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Colorado River Water Users Association

Forecasting For The Colorado River

December 15-17, 2004

Caesar's Palace

Las Vegas

David Brandon
Hydrologist In Charge (HIC)
Colorado Basin River Forecast Center

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Presentation Outline

Who We Are

Advanced Hydrologic Prediction Service

Current Water Conditions in the Colorado Basin

Forecast Water Conditions For 2005

THE **BIG** QUESTION ?

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Who We Are …
Colorado Basin River Forecast Center

Colorado Basin River Forecast Center

National Weather Service

National Oceanic Atmospheric Administration

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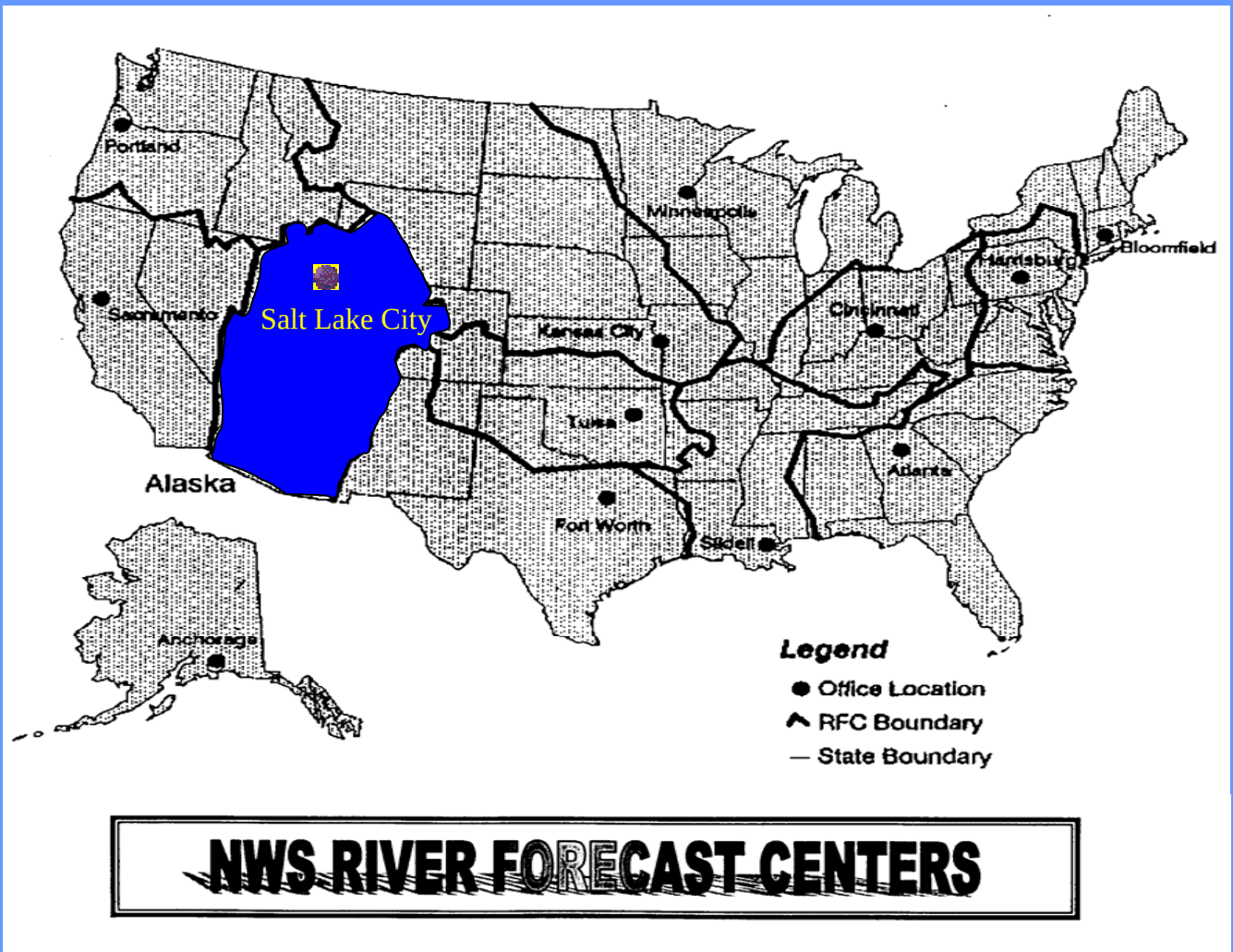
Location



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Mission

Flash Flood Forecasts/Warnings

River Forecasts/Warnings

Recreational Forecasts

Water Supply/Management

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Advanced Hydrologic Prediction Service
AHPS

