NOAA-CIRES Climate Diagnostics Center

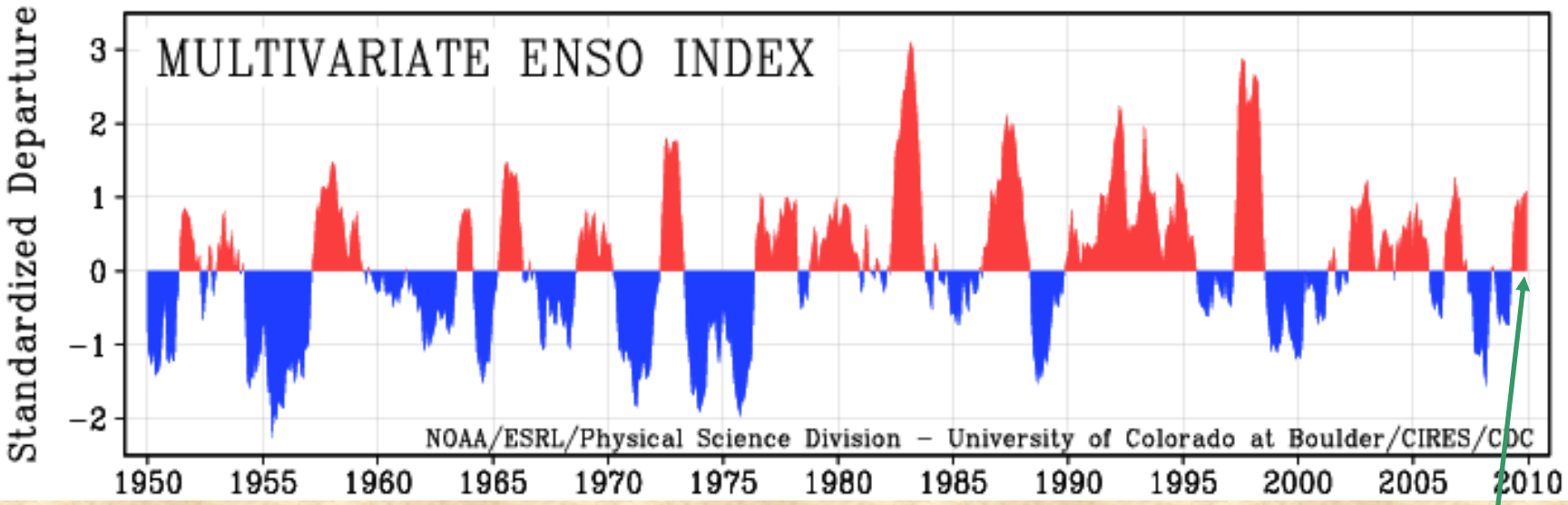
CO WATF
22 jan 10
Denver

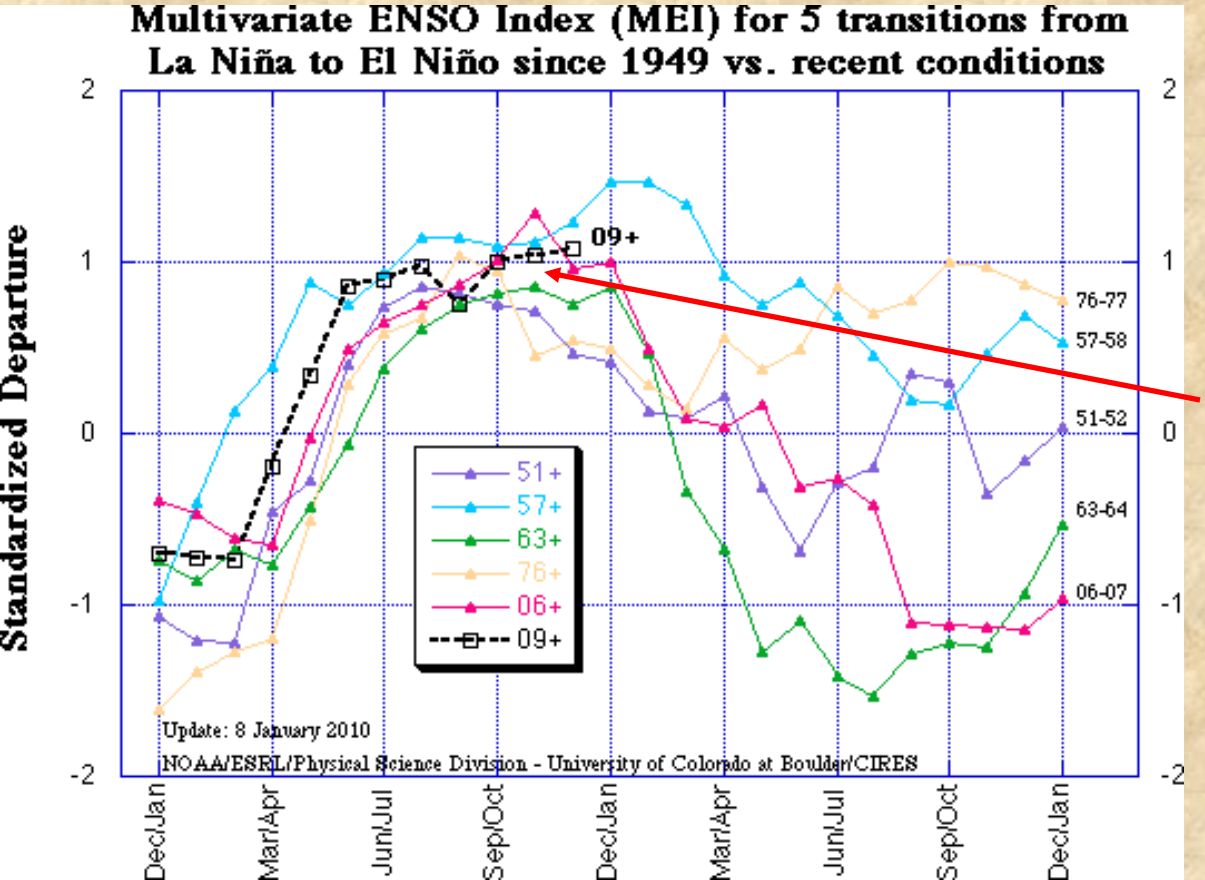
Western Water Assessment

Seasonal Outlook through May 2010

Klaus Wolter
University of Colorado, CIRES & NOAA-ESRL PSD 1, Climate Analysis Branch
klaus.wolter@noaa.gov
http://www.cdc.noaa.gov/people/klaus.wolter/SWcasts/

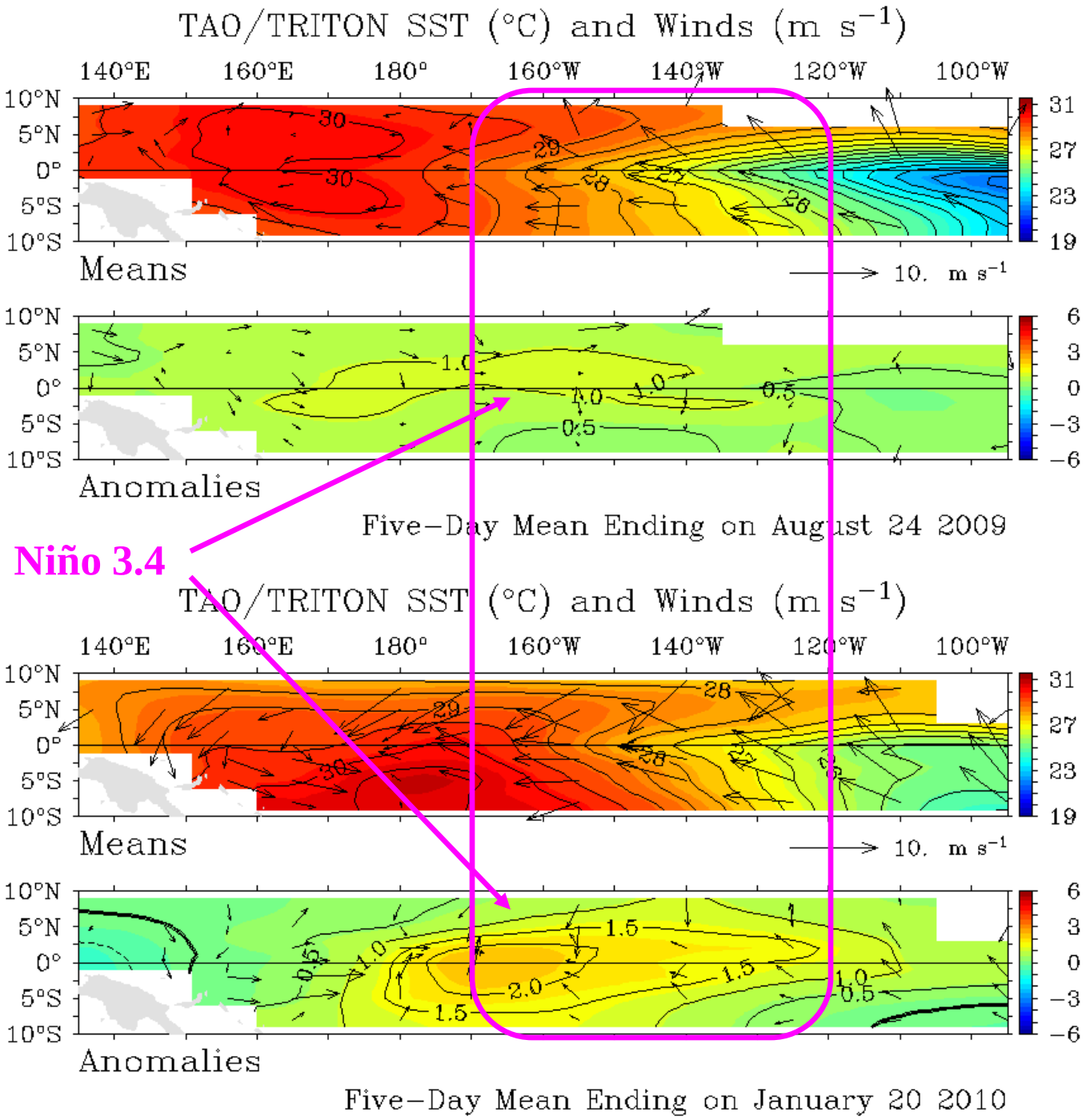
- **El Niño here to stay, at least for a few more months**
- **Recent weather & expectations for next few weeks**
- **Updated El Niño-based composites into the spring**
- **Experimental Outlooks**
- **CPC forecasts for Jan-May 2010**

