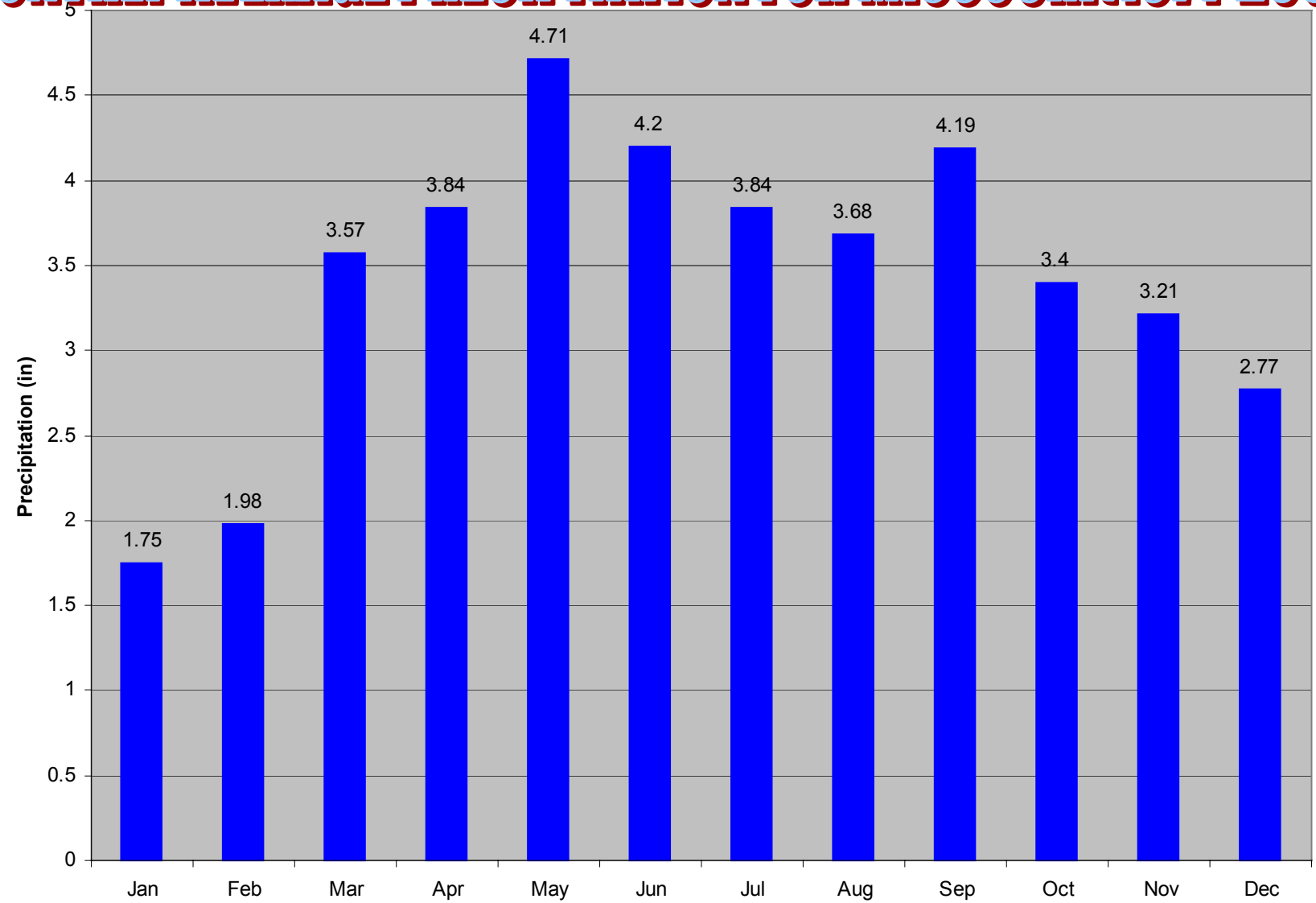
DNR Drought Assessment Committee Meeting March Presentation March 3, 2004 Water Resources Program

Missouri Department of Natural Resources

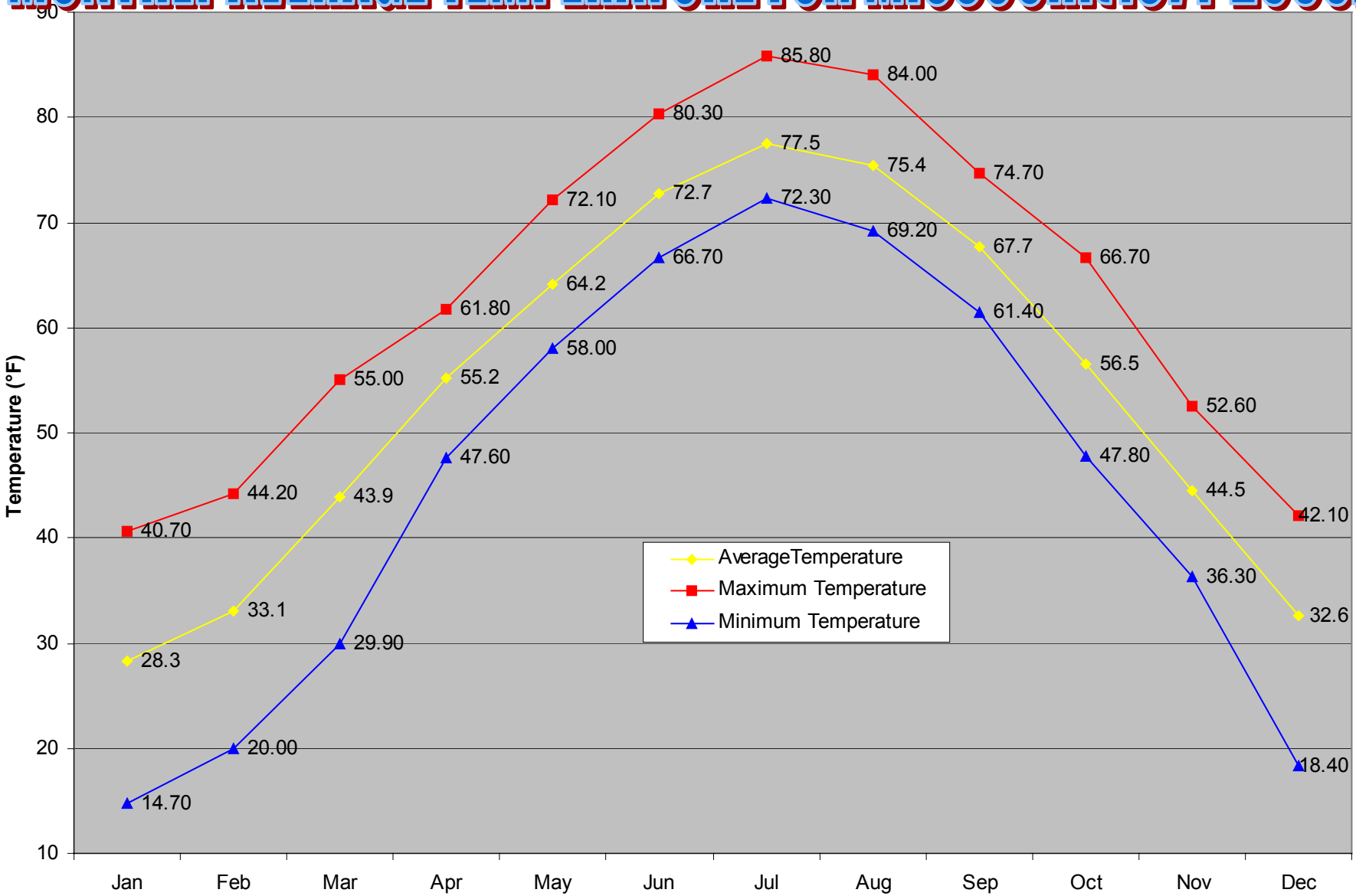
Thompson River Jan. 2004

MONTHLY AVERAGE PRECIPITATION FOR MISSOURI (1971-2000)



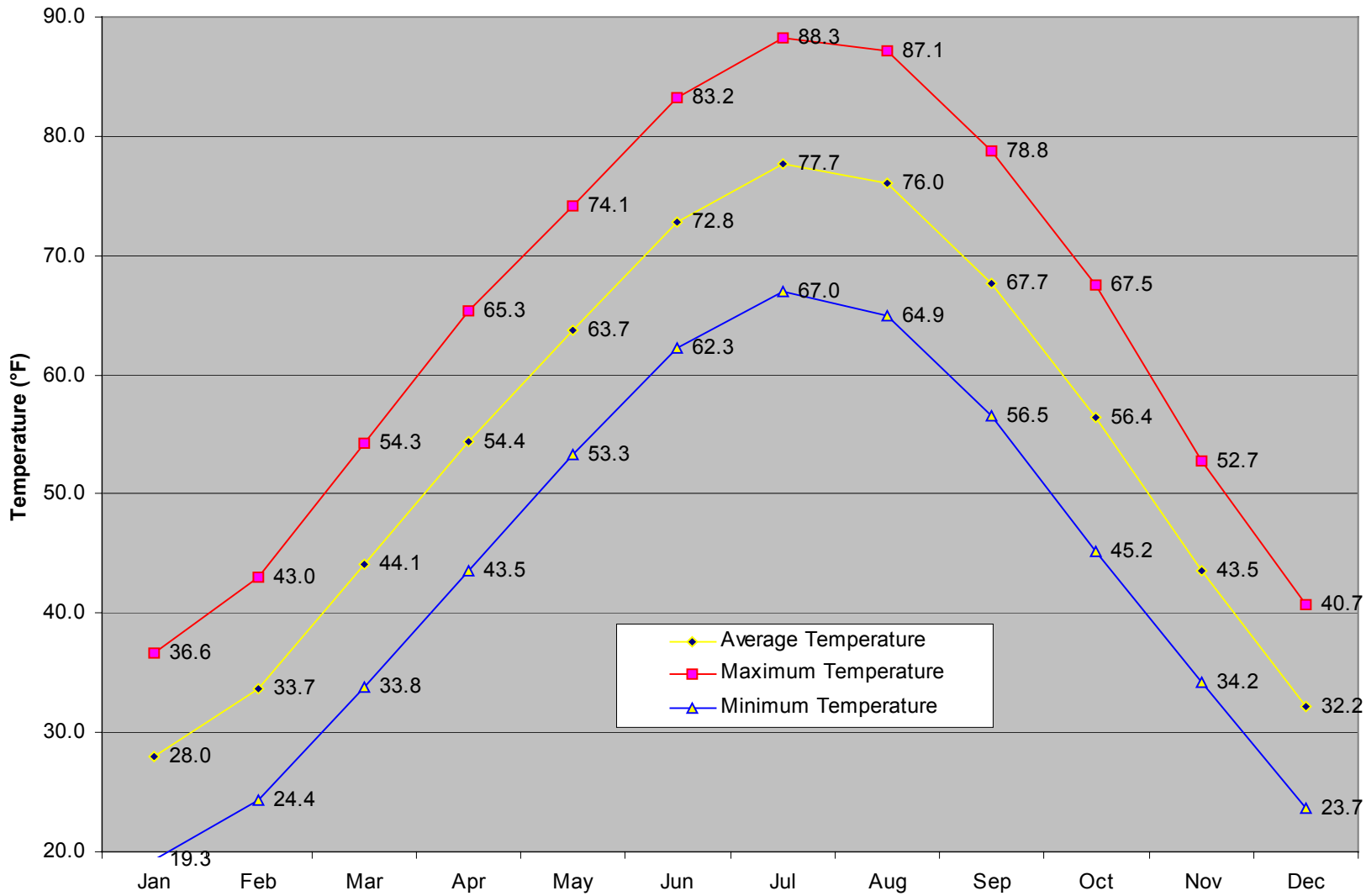
Missouri Climate Center

MONTHLY AVERAGE TEMPERATURE FOR MISSOURI (1971-2000)



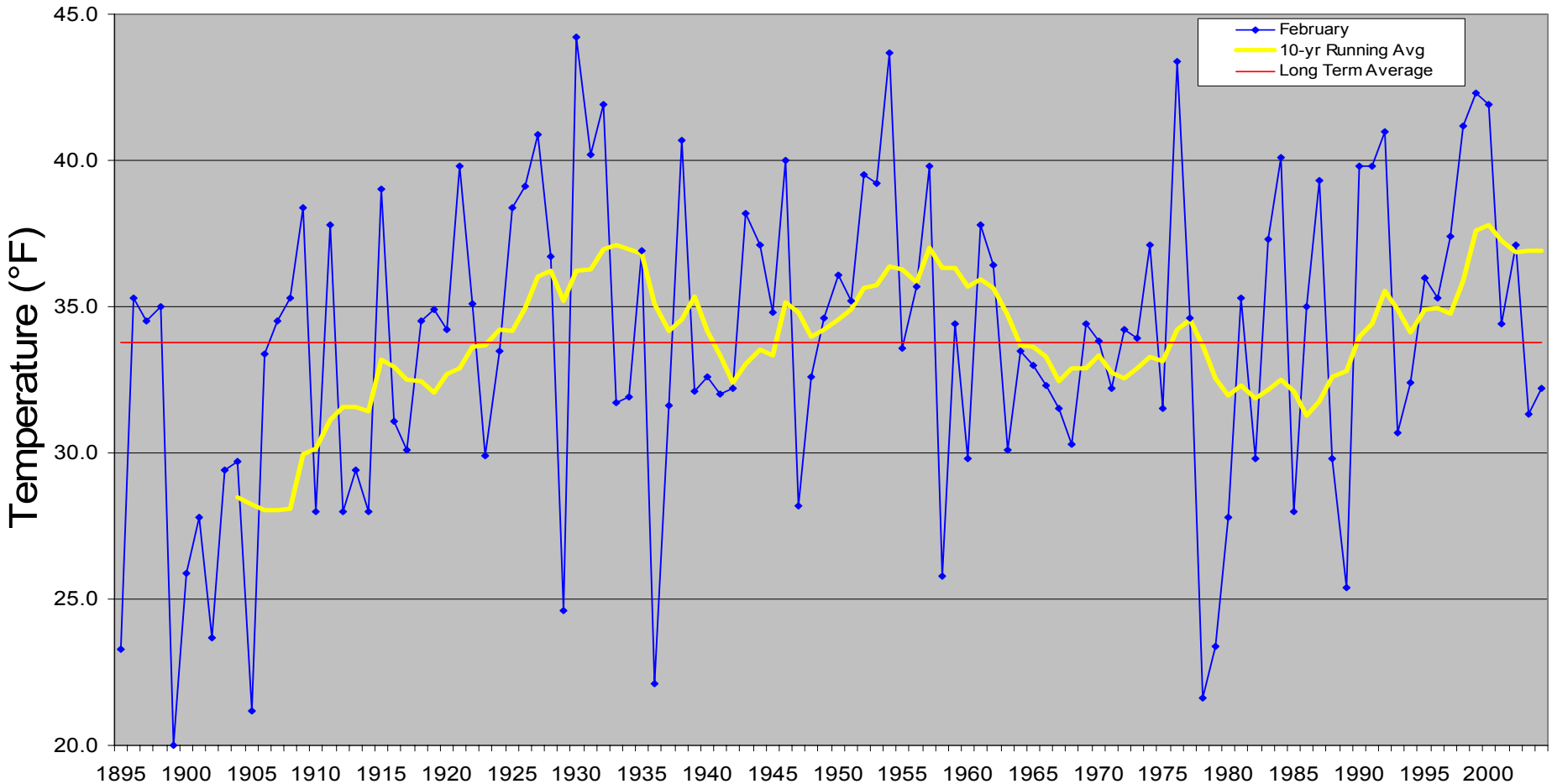
Missouri Climate Center

MONTHLY AVERAGE TEMPERATURE FOR COLUMBIA (1971-2000)



