Drought Monitoring Technical Committee Update

to the

Arizona Interagency Coordinating Group

November 4, 2008

Tony Haffer
National Weather Service
Phoenix

GDTF • Governor's Drought Task Force
ARIZONA DEPARTMENT OF WATER RESOURCES
SECURING ARIZONA'S WATER FUTURE

Arizona Drought Monitoring Technical Committee

NRCS Natural Resources Conservation Service

ARIZONA DEPARTMENT OF WATER RESOURCES
SECURING ARIZONA'S WATER FUTURE

CLIMAS

NOAA — National Oceanic and Atmospheric Administration — U.S. Department of Commerce

National Weather Service

SRP
Delivering More Than Power

ARIZONA DIVISION OF EMERGENCY MANAGEMENT

THE UNIVERSITY OF ARIZONA
ARIZONA COOPERATIVE EXTENSION
COLLEGE OF AGRICULTURE AND LIFE SCIENCES
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USGS science for a changing world
Water Resources of ARIZONA

OFFICE OF THE ARIZONA STATE CLIMATOLOGIST

Local Drought Impact Groups

LDIGs *are* contributing:

- In ***Person*** and via Dial-In
- Current Conditions Including Vegetation
- Information on Local Impacts
- Precipitation Variability and Totals
- Verification of Drought Status

GDTF • Governor's Drought Task Force
ARIZONA DEPARTMENT OF WATER RESOURCES
SECURING ARIZONA'S WATER FUTURE

MTC Highlights

- Monthly Meetings to Analyze Data + Provide Status
  - **LDIG** Participation via Tele-conference
  - Lengthened Long Term Update to Quarterly
  - ***Drought Monitor*** Author Participation via Dial-in
- Continued Expansion and Distribution of Monthly Updates via:
  - Press Release
  - ADWR + AFWS Web sites
  - Local Distribution by LDIGS
- Numerous Interactions with Established LDIGs (*Cochise, Yavapai, Santa Cruz, Pinal, Pima, Graham/Greenlee, and Navajo* Counties)
  - Spinning up LDIGs in Apache and Mohave Counties
  - LDIGs ”Coming Soon” in Coconino, Maricopa, La Paz, Yuma and Gila Counties
- Arizona Drought Impacts Reporting System Nearing Completion

Drought Monitoring Technical Committee

Projects

- Spinning up LDIGs in Apache and Mohave Counties
- **LDIG Expansion** to include *Coconino, Maricopa, La Paz Mohave, Yuma and Gila* Counties
- Continue Integration and **Expanded Distribution of Drought Information** on the Web + Press Releases
- **Sensitivity Analysis** of Present Drought Model
- Develop A **Dynamic Drought** Index Web **Tool**
- Implemented the New and Improved Drought Impacts Reporting System: **AZ DroughtWatch**

Drought Impact Reports

AZ DroughtWatch
Arizona's Drought Impact Reporting System

AZ DroughtWatch beta release

Home | My DroughtWatch | User Guide | Register | About AZ DroughtWatch

Drought Impacts: October-2008

Summary Reports

County and watershed summary tables

Detailed impact reports (requires registration and login)

Impacts Reported

- in 0 of 6 categories
- in 1 of 6 categories
- in 2 of 6 categories
- in 3 of 6 categories
- in 4 of 6 categories
- in 5 of 6 categories
- in 6 of 6 categories

Categories

- Water
- Agriculture
- Livestock
- Society
- Tourism
- Ecology

Watershed Abbreviations	
AGFR	Agua Fria River-Lower Gila River
BILL	Bill Williams River

About AZ DroughtWatch

AZ DroughtWatch is a tool designed to collect qualitative reports of drought impacts across Arizona. This impact information is used in conjunction with meterological and hydrological data to characterize drought conditions.

Access recent drought status reports compiled by the Governor's Drought Task Force Monitoring Technical Commmittee

Find out more about AZ DroughtWatch

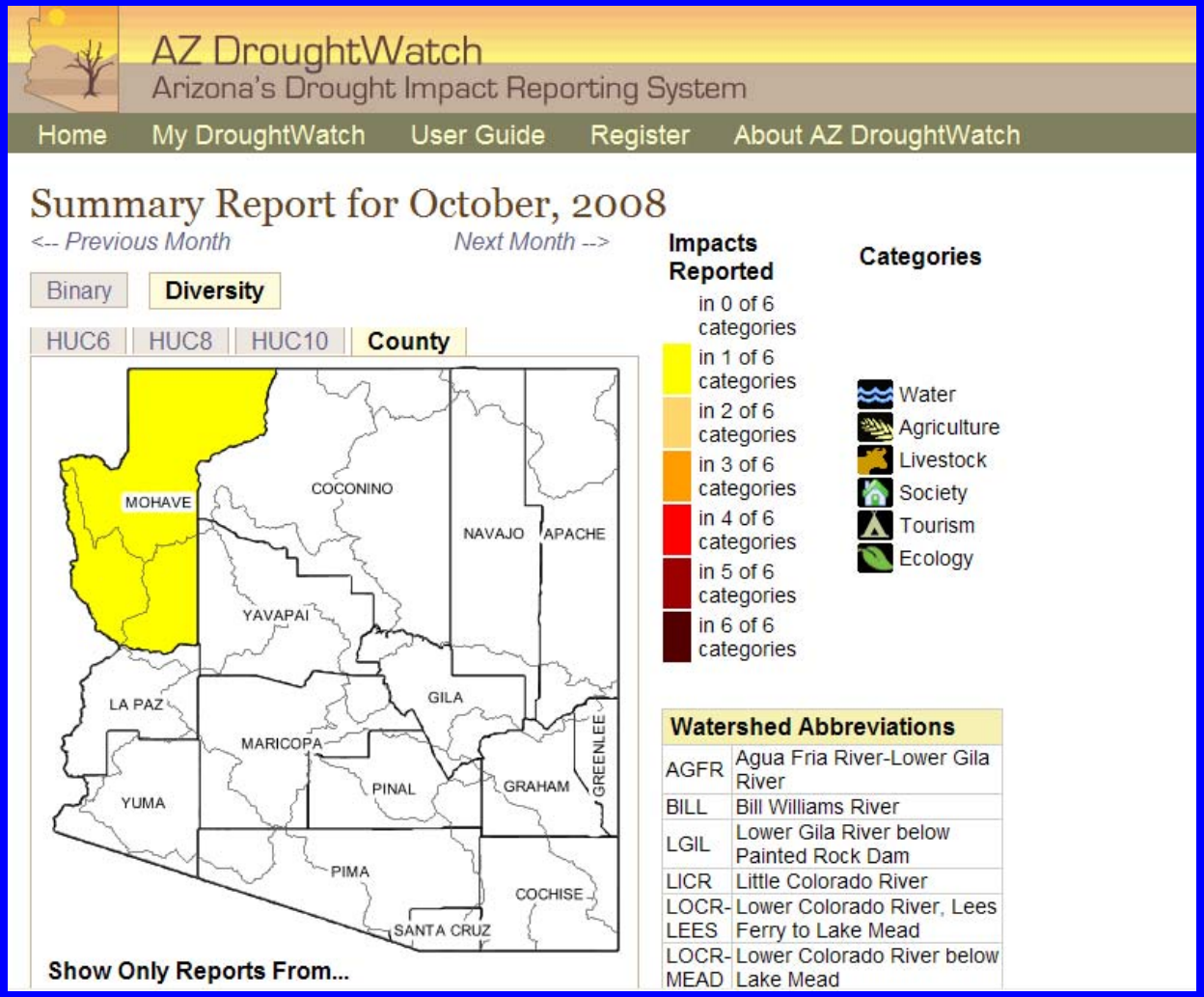
Arizona Drought Links

AZ Dept. of Water Resources - Drought Program

Rainlog Precipitation Monitoring Network

U of A Climate Science Applications Program

AZDroughtWatch.org



Impact Summaries
- By **Basin**
- By **County**

Spreadsheet-Based

Impact
Reference Guide

Impacts User Guide

Arizona Drought Impacts Reporting System

- Impact Survey Reference Sheet -

A. Water Resources and Hydrology

- Surface Water Impacts
  - Unusually low water levels in reservoirs, lakes and ponds
  - Unusually low flows in streams, rivers, and springs
  - Poor water quality due to low levels/low flows
  - Impacts on hydro-electric power generation
  - Need for supplemental water due to drought impacts on local surface water resources (e.g. hauling water)
- Groundwater Impacts
  - Unusually low groundwater levels due to long-term precipitation deficits/lack of recharge
  - Need for deepening of existing wells to reach groundwater supplies
  - Need for developing new wells to meet water demands (existing wells are going dry due to drought impacts)
  - Land subsidence and desiccation cracks observed due to depletion of groundwater supplies
  - Need for supplemental water due to drought impacts on local ground water resources (e.g. hauling water)

B. Agricultural Impacts (food crops, cash crops and aquaculture)

- Soil Impacts
  - Soil erosion due to loss of vegetation/organic matter
  - Reduction in soil quality/fertility (e.g. increasing salinity due increased irrigation and lack of precipitation)
- Crop Impacts
  - Unusual levels of plant stress due to lack of sufficient soil moisture
  - Unusual levels of plant mortality due to lack of sufficient soil moisture
  - Reduction in overall crop quality
  - Reduction in productivity

