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Translating CMIP3 climate information into hydrologic projections for the Western United States

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The SECURE Water Act ß 9503(b)(2) authorizes the U.S. Department of Interior's Bureau of Reclamation to assess climate change risks for water and environmental resources in eight "major Reclamation river basins" in the Western United States (i.e. Colorado, Columbia, Klamath, Missouri, Rio Grande, Sacramento, San Joaquin, and Truckee basins). The legislation calls for Reclamation to provide periodic reports on implications for water supplies, water deliveries, hydropower generation, fish and wildlife, water quality, flood control, ecological resiliency, and recreation. Leveraging the "Bias-Corrected and Downscaled 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 1/8o 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 status of setting up a web-service to publically share this information to the broader Western U.S. water resources management community.