



Modelling the tsunami from the potential Åknes rock slide; laboratory experiments and numerical simulations

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A major unstable rock volume has been detected in the mountain side, Åkneset, in the narrow fjord, Sunnlyvsfjorden, Western Norway. If large parts of the unstable masses are released as a whole, the slide will generate a tsunami that may be devastating to several settlements along the fjord. Assumed complex deformation, high speeds, large volumes, and steep fronts of the slide make the modelling of the tsunami generation a challenging task involving splash, turbulence, and strong non-linearities. The work is therefore performed via a series of different approaches to improve the final result.

The simulations of the rock slide and the tsunami are based on different slide scenarios and various numerical models. Our work attempts to model the generation and propagation of the tsunami by applying (1) numerical rock slide models, (2) numerical wave models, and (3) laboratory experiments in both 2D and 3D. The purpose of the recently completed 2D experiments was to investigate the possible instrumentation for the 3D experiments with regard to requirements and limitations. In addition to results of immediate interest for the actual hazard assessment, the laboratory experiments also provide increased physical understanding as well as valuable input to and validation of the numerical models

Results from the numerical simulations and the 2D laboratory experiments will be shown.