

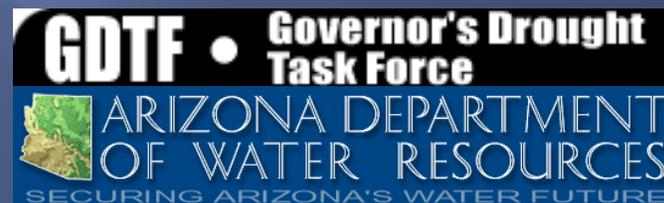
# Drought Monitoring Technical Committee Update

to the

Arizona Interagency Coordinating Group

October 29, 2009

Nancy J. Selover  
Arizona State Climate Office  
Arizona State University  
[azclimate.asu.edu](http://azclimate.asu.edu)



# Arizona Drought Monitoring Technical Committee



ARIZONA DIVISION OF  
EMERGENCY MANAGEMENT



OFFICE OF THE ARIZONA  
STATE CLIMATOLOGIST



# Completed initial phase of Drought Sensitivity Analysis

Results are inconclusive, as we have no independent drought dataset to test against.

Recommendations are to:

1. Assemble a panel with historical knowledge of drought in Arizona to examine some critical periods of going into and out of drought to determine:
  - a) whether the current conservative method is the best, OR
  - b) whether we should adopt a weighted method, and fine tune the weighting.

## **Drought Sensitivity Analysis**

### **Recommendations (cont):**

- 2. Calculate Standardized Precipitation Index (SPI) and drought status for grid points rather than watersheds.**
  - a) Watershed boundaries tend to separate areas with similar precipitation regimes, as do political boundaries, such as counties or climate divisions, while gridded data with terrain context maintain precipitation continuity.**
  - b) The gridded data will provide a longer data record, back to the 1930s. Currently we can only use data back to 1971.**
  - c) NCDC has a gridded precipitation dataset that is almost ready for use, and will be available in real-time, so we will no longer have a 4 week lag behind the National Drought Monitor.**

## **Drought Sensitivity Analysis**

### **Recommendations (cont):**

- 3. Improve the use of streamflow data in the drought method.**
- 4. Work toward incorporating groundwater data into the drought method.**

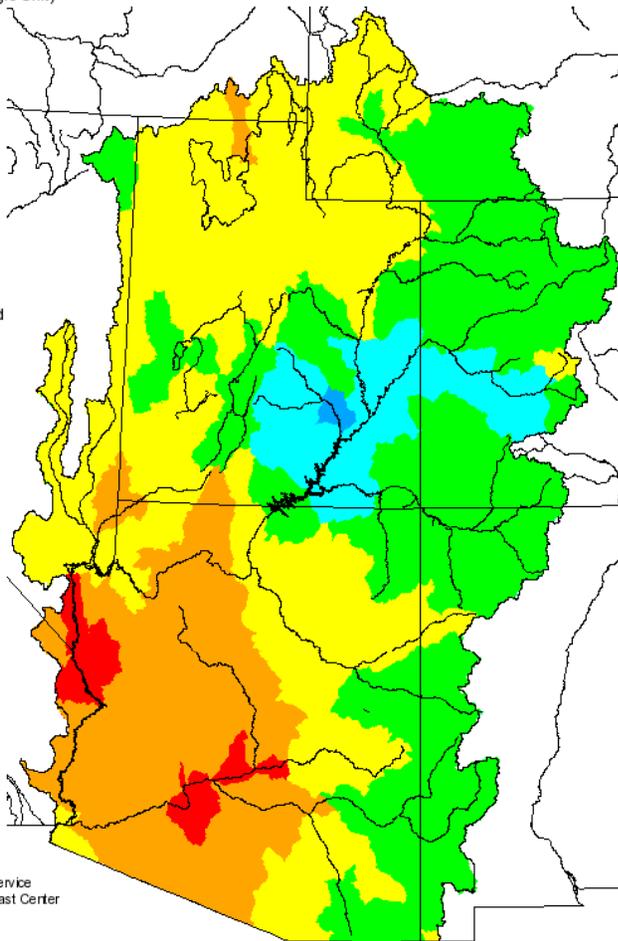
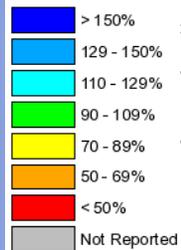
# Precipitation Comparison Colorado River Basin

## Water Year - 2007

### Seasonal Precipitation, October 2006 - September 2007

(Averaged by Hydrologic Unit)

#### % Average



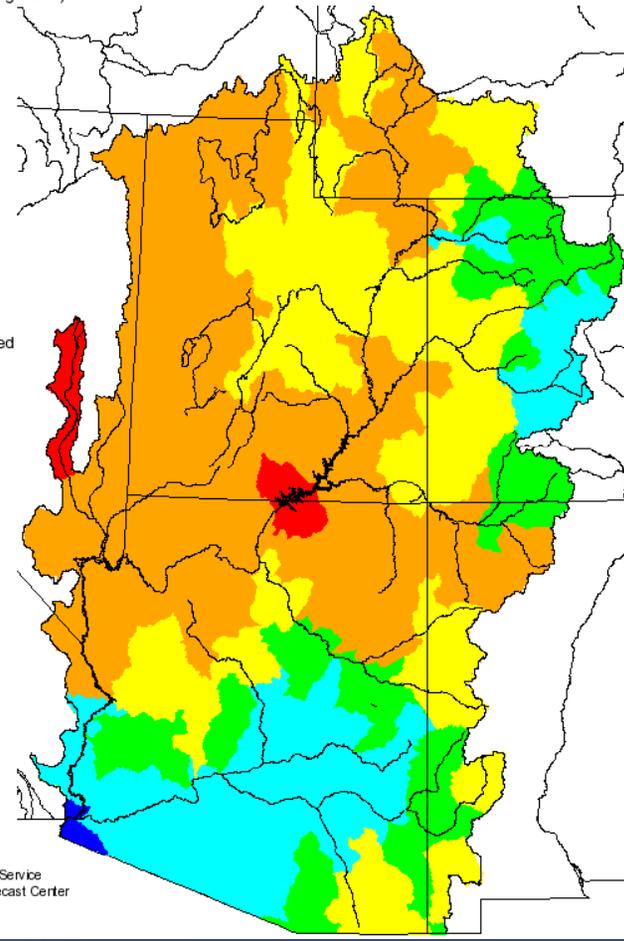
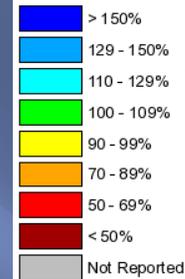
Prepared by  
NOAA, National Weather Service  
Colorado Basin River Forecast Center  
Salt Lake City, Utah  
[www.cbfc.noaa.gov](http://www.cbfc.noaa.gov)

