



GIS model-based real-time hydrological forecasting and operation management system for the Lake Balaton and its watershed

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Today, the most significant mission of the decision makers on integrated water management issues is to carry out sustainable management for sharing the resources between a variety of users and the environment under conditions of considerable uncertainty (such as climate/land-use/population/etc. change) conditions. In light of this increasing water management complexity, we consider that the most pressing needs is to develop and implement up-to-date GIS model-based real-time hydrological forecasting and operation management systems for aiding decision-making processes to improve water management. After years of researches and developments the HYDROInform Ltd. has developed an integrated, on-line IT system (DIWA-HFMS: DIstributed WAtershed - Hydrologyc Forecasting & Modelling System) which is able to support a wide-ranging of the operational tasks in water resources management such as: forecasting, operation of lakes and reservoirs, water-control and management, etc. Following a test period, the DIWA-HFMS has been implemented for the Lake Balaton and its watershed (in 500 m resolution) at Central-Transdanubian Water Directorate (KDTVIZIG).

The significant pillars of the system are:

- The DIWA (DIstributed WAtershed) hydrologic model, which is a 3D dynamic water-balance model that distributed both in space and its parameters, and which was developed along combined principles but its mostly based on physical foundations. The DIWA integrates 3D soil-, 2D surface-, and 1D channel-hydraulic components as well.
- Lakes and reservoir-operating component;
- Radar-data integration module;
- fully online data collection tools;
- scenario manager tool to create alternative scenarios,
- interactive, intuitive, highly graphical user interface.

In Vienna, the main functions, operations and results-management of the system will be presented.