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Development of a modelling platform for real-time flood forecasting in Poland

M. Fuchs (1), J. Dreher (1), A. Kruszewski (2), J. Niedbala (2), J. Niwinski (1), T. Nagler (3)

(1) Verbundplan Ltd - Consulting Engineers, Water Resources Management, Austria, (2) Institute of Meteorology and Water Management, Poland, (3) ENVEO - Environmental Earth Observation Information Technology Ltd, Austria

1997 summer floods in Poland caused enormous losses in terms of human life and property. As a consequence the government launched a national Emergency Flood Recovery Project (EFRP), financed by the World Bank. One of the many components developed within the EFRP is a nation-wide system for real-time hydrological monitoring and forecasting, which has been finalized in 2004 and is now being put into operation.

The key features of the system are (1) an interface to a relational database system, (2) a robust pre-processor for observed data and different types of meteorological forecasts, (3) a suite of different methods for continuous hydrological and hydraulic modelling, (4) appropriate temporal and spatial resolution, (5) high computational performance. Basic principles of design and development focus on robustness and performance, nevertheless the system is capable of incorporating all the available real-time information in the modelling and forecasting procedures. The different sources and magnitudes of errors and uncertainty introduced when operating the system in real-time are discussed and results from the operational use of the system are presented.