Floods kill more people than any other form of severe weather

Damages Are in Excess of $3.5 Billion a Year

Three quarters of all presidentially declared disasters are a result of flooding

The need to effectively manage water resources is rapidly increasing

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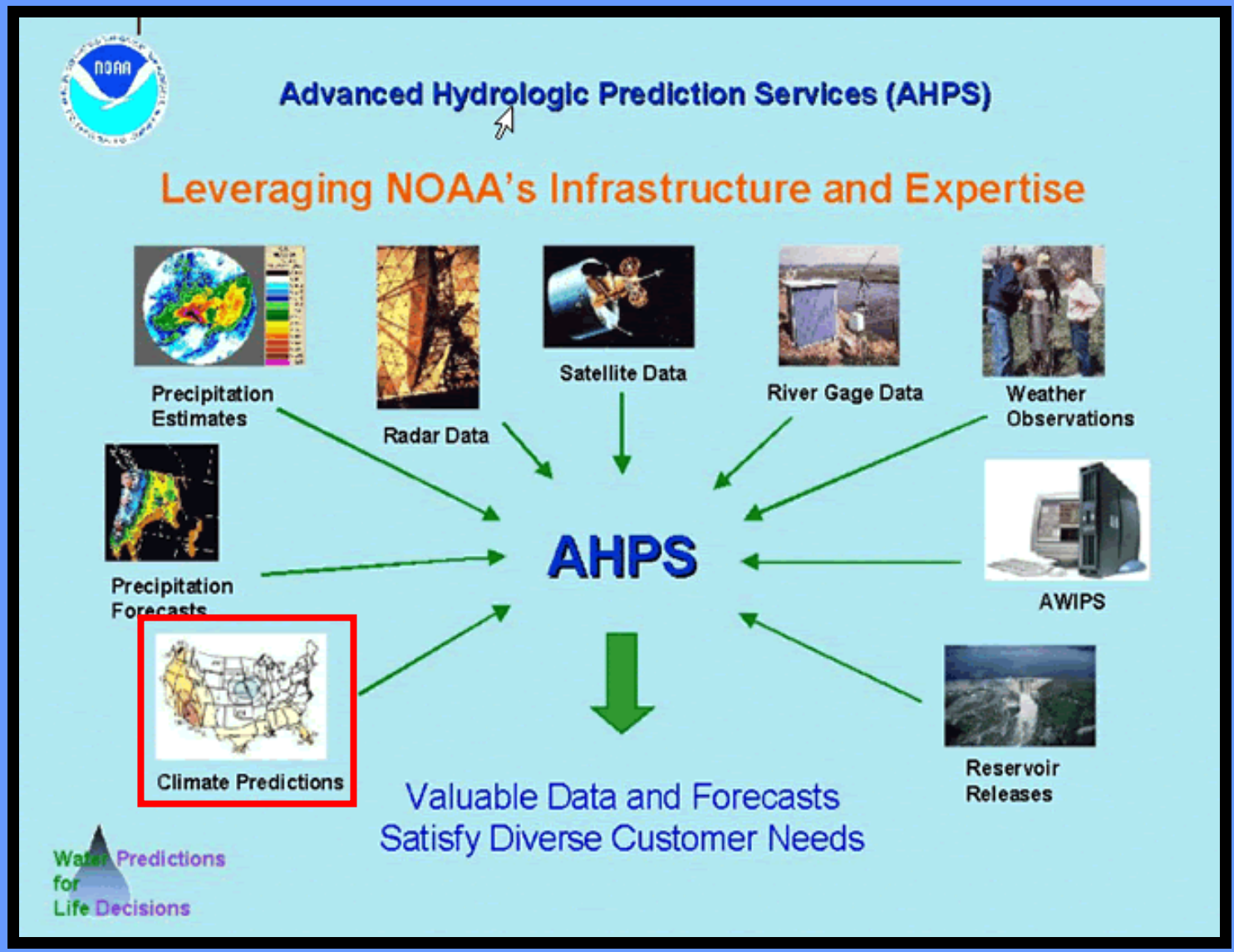
Advanced Hydrologic Prediction Service
AHPS



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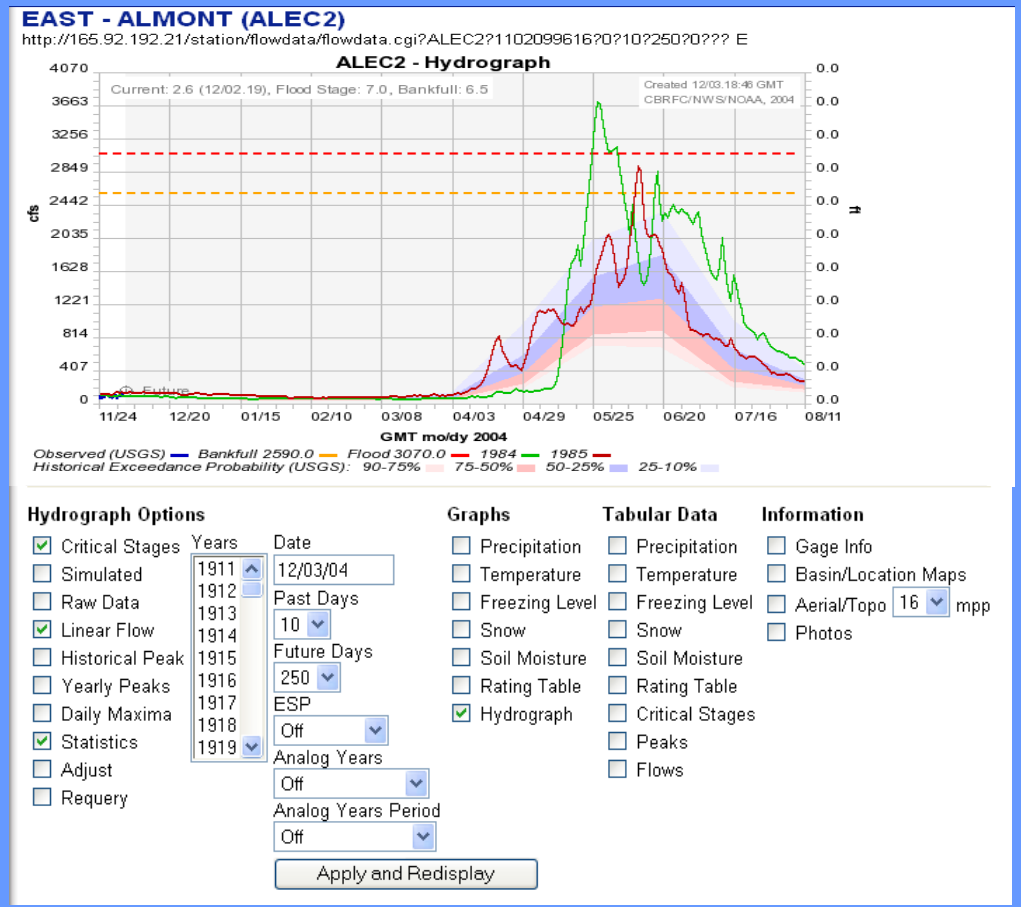
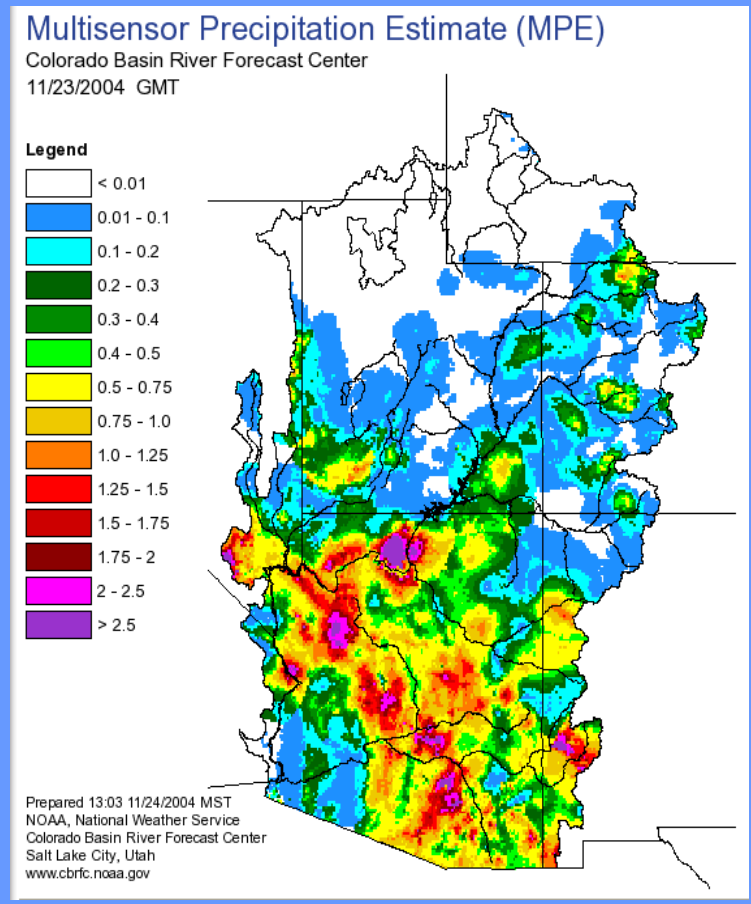
AHPS



