



Development of the upper Tisza flood forecasting system

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The experiences of recent decades proved that substantial flood hazard is associated with the Upper Tisza. The section of the largest tributary of the Danube upstream of the confluence with the tributary Bodrog has an international drainage basin of 35,870 km² shared by Ukraine, Romania and Hungary. High and torrential floods may occur in any season and water levels critical for flood defence can be reached within 24 hours at Hungarian - Ukrainian and Hungarian - Romanian trans-boundary cross sections. For sake of extending the lead time of hydrological forecast and increasing their accuracy rapid and reliable tools of data collection are necessary.

The development of the network of telemetry stations has a four decade history in Hungary. The construction of the system was linked to technical and financial possibilities and went through a number of stages. Installation of modern and reliable equipment raised the complexity of the system with growing number of streams monitored, number of stations, observation frequency and number of observed elements.

The system become international in 2001 by linking the Hungarian and Ukrainian monitoring systems maintaining continuous flow of information between them. 12 stations are operational at the beginning of 2006 (22 in Hungary and 20 in Ukraine). The system is composed of telemetry stations, communication network and two centres in Nyíregyháza and Uzhhorod having data collection, processing, visualisation and data storage functions.

Within the framework of the further development of the system ultrasonic flow rate

measuring stations will be installed in the near future on tributaries Túr and Kraszna near the Hungarian -Romanian trans-boundary cross- sections.

For sake of rising the efficiency of the system it would be feasible to link the existing network with the set of hydrological telemetry stations and meteorological radars under development in the Rumanian part of the catchment. By that way the existing bilateral Hungarian - Ukrainian system could be extended into a joined Hungarian - Ukrainian - Romanian system. A further important aim is to use collected, visualised and stored data as input for a comprehensive hydrological forecasting system.