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Regional modelling of recent changes in the climate of Svalbard and the Nordic Arctic (1979-2001): Comparing RCM output to meteorological station data.

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Svalbard is one of the largest glaciated regions in the Arctic with over 2,100 glaciers and ice caps. In a topographically complex region like Svalbard coarse resolution general circulation model (GCM) data fail to accurately capture local climate. We simulate climatic changes in the region over the period 1979-2001 using the regional climate model (RCM) HadRM3, the high resolution limited area version of the U.K. Met Office's general circulation model (GCM) HadCM3. This is the first time such a model has been employed over this Archipelago.

Wind, temperature, water vapour and surface pressure from the European Centre for Medium-Range Weather Forecasts' ERA-40 reanalysis are used to force a 25/50km resolution RCM at the lateral boundary. Using reanalysis to force the RCM and comparing the output to meteorological station data provides a method to isolate any systematic bias in the RCM. We will report on initial results from this procedure and summarise the strengths and weaknesses of using the RCM for Svalbard.