California Nevada
RIVER FORECAST CENTER

SPRING 2007
NEWSLETTER

HIC's Corner

By Rob Hartman

This has been one of the least active winter flood seasons in recent memory. One would have to go back to the early 1990s to find something analogous. Although quiet, the CNRFC staff worked hard to produce forecast information that accurately reflected the situation. As a result of the much drier than normal winter, water supply forecasts for this spring reflect well below average conditions. Please visit our web site for details.

So what does the CNRFC do when it's not flooding? The staff works continually to improve the quality and relevance of the information we provide. Normally this work takes place in the summer, but in a winter like this one, we have time to do more development work. One of our projects is the Feather-Yuba Forecast Coordinated Operations (FCO). This is an interagency effort involving NOAA, California Department of Water Resources (Division of Flood Management and State Water Project), Yuba County Water Agency, and the US Corps of Engineers. Together, we're developing a forecasting and management system that will allow better information. The goal is to improve our joint ability to keep flood discharges below levee capacities downstream of the confluence of the Feather and Yuba Rivers during major runoff events like January 1997. Progress is excellent and our prototype system is expected to be functional next winter for evaluation. This model of coupling forecasting, reservoir, and flood management decision support and coordination has great potential and is expected to expand to other key watersheds in the coming years.

We are currently in year 5 of our 5-year watershed recalibration effort associated with the Advanced Hydrologic Prediction System (AHPS) implementation.

Before next winter, we'll recalibrate and refine our models and procedures used in the Sacramento River Basin. This is a large area with some complex relationships. A year from now we'll begin our second full cycle of model recalibration.

We hope you find our products and services useful. As always, we are very interested in your suggestions and feedback. Please feel free to send me a note or give me a call any time.

Rob Hartman
CNRFC Hydrologist-In-Charge

Inside this issue:

"So what does the CNRFC do when it's not flooding? The staff works continually to improve the quality and relevance of the information we provide."

Flood Safety Awareness Week Media Briefing

By Alan Haynes

As part of National Flood Safety Awareness Week, the California-Nevada River Forecast Center and WFO Sacramento partnered with the California Department of Water Resources on a media briefing. Speakers from the NWS and DWR stressed the interagency approach to flooding in California, touching on the many partnerships which have been created between Federal, state, and local groups to address the state's flood threat. Due to the potentially significant impact of flooding and water management related issues in California, State Senator Darrell Steinberg's office sent senior staffer Susan McKee to stay abreast of the current situation. Senator Steinberg is the chair of the Senate Natural Resources and Water Committee.

One-on-one interviews were offered at the conclusion of the briefing. Media attendees included crews from the major network affiliates, Capital Public Radio, CTNS (a statewide video service), and local radio stations.

U.S. Dept. of Commerce

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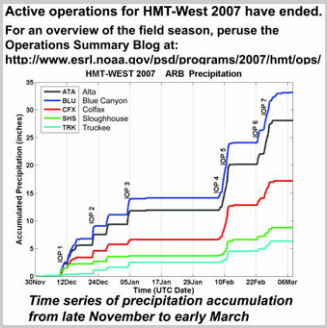


Time series of precipitation accumulation from late November to early March

Time series of accumulated precipitation from sensors in the American River Basin during the HMT-West 2007

NOAA Researchers Continue Work in the American River Basin

By Alan Haynes

NOAA conducted another round of their Hydrometeorological Testbed (HMT-West 2007) this past winter in the American Basin, with participation by the CNRFC. The Hydrometeorological Testbed is a demonstration program that focuses the use of advanced observational and modeling tools on improving hydrologic forecasts and warnings.

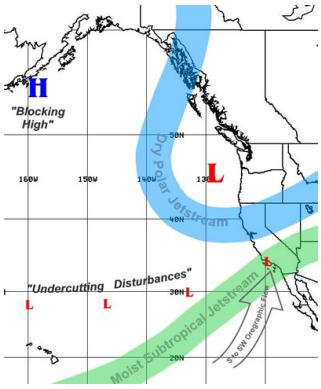
The testbed approach is expected to accelerate transitions from the research and development community to operations. HMT-West 2007 was conducted from 30 November 2006 to 22 March 2007. The winter was drier than normal in the area and only seven intensive operating periods (IOPs) were conducted, compared to 14 in the previous wetter-than-normal winter. Not surprisingly, streamflow was also much reduced during HMT-West 2007 compared to HMT-West 2006. However, 2 of the 7 IOPs were very large storms; one dropped 9 inches of rainfall (IOP 5) and the other dropped 3 feet of snow at Blue Canyon (IOP 7).

The IOPs were conducted using concentrated arrays of unattended instruments, plus manned operations for launching supplemental rawinsondes and scanning with the National Severe Storms Lab SMART-R gap-filling Doppler radar. Experimental, high-resolution (3 km) numerical weather prediction models were also run daily and produced probabilistic forecasts of precipitation in the Basin.

