

A wet winter on tap?

El Niño conditions revving up in the Pacific Ocean By Paul Rogers

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Posted: 08/06/2009 06:39:05 PM PDT

Updated: 08/06/2009 07:24:30 PM PDT

The phenomenon known as **El Niño** — where Pacific Ocean waters warm up, often bringing wet winters for California — **is intensifying**, according to a new report Thursday by federal climate experts.

As California struggles with its third year of drought, the report predicts moderate-to-strong El Niño conditions for this winter, with water temperatures rising to levels not seen since 2002, and perhaps approaching those of 1997-98. That year, the Bay Area received double its normal rainfall, causing mud slides, blackouts and floods. "El Niño conditions are strengthening. We expect at least a moderate event this winter, and possibly a strong event," said Michelle L'Heureux, a meteorologist with the National Oceanic and Atmospheric Administration and author of Thursday's report. The conclusions were based on temperature readings from dozens of buoys, along with satellite images and the predictions of numerous computer models from scientific agencies around the world.

The El Niño now under way doesn't guarantee that California will receive drenching winter rains. But the stronger the conditions and the warmer the water, the greater likelihood.

Since 1951, there have been six winters with strong El Niño conditions. In four of them, rainfall between the Bay Area and Bakersfield was at least 140 percent of normal. Some of California's wettest winters, including 1982-83, when Coyote Creek burst its banks, flooding Alviso under eight feet of water, occurred during those strong El Niño winters. In more moderate El Niño years, when ocean waters are warmer than normal, but not extremely warm, rainfall sometimes is above normal, but just as often below. During the last moderate El Niño, in 2002, for example, rainfall was 103 percent of normal in Northern California, but in a similarly moderate El Niño in 1986, rainfall was just 60 percent of normal.

So could California's drought, now in its third year, be coming to an end this winter?

"That's the \$64,000 question, or maybe the \$64 million question," said Jan Null, an adjunct professor of meteorology at San Francisco State University and 24-year forecaster with the National Weather Service.

"With the weak and moderate El Niño events, the rainfall is mixed. When we get into stronger El Niño events, the chances improve of a wetter winter."

Northern California is experiencing its first drought since 1992. In the Bay Area, most water agencies have requested that customers reduce use by 10 to 15 percent. Farmers in some parts of the San Joaquin Valley have had to fallow fields because of a reduction in pumping from the delta, partly related to endangered fish, and partly related to the reduced rain and snow. A fourth winter with below-normal rain could lead to strict rationing statewide next summer, with fines and "water cops" patrolling neighborhoods.

With that backdrop, many California water officials perked up last month, when NOAA announced that the Pacific Ocean was officially experiencing El Niño conditions. Thursday, NOAA said those conditions appear to be strengthening. "It's encouraging," Null said. "I'm sure the water managers are all rooting for a strong El Niño. That's what the ski resort operators want. That's what the power companies want for their dams." Although scientists don't know the exact causes, El Niño begins when trade winds that normally blow westward weaken. That allows warm Pacific Ocean water near the equator to spread east, toward South America. The opposite, or a cooling of the water, is called "La Niña."

The term El Niño — or "little boy" in Spanish — was originally used by fishermen along the coasts of Ecuador and Peru to refer to "the Christ child" because the phenomenon appeared every three to eight years around Christmas.

In recent weeks, water along the eastern Pacific part of the equator is averaging 1 degree warmer Fahrenheit than the 30-year average.

Historic trends and computer models show it will continue to warm into the fall, said L'Heureux of NOAA. If it averages up to 2.5 degrees warmer, that's a moderate El Niño. If it goes higher than that it would be considered a strong El Niño. During the biggest El Niño winters, in 1997-98 and 1982-1983, Pacific waters reached nearly 5 degrees warmer.

In addition to people, El Niño conditions also have dramatic effects on fish, whales, birds, sea lions and other species. Warm water from the equator moves north in an ocean current along California called the Davidson Current. With it come fish normally found only in warmer areas.

"In the last big El Niño, they were seeing striped marlin off San Francisco, and tuna species that you might find out of San Diego were being caught off Monterey," said Jim Covell, a biologist with the Monterey Bay Aquarium.

On the negative side, all that warm water can limit upwelling, the process by which cold ocean water filled with plankton and other nutrients is pushed to the surface, providing a smorgasbord for birds, fish and other marine life. Hundreds of young sea lions that have washed ashore malnourished and dying this summer may well be the victims of El Niño, said Dan Costa, a professor of ecology at the University of California-Santa Cruz. "If you are a young sea lion and the mother says, 'OK you are on your own,' and there's not enough food, it's going to be harder on the youngsters," Costa said. "Humpback whales, blue whales, a lot of the sea birds, all of these guys are going to be impacted."