

# Synoptic Overview of RACORO

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Jason Tomlinson - PNNL

2009 ARM Science Team Meeting

March 31<sup>st</sup>, 2009

Louisville, KY

# Synoptic Overview

- What is going on with the weather?

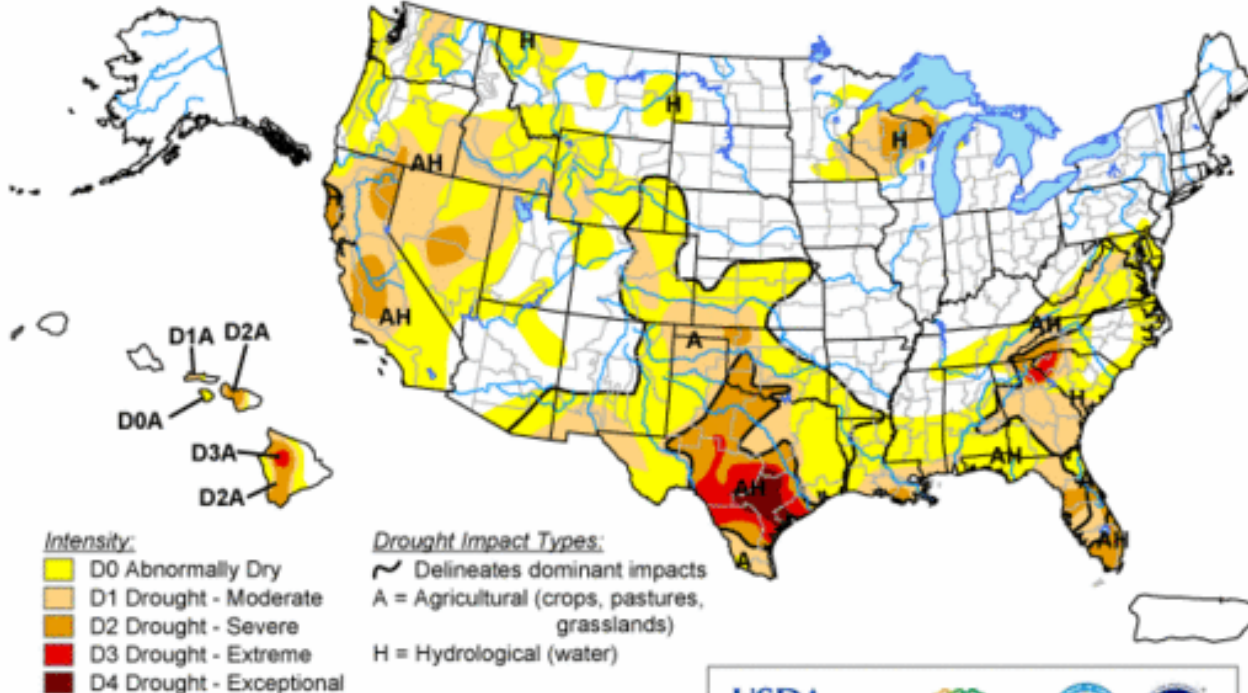


- The following slides will give some insight into why the weather has been so anomalous

