



IFKIS-Hydro – a Flood Hazard Information and Warning System for smaller Catchments

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Emergency measures like temporary deflection dikes may limit the damage caused by natural events like floods or debris flows. Such measures play an important role in integral risk management, because preventive measures such as control structures are technically, financially and ecologically limited, spatial planning to control land use needs time to become effective, and, furthermore, uncertainties in risk management might rise due to climate change. Especially in smaller catchments with short response times appropriate intervention is a particular challenge.

This challenge may considerably be facilitated by a site-specific early warning system. In 2004 the development of an information and early warning system for hydrological hazards in smaller catchments (in the range of 1 to 500 km²) started. The system referred back to the good experience with avalanche warning (system IFKIS) and was therefore named IFKIS-Hydro.

IFKIS-Hydro combines different information such as general hazard situation, weather forecast, precipitation gauging, discharge simulation, and local observations of event-specific phenomena, and presents them on a web-based platform, called Info-Manager. This platform presents the best possible data on the current and future flood and debris flow situation in real time. IFKIS-Hydro also provides a database which enhances the understanding of the behaviour of the observed torrents and rivers and supports decision-making in future events.

Local information, such as the water level during events but also accumulations of bed load material in the channel before events, is important to understand and interpret event characteristics in smaller catchments. The needed information can be gathered quickly with an economical justifiable effort which helps to deploy observers flexible

and adopted to different tasks. For successful local intervention and decision-making the strengthening of local expertise is of particular importance.

IFKIS-Hydro has been developed and applied in several test areas in Switzerland. Together with all positive experiences, IFKIS-Hydro also reveals several gaps in knowledge like e.g. the predictability of floods from small catchments. This project may also be seen as an opportunity to intensify research work in the relevant fields and to test new ideas and approaches in practice.