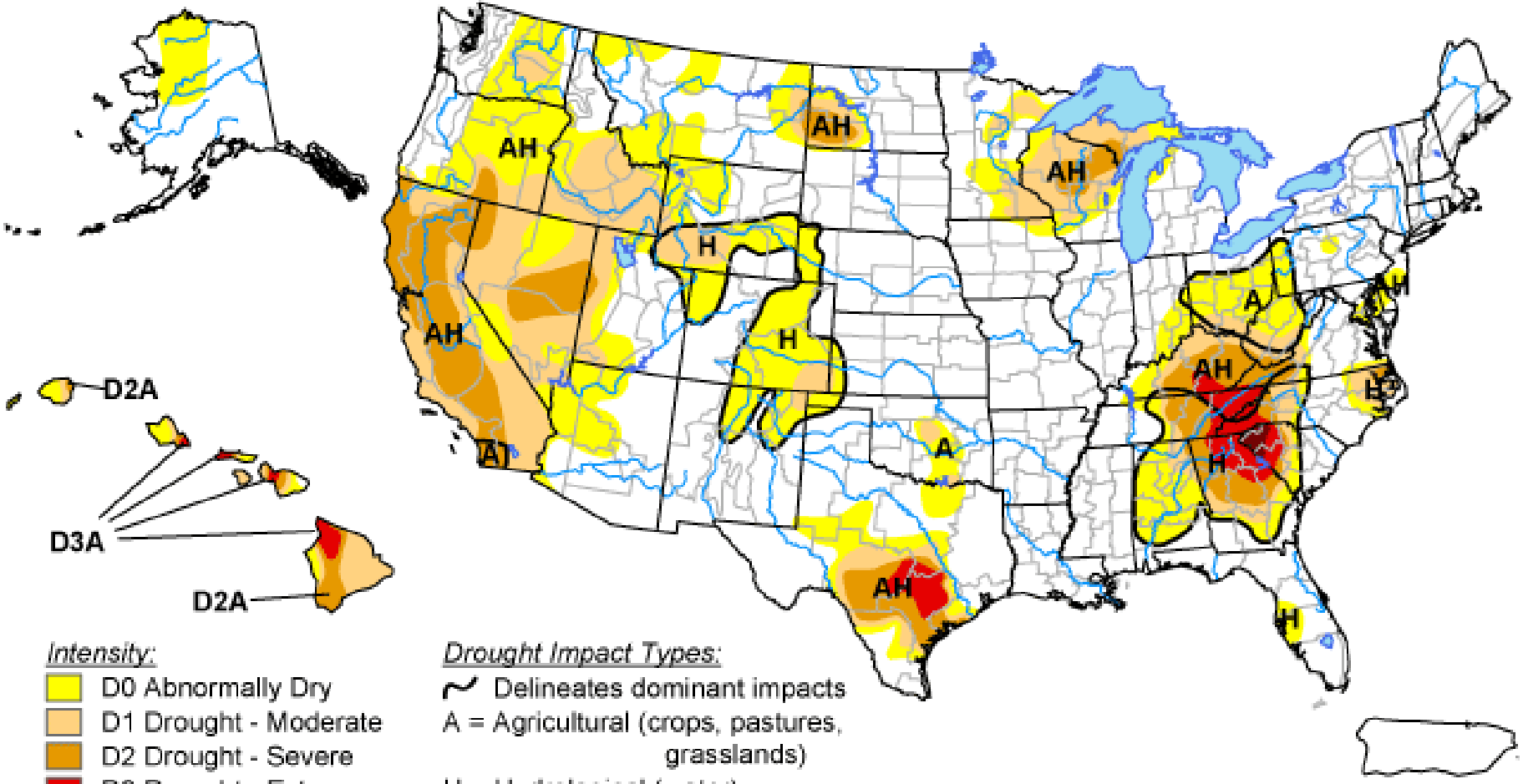
Impact Spreadsheet

County	water	agriculture	livestock	society	tourism	ecology	Total number of impacts	Total number of surveys	Number of unique observers
Apache	0	0	0	0	0	0	0	0	0
Cochise	0	0	0	0	0	0	0	0	0
Coconino	0	0	0	0	0	0	0	0	0
Gila	0	0	0	0	0	0	0	0	0
Graham	0	0	0	0	0	0	0	0	0
Greenlee	0	0	0	0	0	0	0	0	0
La Paz	0	0	0	0	0	0	0	0	0
Maricopa	0	0	0	0	0	0	0	0	0
Mohave	3	0	0	0	0	0	3	1	1
Navajo	0	0	0	0	0	0	0	0	0
Pima	0	0	0	0	0	0	0	0	0
Pinal	0	0	0	0	0	0	0	0	0
Santa Cruz	0	0	0	0	0	0	0	0	0
Yavapai	0	0	0	0	0	0	0	0	0
Yuma	0	0	0	0	0	0	0	0	0

The *National* Drought Perspective…

U.S. Drought Monitor

October 28, 2008
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.

http://drought.unl.edu/dm

Released Thursday, October 30, 2008

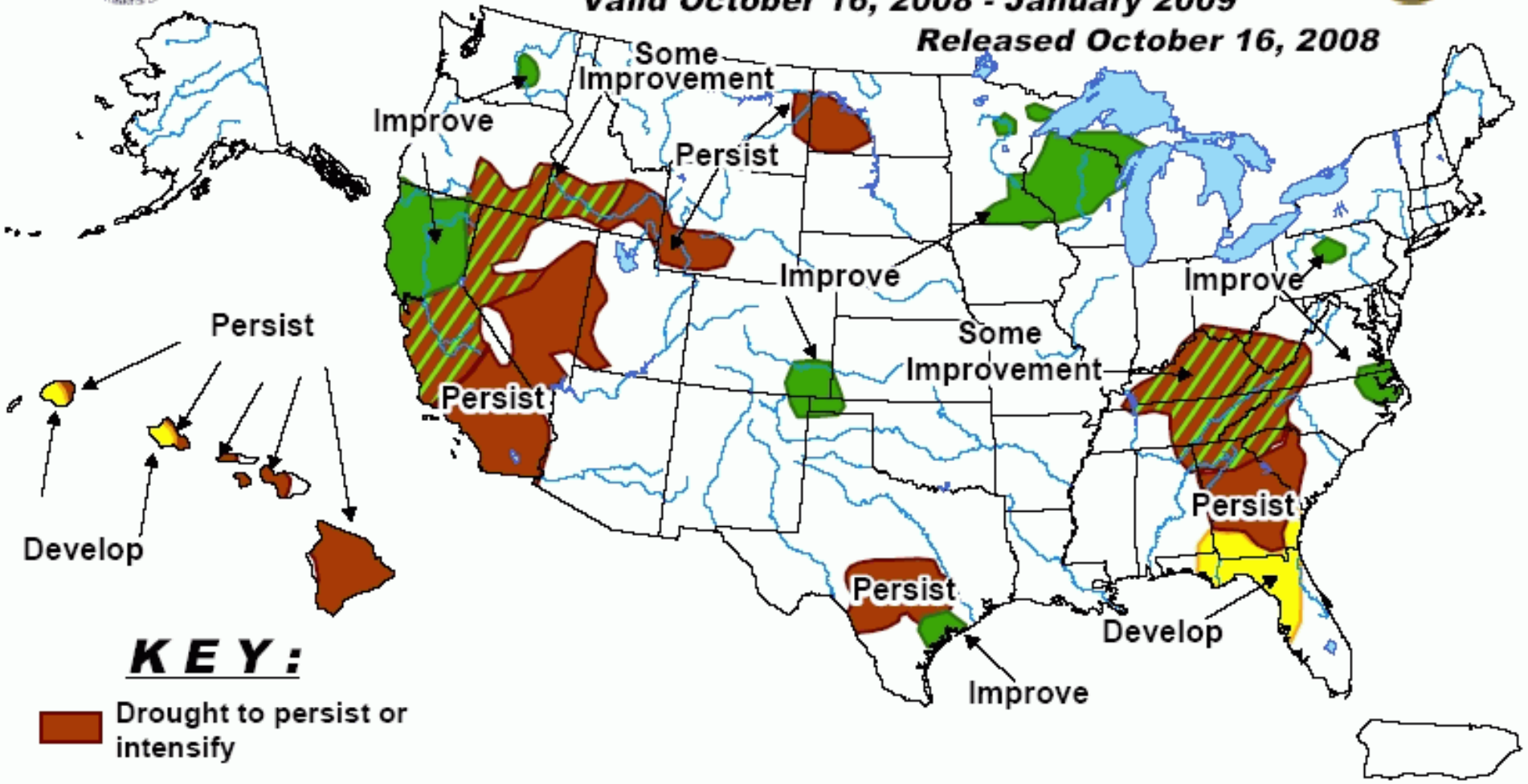
Author: David Miskus, JAWF/CPC/NOAA

U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid October 16, 2008 - January 2009

Released October 16, 2008



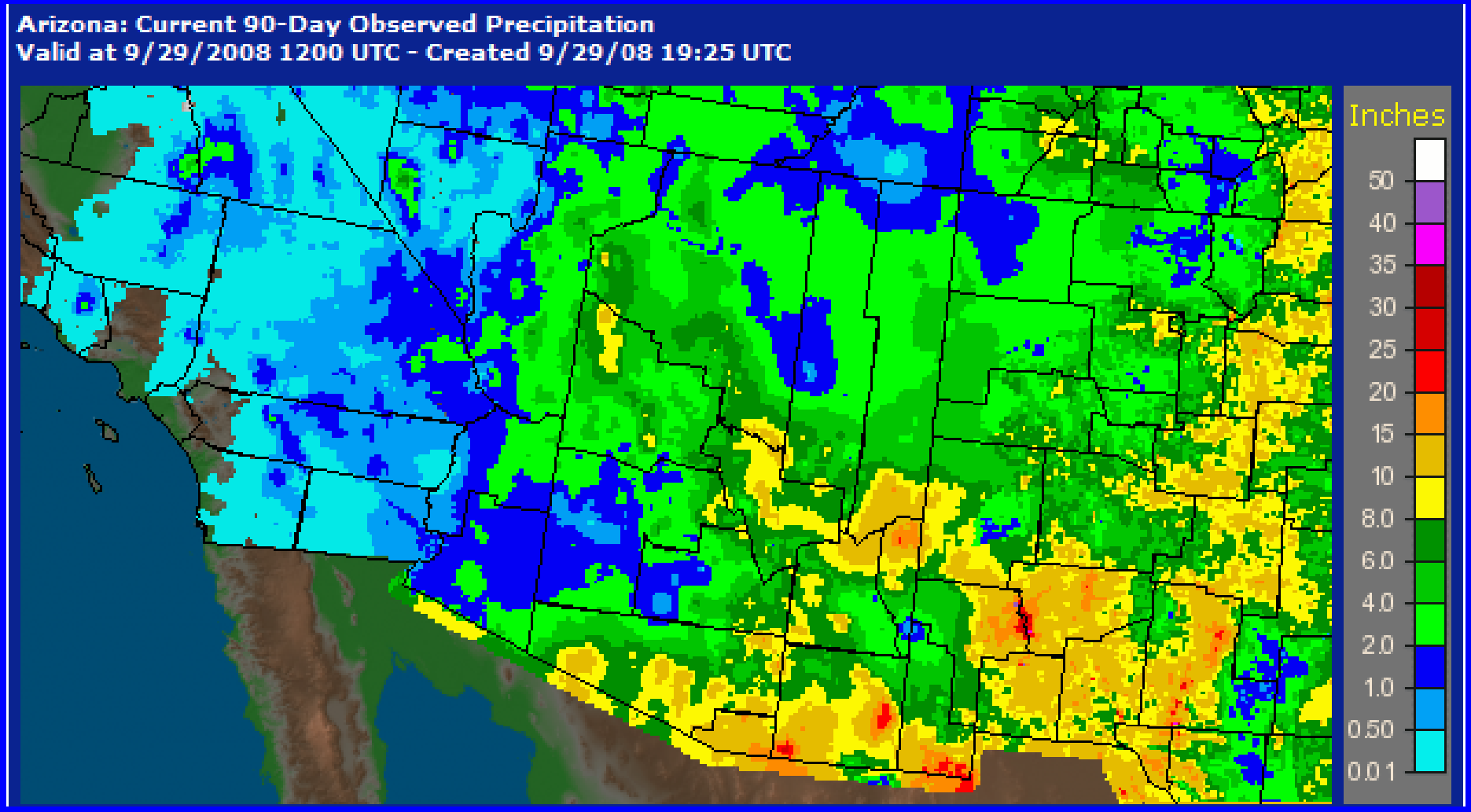
KEY:

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

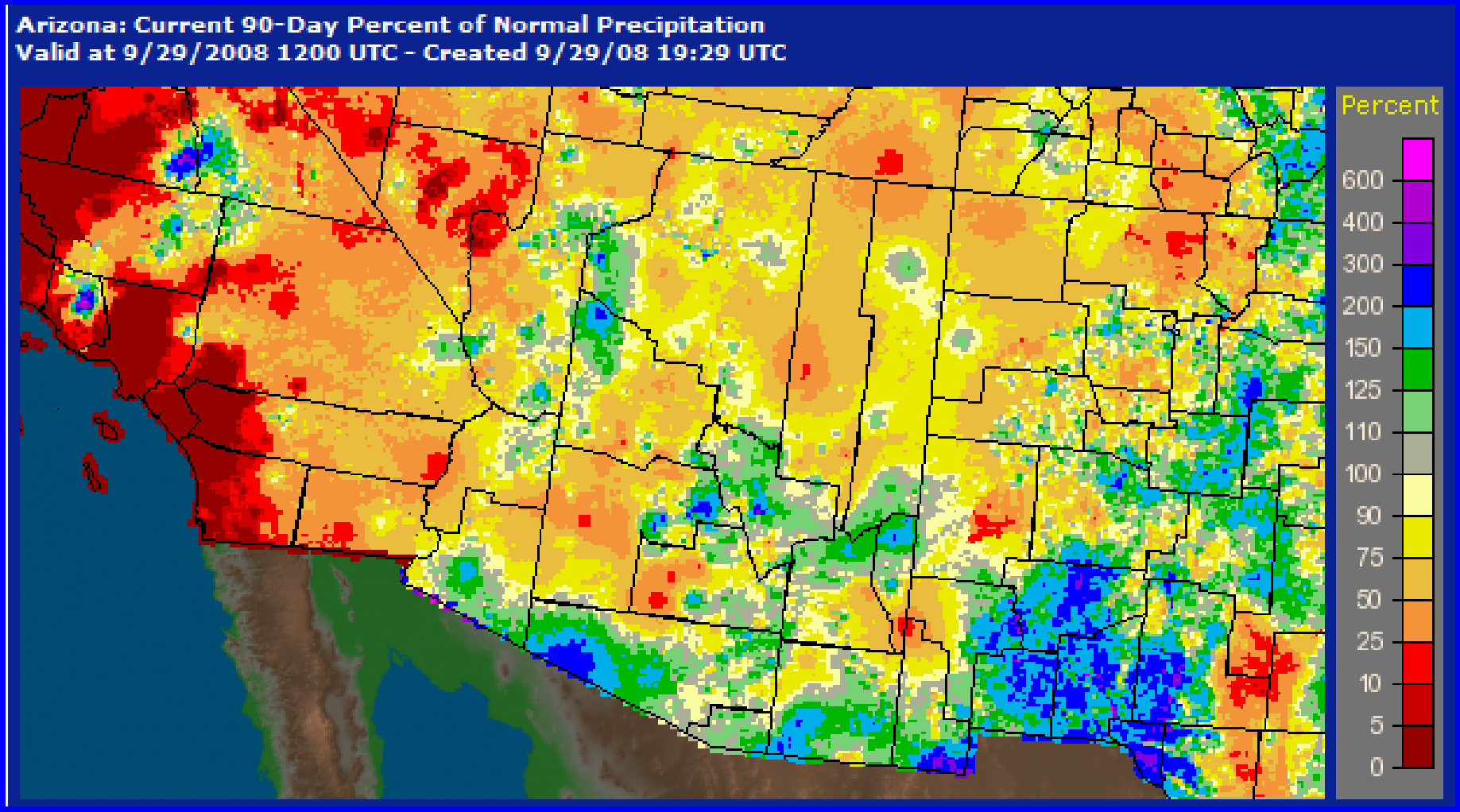
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- 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.

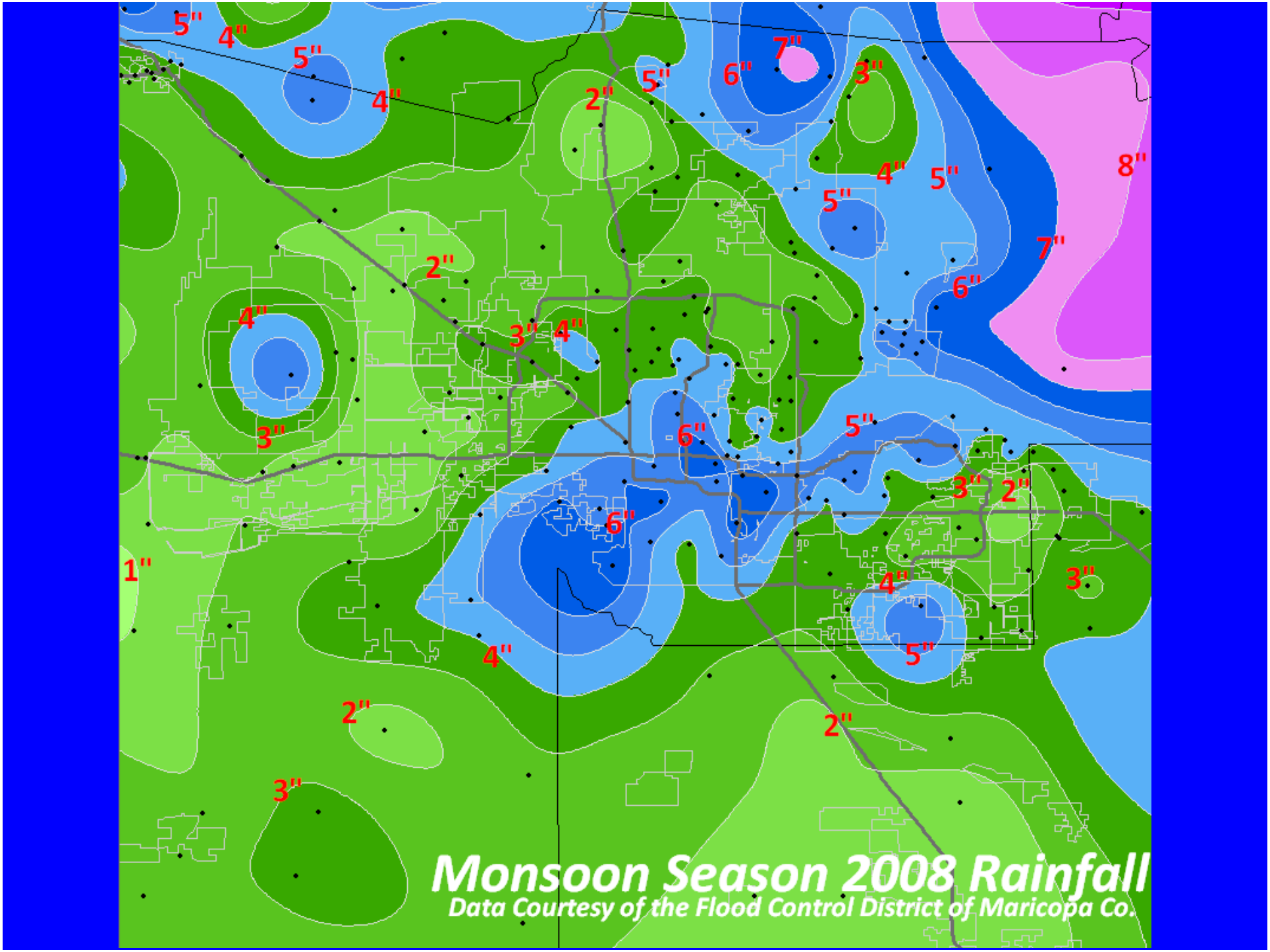
PoP Q-U-I-Z !!!!

