NOAA-CIRES Climate Diagnostics Center

CO WATF
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Denver

Western Water Assessment

Seasonal Outlook through June 2010

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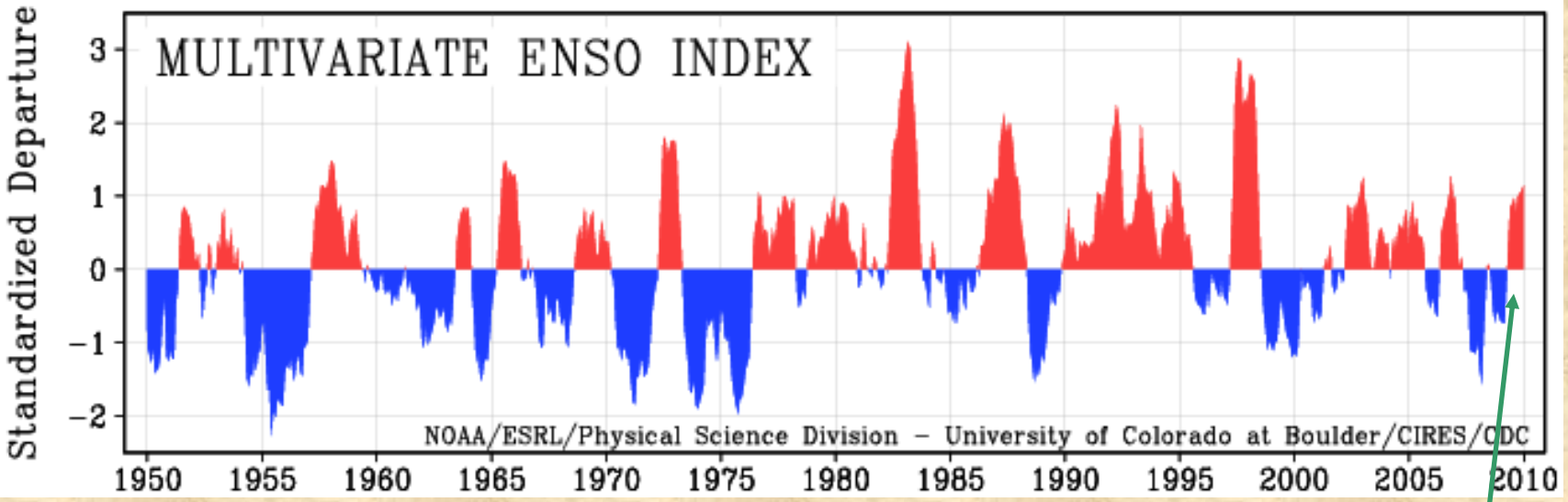
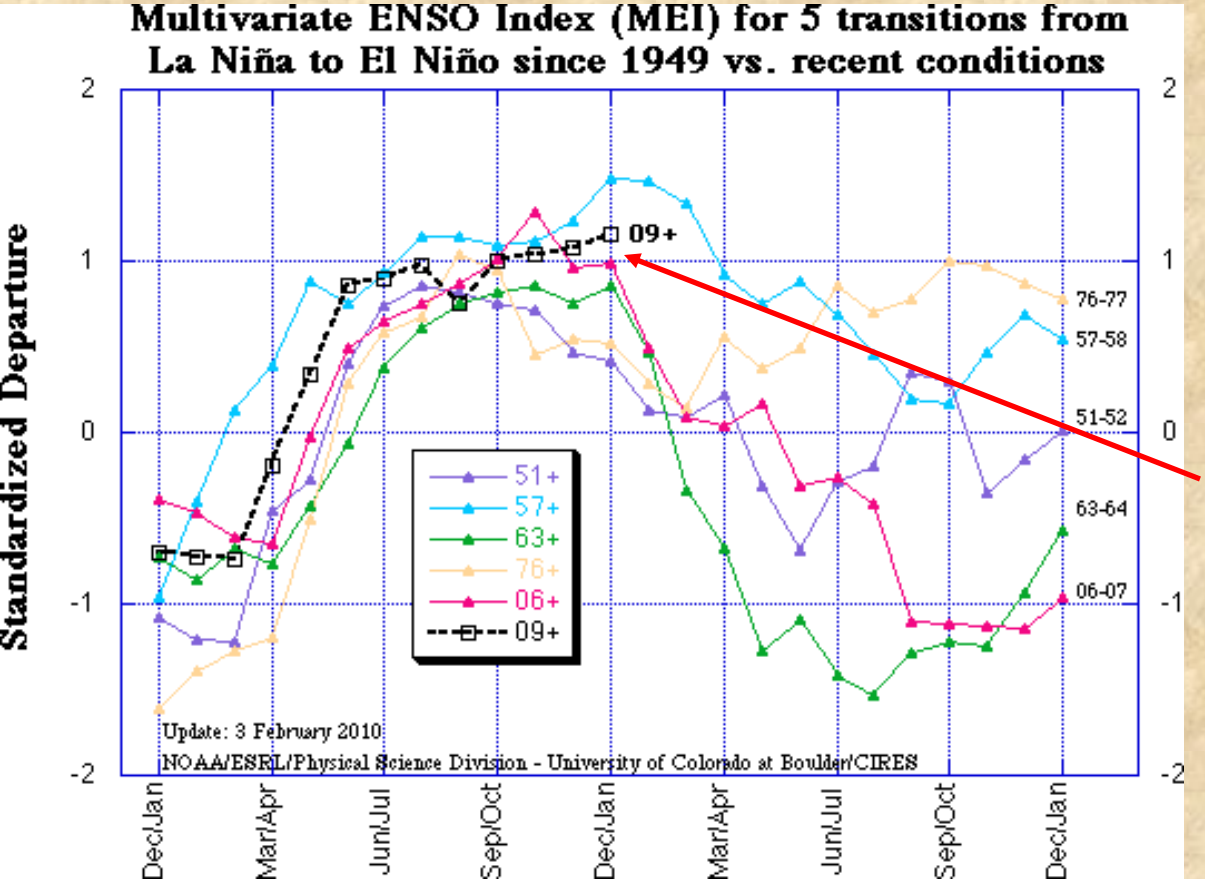
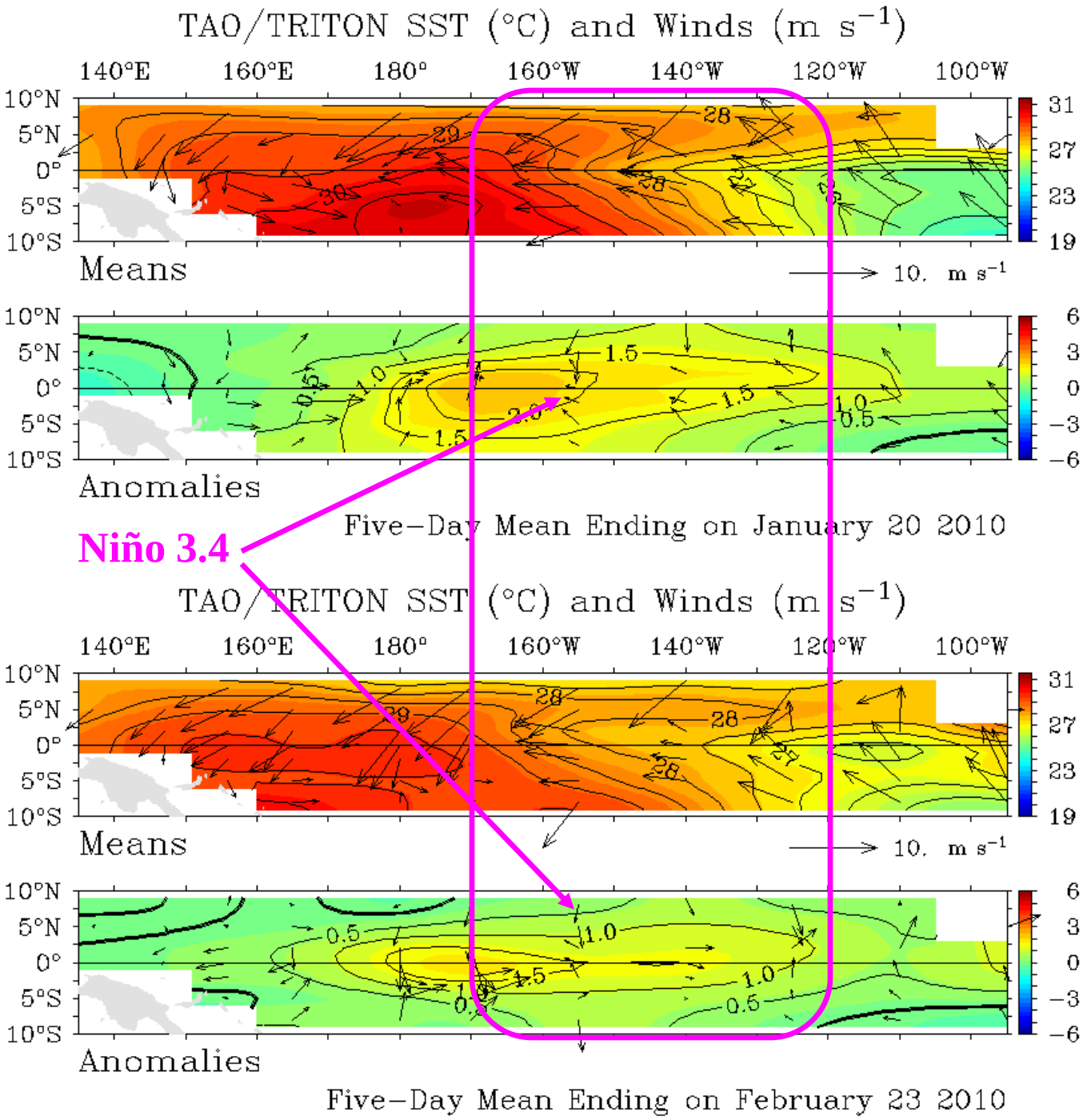
- **El Niño still here to stay for a few months**
- **Recent weather & comparison with forecasts**
- **Expectations for next few weeks**
- **Experimental Seasonal Guidance**
- **CPC forecasts for March-June 2010**
- **Executive Summary**

