infrastructure performs well with continuously taken numerical observation data, it lacks in scalability and semantics concerning Samplings and Monitoring programs. During this talk we will sketch our extension to the current installed Sensor Web data model and the Sensor Web Observation Rest API.

Hence, the learning curve for getting familiar with the Sensor Web protocols and patterns is steep especially for researchers and data producers have not been familiar with standard protocols an additional data integration layer has been developed within the MuDak-WRM project.

As a second issue during our talk, we will introduce a CSV Sensor Web template for storing Sampling Data, including trajectories and water Profiles. The template builds a bridge between file structures that are used by sampling collectors researchers and the Sensor Web database.

A software components synchronizes an SFTP Server that hosts files structured in the CSV Sensor Web template format with the Sensor Web database.