

Seasonal Outlook through June 2007

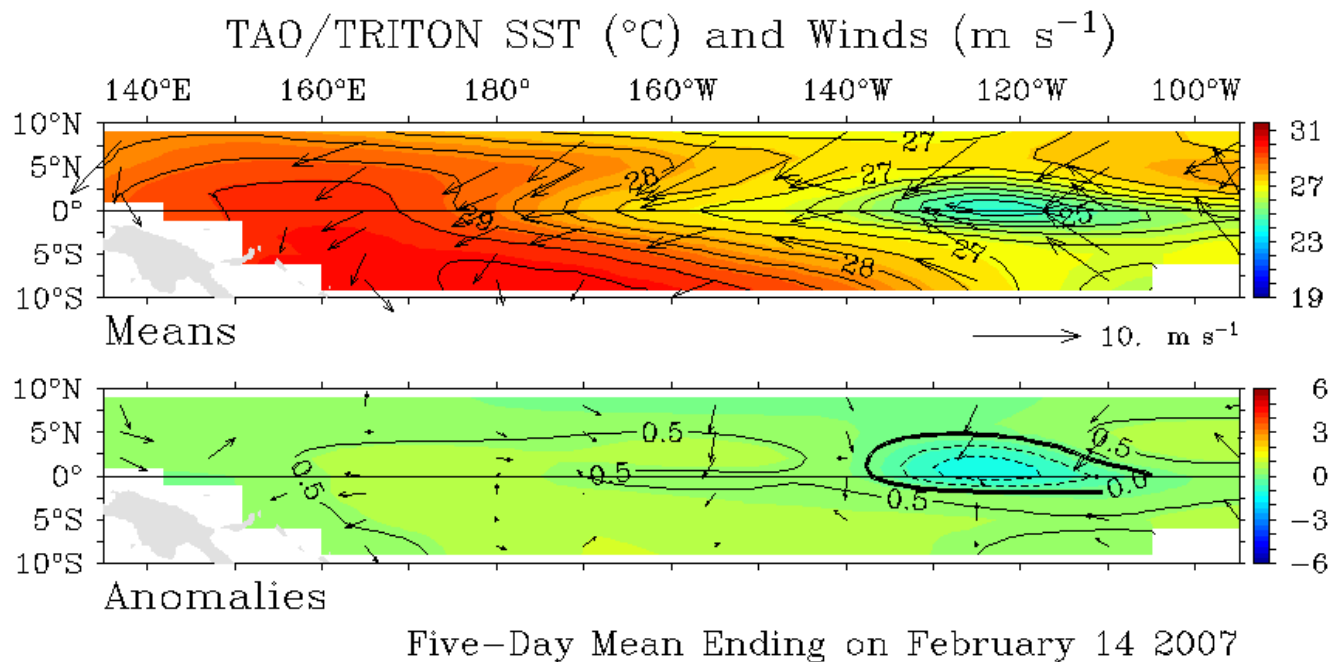
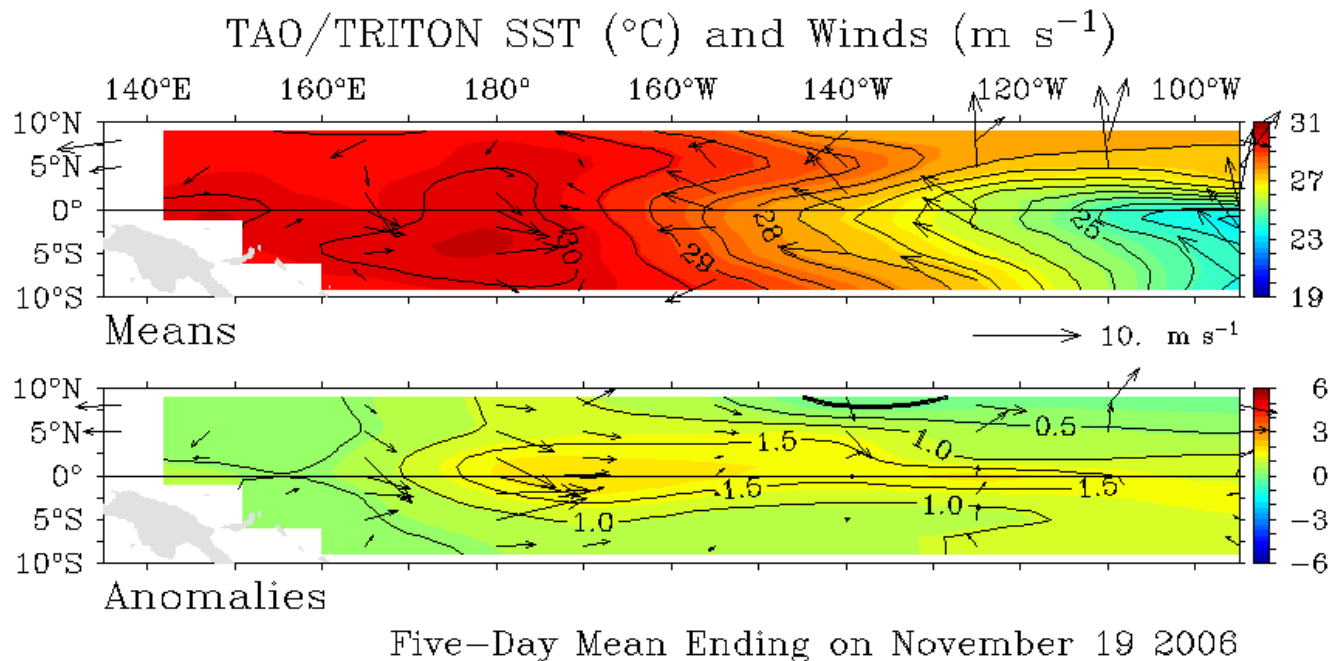
Klaus Wolter

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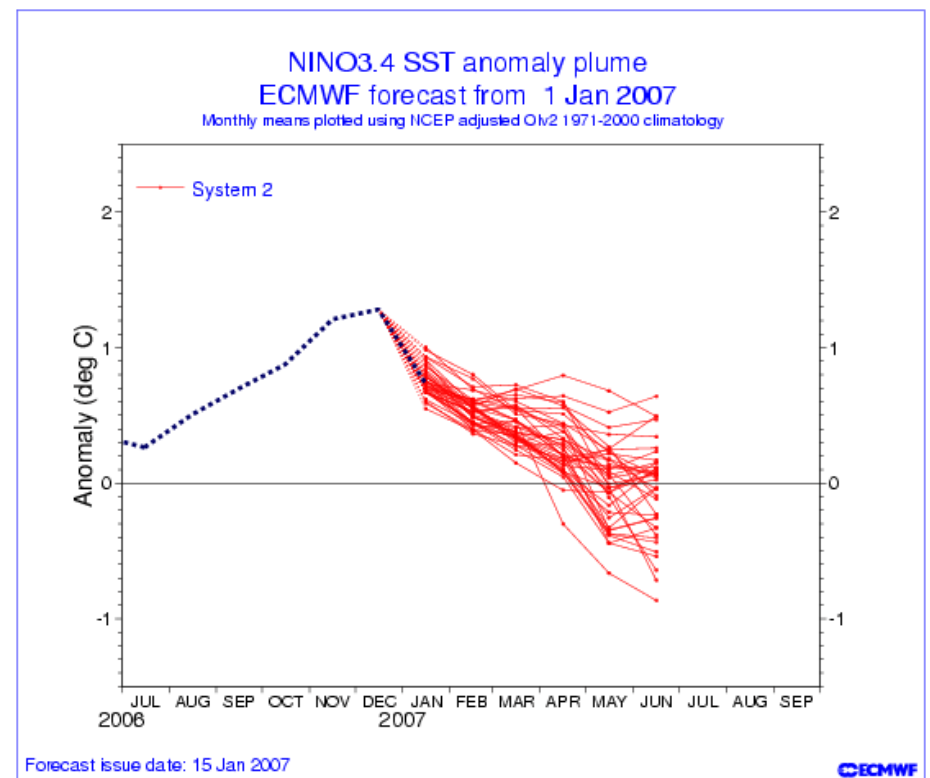
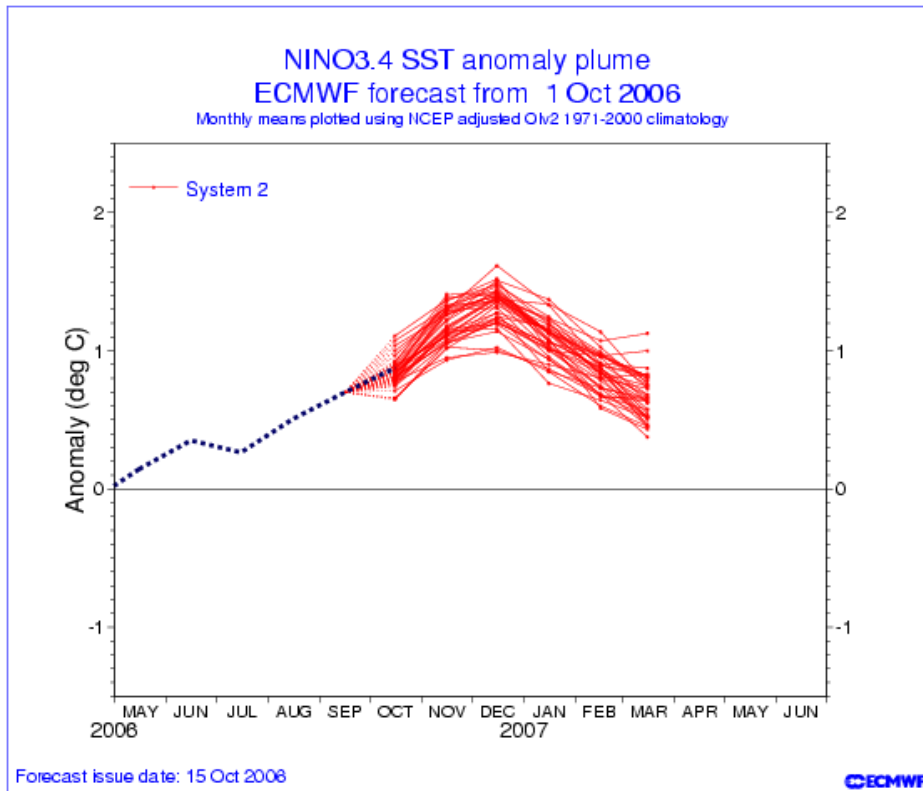
<http://www.cdc.noaa.gov/people/klaus.wolter/SWcasts/>