Missouri Climate Center

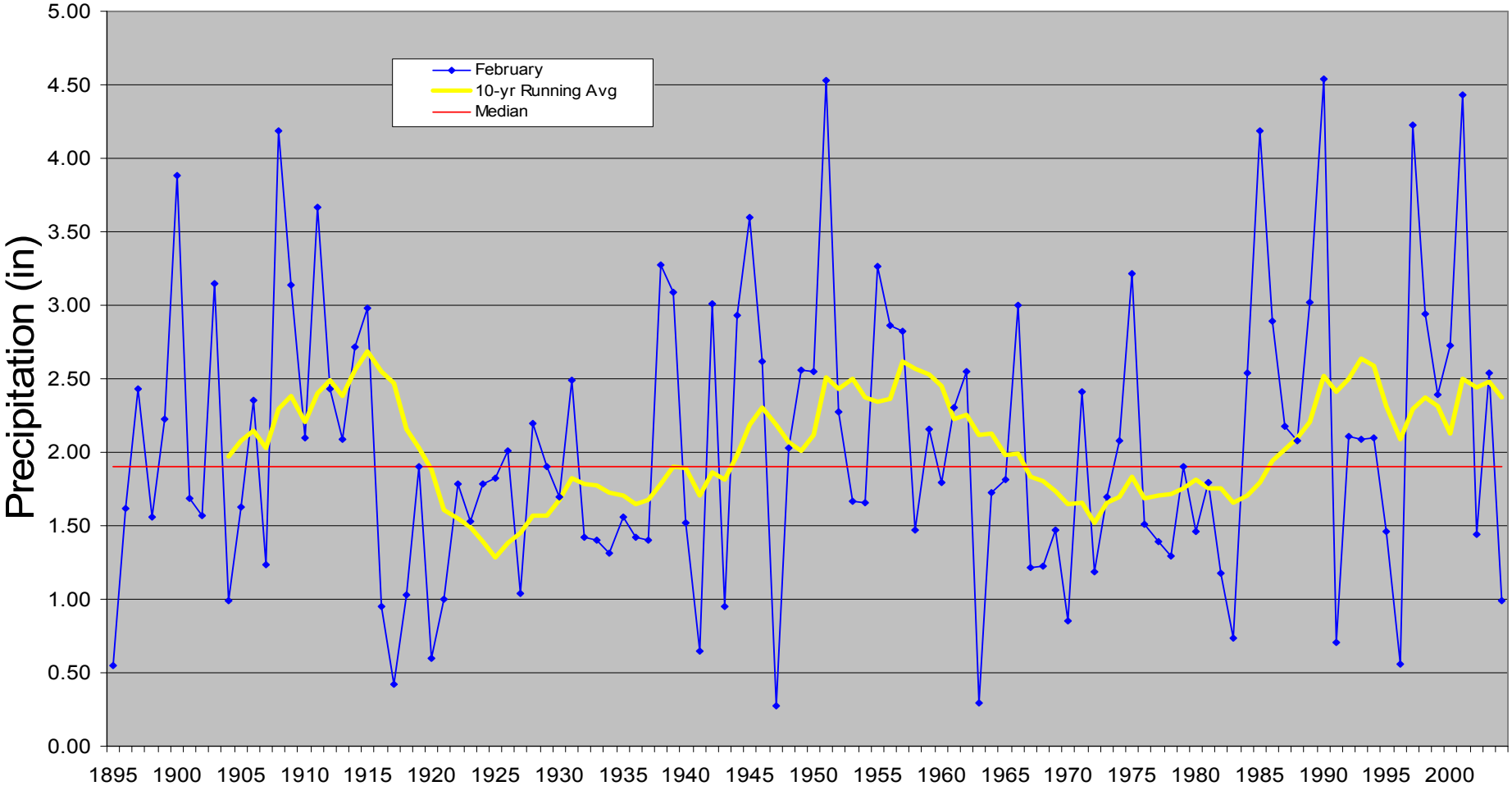
HISTORICAL FEBRUARY TEMPERATURE FOR MISSOURI



2004 Average:	**32.2°F**	**Maximum:**	**44.2 °F in 1930**
Monthly Ranking:	**39rd Coolest in 110 years**	**Minimum:**	**20.0 °F in 1899**
State Normal:	**33.1 °F (1971-2000)**	**Years in Record:**	**110**

Missouri Climate Center

HISTORICAL FEBRUARY PRECIPITATION FOR MISSOURI



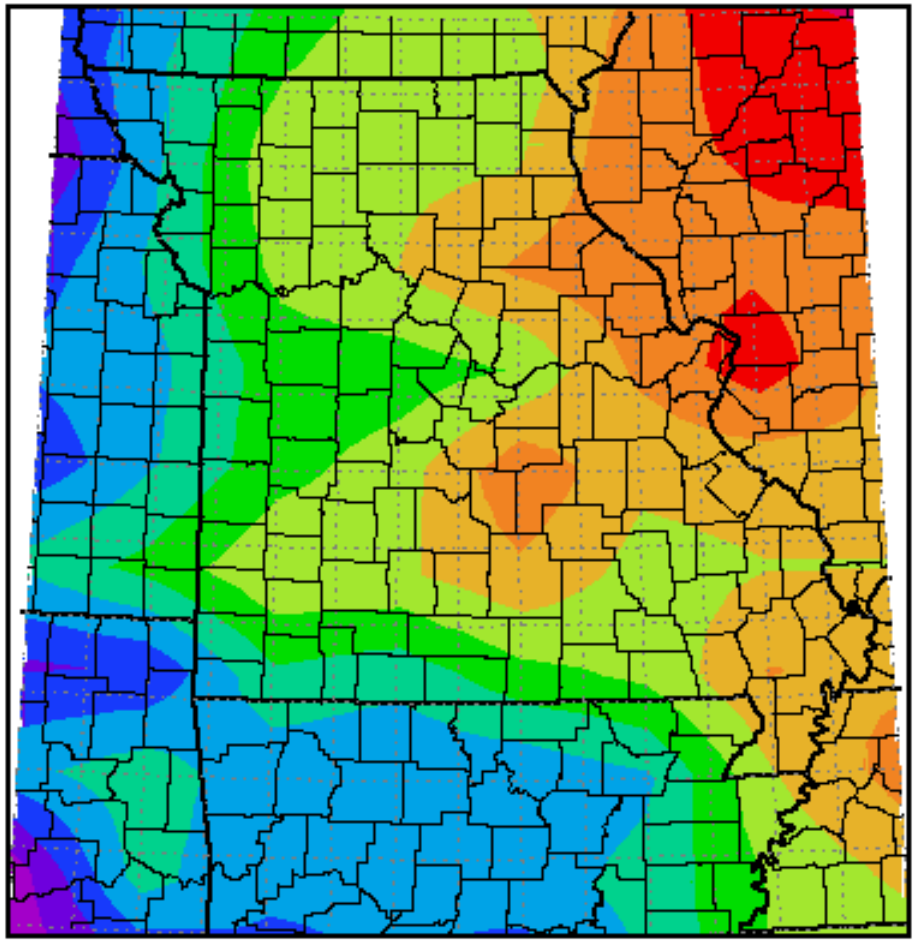
2004 Amount:	**0.99 in**	**Maximum:**	**4.54 inches in 1990**
Monthly Ranking:	**13th Driest in 110 years**	**Minimum:**	**0.27 inches in 1947**
State Normal:	**1.98 inches (1971-2000)**	**Years in Record:**	**110**

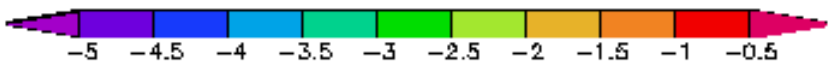
Missouri Climate Center

FEBRUARY

TEMPERATURE

Average Temperature Departure from Mean in Degrees F
February 1, 2004 to February 29, 2004



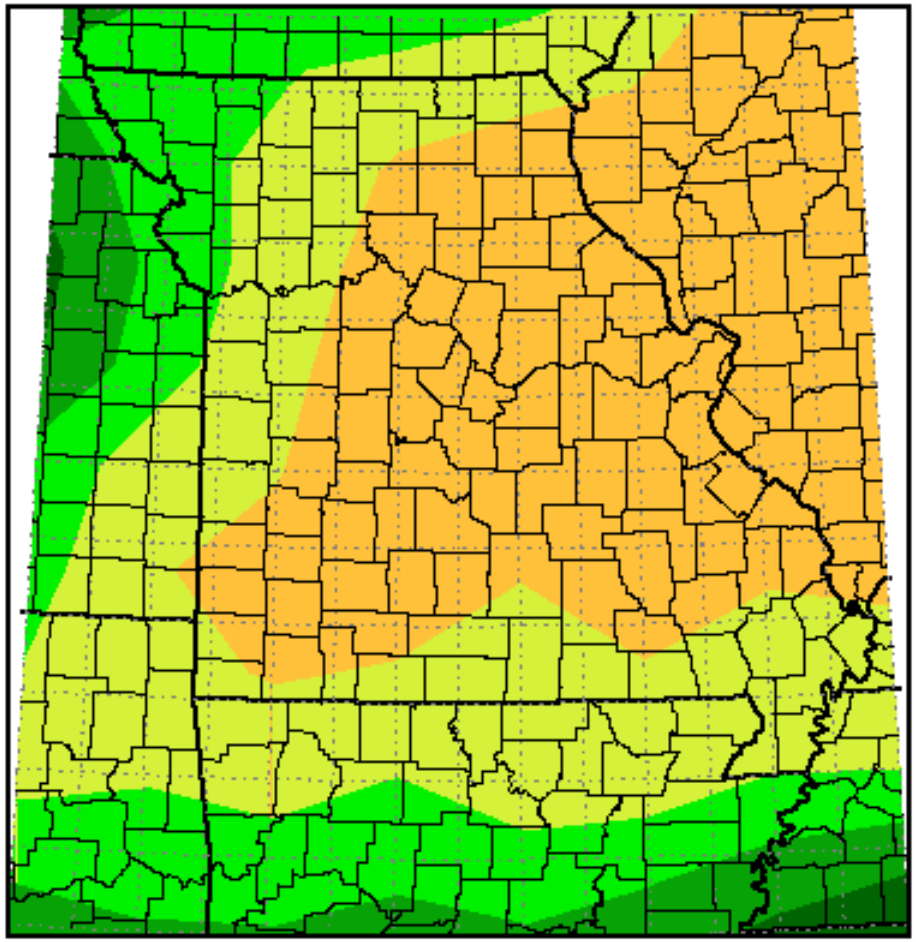


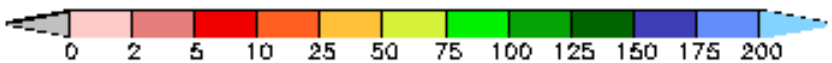
Midwestern Regional Climate Center
Illinois State Water Survey
Champaign, Illinois

FEBRUARY

PRECIPITATION

Total Precipitation Percent of Mean
February 1, 2004 to February 29, 2004

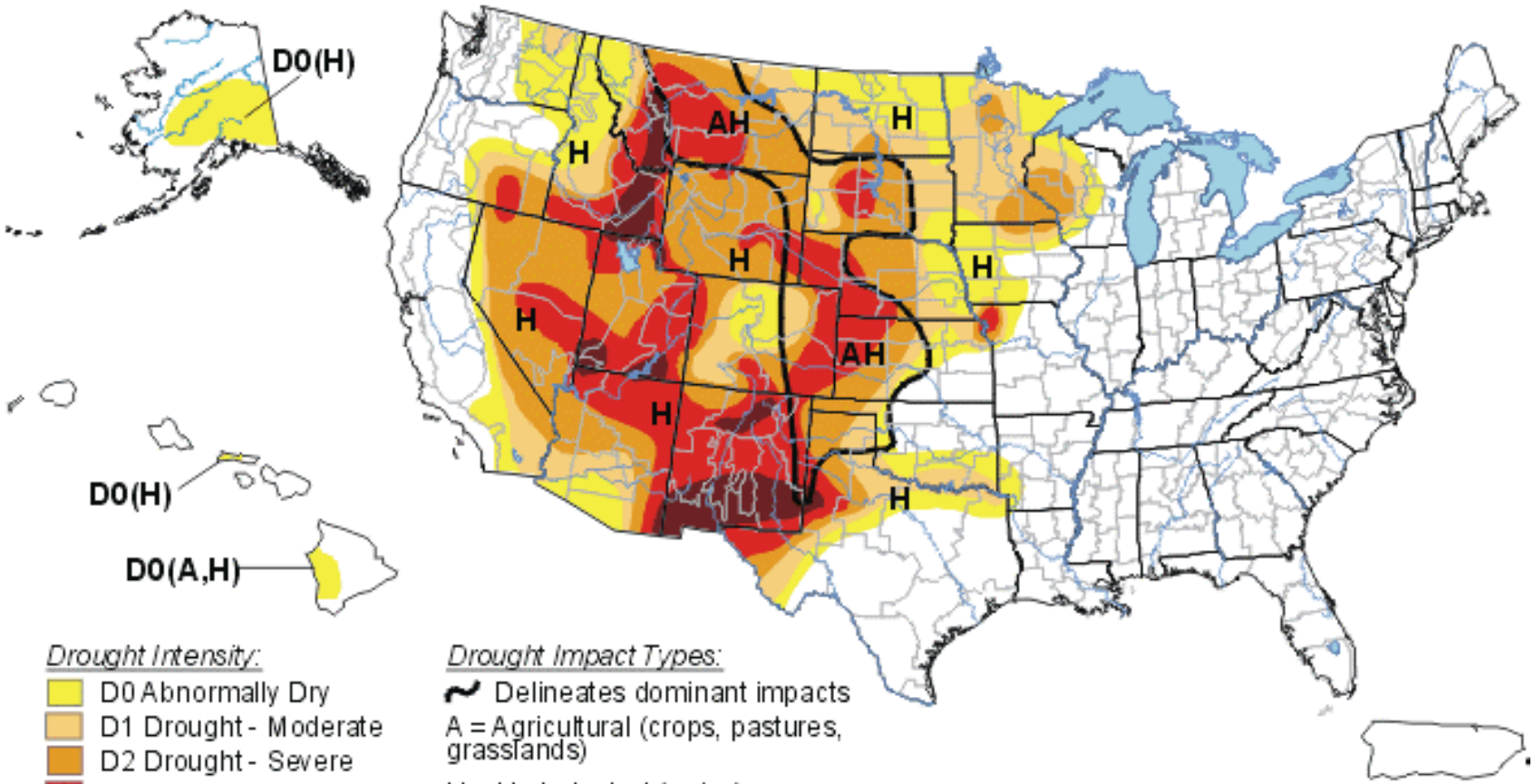




Midwestern Regional Climate Center
Illinois State Water Survey
Champaign, Illinois

U.S. Drought Monitor

February 24, 2004
Valid 7 a.m. EST



Drought 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.

