

Hydrological Responses to Dynamically and Statistically Downscaled Climate Model Output

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Abstract Daily rainfall and surface temperature series were simulated for the Animas River basin, Colorado using dynamically and statistically downscaled output from the National Center for Environmental Prediction/ National Center for Atmospheric Research (NCEP/NCAR) re-analysis. A distributed hydrological model was then applied to the downscaled data. Relative to raw NCEP output, downscaled climate variables provided more realistic simulations of basin scale hydrology. However, the results highlight the sensitivity of modeled processes to the choice of downscaling technique, and point to the need for caution when interpreting future hydrological scenarios.