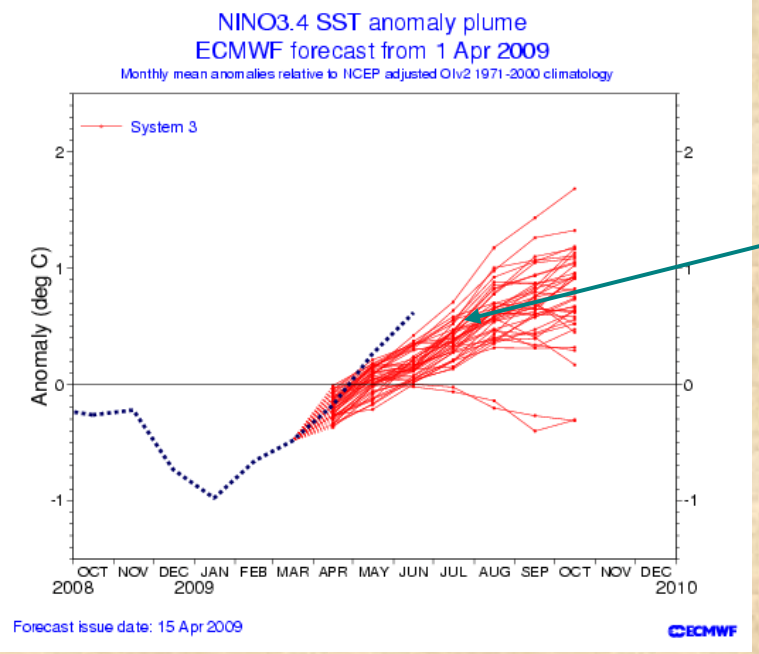




El Niño going steady, should be a factor well into spring; integrated over a few months, strength is slightly higher than previous El Niños of this decade…

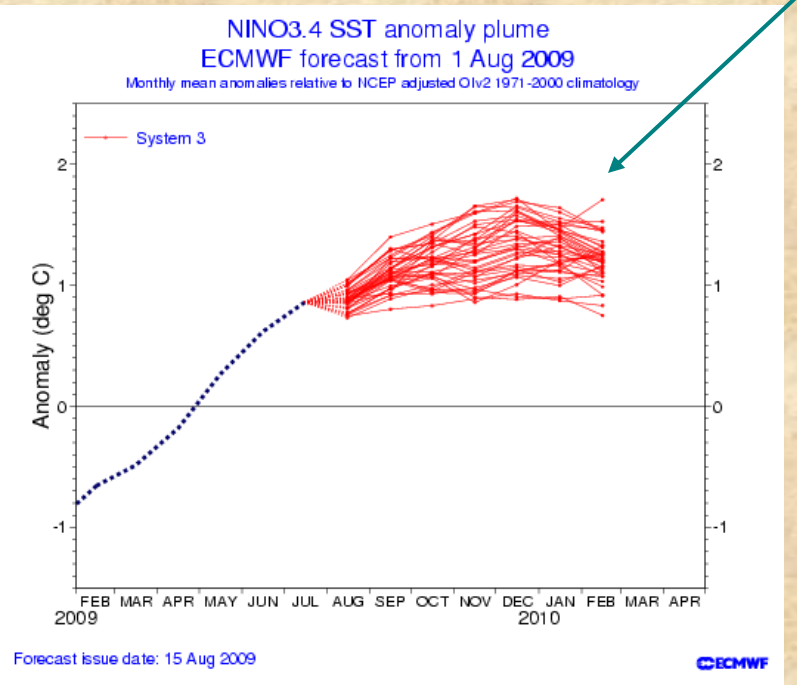
Current state of ENSO (bottom) compared to five months ago (top): warm event is still concentrating on central Pacific (bottom); wind anomalies are mostly weak, but show westerlies west of the dateline. No rapid changes are expected right now.



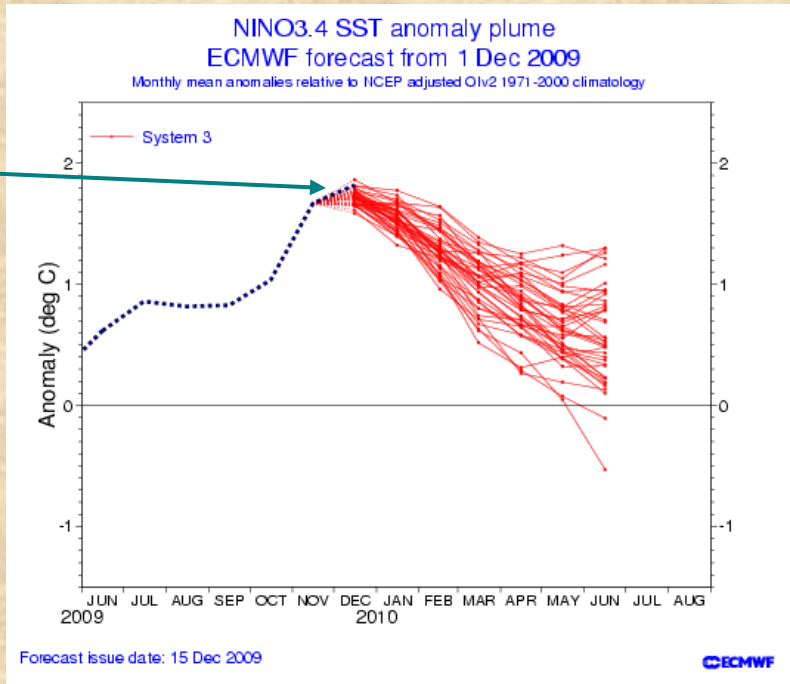


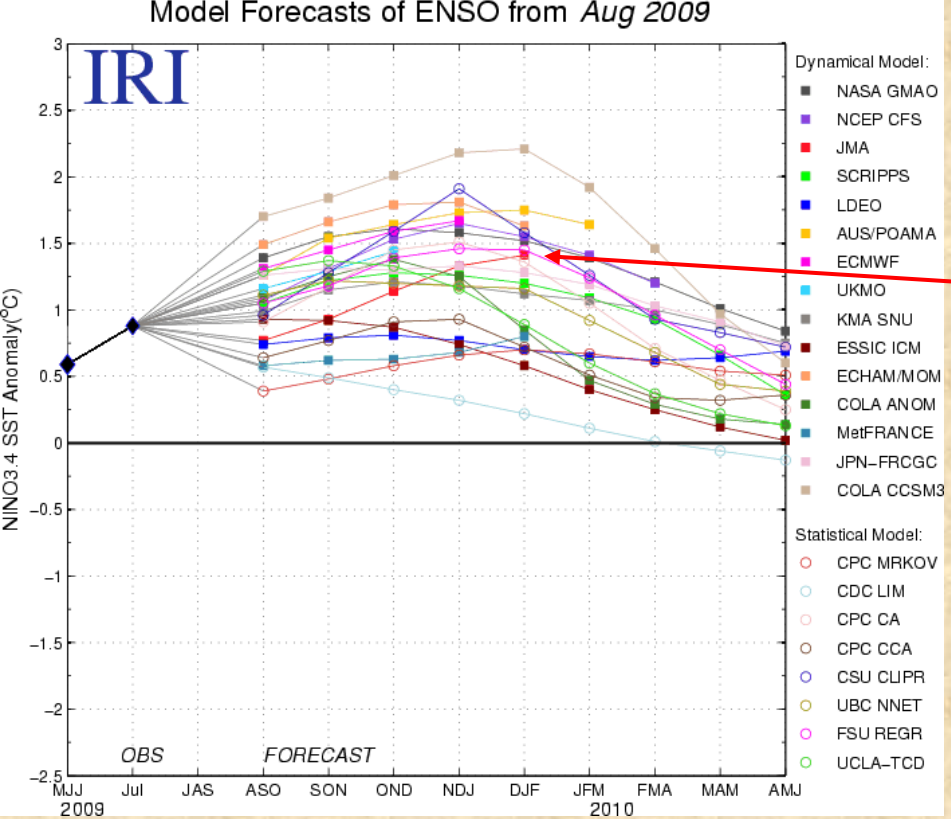
The European model's April '09 forecast (left) anticipated El Niño conditions by July, not bad, but a bit too conservative;

