Seasonal Outlook through June 2007

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

- **El Niño / La Niña and the 'Spring Predictability Barrier'**
- **Next two weeks & CPC forecasts for April - June 2007**
- **Experimental forecast guidance**

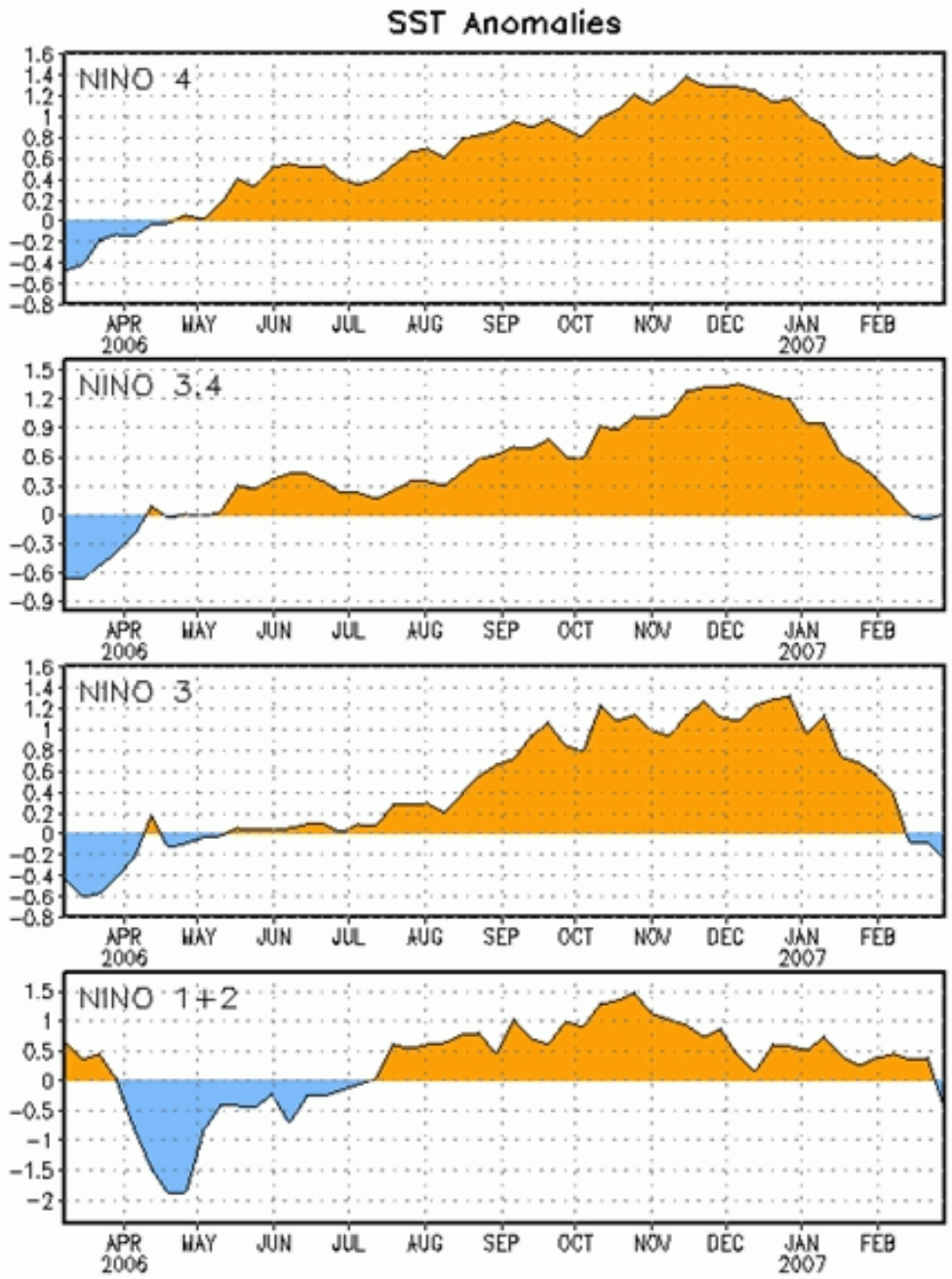
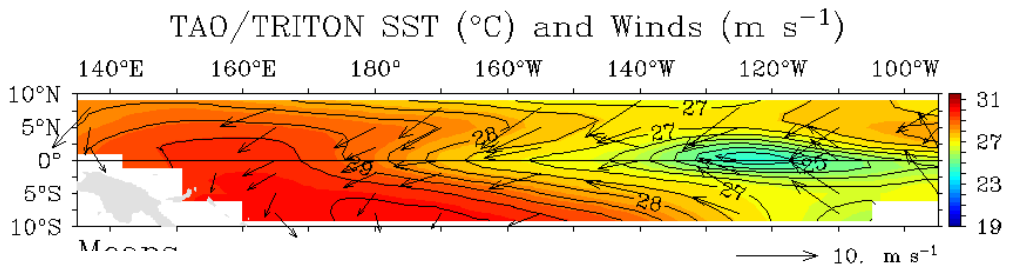
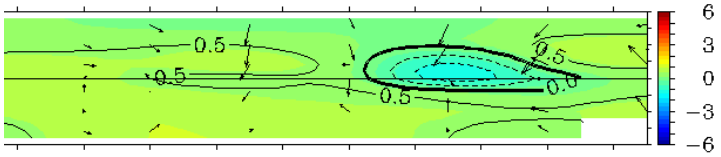


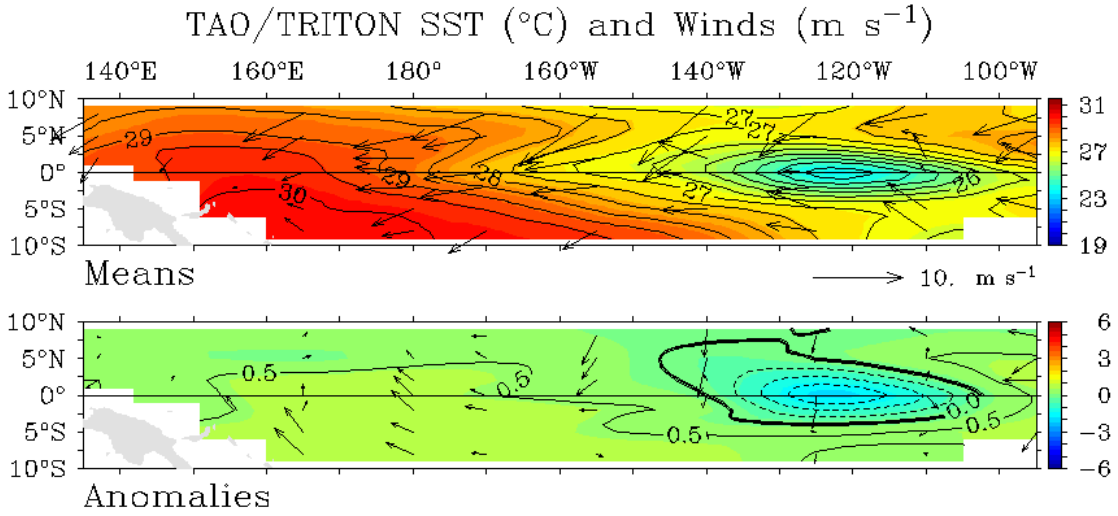
Figure 2. Time series of SST departures (°C) for the Niño regions. The SST departures are computed with respect to the 1971-2000 base period means (Xue et al. 2003, *J. Climate*, **16**, 1601-1612).