## Water Year - 2008

### Seasonal Precipitation, October 2007 - September 2008

(Averaged by Hydrologic Unit)

#### % Average



Prepared by  
NOAA, National Weather Service  
Colorado Basin River Forecast Center  
Salt Lake City, Utah  
[www.cbfc.noaa.gov](http://www.cbfc.noaa.gov)

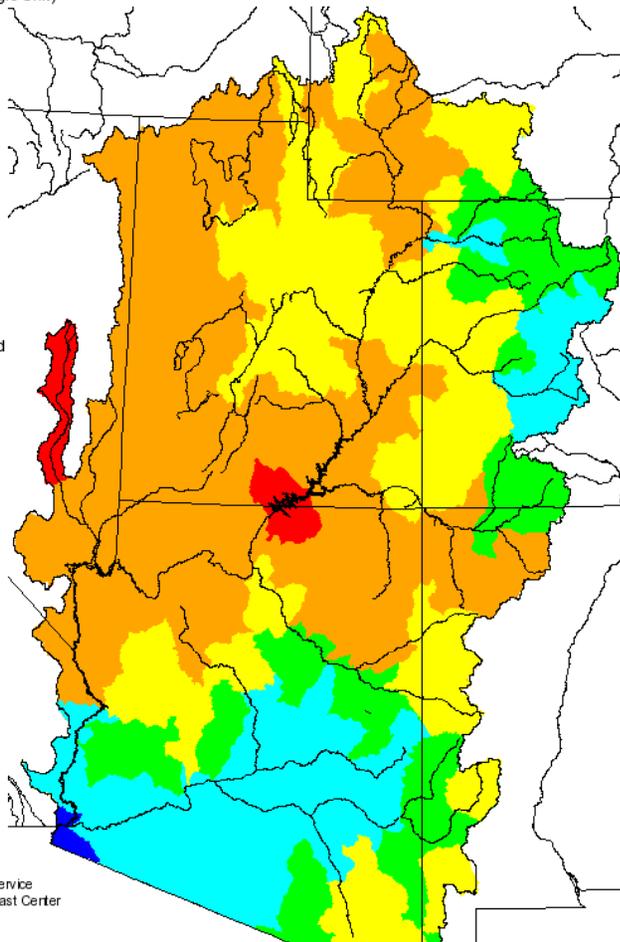
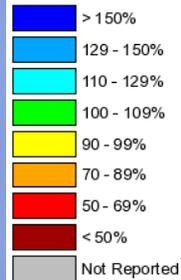
# Precipitation Comparison Colorado River Basin

## Water Year - 2008

### Seasonal Precipitation, October 2007 - September 2008

(Averaged by Hydrologic Unit)

#### % Average



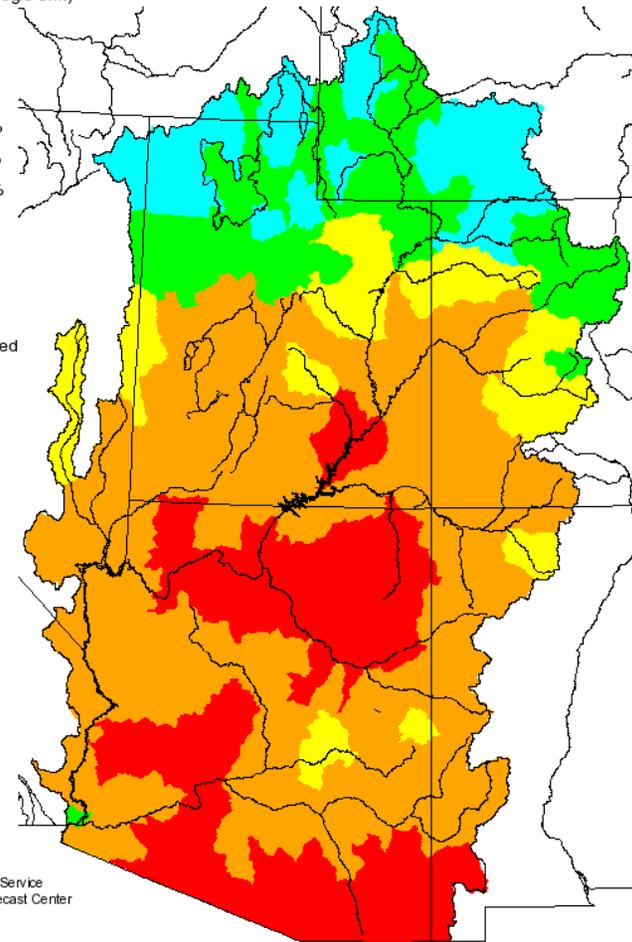
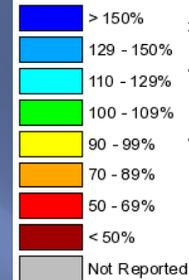
Prepared by  
NOAA, National Weather Service  
Colorado Basin River Forecast Center  
Salt Lake City, Utah  
[www.cbffc.noaa.gov](http://www.cbffc.noaa.gov)