The forecast I showed last time at the WATF in August was also fairly conservative in anticipating continued moderate anomalies (1-1.5C);

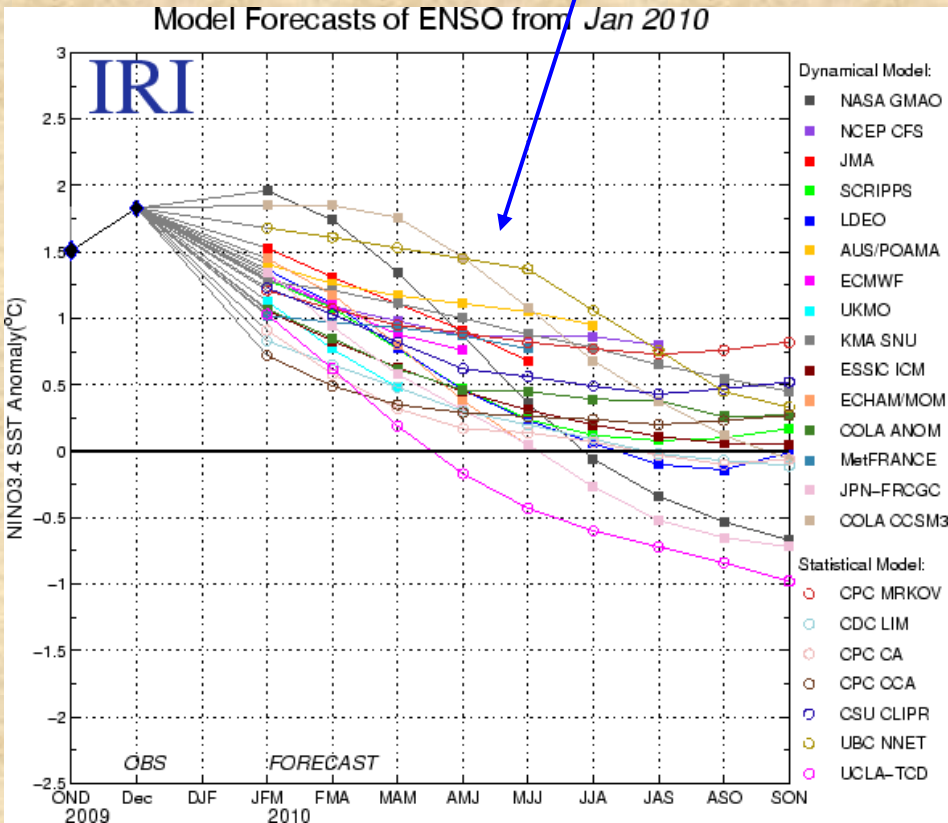


Event may be peaking right now, but should linger into spring…



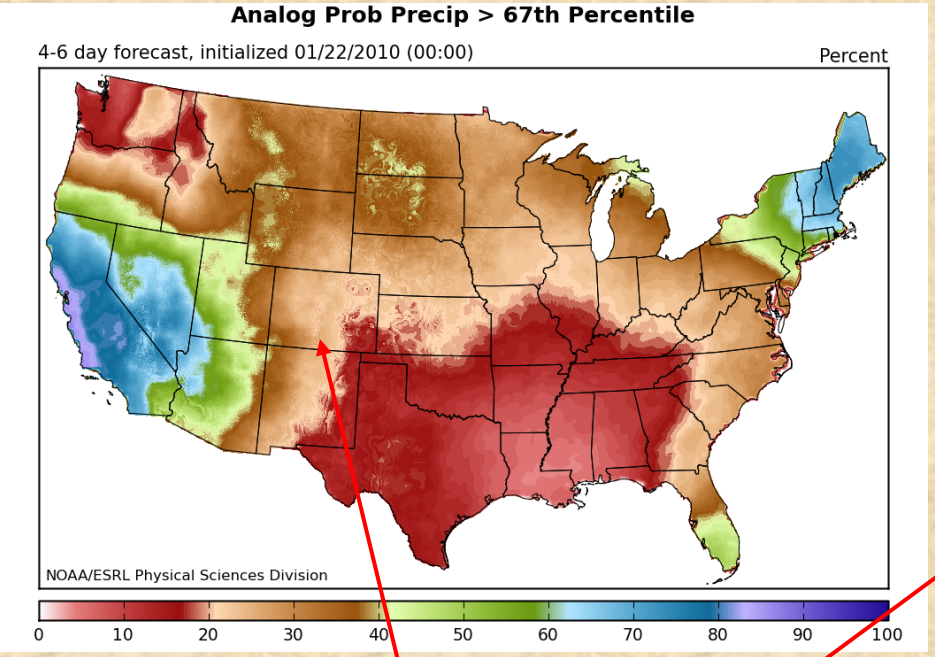


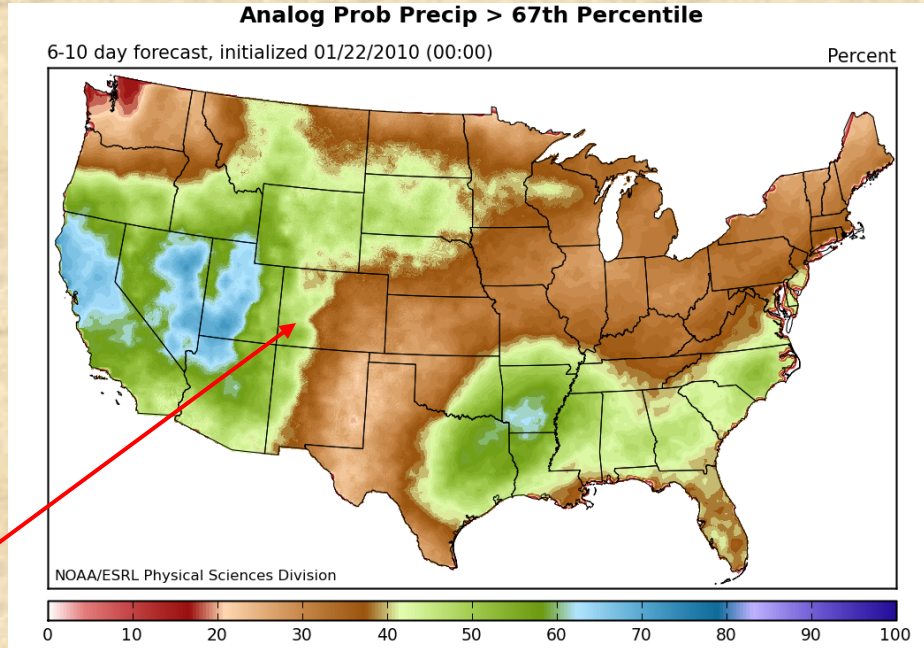
ENSO forecasts from almost two dozen dynamical & statistical forecast models (below) vs. last one I showed (left). Most models agreed on El Niño last August, but the forecast range for this winter was still quite large (mostly 0.5C to +2C). The most recent forecasts unanimously show decline over the next six months, effectively ending this event by the summer.

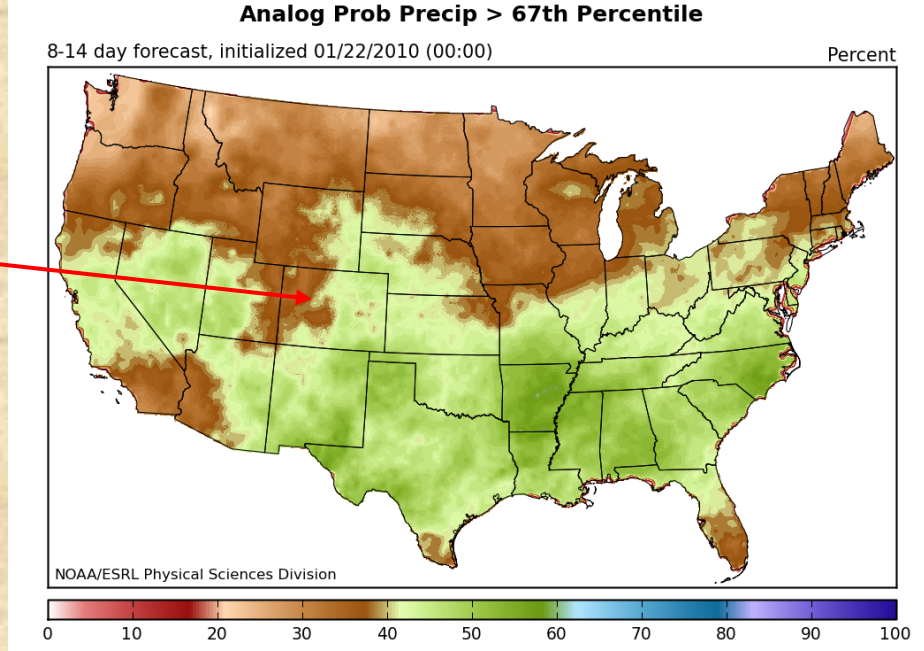


This El Niño will be a factor into upcoming spring, with a small chance of reverting back to La Niña by the summer. A factor in this: the PDO went back to negative in November, and reverted to neutral in December. If it stays negative or neutral, the odds for a second El Niño season diminish greatly.