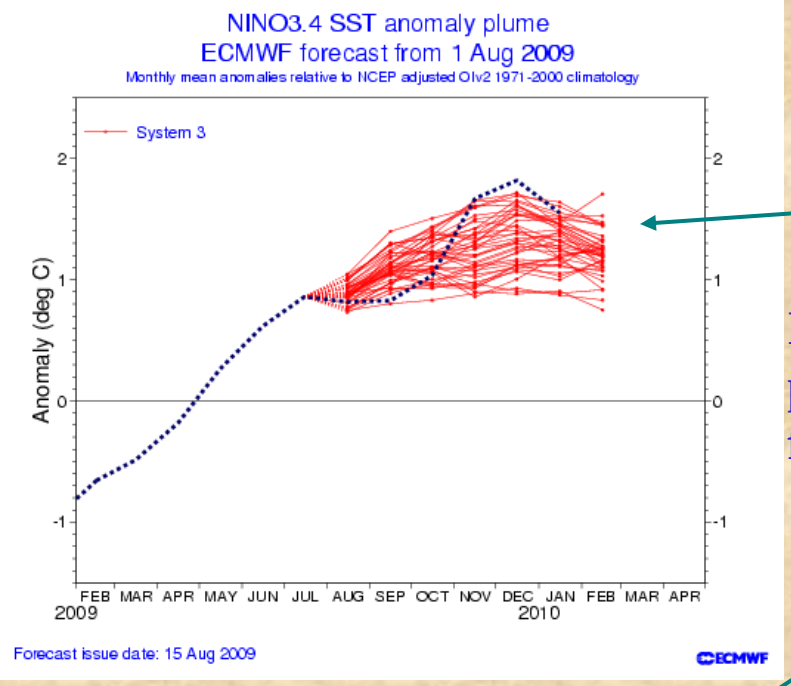




El Niño going steady, may have peaked in December-January; integrated over last half year, its strength is highest since 1997-98!

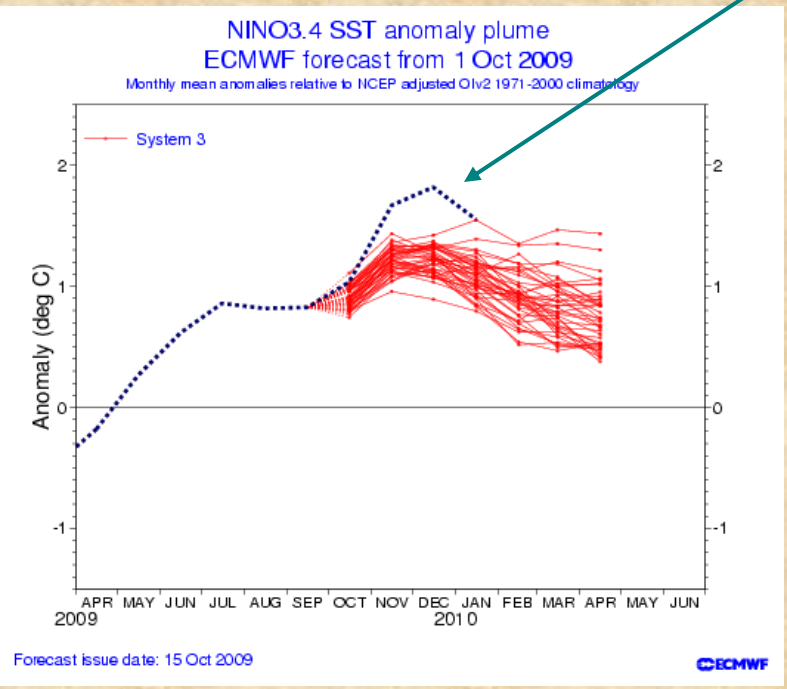
Current state of ENSO (bottom) compared to last month (top): warm event is still concentrating on central Pacific, but has lost some strength; wind anomalies are mostly weak. No rapid changes are expected right now.



