

Drought Monitoring Technical Committee Update

to the
Arizona Interagency Coordinating Group

October 25, 2007

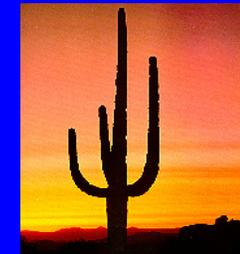
Tony Haffer
National Weather Service
Phoenix



Arizona Drought Monitoring Technical Committee



ARIZONA DIVISION OF
EMERGENCY MANAGEMENT



OFFICE OF THE ARIZONA
STATE CLIMATOLOGIST



Assessing Drought Conditions

Two Step Process

- Calculated Drought Status
- Integrate additional Data to Corroborate Drought Status and add Geographic Accuracy

Examples:

- Volunteers' Rain and Snowpack Reports
- Range and Pasture Status Reports
- Status of Springs, Seeps, Ponds
- Satellite Vegetation Health
- Wildlife Population Statistics

Local Drought Impact Groups

LDIGs are contributing with:

- Current Conditions
- Credible Information on Local Impacts
 - Impacts provided to decision-makers
- Precipitation Totals through Volunteer Rain Gage network
 - Spatial variability
- Other Hydroclimatic Conditions, e.g. Wind
- Verification

Drought Determination

Specific Values of the *Indicators*,
coupled with Qualitative Information to
Determine Drought Status Levels

Level	Description	Percentile
0	No Drought	40.1-100.0%
1	Abnormally Dry	25.1-40.0%
2	Moderate Drought	15.1-25.0%
3	Severe Drought	5.1-15.0%
4	Extreme Drought	0.0-5.0%

MTC Highlights

- Monthly Meetings to Analyze Data + Provide Status
 - ***Drought Reporter*** Section to Improve Visibility of LDIG Information
- Expanded and Improved Distribution of Monthly Updates via:
 - ADWR Web site
 - AFWS Web site
 - Local Distribution by LDIGS
- Numerous Interactions with LDIGs (*Cochise, Santa Cruz, Pinal, Pima, Graham/Greenlee, Yavapai, Navajo and Apache Counties*)
 - Field Visits to interact locally and improve LDIG Organizations
 - LDIG participation in Monthly Meetings
- Arizona Drought Impacts Reporting System

Drought-wise...

WHERE are we *NOW*?

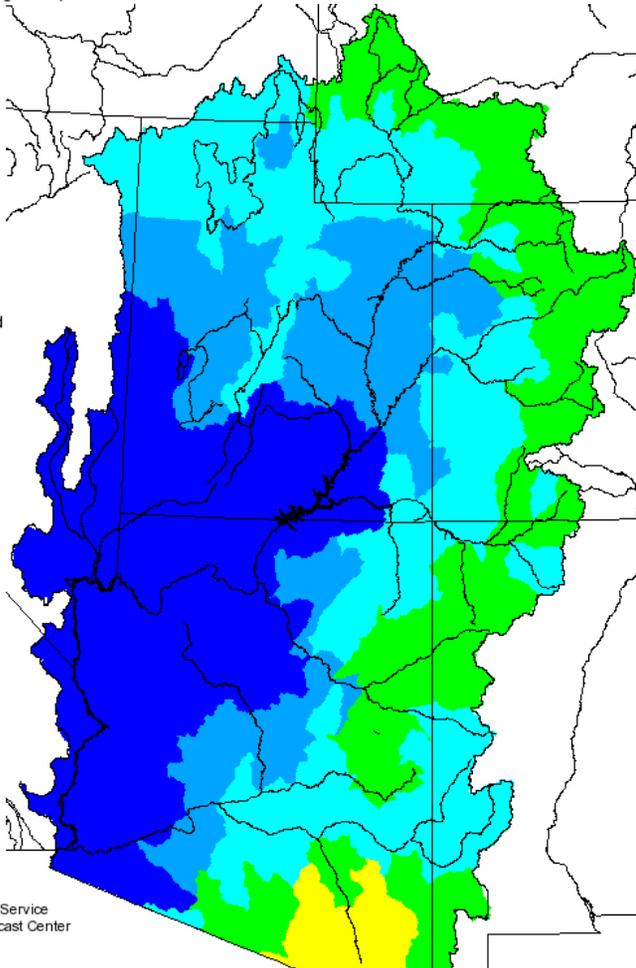
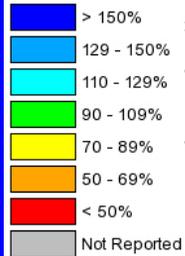
Precipitation Comparison

Water Year- 2005

Seasonal Precipitation, October 2004 - September 2005

(Averaged by Hydrologic Unit)

% Average



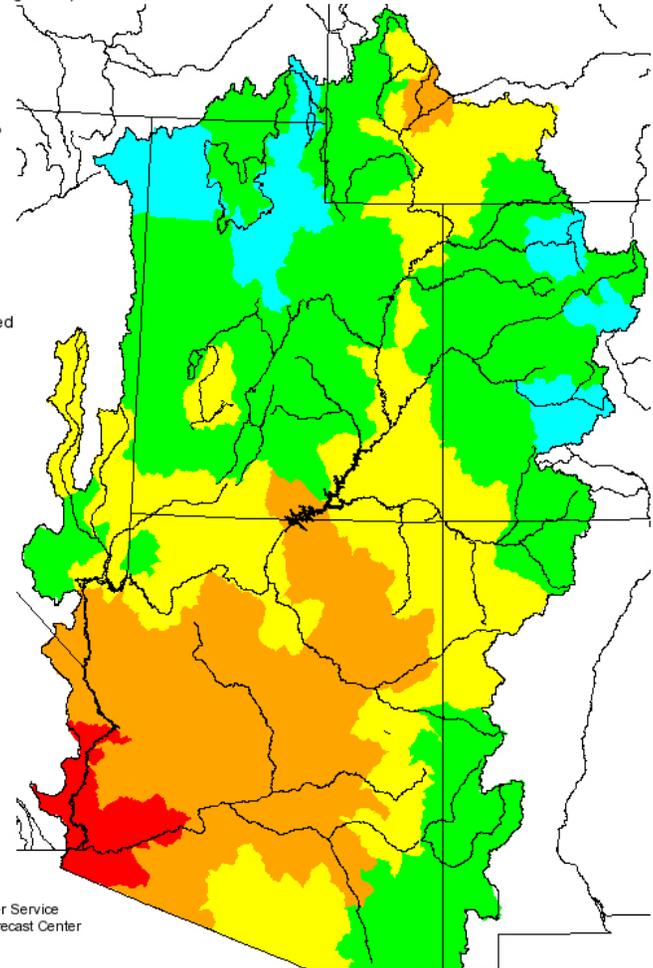
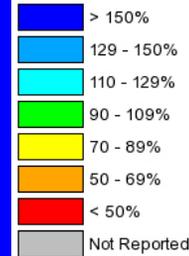
Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

Water Year 2006

Seasonal Precipitation, October 2005 - September 2006

(Averaged by Hydrologic Unit)