What can we expect in the next two weeks?

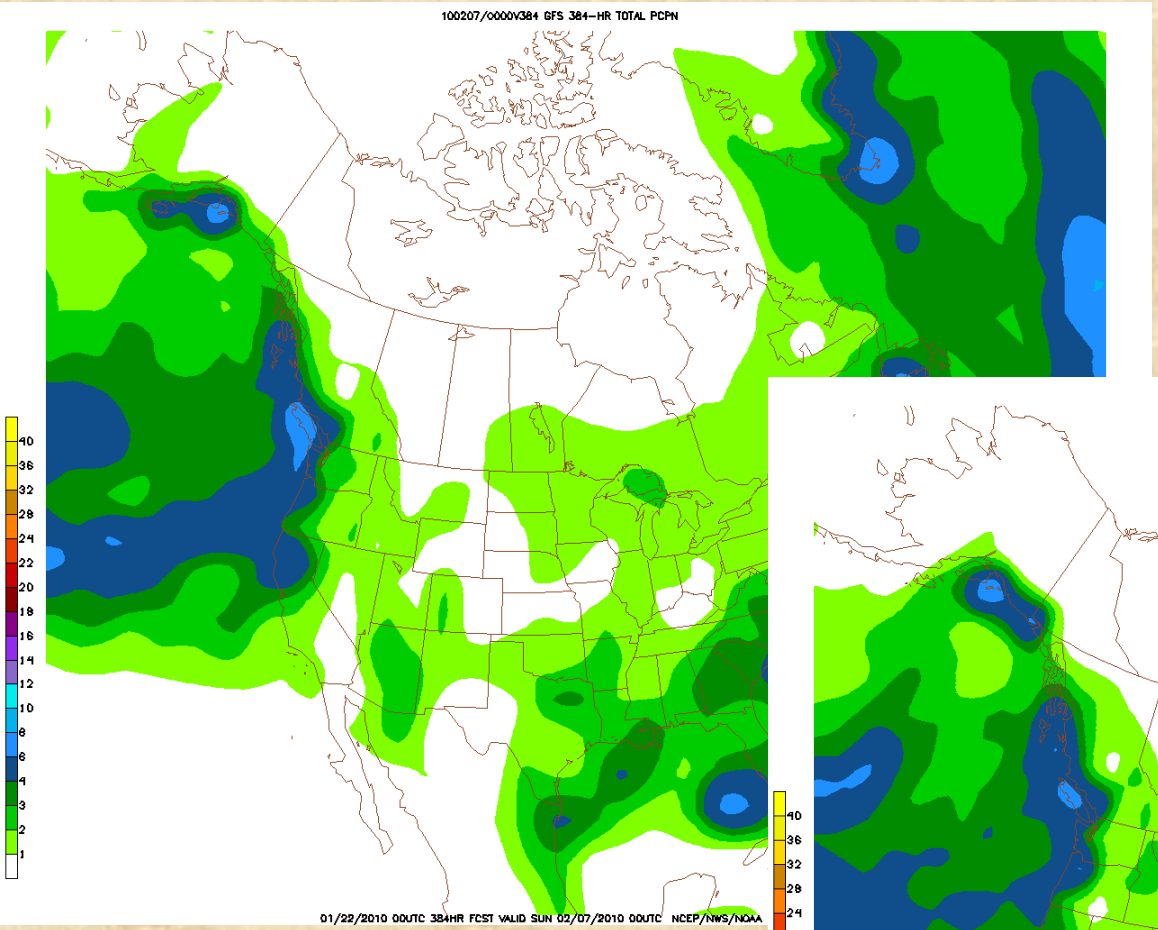




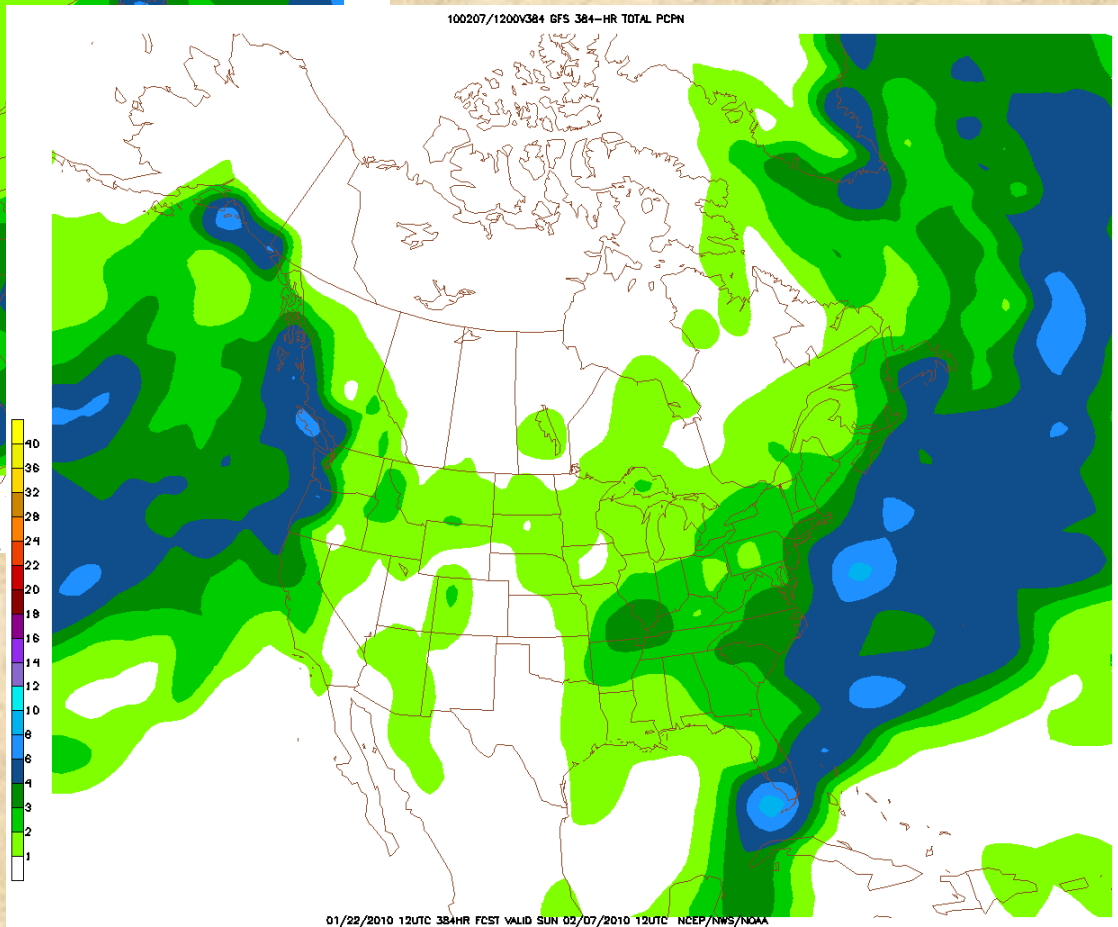


Rainfall chances for 4-6, 6-10, and 8-14 days from today start out with continued heavy precipitation to our southwest, with near-normal precipitation in Colorado's mountains (top left); as the stormtrack works its way into the interior West, we have slightly elevated chances of precipitation west of the divide (top right), and finally east of the divide (right).

What can we expect in the next two weeks?



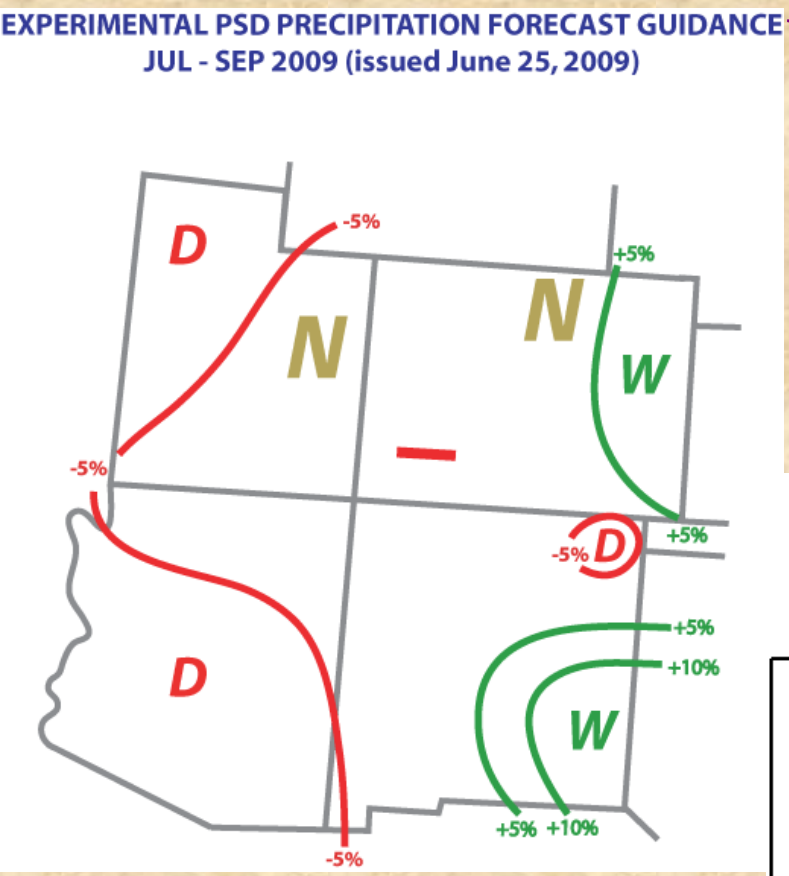
GFS Control runs from last night (left) and this morning (bottom)



