



Offline regional snowpack simulations over eastern Canada using CLASS

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The Canadian initiative “Variability and Change in the Canadian Cryosphere” is a contribution to the International Polar Year project “State and Fate of the Polar Cryosphere”. One sub-theme of the project involves offline testing of the cryospheric aspects of the Canadian Land Surface Scheme, CLASS.

The testing is being carried out over a domain centred on the province of Quebec in eastern Canada, at a resolution of $1/4^\circ$. The modelling time period incorporates one spin-up year (1991-1992), followed by six simulation years (1992-1998). This includes the warm El Nino winter of 1997-98 (the lowest snow year on record in Quebec).

Atmospheric forcing data have been obtained from ERA-40 reanalyses, scaled down in space and time using the Environment Canada GEM model as the interpolator. The background soil and vegetation data used were compiled over North America at 1 km resolution for the Mackenzie GEWEX study.

Validation data consist of CANGRID monthly air temperatures, NOAA daily snow cover data, a daily snow depth and SWE reconstruction by Brown et al. (2003), and bimonthly SWE observations over Quebec from snow courses. The focus of this presentation will be the evaluation of the CLASS snow simulation over the modeling domain, and an investigation of the sensitivity of the snow simulation to various land surface characteristics and model parametrizations.