Variations in regional climate model skill for North American climates

R. Arritt (1) for the NARCCAP Team

(1) Iowa State University, Ames, Iowa USA 50011-1010 / rwarritt@bruce.agron.iastate.edu /
Phone: +1-515-294-9870)

The continent of North America includes a wide range of climate types, from humid to
desert, near-tropical to polar, and maritime to continental. Thus, assessment of model
skill for these North American climates may provide insights of broader applicabil-
ity. We perform such an assessment using regional climate model (RCM) results from
the North American Regional Climate Change Assessment Program (NARCCAP),
which includes six nested RCMs at 50 km resolution over North America. All simu-
lations are continuous from 1979 through 2004, using boundary condition data from
the NCEP-DOE reanalysis. Results show that no model consistently performs best;
certain models perform best for specific climate regimes while other models perform
better for other climate regimes. We show that this knowledge can be used to construct
more useful ensemble simulation systems by weighting models according to climate
types, rather than constructing a single ensemble for the entire domain.