## Water Year - 2009

### Seasonal Precipitation, October 2008 - September 2009

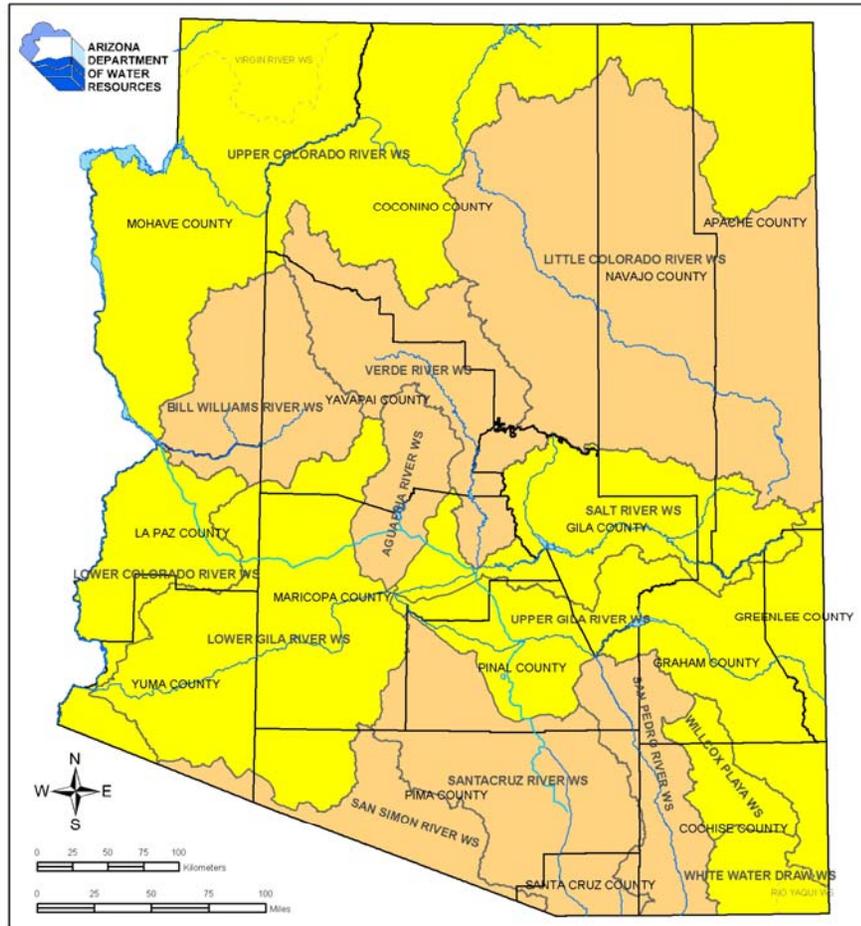
(Averaged by Hydrologic Unit)

#### % Average



Prepared by  
NOAA, National Weather Service  
Colorado Basin River Forecast Center  
Salt Lake City, Utah  
[www.cbffc.noaa.gov](http://www.cbffc.noaa.gov)

# Long Term Drought Status Comparison

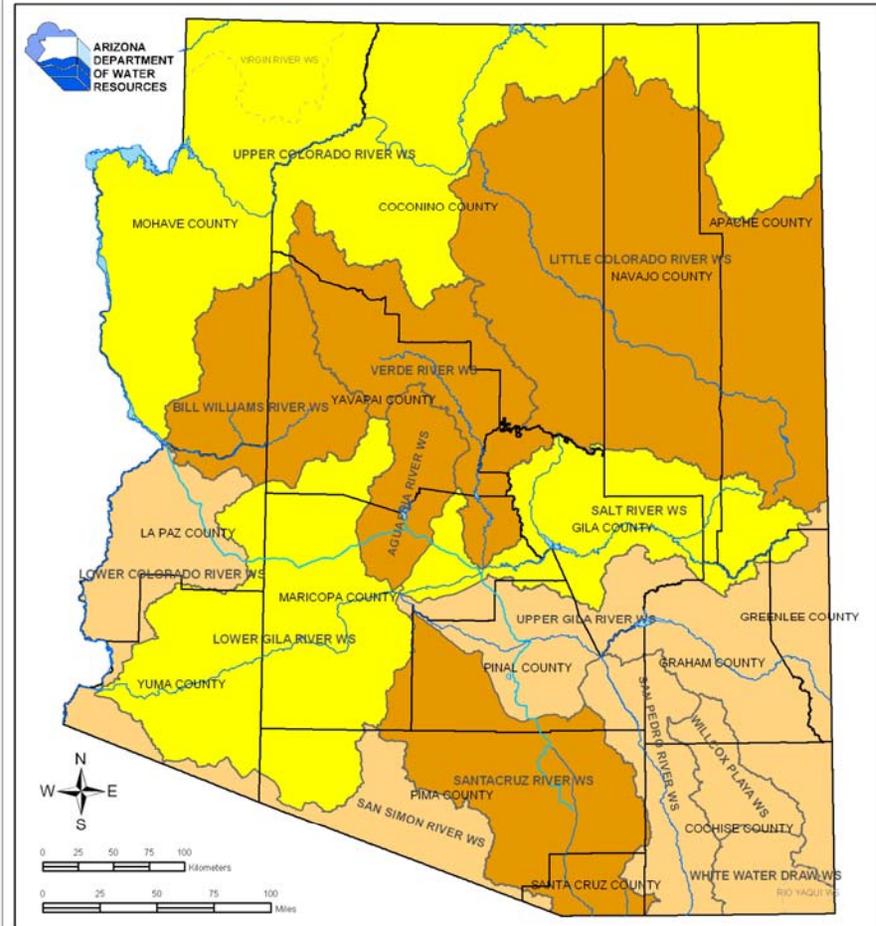


- |                                |                   |
|--------------------------------|-------------------|
| <b>Watershed Drought Level</b> | Counties          |
| Normal                         | Lakes             |
| Abnormally Dry                 | Rivers            |
| Drought - Moderate             | CAP Aqueduct      |
| Drought - Severe               | Merged Watershed* |
| Drought - Extreme              |                   |

**October 2008 Long Term Drought Status**  
Data Through September 30th, 2008

Arizona Drought Preparedness Plan  
Monitoring Technical Committee

\* Watershed merged due to limited data.



