

Rockfalls at the Eiblschrofen in Schwaz (Tyrol, Austria) - events, monitoring program and protective measures

¹ANGERER, H., ²POISEL, R. and ²TENTSCHERT, E. ¹Austrian Service for Torrent, Erosion and Avalanche Control, Geological Service, Innsbruck, Austria; ²Institute for Engineering Geology, Vienna University of Technology, Vienna, Austria.

On July 10th, 1999 rockfalls at the Eiblschrofen took place endangering the inhabited area below, which had to be evacuated because a rock mass volume of 300m x 50m x 30m was expected to fall down. Investigations showed that the Eiblschrofen is built up by paleozoic dolomites toppling and moving downslope with some 6 mm per day. The dolomites building up a block steeply dipping into the slope are resting downslope on sandstones intercalated by marl layers also steeply dipping into the slope. The dolomite block itself is retaining schists atop of it. The complexity of the situation is increased by an underground mine excavating the dolomite rock. This situation reflects the challenges of the third millennium: space for inhabitation, for infrastructure measures, for production of raw material is getting scarce forcing to move into geologically more and more complex areas.

The only protective measures possible were found to be the construction of huge embankments for protecting the inhabited area below (maximum height 25m, retaining capacity of the collecting basins some 600.000m³). In order to investigate possible mechanisms of the rock masses, to find out the amounts of rock volumes in danger of falling down and the areas endangered by them an extensive monitoring program was installed. Due to the limited retaining capacity of the collecting basins created by the embankments the monitoring system is very important for the warning of larger events in the future. Overall costs are estimated to be some 2,5 mill US \$ for the monitoring program and 5 mill US \$ for the construction of the embankments.