

# *Climate Update*

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Colorado Climate Center**

**Atmospheric Science Department  
Colorado State University**

**Presented to  
Water Availability Task Force  
May 27, 2009  
Denver, CO**

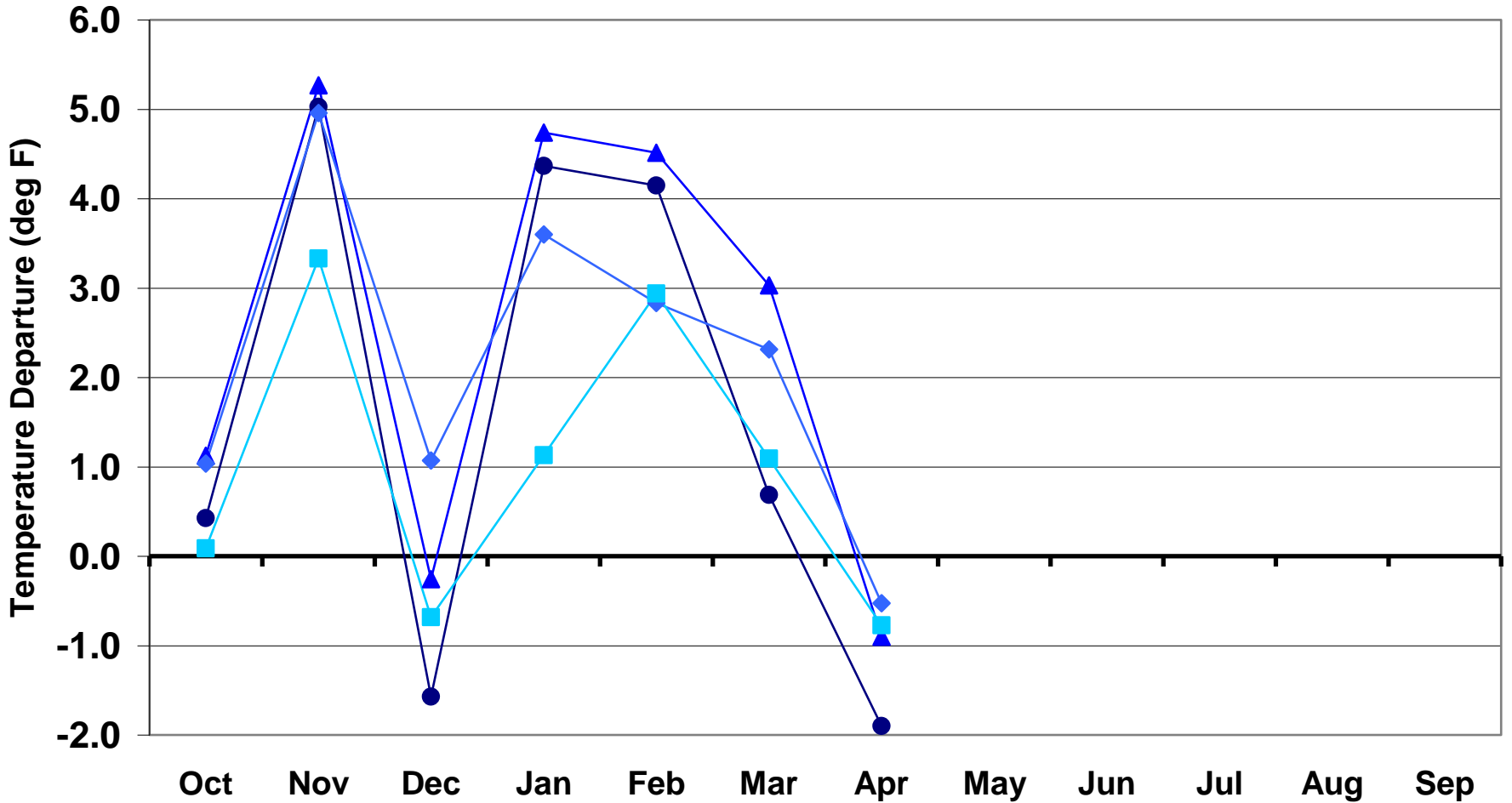


**Colorado State University**  
*Knowledge to Go Places*