Interactive Hydrographs Can Be Tailored To Individual Needs



Precipitation Maps Built From Radar, Rain Gage and Satellite

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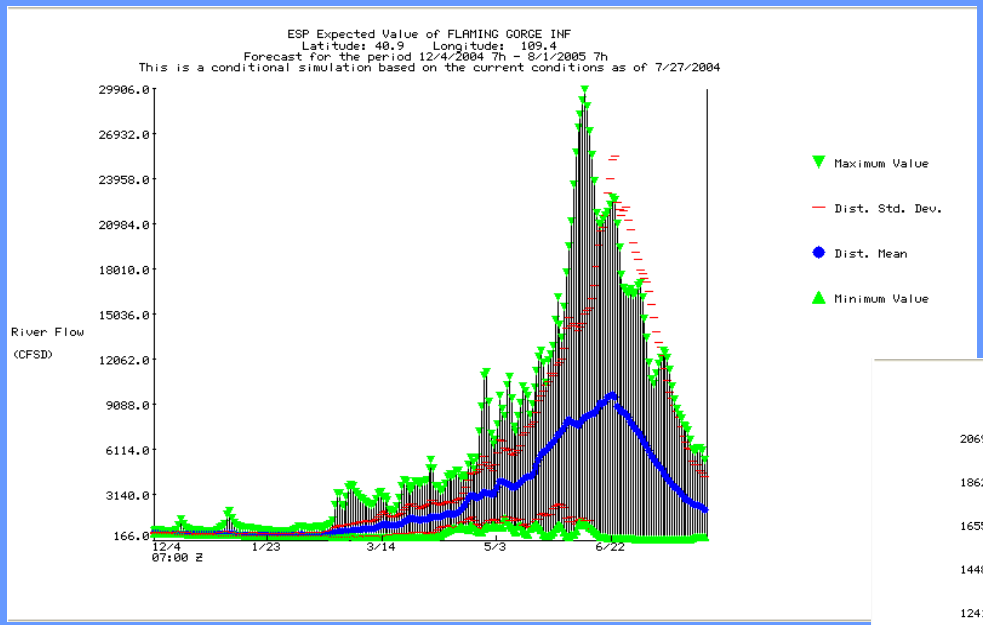
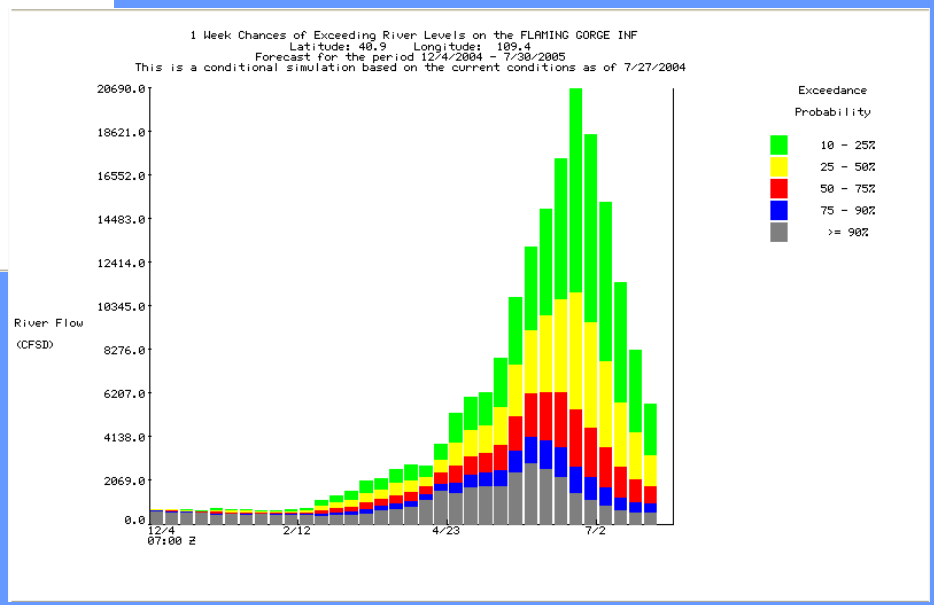
Advanced Hydrologic Prediction Service
Probability Forecast Graphics