2008 Monsoon Season
Total Precipitation



2008 Monsoon Season
Percent of Normal Precipitation




5"
4"
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2"
5"
6"
7"
3"
4"
5"
8"
5"
7"
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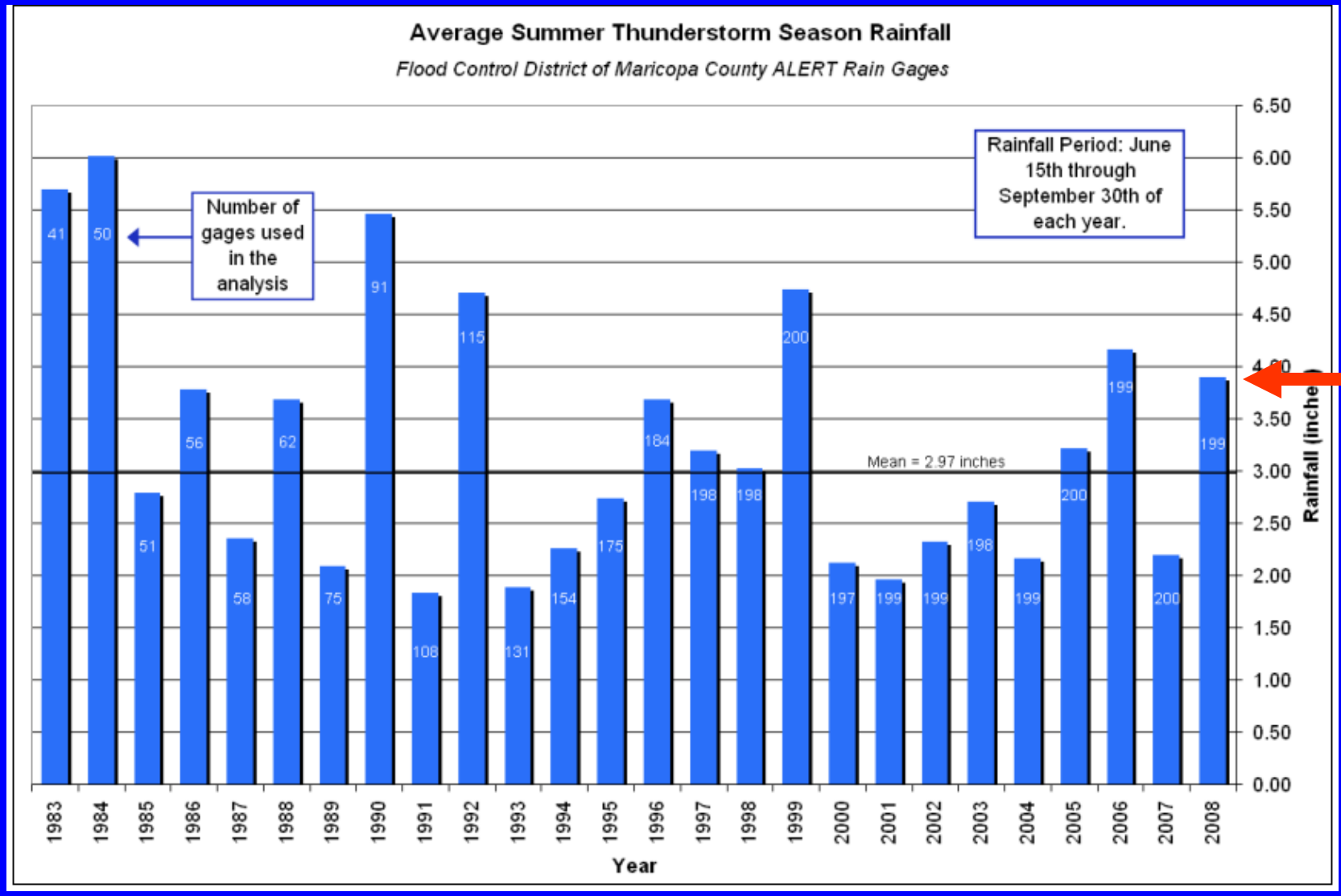
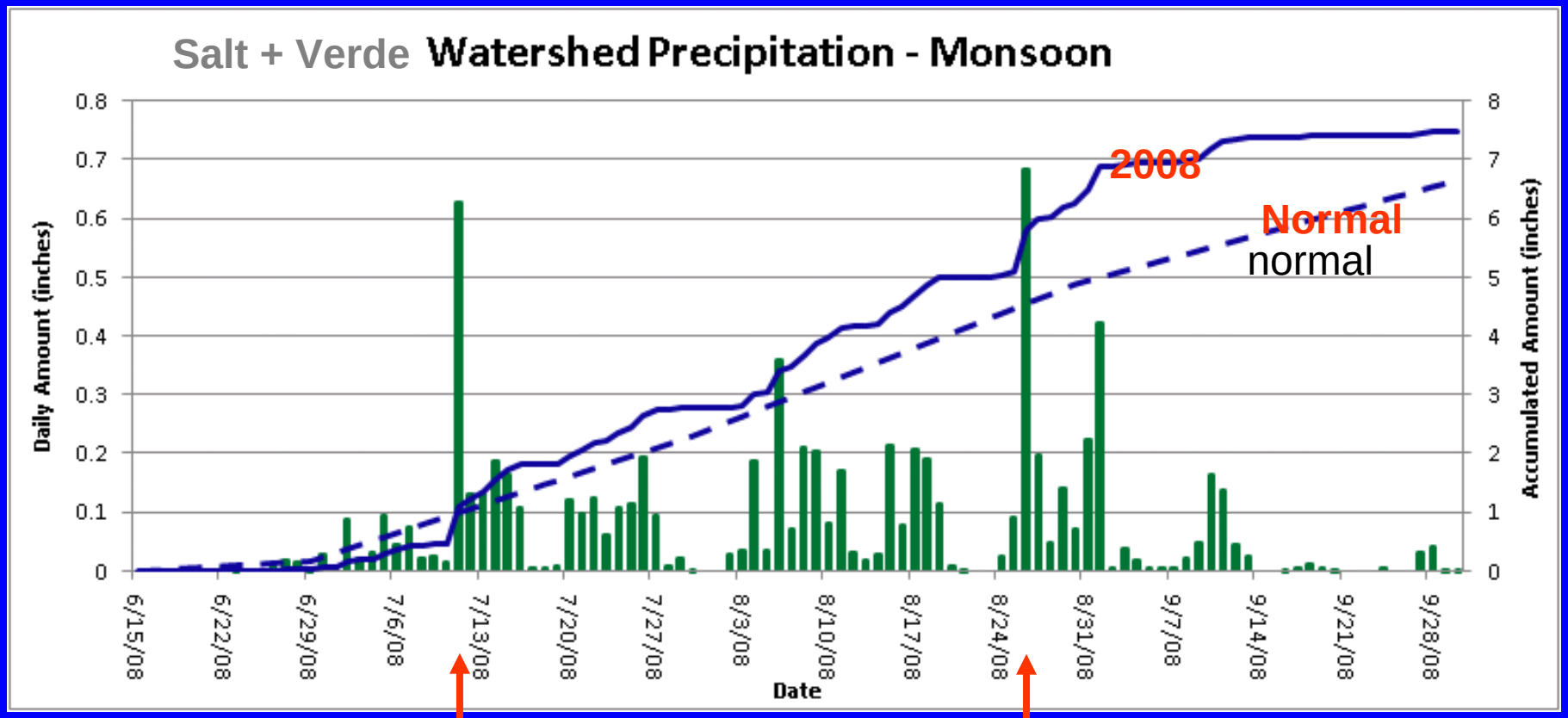
1"
4"
3"
5"
4"
2"
2"
3"
Monsoon Season 2008 Rainfall
Data Courtesy of the Flood Control District of Maricopa Co.

Year-to-year Average Precipitation over Maricopa County (from the FCDMC)