# Anomalously Dry 2009

## U.S. Drought Monitor

March 17, 2009  
Valid 8 a.m. EDT



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

<http://drought.unl.edu/dm>

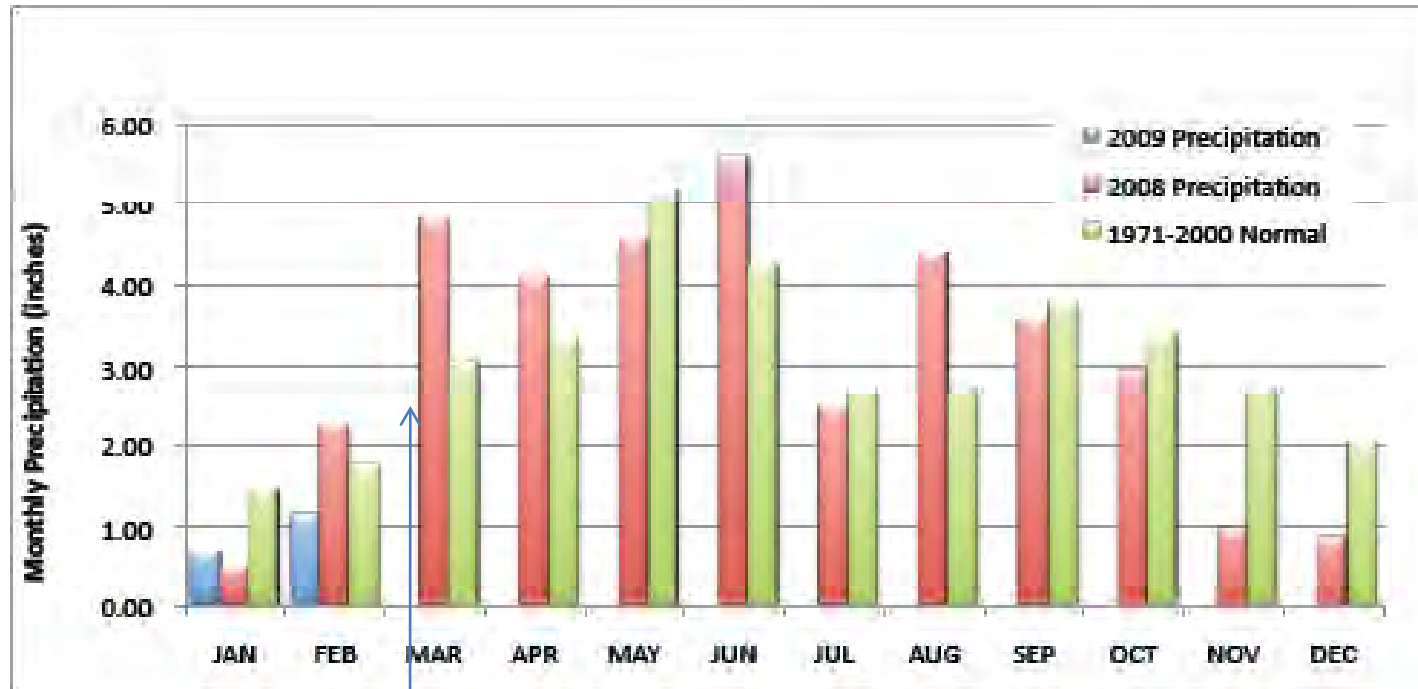


Released Thursday, March 19, 2009

Author: Laura Edwards, Western Regional Climate Center

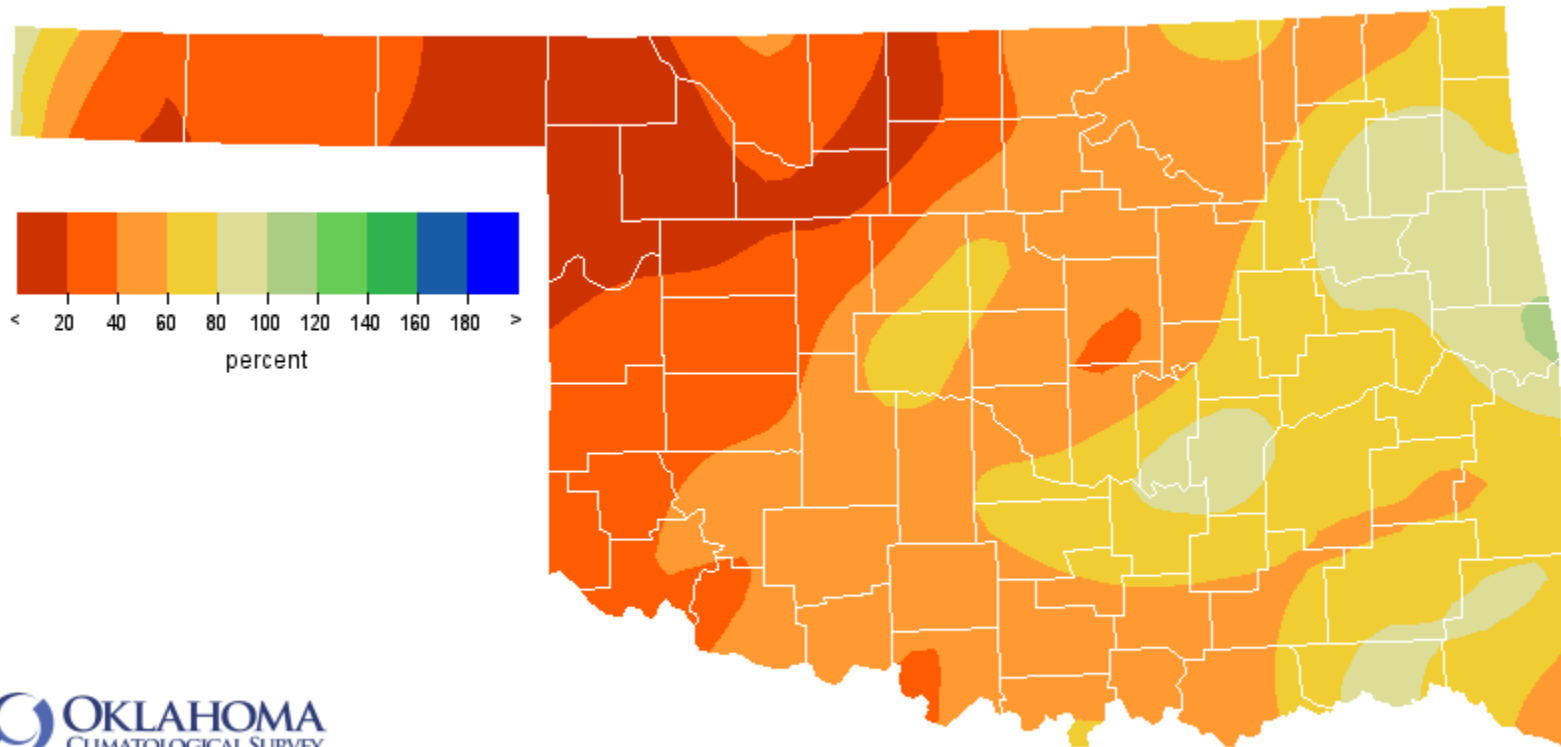
# Below Average Precipitation

Oklahoma State-wide Precipitation Data



March 1-30, 2009: **2.36 in**

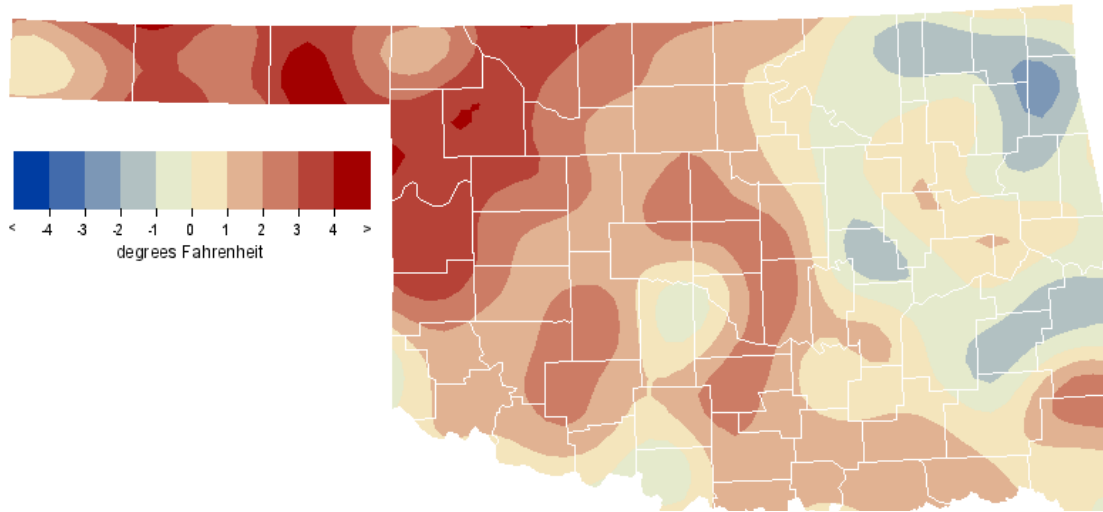
# Below Average Precipitation



**Percentage of Normal Rainfall**  
Last 60 Days

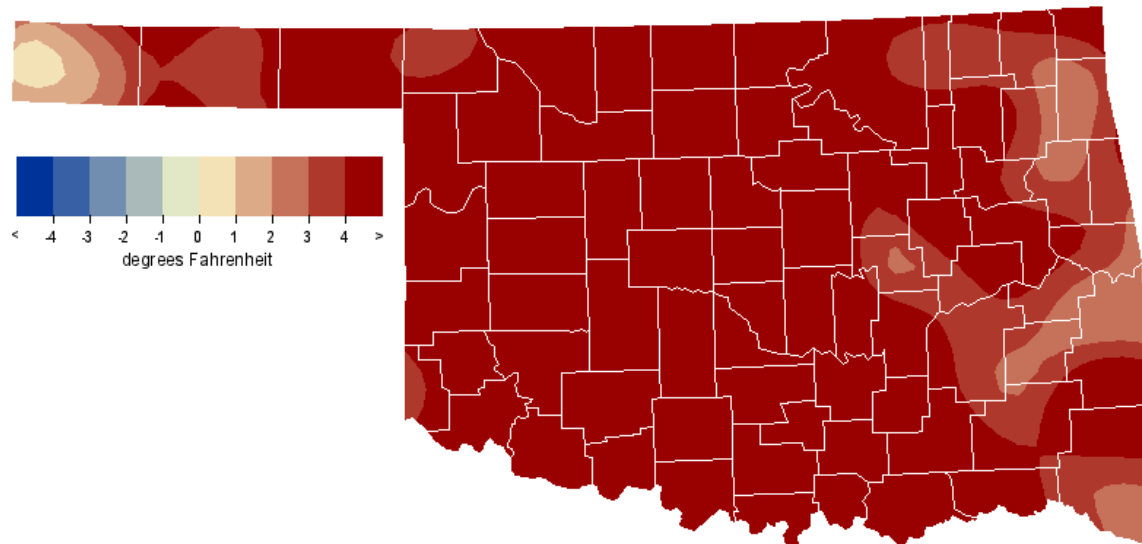
Jan 22, 2009 through Mar 22, 2009  
Created 2009-03-23 10:03:20 UTC. Copyright © 2009