- El Niño - quo vadis?
- El Niño - this one has been mischievous!
- Next two weeks & CPC forecasts for March - June 2007
- Experimental forecast guidance

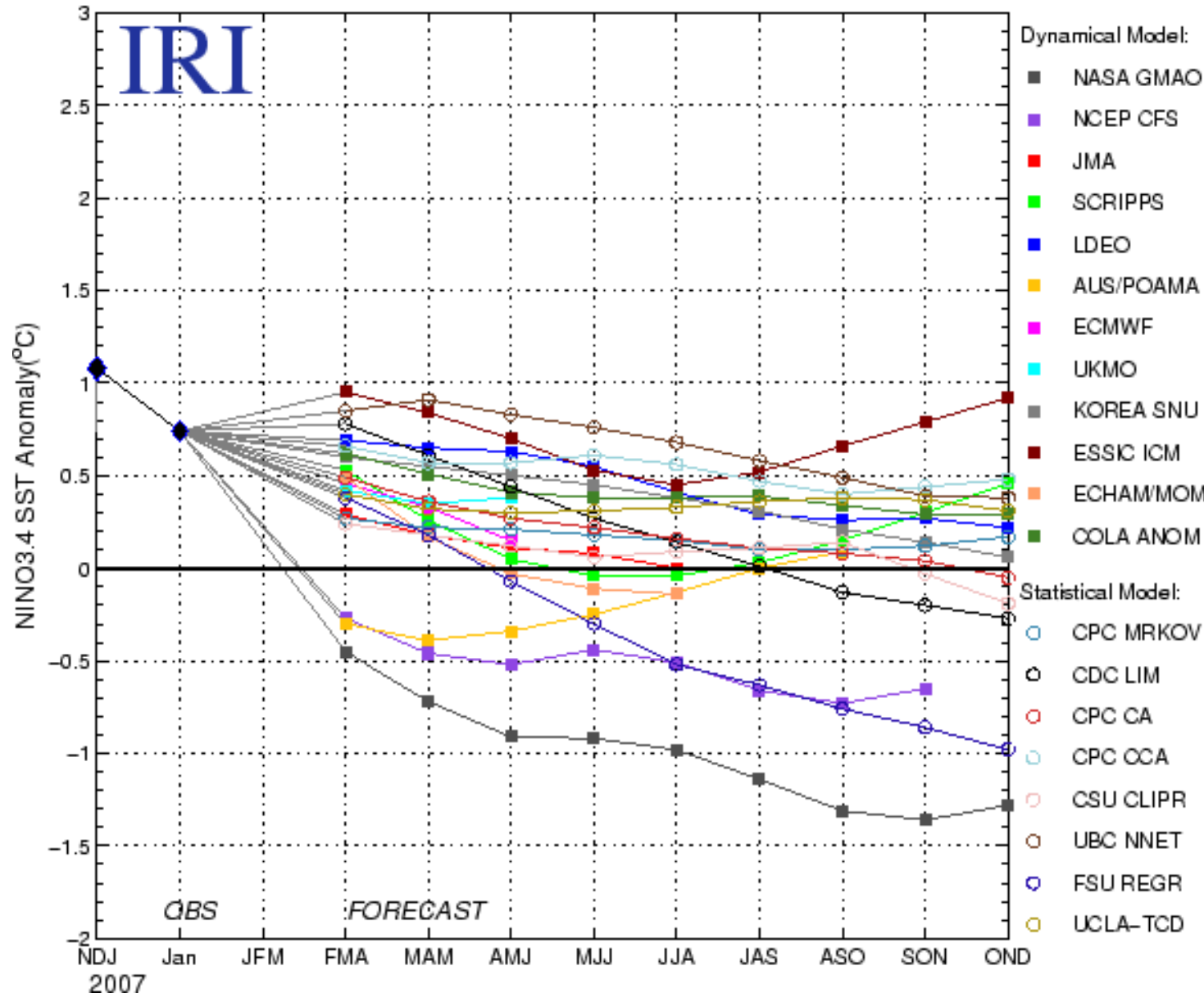


Current state
of ENSO (bottom)
compared to
November (top) -
this is when we last
met, and the event
was close to
peaking.
El Niño looks to be
feeble at best, with
the potential for a
rapid change to La
Niña under way.

The European model's October forecast (left) appeared to be conservative (in keeping the size of the event under 1.5C), but turned out to be quite good, in terms of timing and magnitude. It now favors a continued decline to “near-normal” conditions by late spring.