Expected Value Forecast



Exceedance Probability

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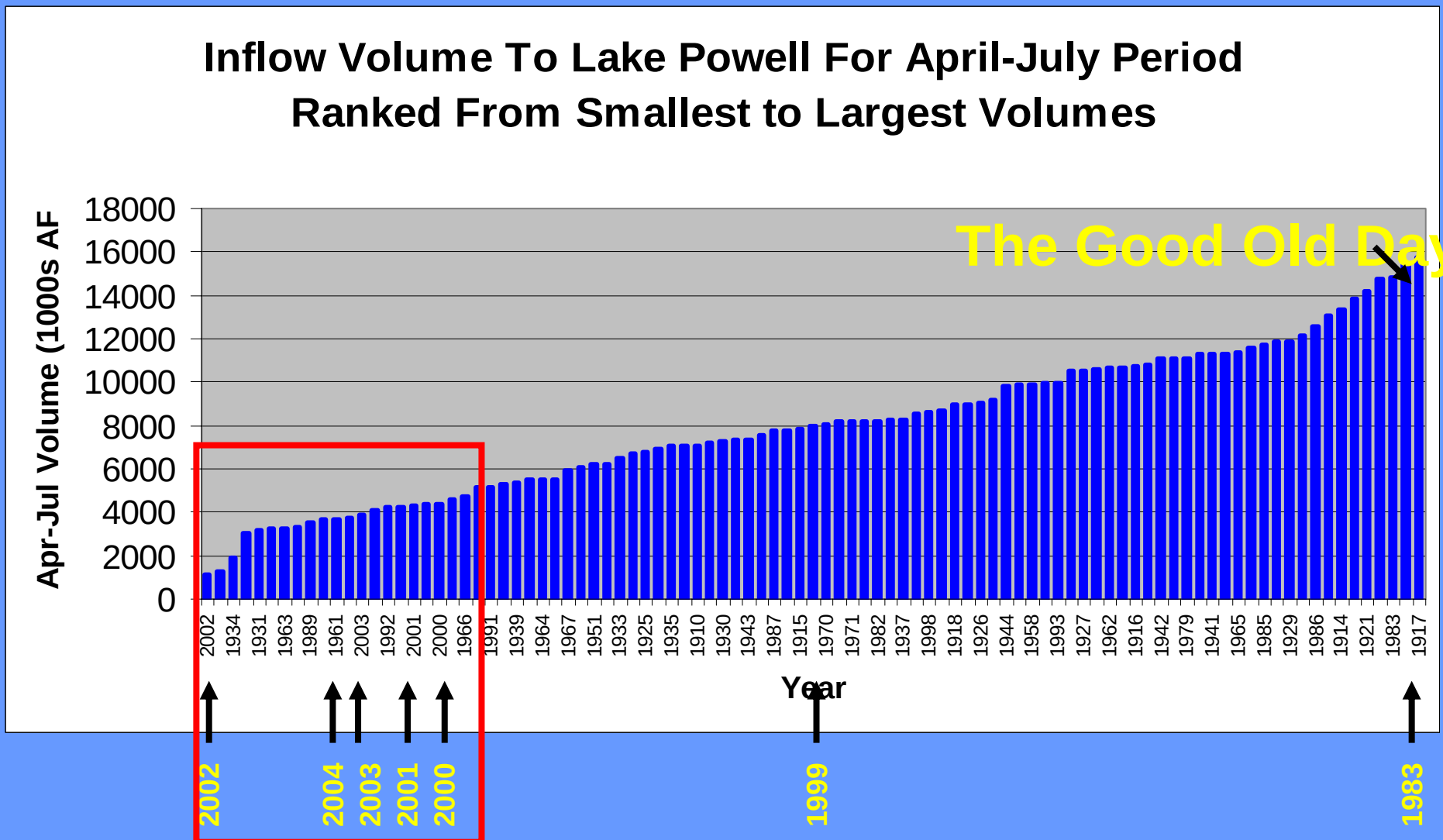
Ranking-Smallest to Largest Apr-Jul Volumes For 95 Years of Record



