

California water planners hear NASA long-term forecast

December 10 2013, by Carol Rasmussen



This image shows a dried watercourse near Dixon in California's Central Valley. Another dry winter is in the forecast for the state. Credit: UCAR

Recent NASA research tying California weather to large-scale atmospheric patterns contributed to the newly issued experimental Winter Outlook Forecast for Water Year 2014 by the California Department of Water Resources (DWR). That forecast, calling for

continued dry conditions for the third year in a row, was the first to include discussion of climate research from NASA's Jet Propulsion Laboratory, Pasadena, Calif.

JPL researchers have found a correlation between variations in California winter precipitation and a large-scale tropical weather pattern called the Madden-Julian Oscillation (MJO). Each oscillation event consists of recurring periods of storminess on a very large scale, 3,000 to 6,000 miles (5,000 to 10,000 kilometers), which travel eastward from the Indian Ocean across the Pacific. These events last about 50 days but do not recur regularly.

"When an MJO happens, California rainfall and snowfall increase and decrease during specific parts of its life cycle," said Duane Waliser, chief scientist of JPL's Earth Science and Technology Directorate. Waliser presented the research findings at the workshop where the DWR's water [forecast](#) was prepared.

"The MJO gives us a window of opportunity to forecast tendencies for more rain or dry weather three or four weeks in advance—much longer than a standard [weather forecast](#)," Waliser said.

A separate JPL study presented at the workshop has shown that atmospheric river storms are also influenced by large-scale atmospheric patterns. The forecast calls these storms the "wild card" in the state's water outlook, because just two or three such storms can produce as much precipitation as the state usually gets in an entire year.

Provided by JPL/NASA

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