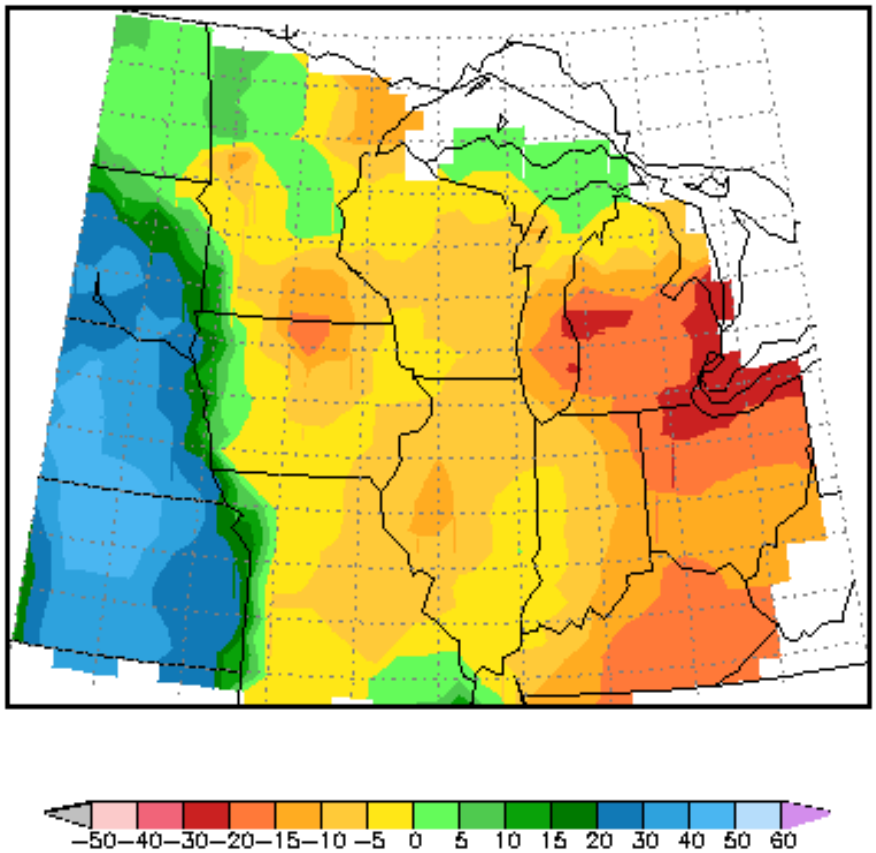
http://drought.unl.edu/dm

Released Thursday, February 26, 2004

Author: Richard Heim/Candace Tankersley. NOAA/NCDC

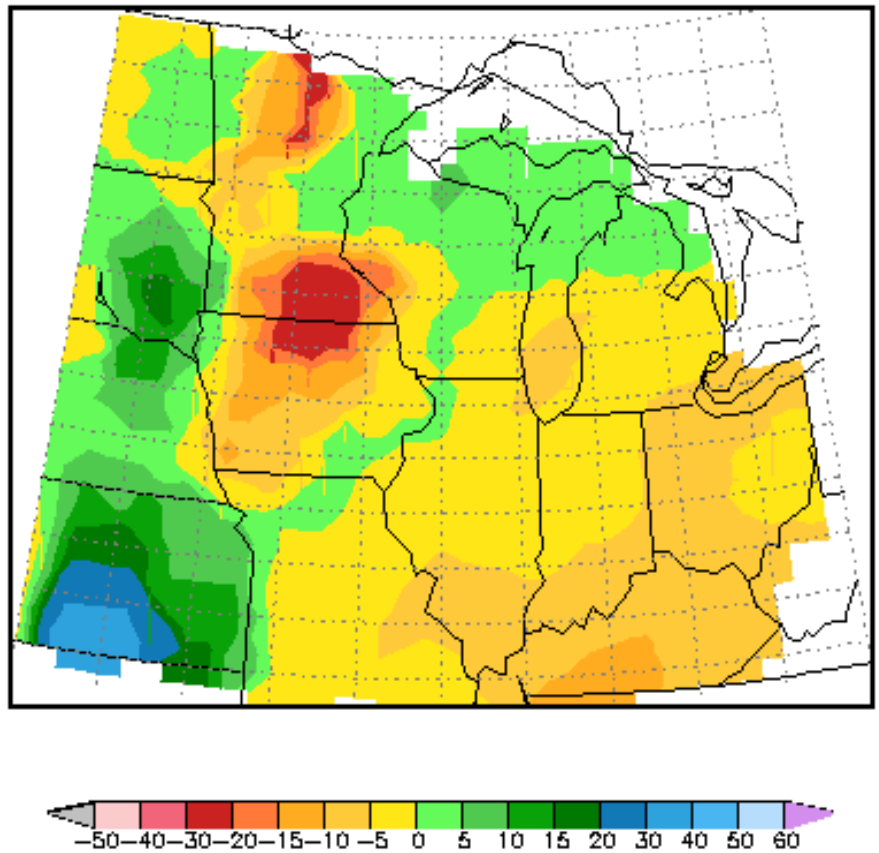
CURRENT SOIL MOISTURE

Current Soil Moisture Deviation (%), Depth = 0–12
March–1–2004



Midwestern Regional Climate Cent
Illinois State Water Survey
Champaign, Illinois

Current Soil Moisture Deviation (%), Depth = 0–72
March–1–2004

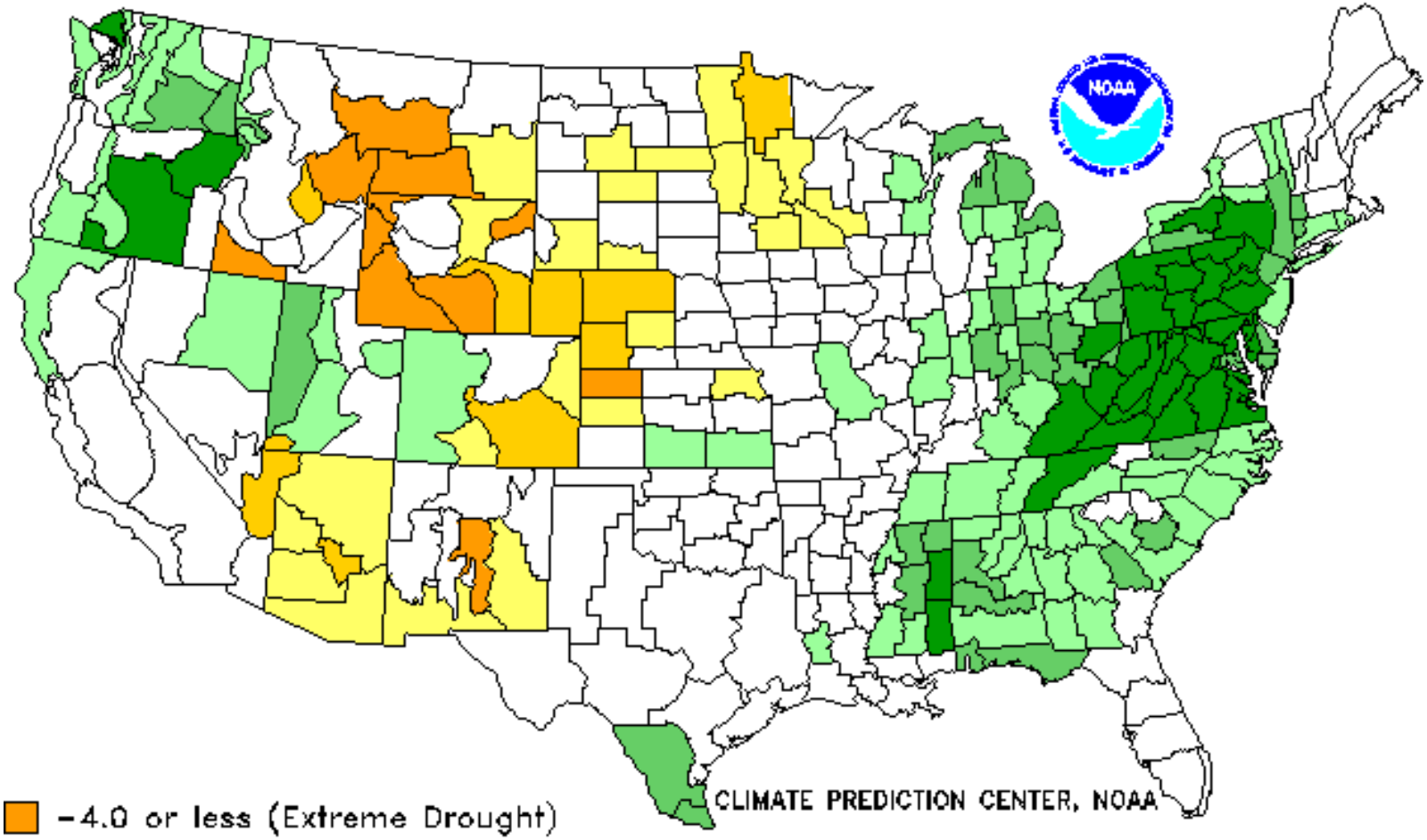


Midwestern Regional Climate Center
Illinois State Water Survey
Champaign, Illinois

Drought Severity Index by Division

Weekly Value for Period Ending 21 FEB 2004

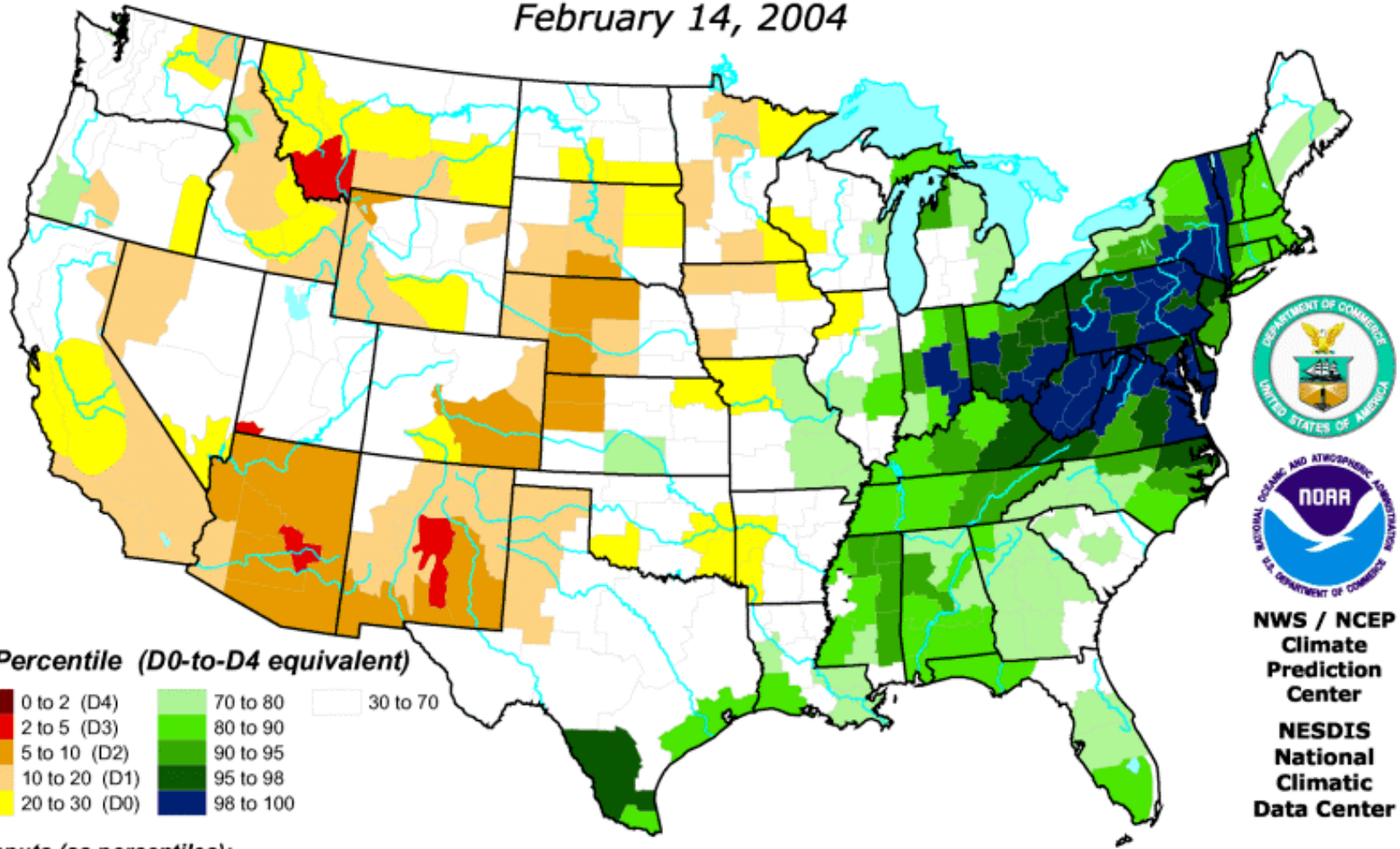
Long Term Palmer



- −4.0 or less (Extreme Drought)
- −3.0 to −3.9 (Severe Drought)
- −2.0 to −2.9 (Moderate Drought)
- −1.9 to +1.9 (Near Normal)
- +2.0 to +2.9 (Unusual Moist Spell)
- +3.0 to +3.9 (Very Moist Spell)
- +4.0 and above (Extremely Moist)

Objective *Long-Term* Drought Indicator Blend Percentiles

February 14, 2004



Percentile (D0-to-D4 equivalent)

- 0 to 2 (D4)
- 2 to 5 (D3)
- 5 to 10 (D2)
- 10 to 20 (D1)
- 20 to 30 (D0)
- 30 to 70
- 70 to 80
- 80 to 90
- 90 to 95
- 95 to 98
- 98 to 100

NWS / NCEP Climate Prediction Center

NESDIS National Climatic Data Center

Inputs (as percentiles):

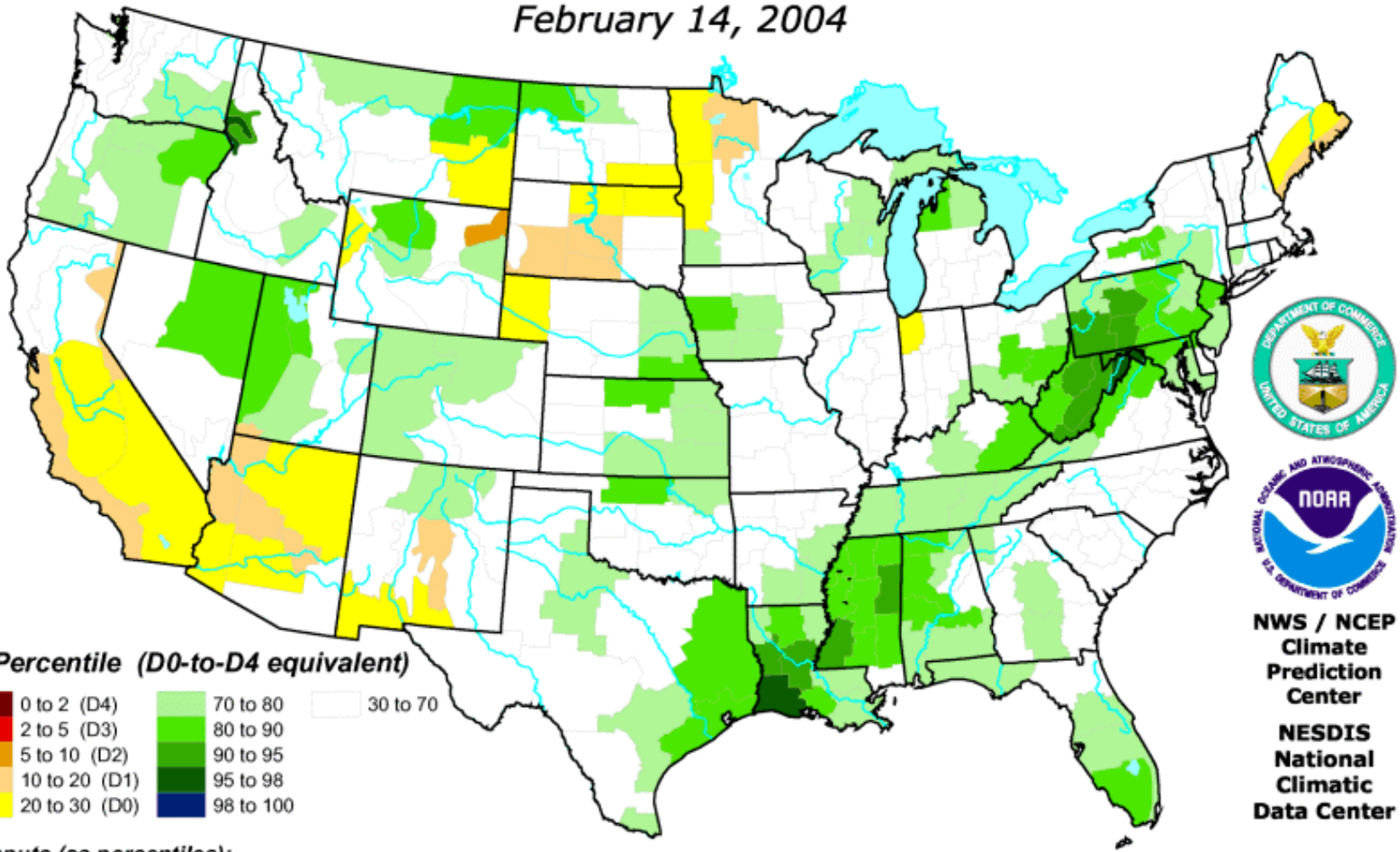
25% Palmer Hydrologic Index
20% 24-Month Precipitation
20% 12-Month Precipitation
15% 6-Month Precipitation
10% 60-Month Precipitation
10% CPC Soil Moisture Model

