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Integrated Database for Rapid Mass
Movements in Norway

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Integrated Database for Rapid Mass Movements in Norway

Abstract

Rapid mass movements include all kinds of slides in geological material, snow or ice. Traditionally, information about such events is collected separately in different databases covering selected geographical regions and event types. In Norway the terrain is susceptible to all types of rapid mass movements ranging from single rocks hitting roads and houses to large avalanches and huge rock falls where entire mountainsides collapse into fjords creating flood waves and endangering large areas. In addition, quick clay slides occur in desalinated marine sediments in south eastern and mid Norway. For the authorities and inhabitants of endangered areas, the type of treat is of minor importance and mitigation measures have to consider all types of mass movements. This demand asks for a national overview over all registered slide events that allows fast and easy access to the available data. Therefore an integrated national database for all kind of rapid mass movements was developed. The database is built around the single slide event. Only three data entries are mandatory: Time, location and type of slide. The remaining optional information enables registration of detailed information about the terrain, involved materials and damages. Pictures, movies and other documentation can be uploaded into the database. A web based graphical user interface was developed that allows entering new slides, editing and search for slide events. An integration of the database into a GIS system is currently under development. Datasets from various national sources like the road authorities and geological survey were imported into the database. Today, the database contains 21,000 slide events from the last 500 hundred years covering the entire country. A first analysis of the data shows that most slide

registrations cover snow avalanche and rock fall events followed by debris slide events. Most events are registered in the steep fjord terrain of the Norwegian west coast, but major slides are registered all over the country. Avalanches clearly account for most fatalities, while large rock avalanche events causing flood waves are the most severe single events. The data is strongly influenced by the personal engagement of local observers and varying observation routines. This database gives a unique source for statistical analysis of slide events, risk analysis and the relation between slides and climate.

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