

Master's Thesis (MA, 30 ECTS)



FMT

Determination of the Fragment Geometry Distribution in recent Rock Fall Deposits using Photogrammetry

Description

During rock fall events, material detaches from a rock slope and is transported downwards by falling, rolling and jumping processes. During these movements, the block sizes and shapes are constantly reduced and changed due to fragmentation processes. Hence, the block geometry within the rock mass and the resultant fragment geometry on the deposit differs. Knowledge about this reduced size distribution is essential for either designing protective measurements against rock fall hazards, or the availability of loose fines, which can be source of subsequent mud flows.

In this thesis, a recently developed software shall be applied to characterize fragments in a recent rock fall deposit. Parameters like the fragment size distribution, the fragment orientation and shape distribution over the slope shall be determined.

The thesis is part of a research project aiming on the determination of secondary mud flow susceptibility of deposited material after rock fall events and it is a collaboration between the Graz University of Technology, the Geological Survey of Salzburg and the company 3GSM GmbH.

The elaboration of the thesis goes by:

- Literature research
- Generation of a georeferenced digital surface model of a recent rock fall deposit
- Automated delimitation of distinct fragments on the slope
- Determination of the fragment size, shape and orientation distribution with respect to the slope geometry and spatial distribution
- Writing of a technical report about the findings

Templates for the scientific report can be found on the institute's homepage. There is also a guideline for scientific writing free downloadable at the homepage, whose compliance is mandatory. The language for the report can either be in English or in German.

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Start spring term 2019

Duration ca. 6 months

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