The recent temperature change in Niño regions 3 and 3.4 is the biggest such drop from January to February since at least 1950, similarly to the drop in the MEI. Almost all 'analog' drop years resulted in La Niña conditions by the summer (1964, 1966, 1973, 1988, 1995), with the exception of the most recent case: 2003.



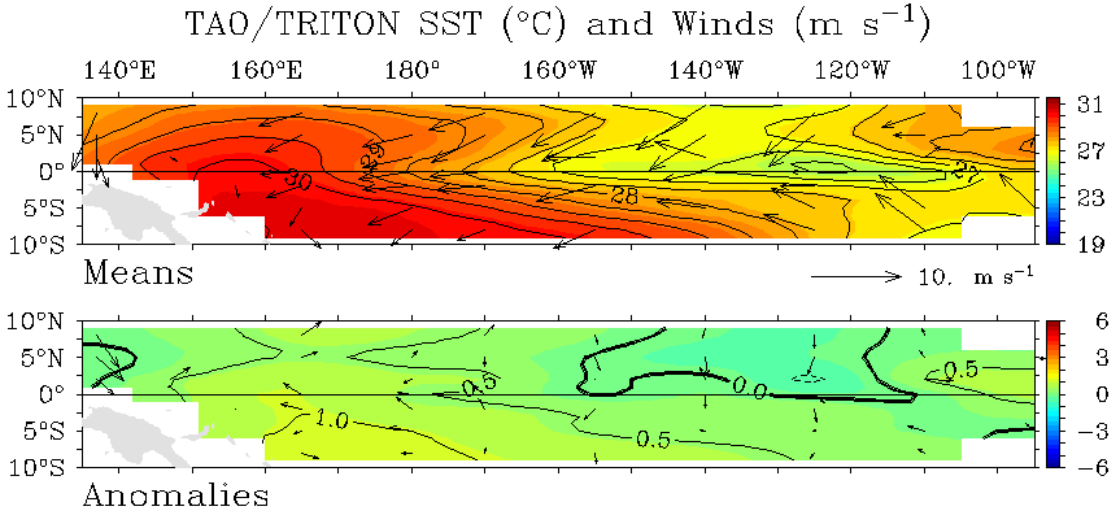


Five–Day Mean Ending on February 14 2007

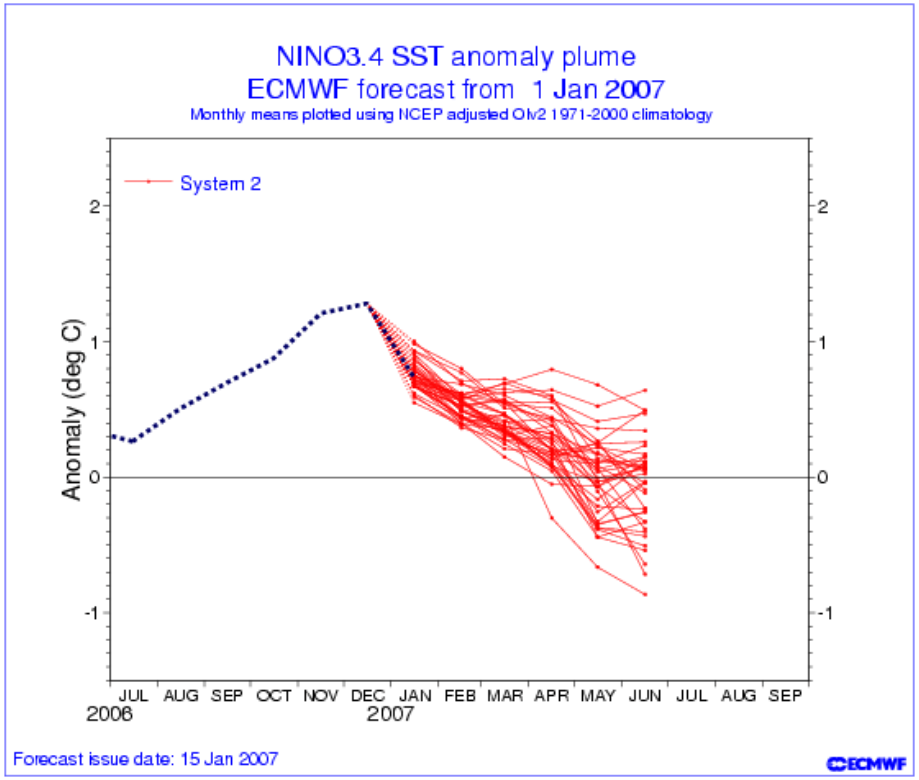


Five–Day Mean Ending on February 22 2007

