



Managing Flood Events in Alpine Areas – a Decision-Support Tool for Interventions

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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 where debris flows could occur, the selection of suitable intervention measures is a particular challenge.

Therefore the Canton of Grisons initiated a project called „intervention plan“ in 2006. Within this project, support tools for the people in charge of emergency management were developed, especially for the fire brigades. The launch of this project was strongly linked to the heavy floods in August 2005, which particularly hit the village of Klosters in Canton Grisons. The experiences of this event showed clearly that effective emergency management needs better support for the local intervention forces. The main problem during event management was that the local intervention forces were not well prepared for such an event and that existing information like hazard maps were not used. Therefore the intervention had to be limited to lifesaving, whereas further measures for event control and damage reduction could not be implemented.

This gap can be closed by the introduction of an intervention map. Based on the hazard map, it provides well-founded information on the hazard situation. First, it shows time

and location of possible temporary mitigation measures. Second, the plan helps to save time, because the intervention can be prepared and practiced before a real emergency and needed material such as mobile flood protection tools can be purchased in advance. Third, the intervention plan distinguishes different event phases, which gives indications about possible further development of the event. Last but not least, the simple form of the plan, a double-side printed sheet of paper A4 for each object and each event phase, facilitates a quick and concentrated transfer of information.

The intervention plan was developed for several torrents and rivers in Klosters. In one case, it had already been used in a real event. The expansion to other municipalities of Grisons is planned.