% Average



Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

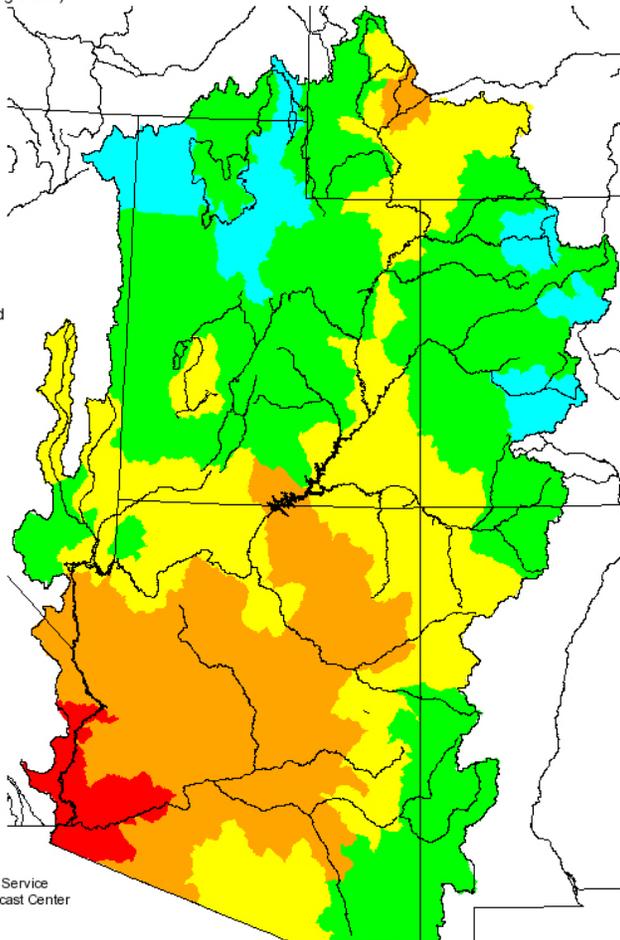
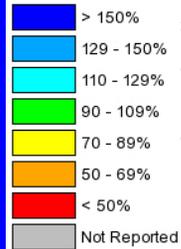
Precipitation Comparison

Water Year - 2006

Seasonal Precipitation, October 2005 - September 2006

(Averaged by Hydrologic Unit)

% Average



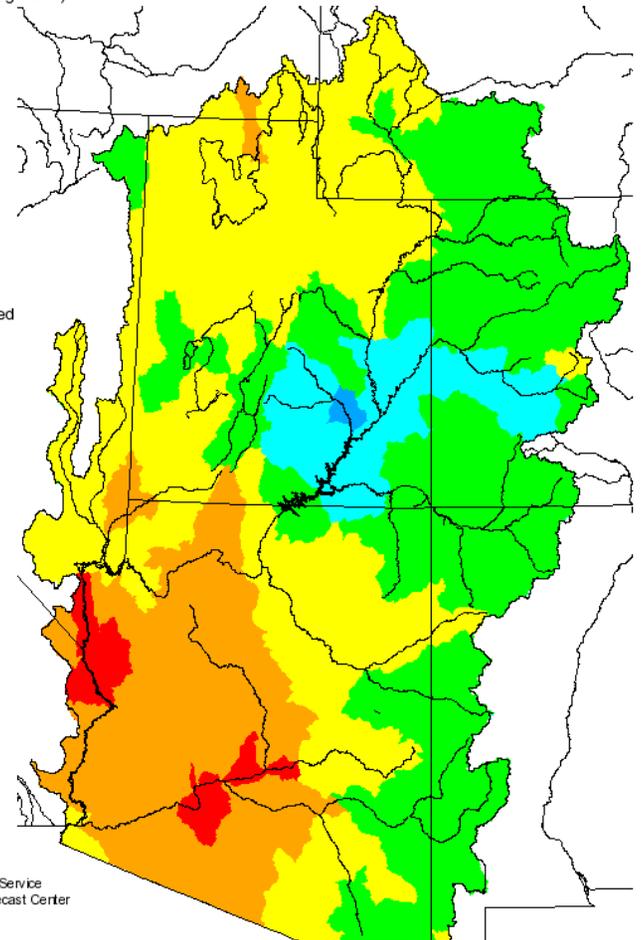
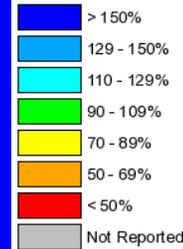
Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

Water Year - 2007

Seasonal Precipitation, October 2006 - September 2007

(Averaged by Hydrologic Unit)

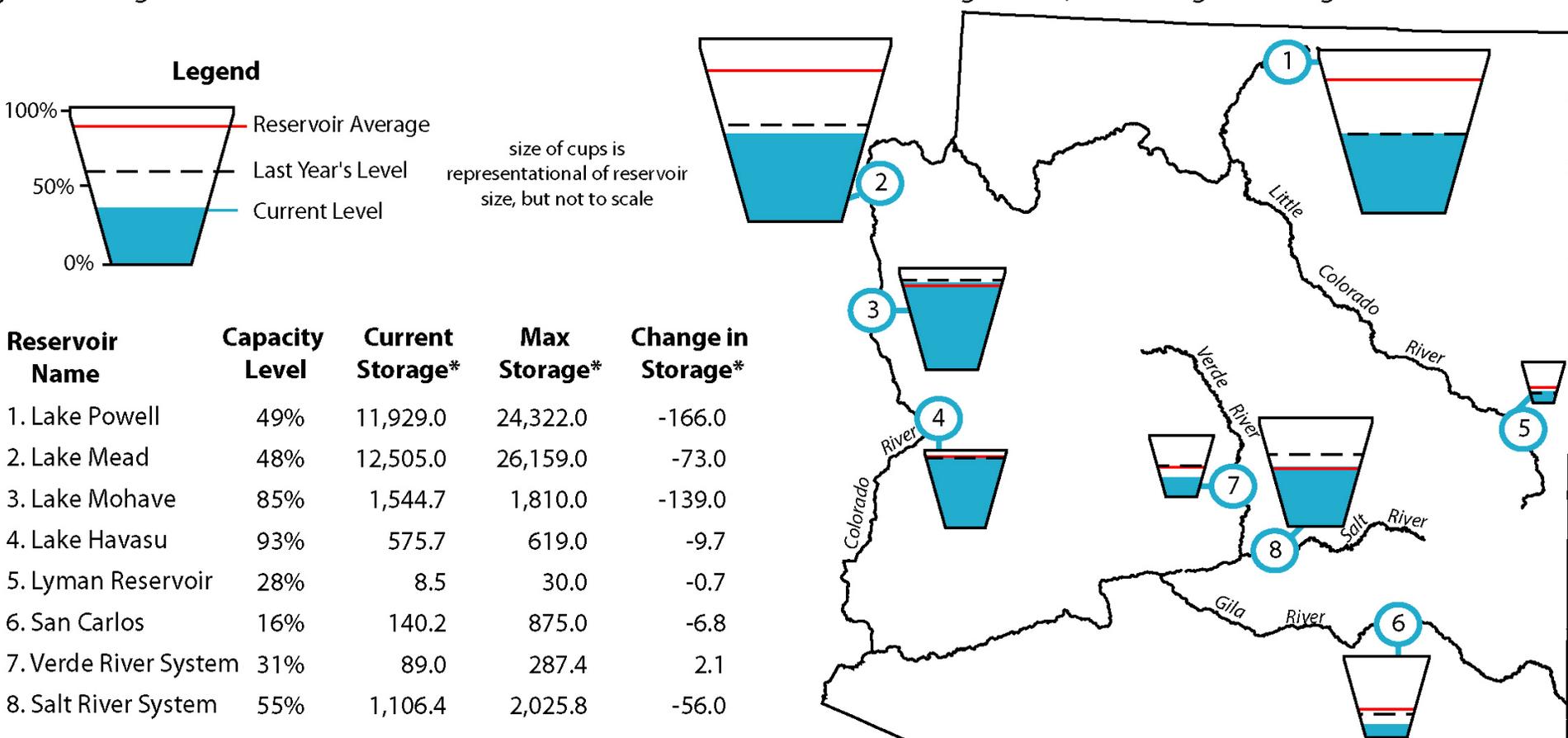
% Average



Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

Reservoir Status

Figure 6. Arizona reservoir levels for September 2007 as a percent of capacity. The map also depicts the average level and last year's storage for each reservoir. The table also lists current and maximum storage levels, and change in storage since last month.