**Prepared by Wendy Ryan**

# Water Year 2009 Temperature Departures

## Water Year 2009



● Eastern Plains

▲ Foothills

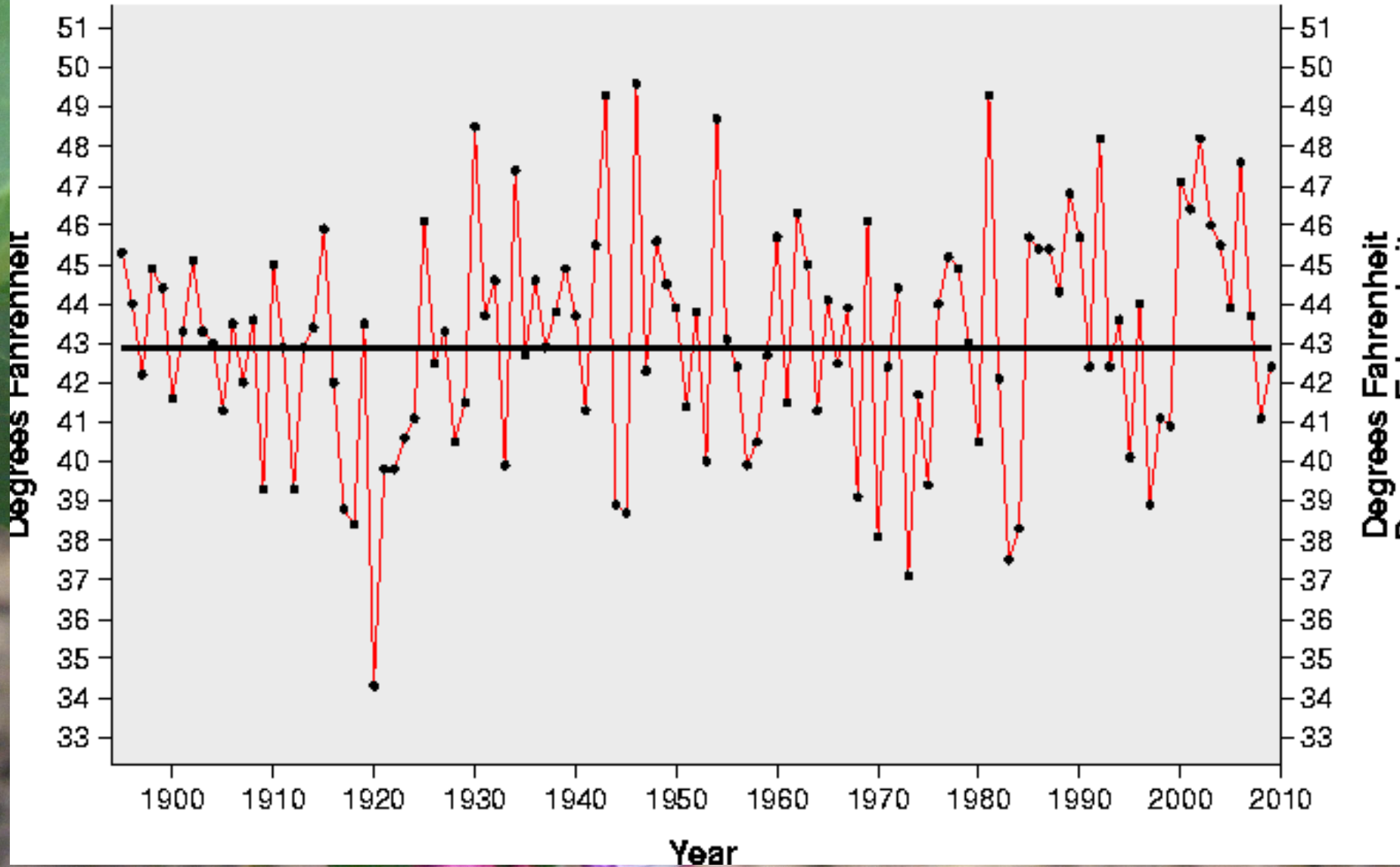
◆ Mountains

■ Western Valleys

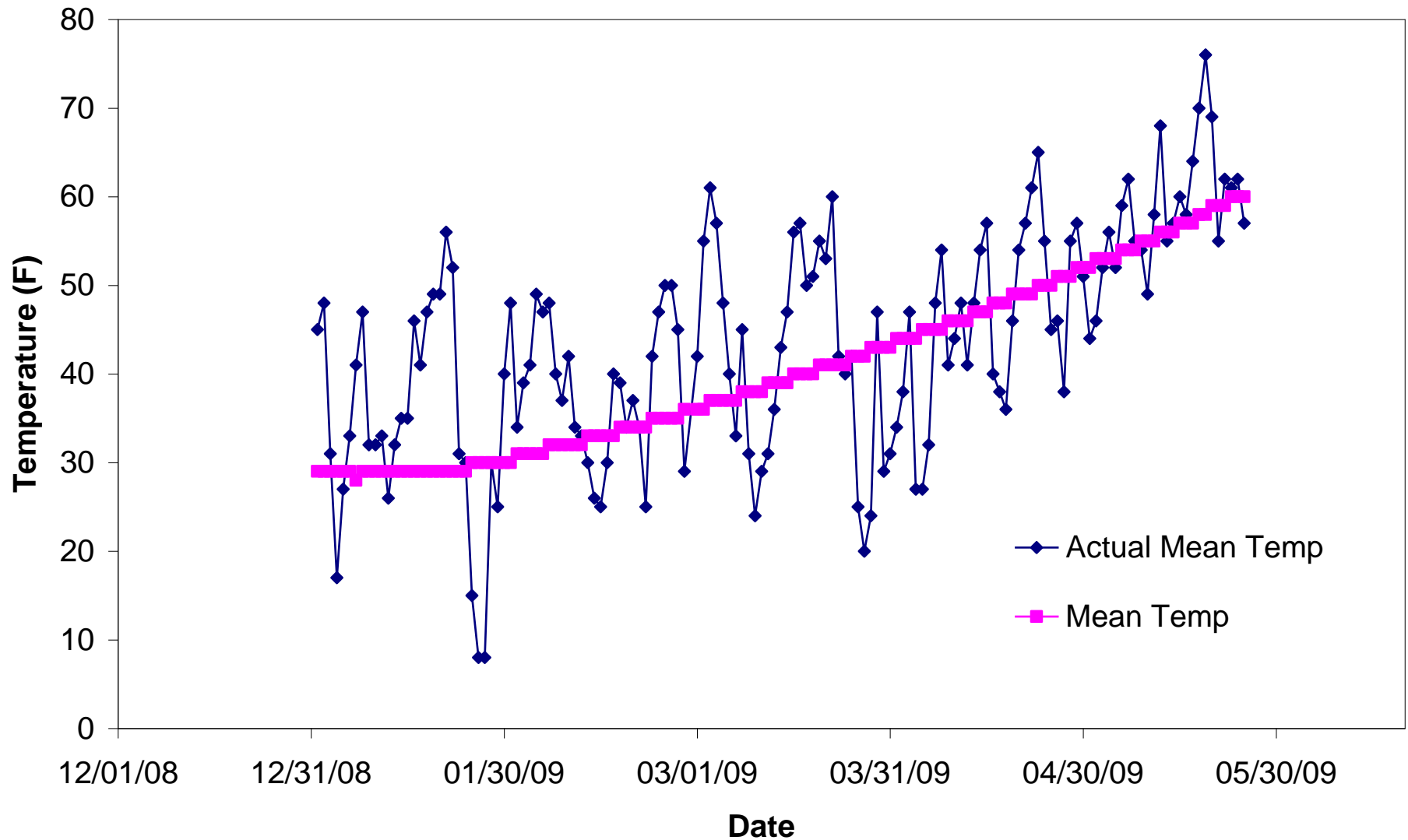
# April Average Temperature History for Colorado (NCDC)