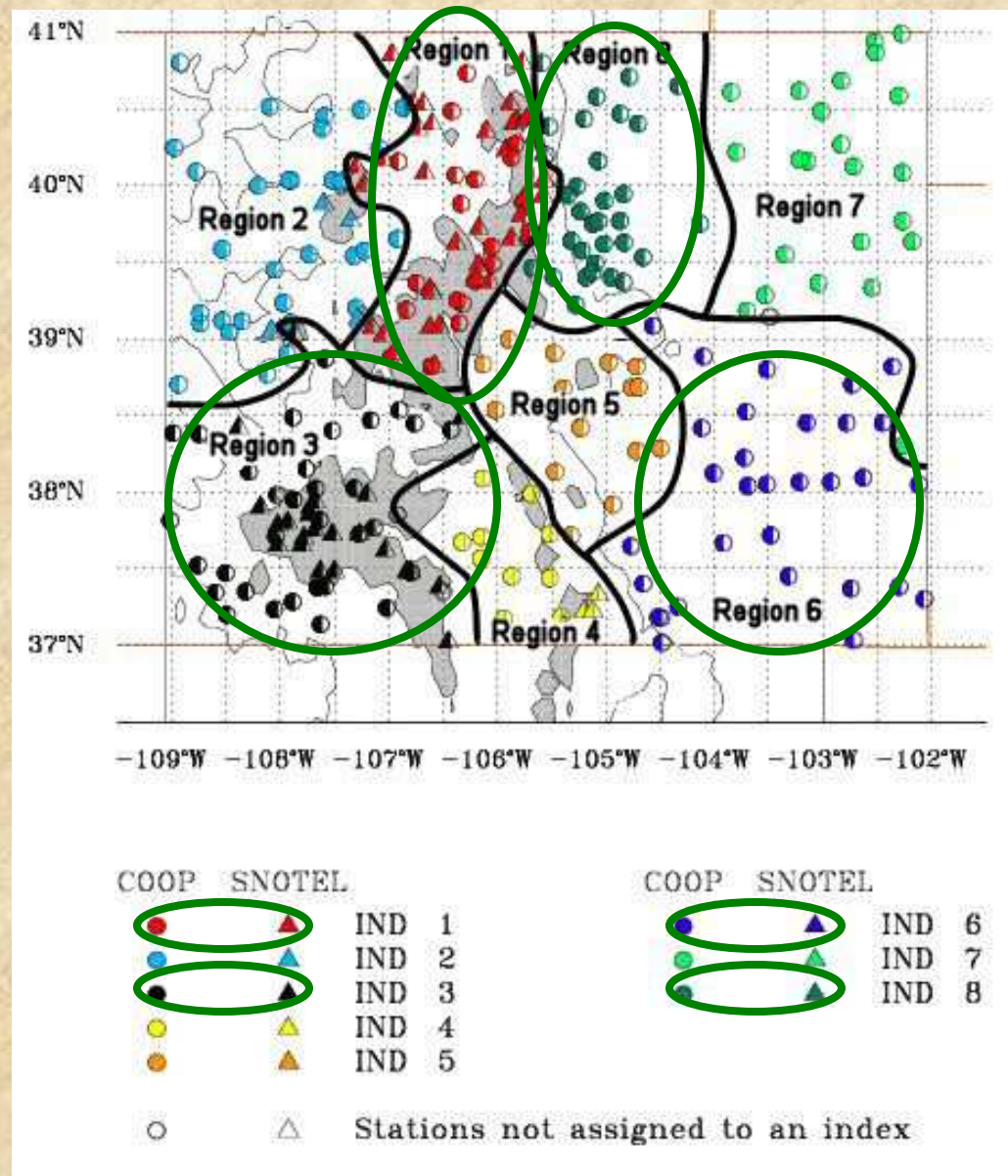
Model Forecasts of ENSO from Feb 2007



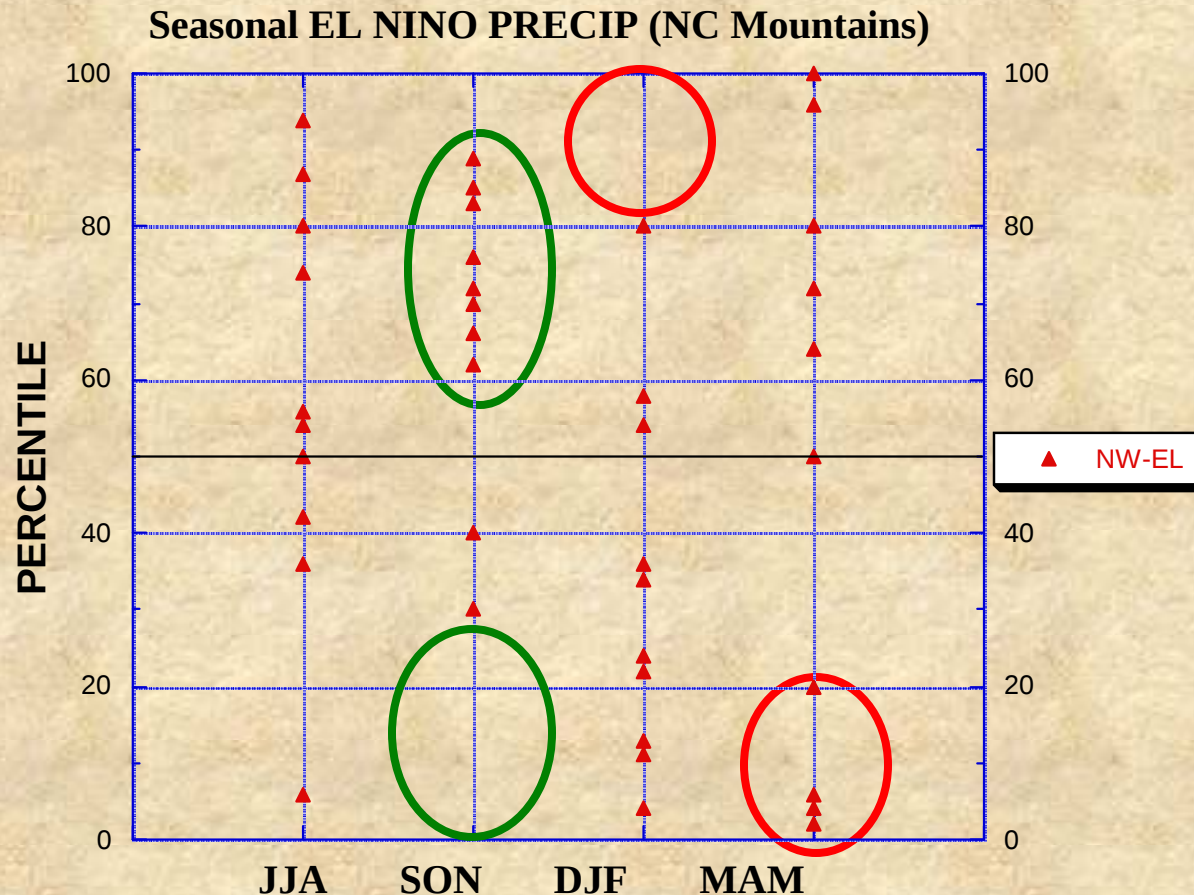
ENSO forecasts from 12 numerical & 8 statistical forecast models: three models drop straight into weak La Niña conditions, while the most others take the current weak El Niño and let it decline into near-neutral conditions by the summer.

Recap on typical El Niño impacts

Let us focus on the north-central mountains (red), San Juans (black), the Arkansas valley (blue), and Front Range (green):



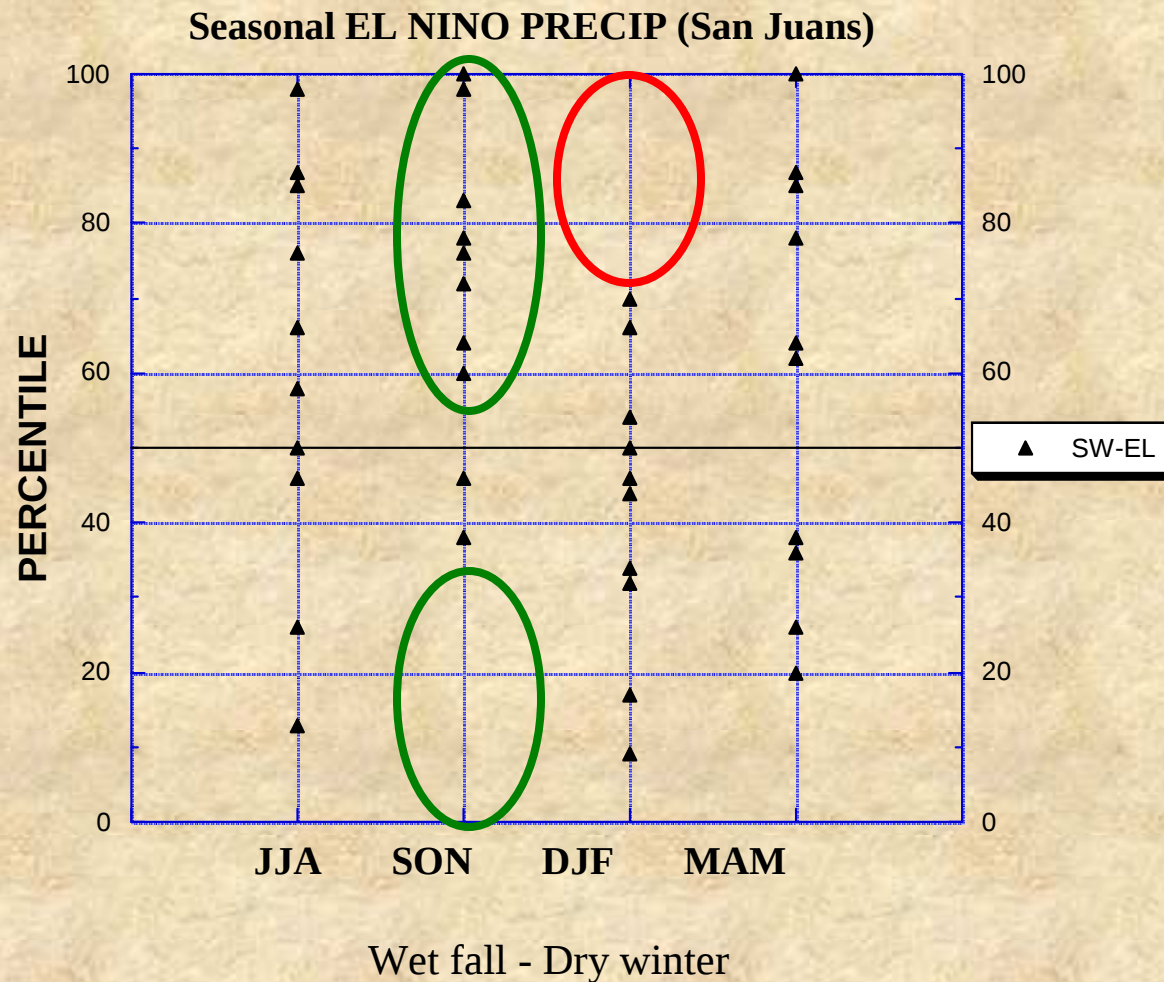
Seasonal precipitation impacts in CO (El Niño)



Wet fall - Dry winter - (dryish spring)