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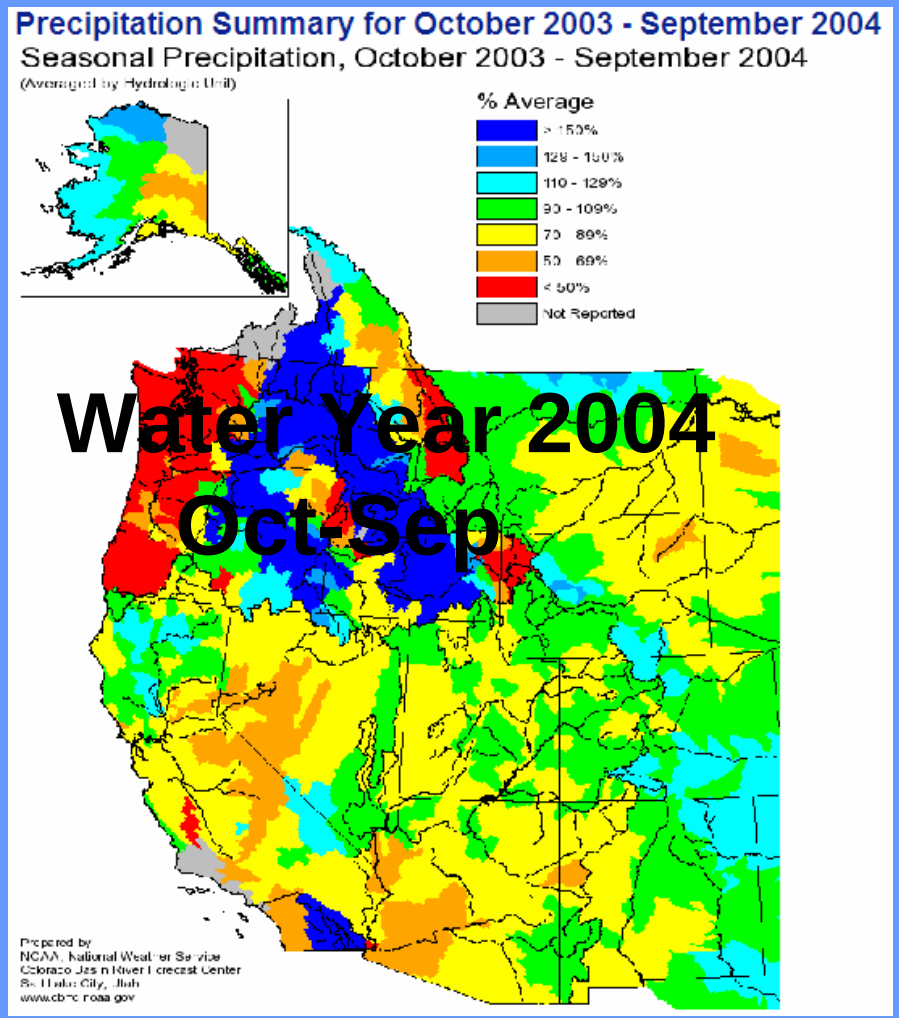
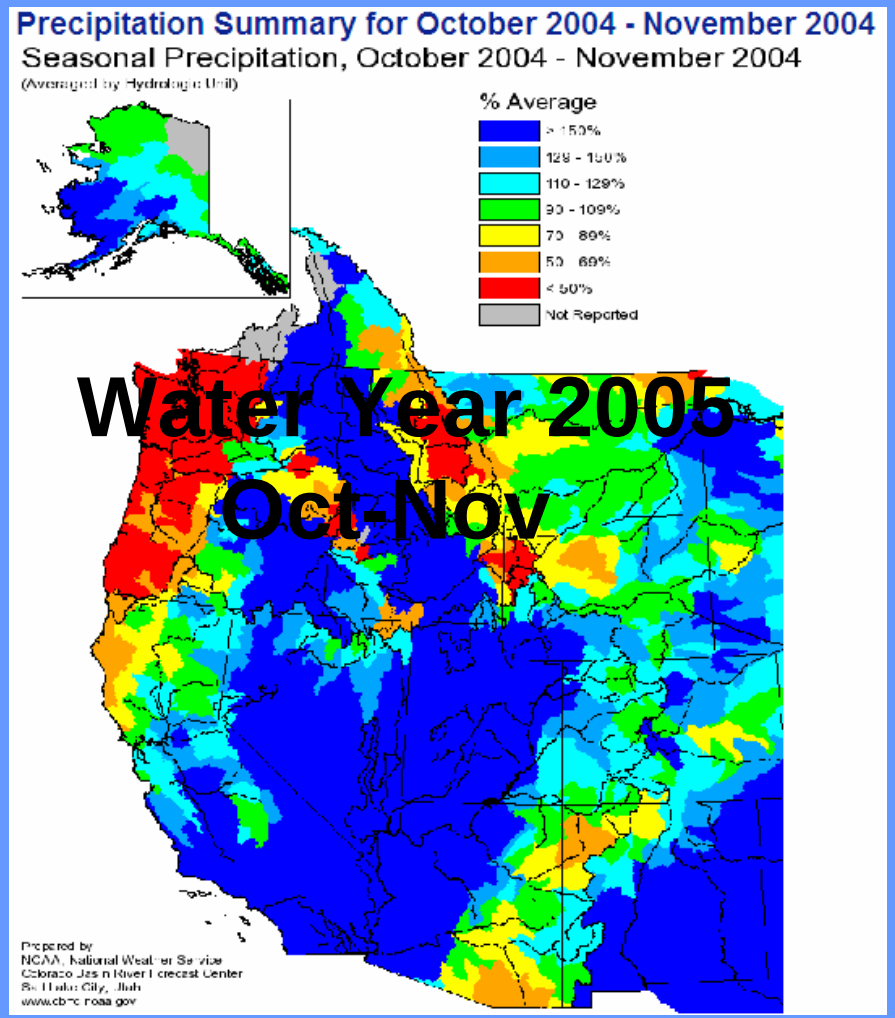
Total Precipitation - Water Year 2004
Total Precipitation - Water Year 2005





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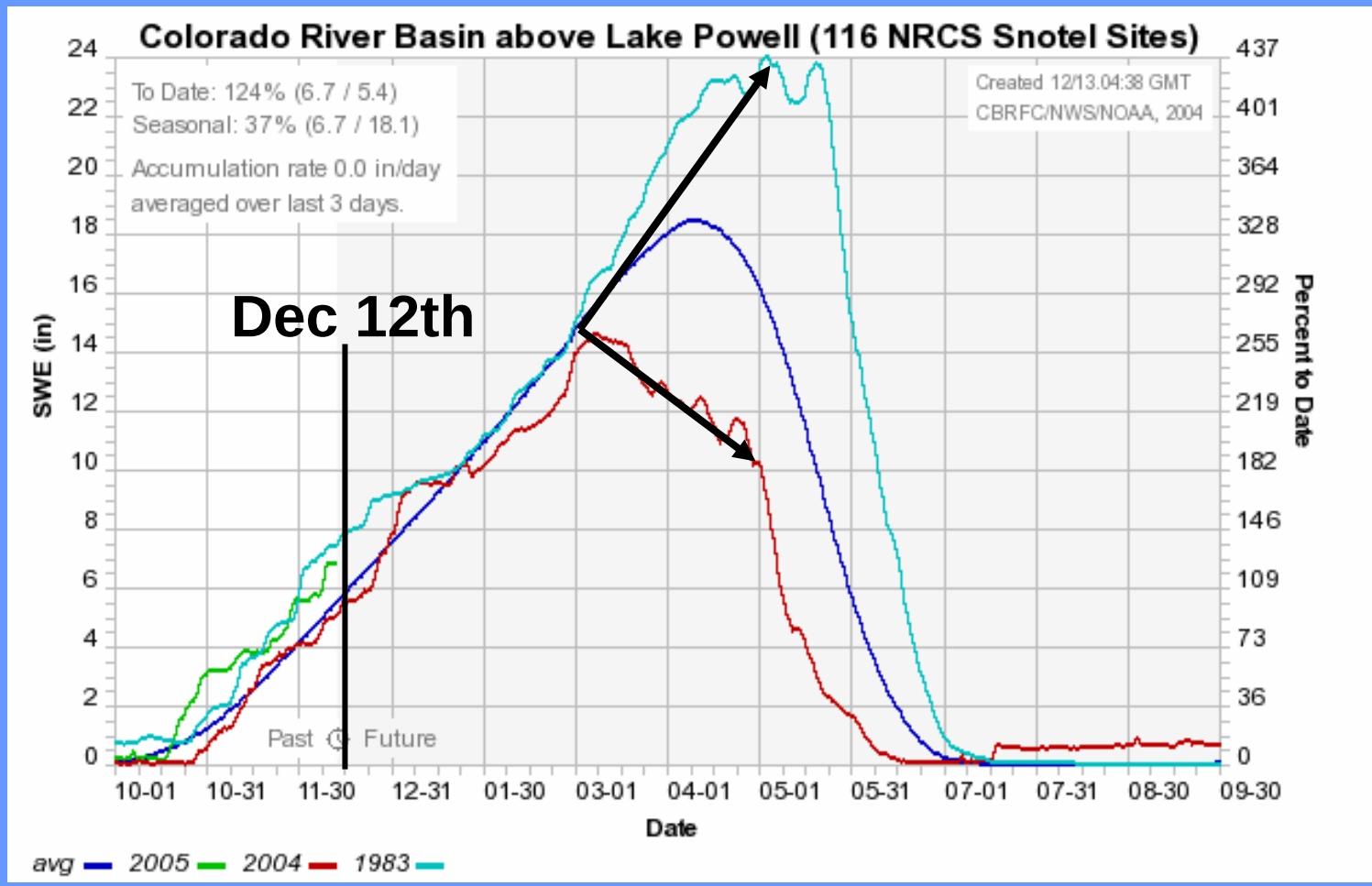
Snow Water Equivalent From 116 Stations Above Lake Powell – December 13 2005