— **Actual Temperature**  
— **Average Temperature**

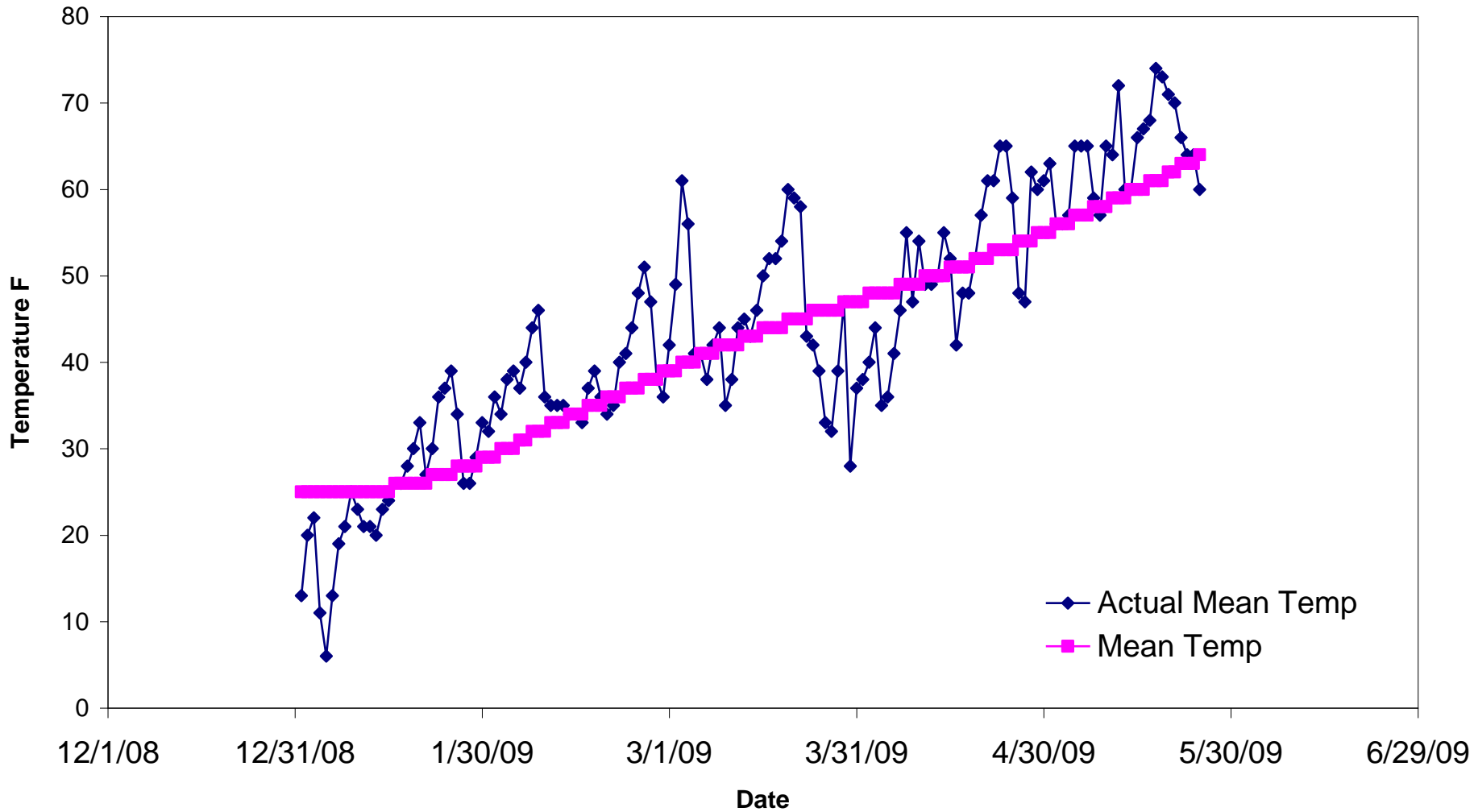
Rank: 42.4 degrees is 42<sup>nd</sup> coolest  
for period of record 1895-2009