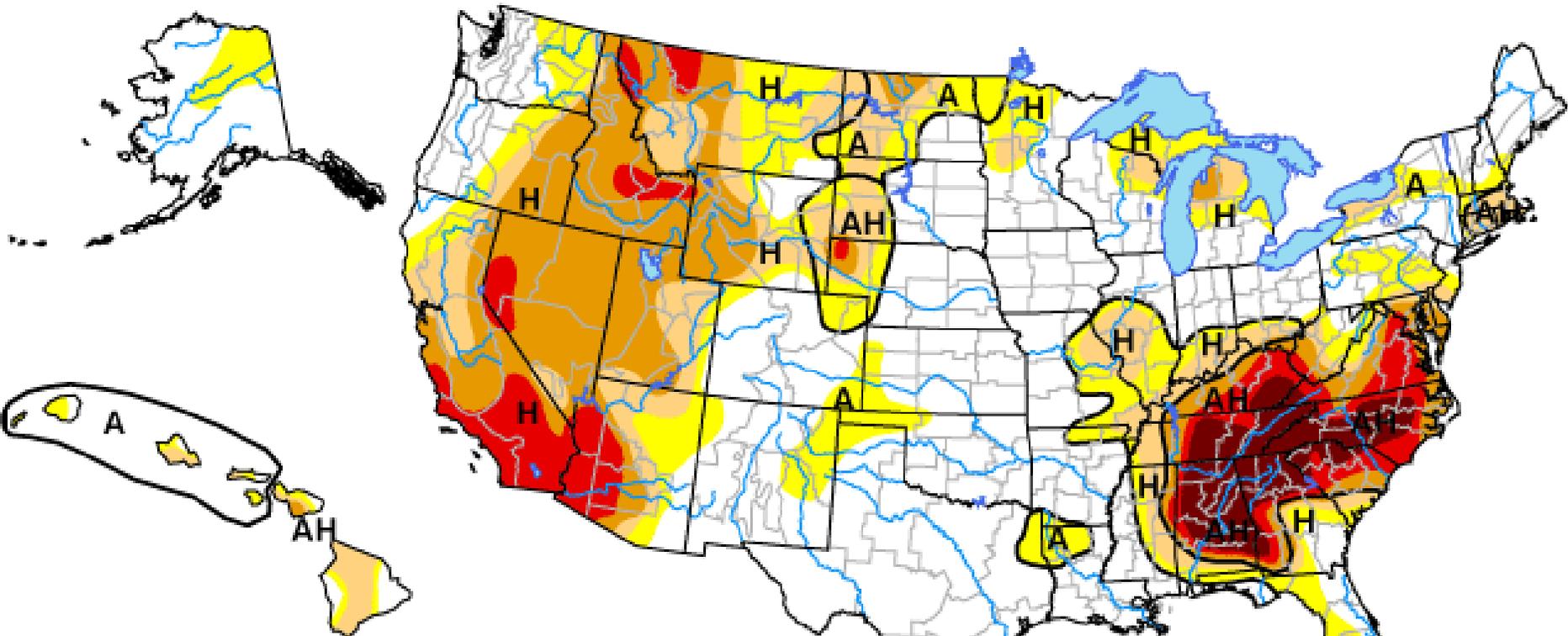
* thousands of acre-feet

The *National* Drought
Perspective...

U.S. Drought Monitor

October 23, 2007

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)

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



Released Thursday, October 25, 2007

Author: Mark Svoboda, National Drought Mitigation Center

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

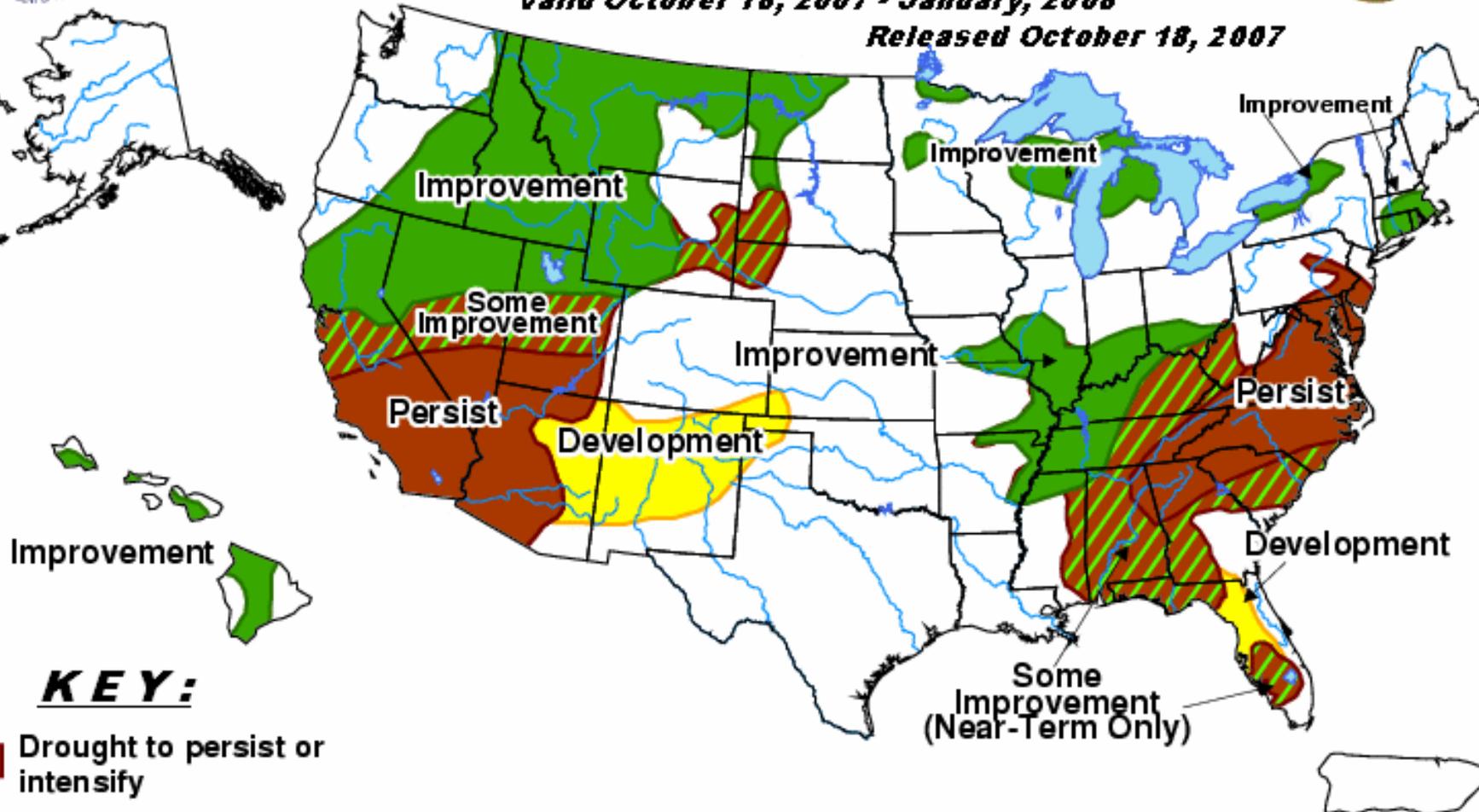


U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid October 18, 2007 - January, 2008

Released October 18, 2007



KEY:

-  Drought to persist or intensify
-  Drought ongoing, some improvement
-  Drought likely to improve, impacts ease
-  Drought development likely

