

## **Category I - Hydrology, Climatology & Hydraulics**

Future regional climate change in the ten hydrologic regions of California: A climate modeling investigation

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### **EXECUTIVE SUMMARY**

This study will focus on two questions: (1) how will anthropogenically driven climate change affect California's climate, especially the hydrologic resources, in the coming decades?; and (2) what water resources will be available in the future, and at what times during the year (e.g., seasonality and amounts of rain and snow)? We will apply global and regional climate models to a domain centered upon California to answer these questions. We will use a 40-km (gridpoint) resolution regional climate model (RCM) in order to capture the topographic complexity of the state, and the climate associated with that complexity. This model has been demonstrated to represent well the observed present climate of California. We will specify atmospheric greenhouse gas concentrations as predicted by the Intergovernmental Panel on Climate Change (IPCC) for the next several decades, and calculate the climate that would likely occur under these conditions, as compared to modeled scenarios of present day climate. From this project we will produce climate model results of future climate scenarios. Climate model results (and the statistical significance of the results) for annual and monthly periods of time will be calculated for the ten hydrologic regions of California as defined by the Department of Water Resources. The quantitative results from this work will be made available for water policy and planning activities in the state, and for archival at the UC Center for Water Resources.