# Warm January & February 2009



January 1-2 deg F warmer than normal at the SGP Site

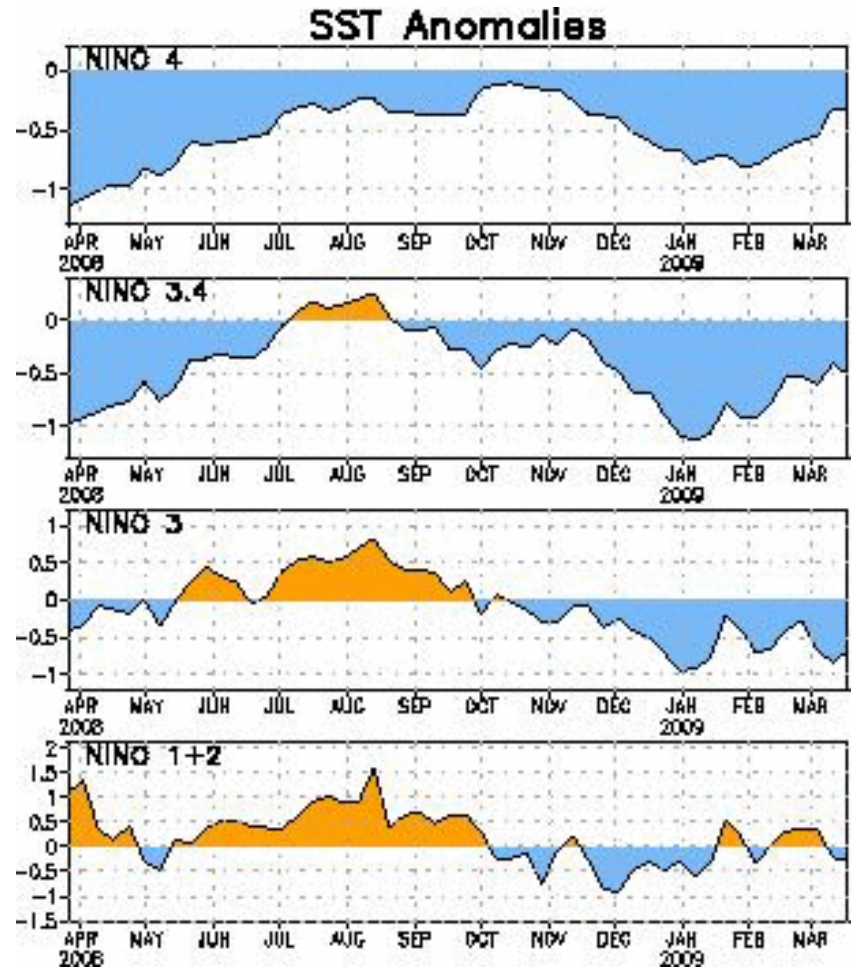
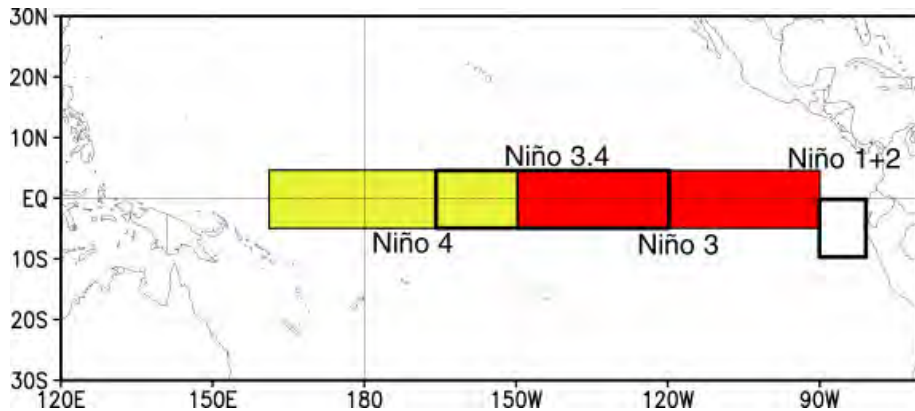
February over 4+ deg F warmer than normal almost state-wide.



# La Nina

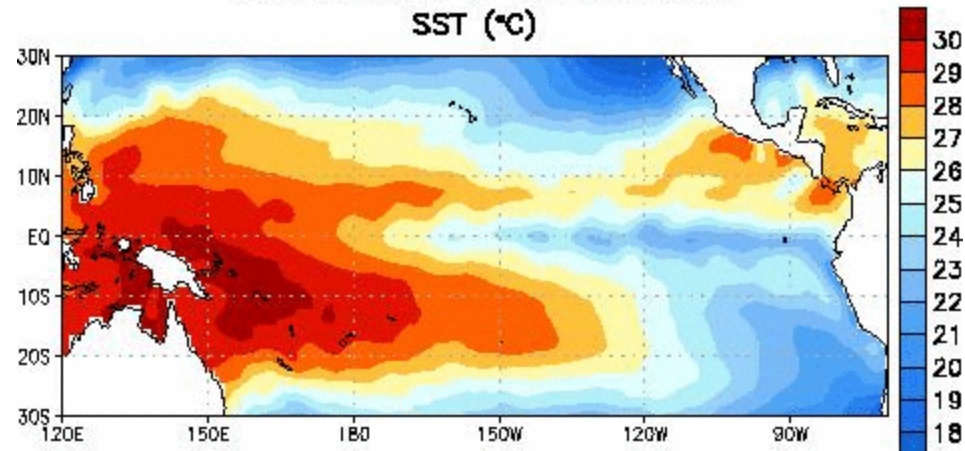
The latest weekly SST departures are:

- Niño 4     -0.3°C
- Niño 3.4   -0.5°C
- Niño 3     -0.7°C
- Niño1+2   -0.3°C

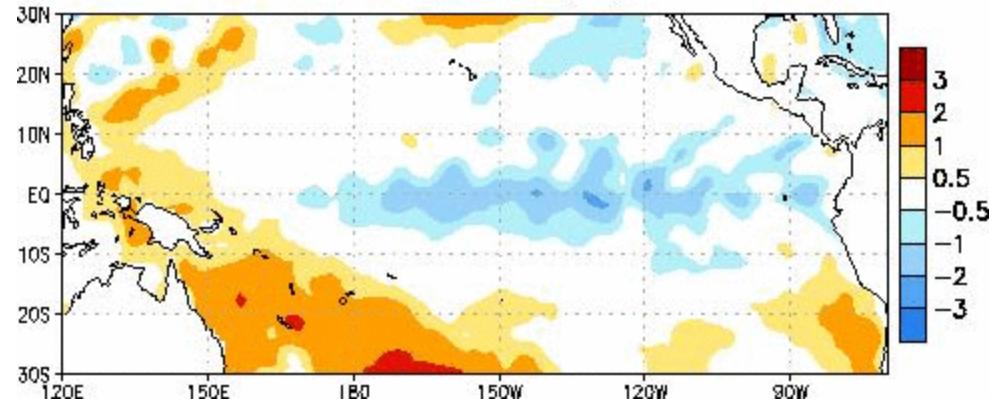


# La Nina

Week centered on 31 DEC 2008  
SST (°C)



