Validation of the climate version of the WRF in the Northern Patagonia icefield

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The climate version of the regional Weather and Research Forecast Model (WRF) has been run for the 2001-2010 period over the Northern Patagonia Icefield (NPI) with a 3 km resolution, which is nested within a 9 km resolution subregional domain and a 27 km resolution regional domain. The regional model is initialized using the NCEP/NCAR Reanalysis database. Regional simulations from the different domains, mainly over the NPI, are tested against the observed surface stations to validate the improvement of the model results with respect to the lower resolution simulations from GCMs. Interest in the NPI is due to the scarce availability of observed meteorological and glaciological information in this large and remote icefield, and the need to validate the model behavior in simulating the current climate and its variability in complex terrain. The results will shed light on the degree of confidence in simulating future climate scenarios in the region and also in similar geographical settings. Based on this study subsequent model runs will allow to model future climate changes in Patagonia, which is basic information for estimating glacier variations to be expected during the next 2 centuries. The final objective of this work is to assess the future sea level rise contribution from the melting and possible ice collapse in Patagonia. This study is part of the ice2sea project funded by the EU 7 FP.