# Denver, CO Jan 1 - May 25 2009 Mean and Actual Daily Temperature



# Grand Junction Jan 1 - May 25 2009 Mean and Actual Daily Temperatures



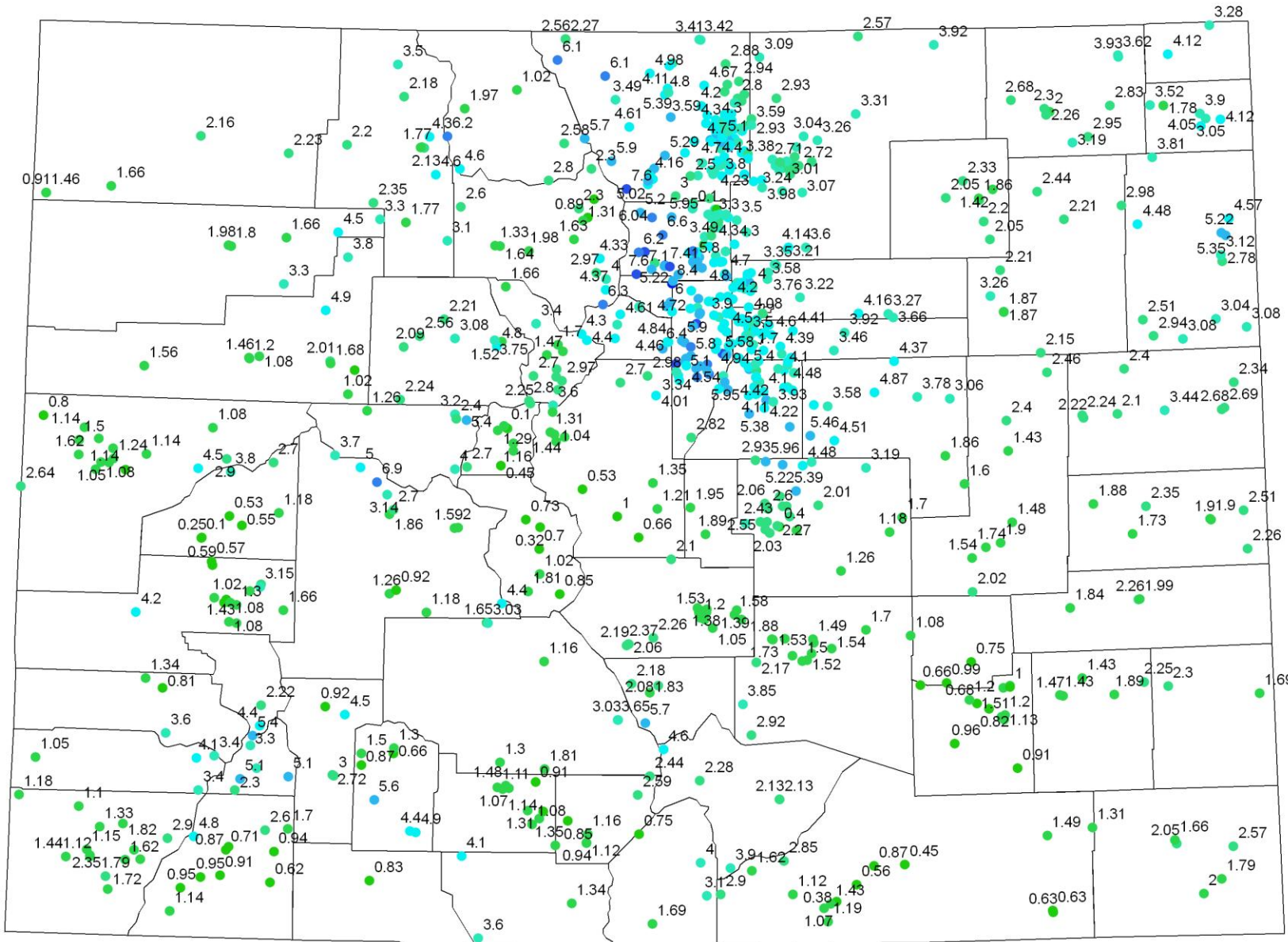
# April 2009 Precipitation

## Legend

Apr\_09\_all.txt Event

April

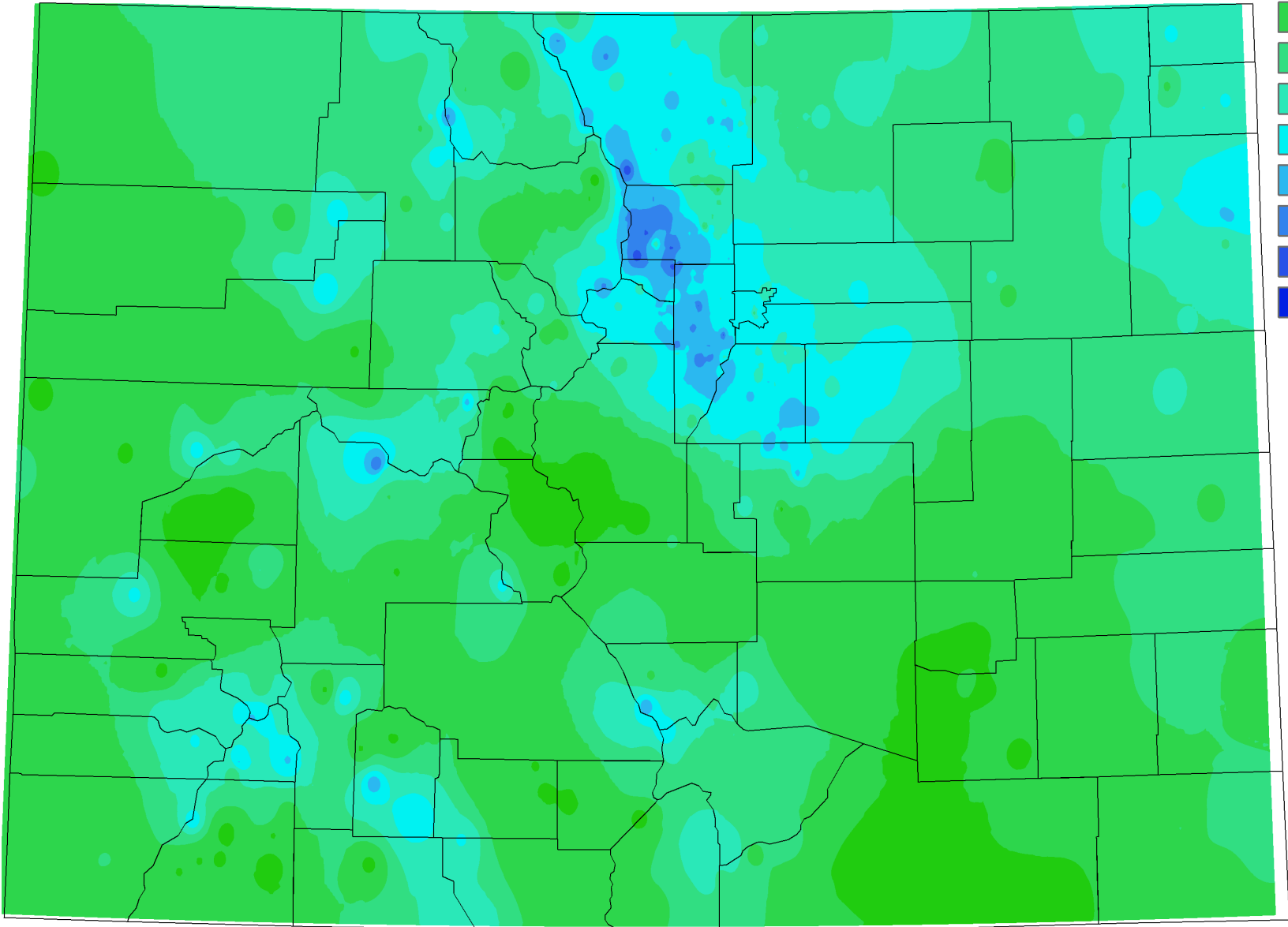
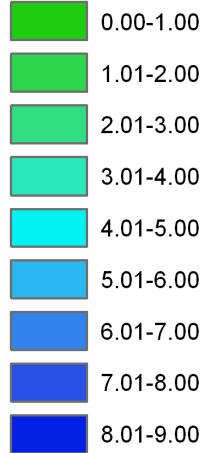
- 0.00 - 1.00
- 1.01 - 2.00
- 2.01 - 3.00
- 3.01 - 4.00
- 4.01 - 5.00
- 5.01 - 6.00
- 6.01 - 7.00
- 7.01 - 8.00
- 8.01 - 9.00



