

GENERALIZED INFORMATION SYSTEMS FOR PHYSICAL STATE VARIABLES IN HYDROSCIENCE

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Abstract

Projects in hydraulic research and engineering are using mass of water related information originated from field measurements, numerical simulations and laboratory experiments. The management and the useful utilization of the information require suitable information systems. This paper describes the concept, implementation and application of 'Turtle', a generalized Web-based information system for physical state variables in water related engineering projects. The system uses a generalized object-oriented approach for information modeling of physical state variables by sets of tensor objects and allows a suitable adaptation to the specific project requirements. Based on the object-oriented concepts all analysis and simulation methods as well as documentation/archiving functionality are part of the information system. It integrates the traditional separated components pre- and post-processing tool, data bases, simulation processor in a holistic but flexible hydroinformatics system. The generalized approach enables also a long-term information handling of water related information in distributed and interdisciplinary engineering projects based on the concept of information sharing. The potential and advantages of such generalized information systems are described for selected application examples.

Keywords: Web-based Hydroinformatics systems, Information modeling, Data management