- |                                |                   |
|--------------------------------|-------------------|
| <b>Watershed Drought Level</b> | Counties          |
| Normal                         | Lakes             |
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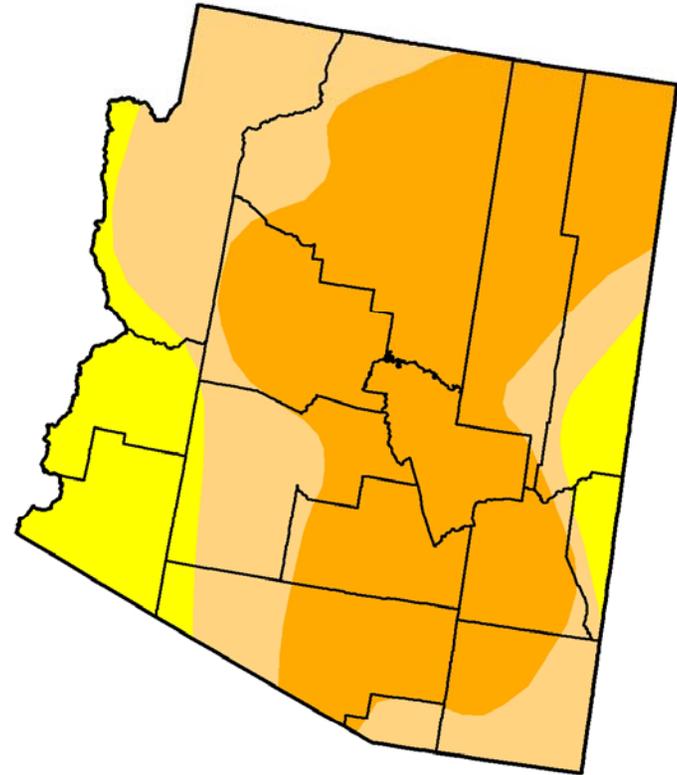
**October 2009 Long Term Drought Status**  
Data Through September 30th, 2009

Arizona Drought Preparedness Plan  
Monitoring Technical Committee

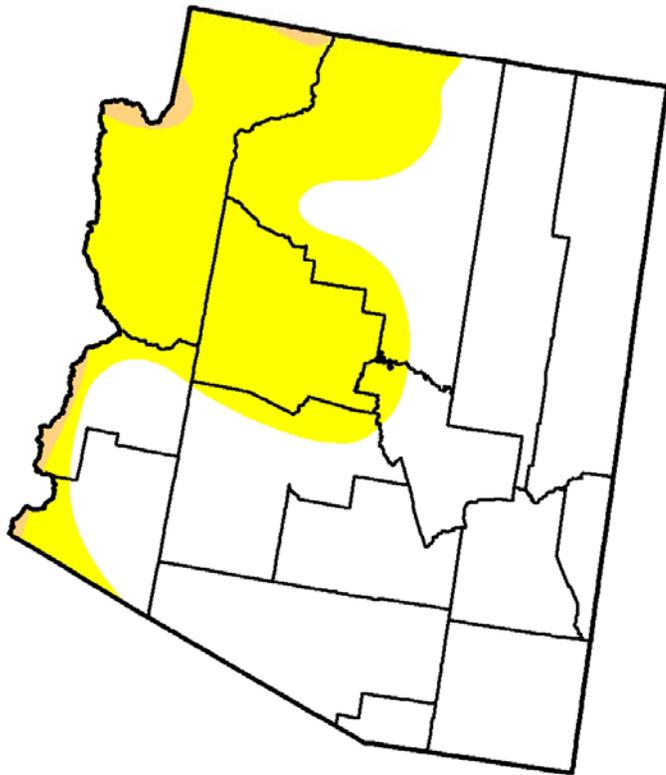
\* Watershed merged due to limited data.

