



Integrative landslide early warning systems (ILEWS)

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The aim of the poster is to provide an overview of the ILEWS project (Integrated Landslide Early Warning Systems) which is funded by the BMBF (Federal German Research Ministry). ILEWS intends to design and implement an integrative early warning system for known (reactivated) and new landslides, which provides information on future events with regard to local and regional requirements. The methodical configuration of the early warning system is developed to be transferable and modular, i.e. it can be adapted to local structures of different countries, and it can be customized to other natural processes (e.g. rockfalls).

The scientists from the project ILEWS come from different backgrounds (Geography, Geodesy, Physics, History, Spatial Planning) and fifty per cent of the applicants are companies. Both is necessary to satisfy the needs of the complex project architecture.

ILEWS has the aim to develop an early warning system from sensor to end-user. For this purpose three clusters are created: Monitoring, Modelling and Implementation. The first cluster "Monitoring" is concerned with the technical system which consists of a new sensor-combination for the divisions meteorology, soil hydraulics and -mechanics with the corresponding innovative data transmission technologies - both automated. Beside the measurements historical analysis are made to improve

the knowledge of magnitude and frequency of past events. The second cluster “Modelling” is the conversion of all continuously and periodically gathered information into a reliable and efficient early warning which has a near-real-time character. Therefore, a combination of physically-based and movement-based modelling will be applied. The core of the Movement analysis Early Warning Model is the trend analysis of the reciprocal landslide movement rate. The third cluster “Implementation” defines protection goals and the analysis of damage potential. On this basis an objective consideration of alternative risk management strategies is possible. Furthermore a cooperative risk communication is integrated into the project, identifying the configuration of the involved actors who are at the same time the links of the early warning chain.

Within the scope of the project, the early warning system is to be implemented in the Swabian Alb in Germany. The study area is a settlement area on a historically active complex rotational slide. Regularly recurring damage to houses and measurements of inclinometer show the reactivation of at least parts of the slide. Furthermore a reference region exists in South Tyrol, Italy.