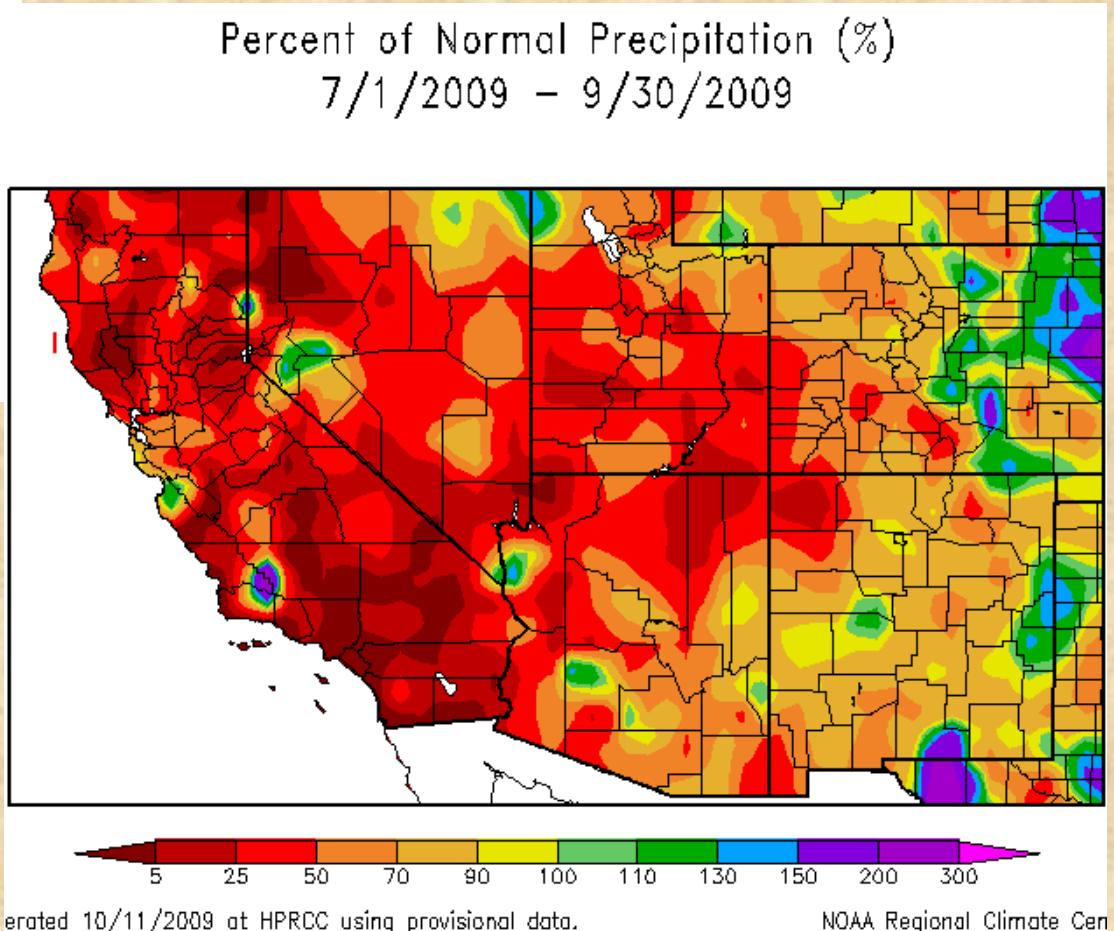
<u>Bottomline</u>: mountains will probably get 1-2", while Front Range won't get any big storms.

What has happened since July 1st?

July-September brought above-average moisture to northeast Colorado and parts of southeast Colorado as well as parts of eastern New Mexico, while keeping Utah and Arizona as well as southwestern Colorado dry (bottom).

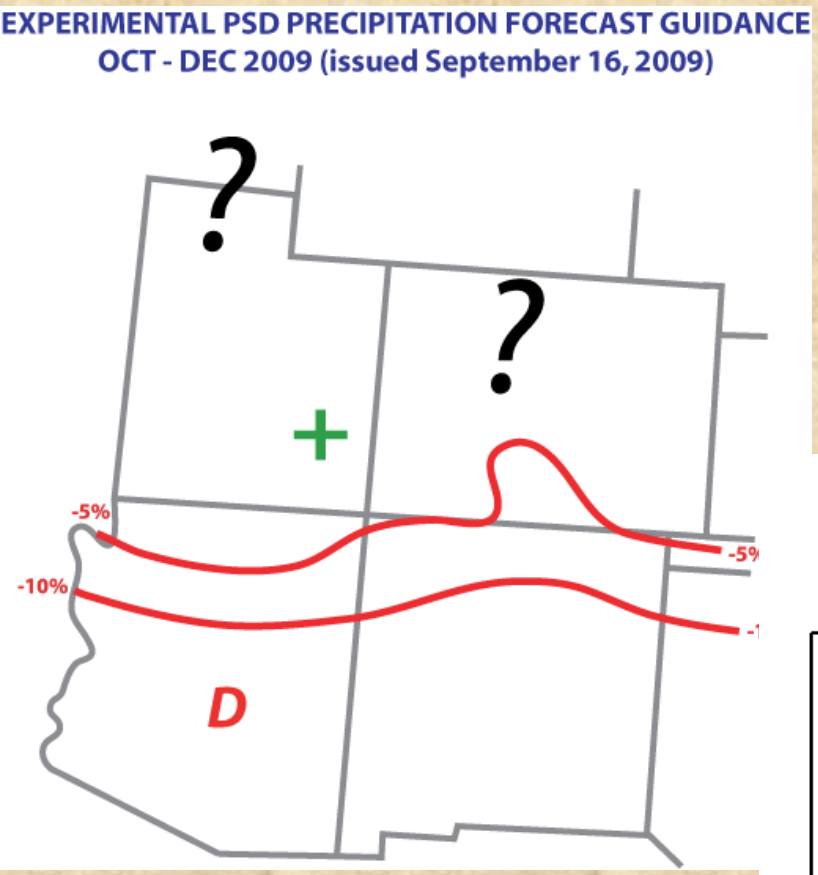


Worst skill in Utah, best in Colorado



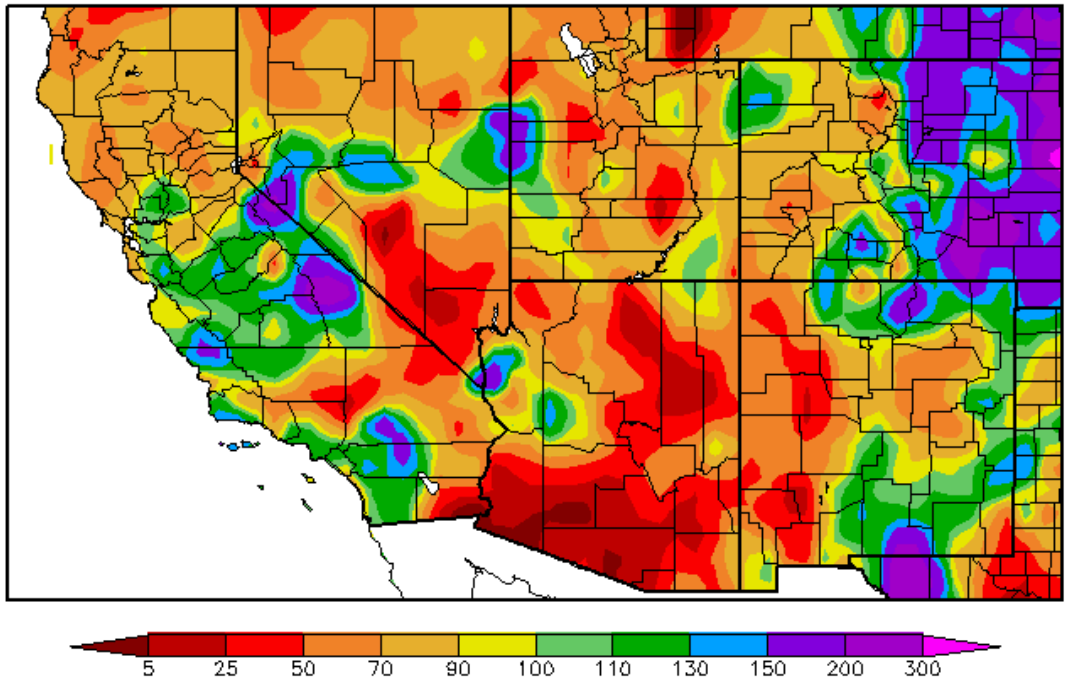
What has happened since Oct 1st?

