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Long-term downscaling of precipitation over the complex terrain Iceland and validation with non-conventional observations

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Atmospheric flow over Iceland has been simulated for the period January 1961 to July 2006, using the mesoscale MM5 model driven by initial and boundary data from the ECMWF. Firstly, the simulated precipitation is compared to estimates derived from mass balance measurements on the Icelandic ice caps. It is found that the simulated precipitation compares favourably with the observed winter balance, in particular for Hofsjökull, where corrections to take liquid precipitation and / or winter ablation into account have been made, and for the comparatively high altitude outlet glaciers Dyngjujökull and Brúarjökull, where
such corrections are relatively unimportant. Secondly, model output is used as input to the WaSiM hydrological model to calculate and compare the runoff with observed runoff from six watersheds in Iceland. It is found that model results compare favourably with observations.