0.62" 7/10

0.66" 8/25

Salt System – 90% Full

Verde System – 58% Full

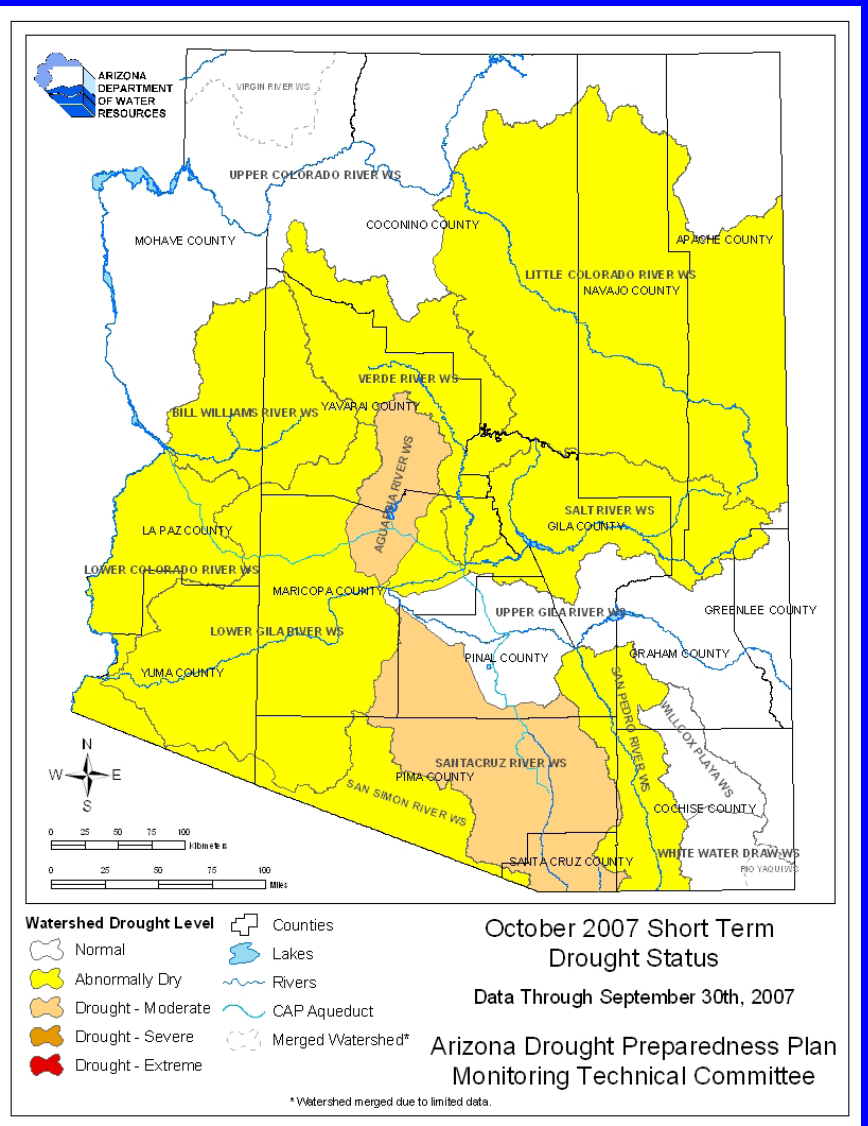
Total – 86% Full

One Year Ago – 52% Full

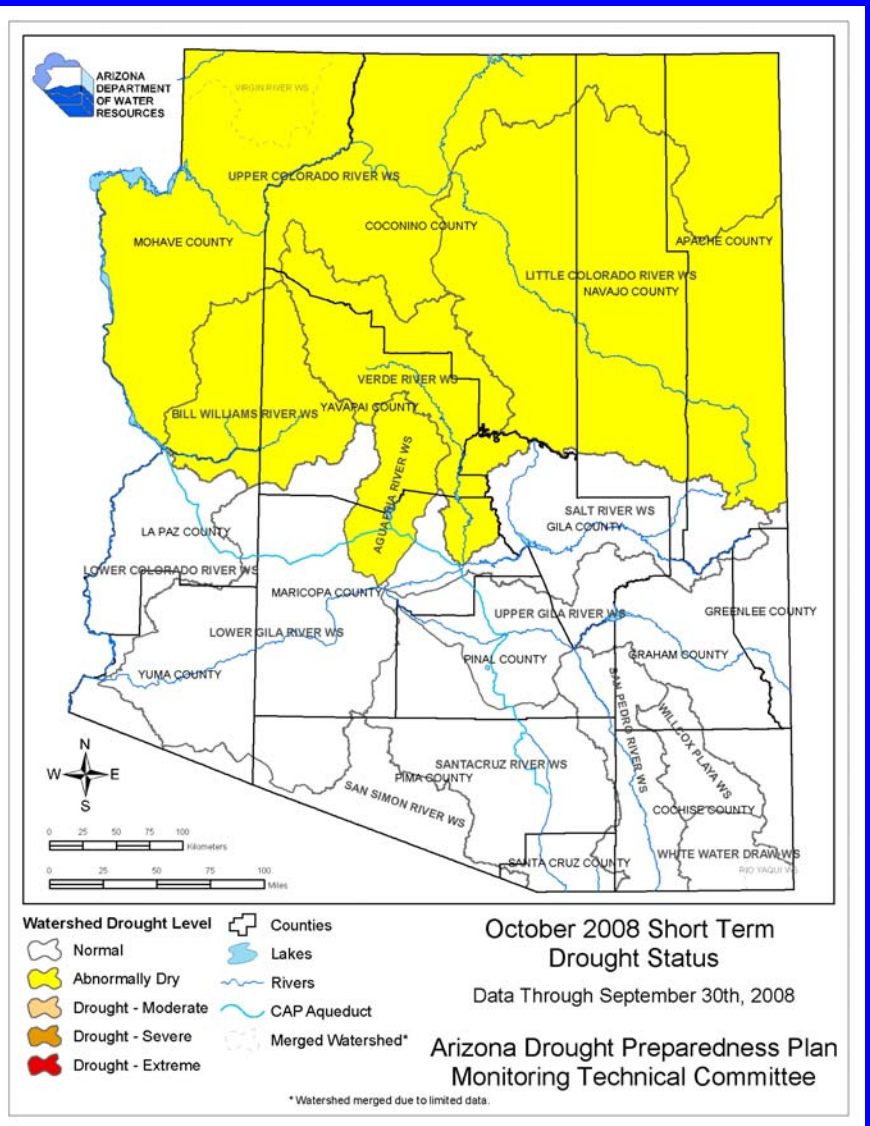
Courtesy SRP/WRO

Short Term Status Comparison

October 2007

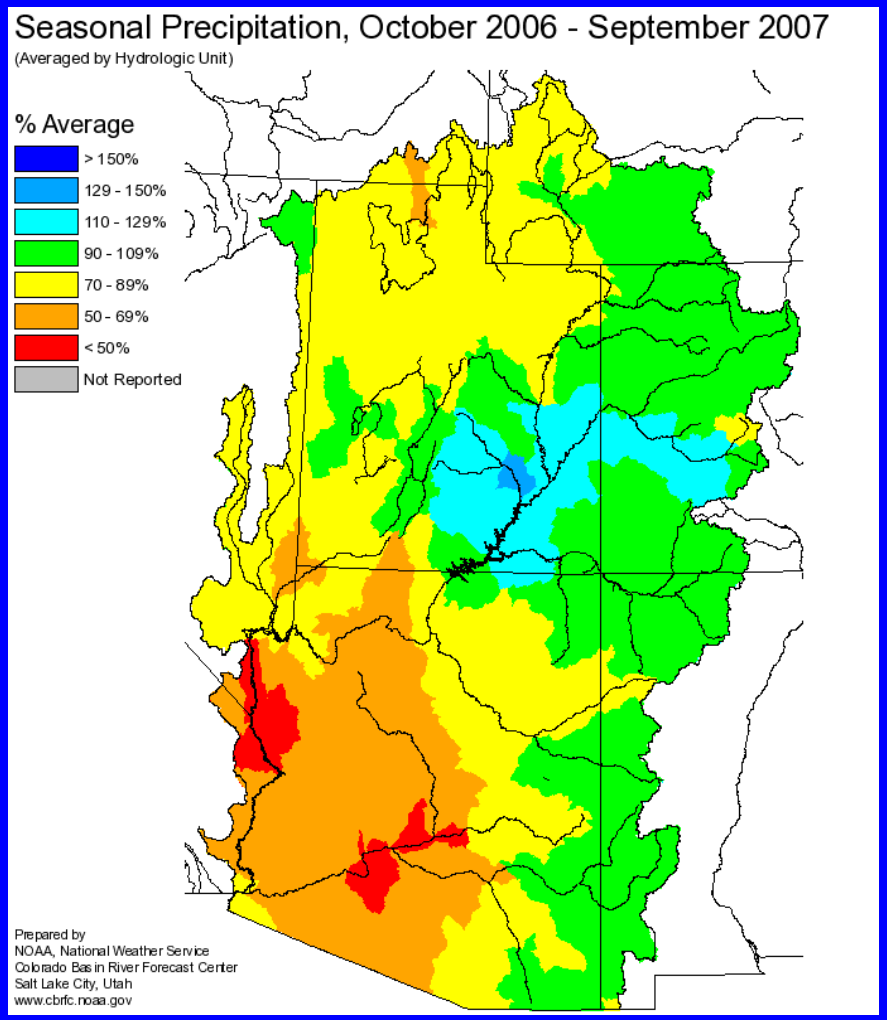


October 2008

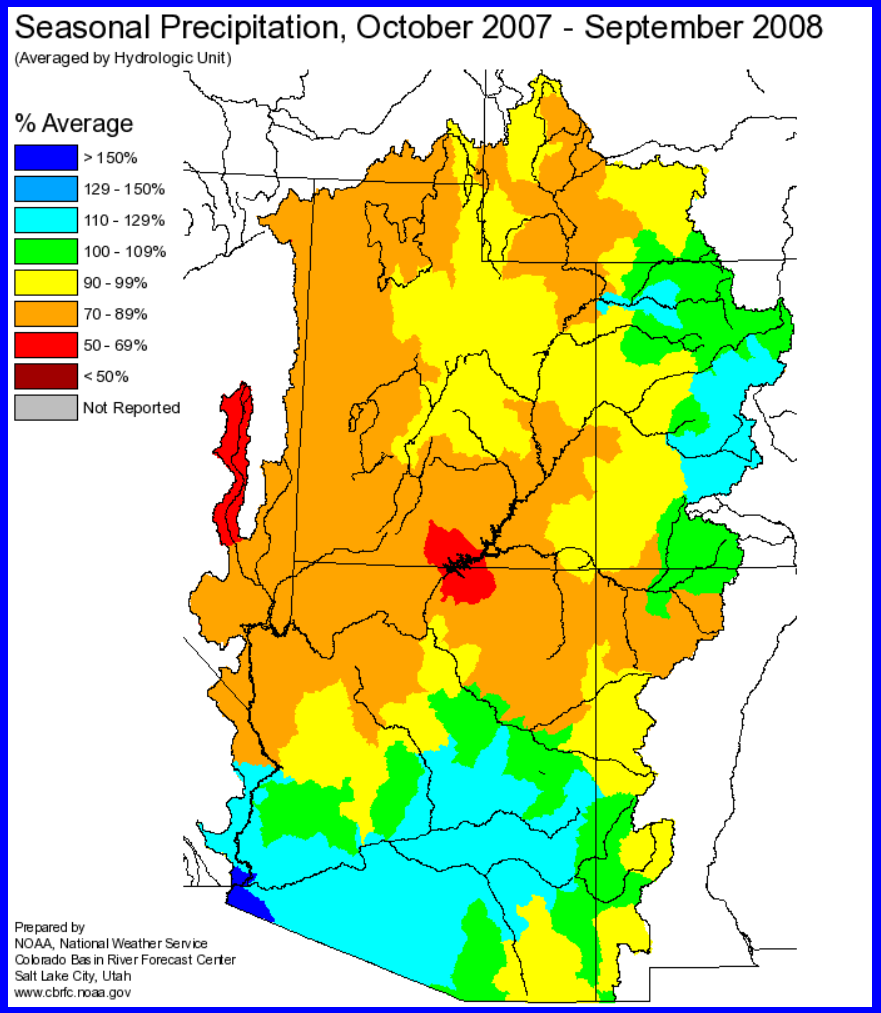


Precipitation Comparison