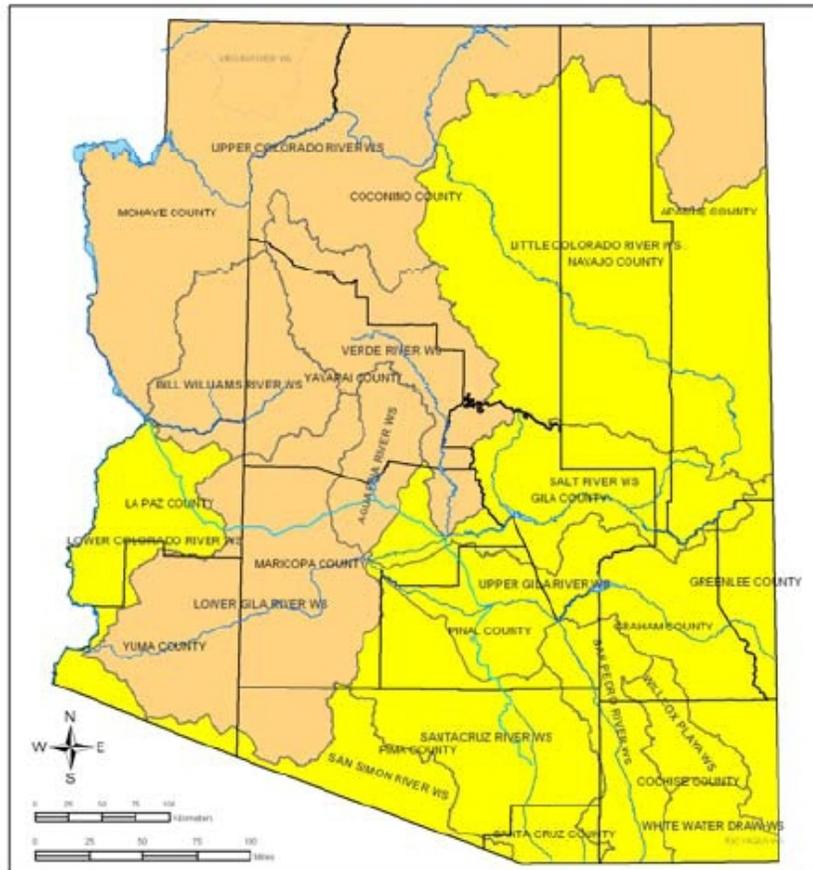
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

ZOOMING in on Arizona...

Short Term Status Comparison

September 2006

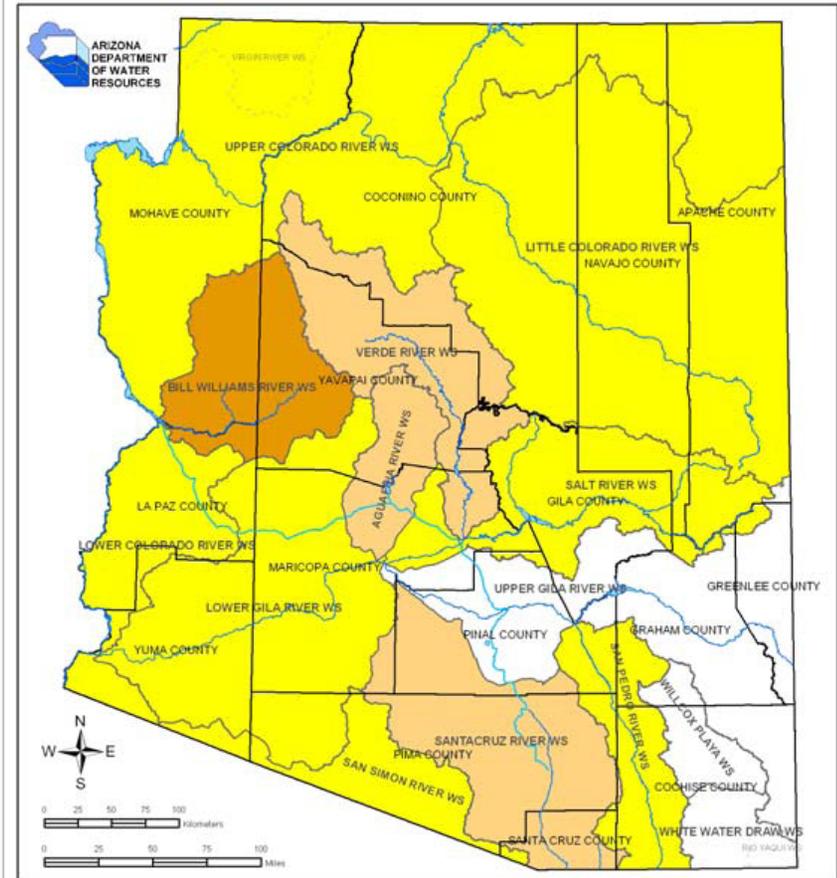
September 2007



September 2006 Short Term Drought Status
Data Through August 31st, 2006

Arizona Drought Preparedness Plan
Monitoring Technical Committee

* Watershed merged due to limited data.



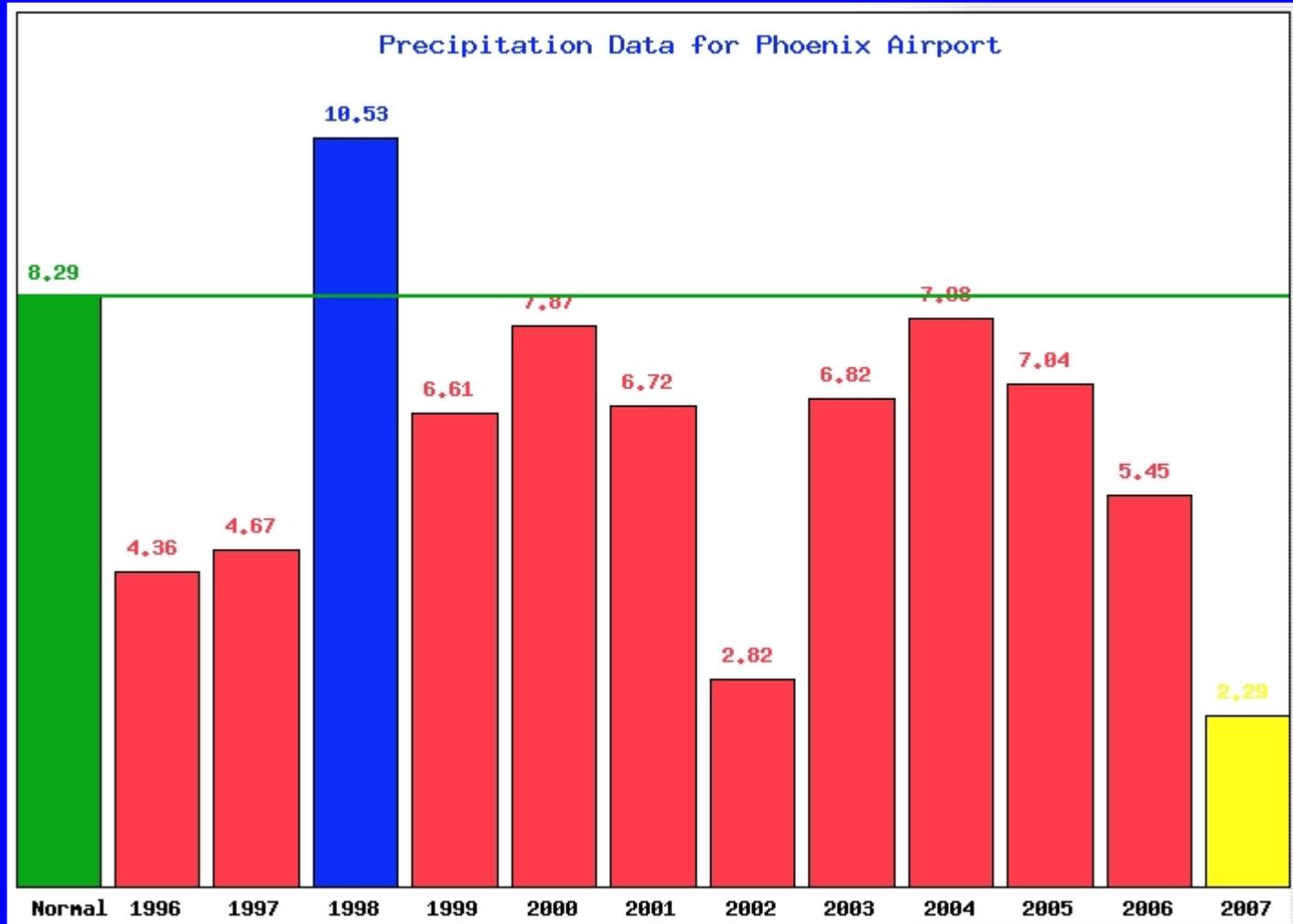
September 2007 Short Term Drought Status

