



The North American Regional Climate Change Assessment Program (NARCCAP): Overview of Climate Change Results

M. S. Bukovsky and L. O. Mearns

National Center for Atmospheric Research, IMAGE, Boulder, United States (bukovsky@ucar.edu, 303-497-2483)

NARCCAP is an international program that is serving the climate scenario needs of the United States, Canada, and northern Mexico. We are systematically investigating the uncertainties in regional scale projections of future climate and producing high resolution climate change scenarios using six different regional climate models (RCMs) and multiple global model responses to a future emission scenario, by nesting the RCMs within four atmosphere ocean general circulation models (AOGCMs) forced with the A2 SRES scenario, over a domain covering the conterminous US, northern Mexico, and most of Canada. The project also includes a validation component through nesting the participating RCMs within NCEP reanalyses. The spatial resolution of the RCM simulations is 50 km. This program includes RCMs that participated in the European PRUDENCE program (HadRM3 and RegCM), the Canadian regional climate model (CRCM) as well as the NCEP regional spectral model (RSM), the NCAR/PSU MM5, and NCAR WRF. AOGCMs include the Hadley Centre HadCM3, NCAR CCSM, the Canadian CGCM3 and the GFDL model. Insufficient funding was available to simulate all 24 combinations of RCMs and AOGCMs. Thus, we used a balanced fractional factorial statistical design to reduce the number of combinations of RCM-AOGCM pairs to twelve. High resolution (50 km) global time-slice experiments based on the GFDL atmospheric model and the NCAR atmospheric model (CAM3) have also been produced and will be compared with the simulations of the regional models. The geographic domain was regionalized into 29 subregions based on common climatological features, and summary climate change statistics for each of the subregions have been produced. In this overview talk, results from the RCM climate change simulations for select subregions of North America will be presented.