Water Year - 2007

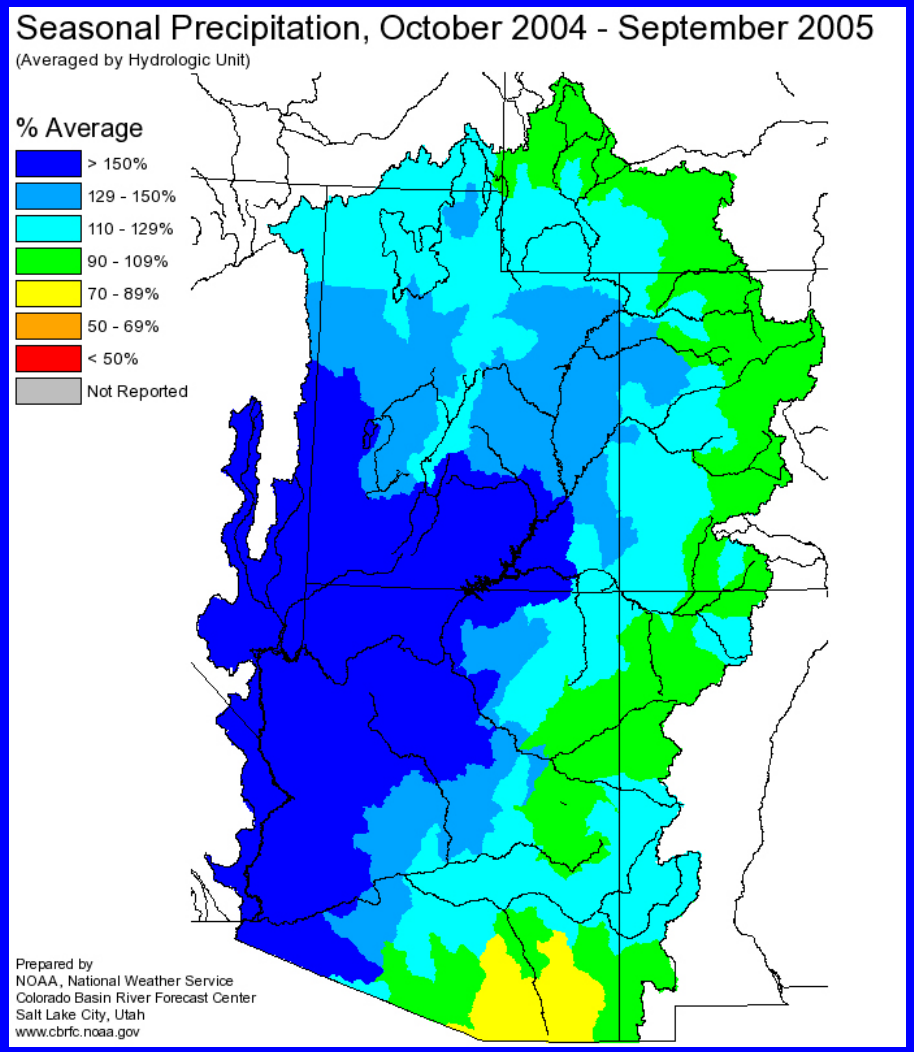


Water Year – 2008

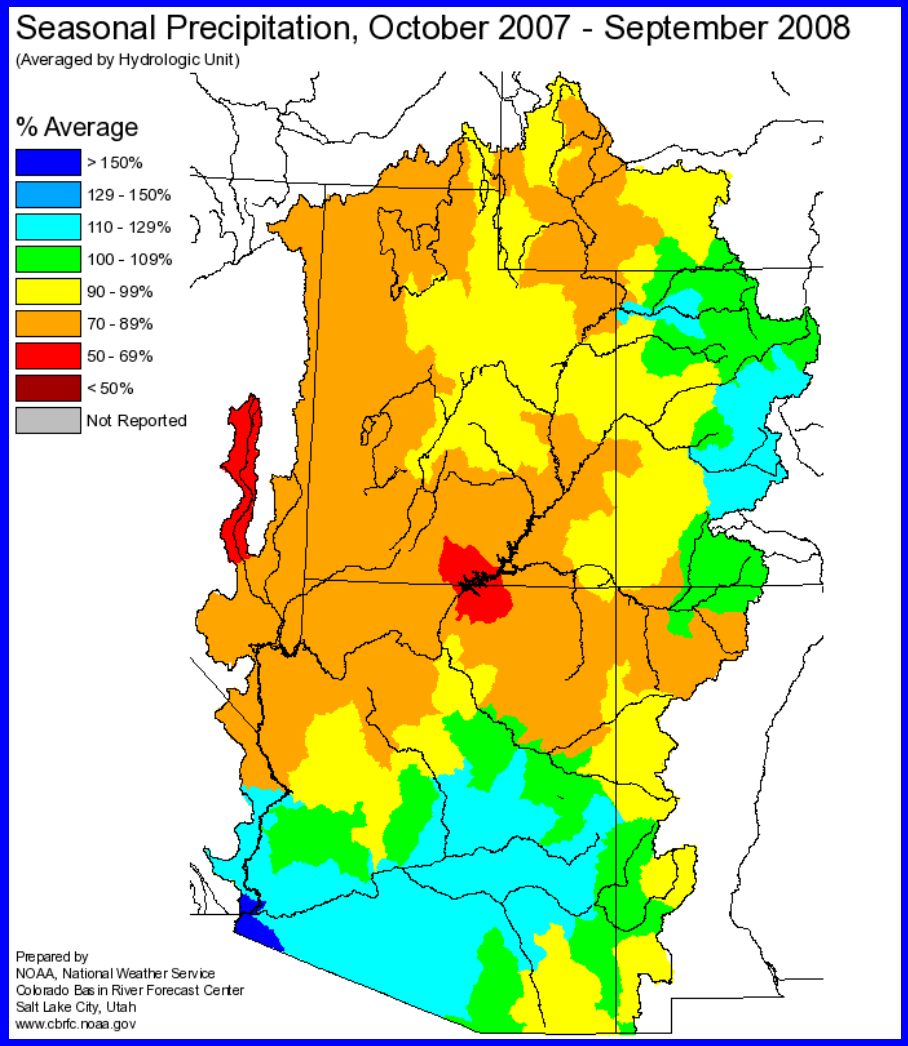


Precipitation Comparison

Water Year- 2005

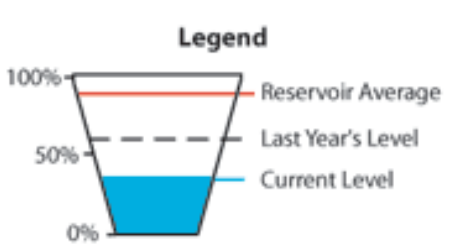


Water Year 2008

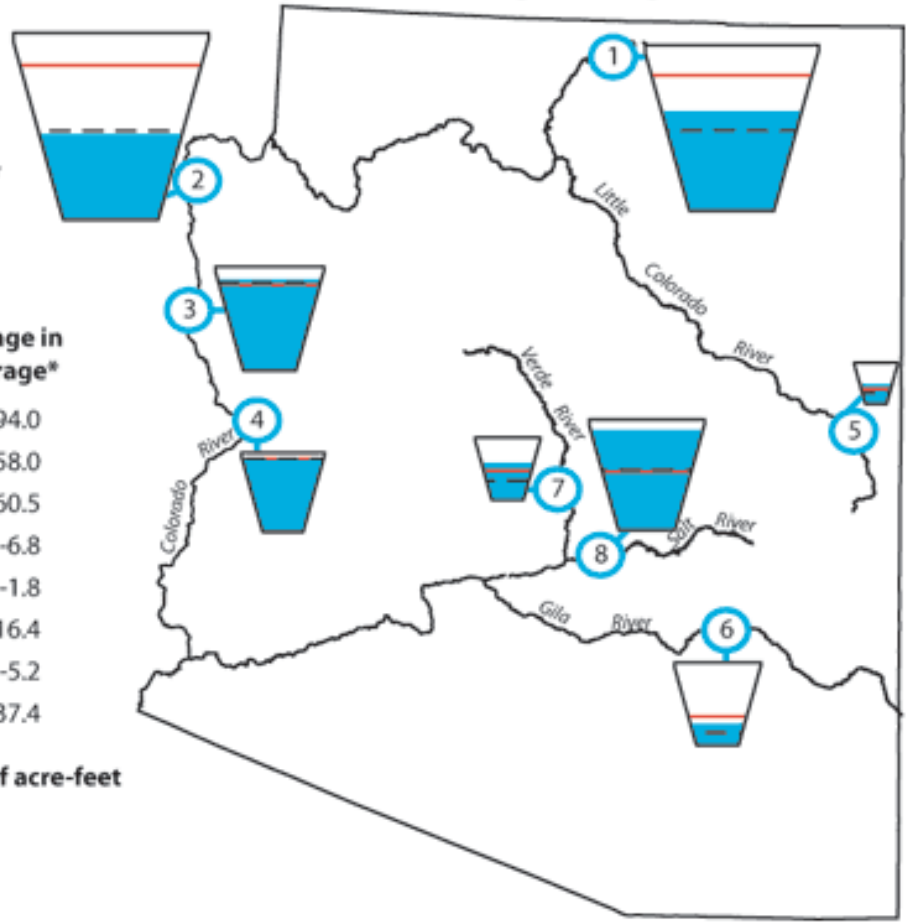


Reservoir Status

Figure 6. Arizona reservoir levels for September 2008 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.