Data Through August 31st, 2007

Arizona Drought Preparedness Plan
Monitoring Technical Committee

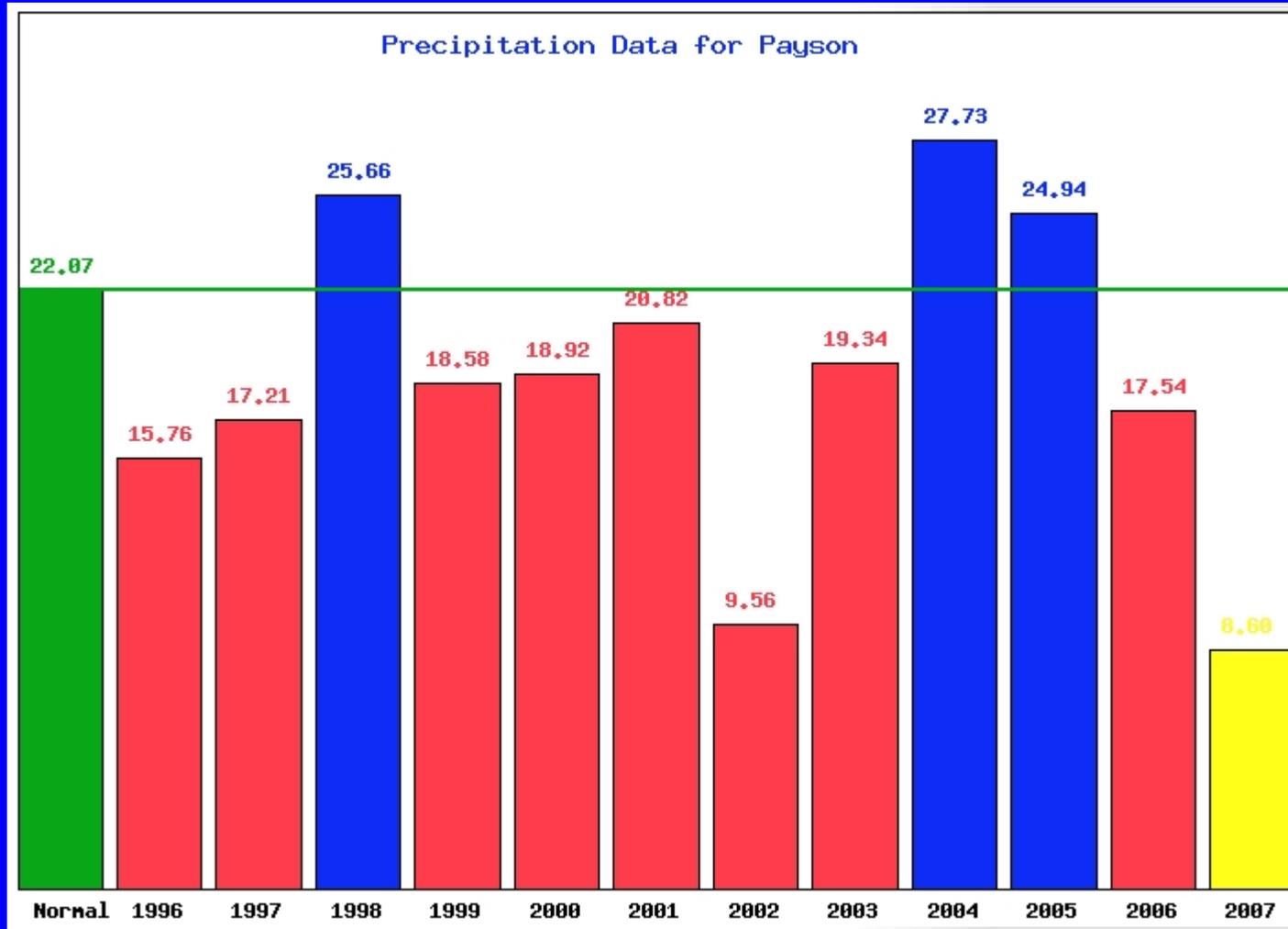
* Watershed merged due to limited data.

