Analysing Prehistoric Mass Movements in a Salt Mine (Hallstatt, Austria)

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Hallstatt Village is recognized for its salt deposit. It has been exploited since the Neolithic period. Due to steep relief and unfortunate bedding conditions, mass movements were frequent in the past and continue to affect the site today. The geotechnical situation - rigid rock caps overlying ductile subsoil - sets the most prevalent types of mass movements. Spreading, toppling, falling and sliding are the most common types of motion in hard rock whereas earth flows and earth and debris slides are the primary types of mass movements recorded in soft soil.

Archaeological excavations indicated that prehistoric mining activities were seriously affected by the impact of large mass movements. Several different prehistoric mining cavities from the Bronze to the Iron Age (1600-300 BC) were found, that are filled by deposits from mass movements. To narrow down the type of the mass movements and their source the deposits were investigated sedimentologically. The deposits consist mainly of silt and clay but contain larger clasts and sometimes even boulders as well. The results show lithological differences of the clasts and indicate different sources of the mass movements. The mass movement deposits in the prehistoric mine are partly stratified and show different sedimentation stages.

The age of the different mass movements has been determined precisely by other authors through dendrochronological analyses. Combined with our results a good under-

standing of the prehistoric and historic mass movements in Hallstatt could be achieved.