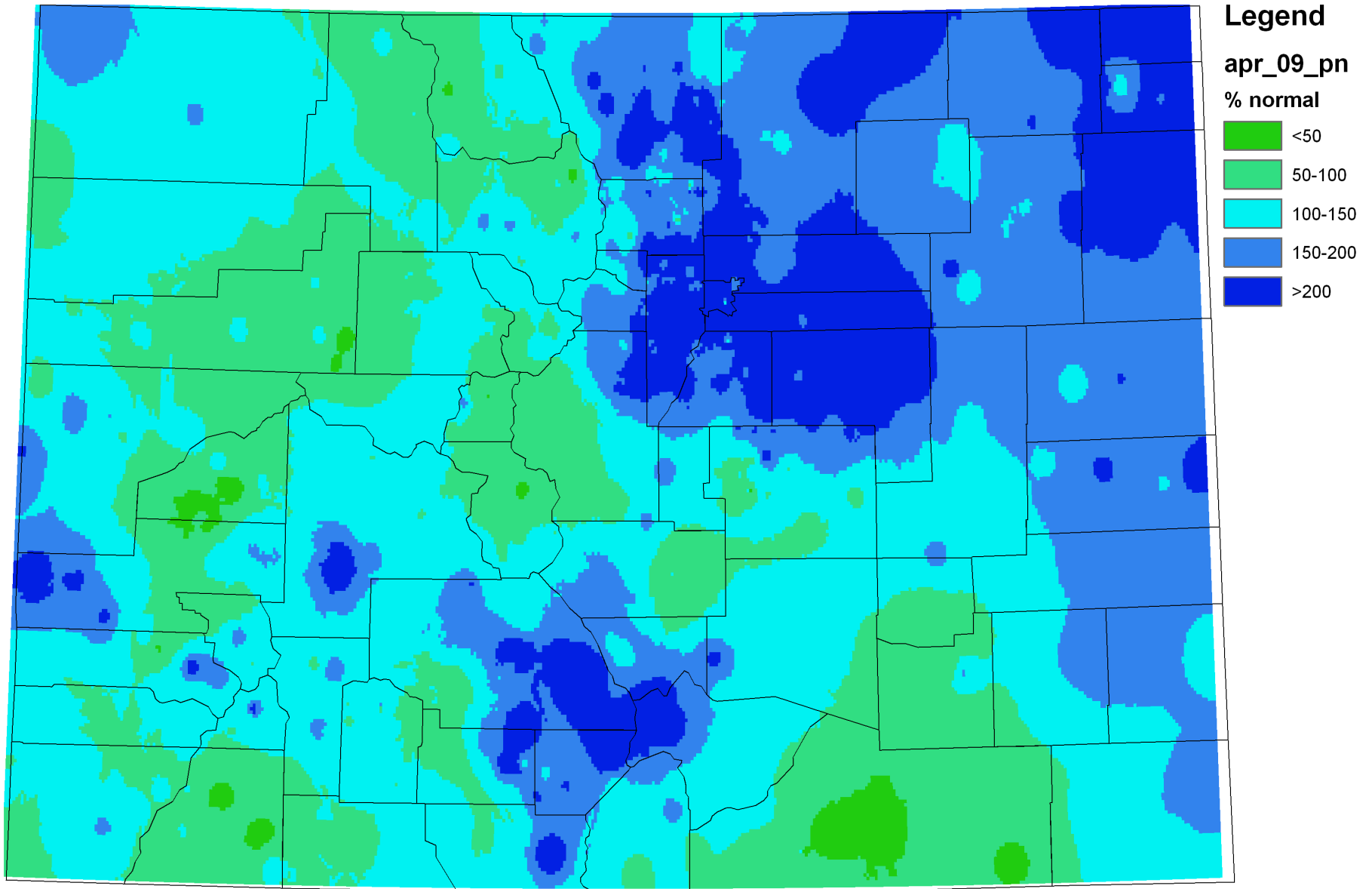
# April 2009 Precipitation

## Legend

April

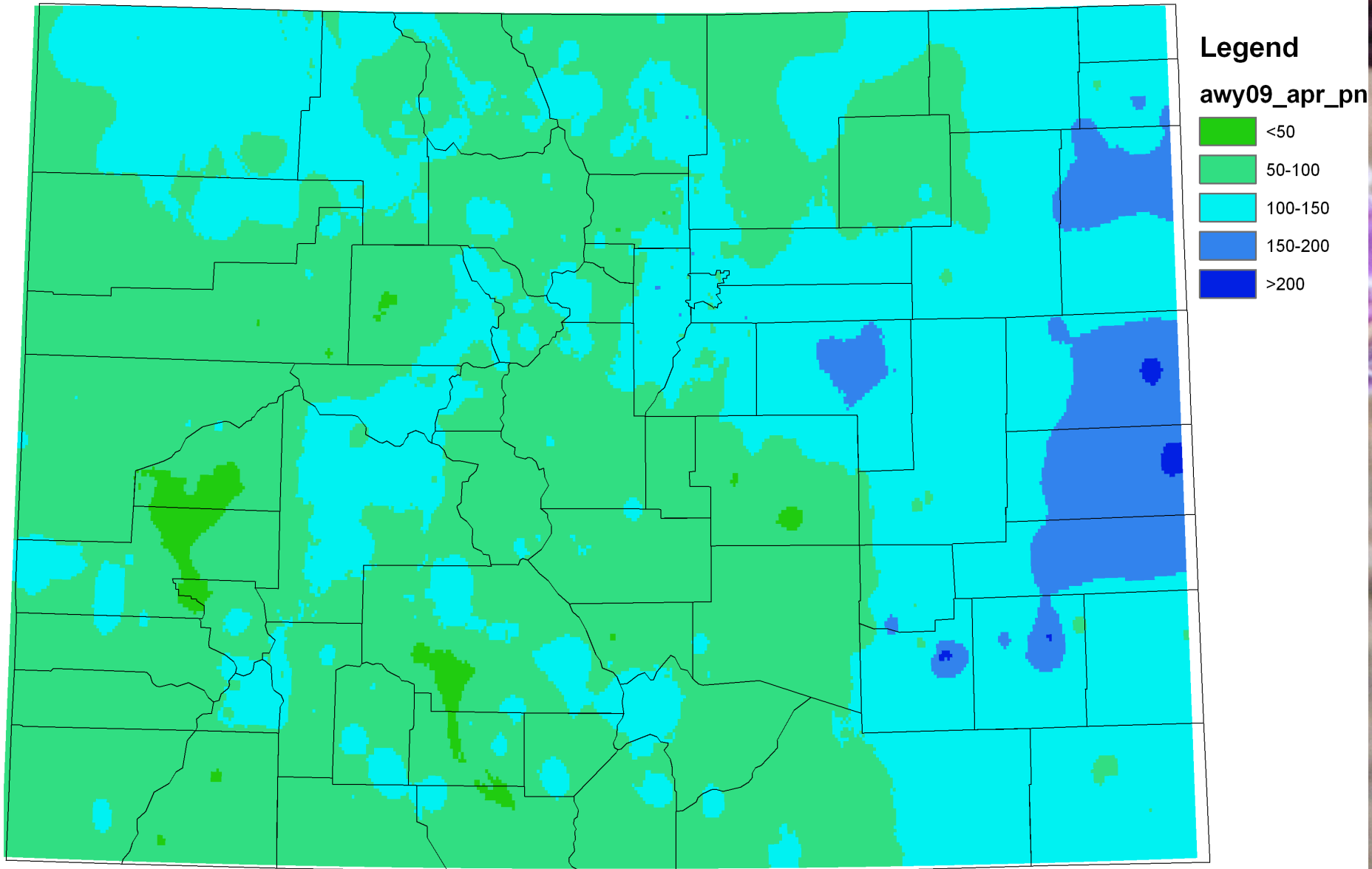