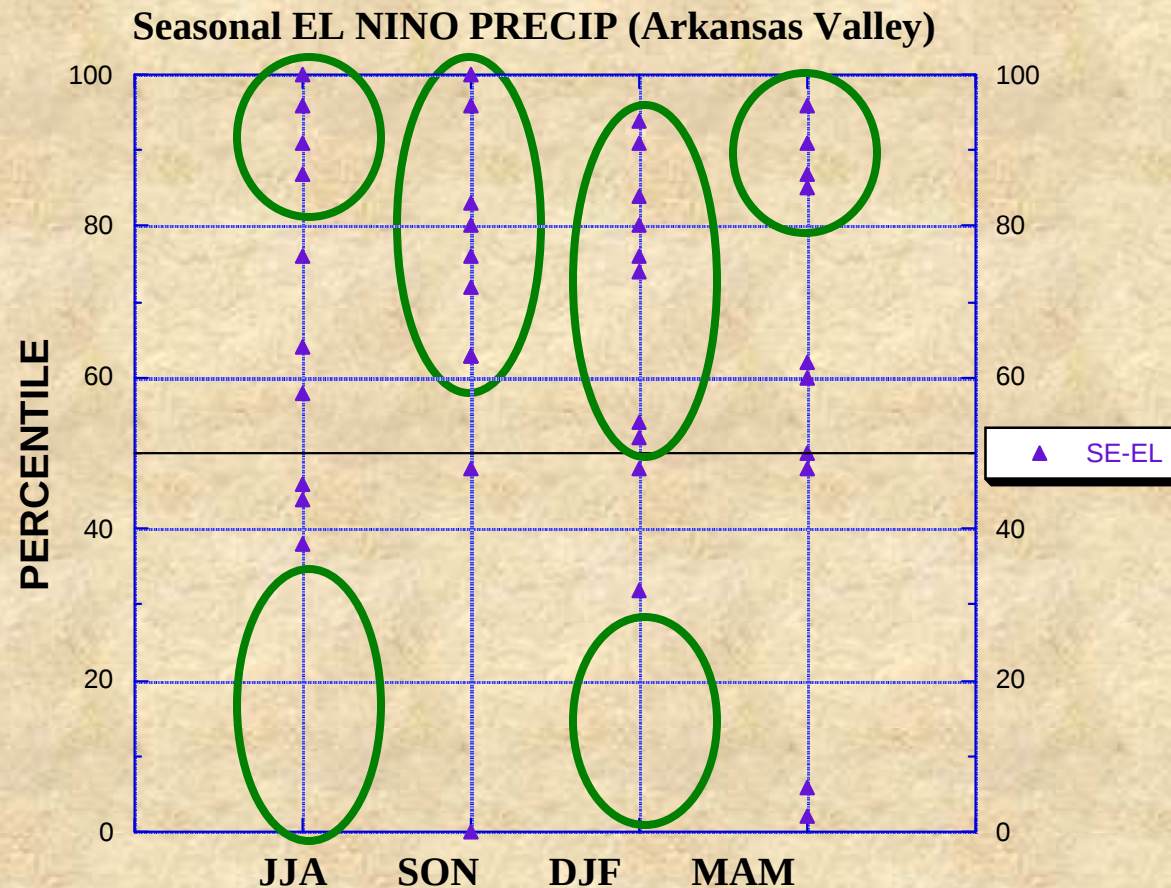
Seasonal precipitation amounts (in percentiles from 1950-99) for 10 El Niño cases: 1957-8, 65-6, 72-3, 77-8, 82-3, 86-7, 87-8, 91-2, 94-5, and 97-8, based on the MEI. If 8 or more cases out of 10 reside above or below the median, the distribution is shifted significantly. If 4 or more cases reside in the upper (80%) or lower (20%) quintile, there is only a 10% chance that this result is by accident. The 2002-3 and 2006-7 events jostle with 1977-8 for 10th rank!

Seasonal precipitation impacts in CO (El Niño)



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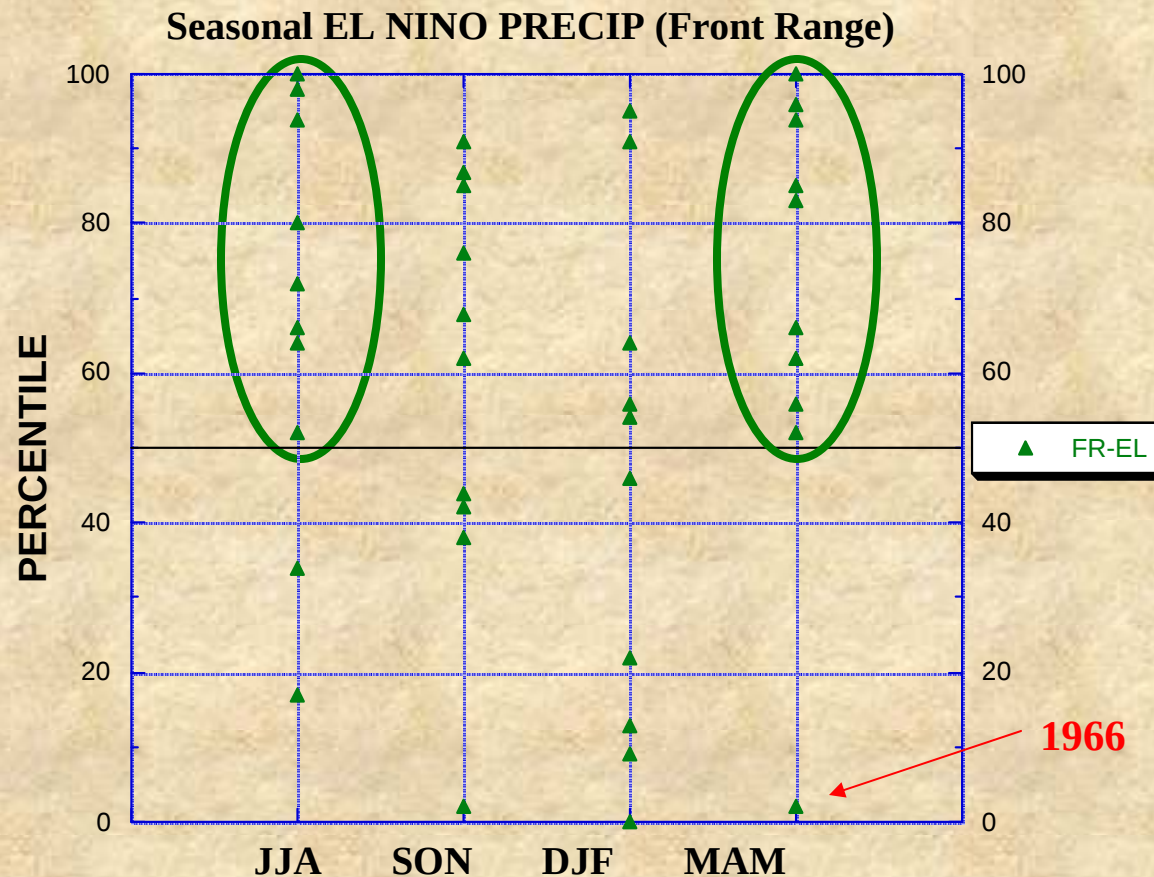
Seasonal precipitation impacts in CO (El Niño)



Wet summer - fall - winter - spring!!!

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Seasonal precipitation impacts in CO (El Niño)



Wet summer - big range for fall&winter - WET spring!

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Front Range Snowstorms and ENSO

Top 10 Snowstorms in Fort Collins, Boulder, and Denver (since 1950)

Units are 1/10"; MEI >0.5/<-.5 for El Niño/La Niña conditions (+/- for smaller Δ)

	FCL	BOU	DEN
1.	320(<u>17-19mr03</u>)	299(<u>24-26oc97</u>)	318(<u>17-19mr03</u>)
2.	278(<u>5-7my78-</u>)	259(<u>29-31mr70+</u>)	238(<u>24-25de82</u>)
3.	221(<u>20-22no79</u>)	241(8-10ap59+)	219(<u>24-25oc97</u>)
4.	214(<u>29-31mr70+</u>)	240(<u>20-21no79</u>)	215(26-27no83-)
5.	214(<u>3-5ap83</u>)	230(<u>5-6my78-</u>)	187(<u>5-6mr83</u>)
6.	208(<u>2-3ap57+</u>)	229(<u>2-3ap57+</u>)	177(<u>19-21no79</u>)
7.	195(<u>30mr-1ap88</u>)	225(<u>18-19mr03</u>)	173(<u>2ap57+</u>)
8.	187(<u>1-3ja71</u>)	215(<u>23-25no92</u>)	169(20-21mr52+)
9.	187(<u>2-4no73</u>)	210(<u>17-19se71</u>)	162(<u>16-18no91</u>)
10.	185(<u>9-11ap53</u>)	208(<u>18-19mr98</u>)	160(29se-1oc59-)

Balance: 5E, 2 L

5 E, 1 L

6 E, 0 L

#spring storms: 7 (latest: May)

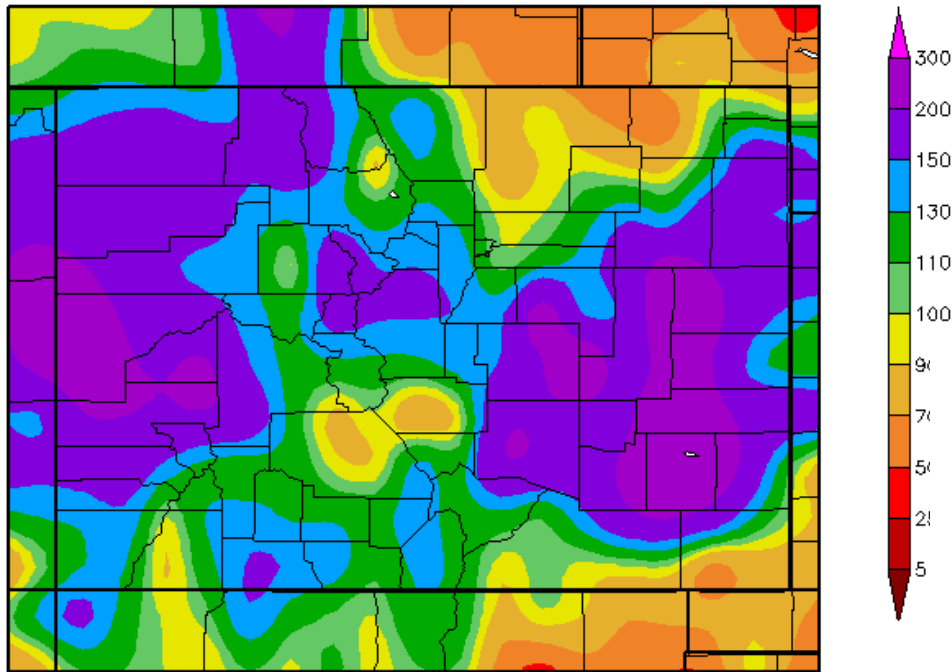
Spring: 6 (latest: May)

Spring: 4 (latest: April)

Only 2 winters feature more than one "Top 10" storm: 1982-83 (3*) and 1997-98 (2*).
The pre-Xmas '06 storm dropped 20.7" on Denver (#5) and 26.0" on Boulder (#2).