Phoenix Precipitation



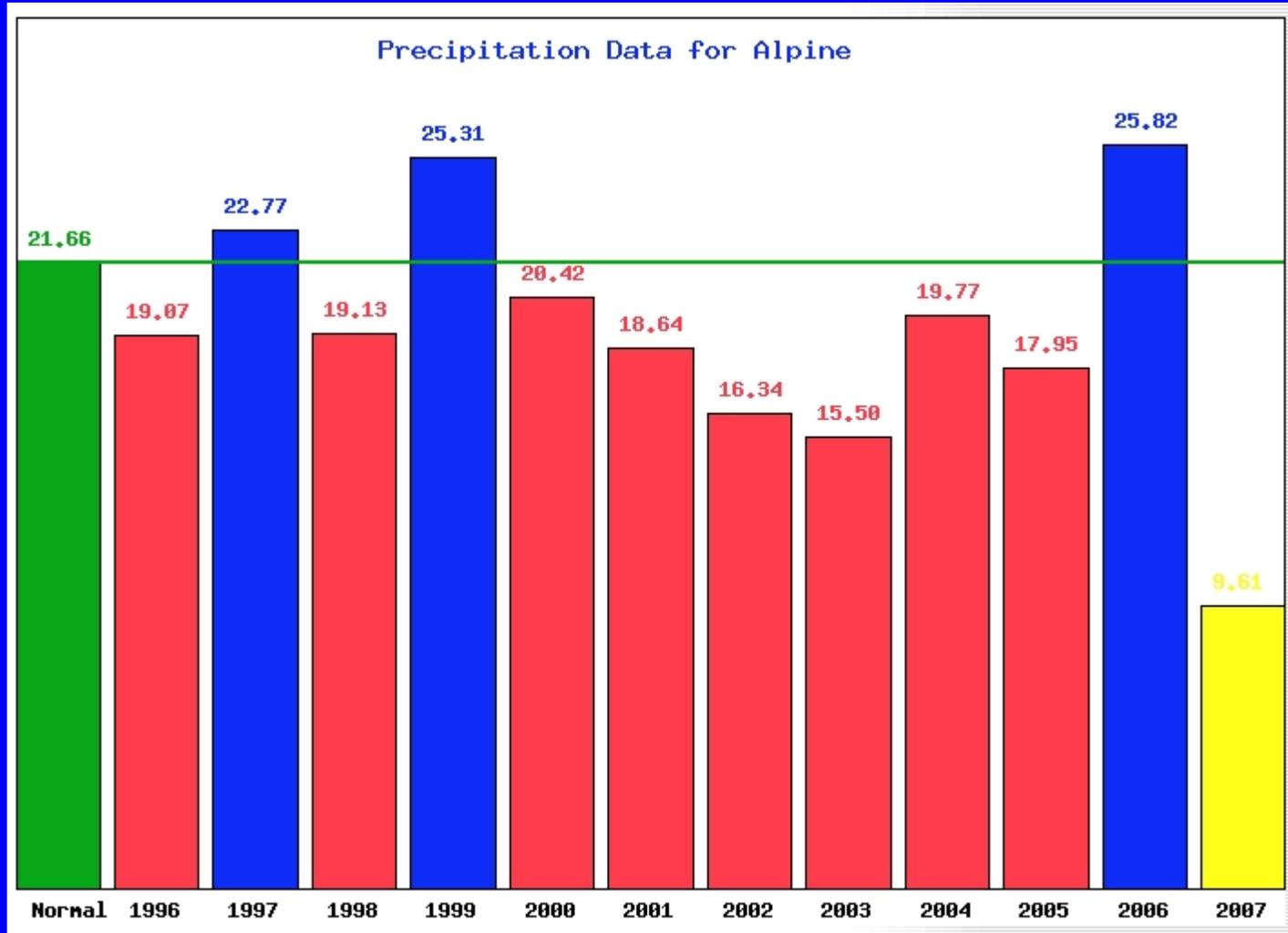
1996 -- 2007

Payson Precipitation



1996 -- 2007

Alpine Precipitation

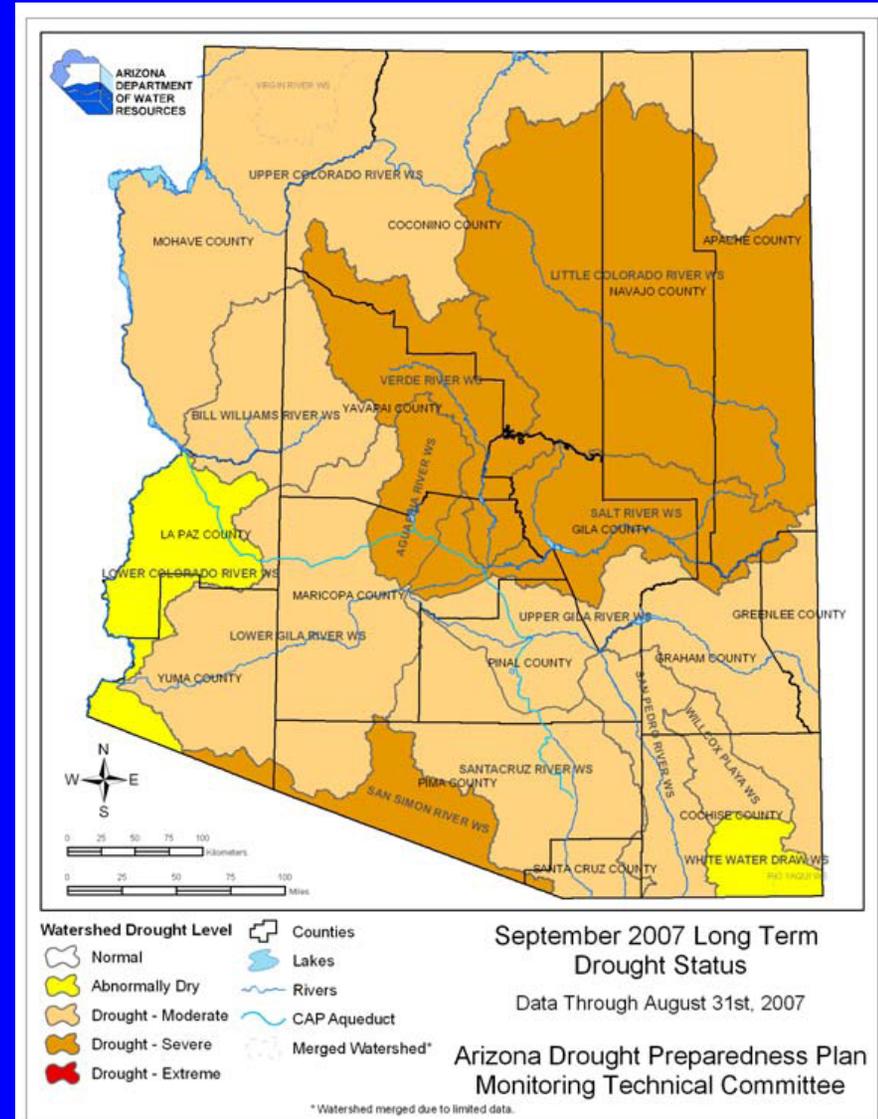
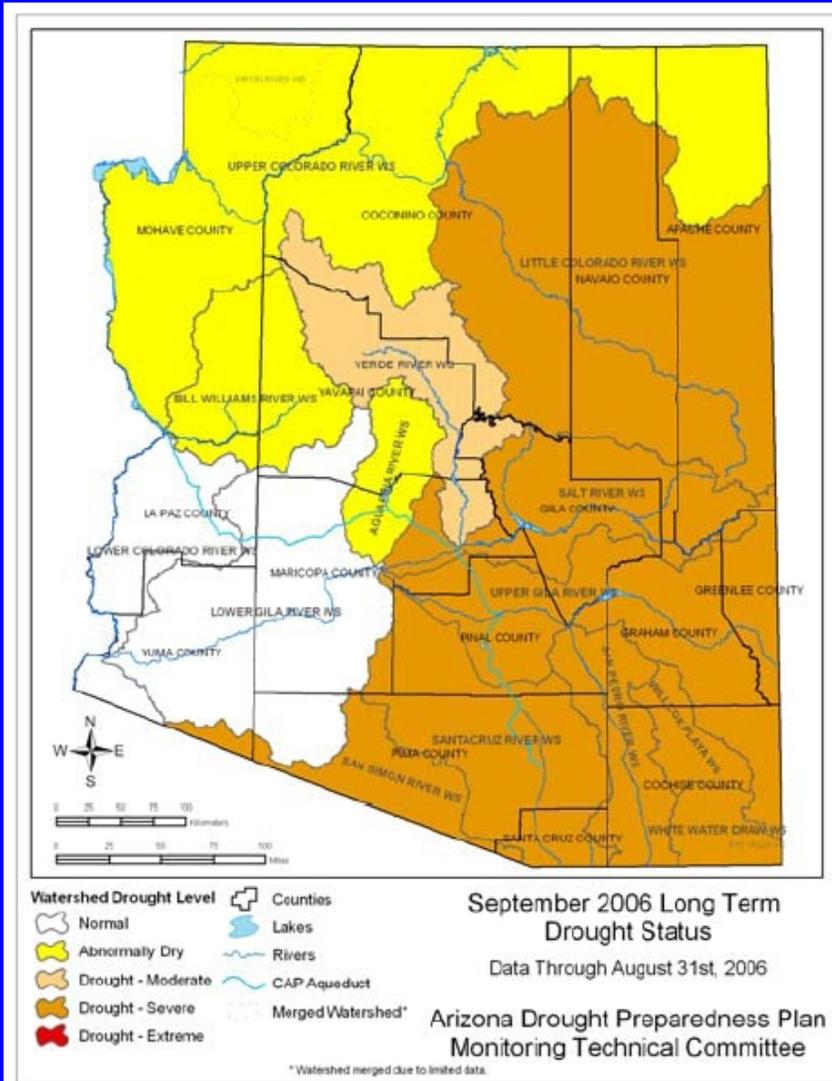


1996 -- 2007

Long Term Status Maps

September 2006

September 2007



Climate Change...

But What's Going On with Our

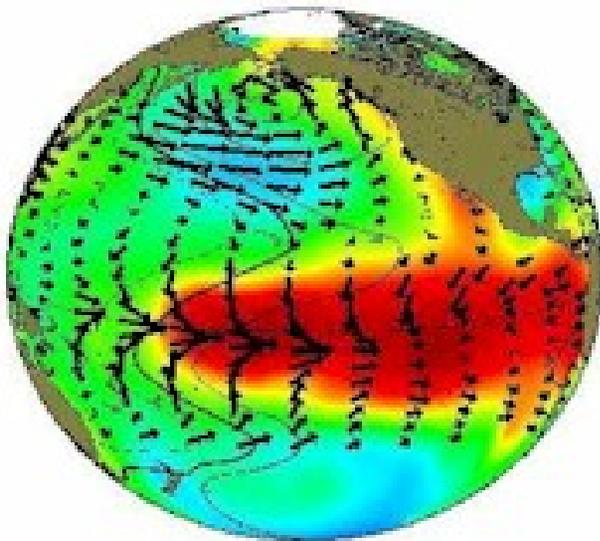
WEATHER ??