This map approximates impacts that respond to precipitation over the course of several months to a few years, such as reservoir content, groundwater depth, and lake levels. HOWEVER, THE RELATIONSHIP BETWEEN INDICATORS AND WATER SUPPLIES CAN VARY MARKEDLY WITH LOCATION, SEASON, SOURCE, AND MANAGEMENT PRACTICE. Do not interpret this map too literally.

This map is based on preliminary climate division data. Local conditions and/or final data may differ. See the detailed product suite description for more details.

Objective *Short-Term* Drought Indicator Blend Percentiles

February 14, 2004



Percentile (D0-to-D4 equivalent)

- 0 to 2 (D4)
- 2 to 5 (D3)
- 5 to 10 (D2)
- 10 to 20 (D1)
- 20 to 30 (D0)
- 30 to 70
- 70 to 80
- 80 to 90
- 90 to 95
- 95 to 98
- 98 to 100

NWS / NCEP Climate Prediction Center

NESDIS National Climatic Data Center

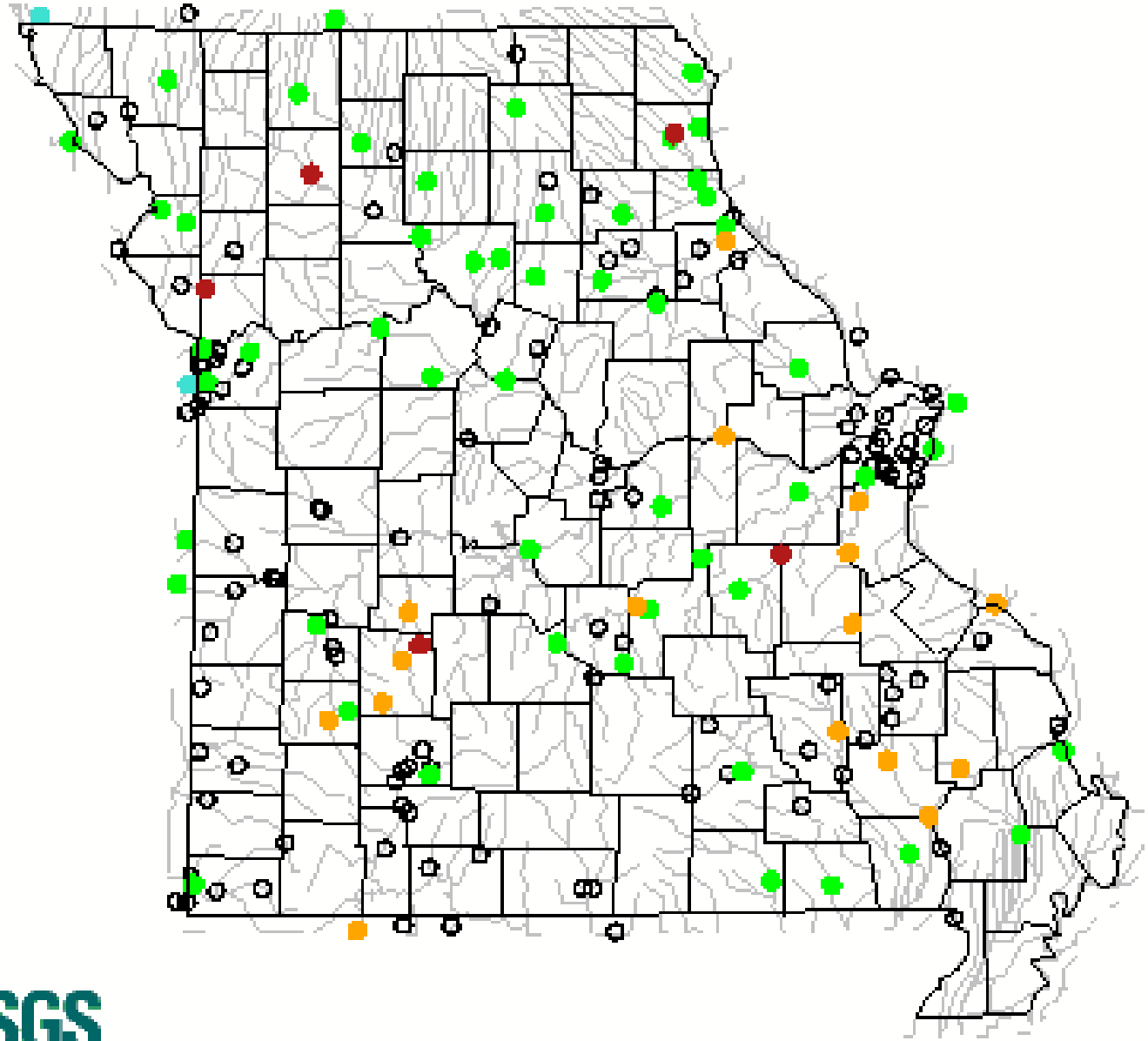
Inputs (as percentiles):

35% Palmer Z-Index
25% 3-Month Precipitation
20% 1-Month Precipitation
13% CPC Soil Moisture Model
7% Palmer Drought Index

This map approximates impacts that respond to precipitation over several days to a few months, such as agriculture, topsoil moisture, unregulated streamflows, and most aspects of wildfire danger. The relationship between indicators and impacts can vary significantly with location and season. Do not interpret this map too literally.

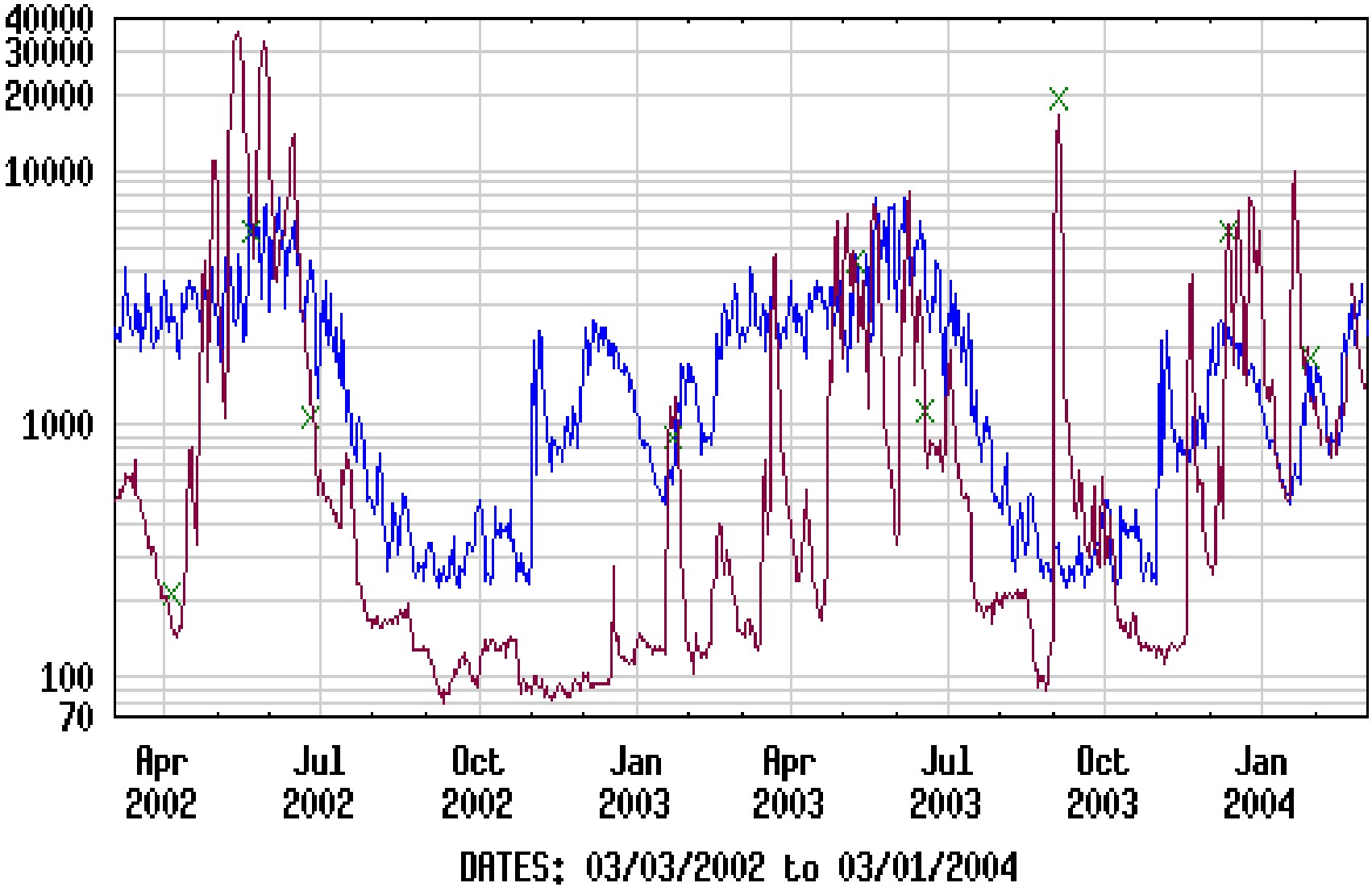
This map is based on preliminary climate division data. Local conditions and/or final data may differ. See the detailed product suite description for more details.