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Percent of Normal Storage for Main USBR Reservoirs in Upper Basin

As of: December 13, 2004

FLAMING GORGE:	86%
NAVAJO:	71%
BLUE MESA:	85%
LAKE POWELL:	46%
COMBINED:	54%

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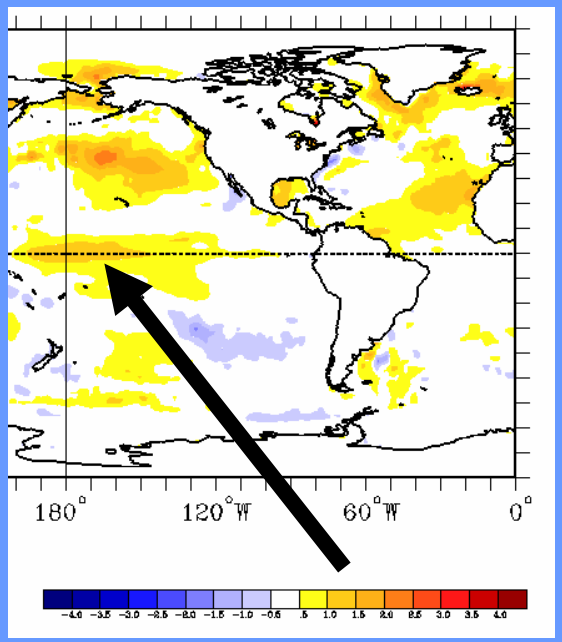
Precipitation Patterns From an El Nino Over the Colorado Basin



DRYER THAN USUAL

WETTER THAN USUAL

9/12/04 thru 12/11/04

1 Degree Temperature Anomaly

Weak El Nino

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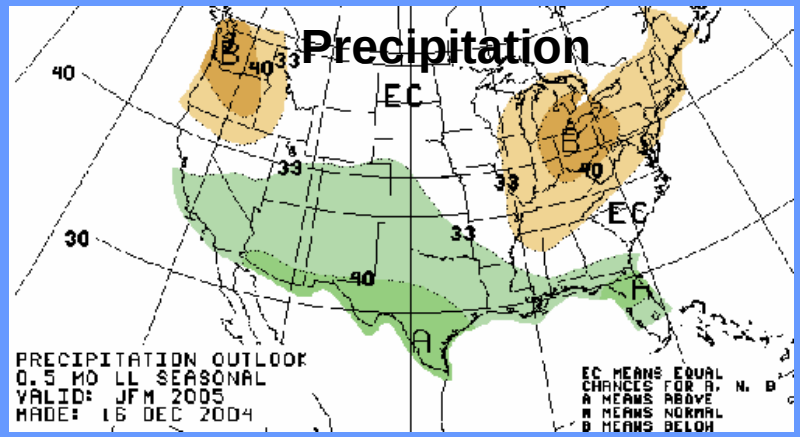
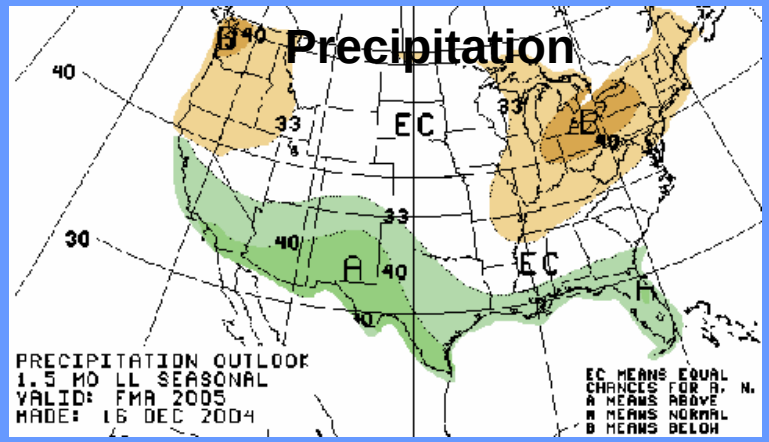
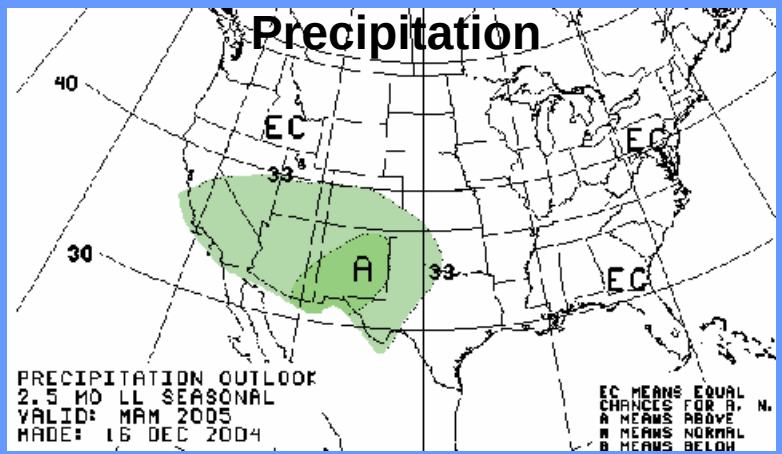
Precipitation Forecasts
Winter/Spring 2005 – Issued DEC 16, 2004