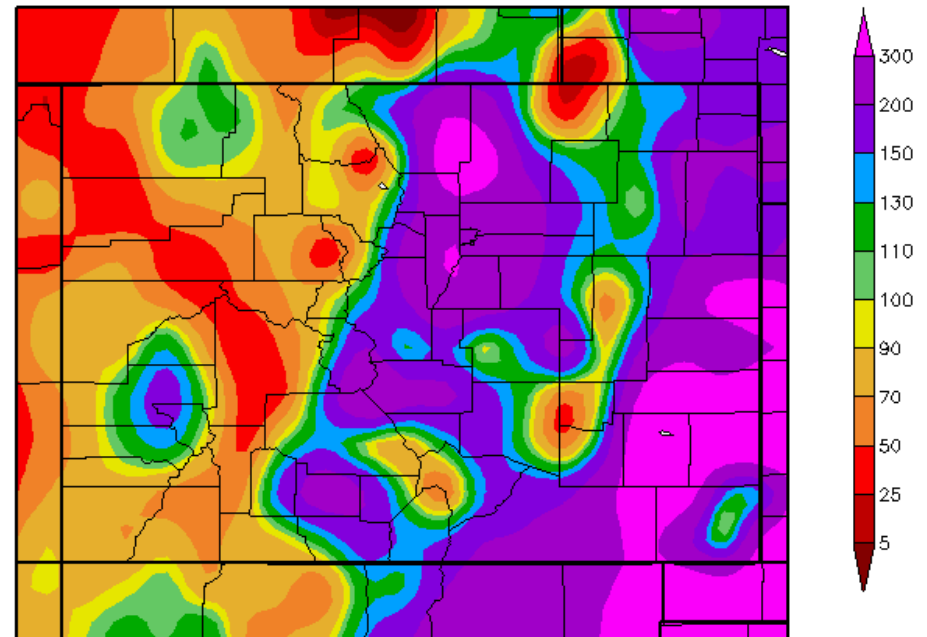
Seasonal precipitation anomalies in SON and DJF (so far)

Percent of Normal Precipitation (%)
9/1/2006 – 11/30/2006



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

Percent of Normal Precipitation (%)
11/18/2006 – 2/15/2007



2/14/2007 at HPRCC using provisional data.

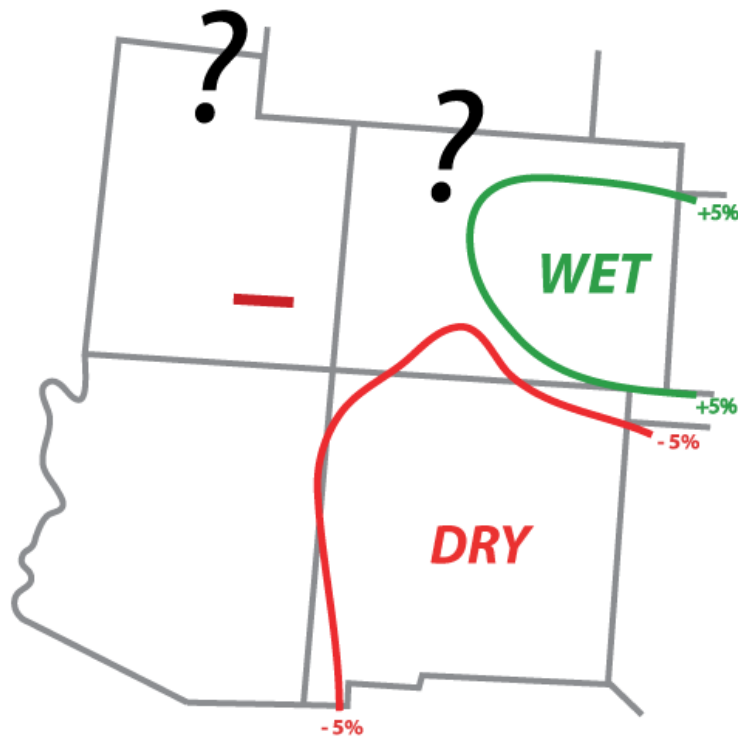
NOAA Regional Climate Cen

So far, winter has been wet in eastern Colorado and dry west of the Divide, consistent with El Niño for the Arkansas Valley and the western mountains. The Front Range 'lucked out' with more than one big snow storm!

2/16/2007 at HPRCC using provisional data.

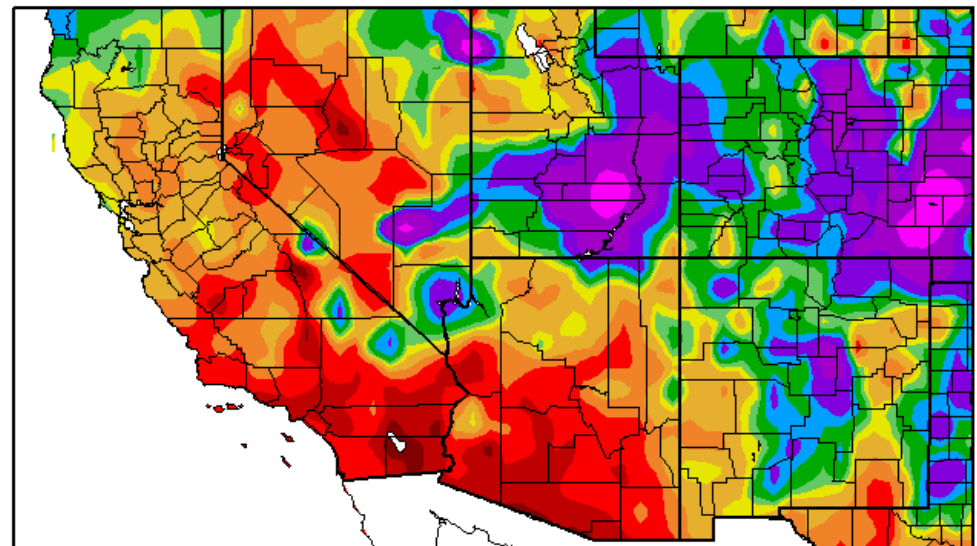
NOAA Regional Climate Centers

EXPERIMENTAL CDC PRECIPITATION FORECAST GUIDANCE
OCT - DEC 2006 (issued September 19, 2006)



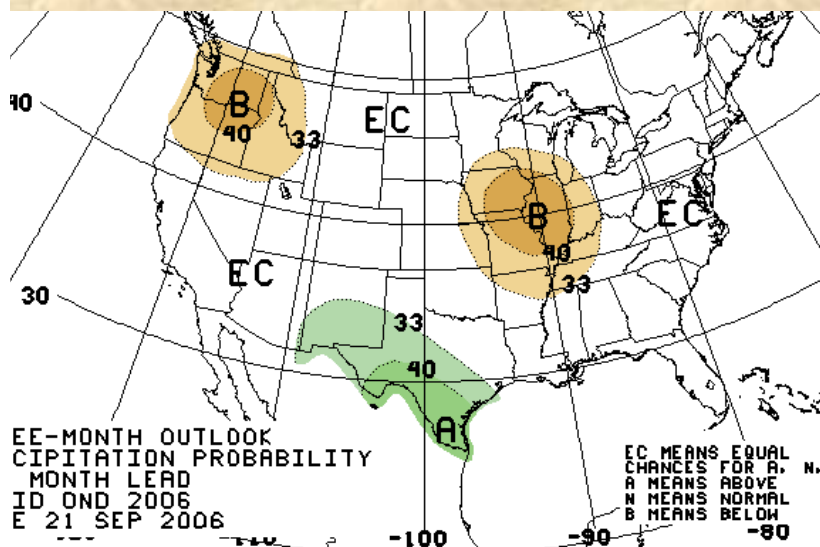
My OND forecast worked out for eastern CO and portions of NM, while heavy October rains in SE UT wrecked their dry forecast from the get-go. In a rare twist, our moisture surplus came in two wet months: October AND December.