# April 2009 Precipitation as Percent of Normal

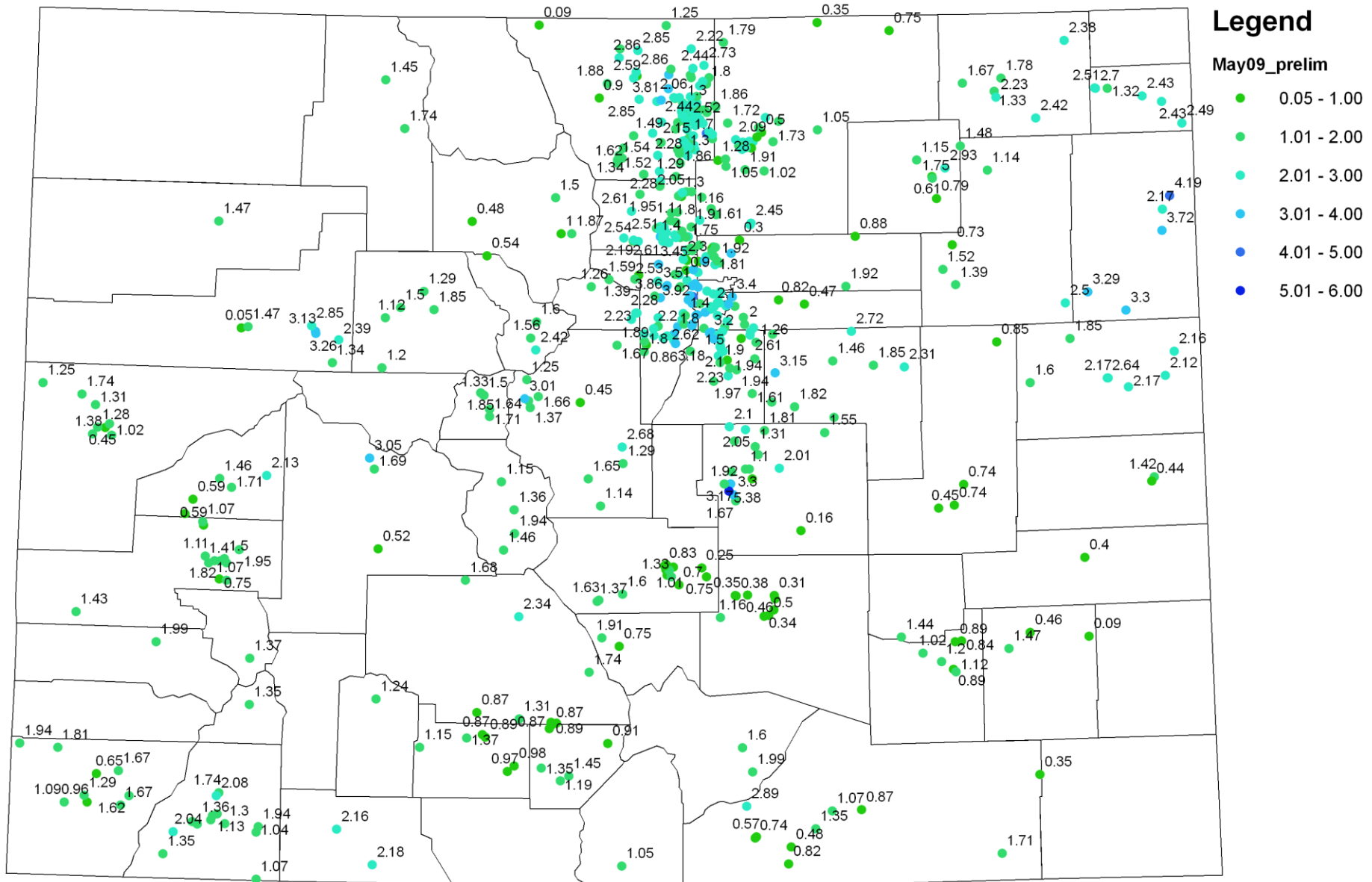