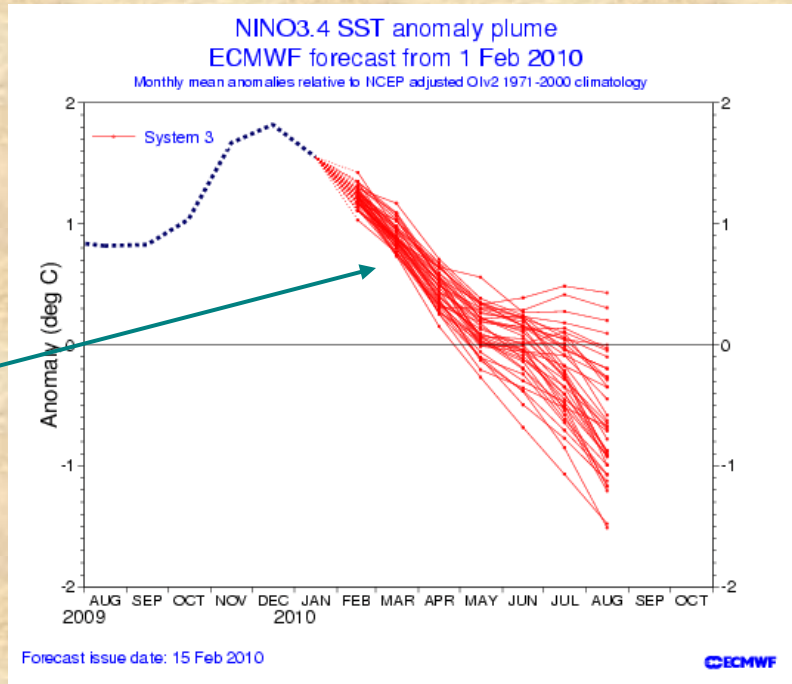


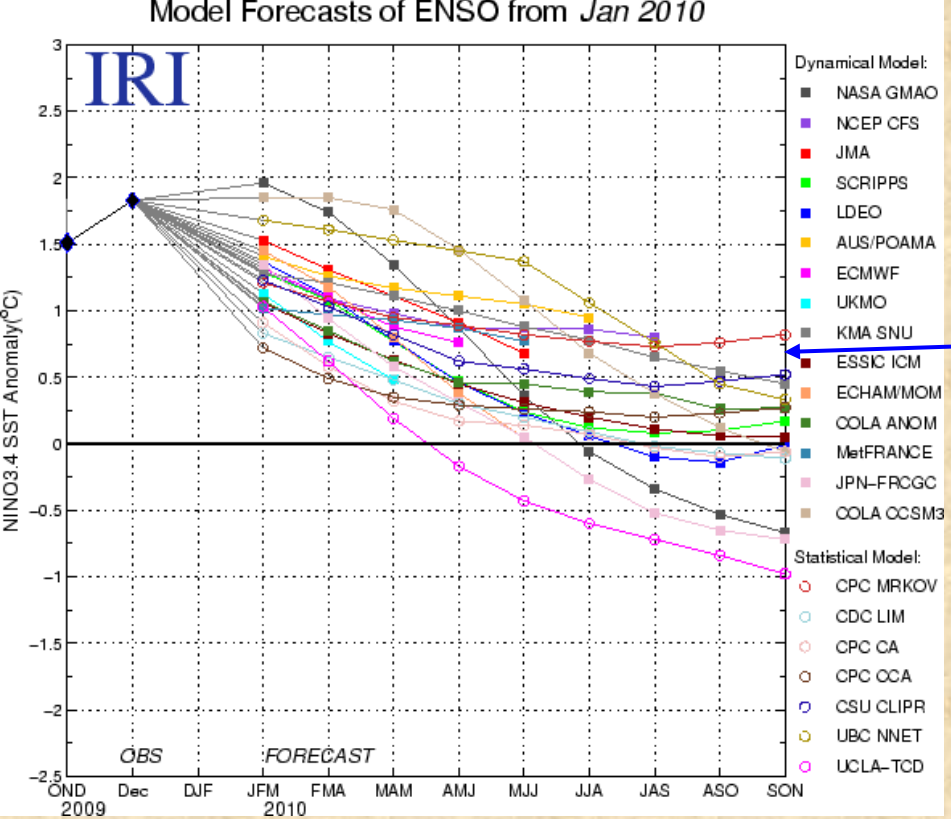
The European model's August '09 forecast (left) had the right idea about a moderate-sized El Niño event;

It did not get all the details right (bottom left) – in particular the two growth spurts in early summer and fall;

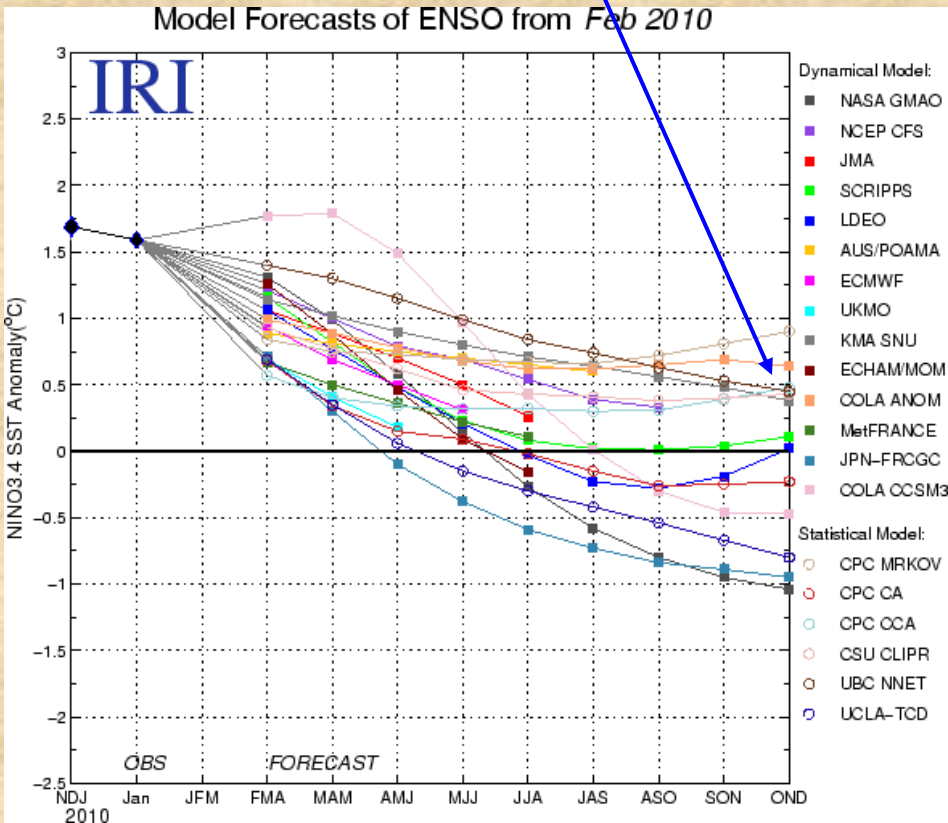


Event appears to have peaked for now, with the potential for a rapid decline this spring



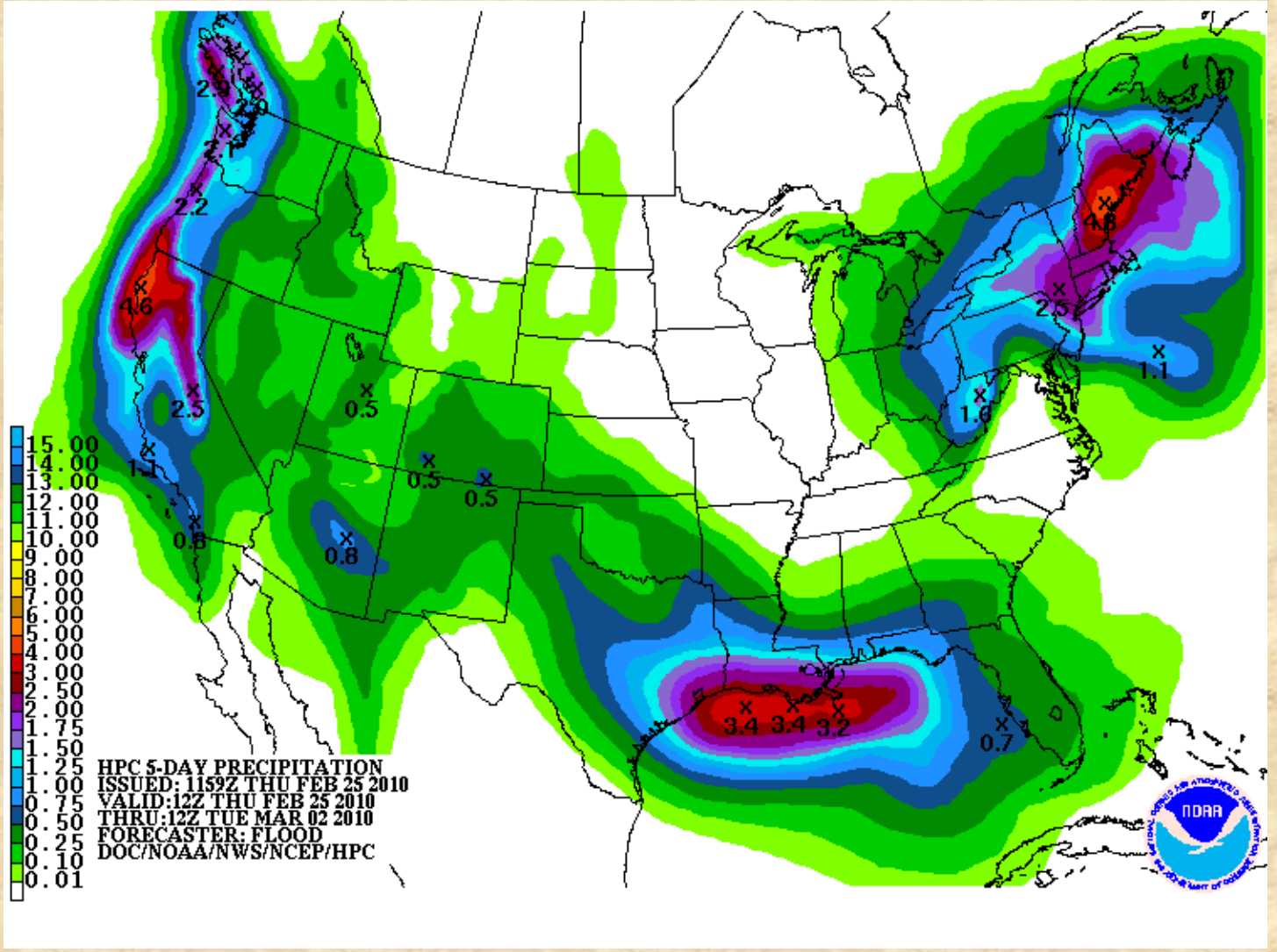


ENSO forecasts from almost two dozen dynamical & statistical forecast models (below) vs. last one I showed (left). Declining values have been predicted almost unanimously for a couple of months now, but there are a few 'minority-opinions' that try to hang on to at least weak El Niño conditions for the next 6-9 months.