# National Drought Monitor Comparison

October 20, 2009 Drought Status



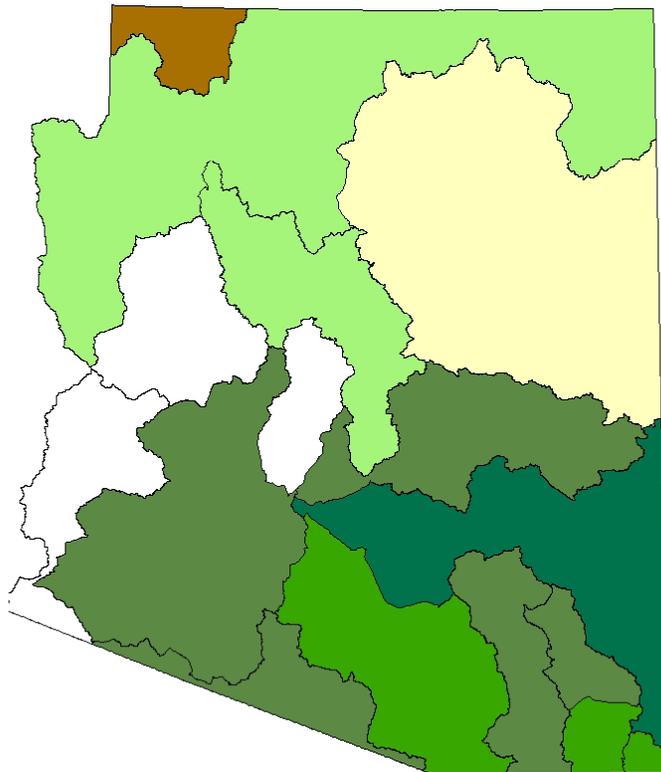
October 21, 2008 Drought Status



# Monsoon Precipitation Comparison

July-September 2008

## 3-Month

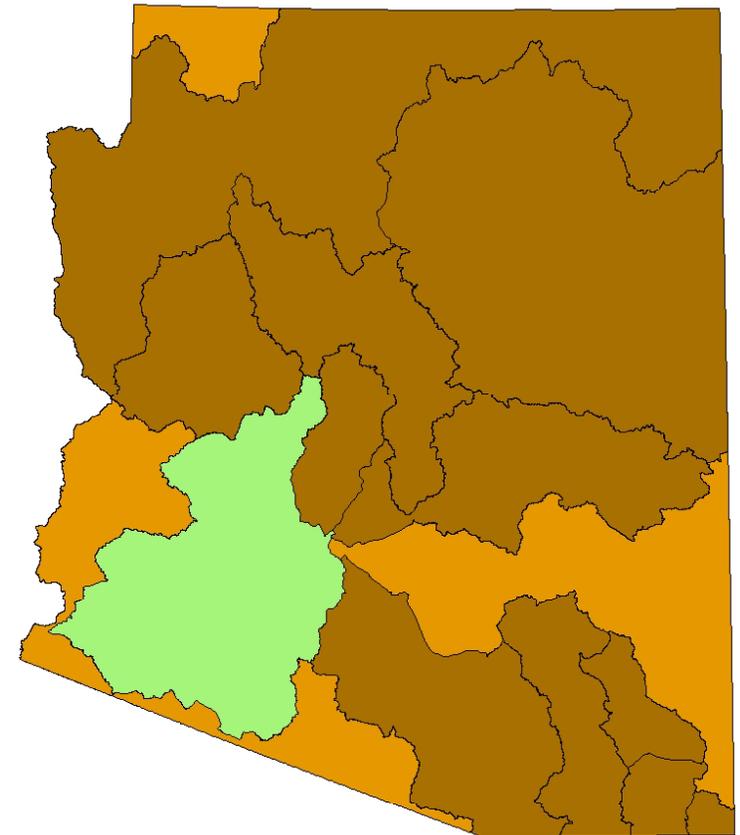


### Precipitation Percentiles



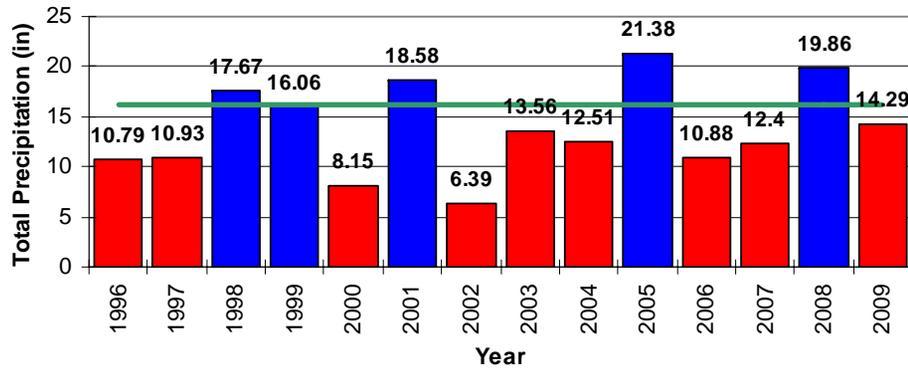
July-September 2009

## 3-Month

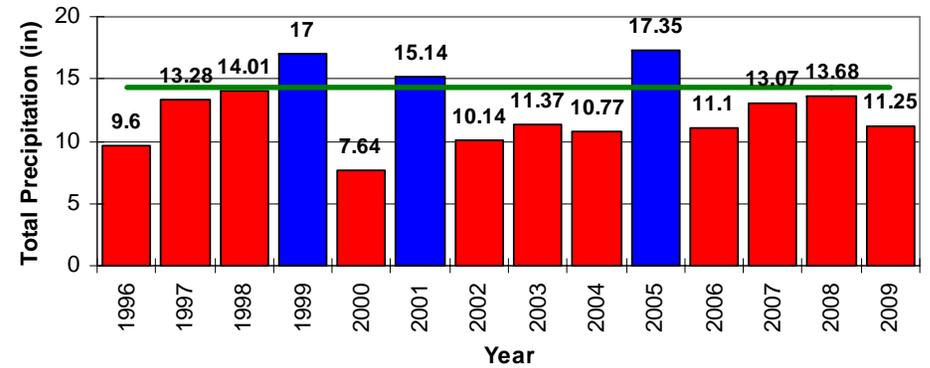


# Precipitation in Selected Watersheds for Past 14 Years

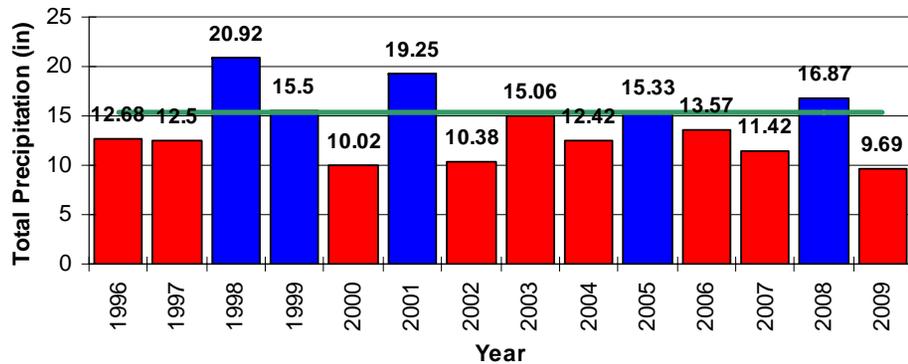
**Salt Watershed Water Year Precipitation  
(Oct-Sep) Median 16.23"**