David Kingsmill,Chief Scientist for the project from NOAA's Earth System Research Lab, Physical Sciences Division (ESRL PSD), said "HMT-West 2007 was a successful endeavor, building upon our successes from HMT-West 2006".

Much of the information about this project was taken from the HMT-West 2007 website:

http://www.esrl.noaa.gov/psd/programs/2007/hmt



Schematic depicting the general weather pattern over Southern California Jan 7-11, 2005

Storm Summaries on the CNRFC Web Page

By Mike Ekern

One of the recent changes to the CNRFC web page was the addition of a section on Research and Outreach, which includes Storm Summaries. Following a significant precipitation event in Southern California in January 2005, HAS forecaster Dan Kozlowski and Senior HAS Forecaster Mike Ekern developed a web summary of pertinent weather information that led up to the flood event. The purpose of these summaries is to provide an archive of weather and flood information that will better enable forecasters and hydrologists to recognize similar events in the future.

Included in these summaries are radar and satellite imagery, surface pressure, jet stream analyses and other upper air data. A narrative summary of the event is provided along with detailed precipitation and other hydrologic information.

There are currently five documented events in the Storm Summaries section, including two major flood events that occurred in Southern California. The most recent storm summary was the spring flooding that occurred in the southern Sierra Nevada and San Joaquin Valley in April 2006.

We are currently reconstructing the December 1996-January 1997 flood event that impacted Northern California and Western Nevada.

WY 2007 Climate Update – What happened to El Niño?
By Pete Fickenscher

About the middle of January, as our region was clearly locked in a cold dry pattern, people were asking, "What happened to El Niño?" The assumption behind this question was that under moderate El Niño conditions, California should be wetter than average, especially in southern California.

As we approach the end of the 2007 rainy season, almost the entire CNRFC region is drier than average. The exception is the northwest corner of California and the southern reaches of Oregon which have seen close to 100% of their average rainfall for the first 6 months of the water year. With downtown Los Angeles experiencing their driest water year on record, the WY2007 rainfall pattern looks like the exact opposite of a normal El Niño year. So what happened?

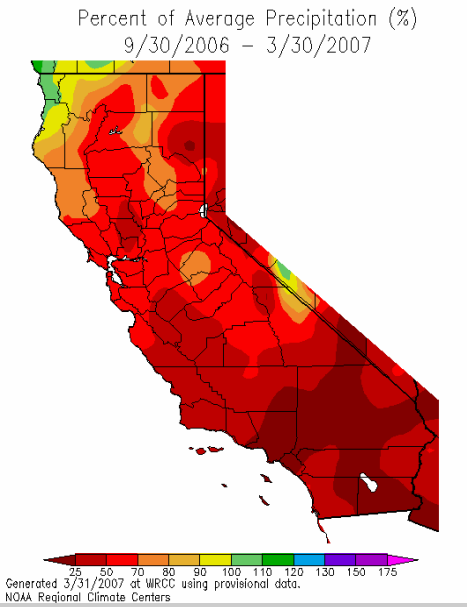
First of all, as mentioned in our Fall 2006 newsletter, no two El Niño events are exactly alike, especially considering precipitation patterns along the West Coast. While El Niño conditions provide for a greater probability of above average rainfall in southern California, this is only a probability. The Climate Prediction Center's winter outlook, a 40% probability of a wetter than average winter, included the possibility (a 27% chance) of a drier than average winter.

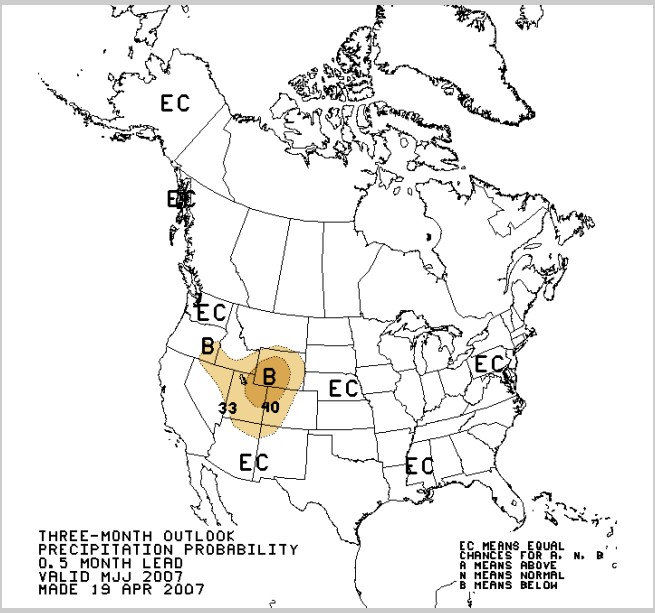
Secondly, there were some clues that this El Niño could be dry. First of all, the warmer sea surface temperatures developed later than usual and then quickly dissipated during the months of January and February. In fact, by late January, the sea surface temperature anomalies were already below the El Niño threshold, and the ocean has continued to cool. Many climate forecasters are pointing to the possibility of La Niña conditions developing by this summer.