Week centered on 31 DEC 2008  
SST Anomalies (°C)

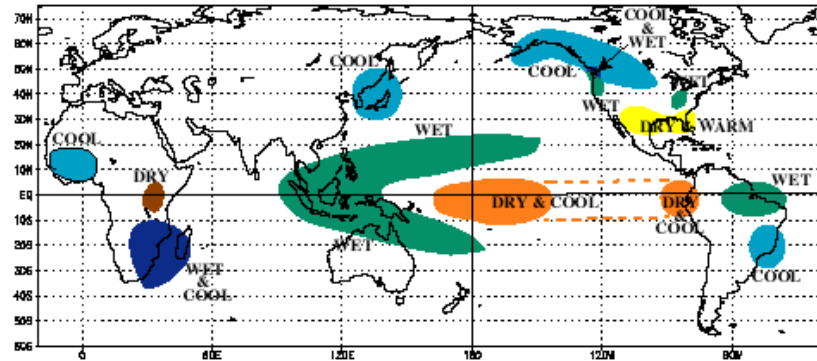




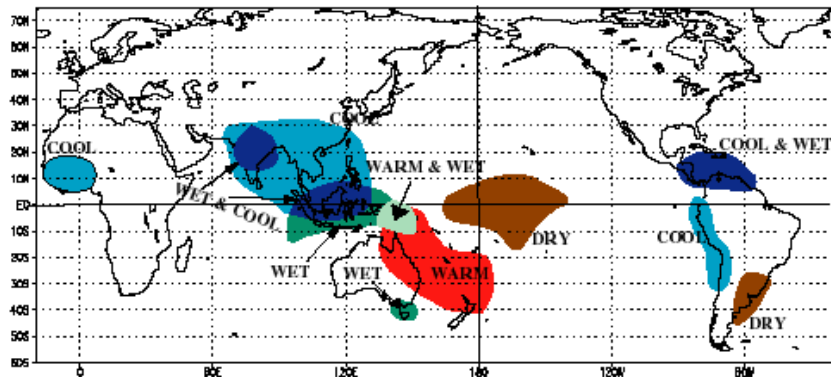
# La Nina

- Winter
  - Dry and Warm
- Spring
  - Transitioning
- Summer
  - More normal but slightly drier

COLD EPISODE RELATIONSHIPS DECEMBER - FEBRUARY



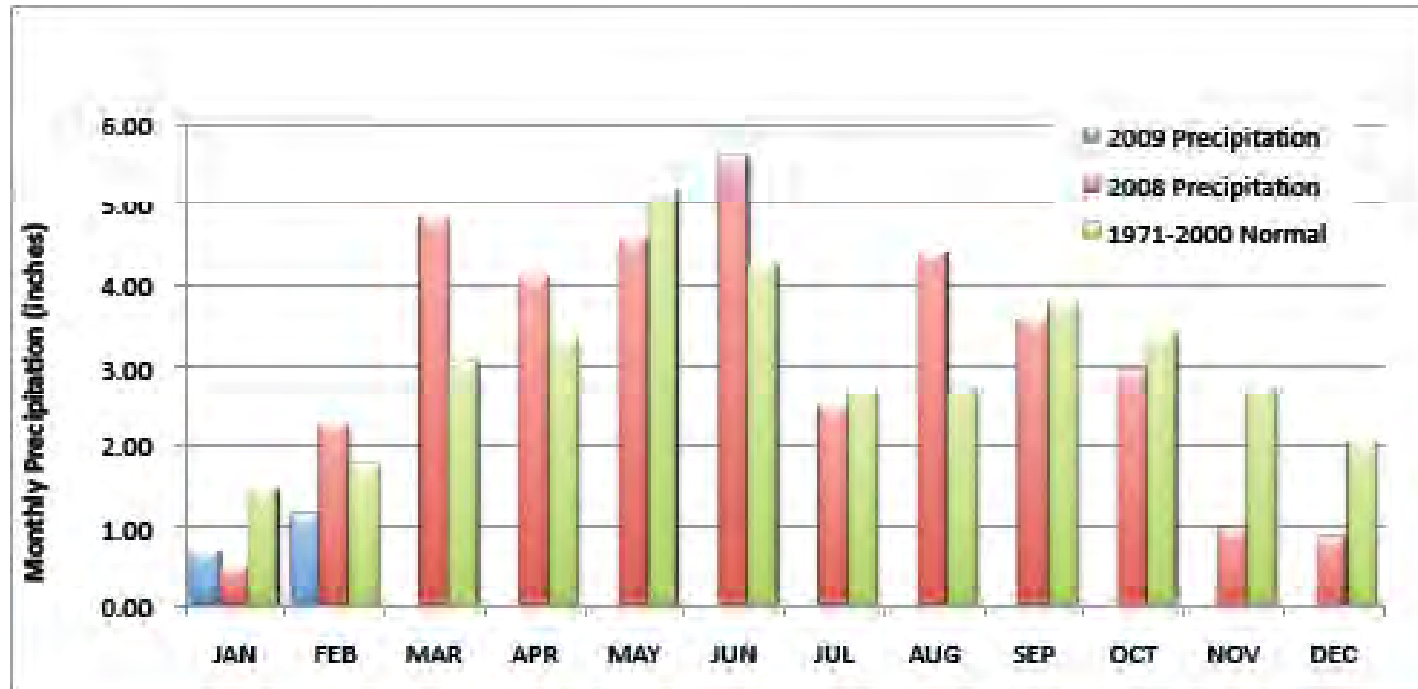
COLD EPISODE RELATIONSHIPS JUNE - AUGUST



Climate Prediction Center  
NCEP

# Below Average Precipitation

Oklahoma State-wide Precipitation Data



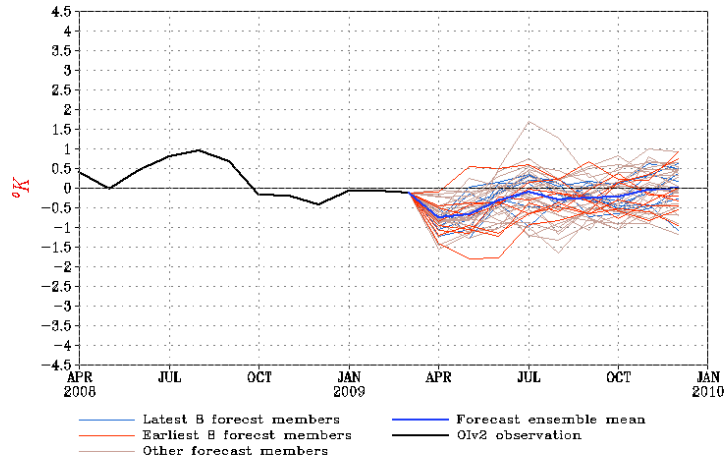
# La Nina Forecast



NWS/NCEP

Last update: Mon Mar 23 2009  
Initial conditions: 12Mar2009-21Mar2009

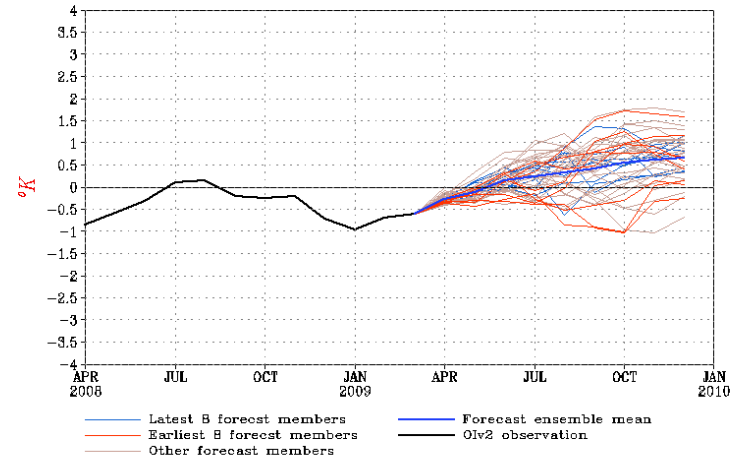
Forecast *Nino1+2* SST anomalies from CFS



