

**Precipitation and Temperature Distribution Over the Intermountain West: NevCAN Contributions and Scientific Insight**

**Daniel J. McEvoy, [mcevoyd@dri.edu](mailto:mcevoyd@dri.edu)  
Desert Research Institute, University of Nevada, Reno**

Co-Authors: John F. Mejia, and Justin L. Huntington, Desert Research Institute

This study analyzes and evaluates the quality of the new experimental Nevada Climate-ecohydrological Assessment Network (NevCAN) surface temperature, dew point temperature, and precipitation to better understand climatological altitudinal gradients over the Intermountain West. The NevCAN consist of two altitudinal transects located in the Snake Range in eastern Nevada and in the Sheep Range of southern Nevada and shows very robust and high quality meteorological data with very few missing records ( $< 0.1\%$ ). We also use NevCAN measurements as a baseline dataset to evaluate the performance of three spatially gridded climate data sets (PRISM 4-km, PRISM 800-m, and a 4-km PRISM/NLDAS-2 hybrid). The Snake Range precipitation data revealed an interesting orographic feature with the cold season monthly precipitation maximum primarily occurring at the highest station on the east slope, and significantly lower accumulations at highest station on the west slope. However, initial results indicate that the gridded data do not resolve this feature and show a precipitation maximum on the west slope. PRISM 800-m was found to have significantly higher correlations ( $r^2 = 0.83$ ) to NevCAN precipitation at the Snake Range, while PRISM 4-km performed the best at the Sheep Range ( $r^2 = 0.57$ ) indicating that downscaling to a finer grid size does not always lead to more accurate estimates. Overall, strong relationships ( $r^2 > 0.90$ ) were found between all gridded products and NevCAN temperatures. However, PRISM was found to have elevation dependent biases to maximum temperature and a general cold bias to minimum temperature and dewpoint temperature. We hypothesize that these findings could potentially impact water resources and location of snowpack maximum and groundwater recharge, and therefore should be taken into consideration with future hydroclimatic assessments. This poster presents these results and outlines future goals aiming to improve climate information in the Intermountain West.