Office of Hydrologic Development Seminar

The Czech Hydrometeorological Institute And Flood Warning Services in the Czech Republic

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The Czech Hydrometeorological Institute (CHMI) is the central national institute of the Czech Republic in the fields of air quality, hydrology, water quality, climatology, and meteorology. Besides the collection and evaluating data, one of the most important missions is warnings for severe meteorological and hydrological phenomena. For general forecasting and warning services, CHMI runs comprehensive observational network consisting of hundreds of stations monitoring meteorological and hydrological conditions. Besides the "classical" measurement, CHMI utilizes data from its two C-band Doppler weather radars and radars from surrounding countries, Meteosat 8 (Meteosat Second Generation, MSG) and a Lightning Detection Network. Crucial tools for meteorological forecasting include NWP models; besides utilization of several global models (especially from the European Centre for Medium-range Forecasting, ECMWF), CHMI runs a local area model called ALADIN, which has been developed in an international cooperation led by Meteo France. For hydrologic forecasting, CHMI runs hydrological models for most catchments using observed data, and quantitative precipitation forecasts from ALADIN and the ECMWF global model. The quantitative precipitation estimations relies still mostly on raingauge measurement but on several catchments combined radar-raingauge estimates (merged estimates, applied as a result of the previous CHMI-NWS cooperation) are utilized as an alternative to gauge-only. A hydrologic forecasting system (AquaLog) used for forecasting of the Elbe river basin is based on tools within NWSRFS (SNOW17, SAC-SMA).

The activity and forecasts of the CHMI will be demonstrated for through a case study of the great floods in 2002, which affected the Czech Republic, Germany, and Austria and which became one of the biggest natural disasters in modern Central Europe. Very fast development and extreme discharges (generally reaching the highest level in history) were typical for these floods. The role of reservoirs as well as a detailed look on the situation and course of flooding in Prague will be presented. The 2002 flood brought much experience of using forecasting models in extreme flood events.

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2:00
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