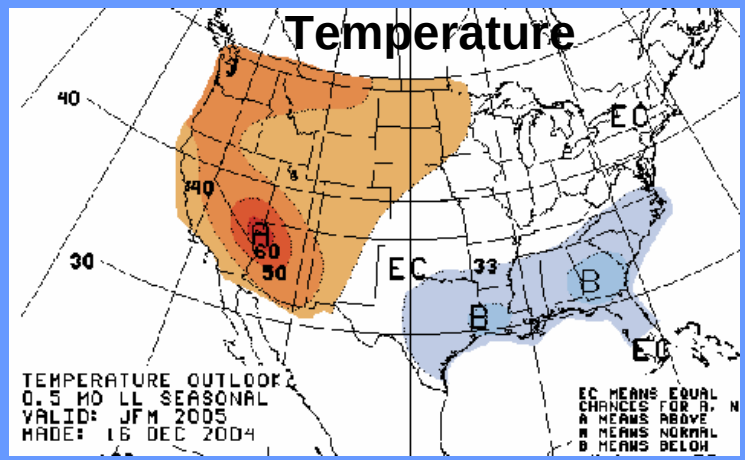
JAN-FEB-MAR



FEB-MAR-APR



MAR-APR-MAY



JAN-FEB-MAR

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2005 Forecast for April-July Volume Lake Powell

10% Chance To Be Above:	13.4 MAF	
25% Chance To Be Above:	9.7 MAF	
Average	7.9 MAF	
50% Chance To Be Above:	7.3 MAF	Most Probable
75% Chance To Be Above:	5.4 MAF	
90% Chance To Be Above:	4.1 MAF	

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THE BIG QUESTION ?

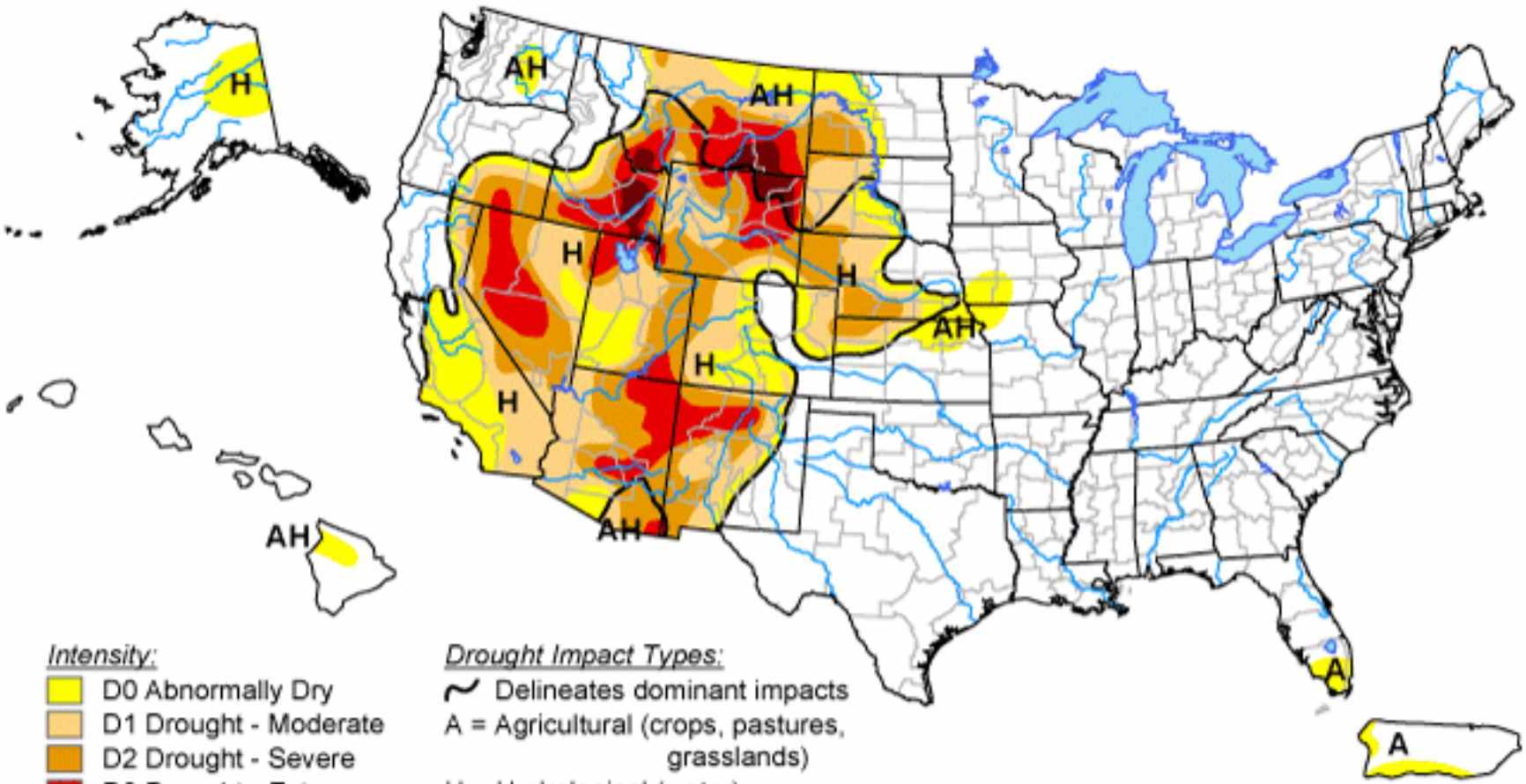
Is the drought over

?

What to you think ?