This El Niño will be a factor at least through April, with neutral conditions most likely this summer, but about an equal chance of reverting back to La Niña or continuing as El Niño by the fall. After reverting back to negative values in November, the PDO has risen significantly by January (+0.8), increasing the chances for a two-year El Niño event.

What can we expect in the next two weeks?



Expected total precipitation thru Tuesday morning, according to the Hydrological Prediction Center (HPC): at best 0.5” of moisture over southern Colorado, thanks to today’s ‘storm’, and a weekend storm that both look like ‘underachievers’.

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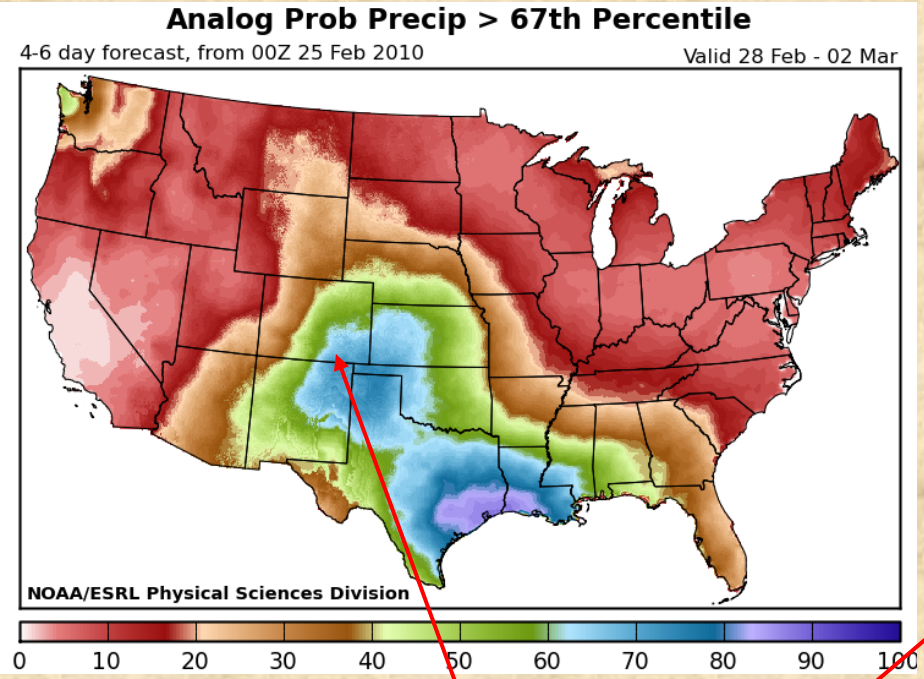
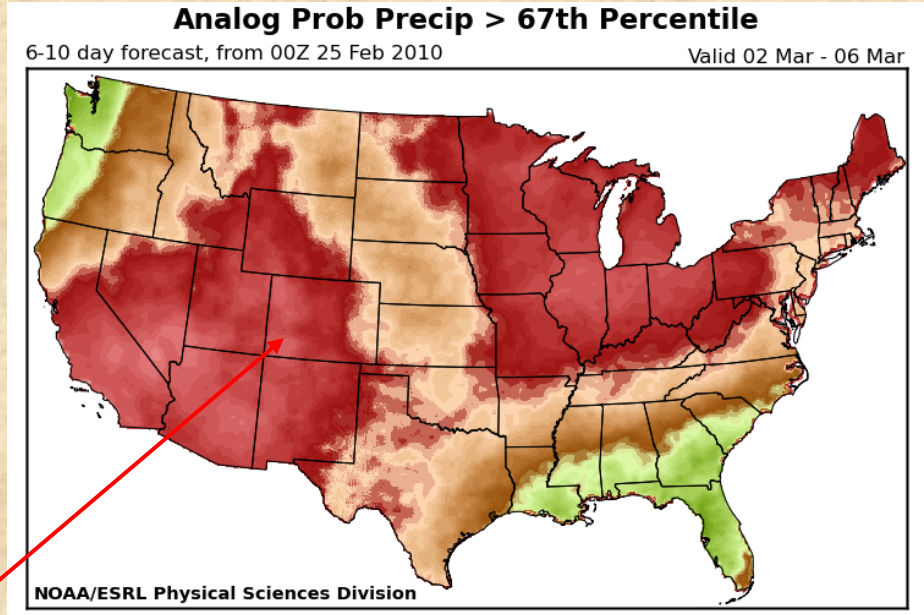
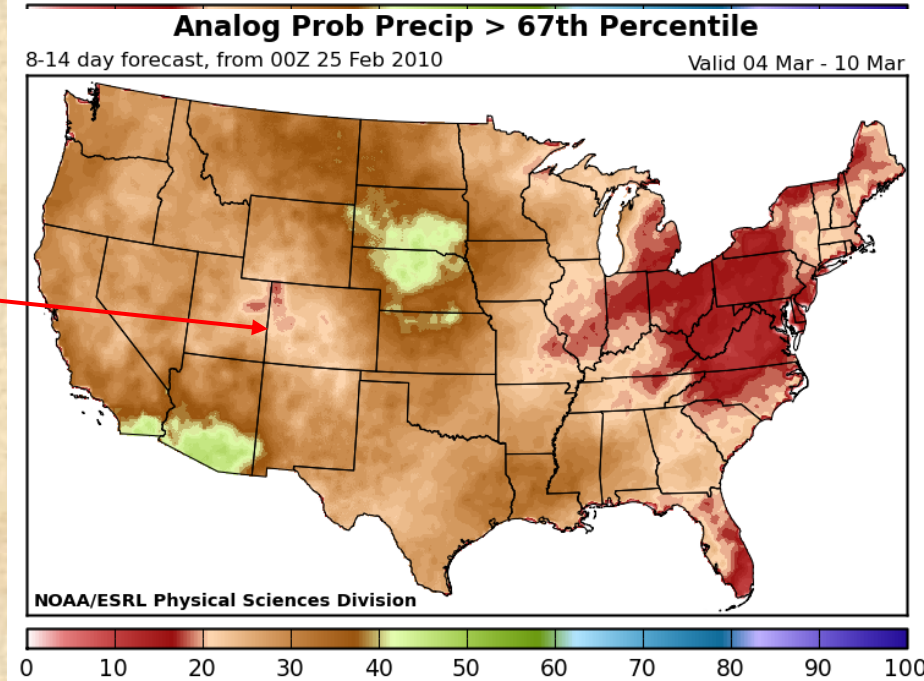
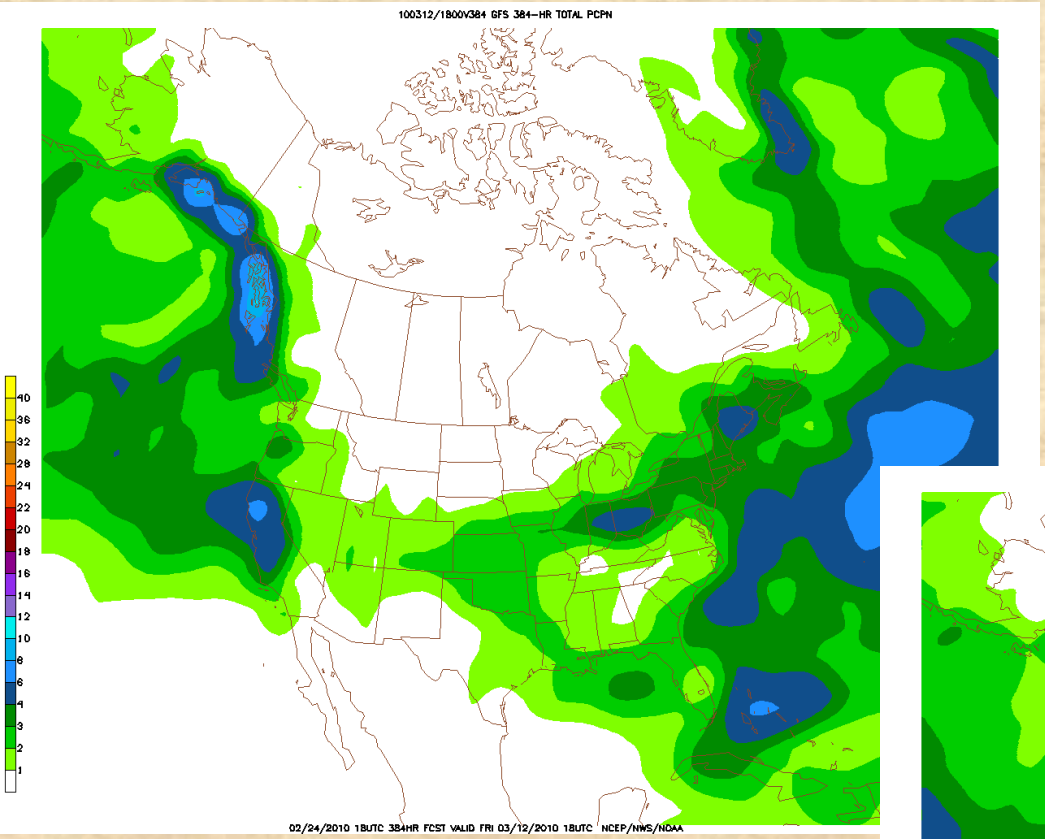