Percent of Normal Precipitation (%)
10/1/2006 - 12/31/2006

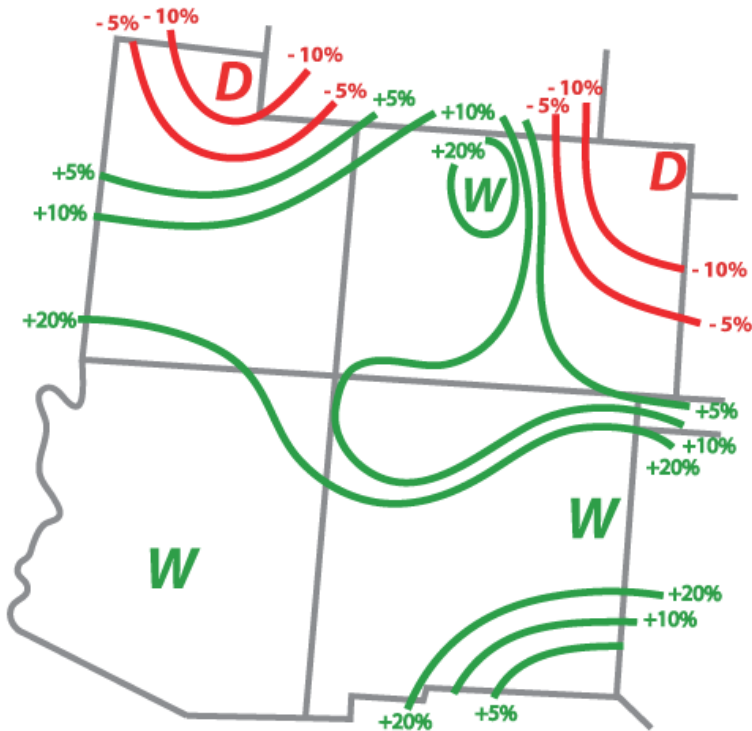


Generated 2/14/2007 at HPRCC using provisional data.

NOAA Regional Climate Centers

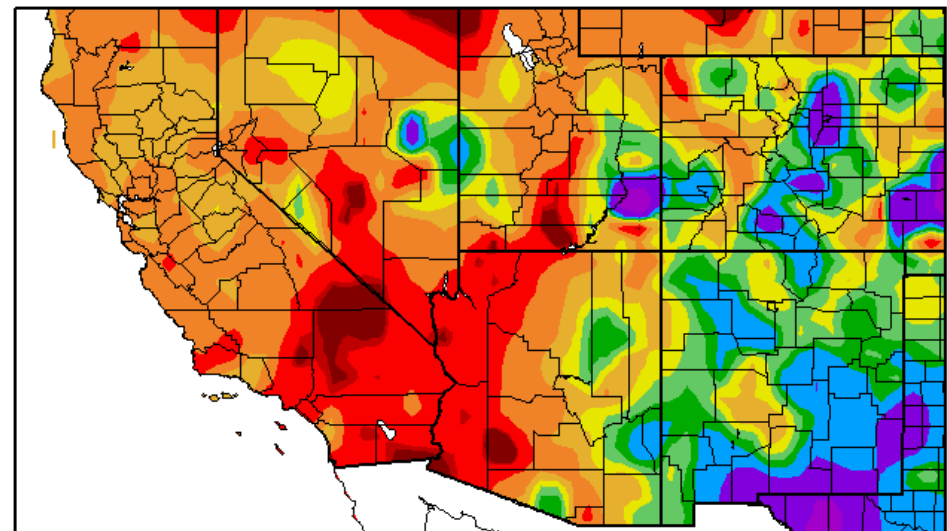


EXPERIMENTAL CDC PRECIPITATION FORECAST GUIDANCE
JAN - MAR 2007 (issued November 13, 2006)



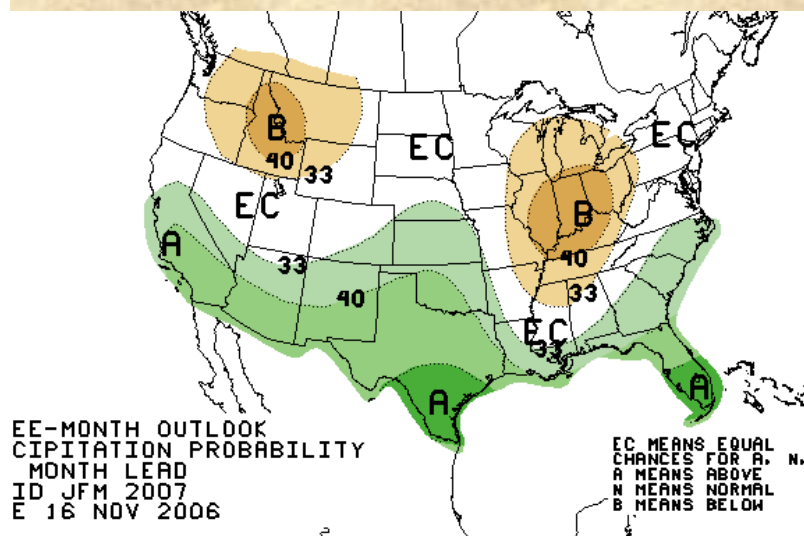
My winter forecast for a dry northwest UT, wet NM, and south-central CO appears on track, while AZ (and southern CA) have been abysmally dry compared to projections. This is not a typical El Niño winter...

Percent of Normal Precipitation (%)
1/1/2007 - 2/15/2007



Generated 2/16/2007 at HPRCC using provisional data.

NOAA Regional Climate Centers



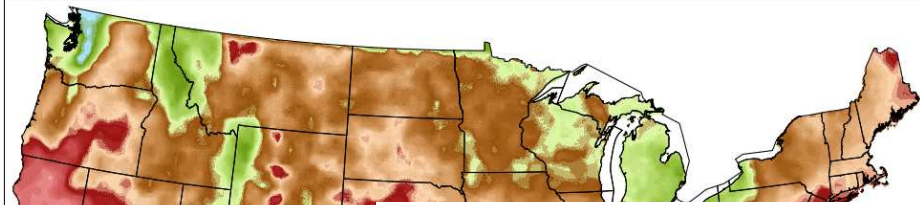
After a cold&snowy winter, what's in store for us?

While the next 4-10 days promise decent additional snow west of here, it looks a bit drier beyond that.

