Current Climate Conditions and Outlook Thru Sept 2006

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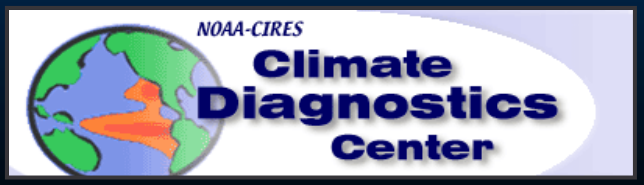
Colorado Water Availability Task Force
June 22, 2006



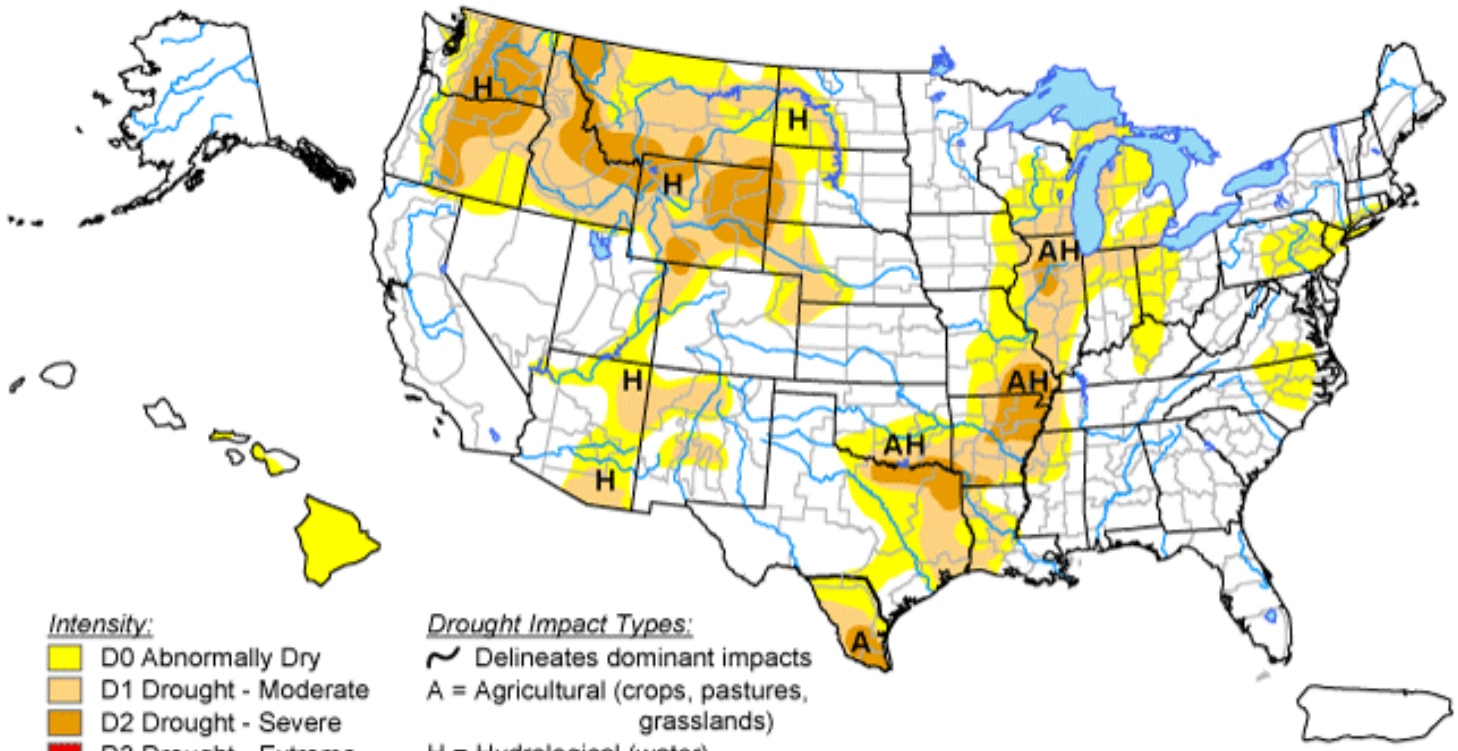
- **Worsening drought conditions across Colorado this spring.**
- **After dry and HOT June so far, any hope for rest of June?**
- **Status of tropical Pacific Ocean: La Niña or El Niño ahead?**
- **CPC forecasts for July-September 2006**
- **Constructed Analog Forecasts (based on Soil Moisture)**
- **Experimental forecast guidance (Klaus Wolter)**

Current Situation.

How did we get here?

U.S. Drought Monitor

June 21, 2005
Valid 8 a.m. EDT



Intensity:
- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types:
- ~ Delineates dominant impacts
- A = Agricultural (crops, pastures, grasslands)
- H = Hydrological (water)
- (No type = Both impacts)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://drought.unl.edu/dm