The Oceans have *Global* Impacts

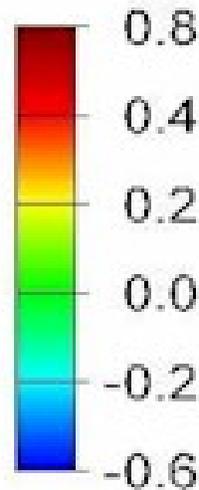
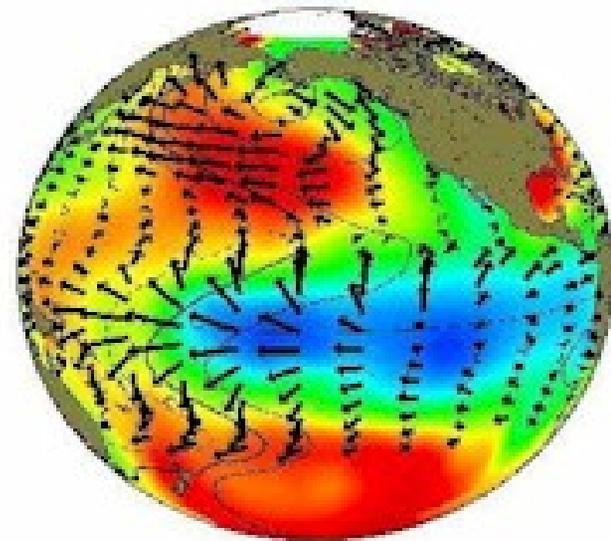
- Sea Surface Temperatures
- *El Nino* / *La Nina* Southern Oscillation

El Nino Southern Oscillation

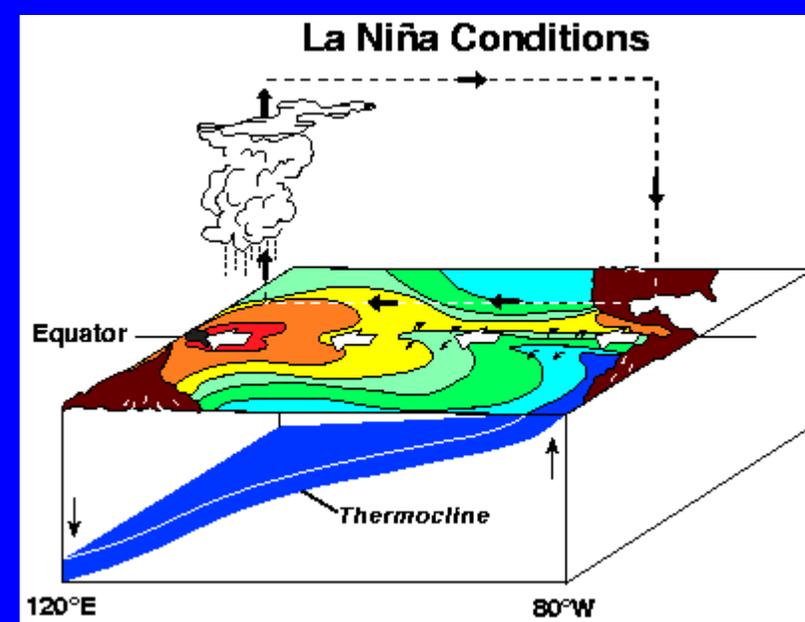
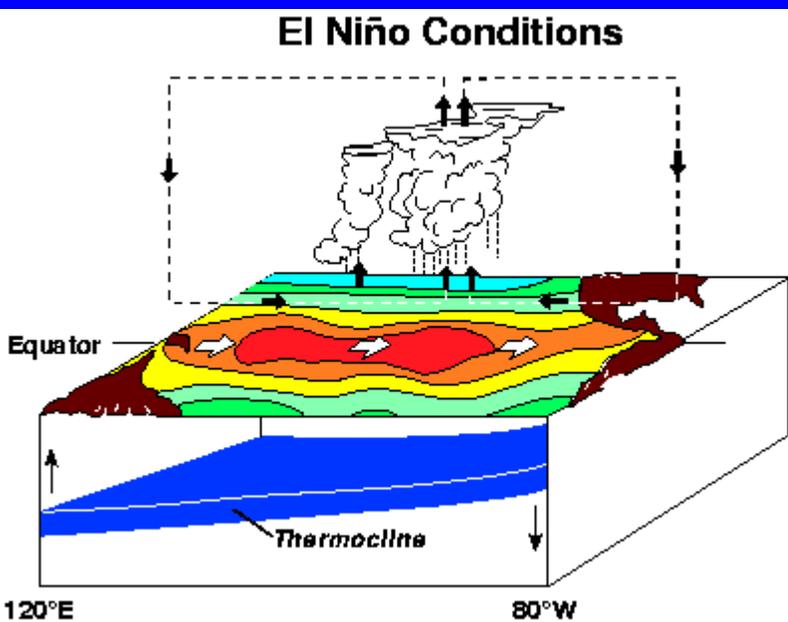
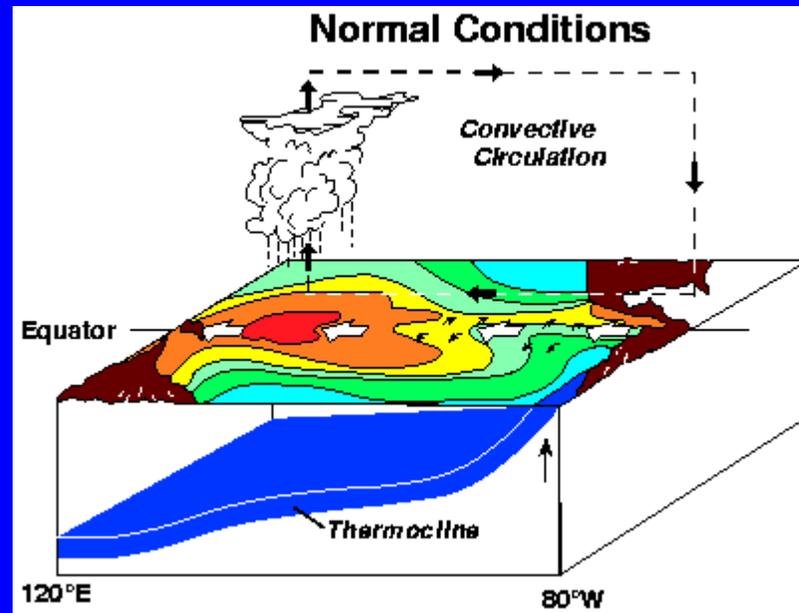
El Nino