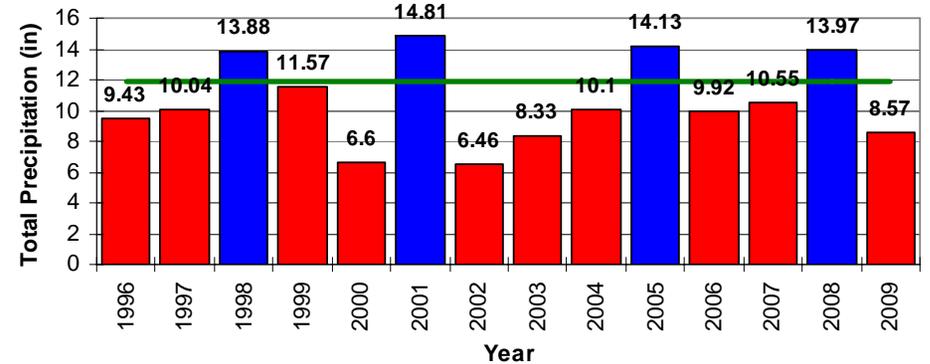
**Little Colorado Watershed Water Year Precipitation  
(Oct-Sep) Median 14.38"**



**Santa Cruz Watershed Water Year Precipitation  
(Oct-Sep) Median 15.33"**



**Upper Gila Watershed Water Year Precipitation  
(Oct-Sep) Median 11.88"**



**Thank you !**

**Questions ?**

# WINTER 2009-2010 OUTLOOK

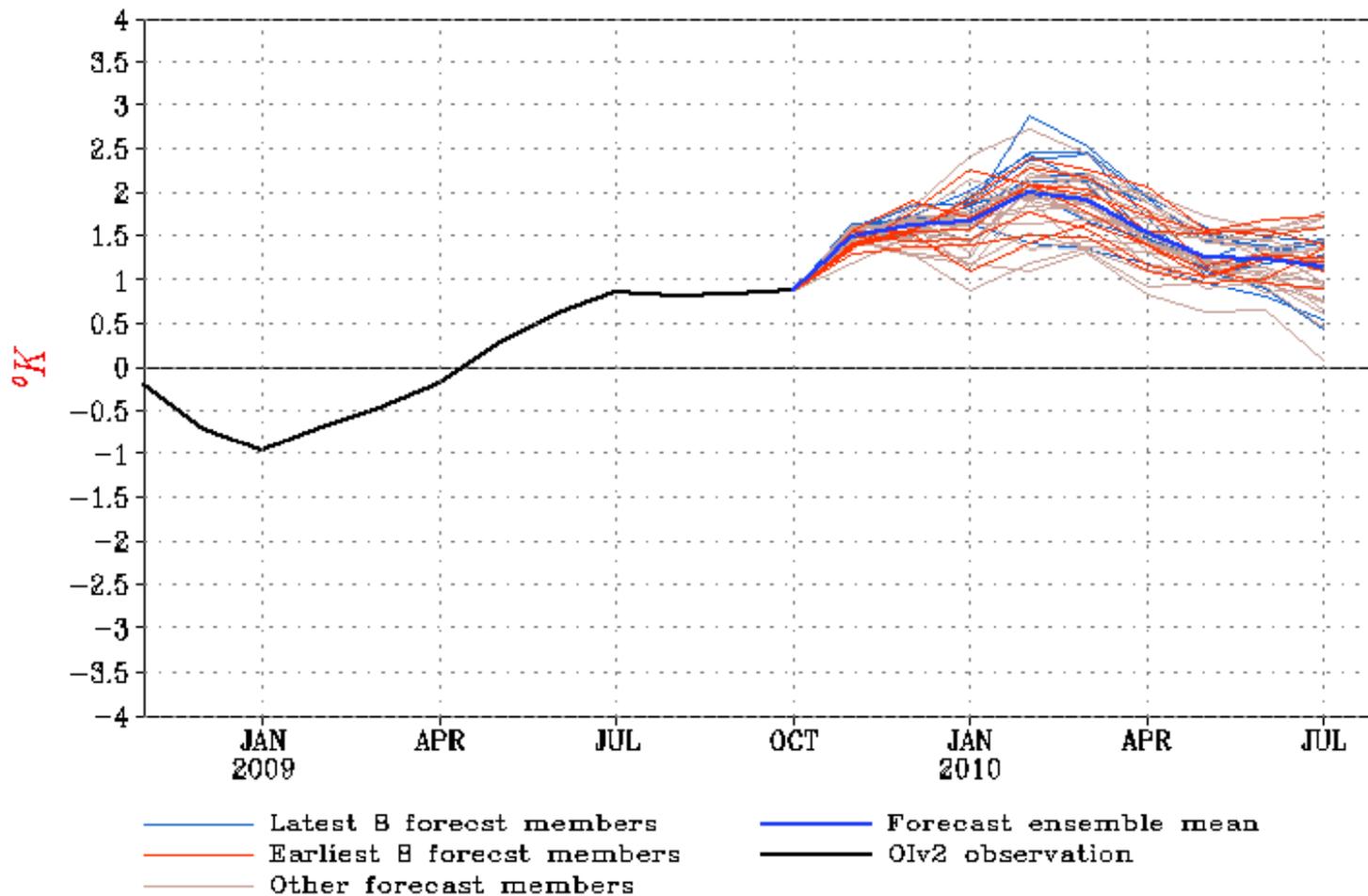
Gary Woodall  
NOAA/National Weather Service  
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[www.weather.gov/phoenix](http://www.weather.gov/phoenix)