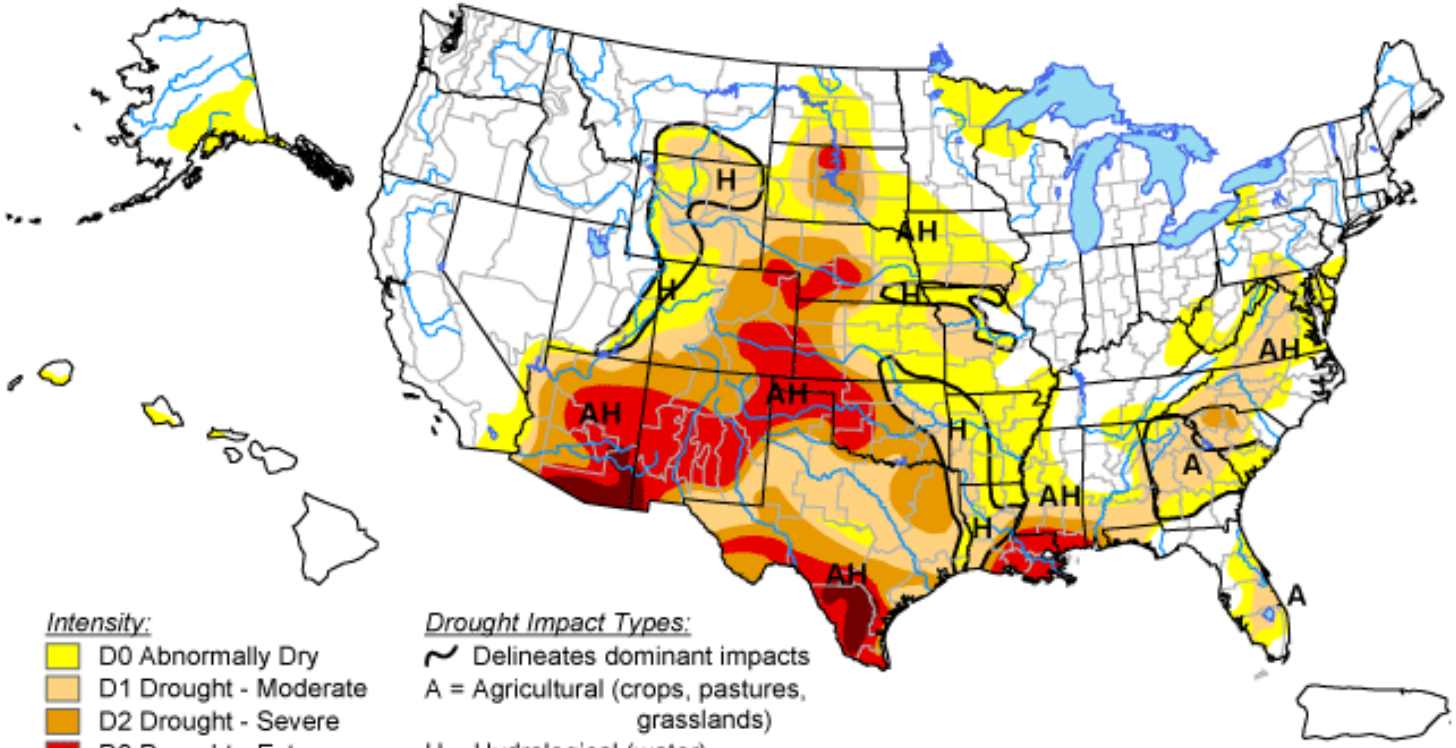
USDA National Drought Mitigation Center

Released Thursday, June 23, 2005
Author: Douglas Le Comte, CPC/NOAA

NOAA

U.S. Drought Monitor

June 13, 2006
Valid 8 a.m. EDT



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http://drought.unl.edu/dm

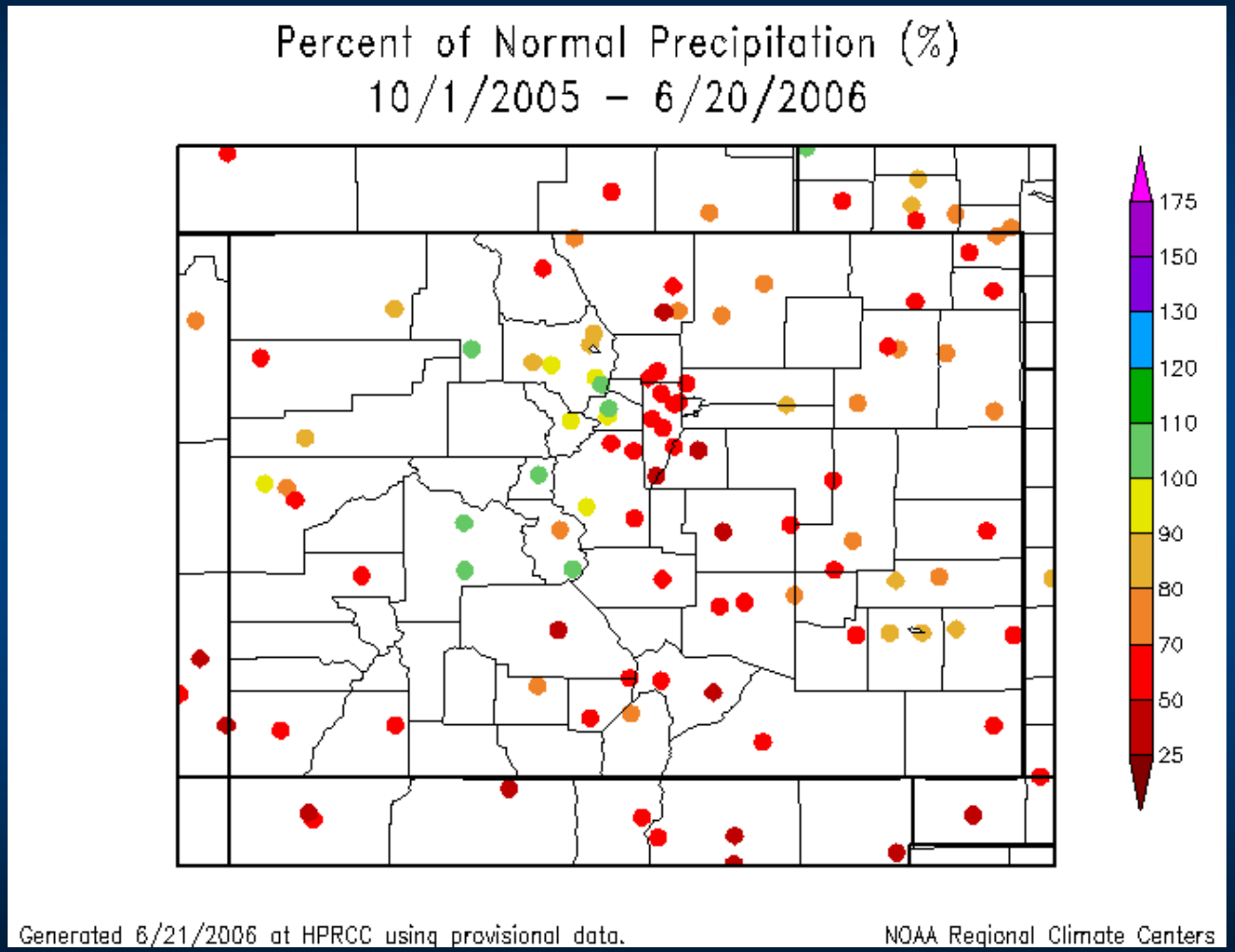
USDA National Drought Mitigation Center

Released Thursday, June 15, 2006

Author: Rich Tinker, Climate Prediction Center, NOAA

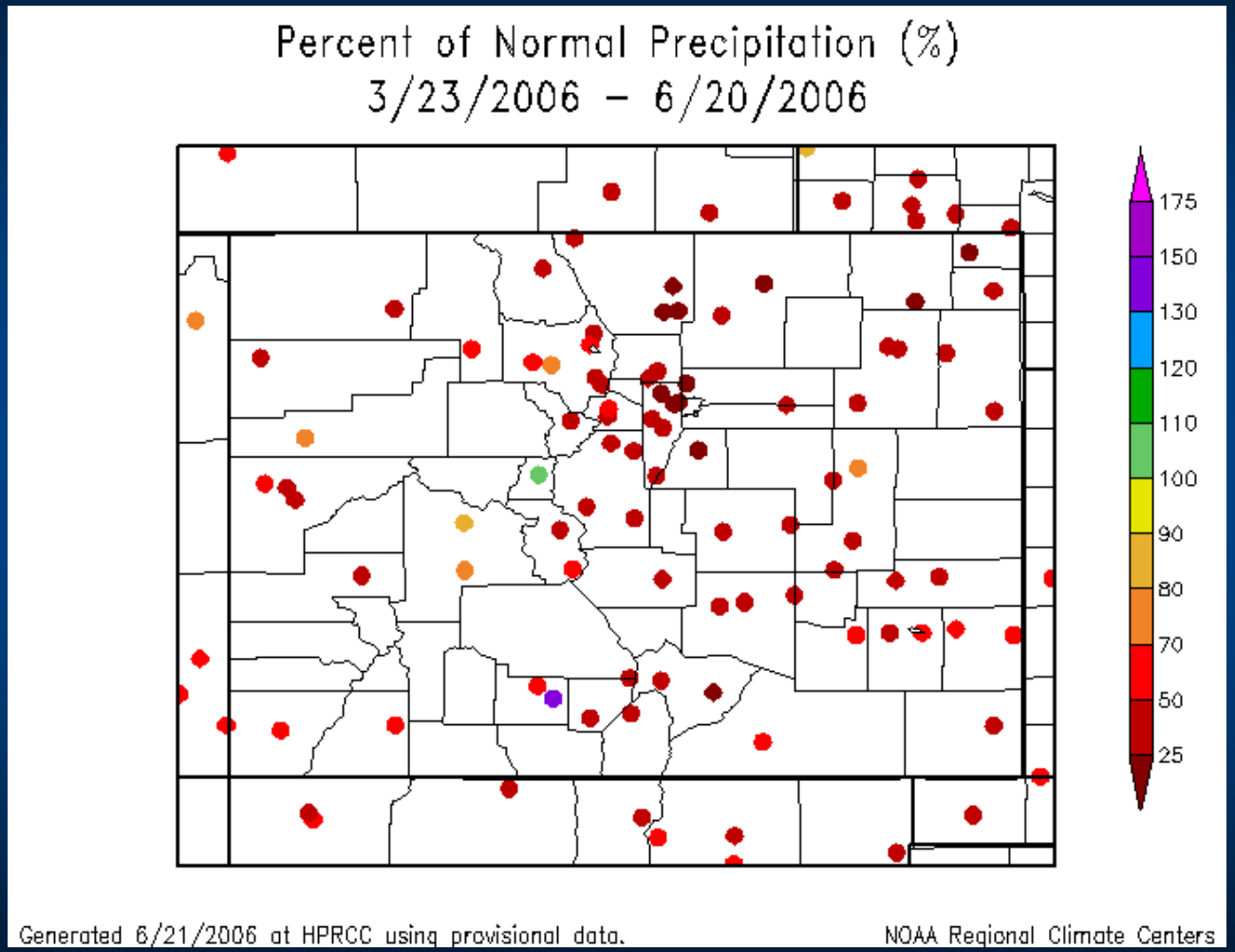
NOAA

Oct 1, 2005 to present
Percent of Normal (%)

