
AWRA 2011 ANNUAL WATER RESOURCES CONFERENCE
Albuquerque, New Mexico

November 7-10, 2011

Copyright © 2011 AWRA

DOWNSCALED HYDROLOGIC PROJECTIONS FOR THE WESTERN UNITED STATES

Subhrendu Gangopadhyay*, Tom Pruitt, Levi Brekke, David Raff

ABSTRACT: In response to the SECURE Water Act (PL111-11, Section 9503), the U.S. Department of Interior's Bureau of Reclamation (Reclamation) is assessing climate change risks to water and environmental resources in "major Reclamation river basins" across the Western United States including the Colorado, Columbia, Klamath, Missouri, Rio Grande, Sacramento, San Joaquin, and Truckee basins. The legislation calls for Reclamation to provide periodic reports to Congress that includes climate change implications for basin hydrology (snowpack, runoff, groundwater) and Reclamation operations related to water deliveries, fish and wildlife, water quality, hydropower generation, flood control, ecological resiliency and recreation. Leveraging the "Bias-Corrected and Spatially Downscaled (BCSD) WCRP CMIP3 Climate Projections" archive (Maurer et al. 2007), Reclamation has developed a west-wide ensemble of corresponding hydrologic projections. The resulting hydrologic information has the same space and time attributes as the underlying downscaled climate information: 112 projections of monthly downscaled CMIP3 conditions from 1950-2099 at 1/8° resolution over the western U.S. These hydrologic projections were derived using the macro-scale Variable Infiltration Capacity (VIC) hydrology model. Presentation will highlight development of this hydrologic projections resource, assessments conducted by Reclamation, and the web-service through the Lawrence Livermore National Laboratory's Green Data Oasis facility (http://gdo-dcp.ucllnl.org/downscaled_cmip3_projections/dcpInterface.html) to publicly share this information to the broader Western U.S. water resources management community.

* Hydrologic Engineer, US Bureau of Reclamation, 6th and Kipling, Denver, CO 80225 USA, Phone: 303-445-2465, Fax: 303-445-6351, Email: sgangopadhyay@usbr.gov