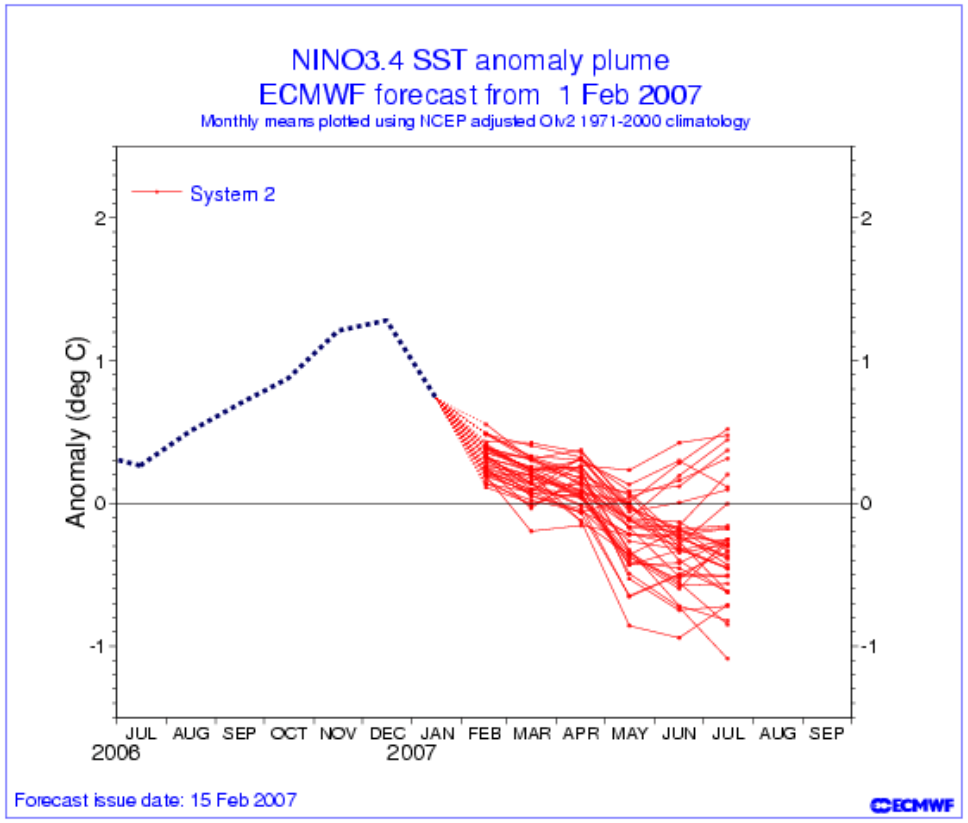
Current state of ENSO (bottom) compared to last month (top right&left): rapid change towards La Niña has been arrested in March?!

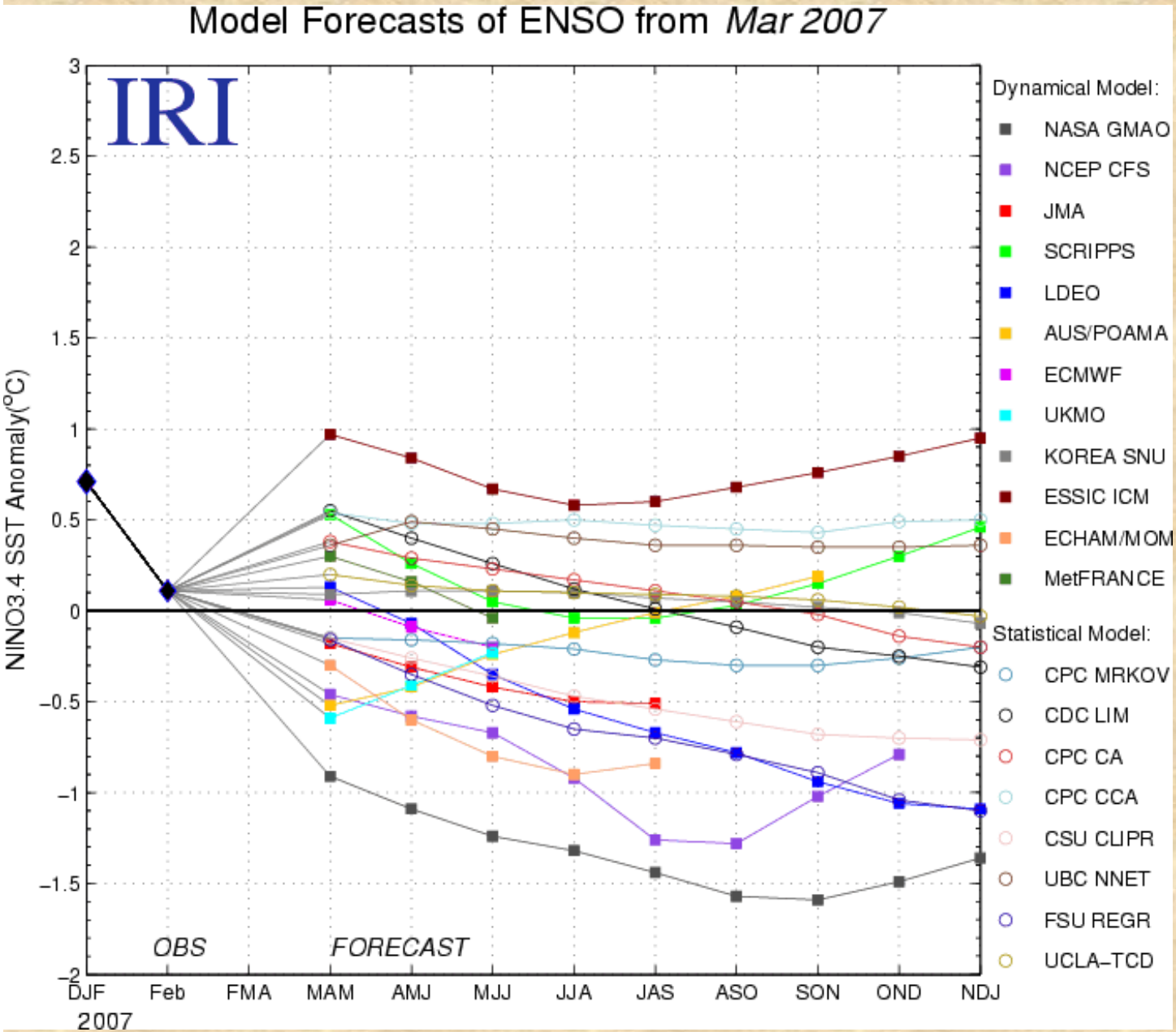


Five–Day Mean Ending on March 13 2007



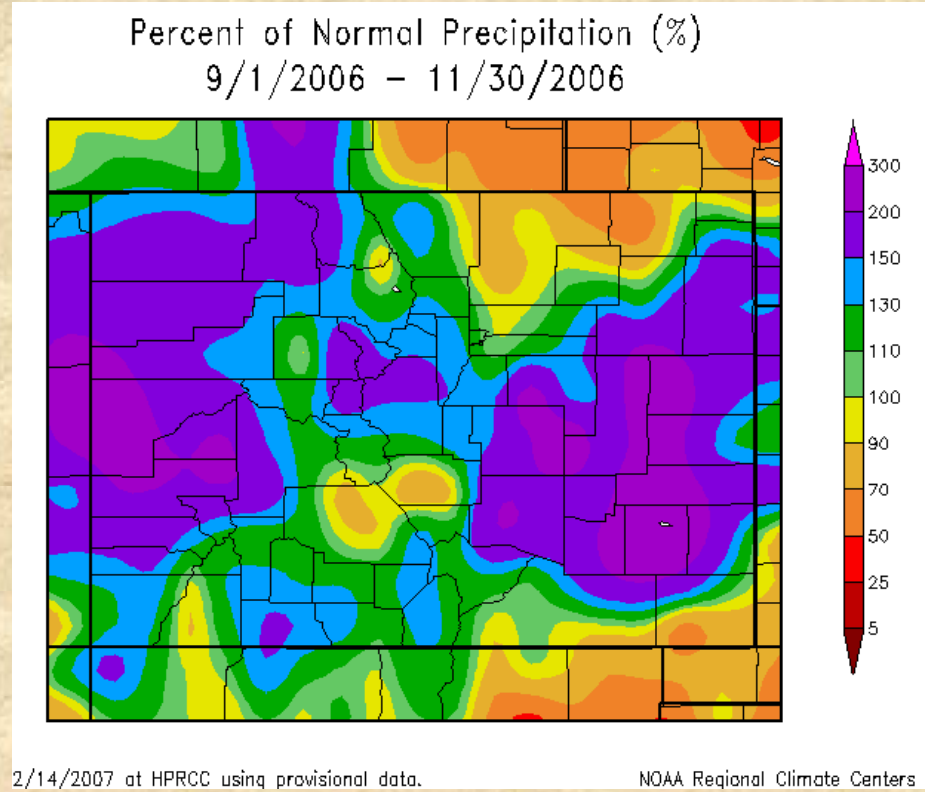
The European model's February forecast (bottom) is more tilted towards La Niña than the January forecast (left). This model has done a fairly good job predicting this difficult El Niño event.