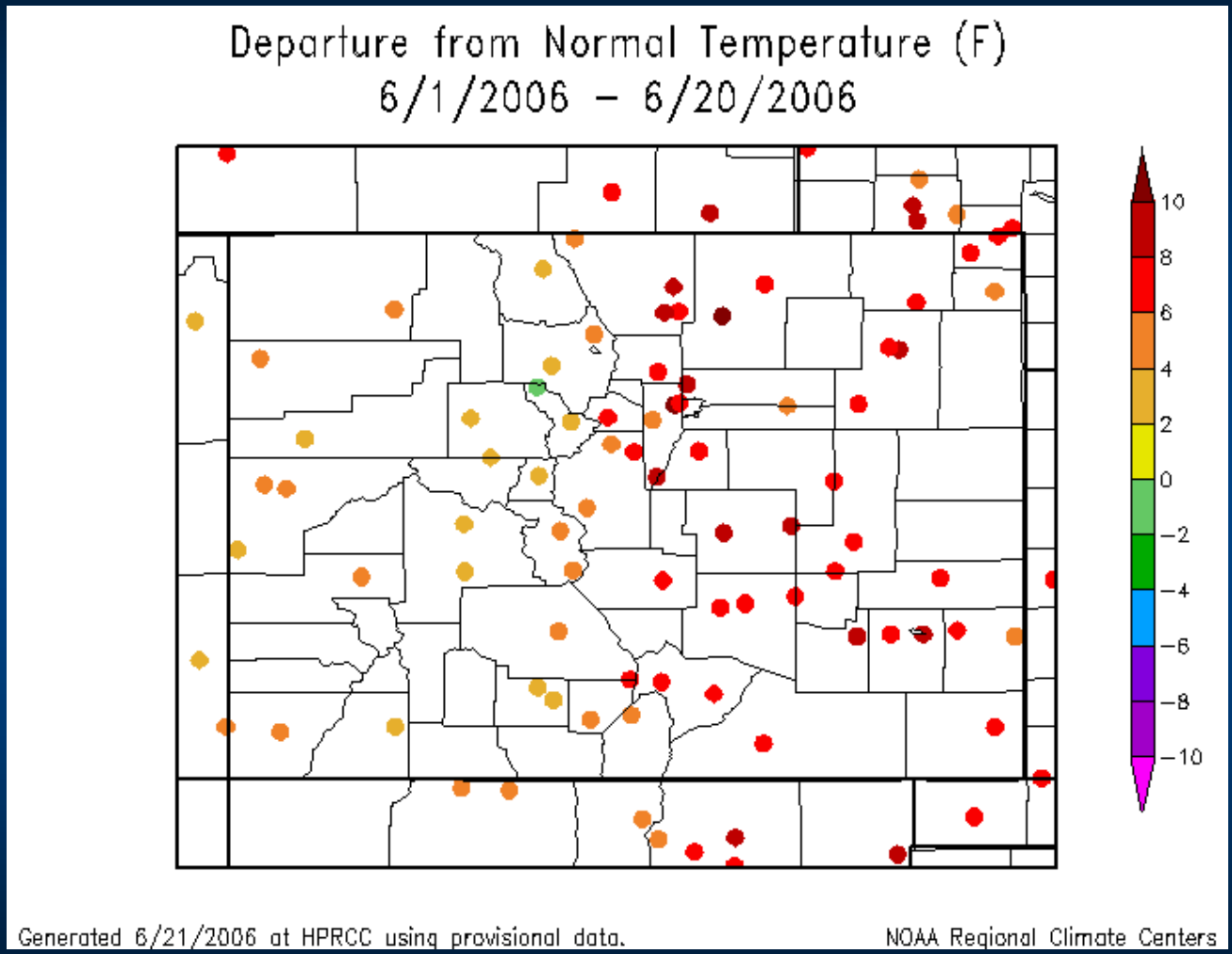


http://www.hprcc.unl.edu/products/current.html

Last 3 Months of Precipitation
Percent of Normal (%)



http://www.hprcc.unl.edu/products/current.html

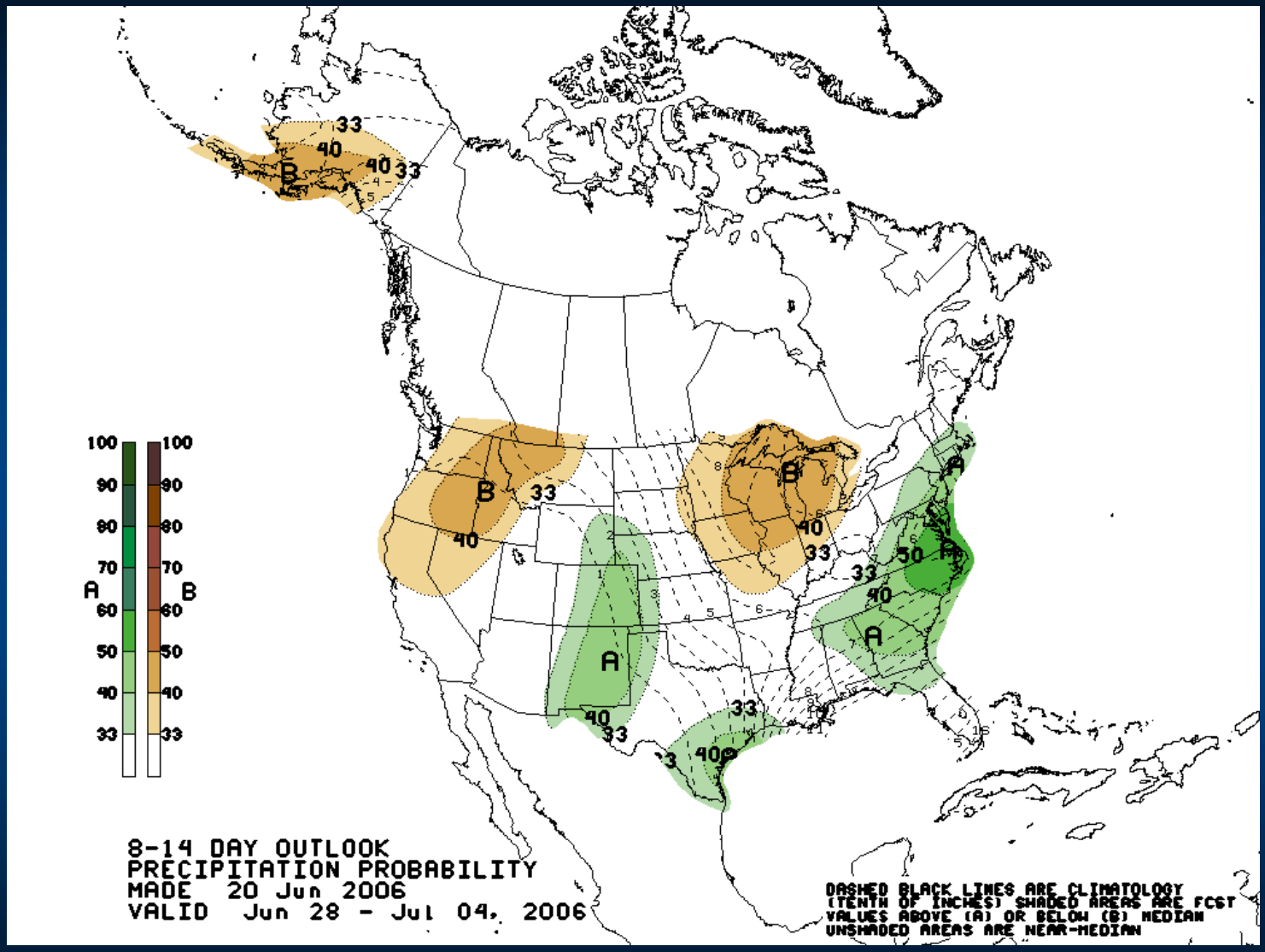


So far June has been warmer than normal statewide.

On the eastern plains, June is on its way to becoming one of the hottest on record.