NWS/NCEP

Last update: Mon Mar 23 2009  
Initial conditions: 12Mar2009-21Mar2009

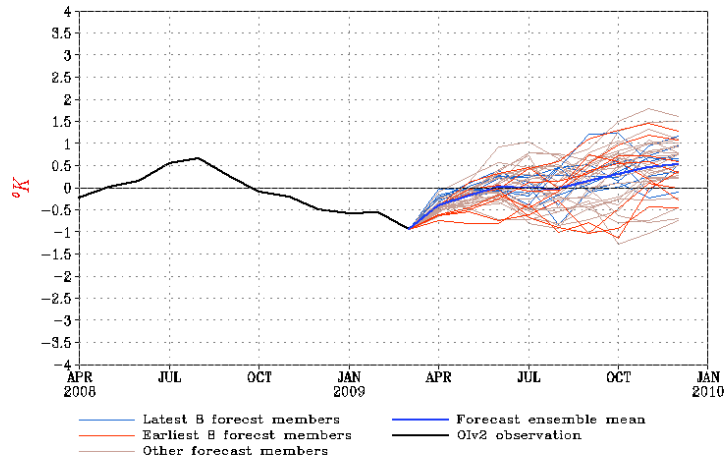
Forecast *Nino3.4* SST anomalies from CFS