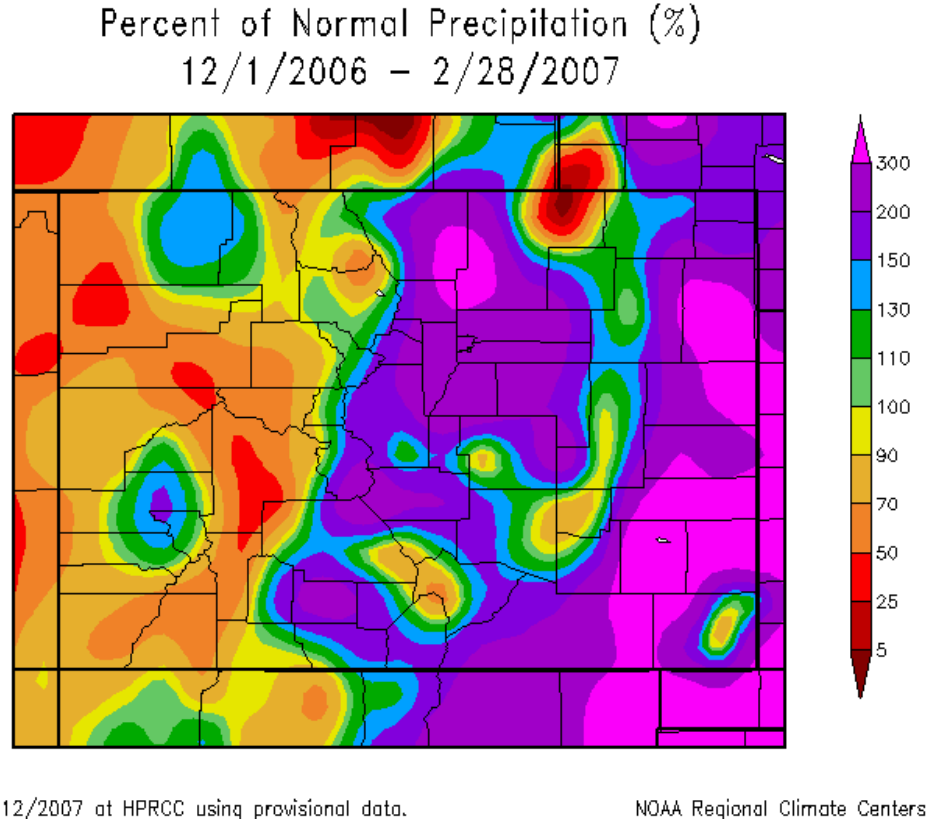


New ENSO forecasts from 12 numerical & 8 statistical forecast models: behold the wide range of possible outcomes even in the next three months - the 'Spring Predictability Barrier' is alive and well!

Seasonal precipitation anomalies in SON and DJF

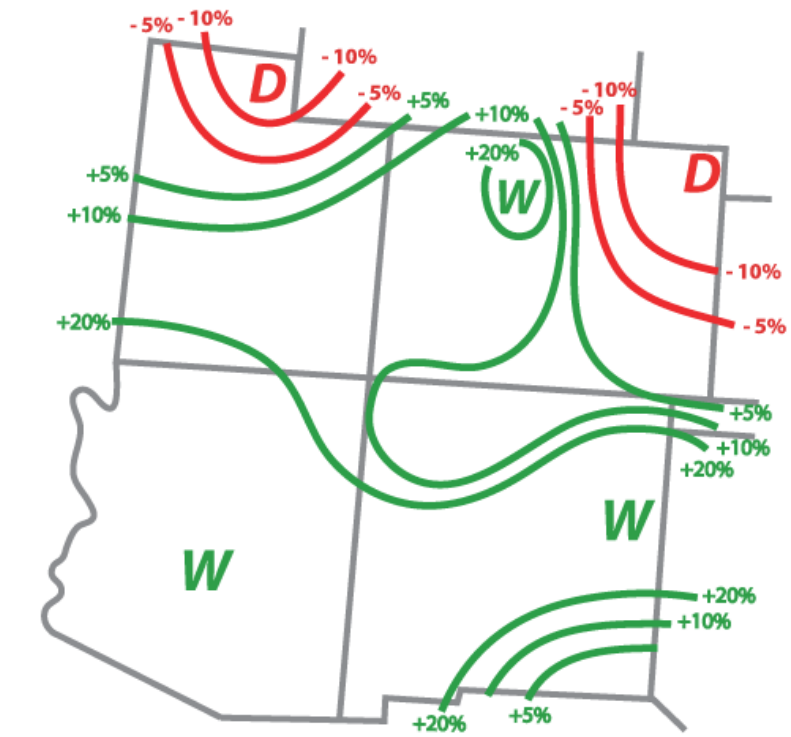


Fall was wet in most of Colorado, consistent with El Niño expectations!