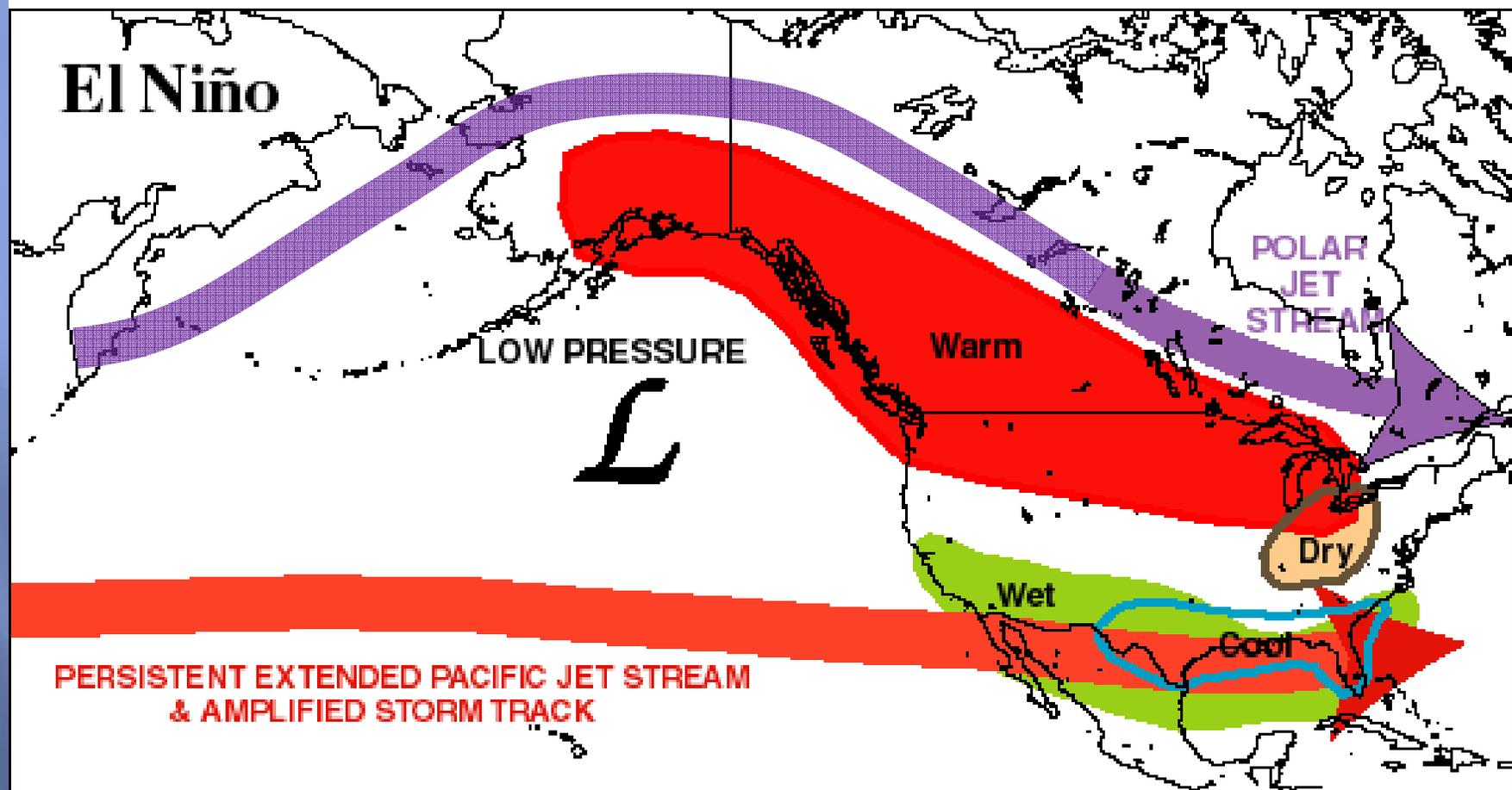


# CFS Guidance

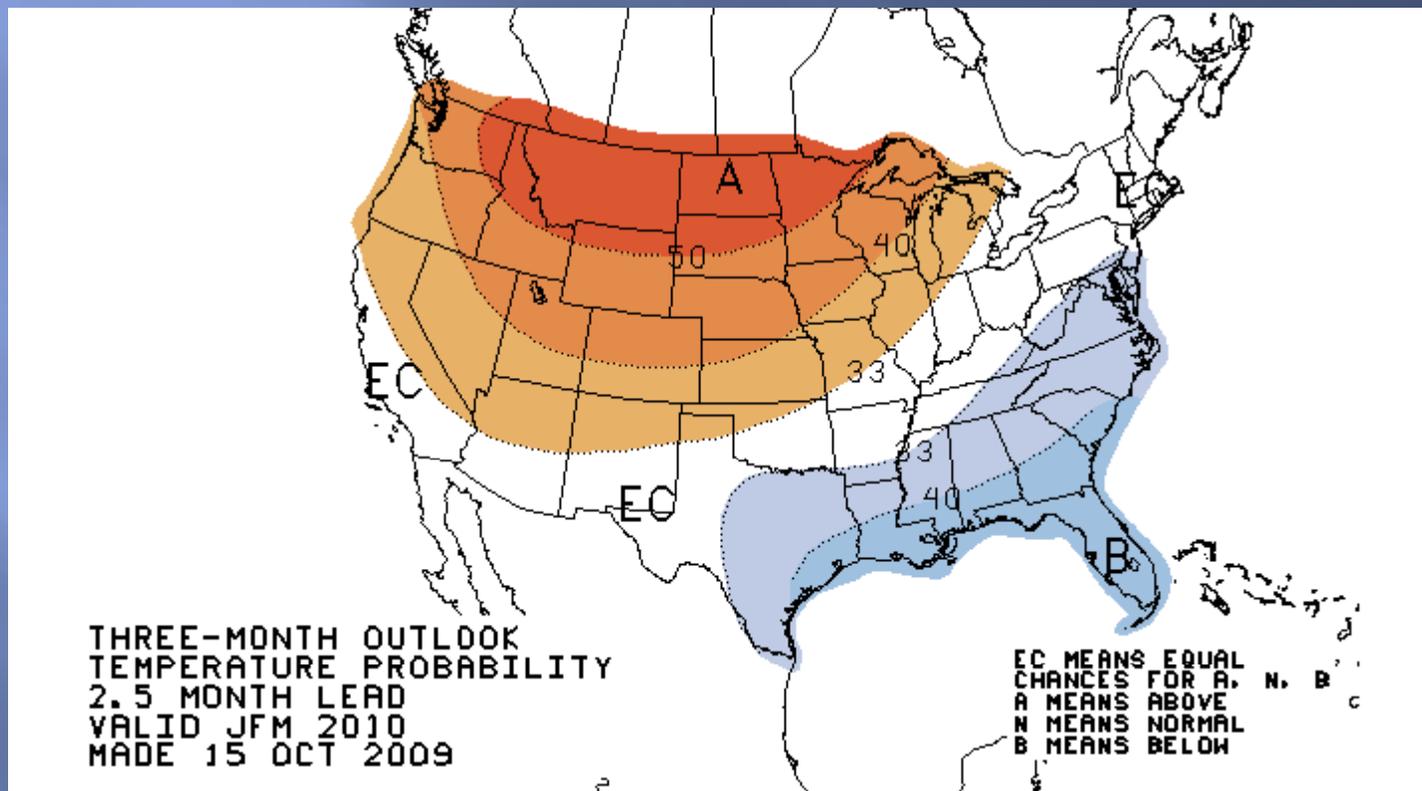
Forecast *Nino3.4* SST anomalies from CFS