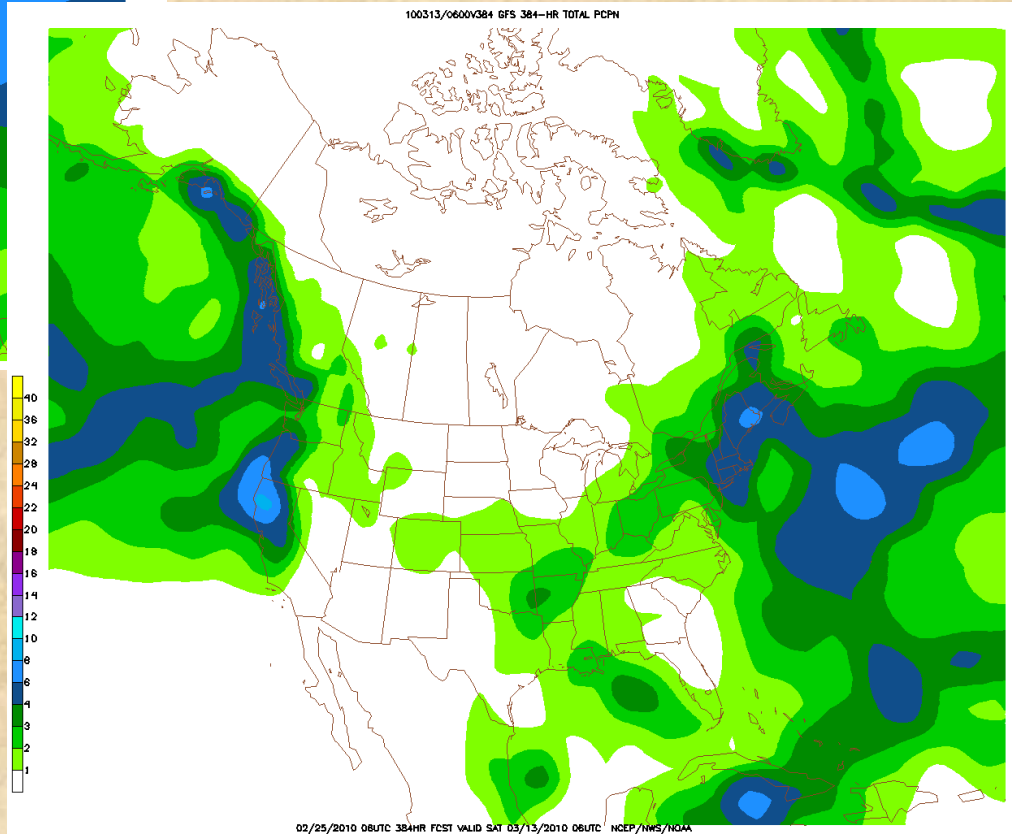


Precipitation chances for 4-6, 6-10, and 8-14 days from today start out with a departing storm over Colorado (Sunday through Tuesday, top left); this appears to be followed by a dry spell for most of next week (top right), and a gradual re-moistening thereafter (right).

What can we expect in the next two weeks?



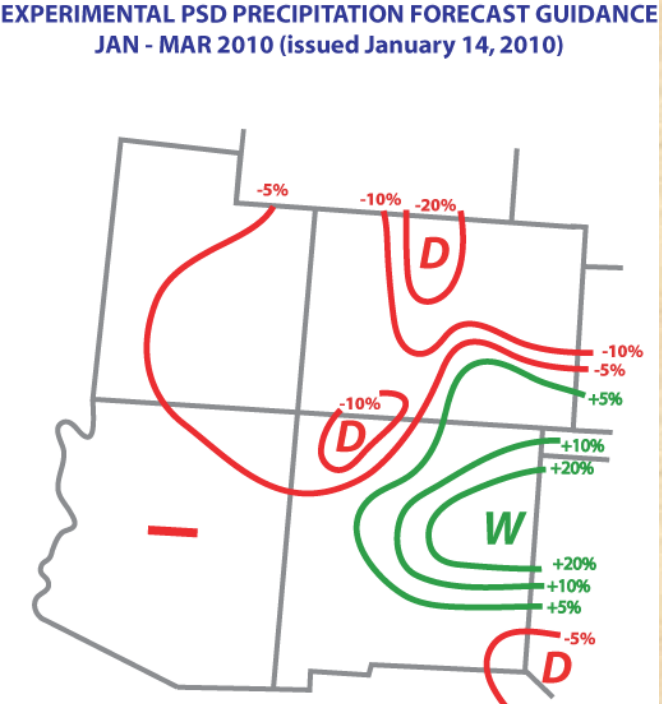
GFS Control runs from last night (left) and early this morning (bottom)

