

**Optimal combination of statistical and dynamical downscaling products for climate change impact studies.**Kristien King<sup>†</sup>;<sup>†</sup> Desert Research Institute, United StatesLeading author: [Kristien.King@dri.edu](mailto:Kristien.King@dri.edu)

A comparison study was conducted among different regional statistically and dynamically downscaled products forced with Coupled Global Climate Model output from the WCRP CMIP3 multi-model dataset to investigate regional predictions of future climate for the Intermountain West and their accuracy. We focus our analysis on the dynamically downscaled simulations using the Desert Research Institute's Regional Climate Model (DRI-RCM) based on the Weather and Research Forecasting model (WRFV3.2.1). DRI-RCM downscaled output consists of 36 and 12 km horizontal resolution products for the periods 1971-2000 and 2041-2070. In order to determine the skill and uncertainty of these simulations, DRI-RCM simulated data were compared to previous statistical and downscaled results from the Bureau of Reclamation Bias Corrected and Spatially Downscaled Climate Projections (BoR) and the North American Regional Climate Change Assessment Program (NARCCAP). The BoR projections provide 1/8th degree (12 km) resolution statistically downscaled climate variables through 2099 for the United States, and parts of Canada, and Mexico, while the NARCCAP dynamically downscaled climate predictions provide 50 km resolution products using a number of GCMs and regional climate models (RCMs) driven with the emission scenario SRES-A2 over most of North America. Using data from the DRI-RCM, GCMs, BoR, and NARCCAP, mean and extreme indices, for different time scales and specific areas of interest, including the monsoon region, the Sierra Nevada, and the intermountain west, were analyzed.