



Modelling snow properties in Kautokeino, Northern Norway

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Hard snow layers deteriorate the grazing situation for reindeers during winter. By modelling the snowpack evolution in Kautokeino over the period 1966-2009, we analyse the weather situations that favor the formation of high-density snow. This work is part of the IPY project EALAT (<http://icr.arcticportal.org/en/ealat>).

We used daily meteorological observations to drive the Swiss multi-layer model SNOWPACK to simulate the evolution of snow cover stratigraphy in terms of density, temperature and grain size. Results are evaluated using direct snow pack observations made during the winter seasons 2007-2010. Furthermore, we compare the modelled snowpack 1966-2010 with historical records of difficult grazing conditions reported by reindeer herders. In particular, the considerable losses of animal lives during the winter 1967/68 was caused by the occurrence of ground ice in conjunction to the long snow cover duration. This unfavorable coincidence is well reproduced by our model results.