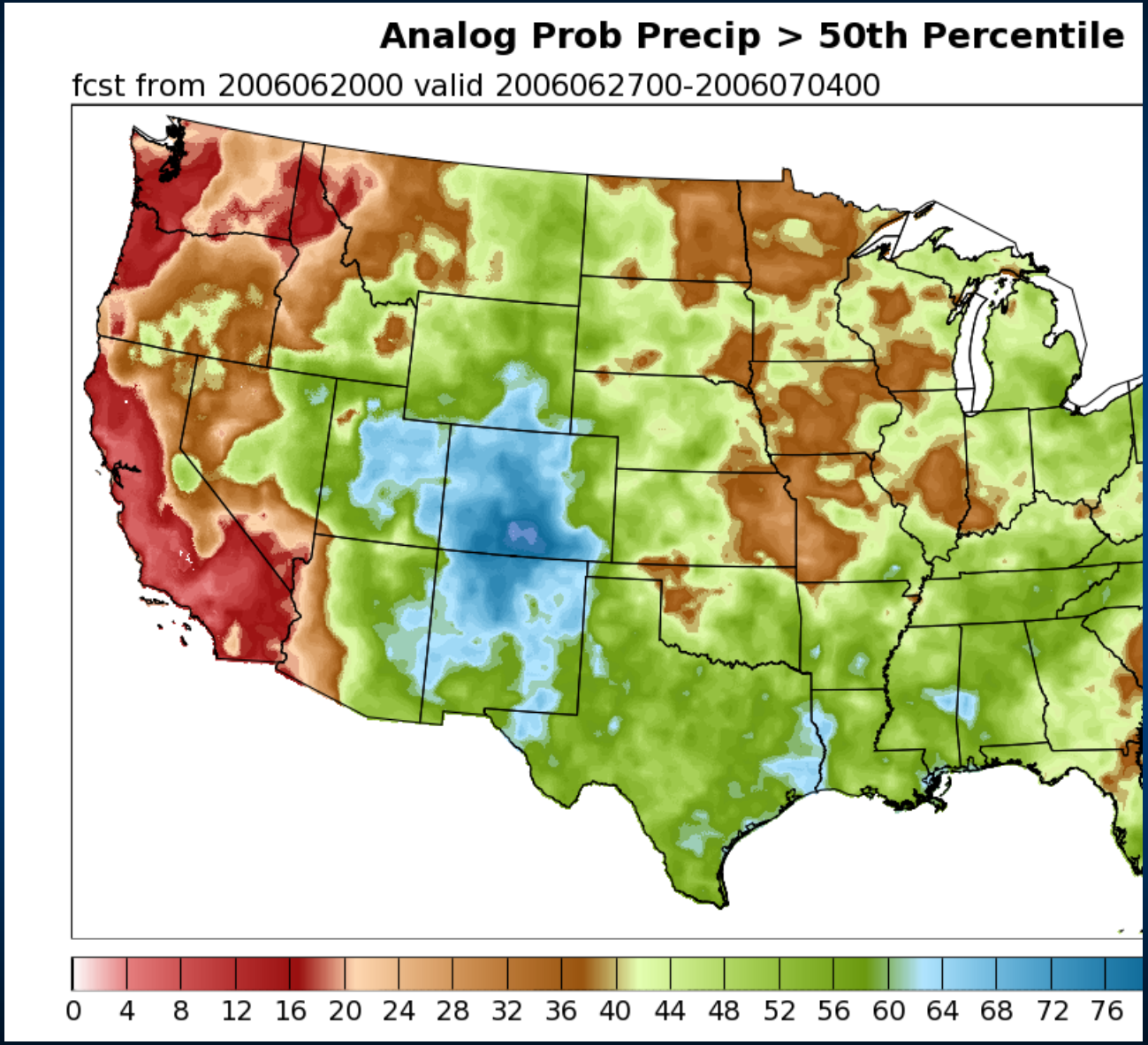
1-2 Week Forecasts

After dry first 2/3 of June, how about the next two weeks?



NOAA 8-14 Day Forecast: http://www.cpc.ncep.noaa.gov/

High-res version of CDC precip forecast: week ending July 4



Compared to the last several weeks, the outlook for the end of June/early July is encouraging.

Over most of Colorado, chances for above normal precipitation are 60-80%.

Forecasts for July thru Sept

Primary Factors Influencing CPC Seasonal Forecasts

1) El Nino / La Nina. What are Sea Surface Temperatures in the tropical Pacific Ocean?

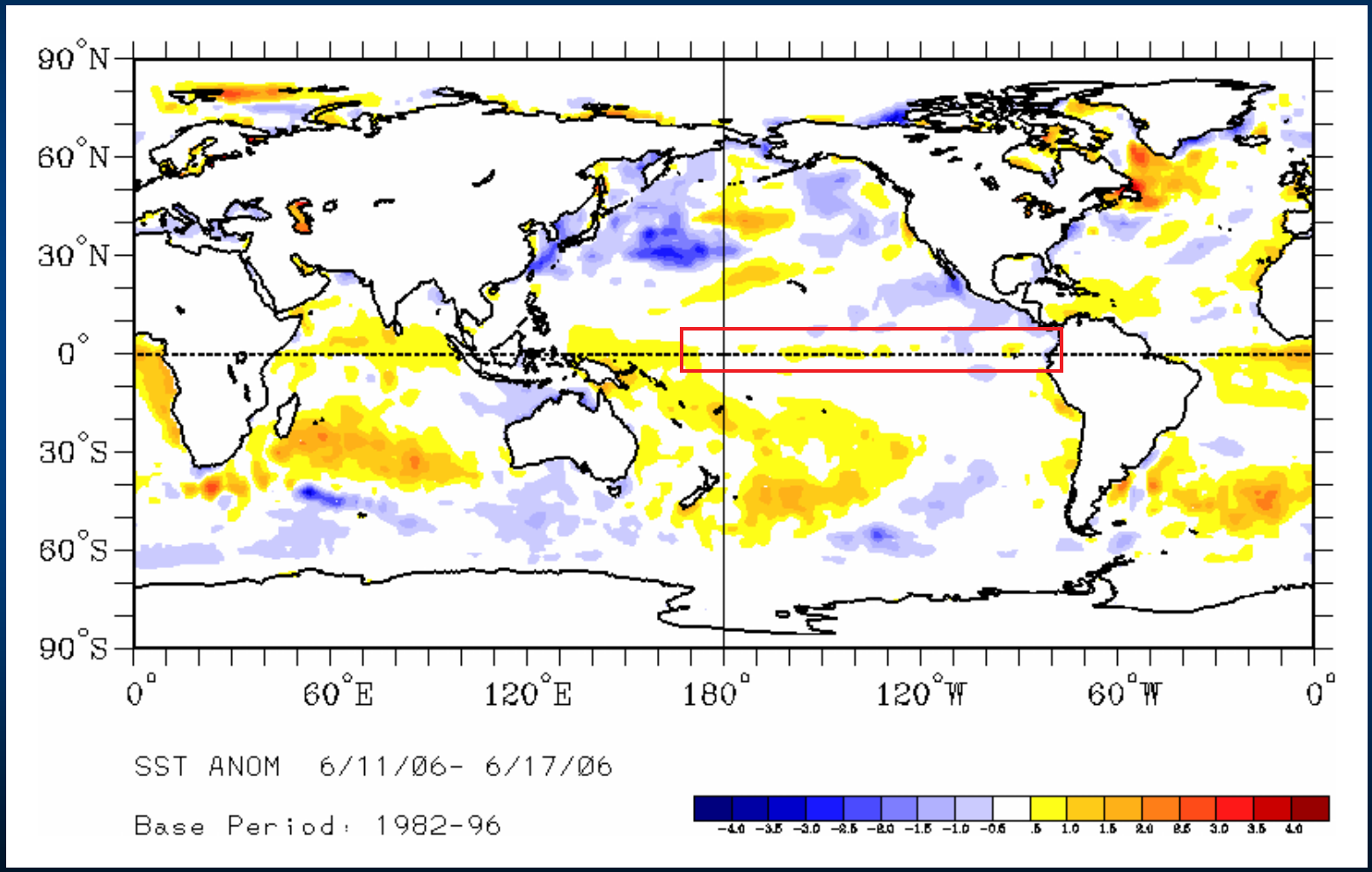
2) Observed Trends. How do Temperature/Precipitation in recent years compare with 30-Year Climate "Normals" (1971-2000)?

3) Tropical 30-60 Day Oscillation. Affects climate variability.

4) North Atlantic Oscillation (NAO).

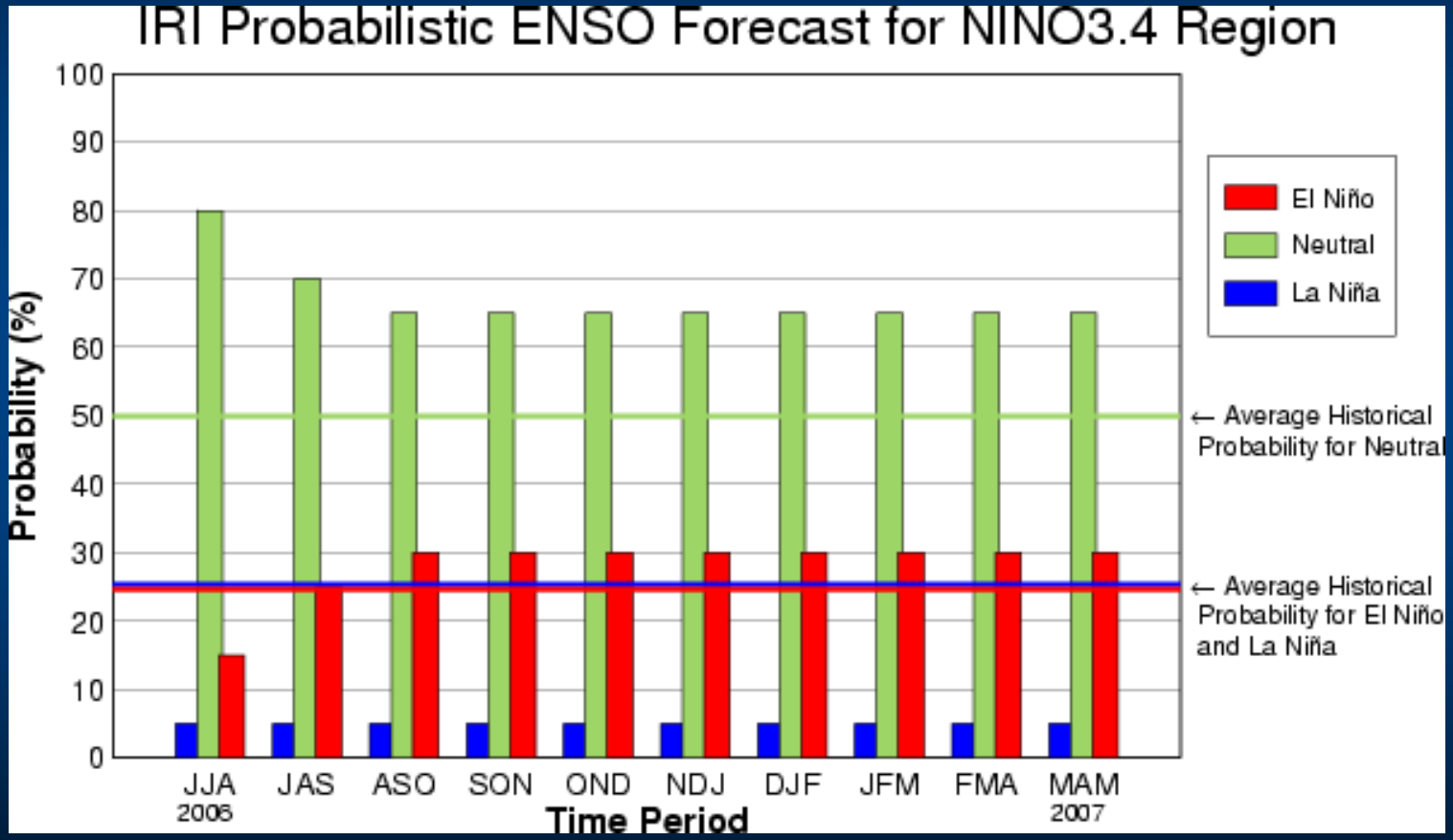
5) Soil Moisture Anomalies (in summer).