October-December brought above-average moisture to eastern Colorado and pockets of New Mexico and Utah, while keeping most of Arizona as well as western New Mexico dry (bottom).

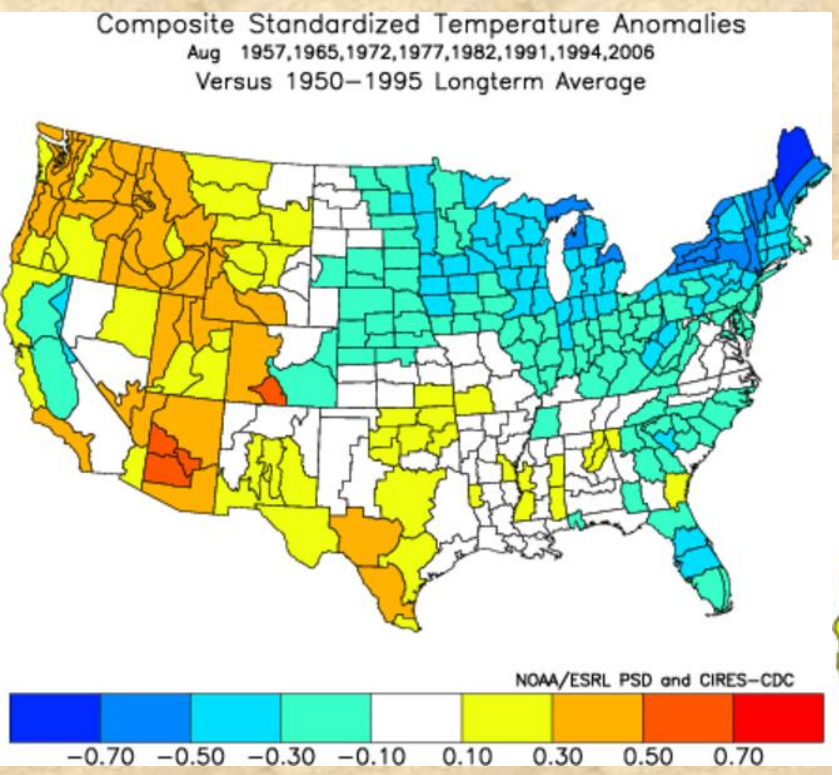


Worst skill in CO, best in AZ

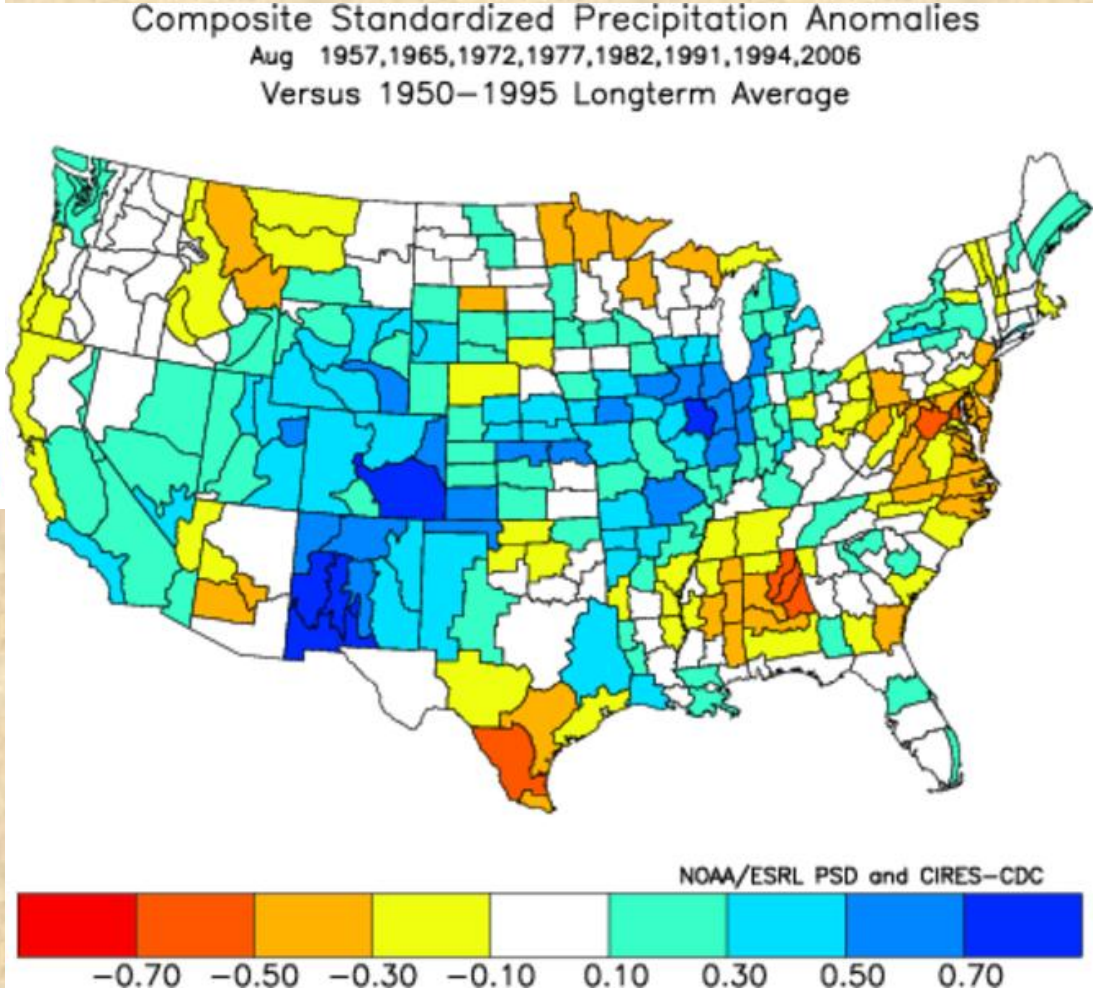
Percent of Normal Precipitation (%)
10/1/2009 – 12/31/2009



What are typical temp&precip patterns in August with El Niño onset conditions (same as last month)?



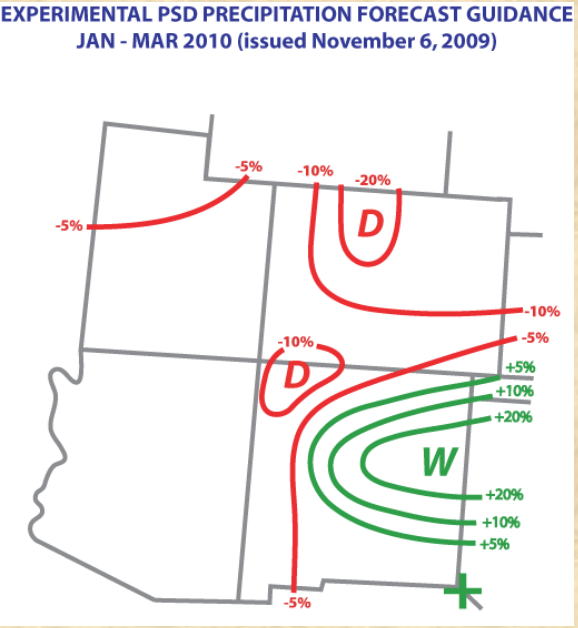
Mostly warmer to our west (left), with only a slight tilt towards cold east of the Divide.

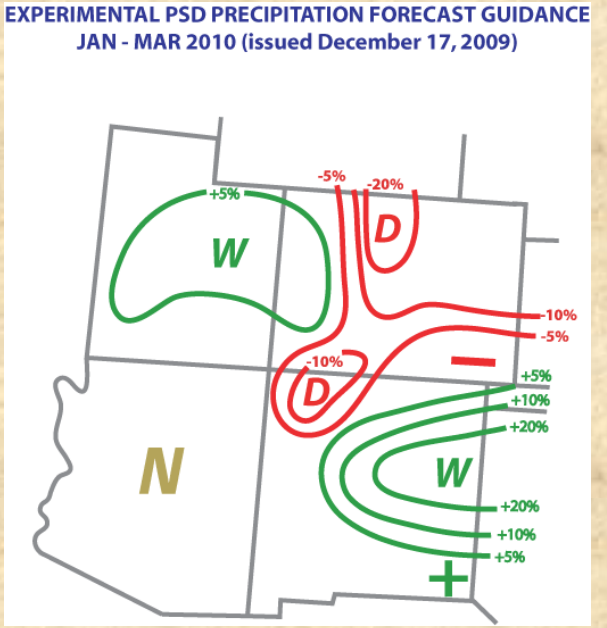


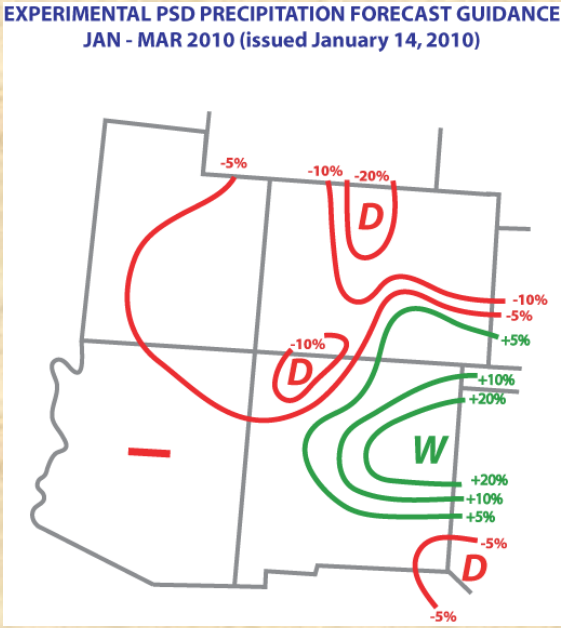
Significant wet precipitation anomalies (right) from New Mexico right into eastern Colorado - El Niño enhances our monsoon, while leaving Arizona dry and hot.