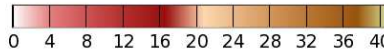
Analog Prob Precip > 66th Percentile

fcst from 2007021600 valid 2007021900-2007022200

Percent



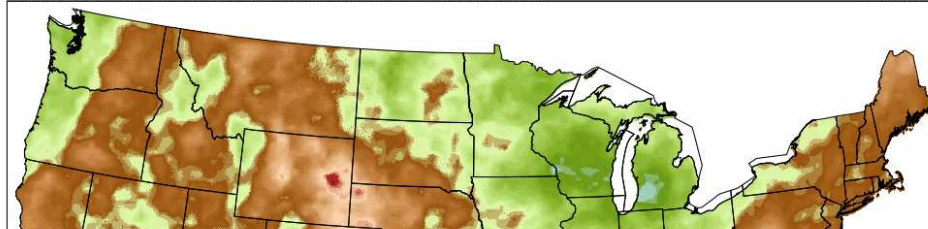
NOAA/ESRL Physical Sciences Division



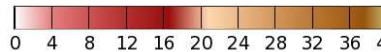
Analog Prob Precip > 66th Percentile

fcst from 2007021600 valid 2007022100-2007022600

Percent



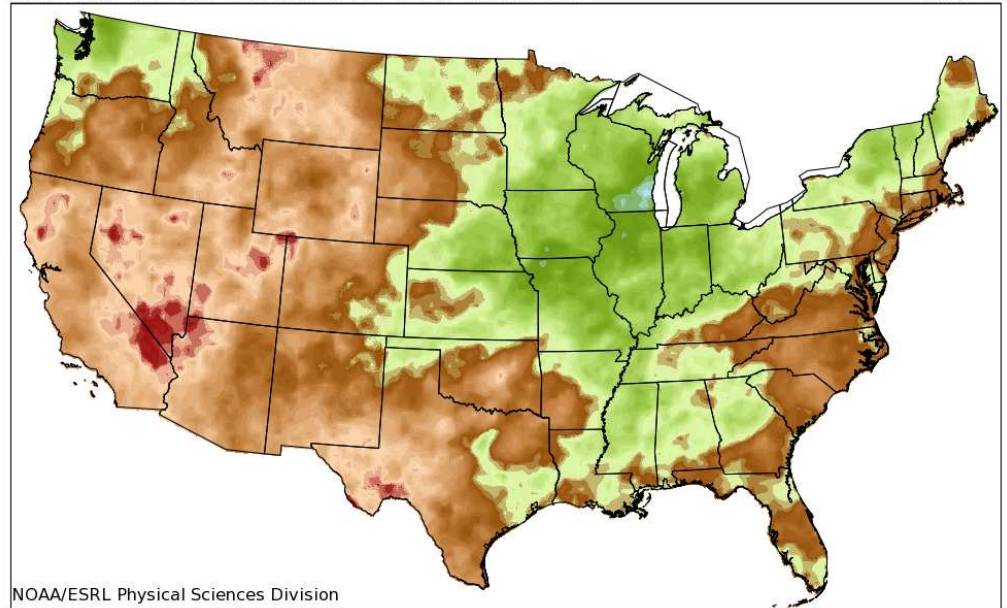
NOAA/ESRL Physical Sciences Division



Analog Prob Precip > 66th Percentile

fcst from 2007021600 valid 2007022300-2007030200

Percent

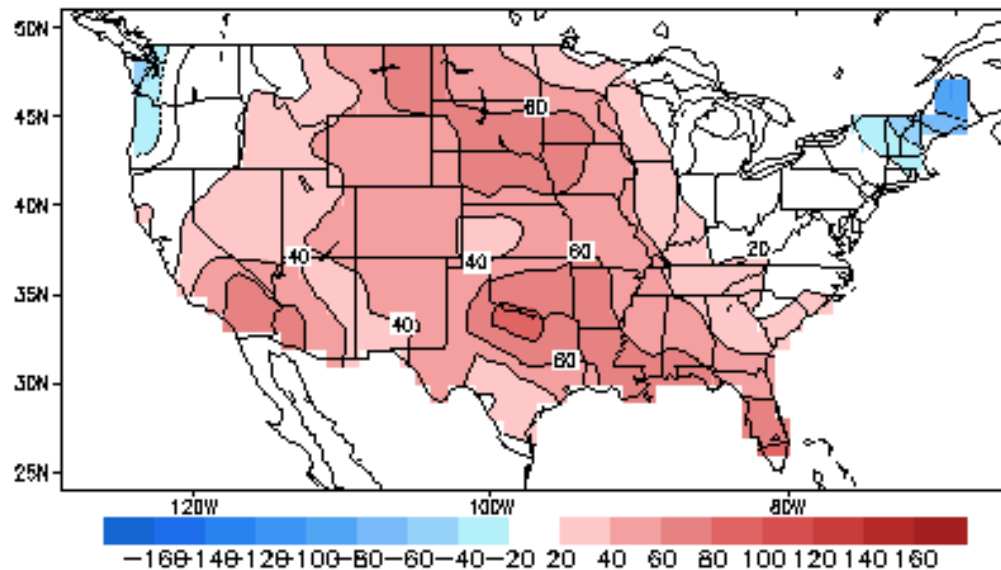


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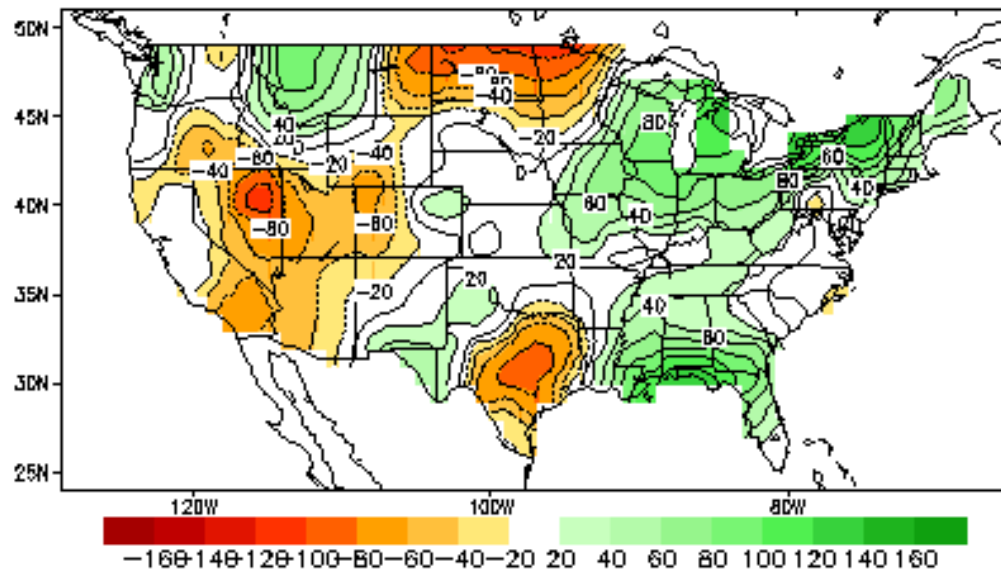


The color green translates into odds around 50% of getting moisture typical for the wettest third for this time of year. Even a dark brown refers to better than even odds.

Lagged Averaged Temperature Outlook for MAR 2007
units: anomaly (sdX100), SM data ending at 20070214



Lagged Averaged Precipitation Outlook for MAR 2007
units: anomaly (sdX100), SM data ending at 20070214

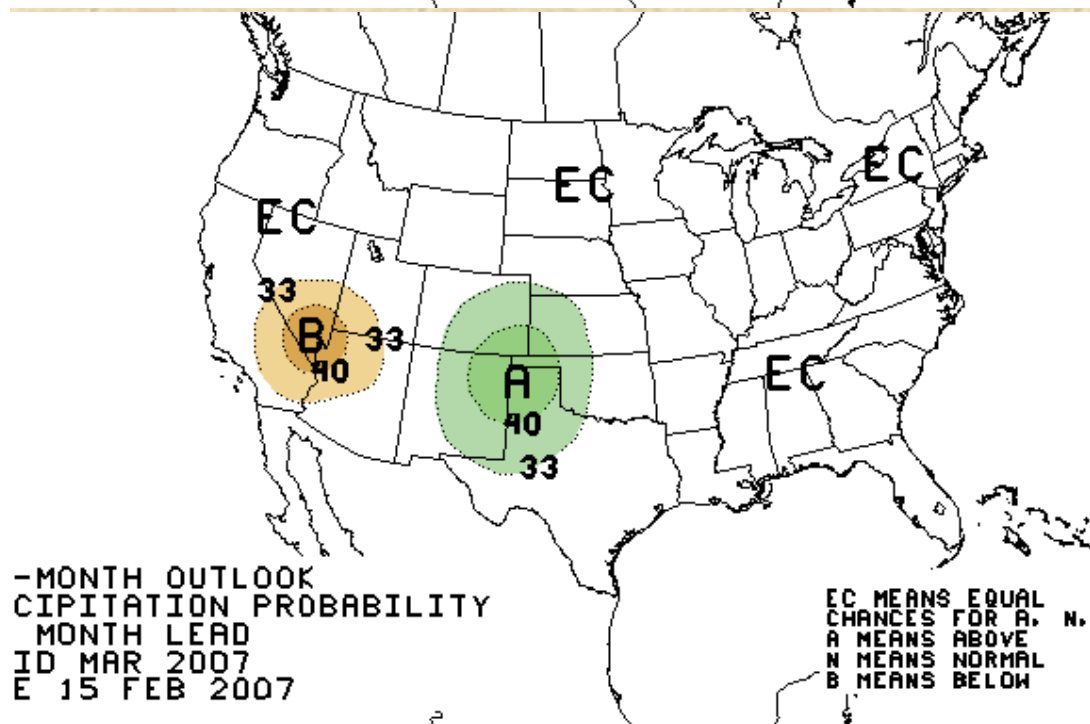
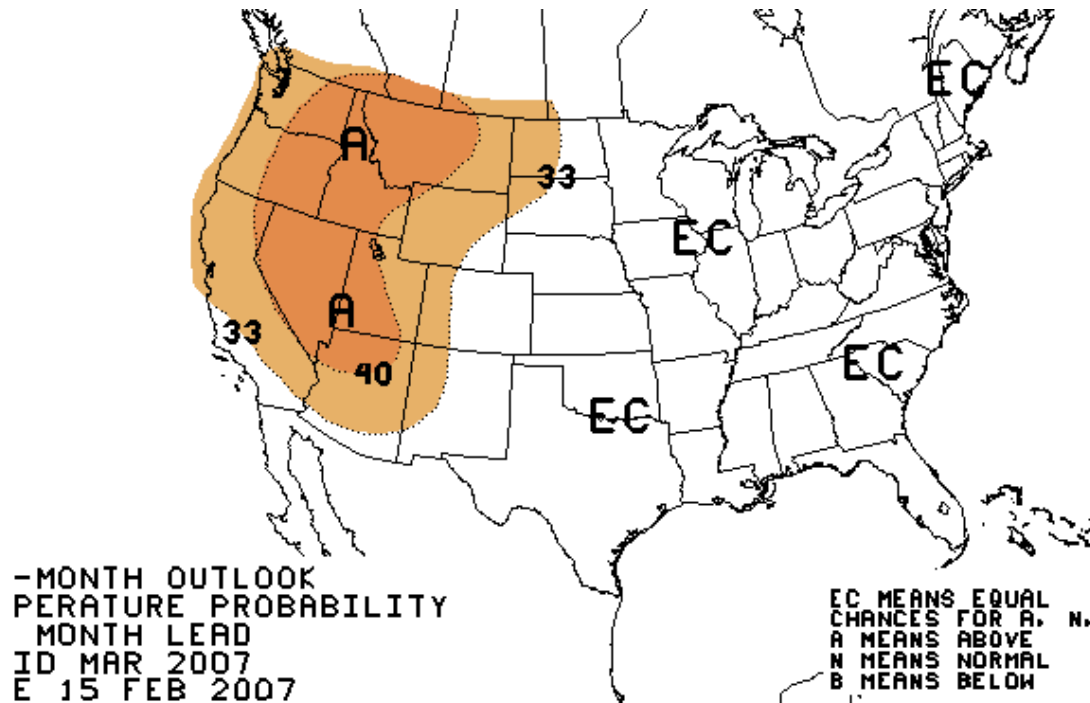


What about March?