Pacific Ocean Sea Surface Temperatures
one of the most useful predictors in long-range forecasting



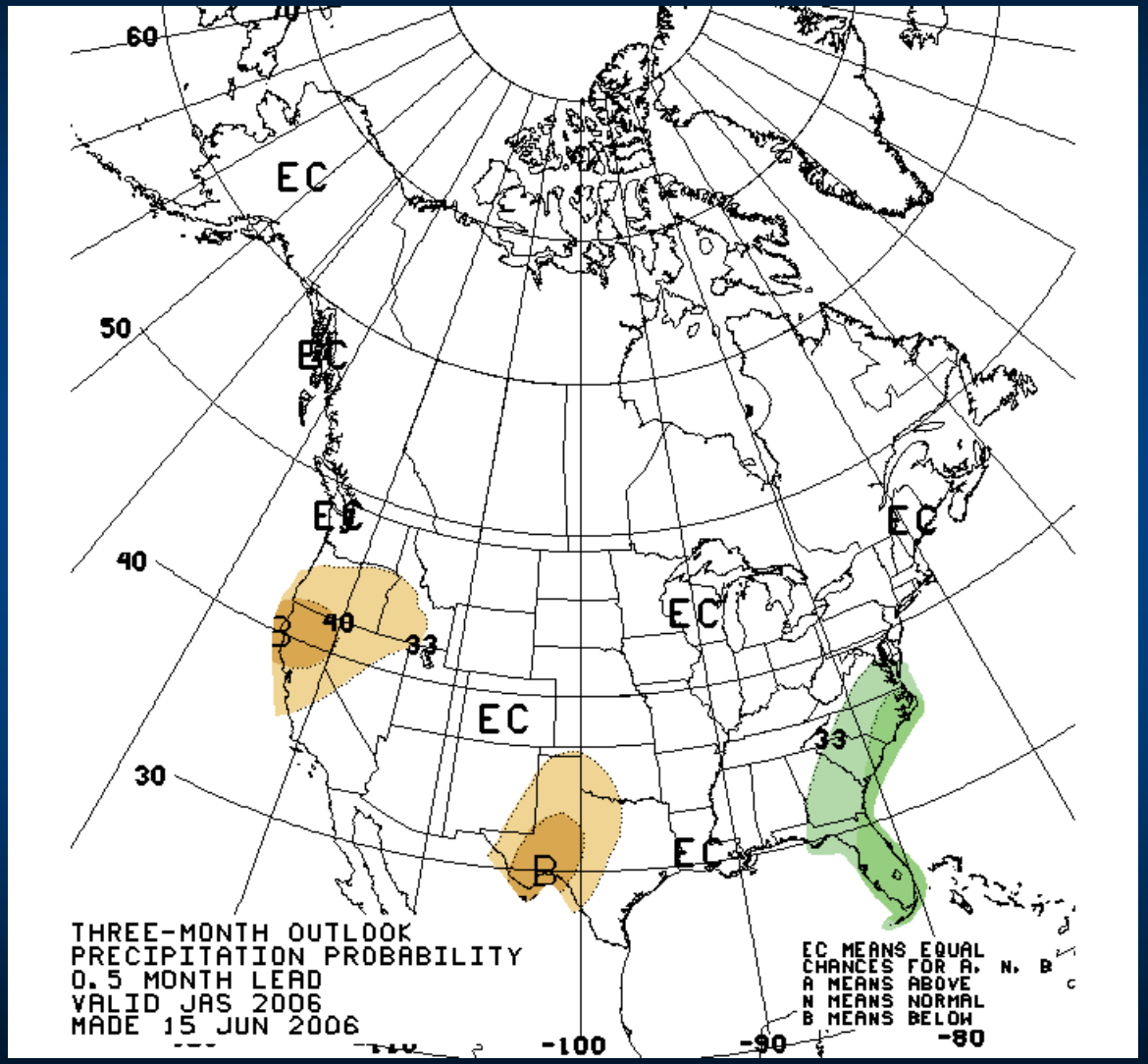
Near-normal conditions in tropical Pacific now…

Likely to persist over next few months.

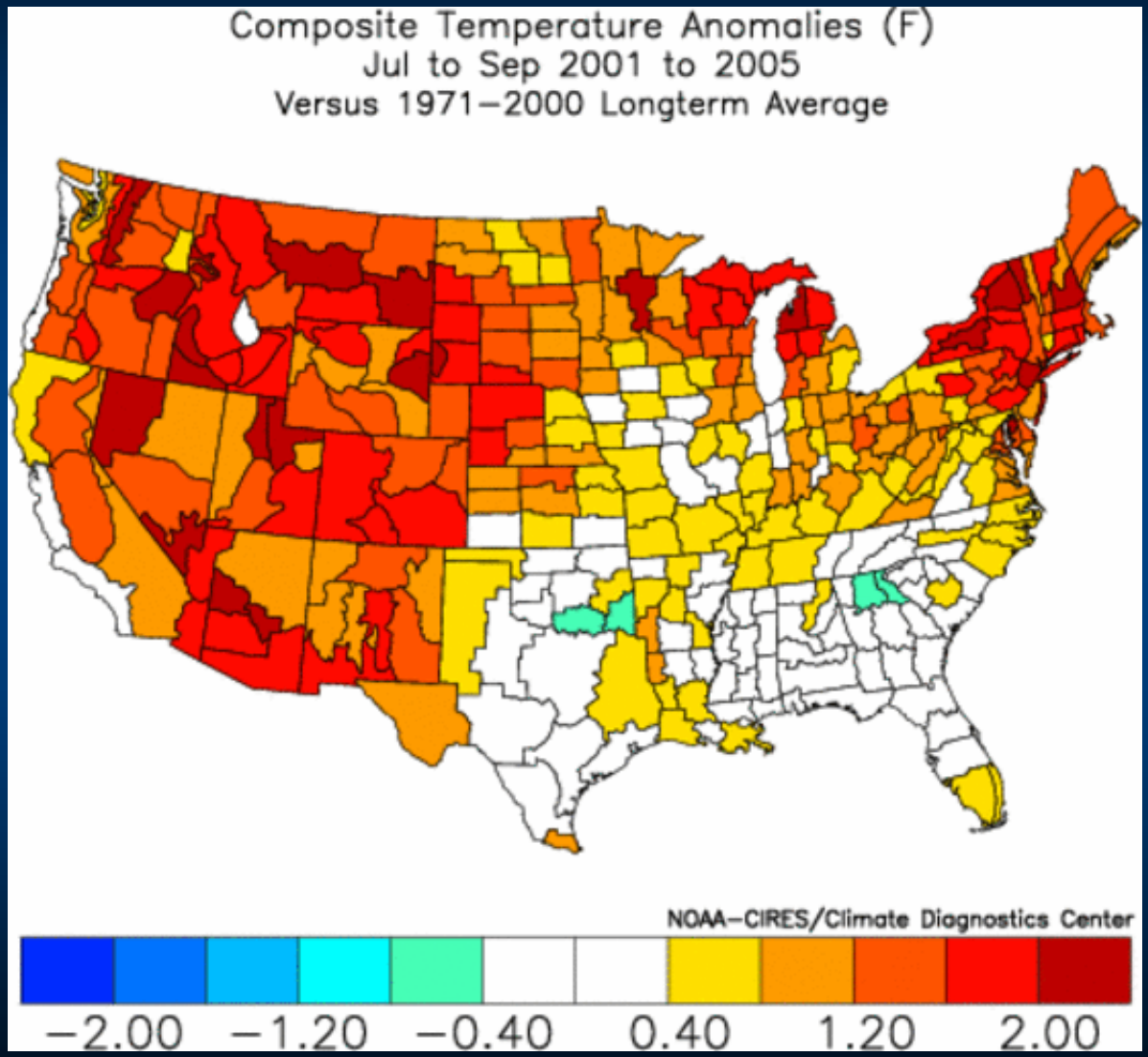


NOAA Jul-Aug-Sep 2006 Precipitation Forecast

EC = Equal Chances of above or below (forecast = ???)