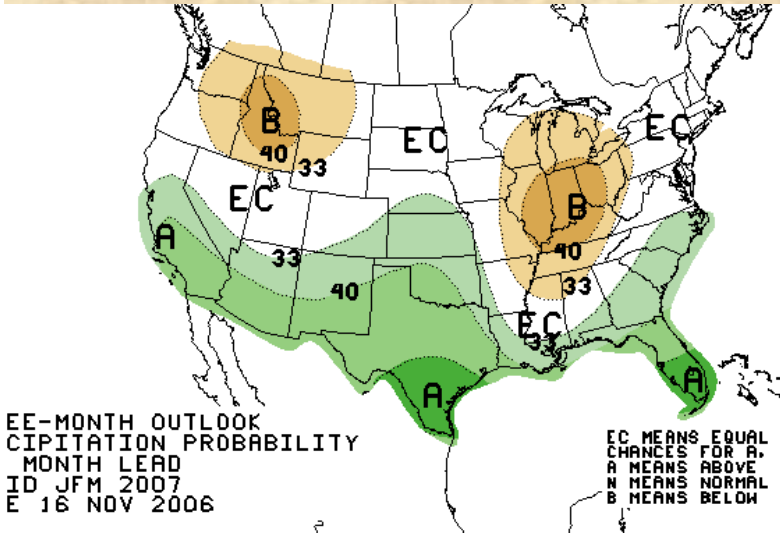


Winter was wet in eastern Colorado and dry west of the Divide, although late February tried to make up for lost ground in the West. This outcome was consistent with El Niño for the Arkansas Valley and western Colorado. The Front Range 'lucked out' with more than one big snow storm!

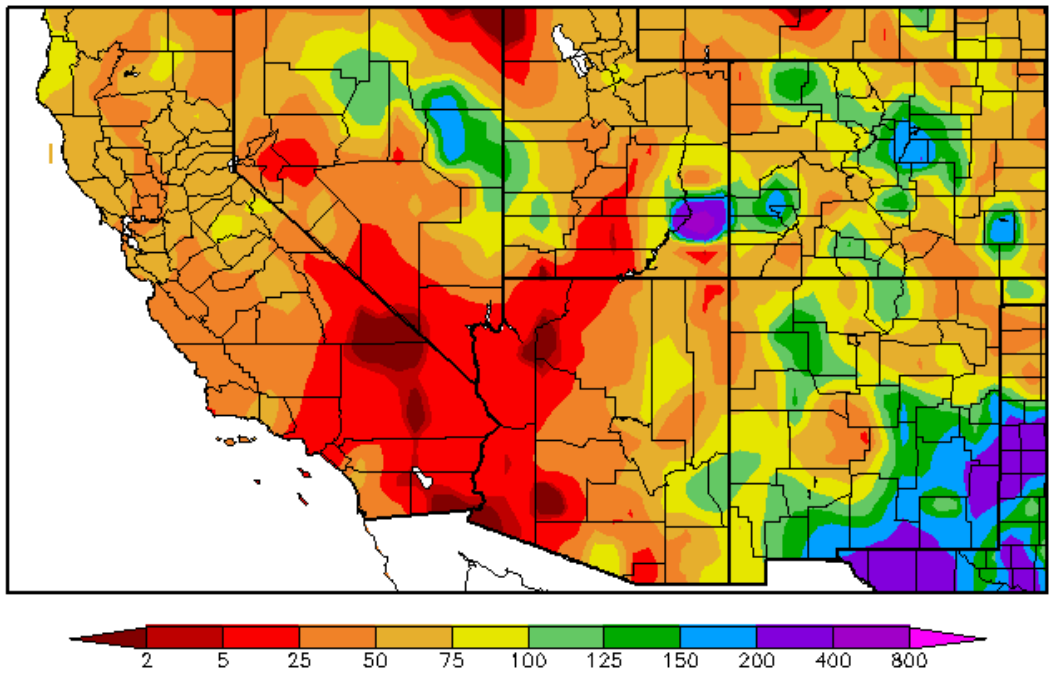
EXPERIMENTAL CDC PRECIPITATION FORECAST GUIDANCE
JAN - MAR 2007 (issued November 13, 2006)



My dry late winter forecast for northwest UT and northeast CO appears to be on track, while the spatial extent of wet anomalies appears fairly small compared to projections. As I said last month, this is not a typical El Niño winter…



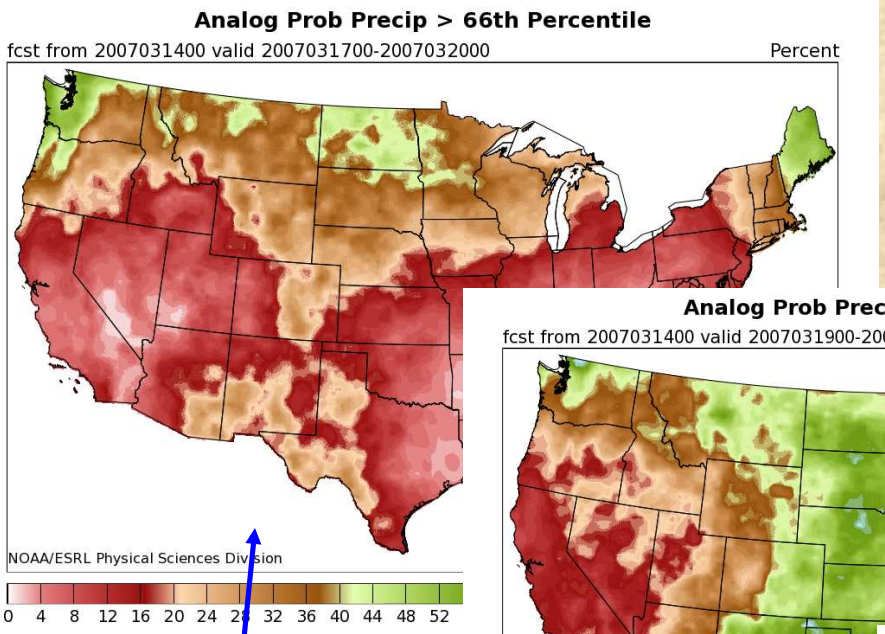
Percent of Normal Precipitation (%)
1/1/2007 – 3/13/2007