size of cups is representational of reservoir size, but not to scale

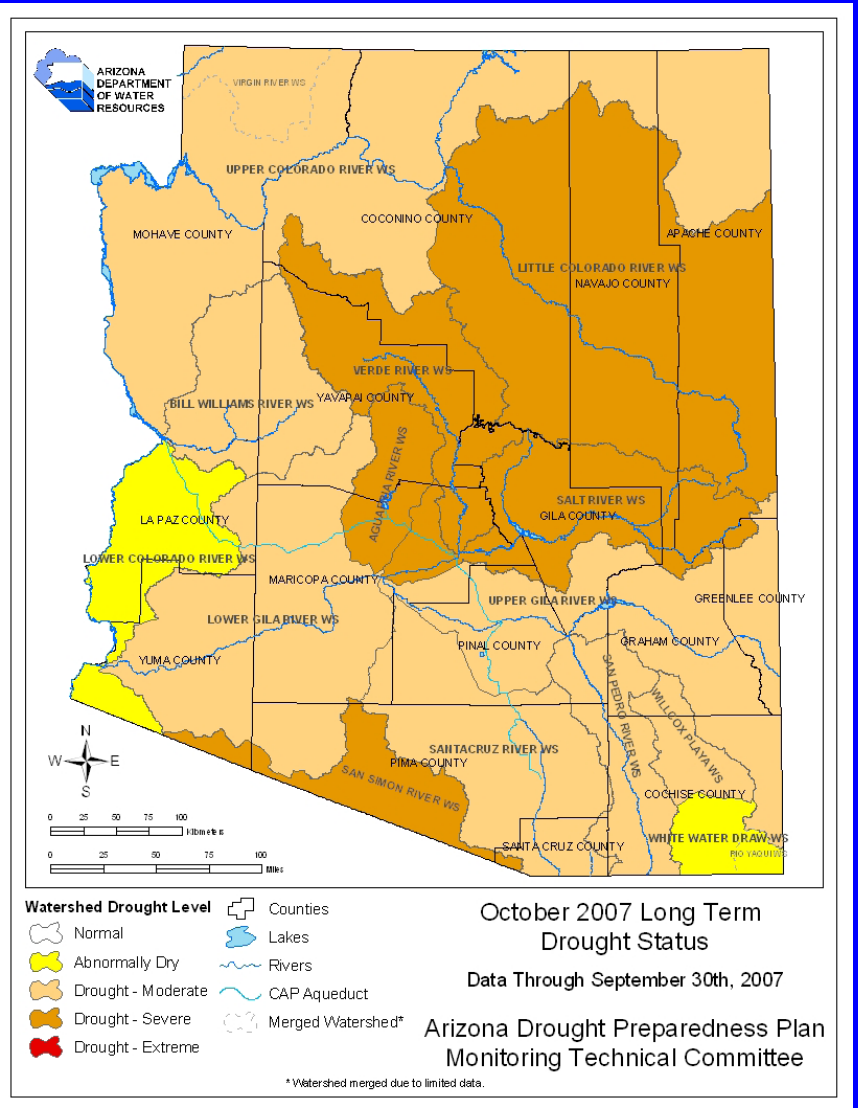


Reservoir Name	Capacity Level	Current Storage*	Max Storage*	Change in Storage*
1. Lake Powell	60%	14,509.0	24,322.0	-294.0
2. Lake Mead	46%	12,013.0	26,159.0	58.0
3. Lake Mohave	88%	1585.5	1,810.0	-60.5
4. Lake Havasu	94%	583.7	619.0	-6.8
5. Lyman Reservoir	48%	14.5	30.0	-1.8
6. San Carlos	26%	224.4	875.0	-16.4
7. Verde River System	59%	169.7	287.4	-5.2
8. Salt River System	90%	1,815.1	2,025.8	-37.4