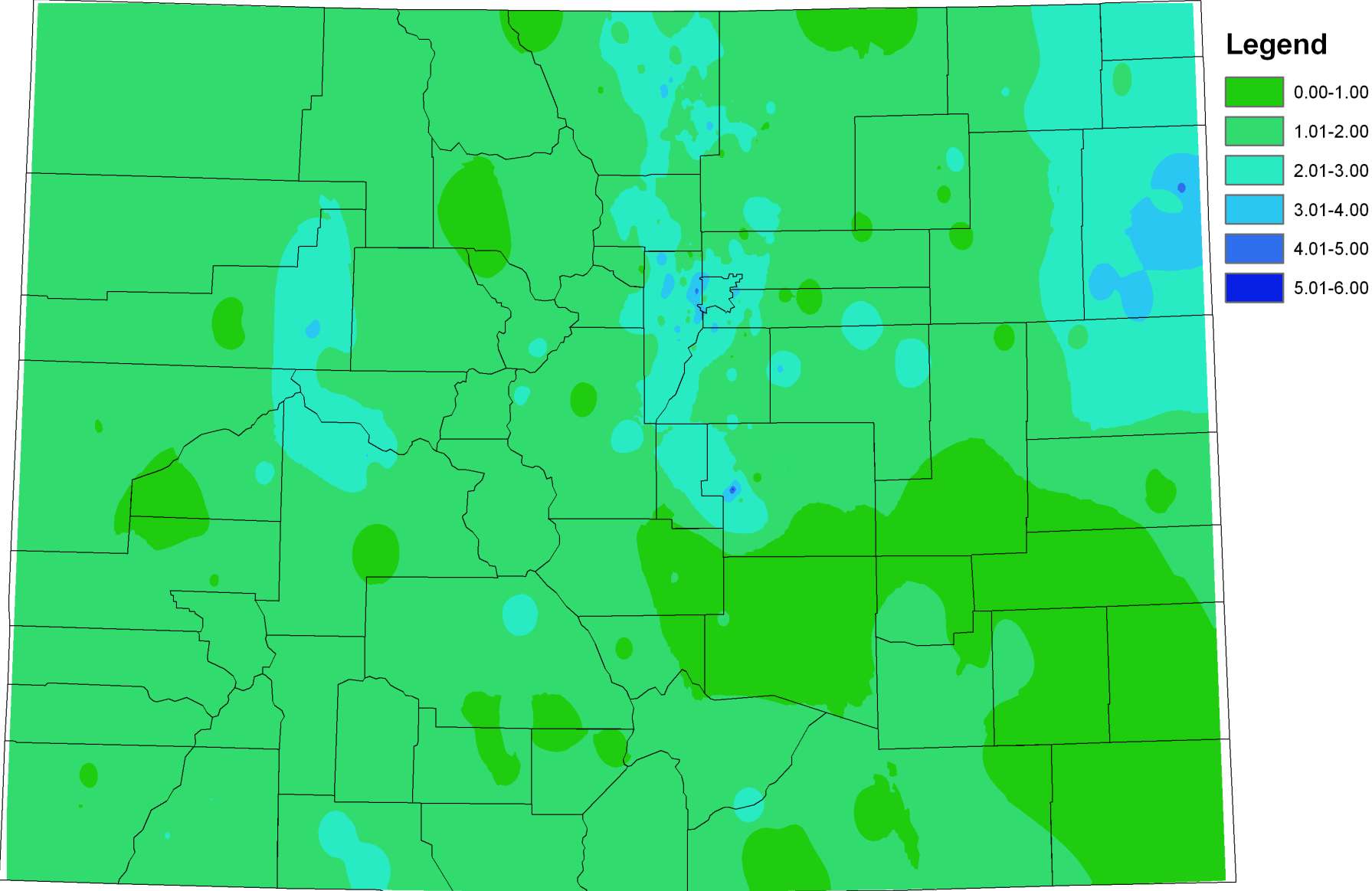
# Water Year 2009 Precipitation as Percent of Normal Oct 08 - Apr 09