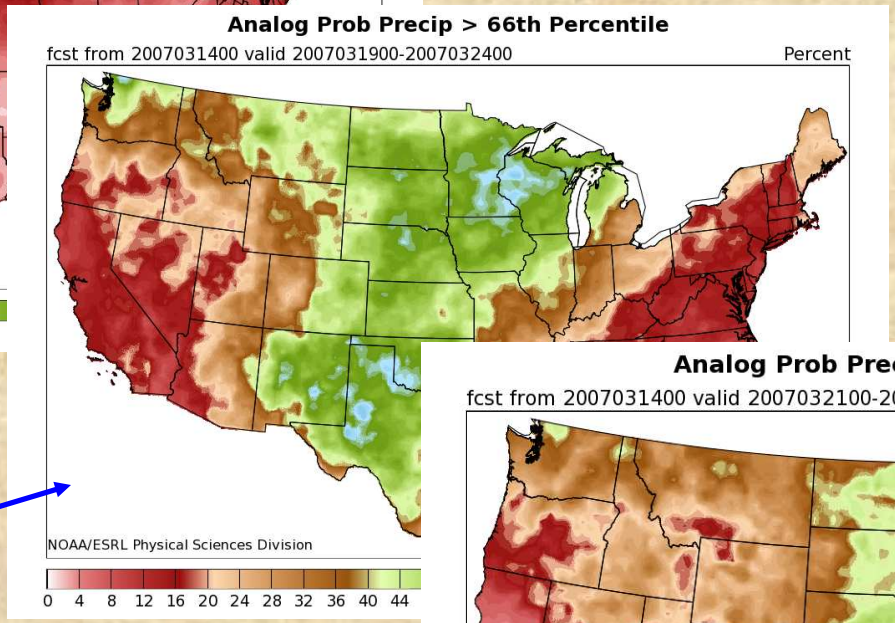


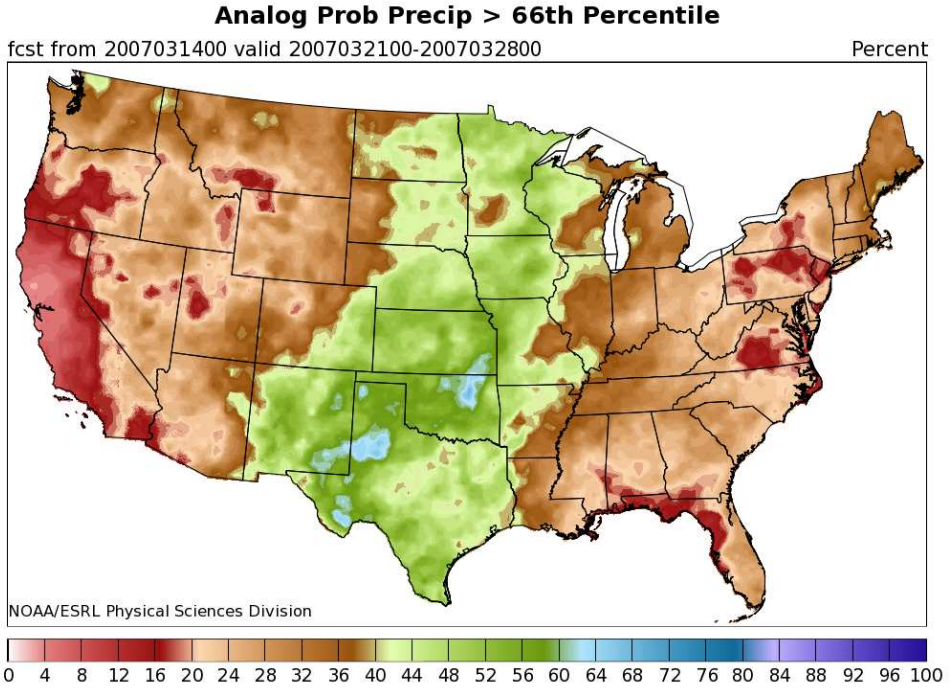
Generated 3/14/2007 at HPRCC using provisional data.

NOAA Regional Climate Centers

After a dry first half of March, what's in store for us?







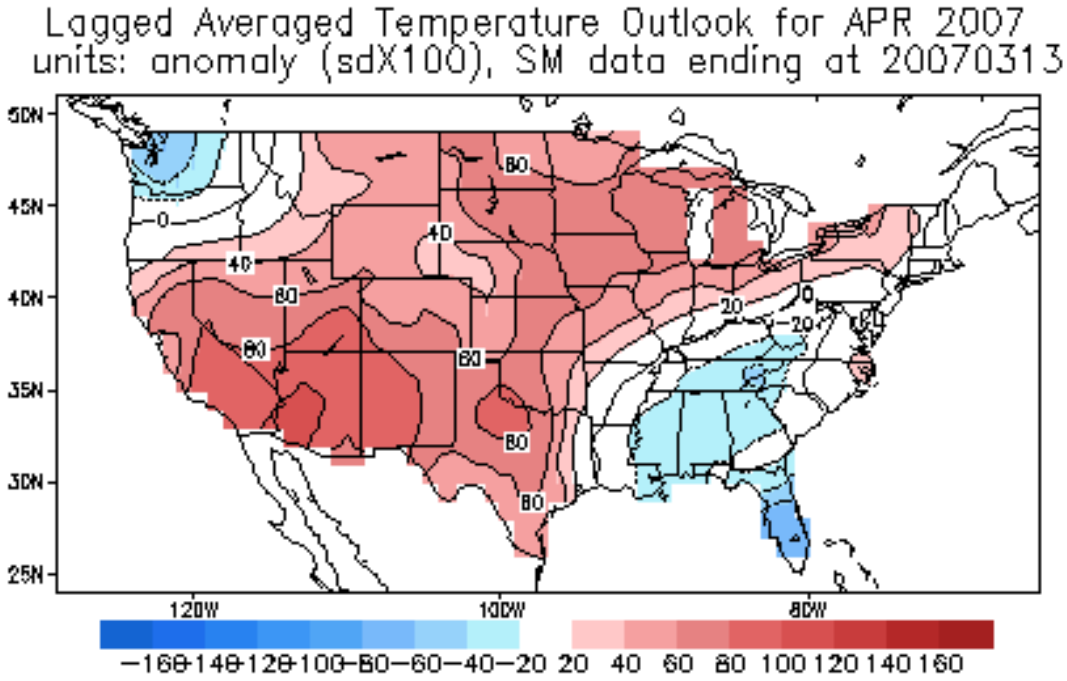
While late February did indeed deliver some much needed moisture for the northern mountains west of here, the next two weeks are more promising for the eastern plains.