Mon., Mar. 01, 2004 11:20ET

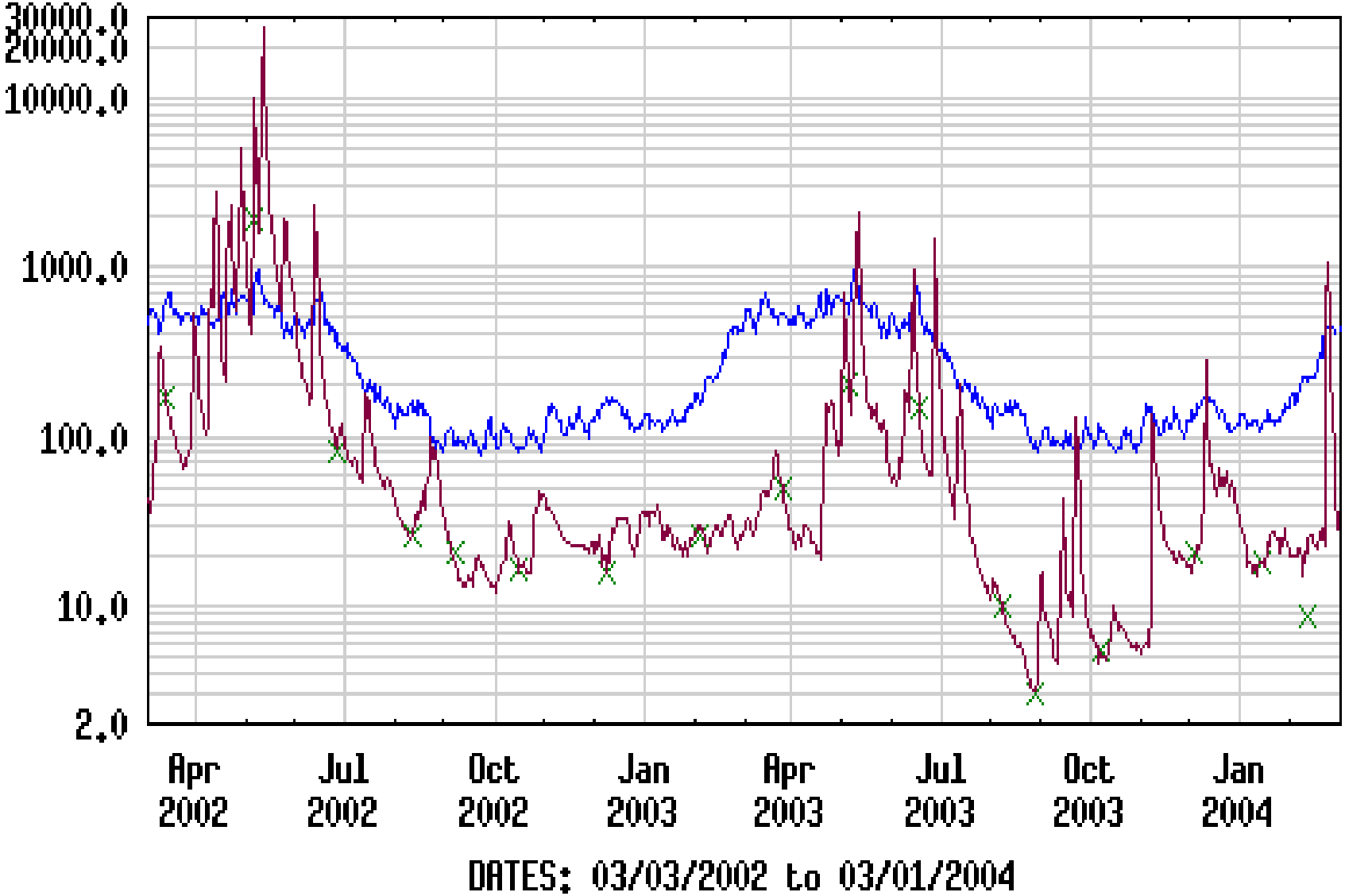


USGS

USGS 06918070 Osage River above Schell City, MO

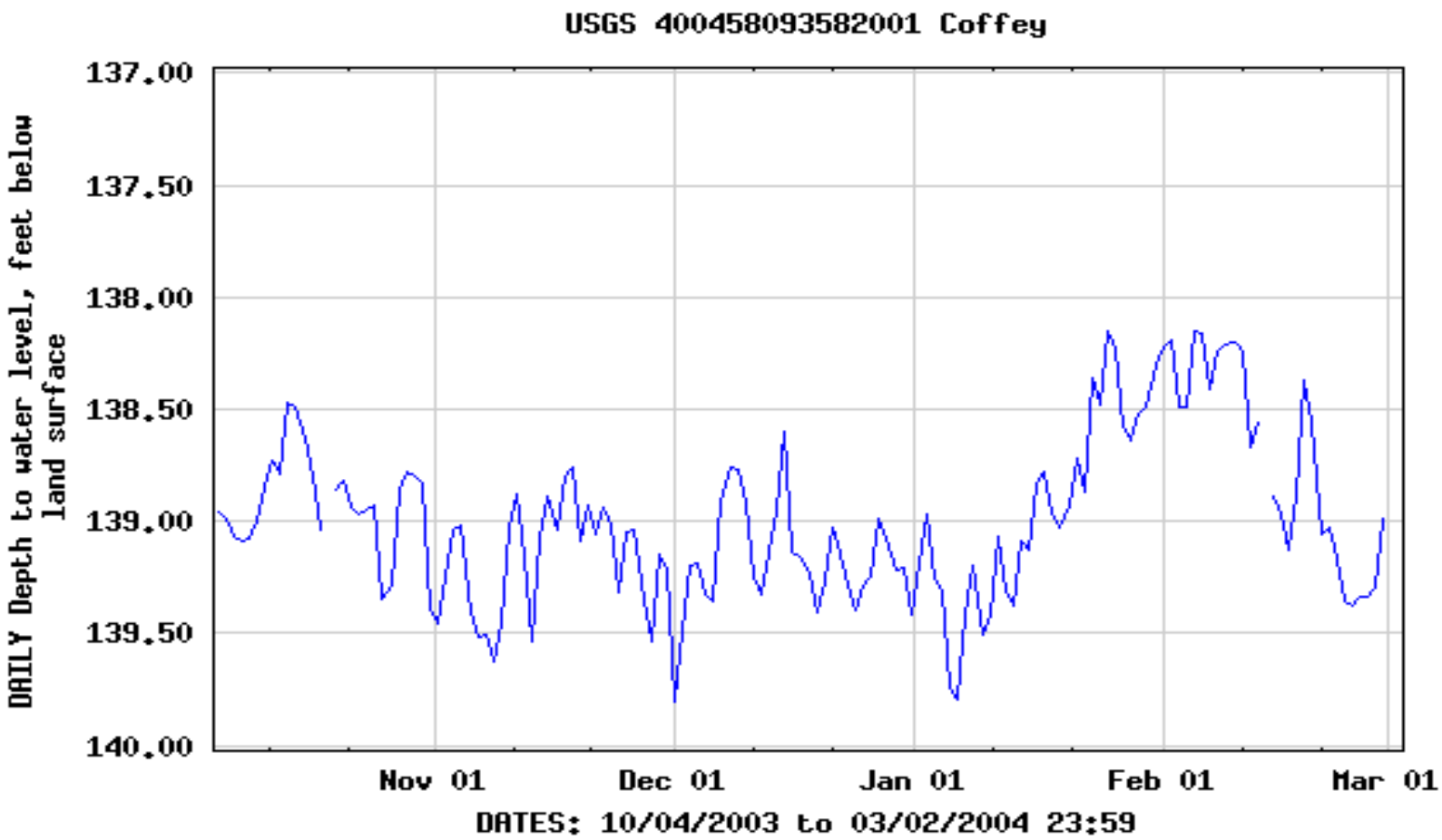


USGS 06897500 Grand River near Gallatin, MO



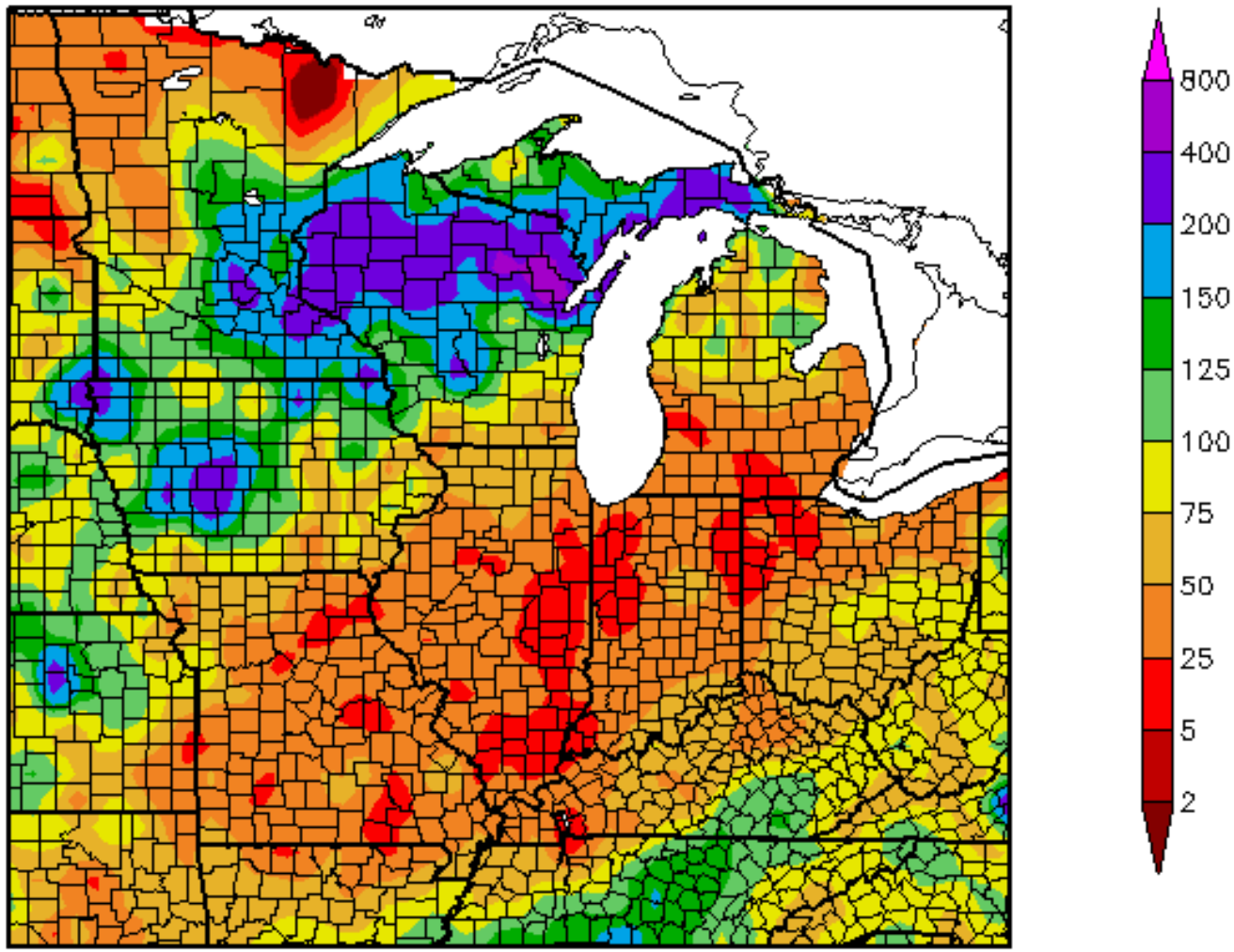
Water Resources Program

Coffey Observation Well



30 DAY

Percent of Normal Precipitation (%)
1/31/2004 – 2/29/2004

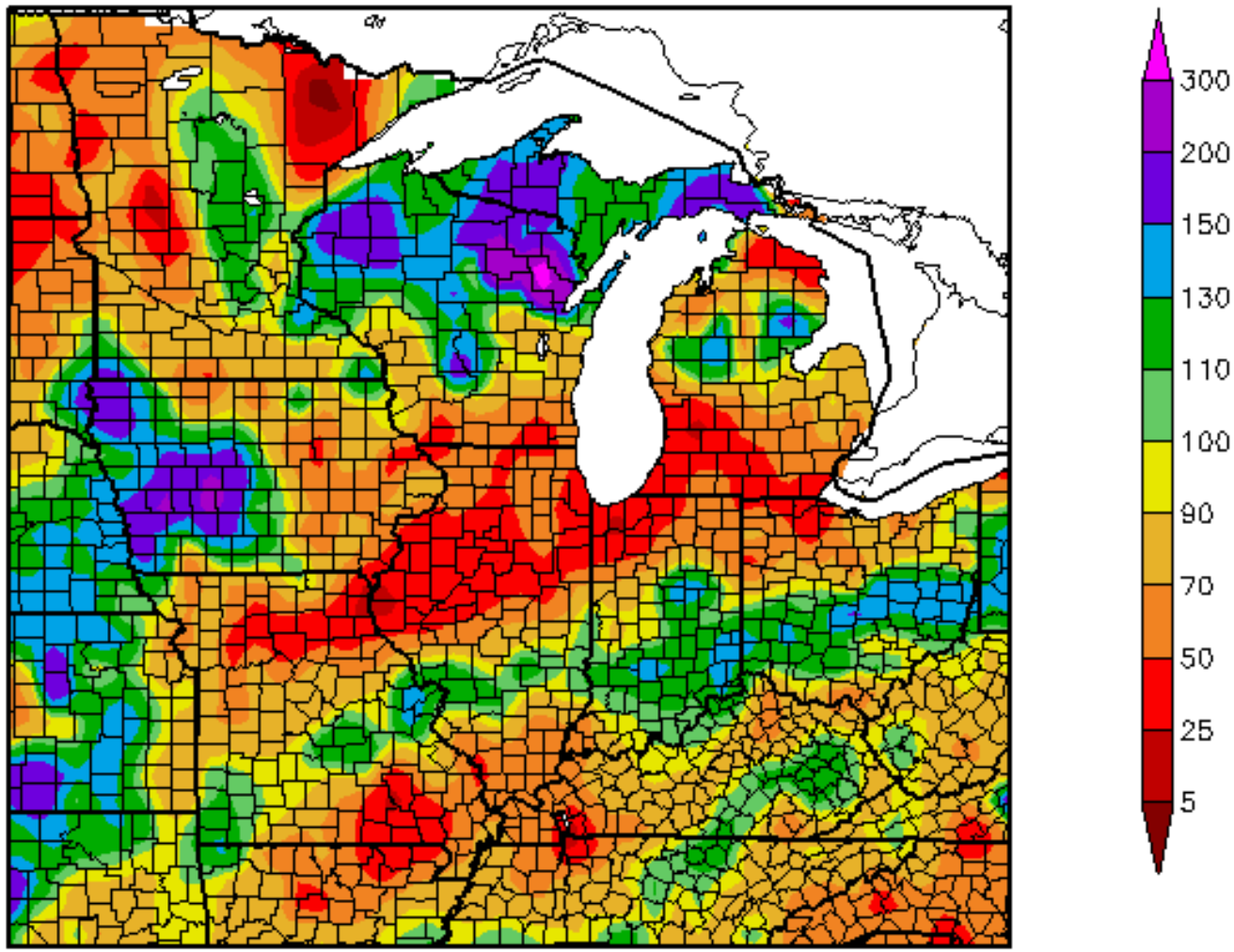


Generated 3/1/2004 at HPRCC using provisional data.

NOAA Regional Climate Centers

60 DAY

Percent of Normal Precipitation (%)
1/1/2004 – 2/29/2004

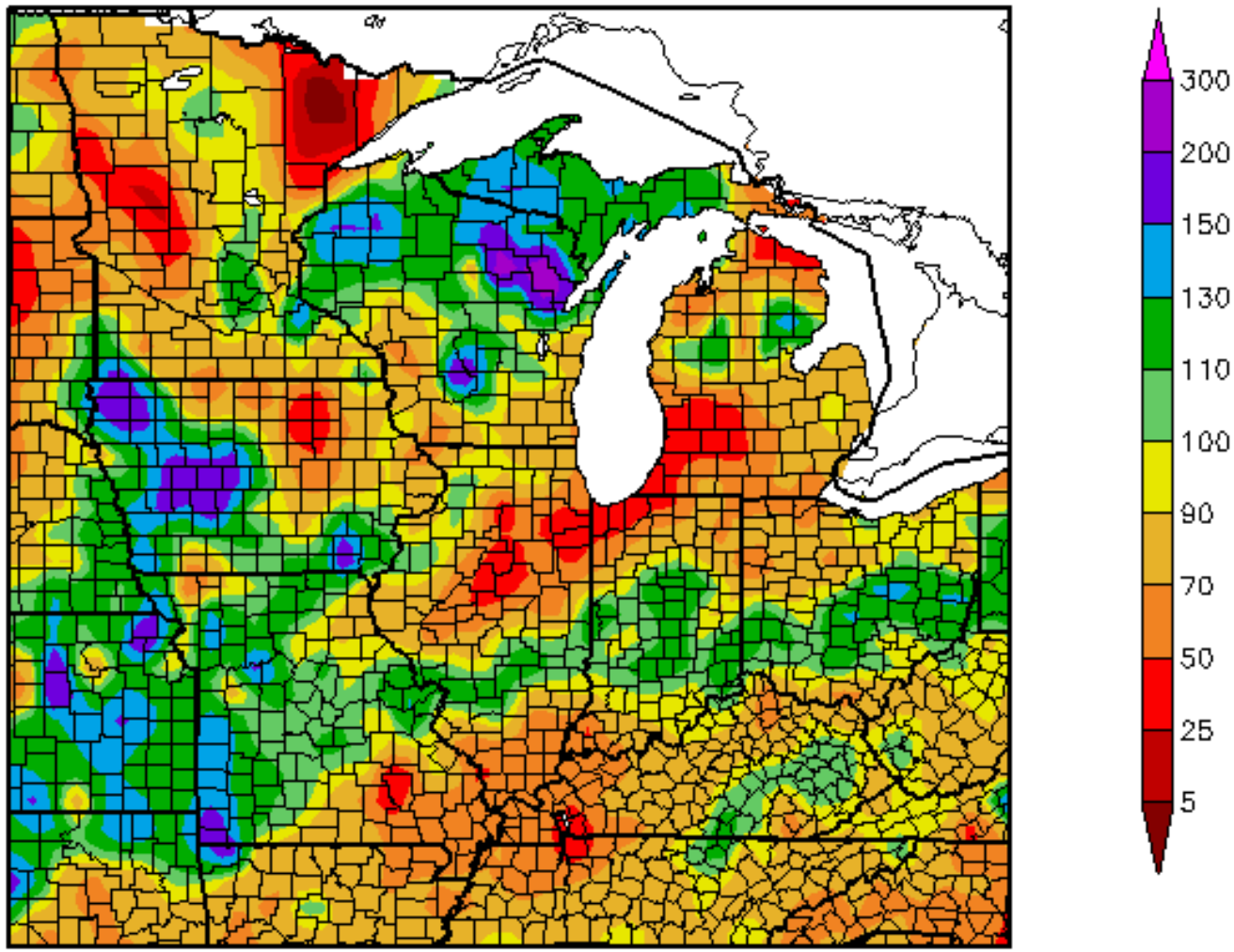


Generated 3/1/2004 at HPRCC using provisional data.