NWS/NCEP

Last update: Mon Mar 23 2009  
Initial conditions: 12Mar2009-21Mar2009

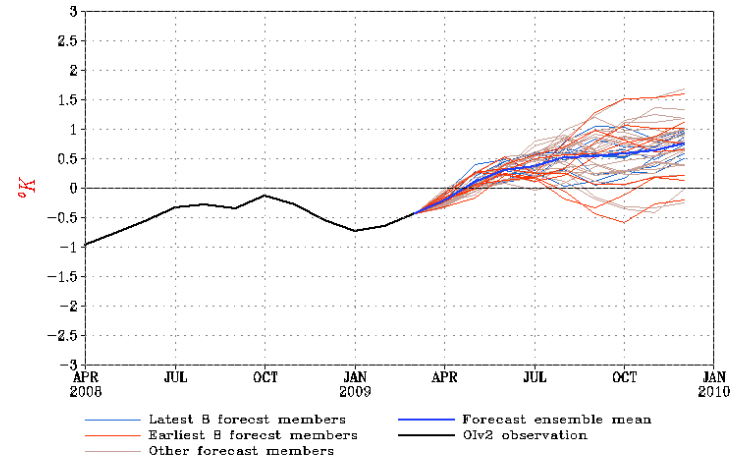
Forecast *Nino3* SST anomalies from CFS



NWS/NCEP

Last update: Mon Mar 23 2009  
Initial conditions: 12Mar2009-21Mar2009

Forecast *Nino4* SST anomalies from CFS



# Spring Outlook

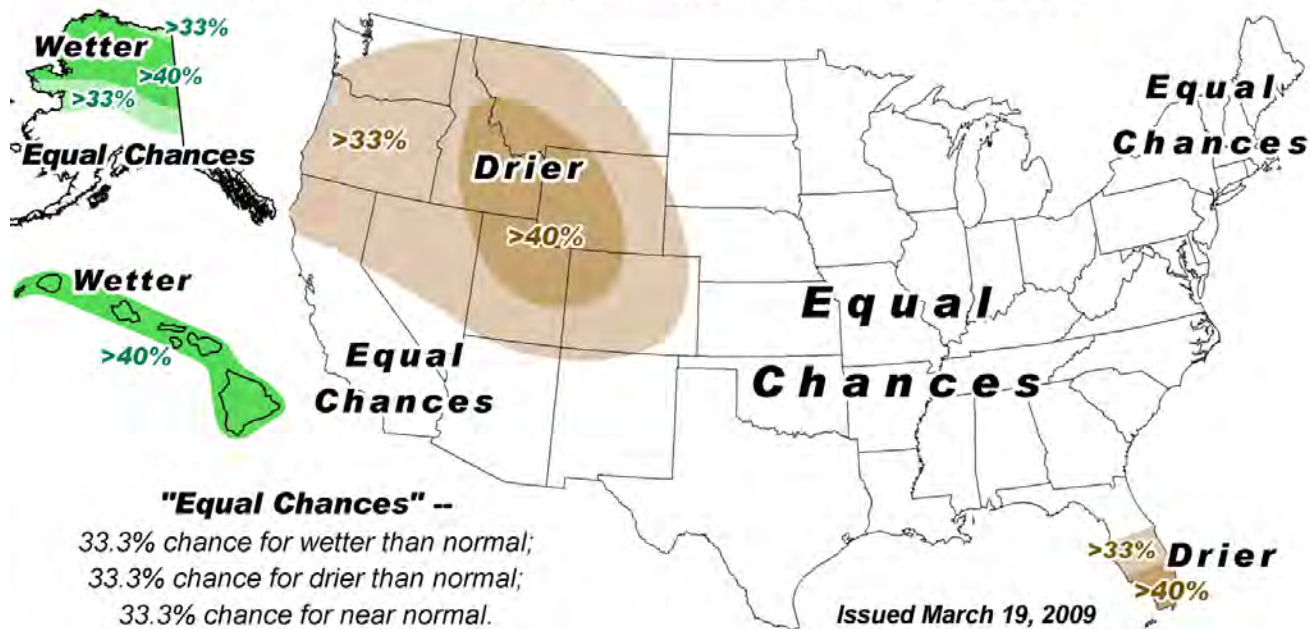


## Precipitation Outlook

April - June 2009

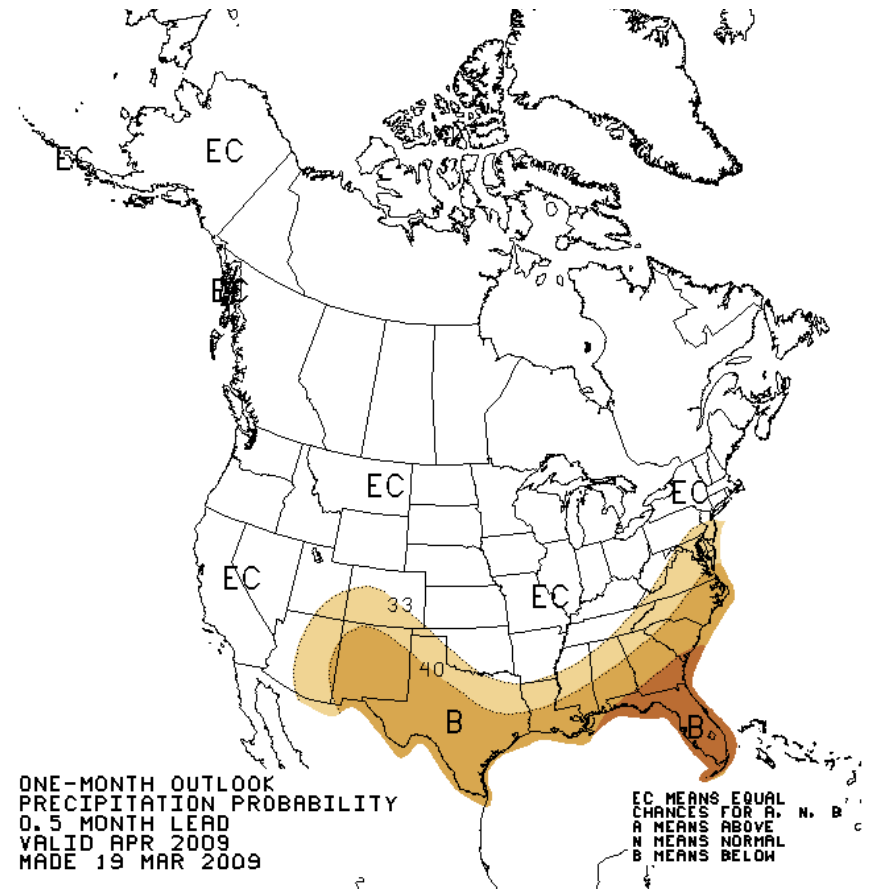
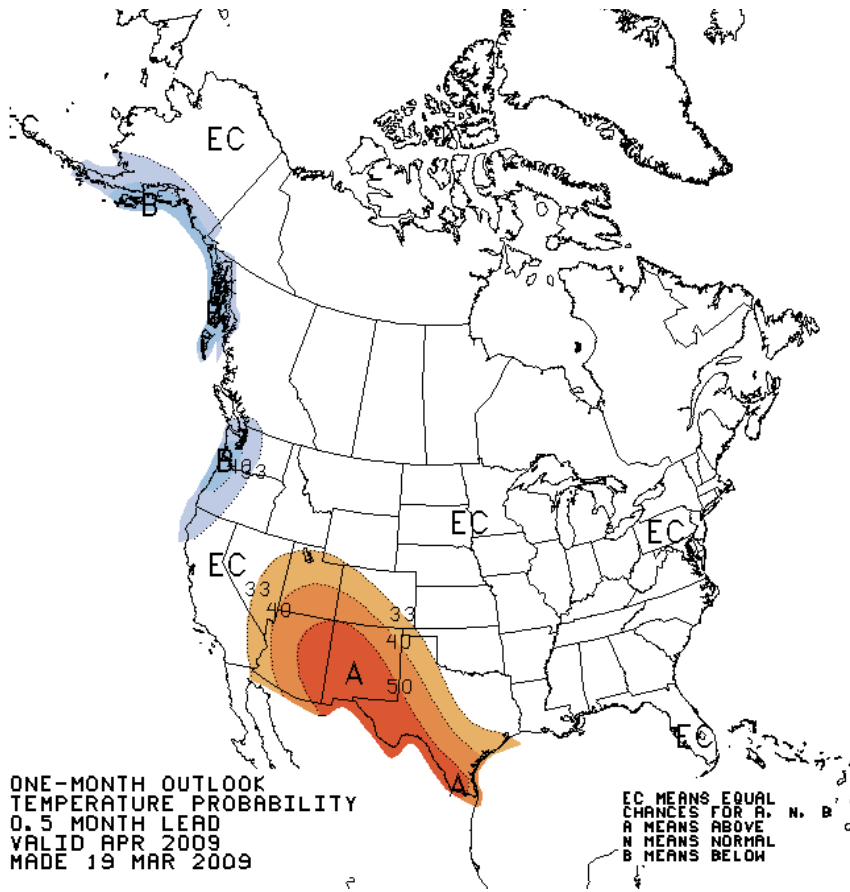


Chances for **Wetter Than Normal**, **Drier Than Normal**, or Near Normal Precipitation (based on 1971-2000)

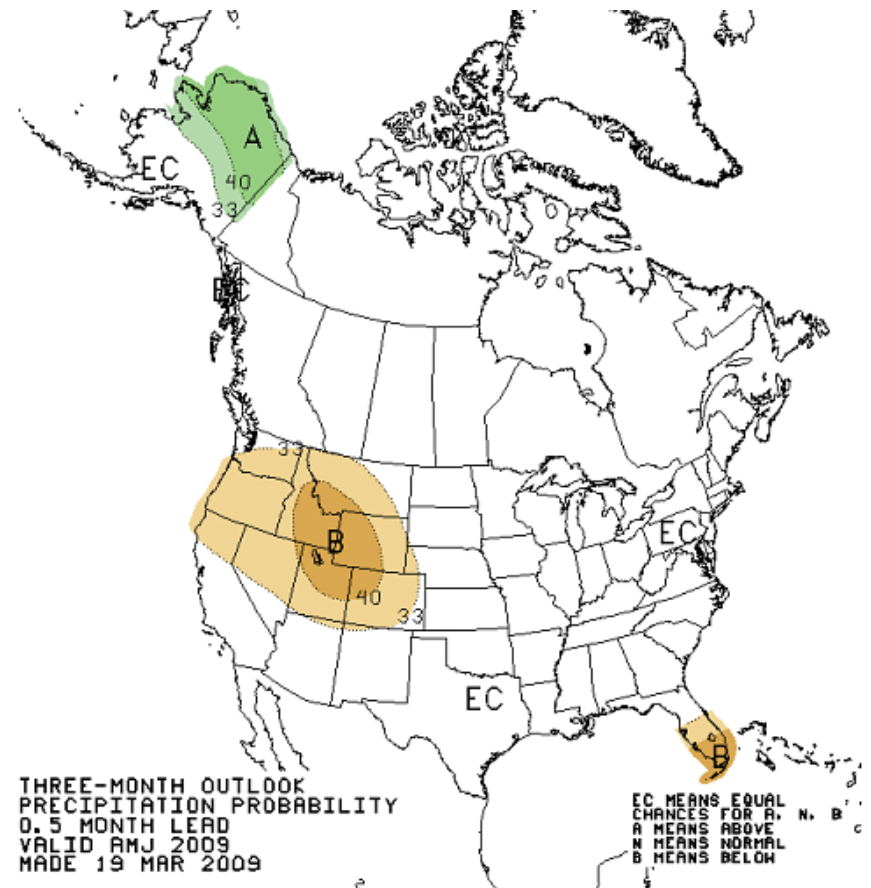
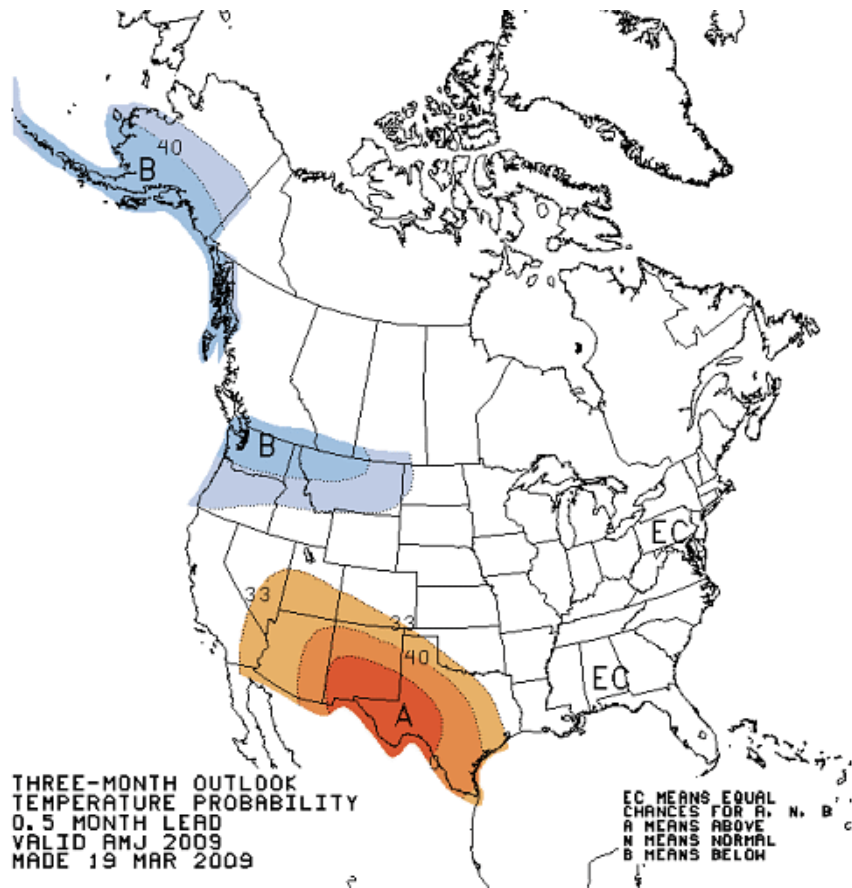