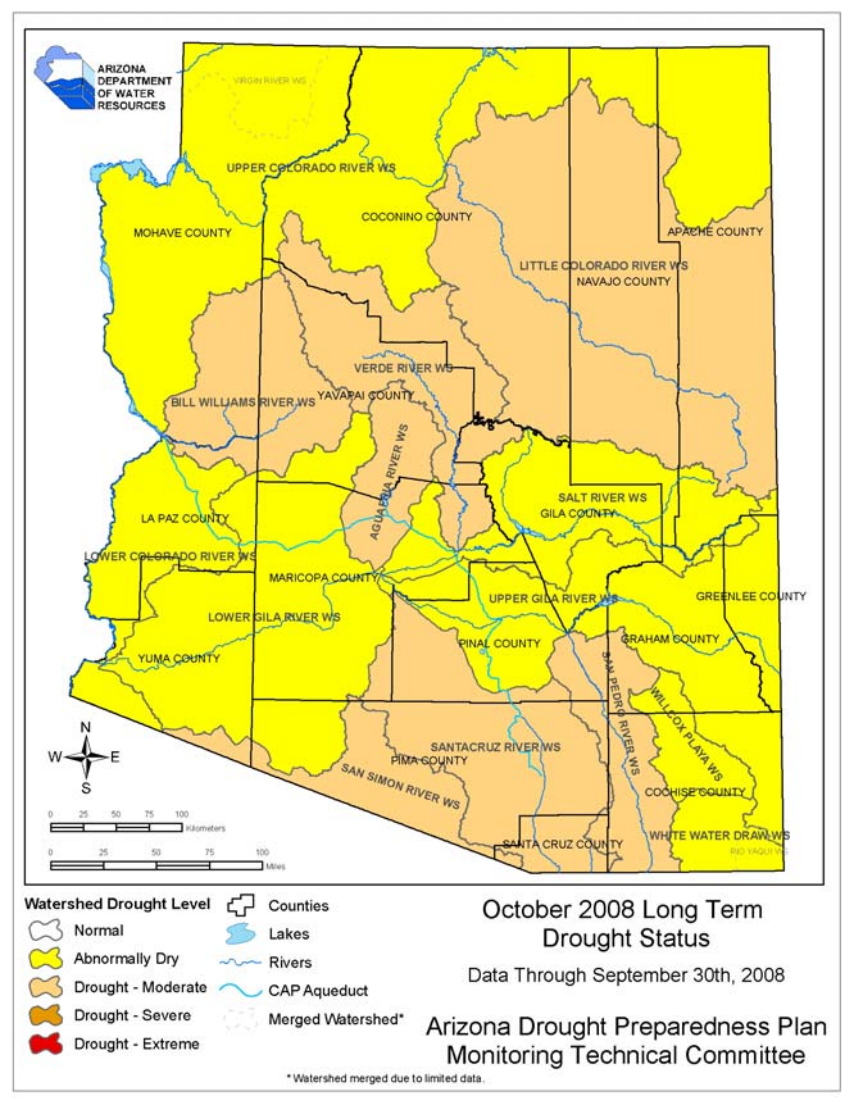
*** thousands of acre-feet**

Long Term Status Maps

October 2007



October 2008

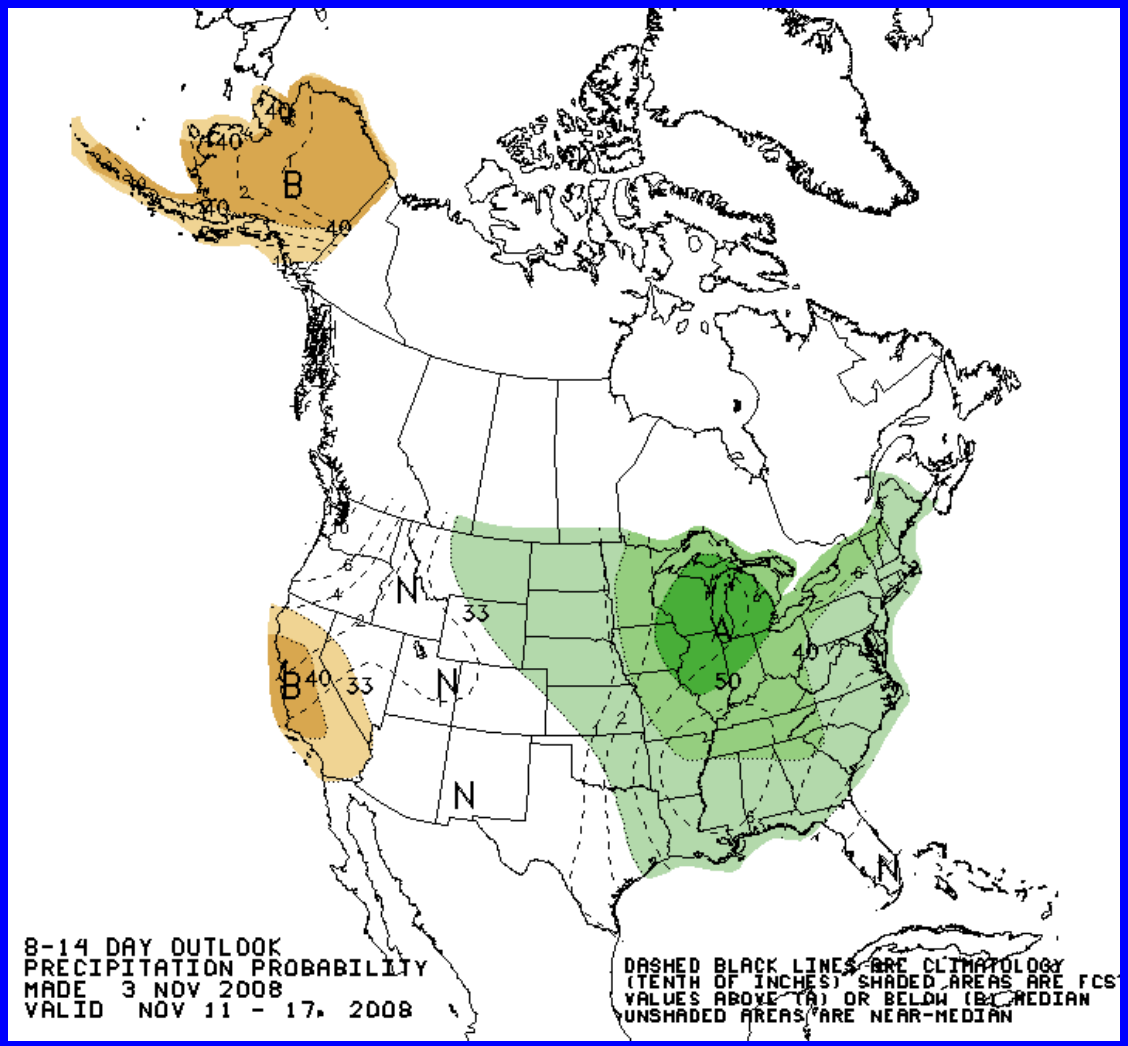


Short Term

and

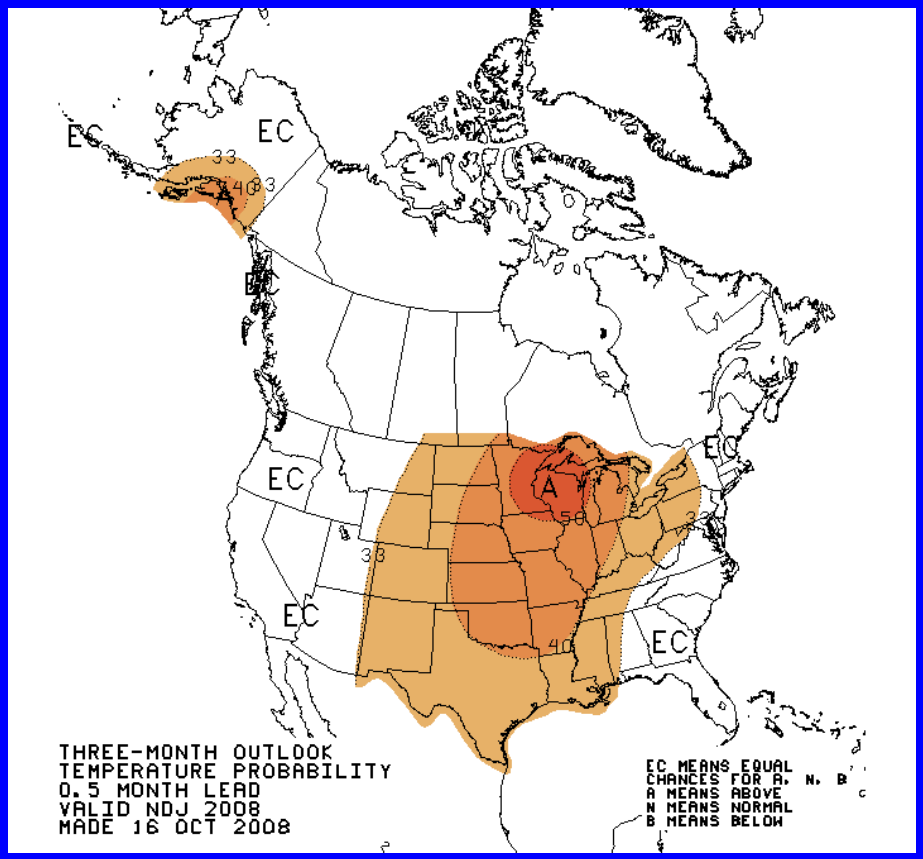
Long Range Outlooks

8 to 14 Day Outlook

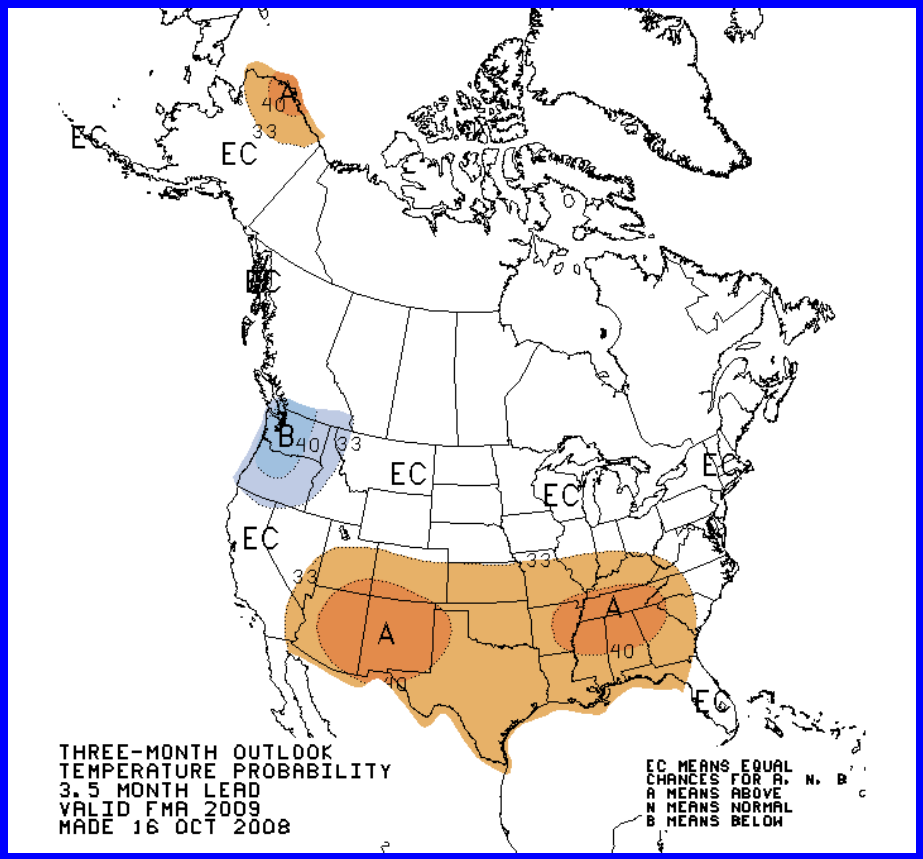


Temperature Outlook

November through **January** 2009

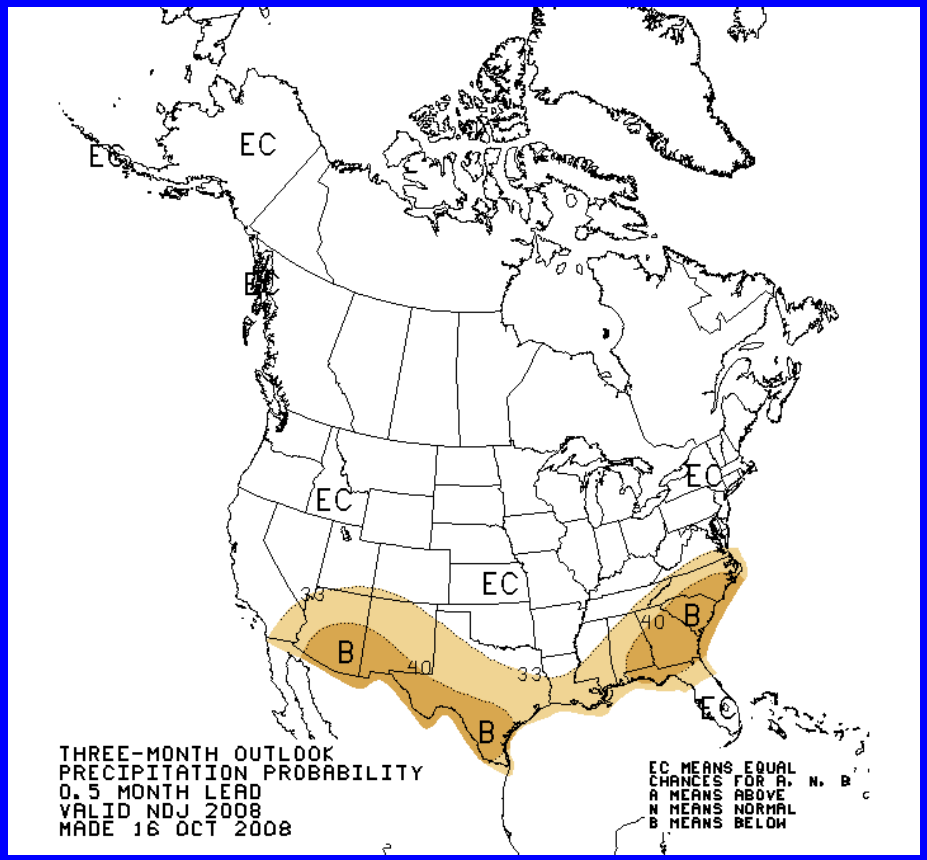


February through **April** 2009

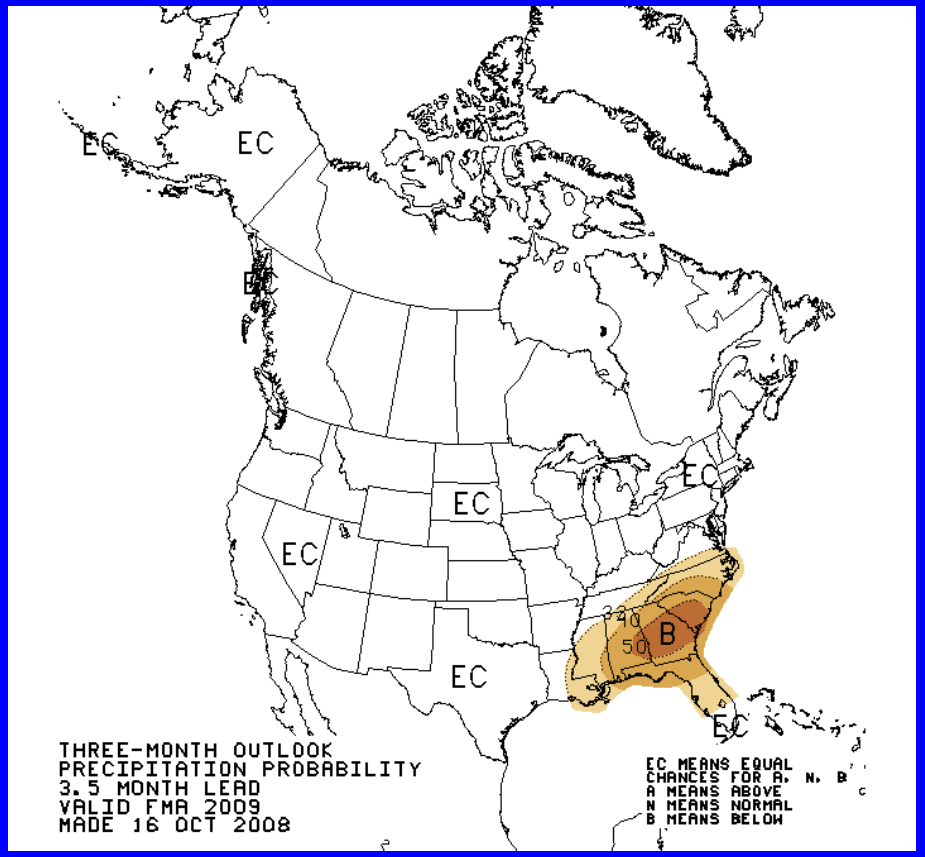


Precipitation Outlook

November through January 2009



February through April 2009



A Closing Thought …

P-L-E-A-S-E Remember…

Our Drought

Planning Efforts

are for

HER Generation!

Jade Kathryn Craig

Thank You !!