

Snow avalanche history of rural areas in Iceland

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1. ABSTRACT

The Icelandic Meteorological Office has since 2008, with support from the Avalanche and Landslide Fund, worked on avalanche chronicles and avalanche hazard evaluation for rural areas threatened by snow avalanches. The purpose of the work is to gather available information about the avalanche history and assess the general avalanche conditions so that the most heavily threatened farms and other buildings can be identified and listed in response plans to be used under impending avalanche danger. A rough evaluation indicates that more than 300 farms in Iceland are threatened by snow avalanches to some degree.

The main result of each assessment is a list of farms that are consider “severely threatened” by snow avalanches or landslides. This means roughly that the risk corresponds the C-zone in formal avalanche hazard assessment for dense settlements according to the Icelandic hazard zoning regulation. A list of farms considered to be possibly endangered under extreme conditions is also produced. The approach in this assessment for rural areas is less formal than required by the regulation for towns and villages and the results do, therefore, not have a legally binding effect regarding areal planning or building permits. The assessments, nevertheless, provide important information to the local authorities that is useful during avalanche cycles and an essential background for areal planning in the respective regions. Formal avalanche hazard assessments are then often conducted in relation to planning of new farm or recreational buildings. It is typically found in areas, where this type of analysis has been carried out, that much more avalanches are known by the local inhabitants than were previously listed in published documents or the avalanche database of the IMO.

At present, assessment have been completed for the districts of Svarfaðardalur, Öxnadalur and Hörgárdalur in N-Iceland. Work is on-going for Skagafjörður, Eyjafjörður and Ólafsfjörður in N-Iceland; Syðridalur in NW-Iceland and Mýrdalur in S-Iceland. The avalanche history has been gathered for Öundurarfjörður and Dýrafjörður in NW-Iceland, as well as for Fnjóskadalur, Laxárdalur, Bárðardalur in N-Iceland. In many of these areas, interesting information about the run-out of large avalanches and interaction of avalanches with terrain obstacles is revealed by the work on the updated avalanche chronicles, which will be useful for future research on avalanche hazard and the effectiveness of avalanche protection measures.