NOAA Regional Climate Centers

90 DAY

Percent of Normal Precipitation (%)
12/2/2003 – 2/29/2004

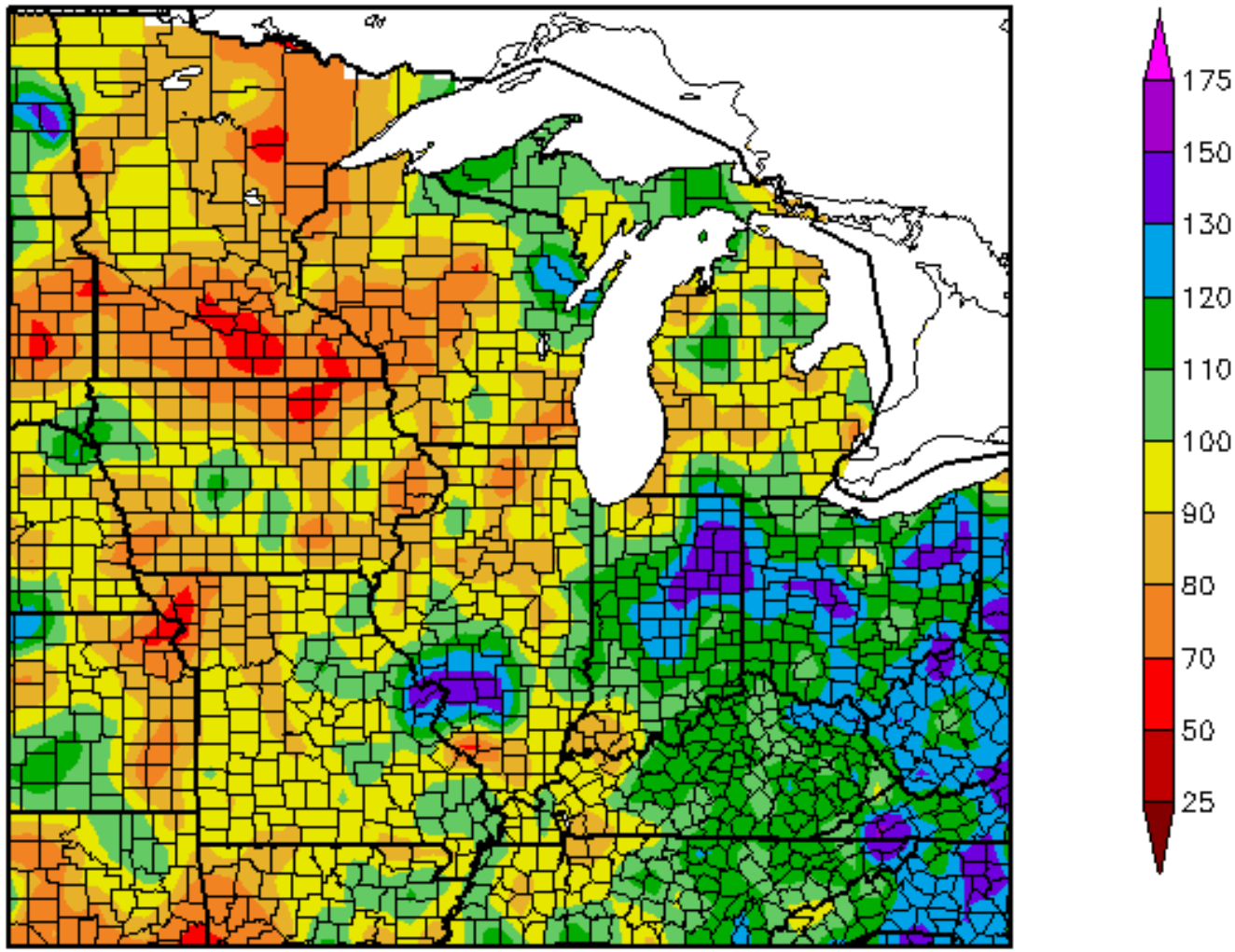


Generated 3/1/2004 at HPRCC using provisional data.

NOAA Regional Climate Centers

Percent of Normal Precipitation (%)
3/1/2003 – 2/29/2004

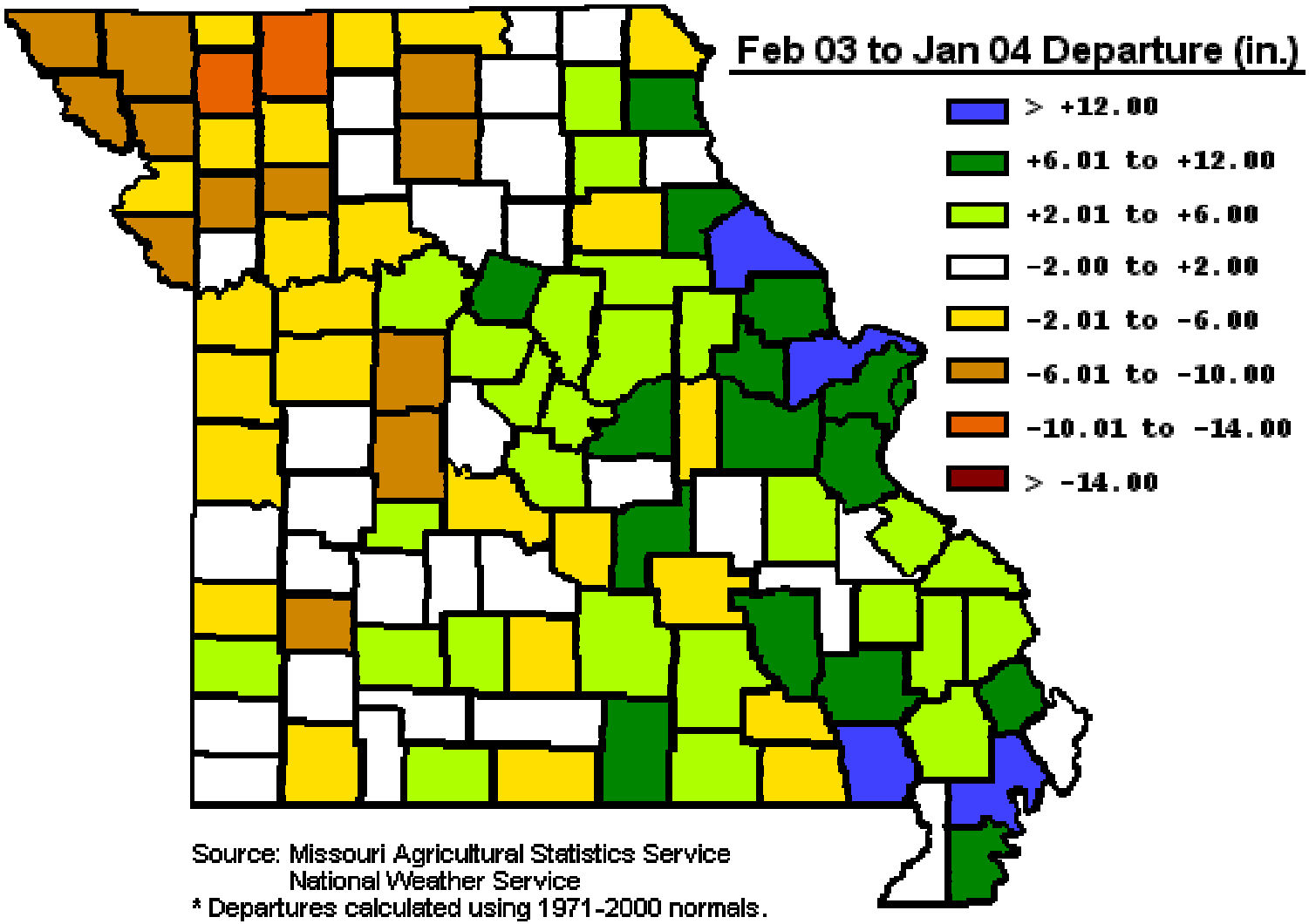
12 MONTH



Generated 3/1/2004 at HPRCC using provisional data.

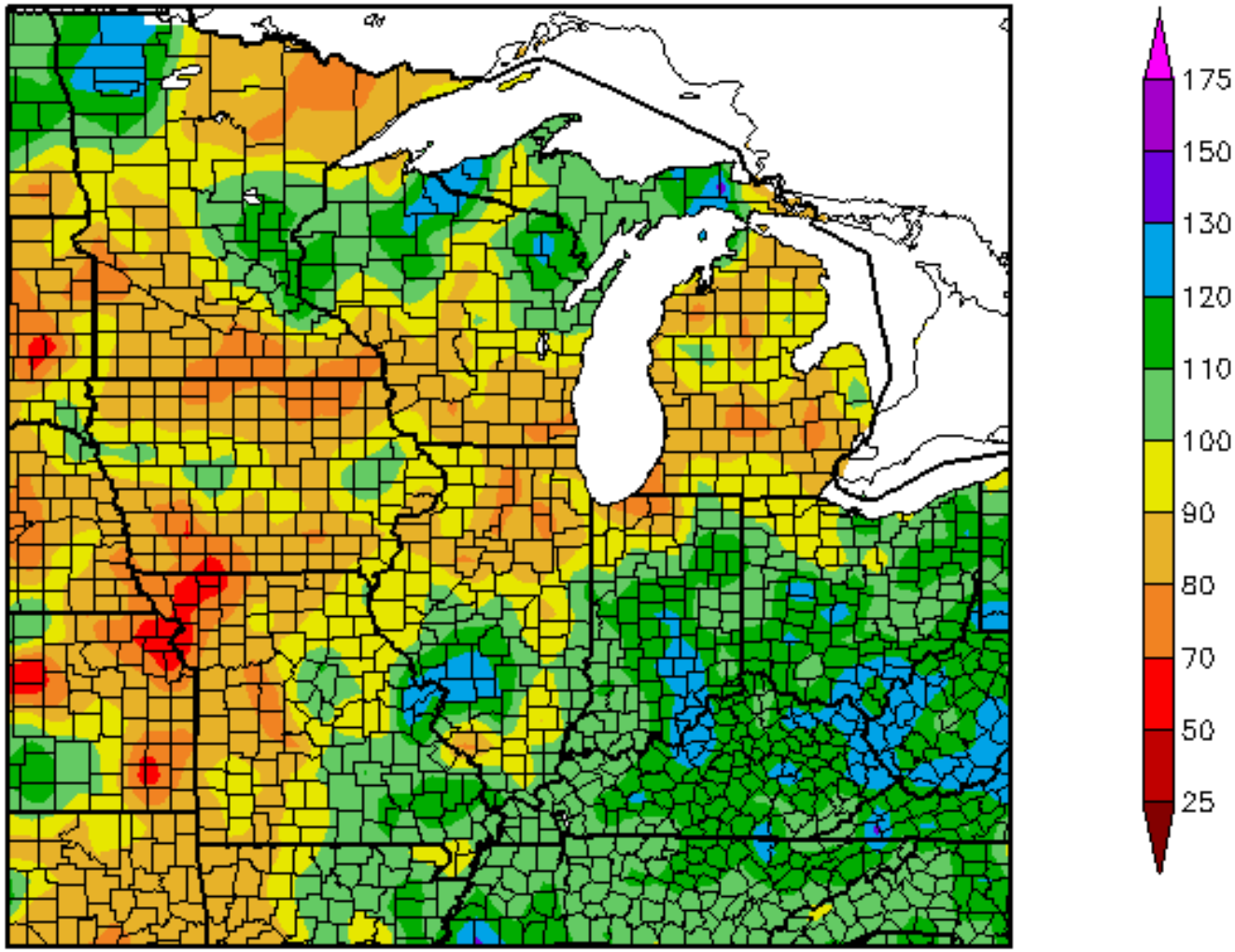
NOAA Regional Climate Centers

Missouri County Precipitation Departure from Normal From February 2003 to January 2004



24 MONTH

Percent of Normal Precipitation (%)
3/1/2002 – 2/29/2004

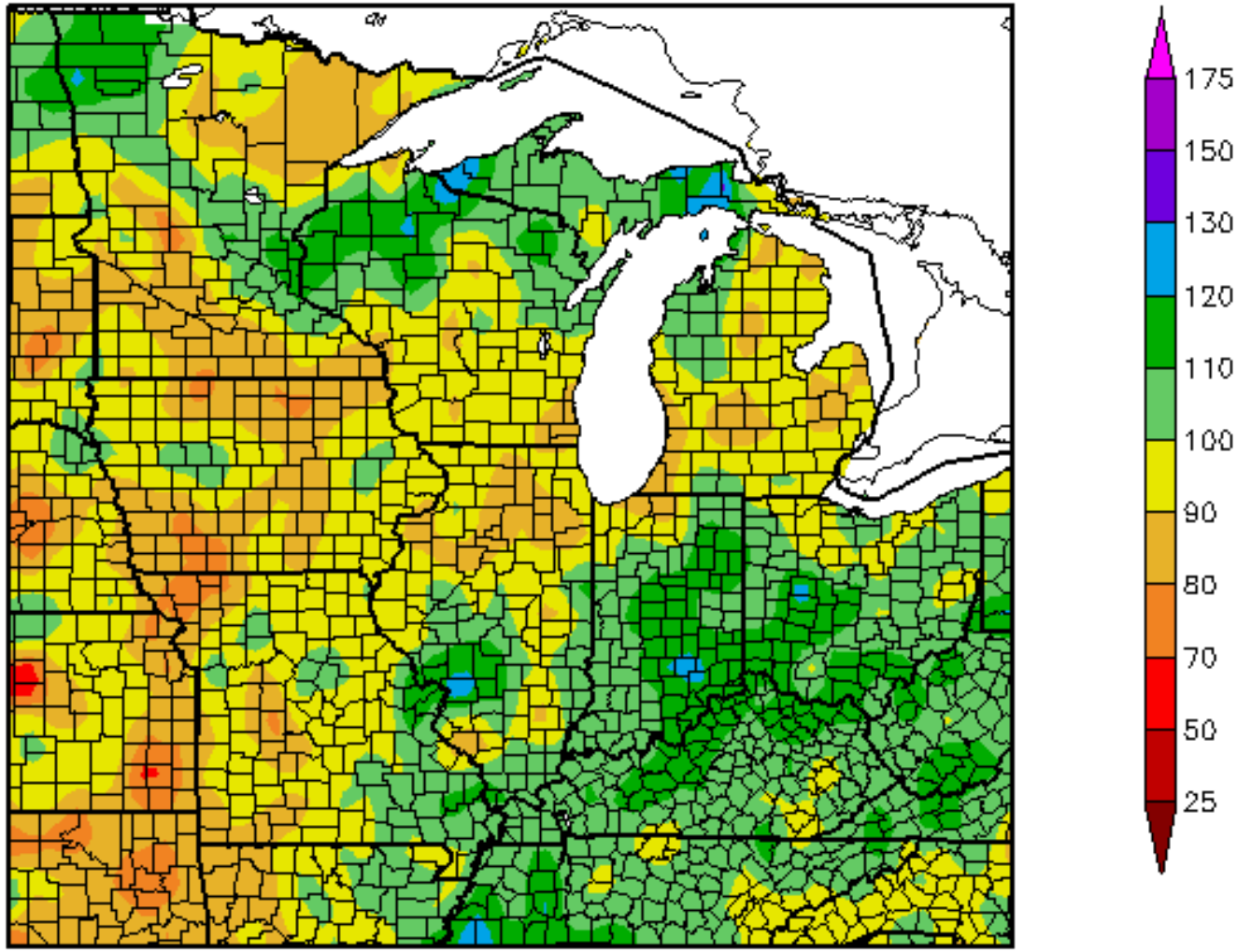


Generated 3/1/2004 at HPRCC using provisional data.

