



Ryggfonn avalanche test site, Norway: full-scale measurements

P. Gauer(1,2)*, K. Lied (1), K. Kristensen (1), C. Harbitz (1,2), D. Issler (1), H. Iwe (1), E. Lied (1), and T. Johannesson (3)

(1) Norwegian Geotechnical Institute, Sognsveien 72, Postboks 3930 Ullevål Stadion, N-0806 Oslo, Norway. (2) International Centre for Geohazards, c/o NGI, Postboks 3930 Ullevål Stadion, N-0806 Oslo, Norway. (3) Icelandic Meteorological Office, Bustaðavegur 9, IS-150 Reykjavík, Iceland. (Contact Email: peter.gauer@ngi.no)

The Ryggfonn full-scale avalanche test site has been in operation since 1980. The test site has a vertical drop of about 900 m and a horizontal length of 2100 m. Typical avalanche size ranges between 2 (mass of 0.1 Gg) and 4 (mass of 10 Gg) according to the Canadian snow avalanche size classification and maximum front velocity are up to 60 m/s. Dry and wet snow avalanches are observed.

Measurements from Ryggfonn avalanche test site include pressure readings from five load cells at two locations in the middle of the track. At a 16 m high catching dam in the runout zone, normal and shear stresses are measured on two places. In addition, six geophones are placed on the ground in the run-out zone. For some avalanches, RADAR measurements are available.

Measurements from several winter seasons are analyzed with regard to distinguish between different flow regimes and to gain estimations of flow densities. Focus is also put on the interaction of the avalanche with the catching dam. The measurements include natural and artificially released avalanches.