Post-doctoral fellow opportunity. California drought and Central Valley Water Use.

Host: Scripps Institution of Oceanography, La Jolla, CA

Deadline: Available immediately, applications will be received until filled.

California is coming off its fourth year of drought, among the worst droughts in this region's recorded history. Partly as a result of the impact of this drought, the state of California has passed historic legislation, the Sustainable Groundwater Management Act (SGMA, which aims at managing groundwater for the first time in California. The drought along with the recent legislation has accentuated the need for more timely data on the state's water use. A large portion of the state's water use is focused in the Central Valley. Claudia Faunt and colleagues from the USGS/California Water Science Center, developed the Central Valley Hydrological Model (CVHM). CVHM is an extensive, detailed three-dimensional (3D) numerical model of the integrated hydrologic system of the Central Valley (http://ca.water.usgs.gov/projects/central-valley/central-valley-hydrologic-model.html). The CVHM simultaneously accounts for changing water supply and demand across the landscape, and simulates surface water and groundwater flow across the entire Central Valley. Because pumping is generally not metered, CVHM calculates groundwater pumping as the remaining irrigation demand estimate after surface-water deliveries are taken into account. These surface-water deliveries are central to calculating pumping in CVHM, however, it often takes years to compile this delivery data. This time lag makes it difficult to make look at management options in a timely manner. The objective of the study will be working on is to develop more real-time monthly estimates of groundwater pumping. This study will build on the CVHM and will be a collaborative effort between the USGS and CNAP (see below; cnap.ucsd.edu)

The successful candidate will work closely scientists working in the region on both climatic and conjunctive water-use issues. The position is partially supported by the National Integrated Drought Information System (NIDIS) and will be managed by the California-Nevada Applications Program (CNAP), one of a dozen teams nationwide funded by NOAA under the Regional Integrated Sciences and Applications (RISA) Program.

 In conjunction with the USGS and the CNAP team, the post-doc will include obtaining or developing data to represent recent water-use variables in this area, usage of and access to observations, status of monitoring, knowledge of regional climate and its variability, and any other information about climate, to assist in model updates and simulations. The post-doc will also organize data sets, determine statistical, and/or categorizations necessary to update the CVHM. The candidate must have a familiarity with climate variability and the physical landscape and the conjunctive use of surface and groundwater. Strong organizational and computational skills are required, as well as the ability to run numerical simulations. In addition, the candidate must have strong

communications skills, including writing scientific journal articles, reports, briefs for the public and legislators as well as ability to communicate with a range of people from experts in the field to people with little hydrological knowledge. Candidates must have a completed doctoral degree, in the field of climate, hydrology or related physical science. Further information can be obtained from Dr. Julie Kalansky (jkalansky@ucsd.edu, 858-822-2147). Applications must include a cover letter, c.v., and three references. Please direct these to Dr. Kalansky via email.