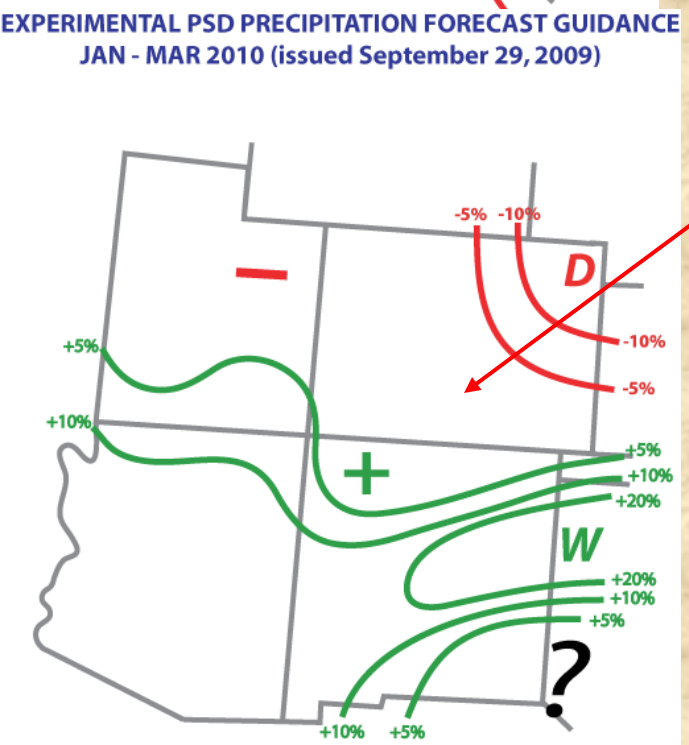


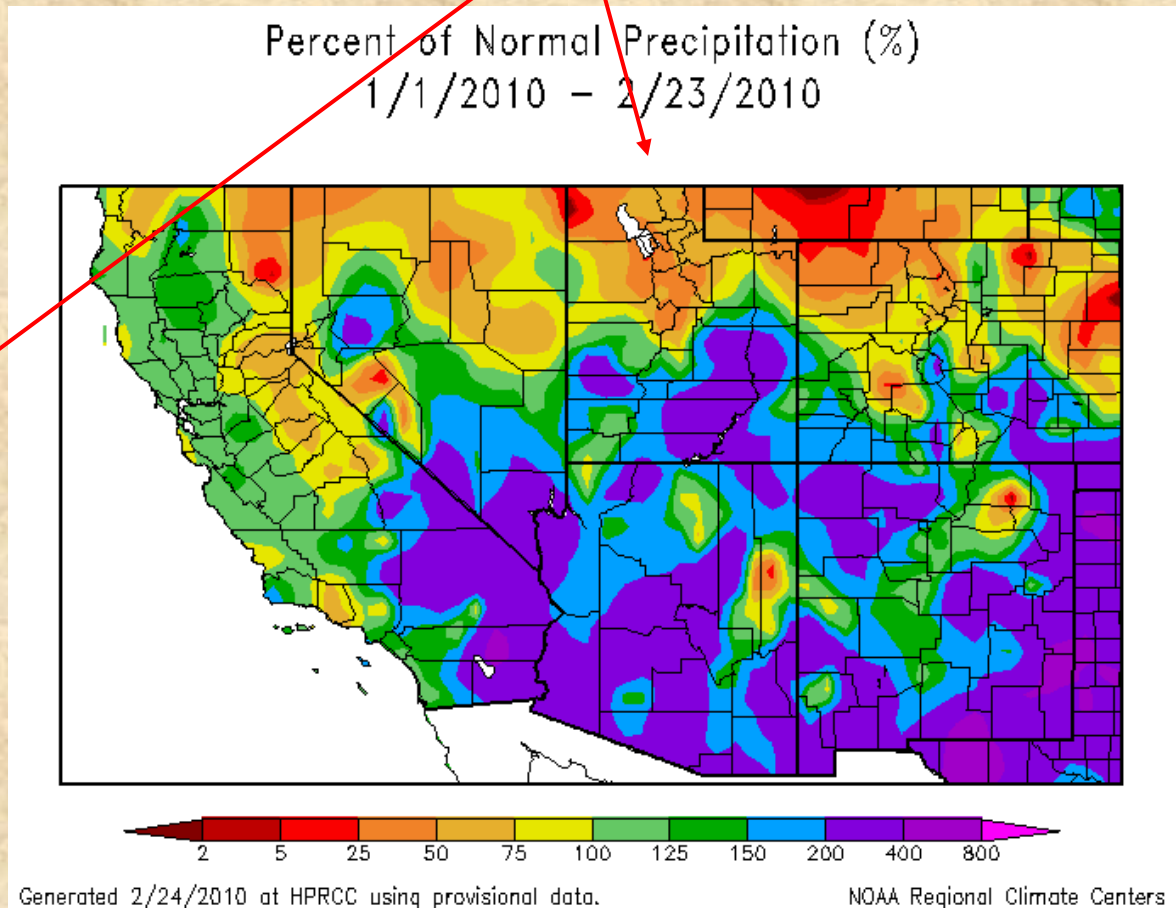
<u>Bottomline</u>: the GFS is a little more generous with moisture over the next two weeks than the ensembles, giving Colorado 1-2" of moisture!

Experimental Forecast Guidance

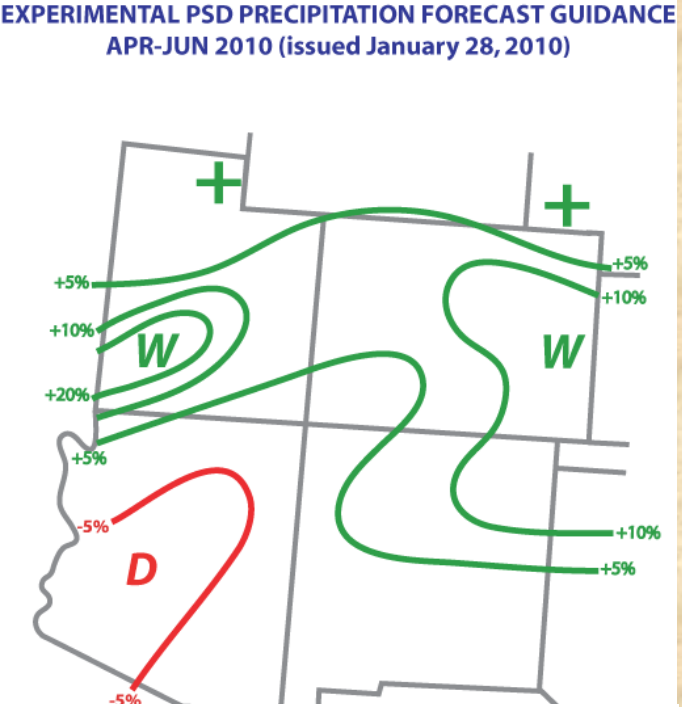
Forecasts for January-March 2010 from early January (left) and September (bottom left) appear to confirm a peculiar trait of my winter forecasts: longer-lead forecasts have been consistently *better* over the last 10 years than shorter-lead ones (bottom right shows precipitation anomalies so far this year).





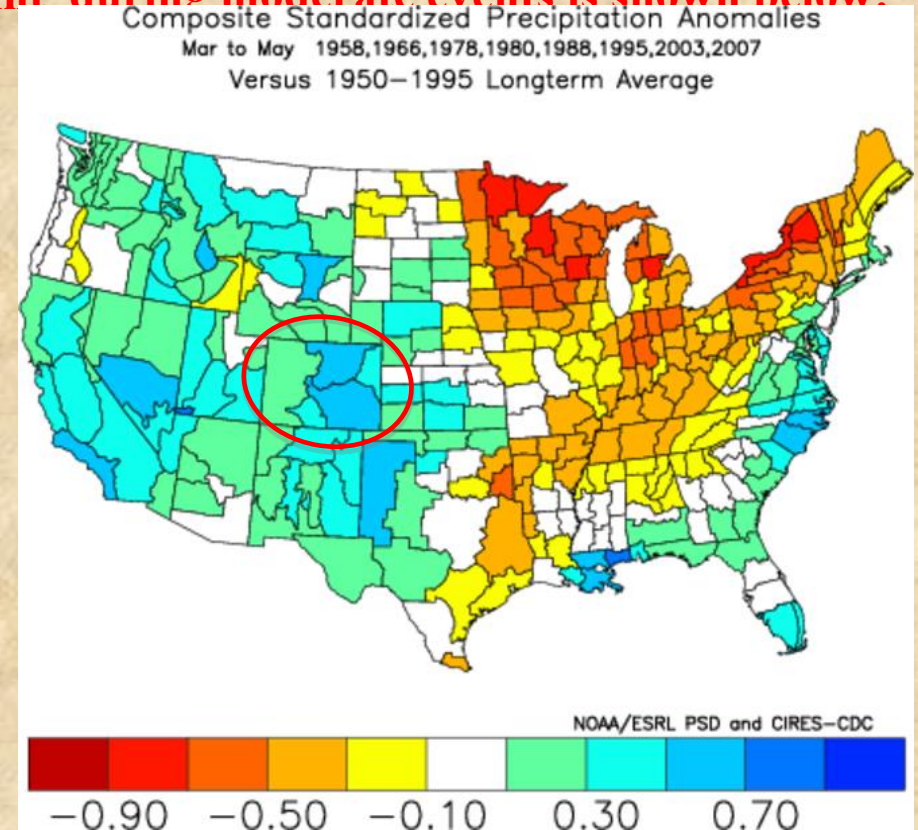


Experimental Forecast Guidance

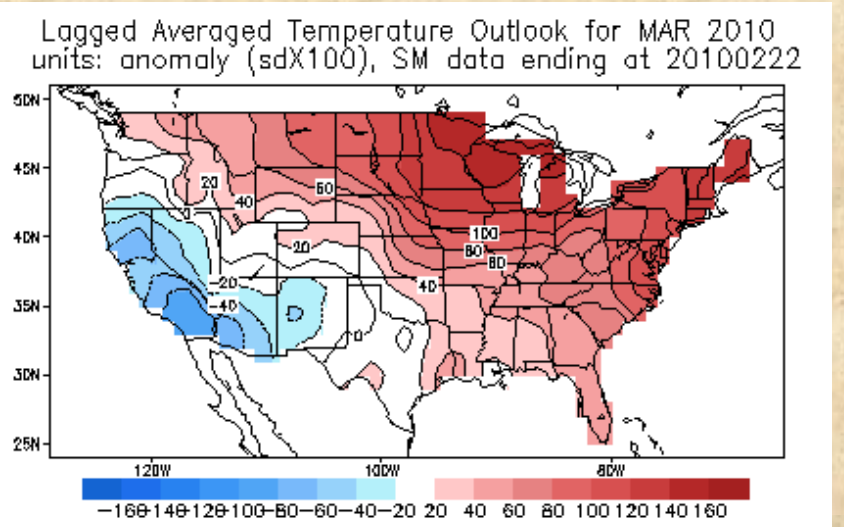


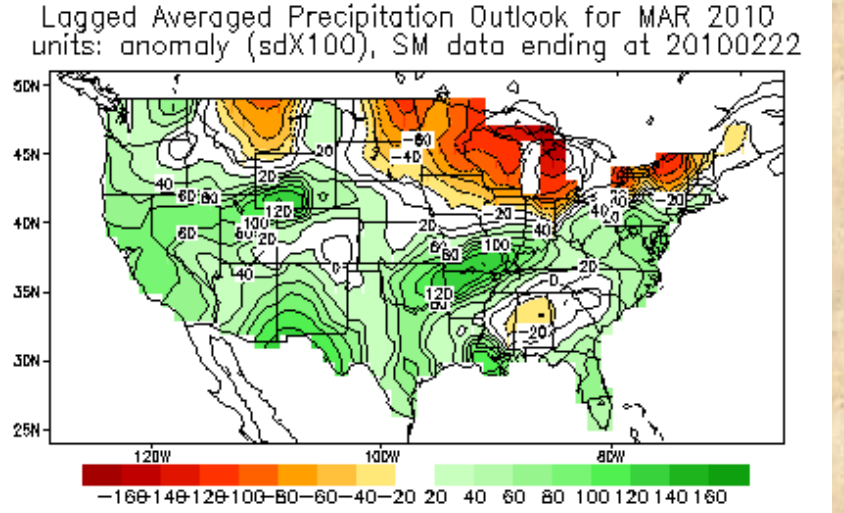
Forecasts for April-June 2010 from January (left) and February (bottom left) show increased chances of above-average moisture for most of Colorado – *this is also the best season for verified forecast skill in our state since 2000!*