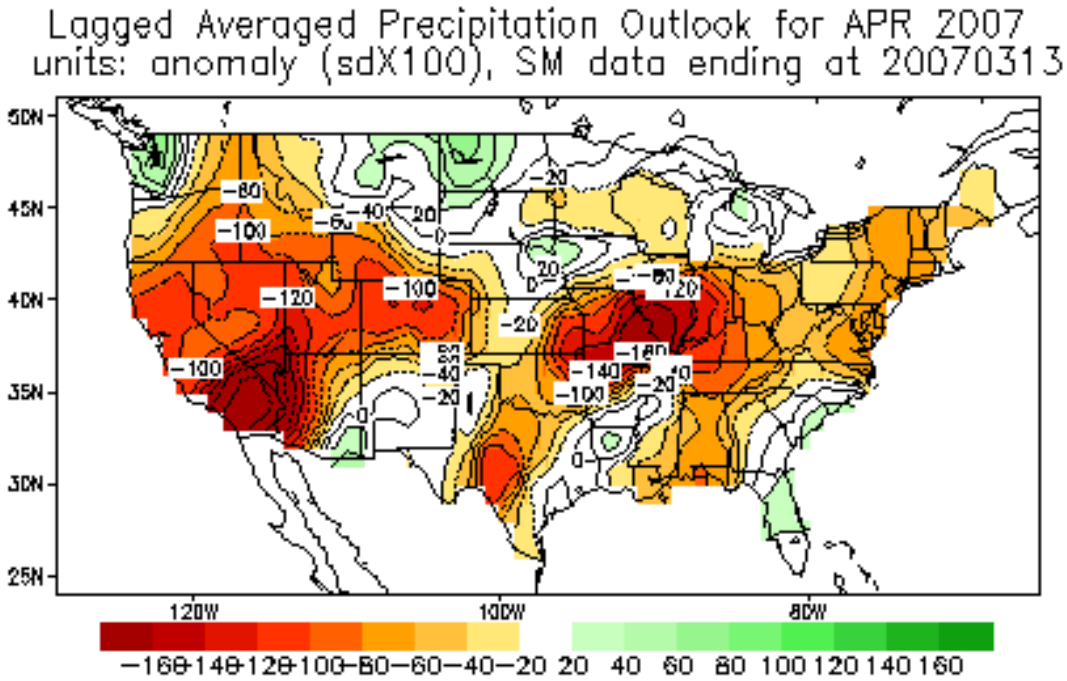
4-6 days

6-10 days

8-14 days out

The color green translates into odds around 50% of getting moisture typical for the wettest third for this time of year. Even a dark brown refers to better than even odds.

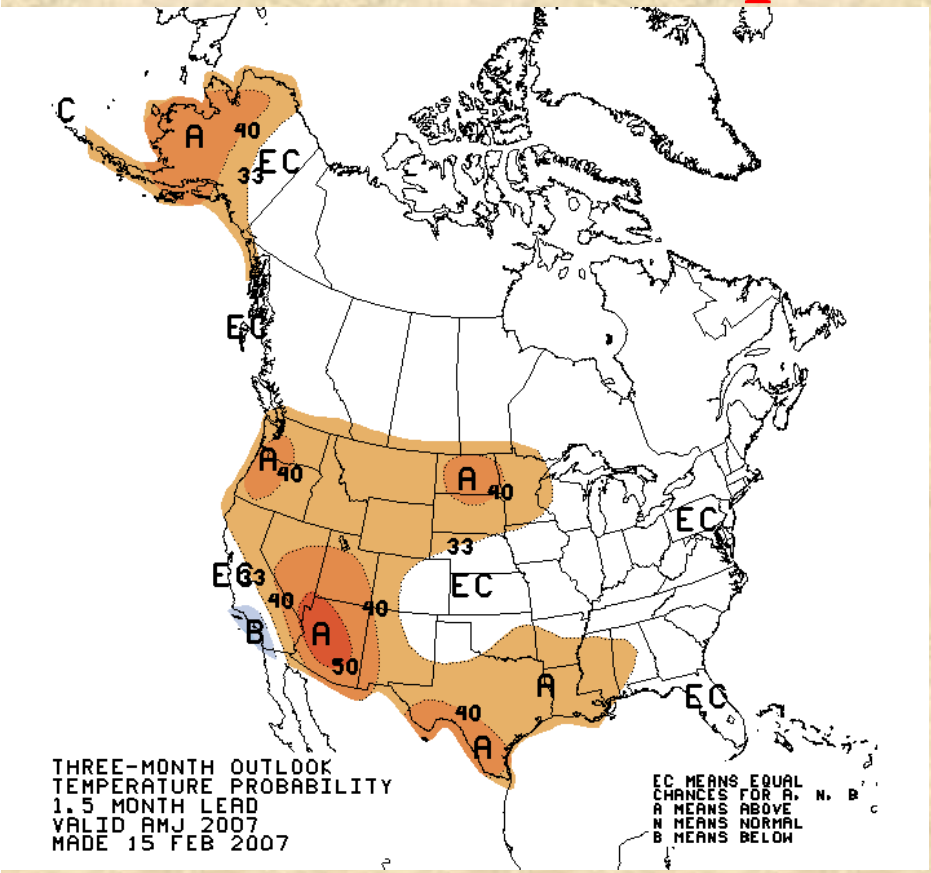


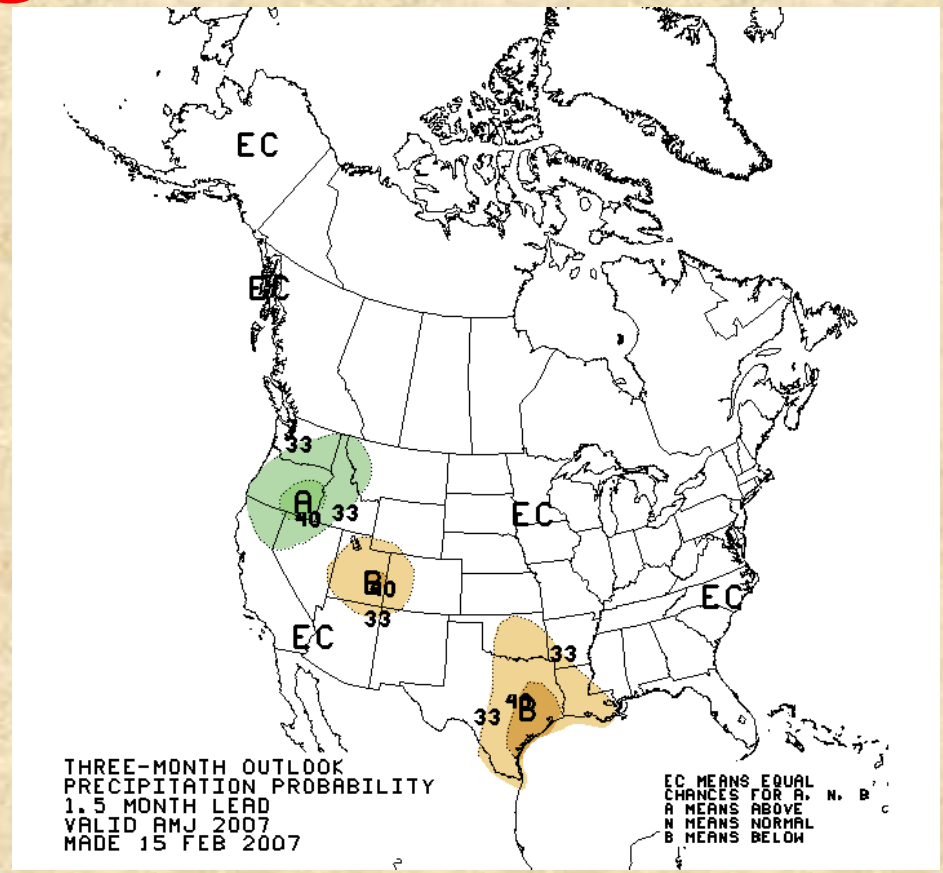


What about April?

