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Current state of Monitoring and early-warning systems for rockfall and debris flow in Austria

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The wish of mankind to look into the future is as old as mankind itself.

Various problems in the field of natural sciences are approached differently. One can use mathematical models, some kind of empirical based monitoring systems or a combination of both.

In combination with small catchment areas, this goals have yet to be achieved.

Although right now there are worldwide a number of “systems” running, aiming to foresee floods or debris flow, all those installations are way apart from being a standardised, practical usabel appplication.

The market for early warnins systems is growing. Todays available monitoring technology is widely cheaper, predominantly more reliable and by far more versatile than only a few years ago. Nowadays there is practically nothing you can’t measure.

The more this availability of the measurement technology increases, the commitment of the authorities to use this technology increases as well.

Some of the installations may have the premise, “ If its of no advantage, its at least of no disadvantage”.

In the coming years this attitude will change to an awareness that installing such an early warning system can be one more small step towards minimizing an existing risk. Mind you a minimazisation, and no complete elimination, a fact that can’t be stressed enough.

Apart from the technical side, the future main focus on research about early warning

system will cover three points. Selection, Interpretation and Combination (defining threshold values for alarms and warnings) of measured data.

A lot of frontier work is waiting to be done and every installed monitoring system means a small brick on this road.

The lecture will be organised as follows:

- Defintions, general thoughts about early warning in small alpine catchment areas
- Overview of currently installed monitoring and early warning systems in austria, runned by the “technical service for torrent, avalanche and erosion control”
- Short description of the used technology; sensors, data storage, data transmission
- Evaluating and rating of the practical value of current installations; chances-risks-limits
- Outlook to future uses of such systems, evaluating further need for research