Geophysical Research Abstracts
Vol. 20, EGU2018-12234, 2018
EGU General Assembly 2018

Preliminary results from the back-analysis of 24 rock avalanche case histories using a numerical model

Jordan Aaron (1) and Scott McDougall (2)

(1) ETH Zurich, Department of Earth Sciences - Engineering Geology, Switzerland (jaaron@ethz.ch), (2) The University of British Columbia- Department of Earth, Ocean and Atmospheric Sciences, Canada (smcdouga@eoas.ubc.ca)

Rock Avalanches are extremely rapid flows of fragmented rock that can travel unexpectedly long distances. The mechanisms that result in this excessive travel distance are hotly debated, and forecasting rock avalanche motion is a challenging task. Dan3D, a semi-empirical runout model, is one promising tool that can be used to forecast rock avalanche motion. The parameters that govern Dan3D simulations can only be constrained through back-analysis of case histories. In this work, Dan3D is applied to a database of 24 rock avalanche case histories. Trends in the calibrated parameters are used to infer information about rock avalanche movement mechanisms, as well as suggest guidelines for probabilistic forecasts of rock avalanche motion. The results presented in this work have implications for both the understanding and prediction of rock avalanche motion.