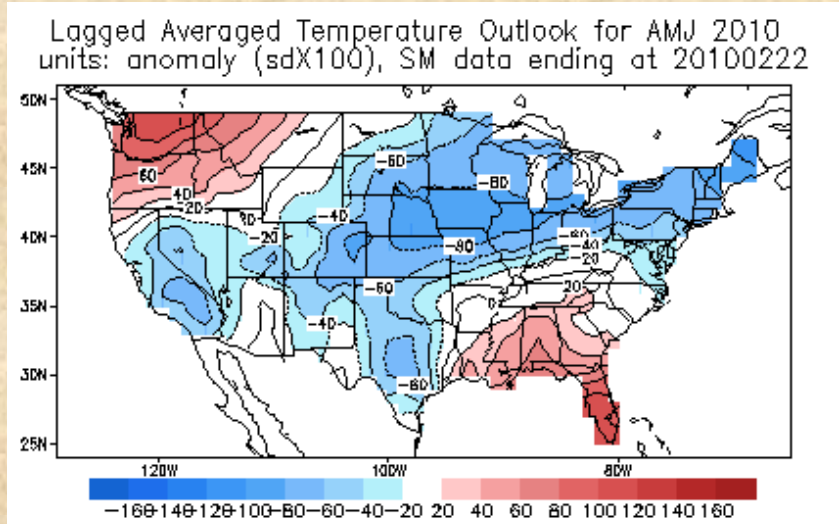
For comparison, the March-May average El Niño spring 'footprint' during moderate events is shown below:

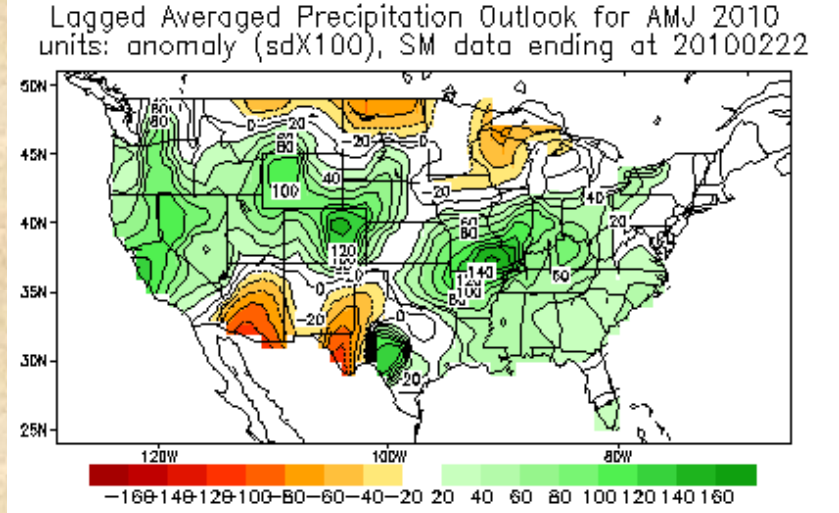


CPC Analog Forecasts



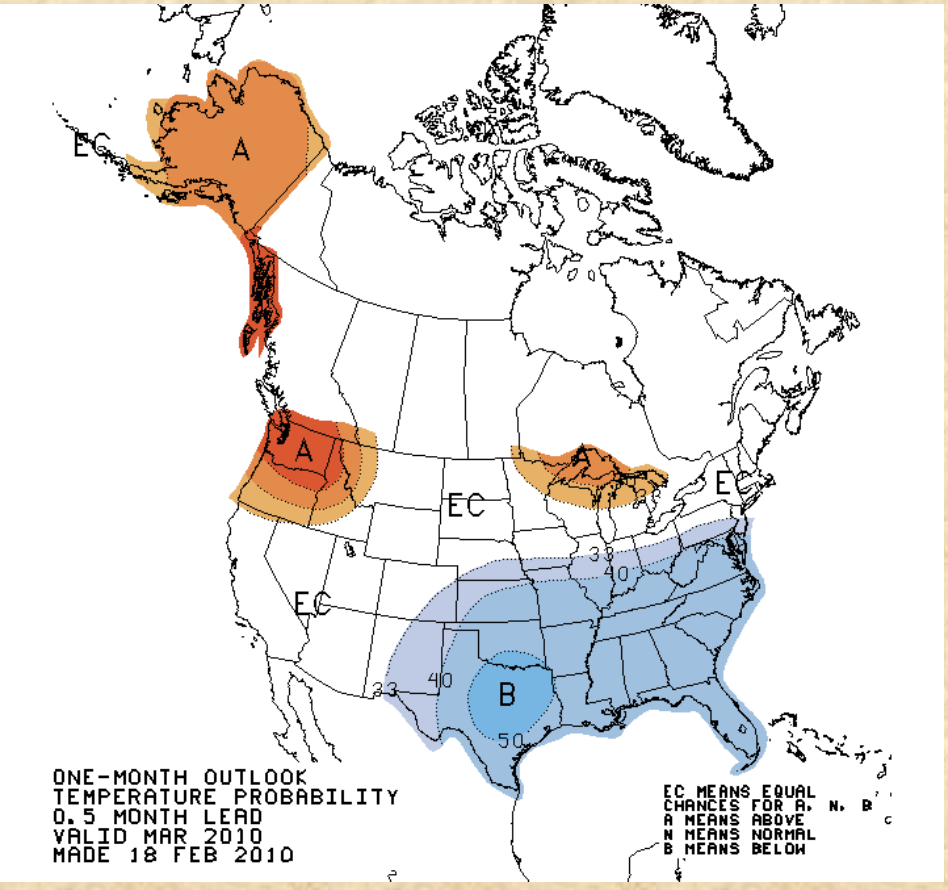


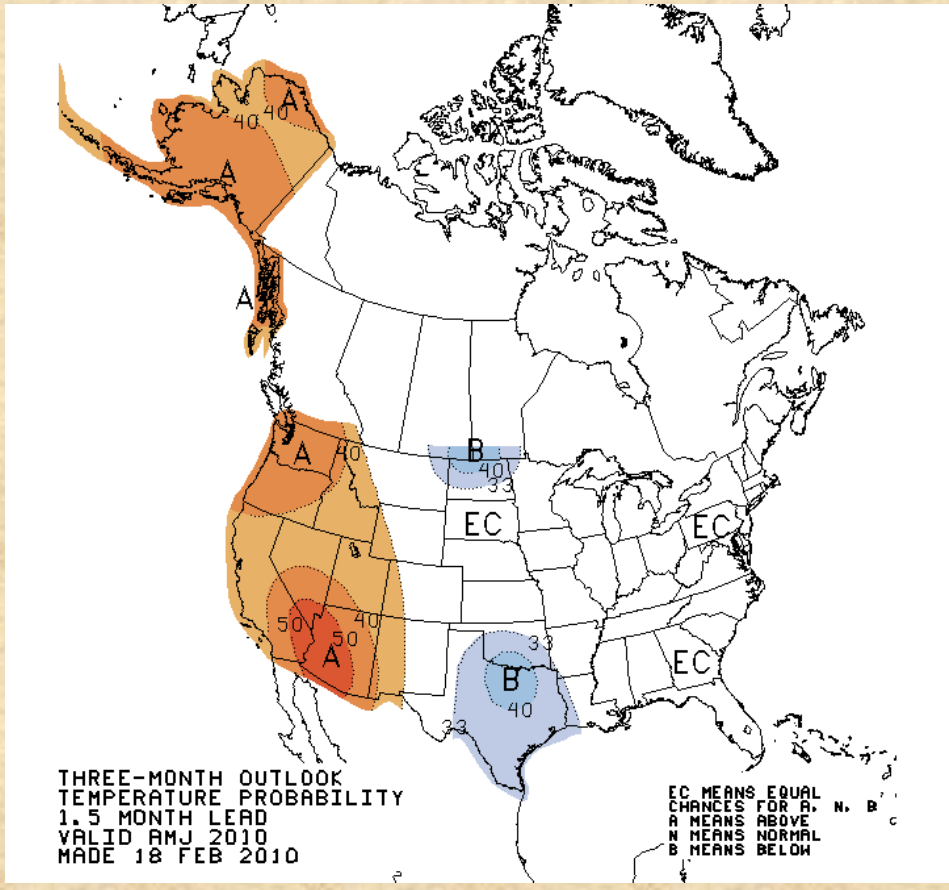




According to CPC's latest soil-moisture analog forecast, March (left) and April-June (right) look cool and wet for Colorado, consistent with many El Niño precedents! **Source**: ***http://www.cpc.noaa.gov/soilmst/cas.shtml***