August 2009 appears to have flipped T & P anomaly patterns…

Experimental CDC "Forecast Guidance" for early 2010



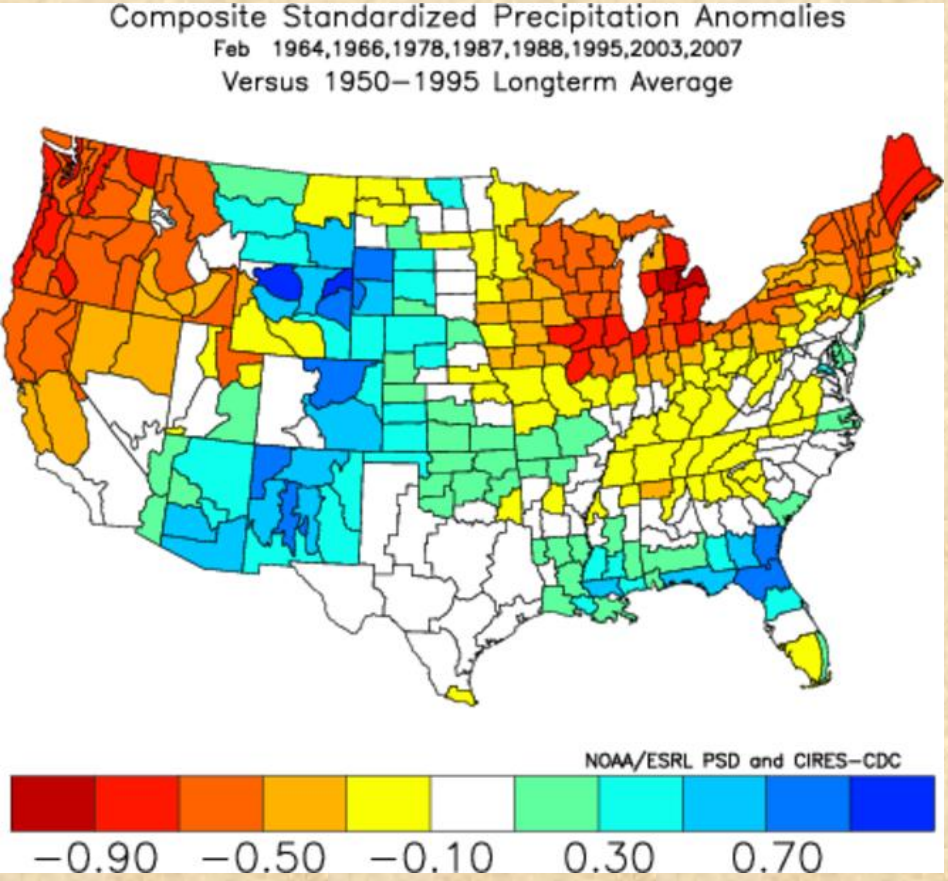


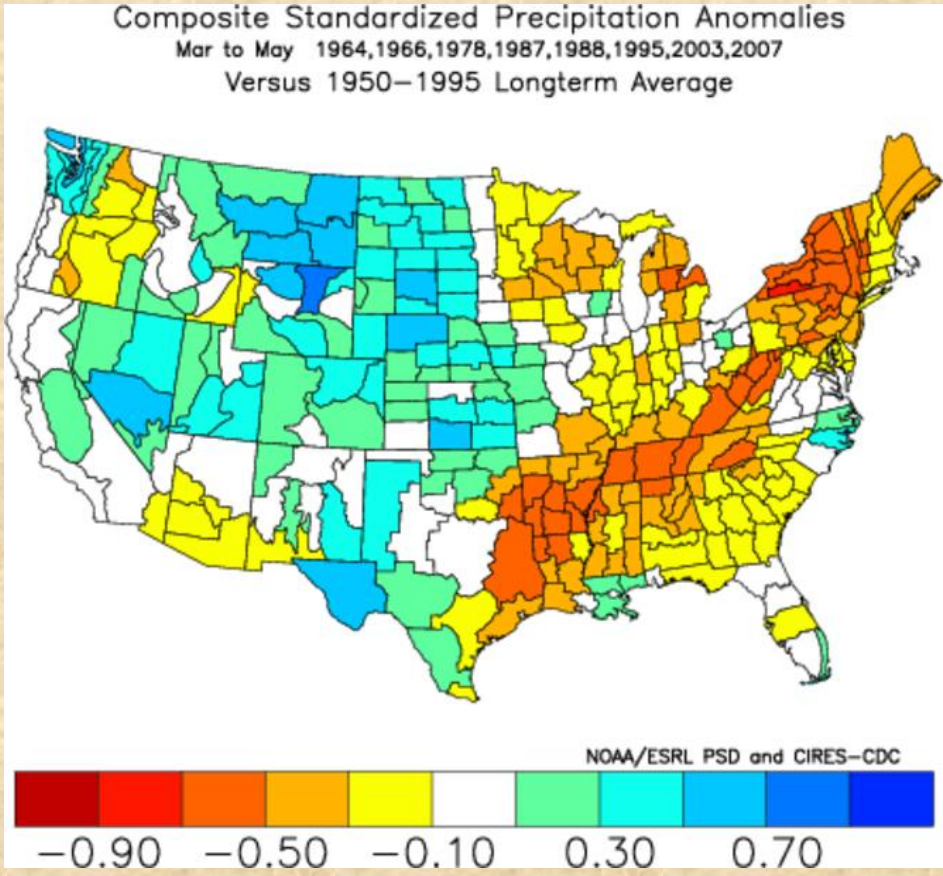


My forecast for Colorado has remained quite pessimistic over the last three updates – the latest forecast is "wet" only for SE CO, while the mountain forecasts remain pessimistic. There is 'hope' since the verification skill for the mountain regions has been poor over the last decade. ***As will be seen in my El Niño composites, the hope for our region rests on getting a wet spring!***

Source: ***http://www.cdc.noaa.gov/people/klaus.wolter/SWcasts/***

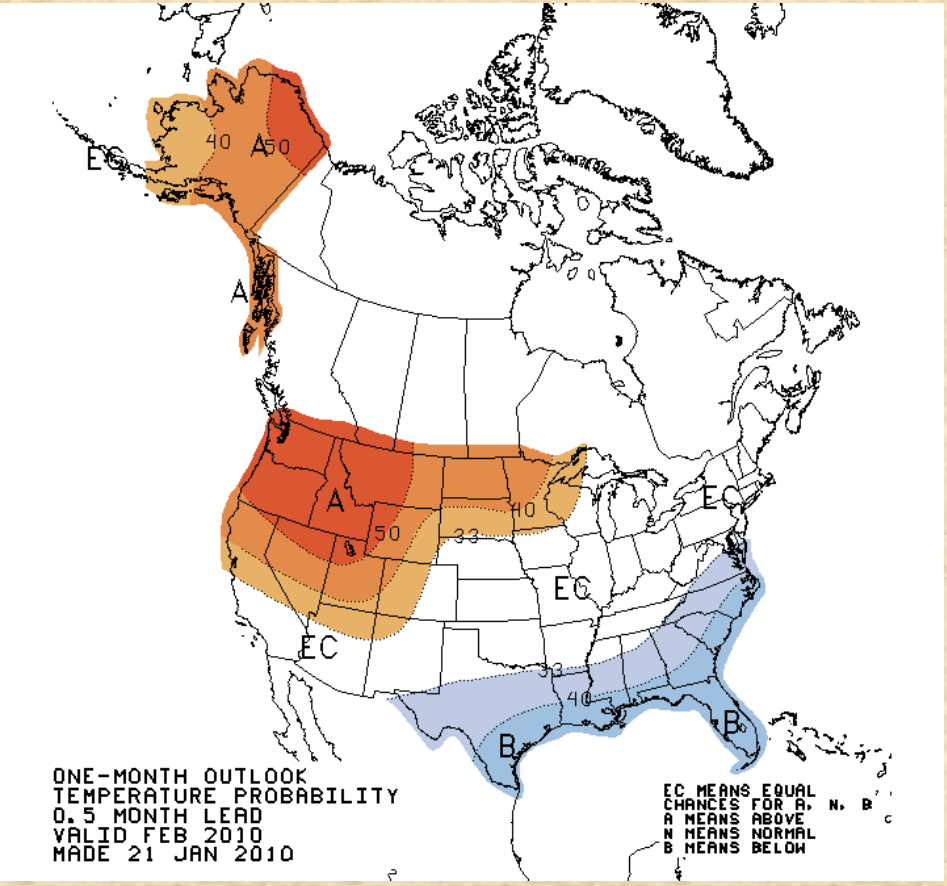
El Niño composites for February and March-May