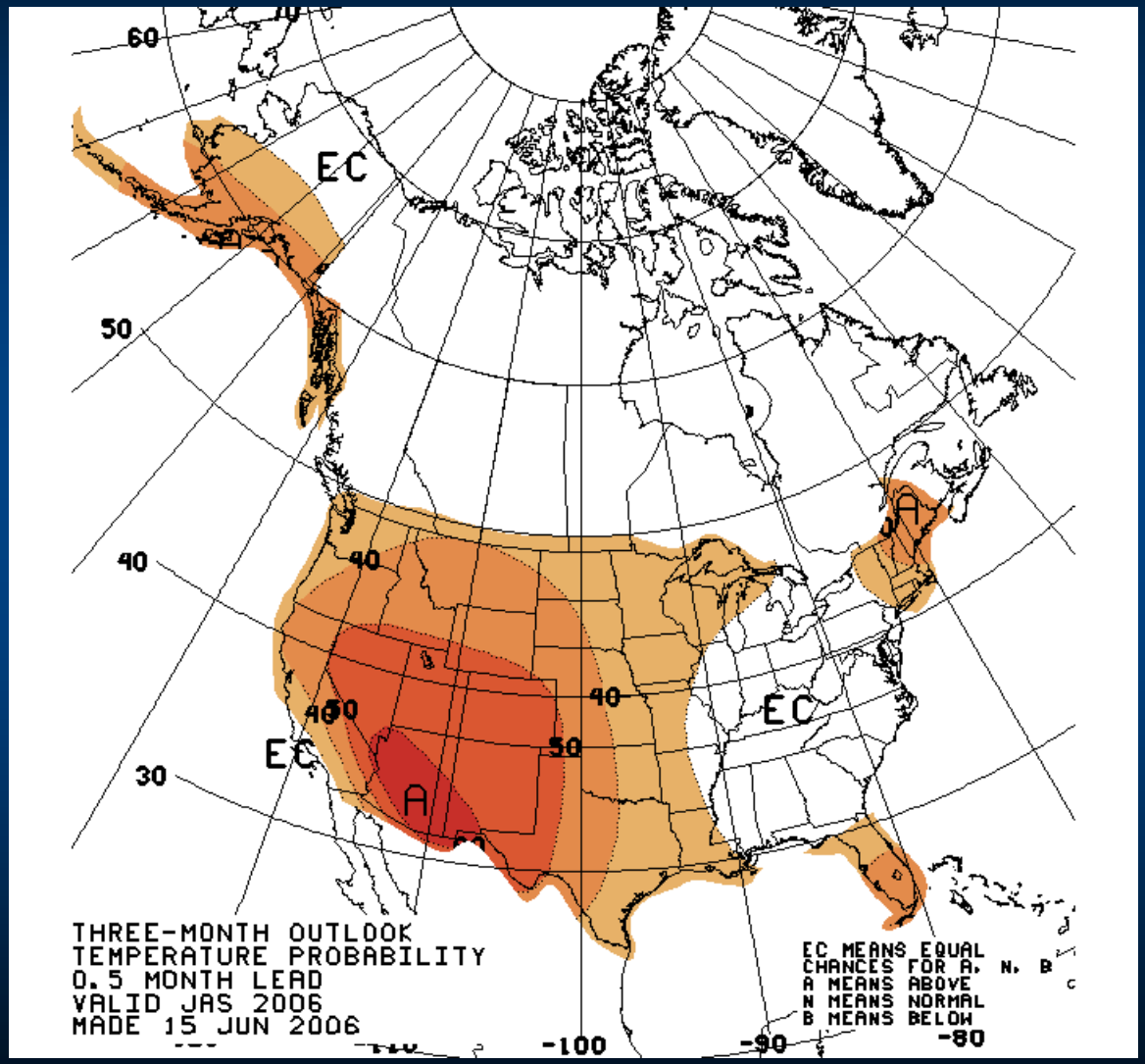


Warming trend evident over much of U.S.

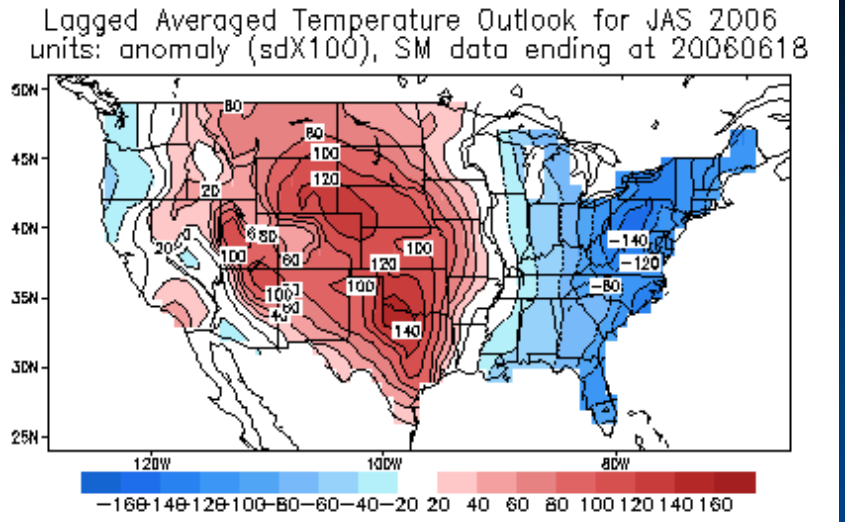


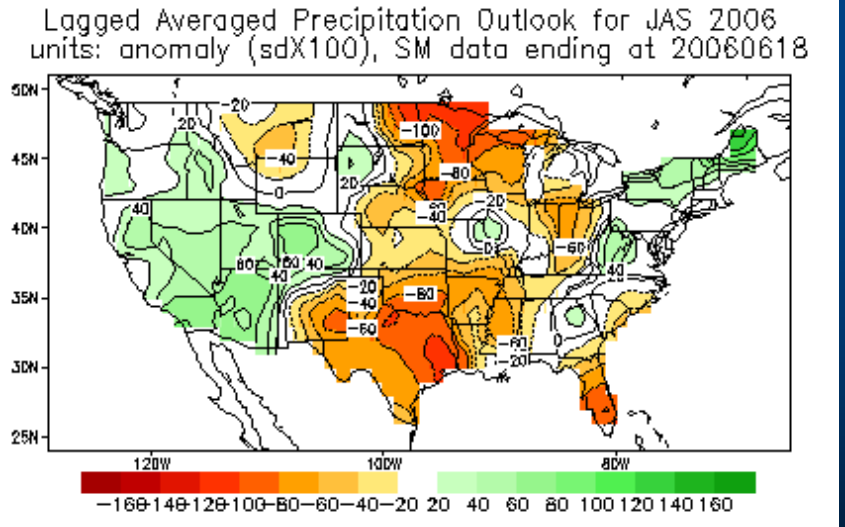
Official NOAA Jul-Aug-Sep 2006 Temperature Forecast

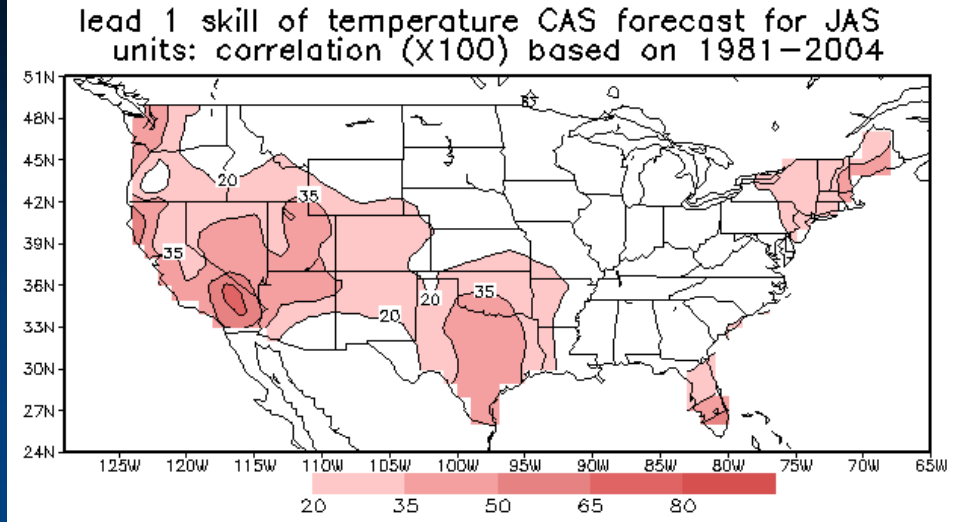
Increased likelihood of above normal temperatures