CPC Temperature Forecasts

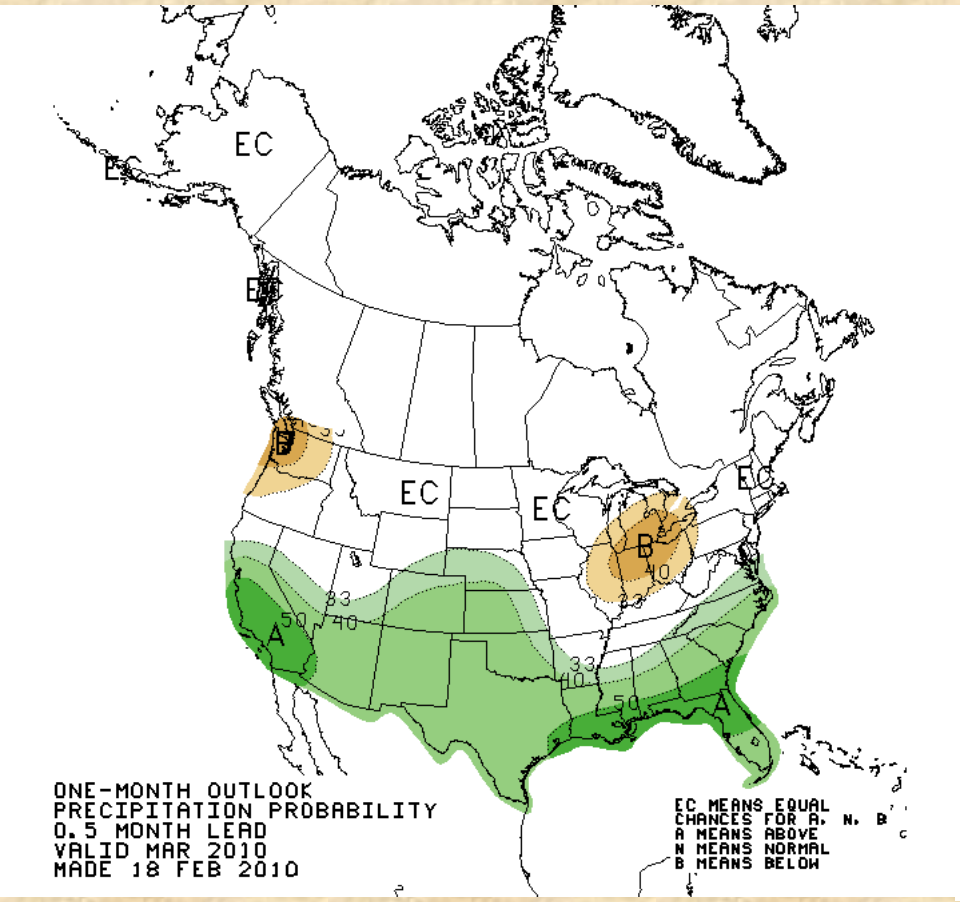


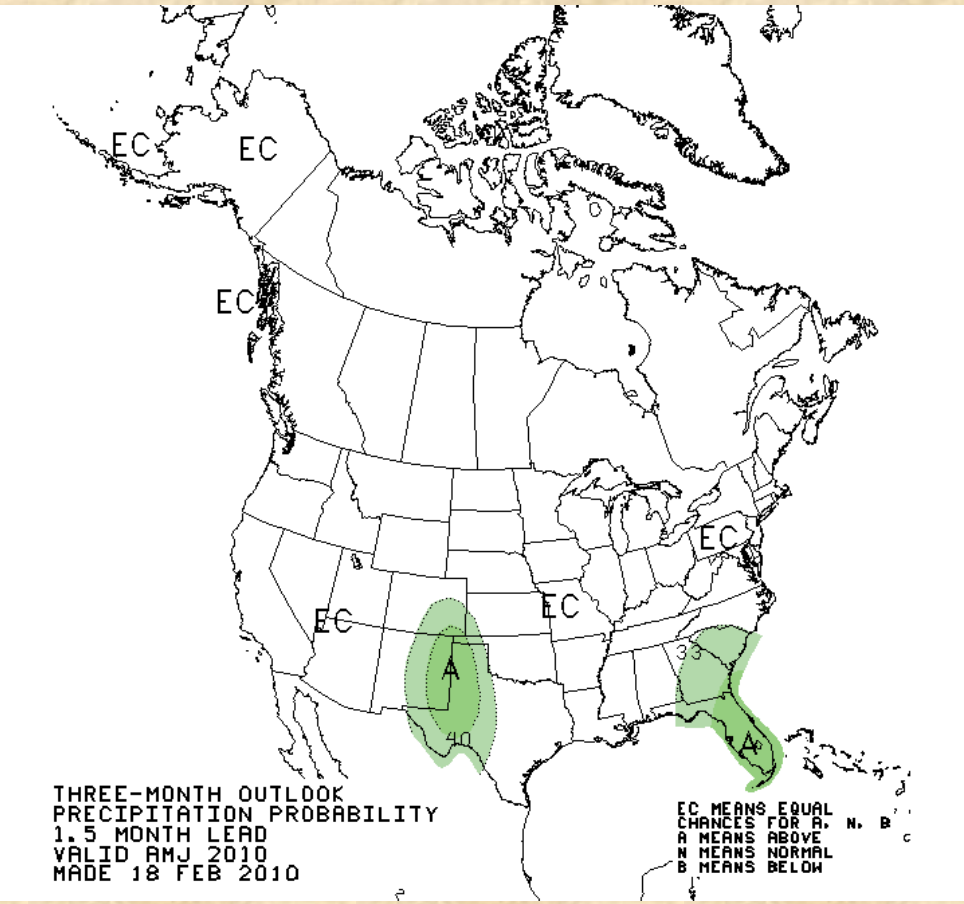


According to CPC's latest forecast, March (left) and April-June (right) temperature forecasts start out with typical El Niño coolness in the southeastern half of the country, including SE Colorado, but evolve towards warmer temperatures in much of the Southwest, due to long-term trends, after the assumed demise of El Niño.

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

CPC Precipitation Forecasts





According to CPC's latest forecast, March (left) and April-June (right) precipitation forecasts start out with a fairly high tilt of above-normal precipitation in Colorado (*with some input form yours truly*), followed by lingering spring moisture from western Texas to SE Colorado.

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

Executive Summary (early version)

1. **Weak-to-moderate El Niño conditions became established in June, getting upgraded to moderate or stronger in October 2009. This event may have peaked in the last few months, but should linger into the spring.**

2. **The last month has been snowier (and colder) than the previous month in much of Colorado, but the disparity between northern and south-central mountains has continued, in typical El Niño fashion.**

3. **My experimental forecast guidance for the upcoming season is in favor of a wet spring, both based on recent El Niño conditions, as well as statistical tools. However, the next two weeks look not as active as hoped for, despite a succession of (weak) storms that are lined up to cross our state.**

4. **Bottomline: The moderate El Niño of 2009-10 has shifted the main stormtrack to the southern U.S., suppressing our snowfall chances in the northern mountains as anticipated. Over the next few months, I expect this stormtrack to refocus further north to give us a decent chance of recovering lost ground in northern Colorado.**

Updated later today at: ***http://www.esrl.noaa.gov/people/klaus.wolter/SWcasts/***