



Assessing climate change hydrological impacts and associated uncertainties over the Quebec/Labrador watersheds using the Canadian RCM

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Assessing climate change hydrological impacts (consequences) over a given watershed requires a thorough evaluation of the various sources of uncertainty. Such information is fundamental to stakeholders in estimating the confidence level associated to climate projections, thereby allowing a better evaluation of the probable impacts. For this purpose, an ensemble of projections were performed with the Canadian Regional Climate Model (CRCM) at a 45-km horizontal grid-size mesh. The ensemble will be used to explore the model's behavior over 21 basins covering most of the Quebec/Labrador peninsula, focusing on the components of the hydrological cycle (runoff, precipitation, evapotranspiration, and snow cover). Members of the ensemble differ in several aspects, allowing the evaluation of various sources of uncertainty, such as imperfections in physical parameterizations used in the CRCM (from three different versions of the model), the effect of lateral boundary conditions (from two different driving Global Climate Models), natural climate variability (from different driving GCM members), and RCM configuration setup (such as domain size). Quantification of these uncertainties will be addressed in terms of their effect on the 30-year present and future climates, as well as on the climate change signal itself. These results will serve as a guide to the interpretation of climate change projections over the studied watersheds.