Based on historical analog soil moisture situations, the outlook for April is ‘grim’: warm and dry for much of the southwestern U.S. Fortunately, the skill level of this monthly forecast is close to zero.

CPC Spring Forecasts

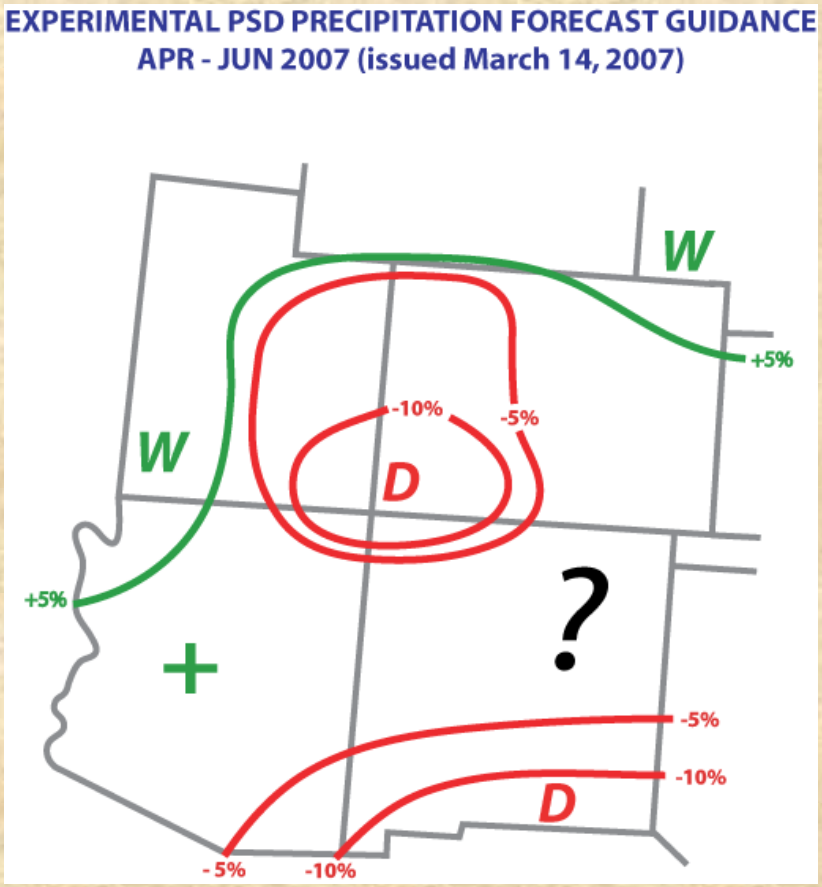


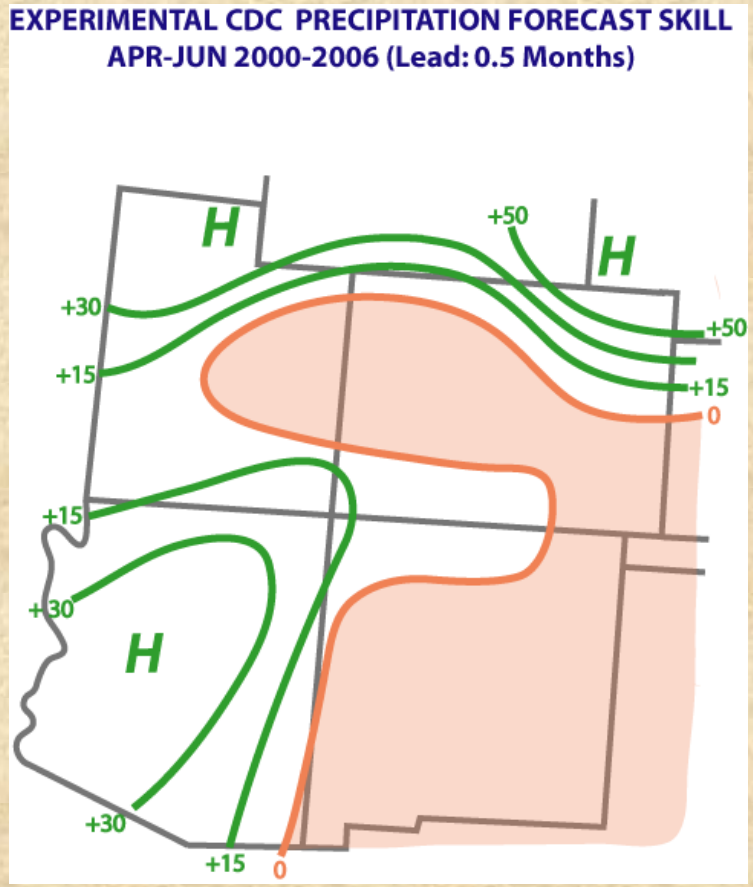


According to CPC's official forecasts from last month, Apri-Jun 2007 temperature (left) and precipitation (right) forecasts put eastern Colorado under 'EC', while the western third of our state has slightly increased odds for a warm and dry spring. The updated forecast from today will be drier & warmer for all of Colorado.

Source (for CPC forecasts): ***http://www.cpc.ncep.noaa.gov/products/predictions/***

Experimental CDC "Forecast Guidance"





My most recent spring forecast (left) continues a downward trend from earlier forecasts, with only the northeastern corner of Colorado hanging on to a positive tilt in the odds, while the San Juans now show a drastic downturn towards a dry spring. The skill map on the right gives us hope that the wet portion of this forecast has a decent chance of verifying, while there is less skill over the dry forecast regions.

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

Executive Summary (15 March 2007)

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

- While moderate El Niño conditions did briefly develop over the course of last winter, they never fully coupled the atmosphere to the tropical Pacific, and appear to have collapsed over the last two months. Though likely, a transition to La Niña is not guaranteed.

- Lingering snow cover has kept temperatures below normal over much of the eastern Colorado into early March. It is now mostly gone. A wet spell during late February (in particular over northwestern Colorado) has been replaced by near-record warmth and dry conditions in March. While mid-winter dry spells are typical for El Niño winters in Colorado and Utah, dryness in Arizona has been atypical and prolonged. Late March promises to be unsettled in CO.

- My experimental forecast guidance for the spring season (April-June) is less optimistic than last month's version, which was already drier than the previous one. This reflects the 'sagging fortunes' of the 2006-07 El Niño event. Dry prospects in southwestern Colorado are particularly worrisome if the recent dry spell were to continue right into spring. With the potential for a rapid transition to La Niña conditions in the next few months, the odds for a wet spring are certainly not improving.

- Bottomline: Recent El Niño conditions appear to be losing what little influence they had on western U.S. weather. While El Niño events favor wet springs in much of the southwestern U.S., rapidly 'crashing' events are not as favorable for us. If La Niña were to become established this spring, the threat of renewed drought conditions would increase even more.