La Nina

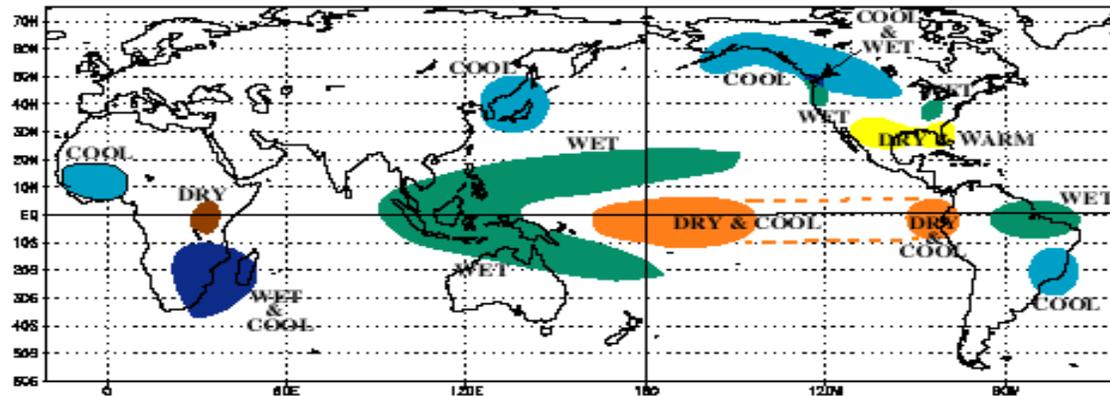


The Pacific Ocean's *Influence*

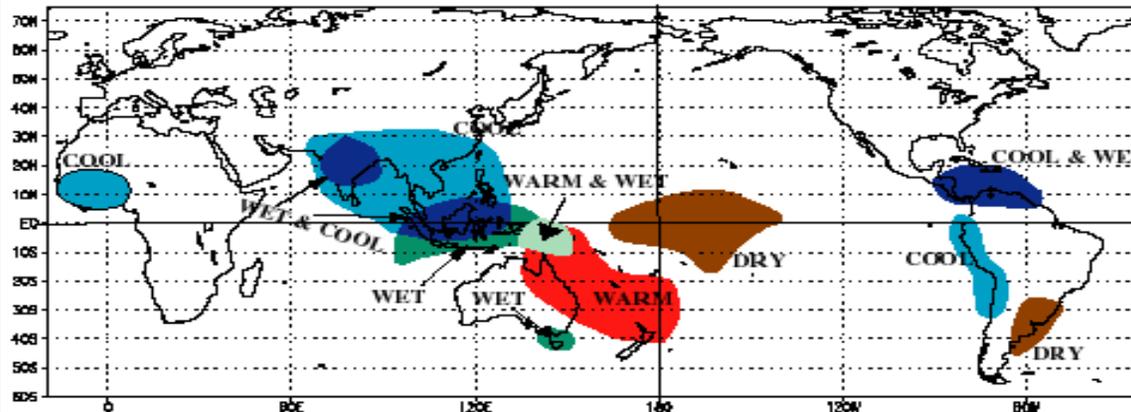


La Nina Impacts

COLD EPISODE RELATIONSHIPS DECEMBER - FEBRUARY



COLD EPISODE RELATIONSHIPS JUNE - AUGUST



Climate Prediction Center
NCEP

Long Range Forecasts

“The future ain’t what it used to be.”

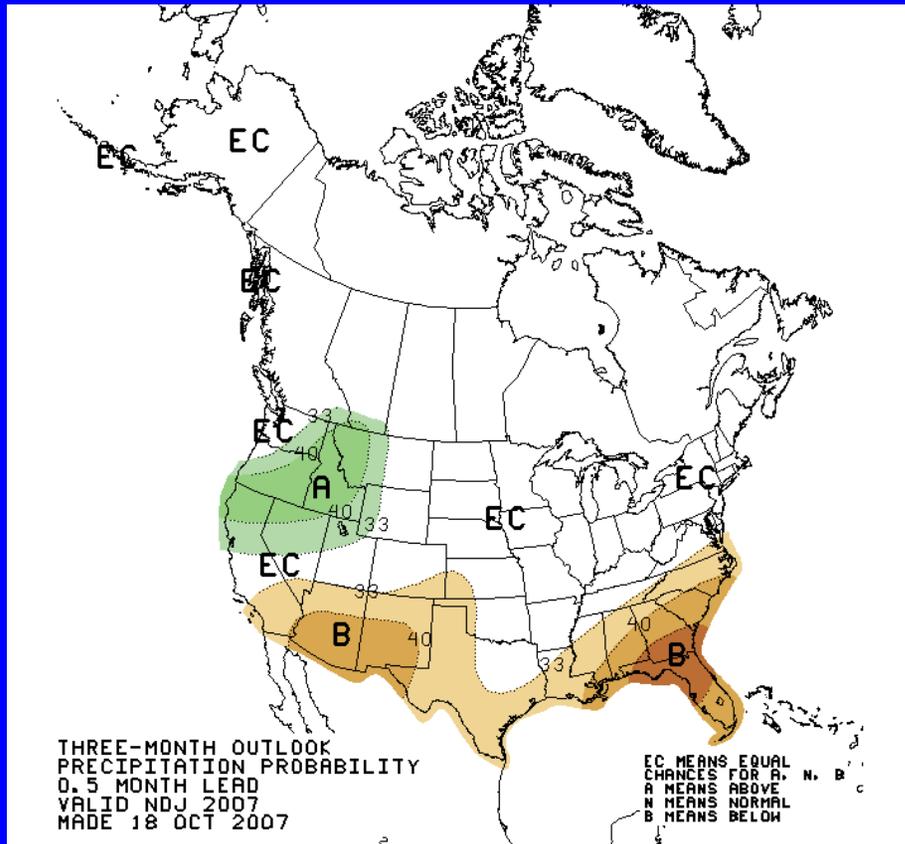
Yogi Berra



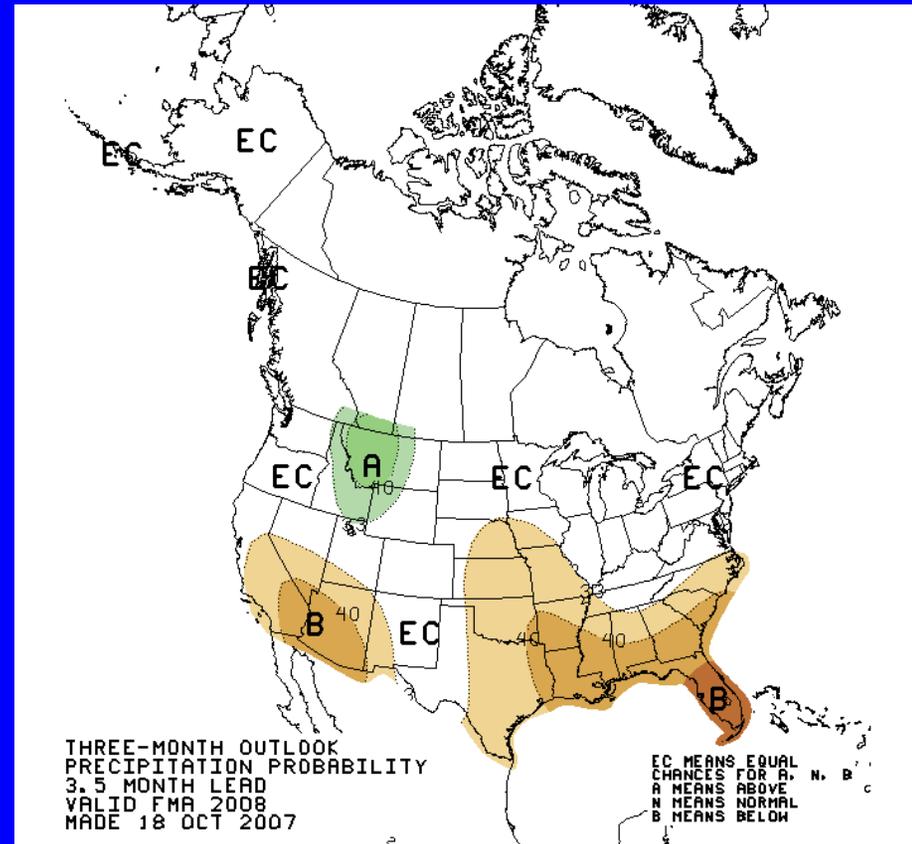
Precipitation Outlooks

(For the next Six Months)

November through January 2008



February through April 2008



How can *WE* Monitor the Drought *BETTER*?

Areas for Improvement

- More Information and Fewer Data Gaps
- More Robust Data Information, Display and Distribution Capabilities

Drought Monitoring Technical Committee Projects

- **LDIG Expansion** to include *Coconino, Maricopa, La Paz Mohave, Yuma and Gila* Counties
- Continue Integration and **Expansion of Drought Information** in the AFWS/AHIS
- Develop A **Dynamic Drought** Index Web **Tool**
- Improve and **Expand Drought Impacts Reporting**

A Closing

Thought...

Could the Drought BE ...

“Weather of Mass Destruction”

(Headline)

New Scientist

London, UK



Thank You !!