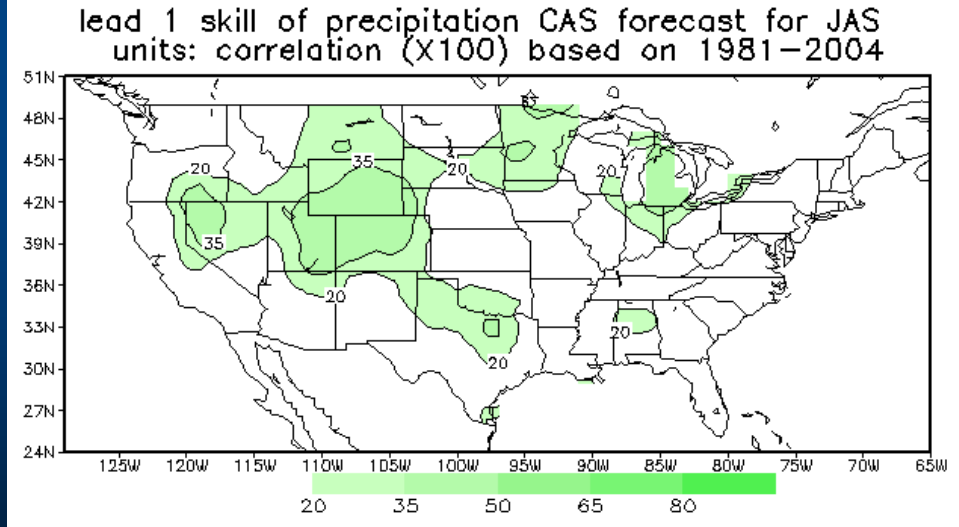


Constructed Analog Forecasts (Soil Moisture)



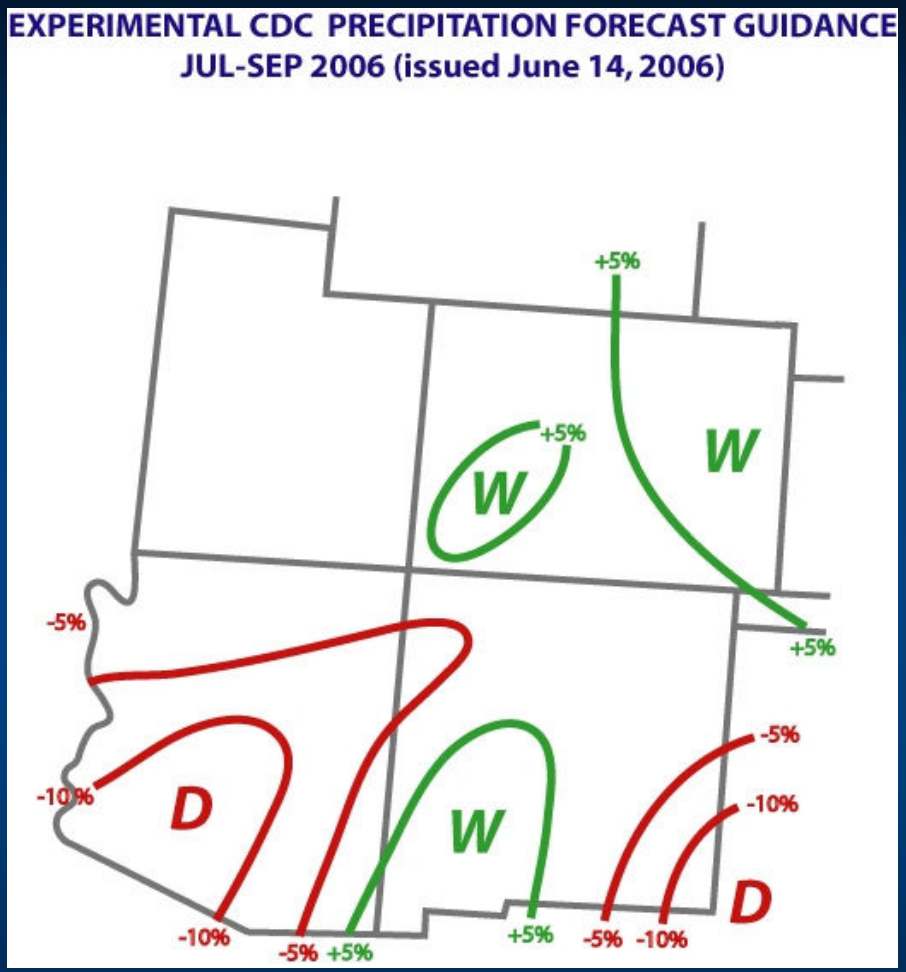




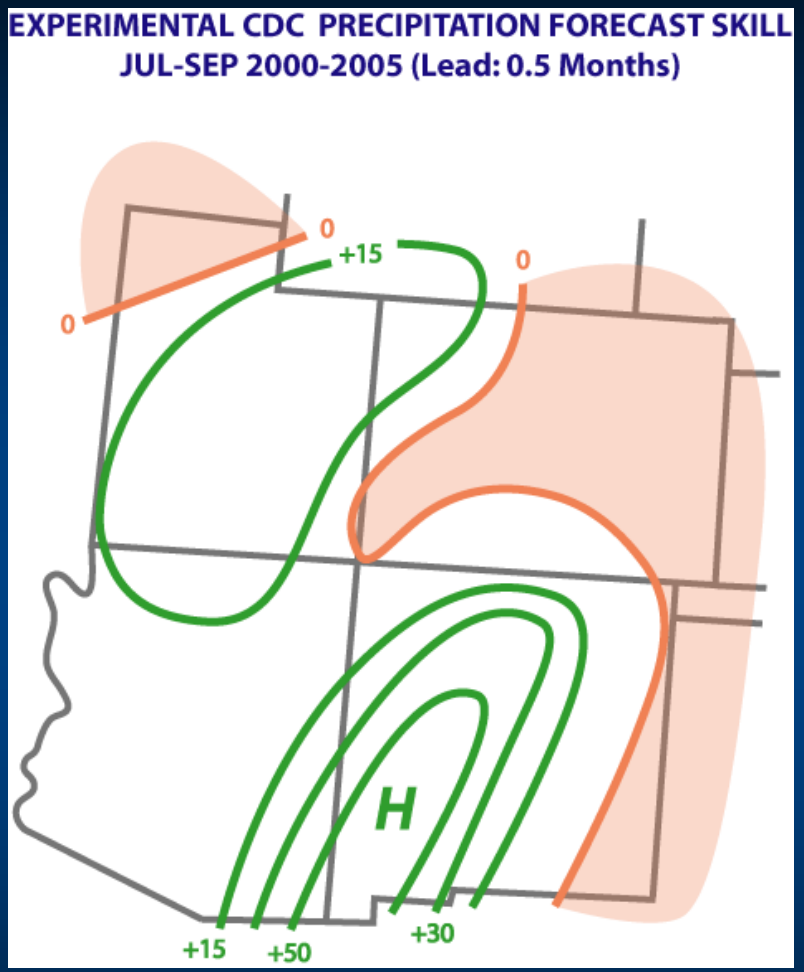


'Constructed Analog' forecasts from CPC indicate late summer (left) combines warmer -than-average temperatures with an enhanced monsoon. The skill for the precipitation forecast in Colorado is surprisingly good, giving us some hope.

Experimental CDC Forecasts (Klaus Wolter)