“The current La Niña will likely have some effect on this spring as it continues to weaken. Although La Niña tends to have a smaller influence on U.S. weather during the warmer months, lingering effects are not uncommon in spring.” (Ed O’Lenic, CPC)

# 1-Month Outlook (CPC)



# 3-Month Outlook (CPC)

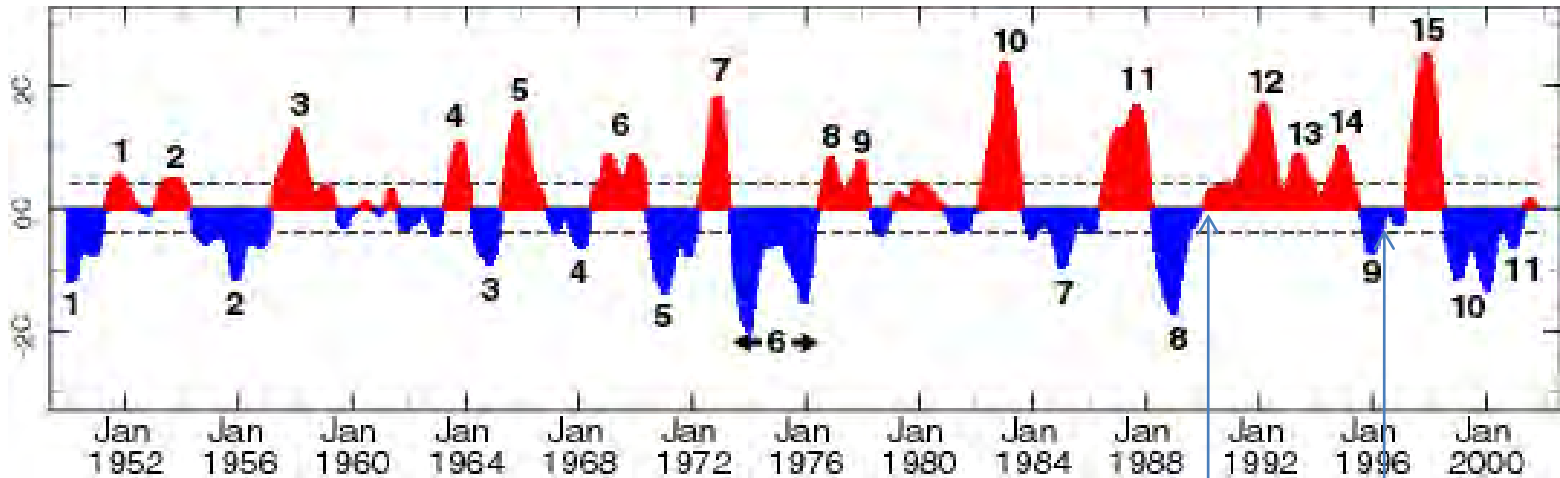


**Synopsis: La Niña is expected to gradually weaken with increasing chances (greater than 50%) for ENSO-neutral conditions during the Northern Hemisphere Spring.**

# Summary

- A strong La Nina pattern has lead to a very dry pattern
- However the pattern should start to weaken and the La Nina effects are not as strong in the spring and summer months
- Good news is that a more normal pattern should start to emerge
- Bad news is that severe weather season is approaching