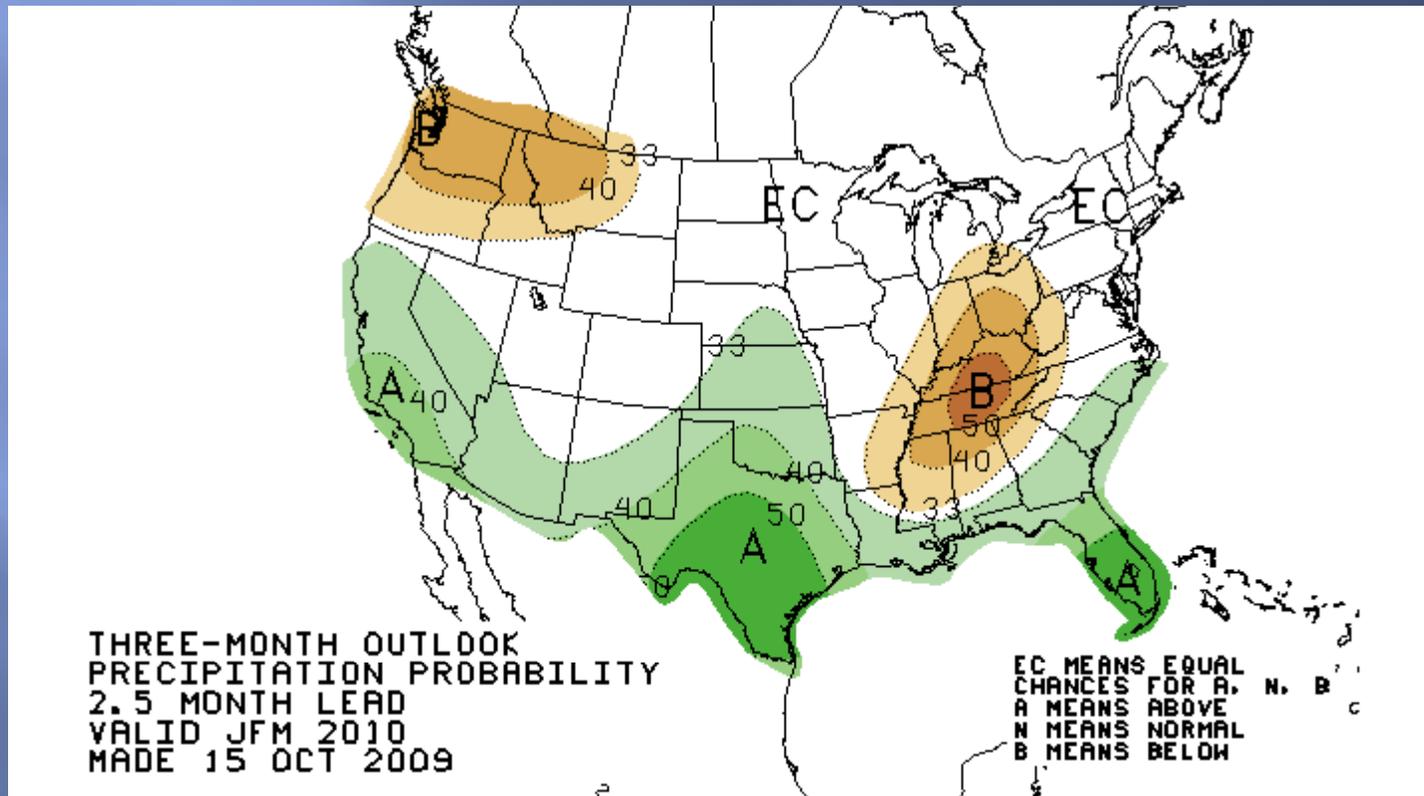
# El Niño Winter Impacts



# Temp Outlook - JFM 2010



# Precip Outlook - JFM 2010



# Summary

- ▣ El Nino should result in an increased chance for above-normal precipitation.
- ▣ El Nino will NOT guarantee a wet winter!
- ▣ Effects most likely in early 2010.
- ▣ Smaller-scale features, individual storm tracks will modulate overall El Nino signal.

# Questions? Contact Us

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