



Hydrological and Water Quality Forecasting and Real Time Monitoring in Finland: The Watershed Simulation and Forecasting System (WSFS)

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A watershed simulation and forecasting system is widely used in Finland for simulation of hydrological cycle and for making real-time forecasts. The system is based on watershed model, which is originally the HBV-model and simulates the hydrological cycle using standard meteorological data. The operational version of the system simulates the whole land area of Finland, including cross-boundary watersheds, total of 390 000 km². The inputs of the model are precipitation and temperature and the simulated components of hydrological cycle are snow accumulation and melt, soil moisture, evaporation, ground water, runoff and discharges and water levels of main rivers and lakes. The remote sensing data that we are using in the model includes satellite data of snow covered areas and precipitation data from weather radars. Water quality component of the model simulates erosion and the leaching of phosphorus and nitrogen from land areas and concentrations in rivers and lakes. System provides real time simulated concentrations for 58 000 lakes. Hydrological and water quality forecasts are provided for public by www interface where forecasts are updated automatically several times a day. In the case of flood automatic flood warnings are generated.