U.S. Drought Monitor

December 14, 2004
Valid 7 a.m. EST



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

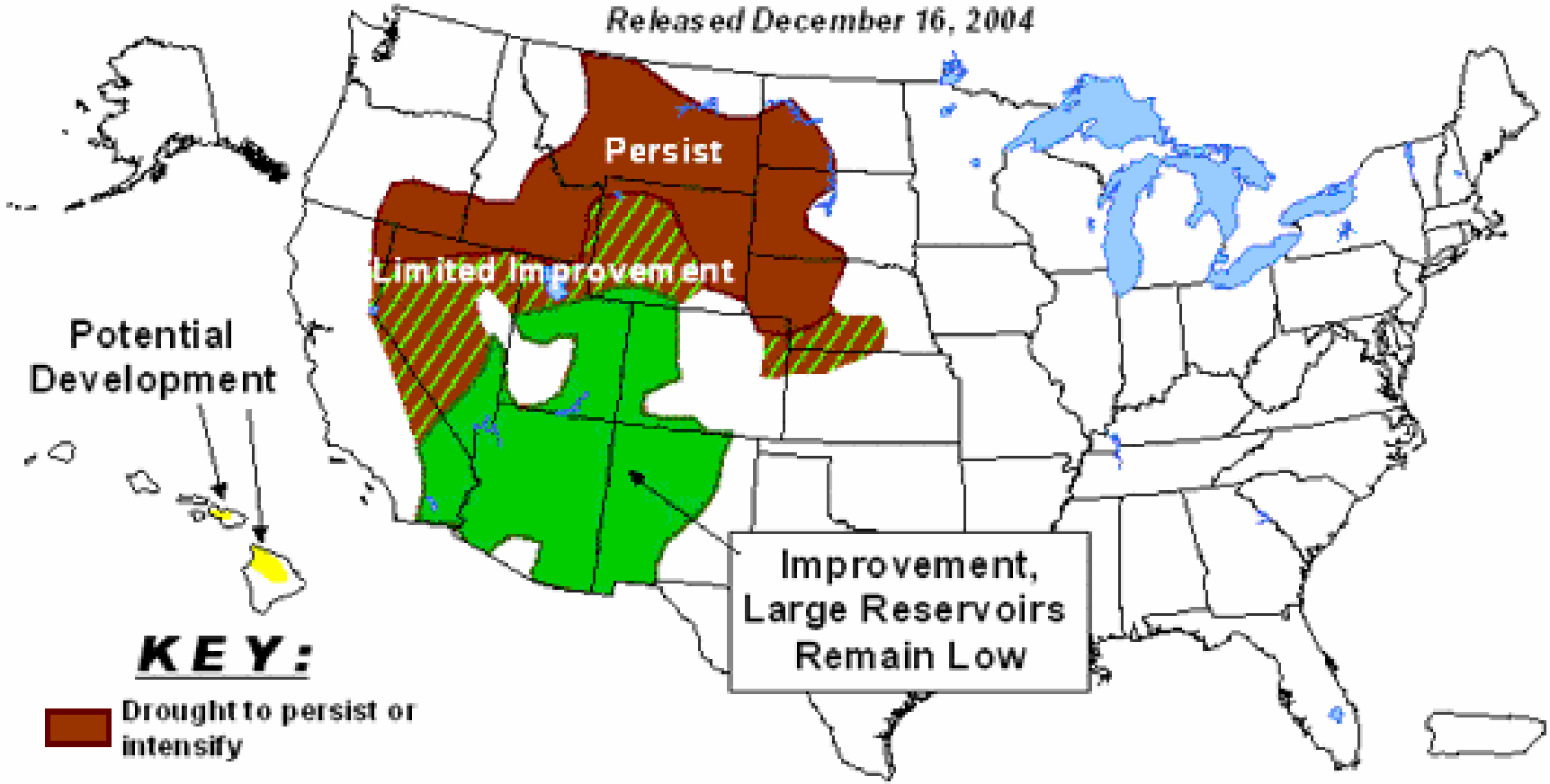
Released Thursday, December 16, 2004

Author: David Miskus, JAWF/CPC/NOAA

U.S. Seasonal Drought Outlook

Through March 2005

Released December 16, 2004



KEY:

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

Depicts general, large-scale trends based on subjectively derived probabilities guided by numerous indicators, including short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more that a few days in advance, so use caution if using this outlook for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are schmatically approximated from the Drought Monitor (D1 to D4). For weekly drought updates, see the latest Drought Monitor map and text. 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.

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REPHRASE THE BIG QUESTION ?

Are their indications that the drought may be waning?

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Possible Indicators

Statistics: 5 years below Average Flow

Higher Fall Flows

Higher Fall Soil Moisture

Weak El Nino

Ocean/Atmospheric Adjustments

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Indicators ?

(1) 16th coolest summer on record - lower contiguous states

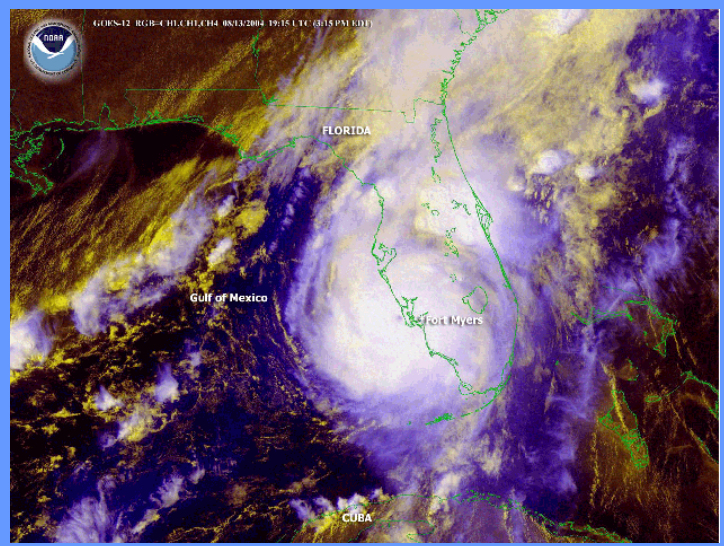
(2) 7th coolest august on record - lower contiguous states

(3) 10th wettest august on record - lower contiguous states

(4) Wettest summer on record in Texas, Louisiana, Mississippi Arkansas, Oklahoma and Kansas

(5) 8 named tropical cyclones in august broke a record

(6) 3 major hurricanes hit Florida



SOURCE:http://www.noaanews.noaa.gov/stories2004/s2319.htm

The End …