NOAA Regional Climate Centers

36 MONTH

Percent of Normal Precipitation (%)
3/1/2001 – 2/29/2004



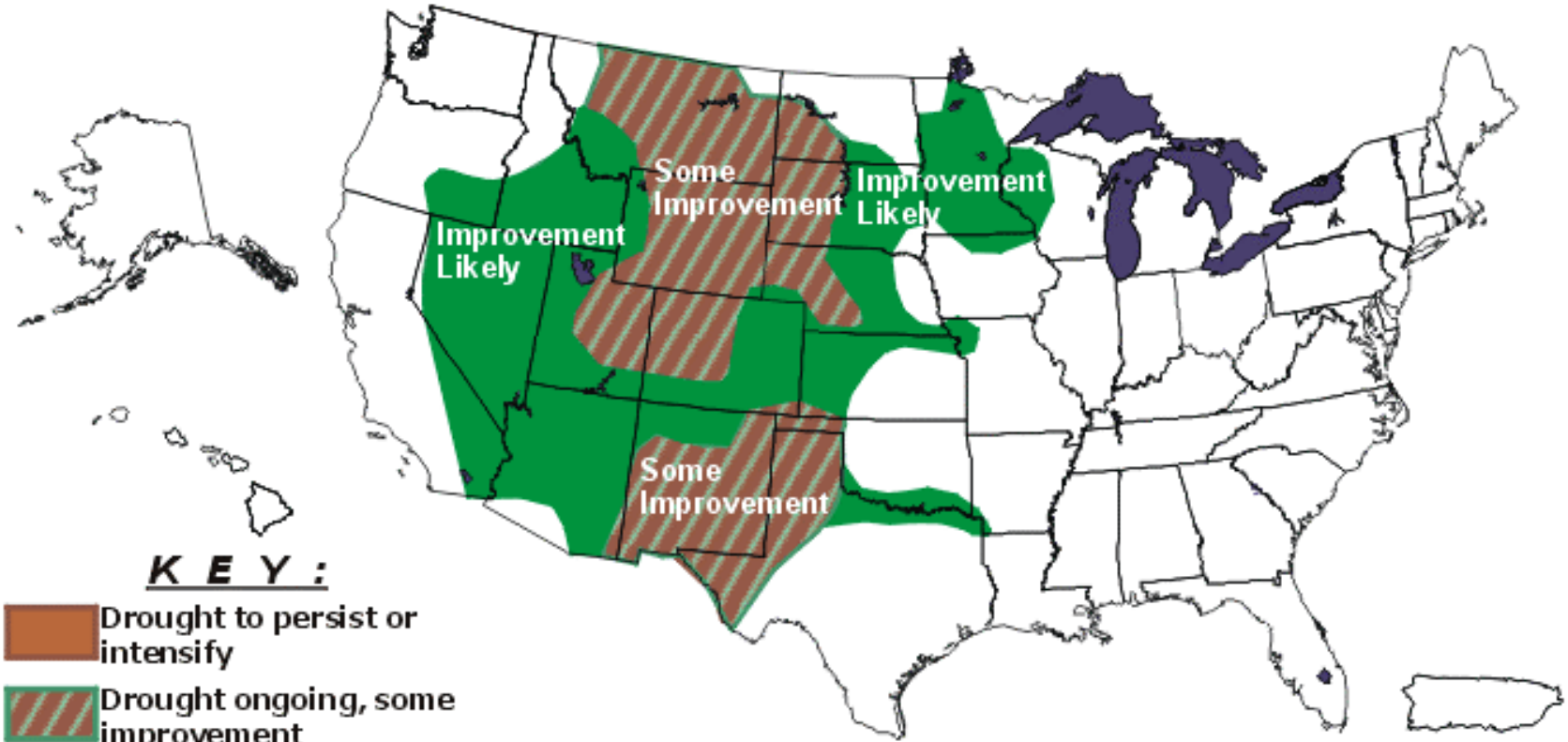
Generated 3/1/2004 at HPRCC using provisional data.

NOAA Regional Climate Centers

U. S. Seasonal Drought Outlook

Through May 2004

Released February 19, 2004

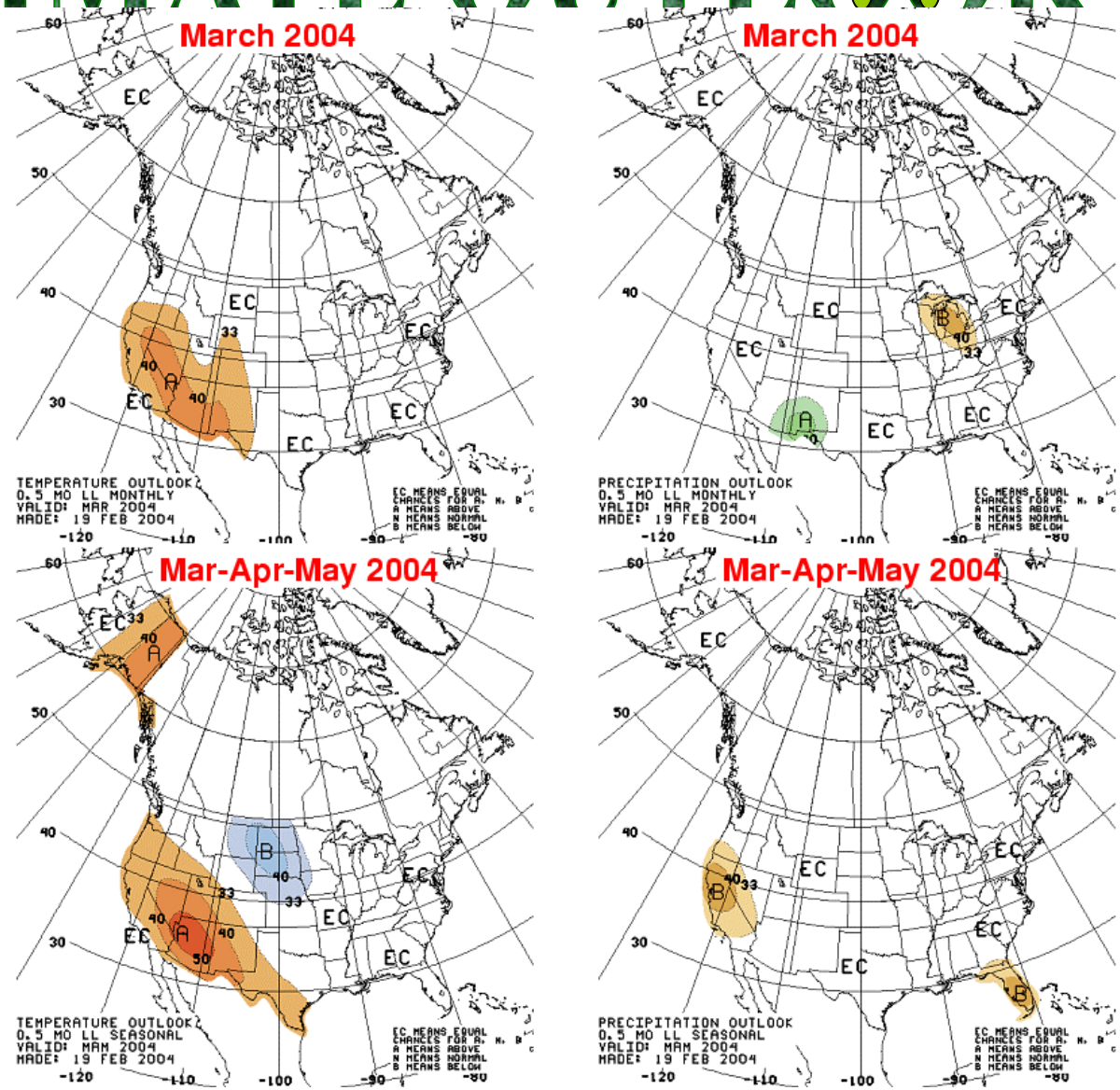


K E Y :

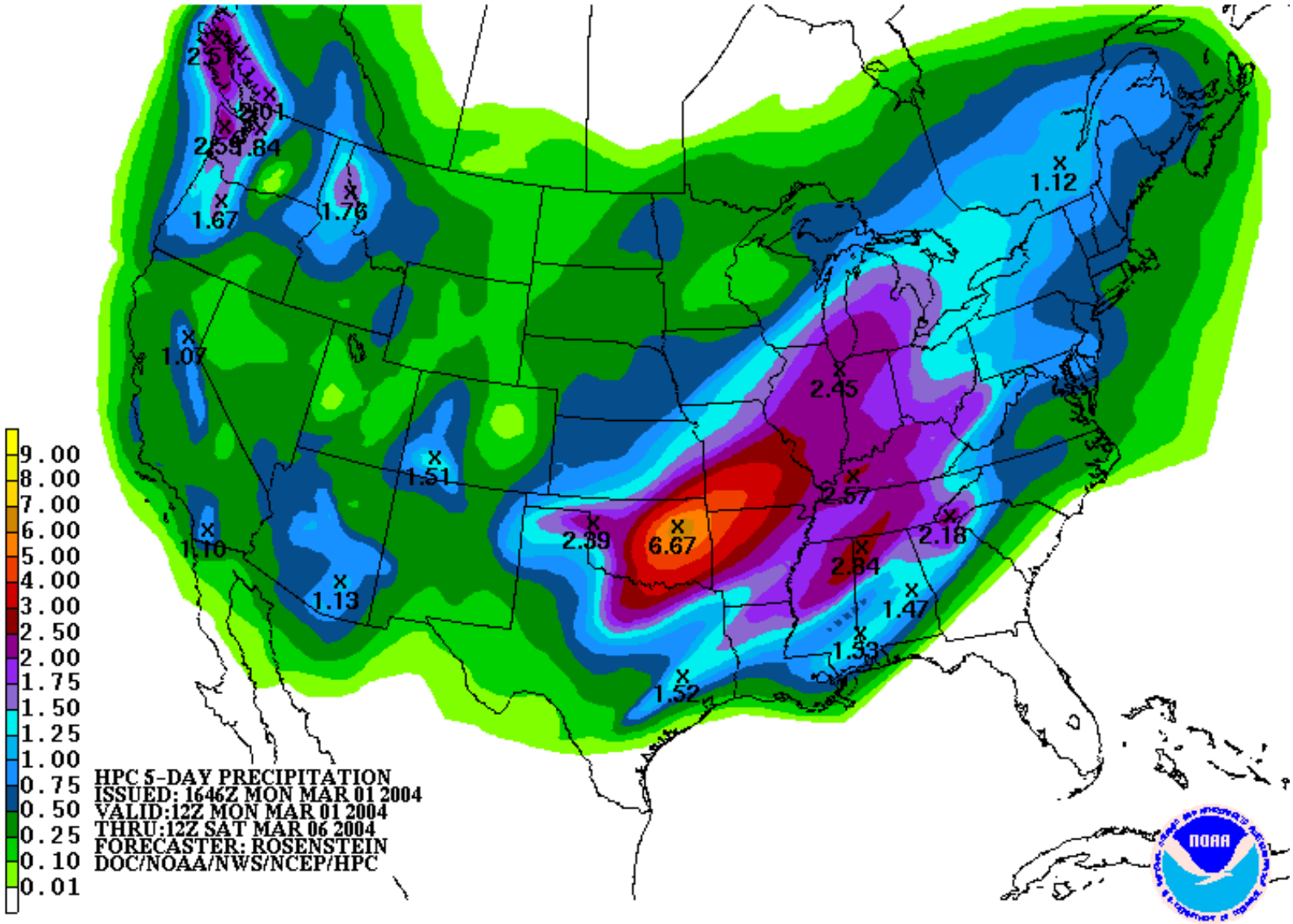
- Drought to persist or intensify
- Drought ongoing, some improvement
- Drought likely to improve, impacts ease
- Drought development likely

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 than 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 schematically approximated from the Drought Monitor (D1 to D4). For weekly drought updates, see the latest Drought Monitor map and text.

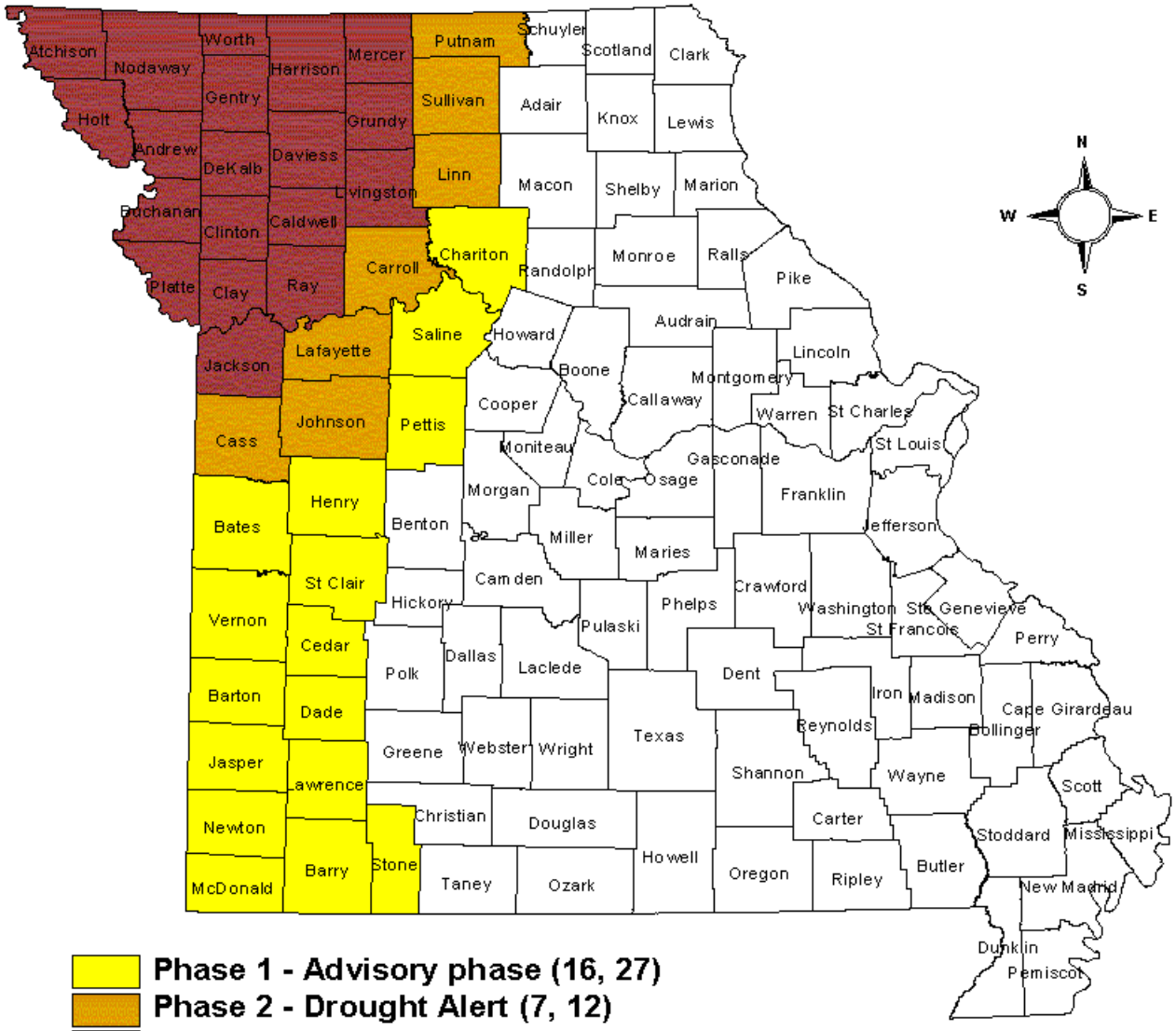
CLIMATE OUTLOOK



5-Day Total Rainfall Accumulation Forecast from HPC (Through Saturday Morning)

