



Multi objective climate change impact assessment using multi downscaled climate scenarios

Arun Rana (1) and Hamid Moradkhani (2)

(1) SMHI, Norrköping, Sweden (arun.rana@smhi.se), (2) Portland State University, Portland, USA (hamidm@pdx.edu)

Global Climate Models (GCMs) are often used to downscale the climatic parameters on a regional and global scale. In the present study, we have analyzed the changes in precipitation and temperature for future scenario period of 2070-2099 with respect to historical period of 1970-2000 from a set of statistically downscaled GCM projections for Columbia River Basin (CRB). Analysis is performed using 2 different statistically downscaled climate projections namely the Bias Correction and Spatial Downscaling (BCSD) technique generated at Portland State University and the Multivariate Adaptive Constructed Analogs (MACA) technique, generated at University of Idaho, totaling to 40 different scenarios. Analysis is performed on spatial, temporal and frequency based parameters in the future period at a scale of 1/16th of degree for entire CRB region. Results have indicated in varied degree of spatial change pattern for the entire Columbia River Basin, especially western part of the basin. At temporal scales, winter precipitation has higher variability than summer and vice-versa for temperature. Frequency analysis provided insights into possible explanation to changes in precipitation.