11th International Conference on Hydroscience & Engineering
"Hydro-Engineering for Environmental Challenges"
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Mini-Symposium
Data Management in Hydro-Engineering

An efficient data management is crucial for a successful presentation and dissemination of data products in the hydro-engineering domain. Increasing data volumes from distributed sources require solid and equally flexible software architectures for closed and public user groups. Integrated community modelling systems enable the definition of modeling workflows to ease the management of input and output data and numerical modelling cores, often along with model coupling and visualization options.

Simultaneously, international directives demand regular status reports and evaluations of parameters in the water domain. The European Water Framework Directive or the Marine Strategy Framework Directive should comply with standards defined in the INSPIRE directive, the infrastructure for Spatial Information in the European Community. Additionally, Open Government initiatives foster an open and citizen-friendly administration by publishing government-financed (geo-) datasets. Datasets for those directives are more and more produced in numerical simulations, although a standardized documentation is often insufficient.

The usage of interoperable standards from the Open Geospatial Consortium (OGC) and ISO for presentation, allocation and metadata is consolidating both in expert data management systems and in data platforms for publicly provided data. Using services as interfaces enables the inclusion of various data products in cyber- or spatial data infrastructures (SDI), which, starting with simple geographic objects, open towards more complex domains such as hydro-engineering. Also, OGC services for online processing providing a framework for numerical operations.

Yet, hydro-engineering with its multi-facetted applications can hardly be used with current SDI technologies seamlessly. Issues such as large data volumes, large number of parameters, presentation forms in 2D and 3D web atlas or the use of modelling systems with proprietary data formats have resulted in various individual solutions. Here, netCDF becomes a universal data format with an increasing number of tools.

This mini-symposium should shed light on the usage of SDI technologies for hydro-engineering with a special focus on the elements of

- Metadata design
- Workflow design with OGC web services
- Web services for providing reports and evaluations
- Online and on-demand processing and modeling
- Model uncertainty and fuzziness in web services and metadata
- Web atlas design and implementation

We look forward to novel ideas and applications within and beyond these elements.

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