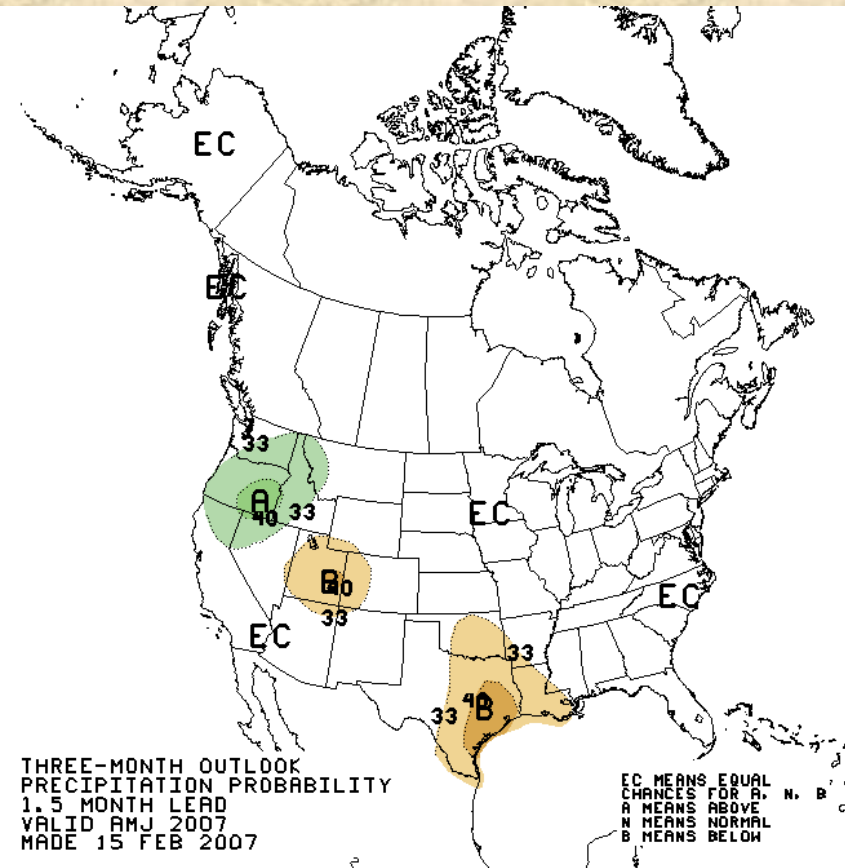
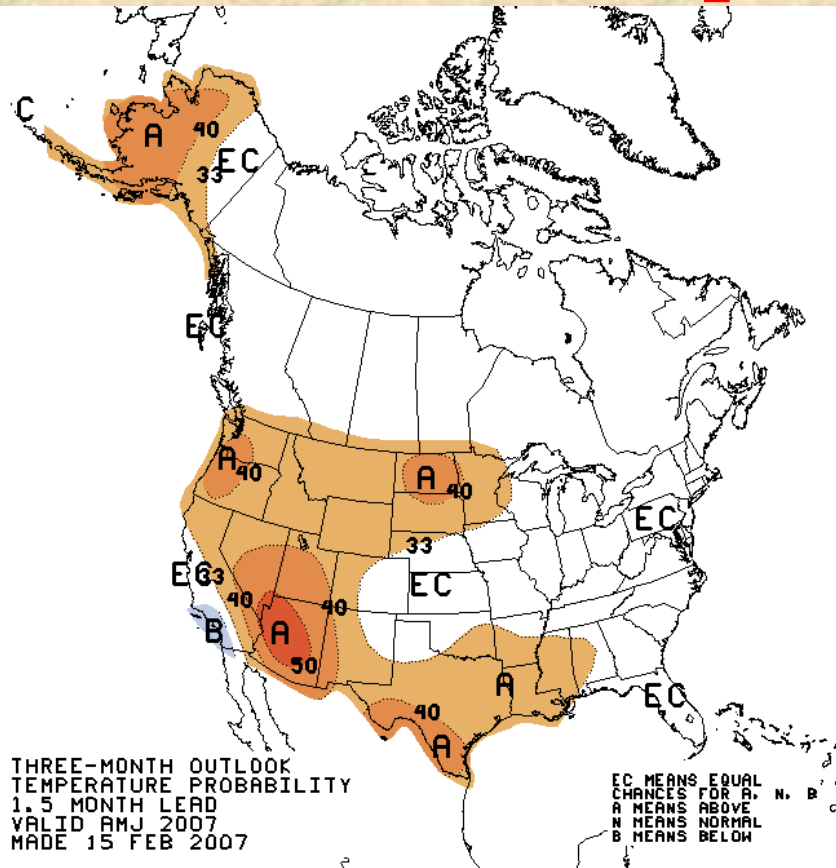
This particular March forecast is not as 'bullish' as one would expect from an El Niño situation, but is actually much wetter than earlier versions of same.

What about March?

The official CPC forecast for March is warm (to our west) and wet from northwest Texas into eastern Colorado. While I gave advice on this forecast, I must admit I am more worried than usual about our 'reliable-wet-March-in-El Niño-signal'...



CPC Spring Forecasts

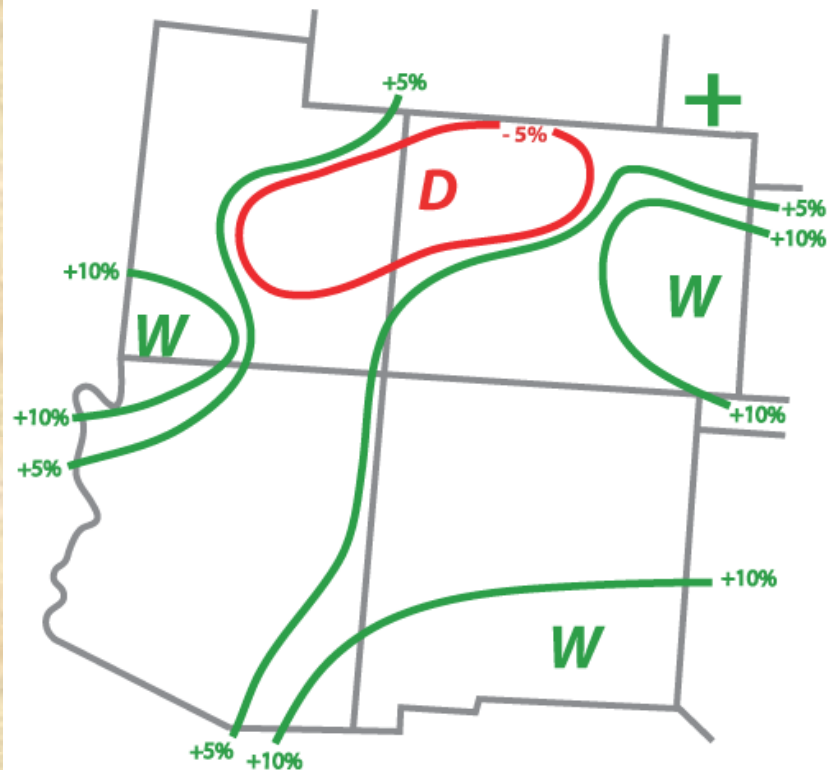


According to CPC's official forecasts, April-June 2007 temperature (left) and precipitation (right) forecasts put eastern Colorado under 'EC', while the western third of our state has slightly increased odds for a warm and dry spring.

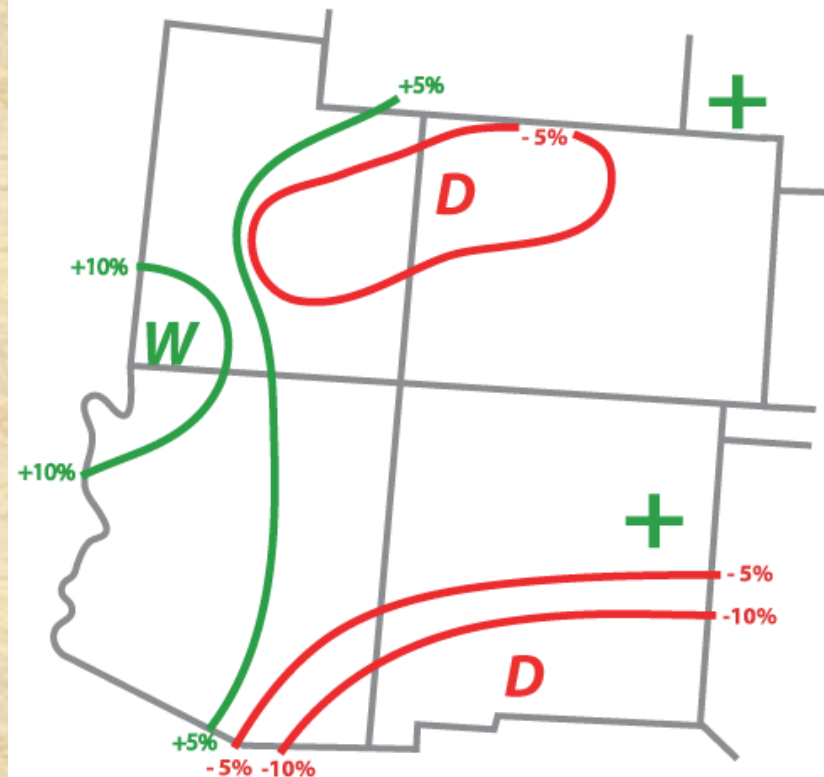
Source (for CPC forecasts): <http://www.cpc.ncep.noaa.gov/products/predictions/>

Experimental CDC “Forecast Guidance”

EXPERIMENTAL CDC PRECIPITATION FORECAST GUIDANCE
APR - JUN 2007 (issued December 15, 2006)



EXPERIMENTAL PSD PRECIPITATION FORECAST GUIDANCE
APR - JUN 2007 (issued February 14, 2007)



My first forecast for the spring season (left) was ‘bullish’ in all but a small portion of the forecast domain. The most recent update (right) is much more conservative (nothing over +3% in Colorado, but still under -5% for the northwestern part of the state). Rapidly declining El Niño situations reduce our odds for a wet spring more than slowly declining ones.

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