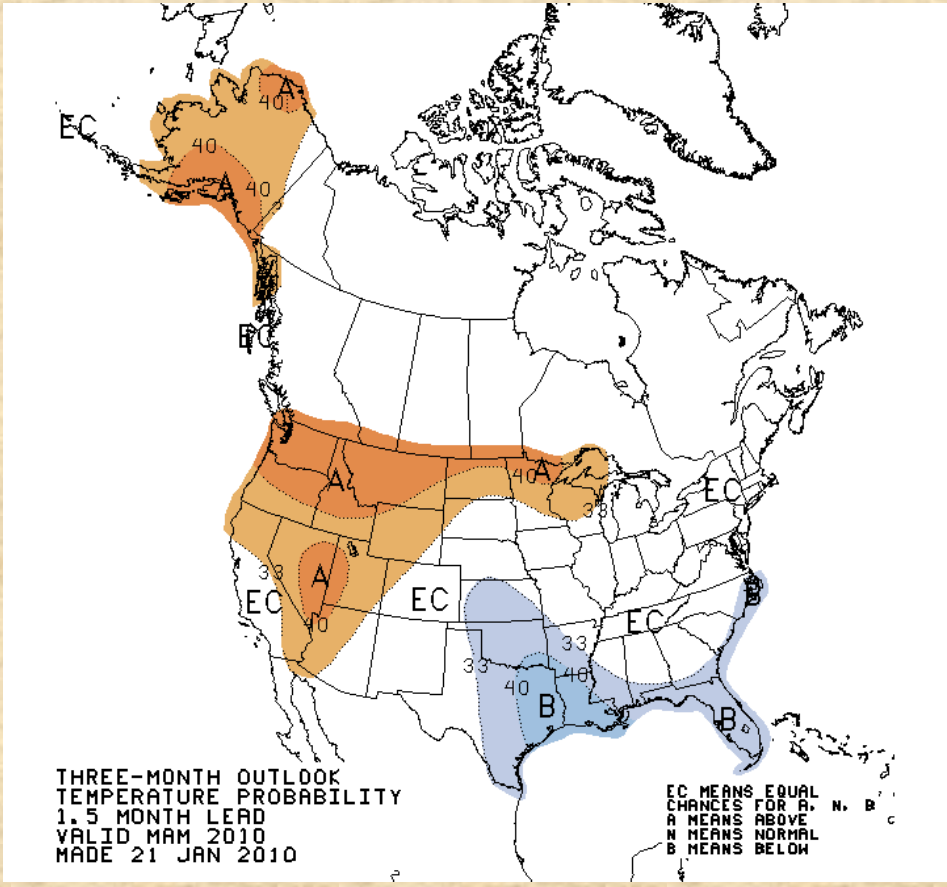




Odds are not bad for February (left) in Colorado, especially EAST of the divide, while the increase in odds for March-May (right) is not as high as hoped for, using moderate El Niño events as guidance (rank 6-13 out of 60).

CPC Temperature Forecasts

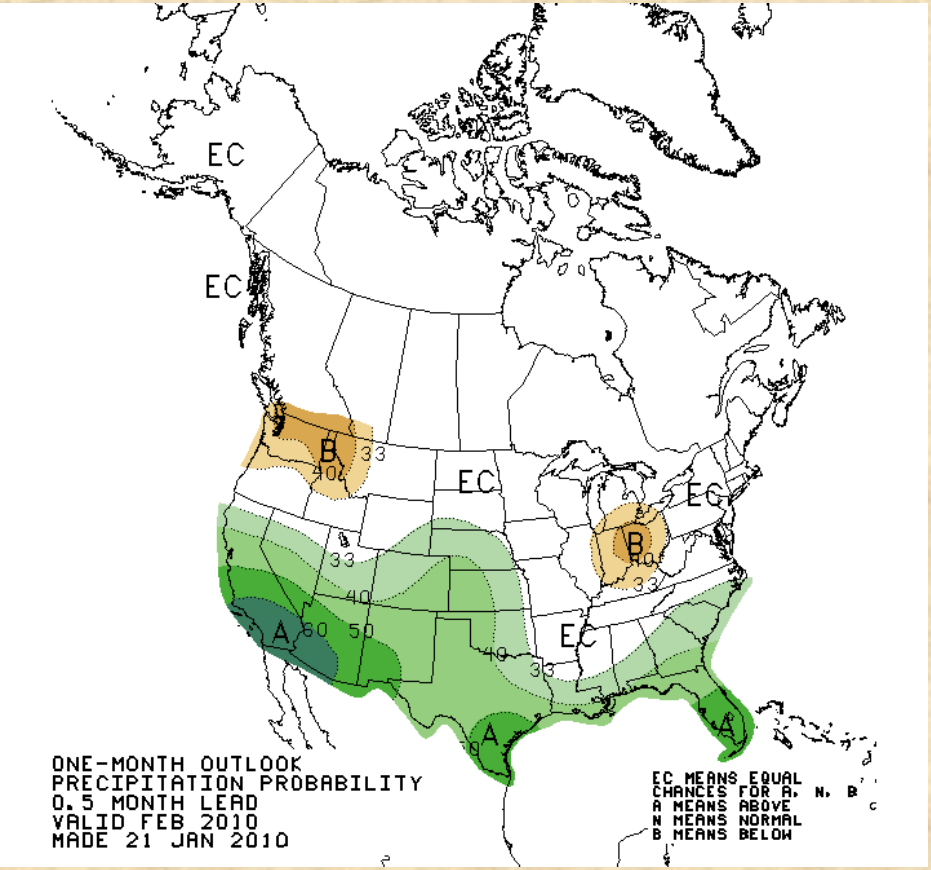


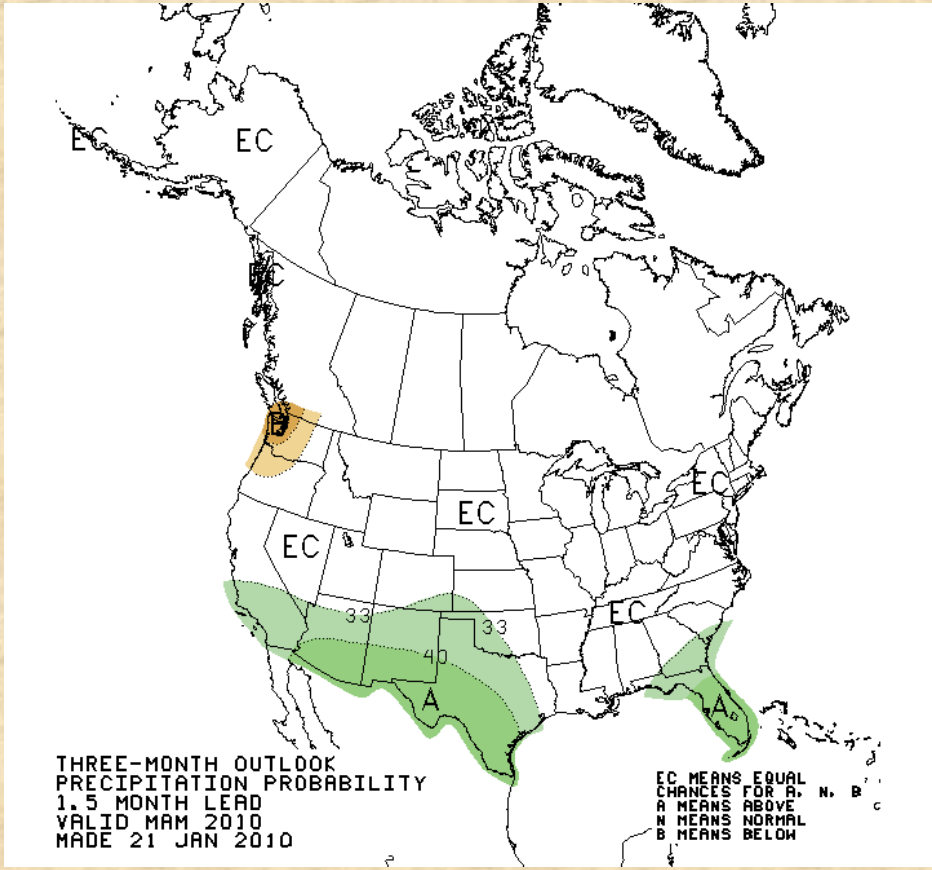


According to CPC's latest forecast from this week, February (left) and March-May (right) temperature forecasts lean towards warmer temperatures in much of the Southwest, due to long-term trends, with warmer temperatures to the north due to El Niño. They apparently did not weigh in the remaining snow cover west of our divide…

Source: ***http://www.cpc.ncep.noaa.gov/products/predictions/***

CPC Precipitation Forecasts





According to CPC's latest official forecasts, February (left) and March-May (right) precipitation forecasts start out with a surprisingly high tilt of above-normal precipitation in Colorado, which ends up reduced to the southeast corner in spring. The former is due to the Coupled Forecast System (CFS) that continues the current active stormtrack into next month.

Source: ***http://www.cpc.ncep.noaa.gov/products/predictions/***