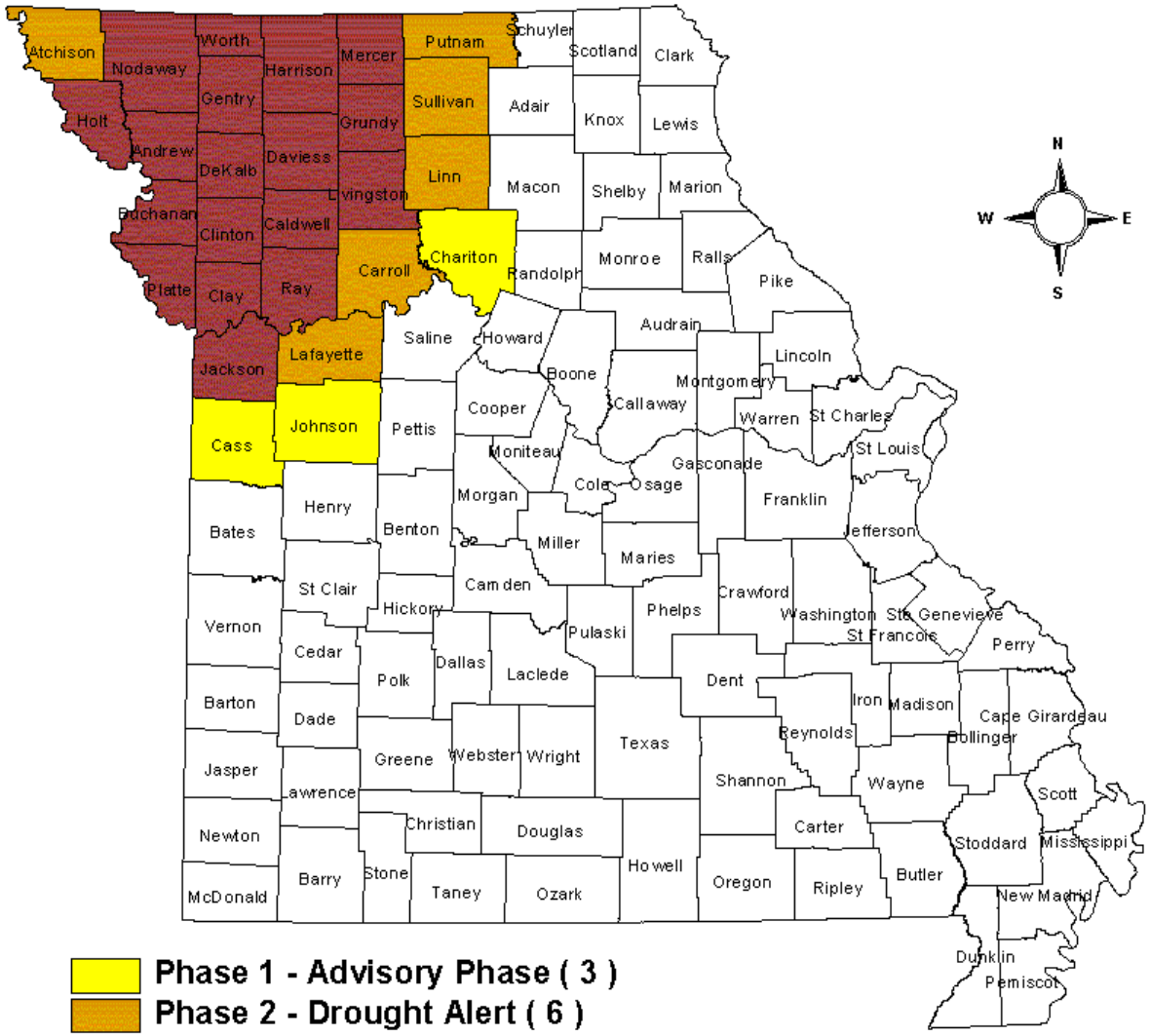


Drought Condition Status (January 13, 2004)



Phase 1 - Advisory phase (16, 27)
Phase 2 - Drought Alert (7, 12)
Phase 3 - Conservation Phase (19 , 25)

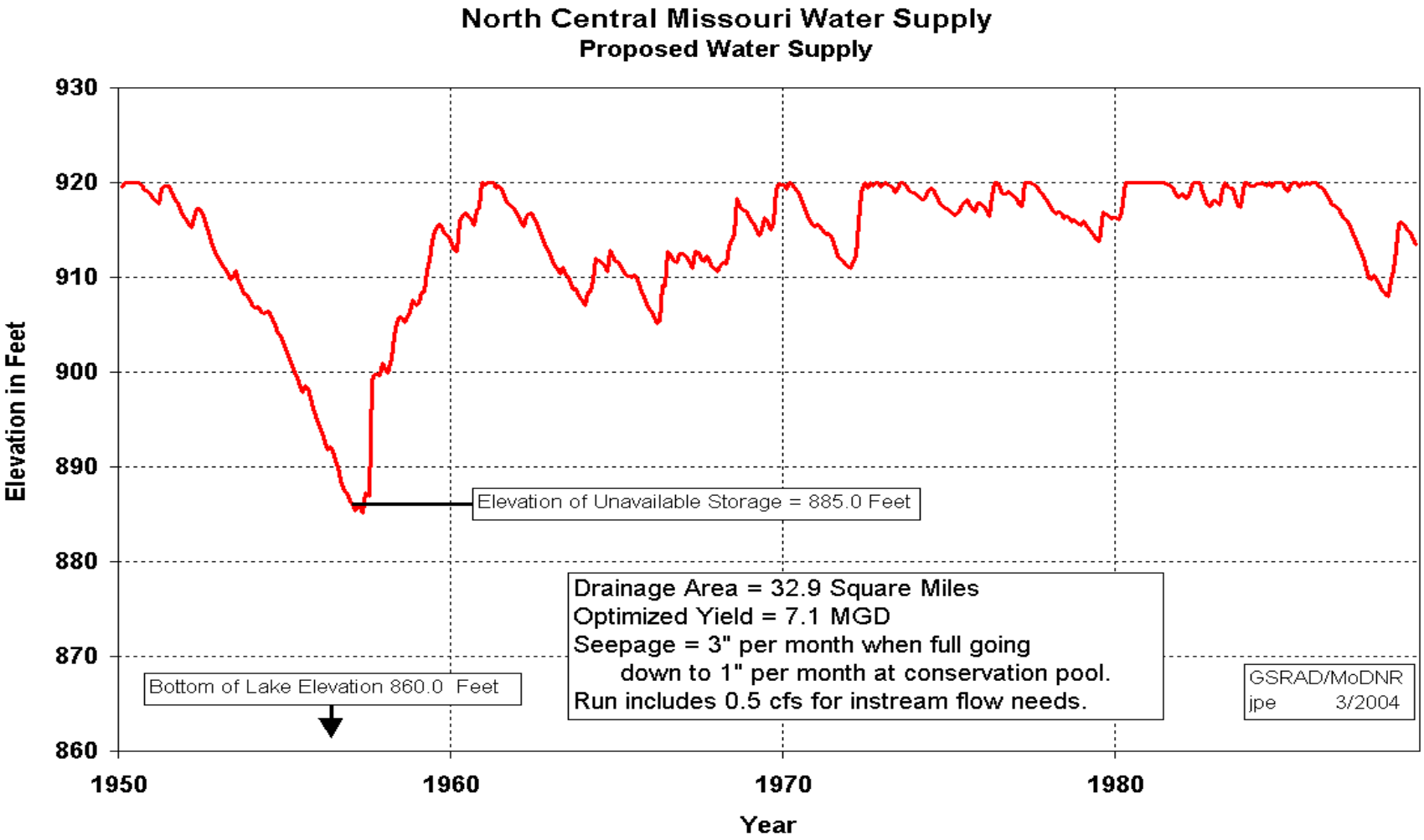
Interim Drought Condition Status (March 1, 2004)



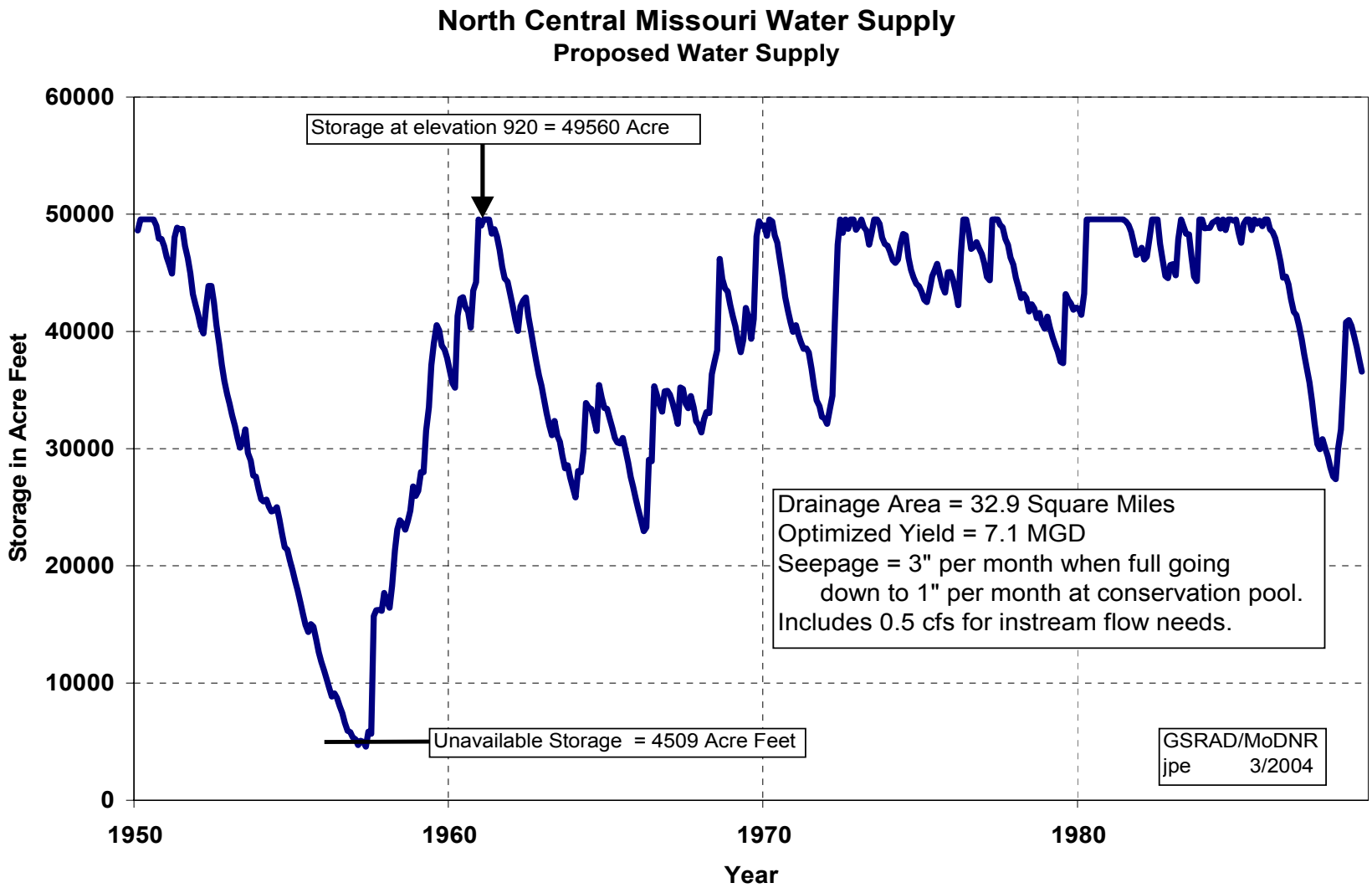
The Geological Survey and Resource Assessment Division

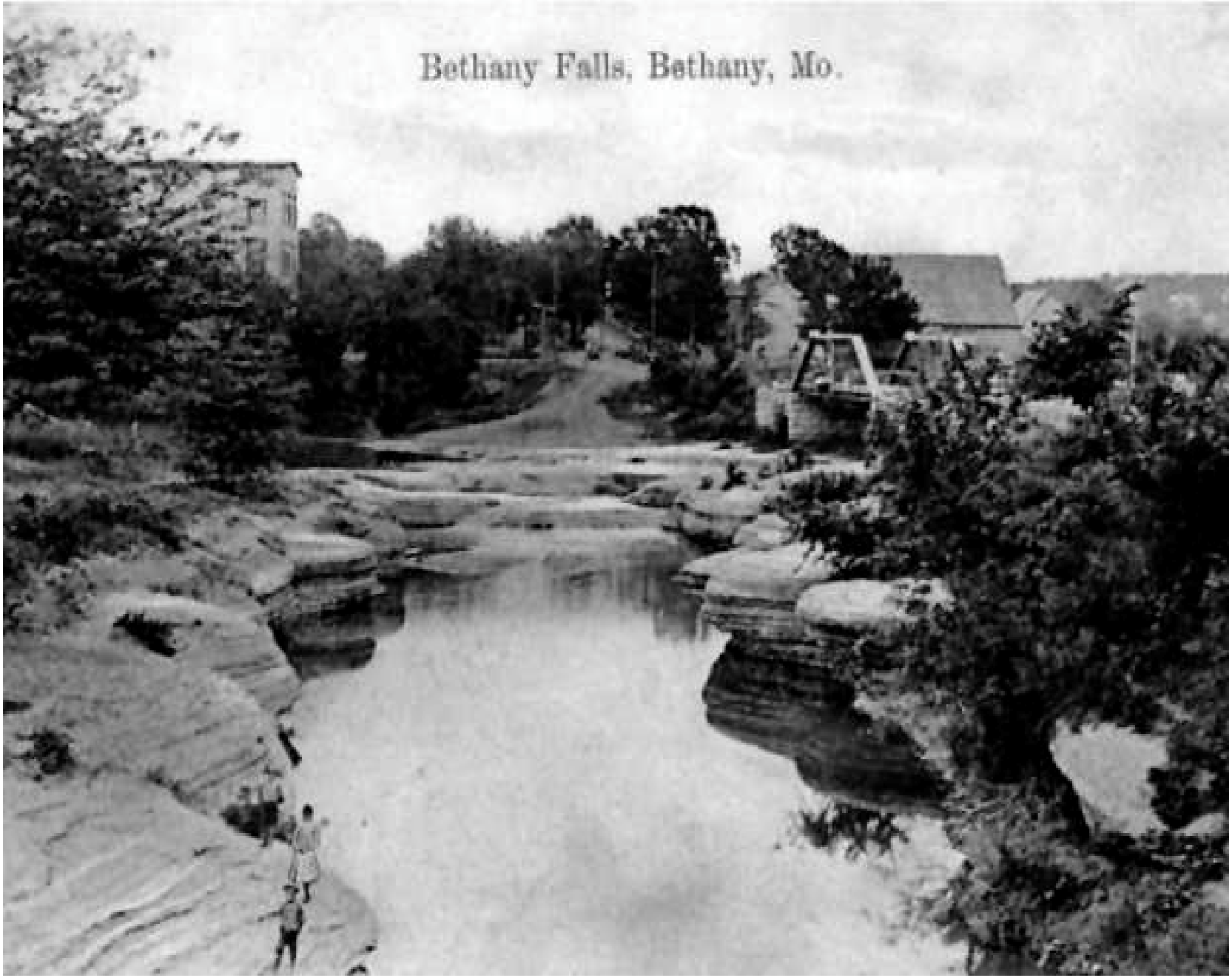
Department of Natural Resources

Water Resources Program



Water Resources Program




Bethany Falls, Bethany, Mo.