Finally, favorable conditions in the tropics do not always translate into the extratropics. The Pacific Decadal Oscillation (PDO)is a climate index that tracks the ocean temperature in the North Pacific. Usually the PDO and ENSO coincide in their signals. But this water year the PDO remained neutral during a warm ENSO event. During the four past instances of similar PDO-ENSO patterns, the average annual precipitation in Northern California 8-Station Index was 5 inches below average.

Climate forecasting remains a very inexact science. WY2007 will probably go down as another dry El Niño event, reminding us that most of the time, any climate outlook should be viewed as "definitely uncertain."

"Many climate forecasters are pointing to the possibility of La Niña conditions developing by this summer."





Water Supply Forecasts Well Below Normal This Spring

By Scott Staggs

"The high elevation snowpack conditions on April 1 were reminiscent of the more recent dry years of 1988, 1990, and 1994."

Lake Oroville is an integral part of California's water supply system. As of March 31st 2007, the reservoir was at 112% of average, or 3,123,300 acre-feet.

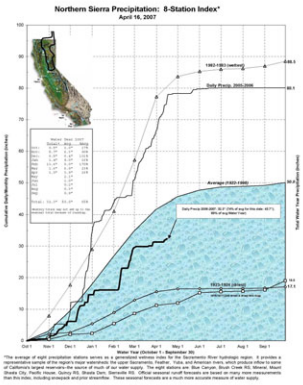
A dry winter in California and Nevada has led to a below to much below average water supply forecast for river basins in the CNRFC forecast area for 2007. This compares to last year's water supply forecast of above to much above average.

Precipitation in the CNRFC forecast area for October through March was approximately 65 per cent of normal. Much of this precipitation fell as rain in the higher elevations, thus not augmenting the snowpack. The high elevation snowpack conditions on April 1 were reminiscent of the more recent dry years of 1988, 1990, and 1994.

The good news in this year's water supply forecast is that reservoir storage is above average at 110 percent. This is primarily due to last year's above average runoff.

Be sure to check out our online water supply products at:

http://www.cnrfc.noaa.gov/water_supply.php

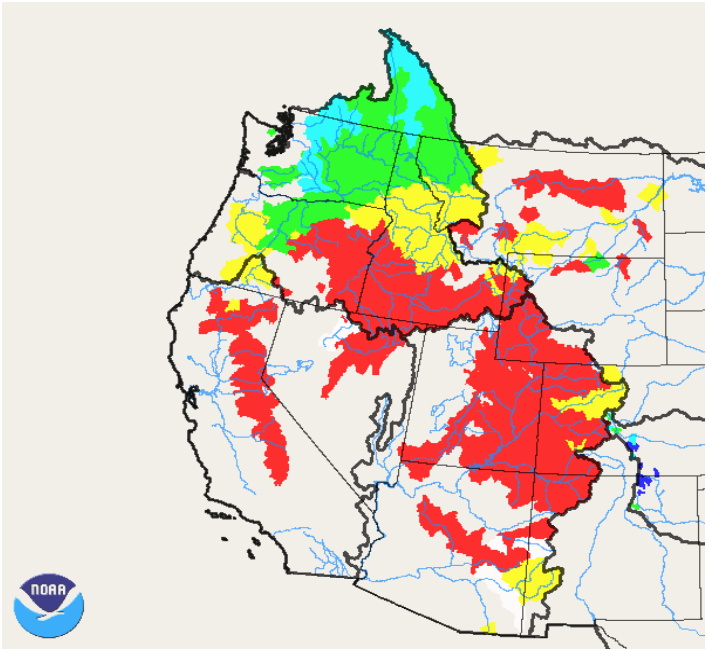


Northern Sierra Precipitation: 8 Station Index

Seasonal volume forecasts are coordinated with other agencies, such as the NRCS and the CADWR. The exchange of information in this process improves the quality of forecasts and minimizes conflicting forecast information. Water supply forecasts are generated and published by the CNRFC on a monthly basis, January through May. In some years, a June forecast is provided. Water supply forecasts are placed on the CNRFC Home Page as well as printed and mailed out to non-online customers.

Seasonal Runoff Volume Forecast

(as of April 1, 2007)



Forecast Locations (%Average)

- No Data
- Much Below Average (<70%)
- Below Average (70-90%)
- Near Average (90-110%)
- Above Average (110-130%)
- Much Above Average (>130%)