Forecast



Skill

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

Summary

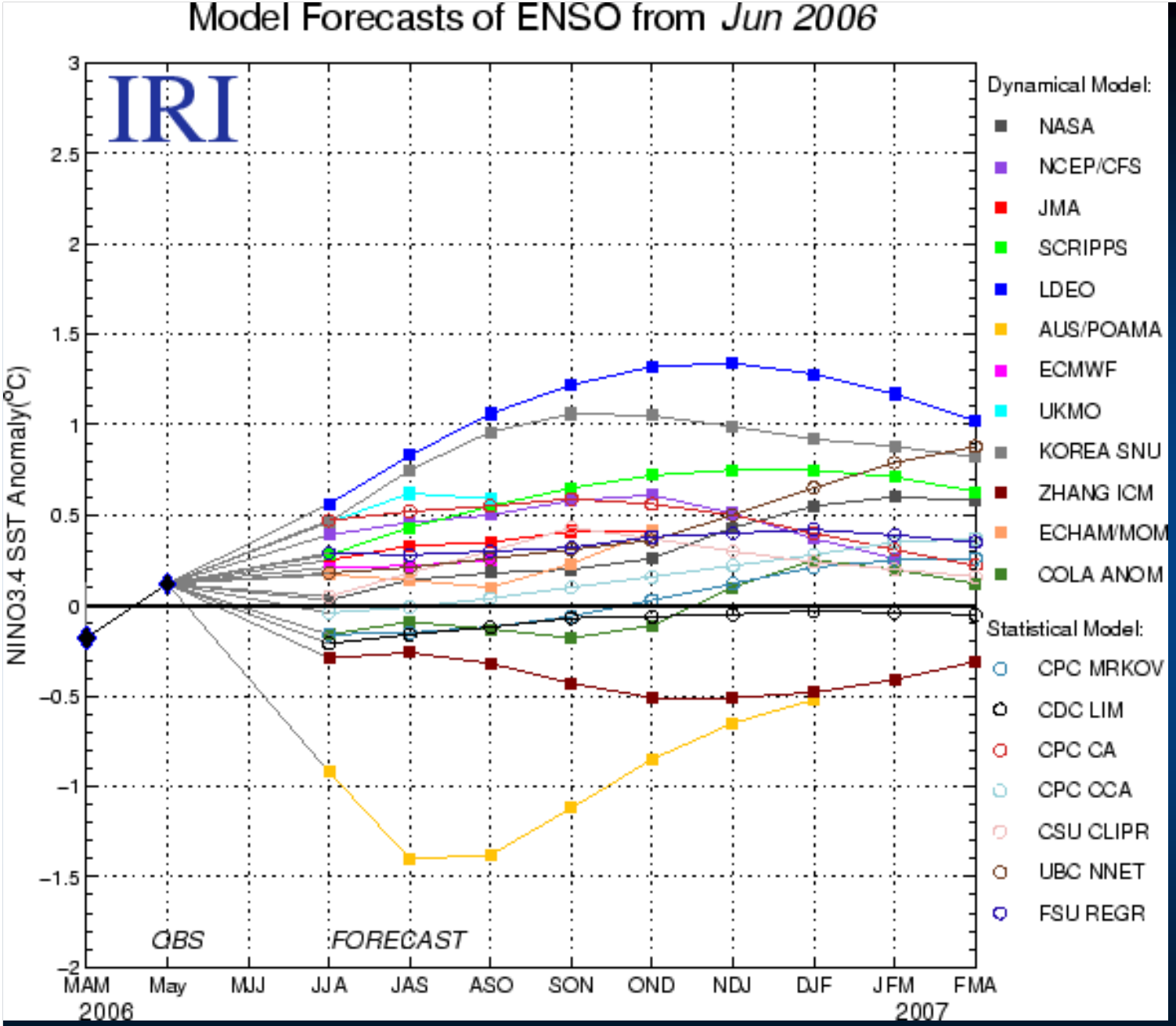
1. Spring precipitation across Colorado was much below normal. The first half of June has been extraordinarily hot over eastern Colorado, leading to crop losses and extreme fire danger. Nevertheless, most cities are still fairly well protected from the drought due to near-normal reservoir levels.

2. Near-normal sea surface temperatures currently exist in the tropical Pacific Ocean and these likely will persist for the next few months. Beyond that, chances are roughly 2 in 3 that near-normal conditions will continue into this fall and winter, with about a 1 in 3 chance of El Niño.

3. Klaus Wolter's experimental forecast guidance: July-September precipitation covers large parts of Colorado and New Mexico with favorable odds, while leaving Arizona and southeastern New Mexico under the threat of yet another dry season. While both Arizona and New Mexico summer monsoon seasons have been anticipated with some skill since 2000, Colorado's optimistic outlook is handicapped by poor skill performance over the same period.

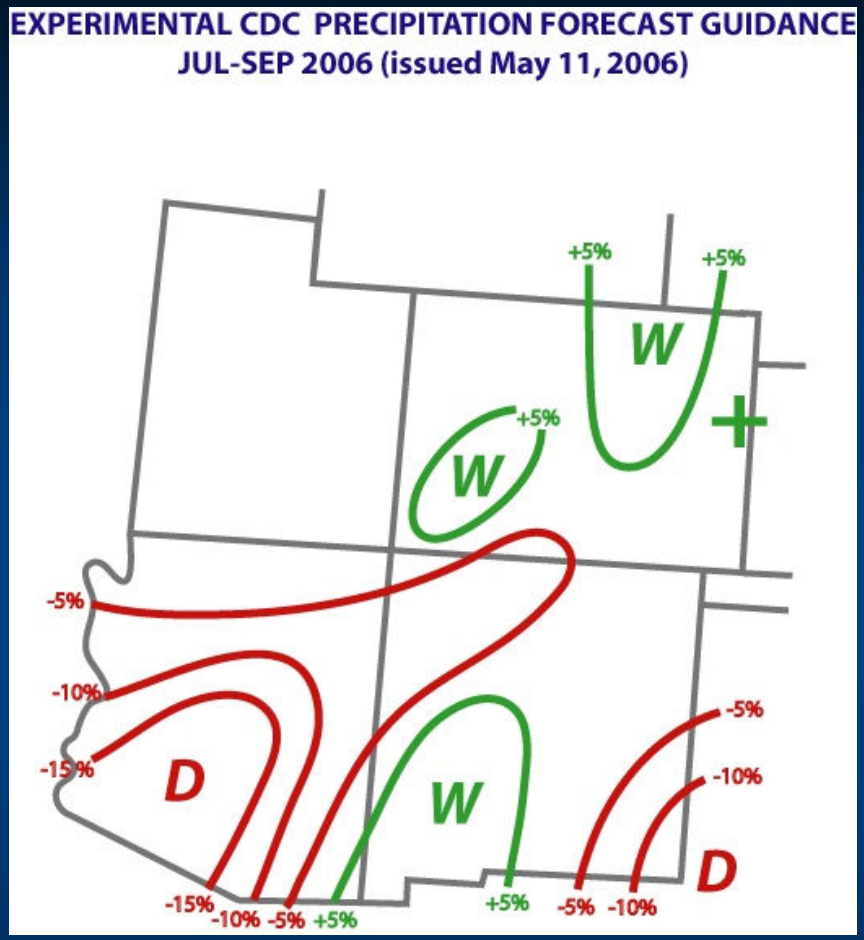
The End

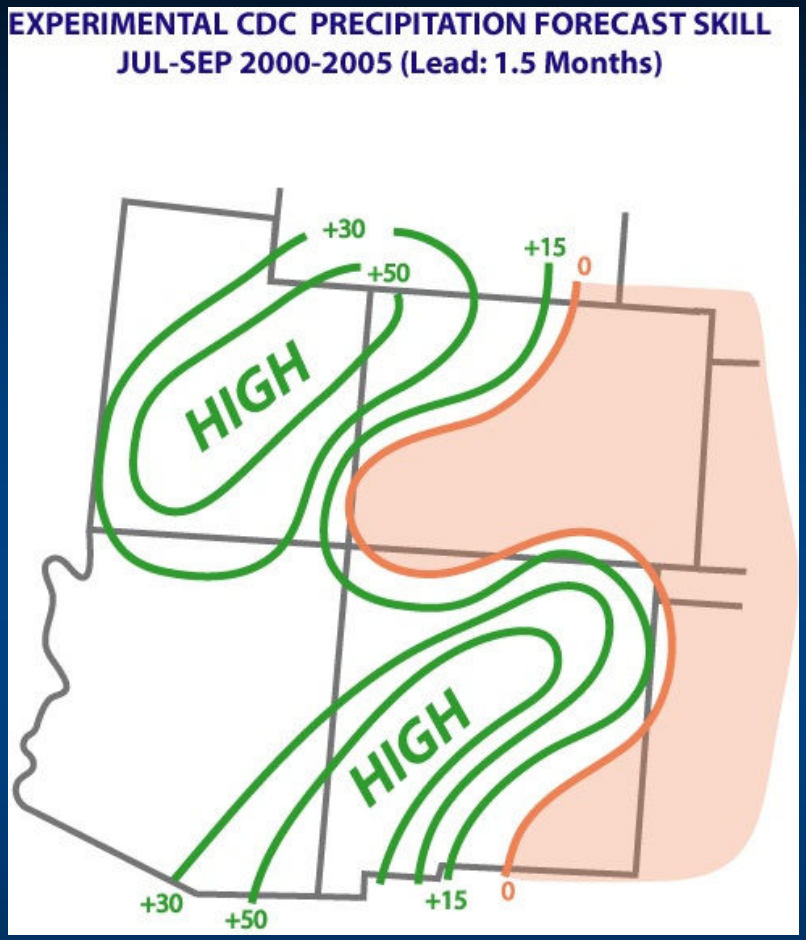
Gary.Bates@noaa.gov



ENSO forecasts from 12 numerical & 7 statistical forecast models: there are more models favoring El Niño than La Niña this year, but only two reach moderate strength (+1C) in their predicted size.

Experimental CDC Forecasts





Last month's forecast of the summer monsoon (left) showed a positive tilt of the odds for Colorado, supported by high skill in the northwestern part of the state (and very high skill in Utah, where the forecast was neutral, and southwestern NM, where it was wet). Despite the lack of skill in eastern Colorado, this was an encouraging forecast for us.

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