



Flood forecast for the operational use of polders at the Elbe/Labe river

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The extreme flood event 2002 affected a large part of the Elbe basin. A subsequent study on measures to mitigate the effect of extreme flood events along the German part of the watercourse (Ihringer et al. 2003) revealed that flood retention measures (polders) may reduce the water level about up to 20-50 cm, depending on the retention volume and the event-specific operation of the polders. Therefore, it has to be investigated, how the operation of polders during extreme flood events may be optimised. On the one hand, it is necessary to account for the hydraulic characteristics of the polders. On the other hand, an optimal operation of the polders requires a reliable hydrological forecast, including the catchment part in the Czech Republic (CR) and the impact of large reservoirs in this area. This contribution emphasises the latter aspect. The main goal of the investigations is the coupling of Czech and German forecast tools for an operational management of polders in Germany (Saxony-Anhalt). In the first step, flow data from Czech gauges and technical data of above mentioned reservoirs have been collected. A systematic comparison of the volumes of flood waves at adjacent gauges confirmed the consistency of the flow data. In a statistical analysis of long-term flow series of the gauge Prague-Chuchle/Vltava, the impact of the main reservoirs on the flood situation could be determined. To harmonise the operation of the mentioned flood protection measures in the overall basin (reservoirs in the CR, polders in Germany), a flood routing is required. The coupling of German and Czech routing modules has been carried out in the scope of the Flussgebietsmodell (FGM, Ihringer et al. 1999). After the optimisation of parameters for different periods, the method was successfully applied on various extreme flood events. The model may thus contribute to the flood forecast in the overall basin and to the harmonisation of different flood protection measures. In addition, various flood scenarios may be as-

essed, and homogenised flow series for enhanced flood statistics may be derived.