# Past La Nina Years



Jan 1990 switch from  
La Nina to El Nino

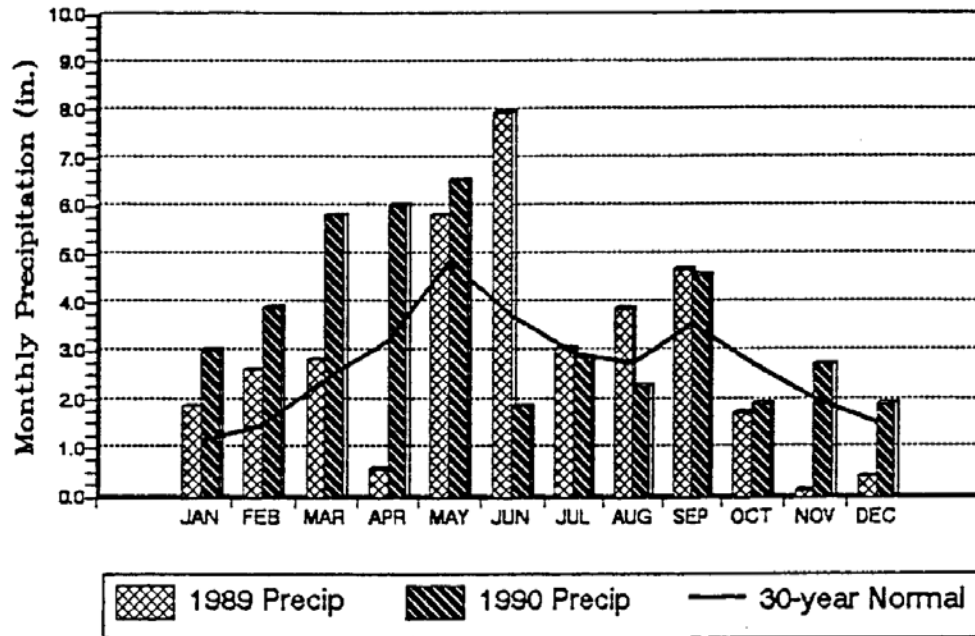
Jan 1996 La Nina



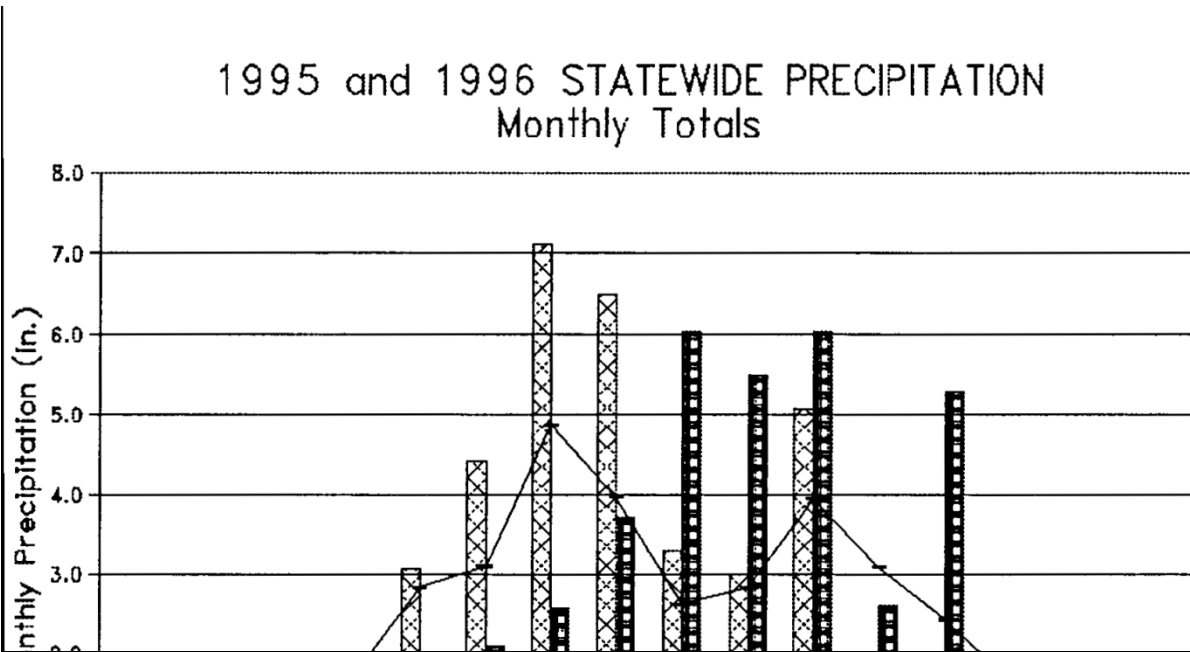
# La Nina of 1988-89

-3-

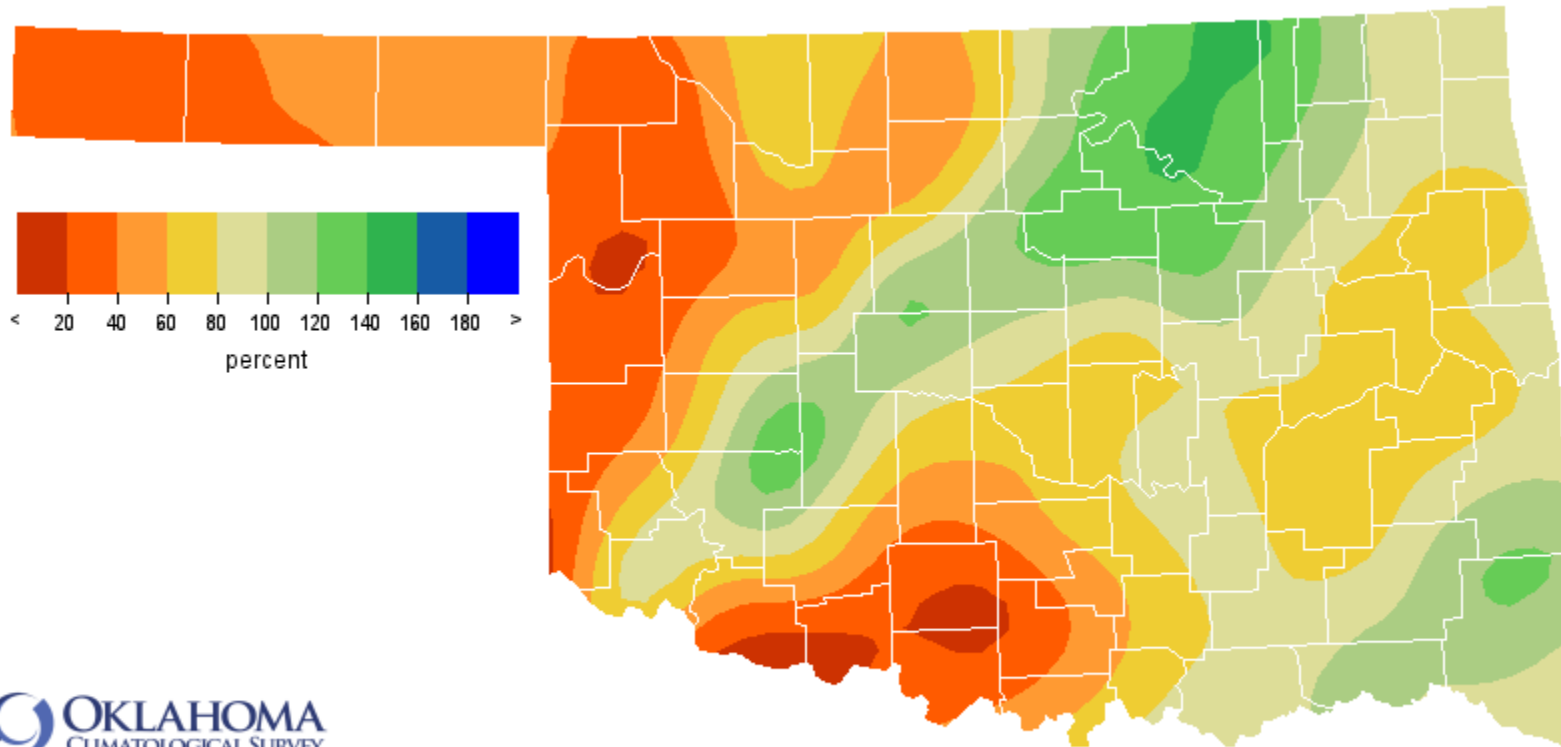
Comparison of Monthly Precipitation  
Statewide Average for Oklahoma



# La Nina of 1995-96



# March 2009 Precipitation



 **OKLAHOMA**  
CLIMATOLOGICAL SURVEY

**Percentage of Normal Rainfall**  
Last 30 Days

**Mar 1, 2009 through Mar 30, 2009**  
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