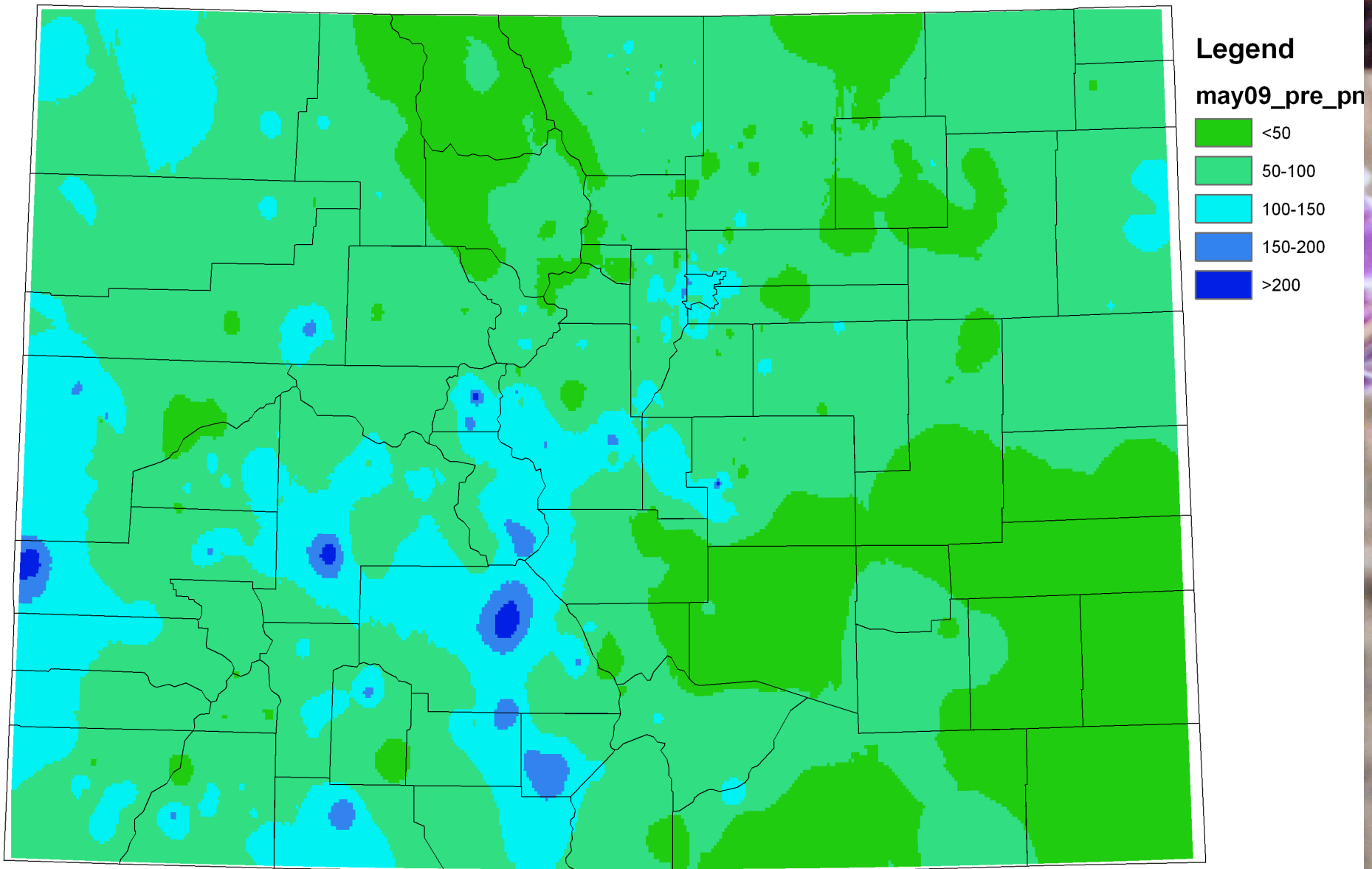
# May 1 -26, 2009 Preliminary Precipitation Totals



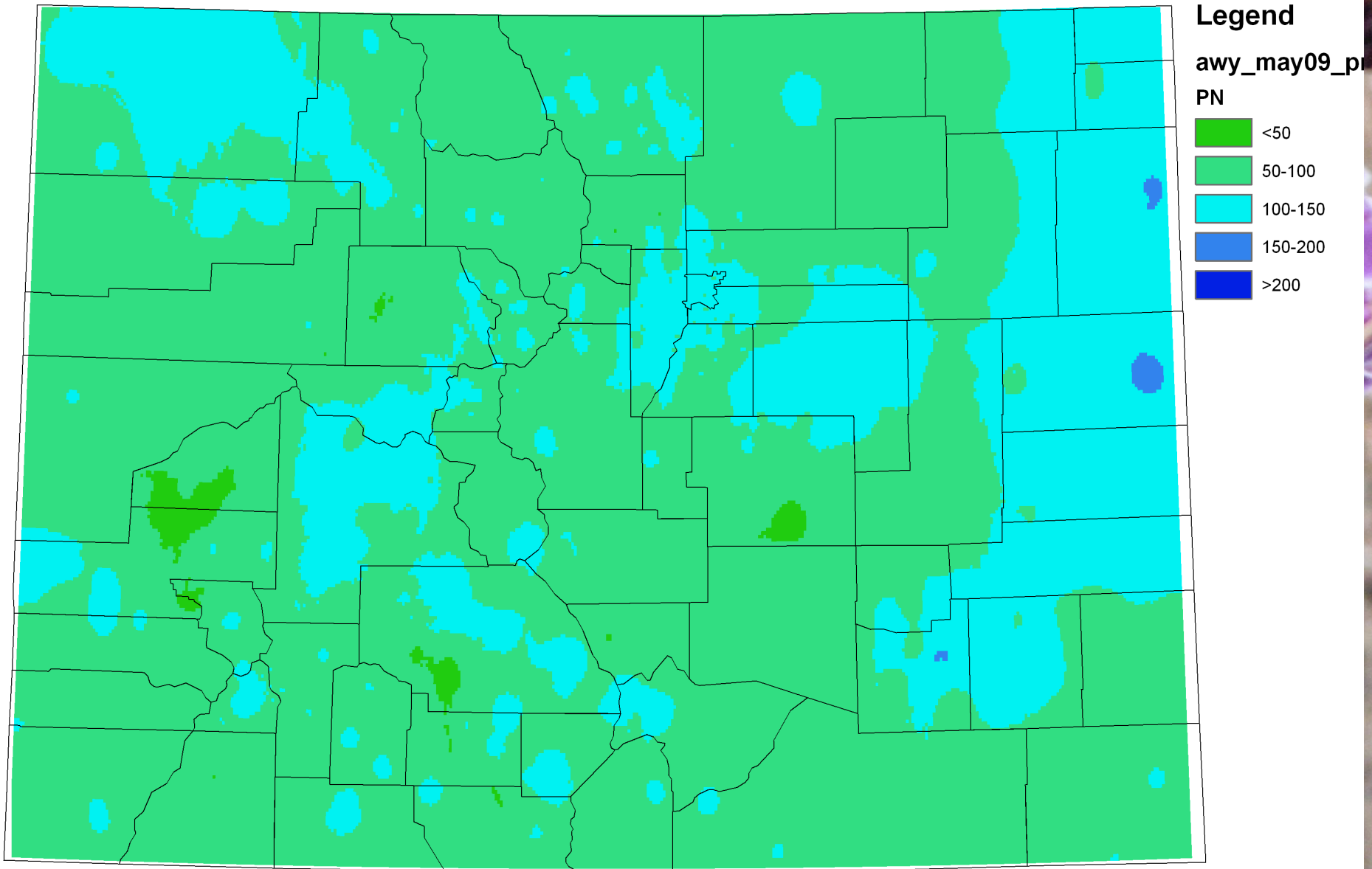
# May 1 -26, 2009 Preliminary Precipitation Totals



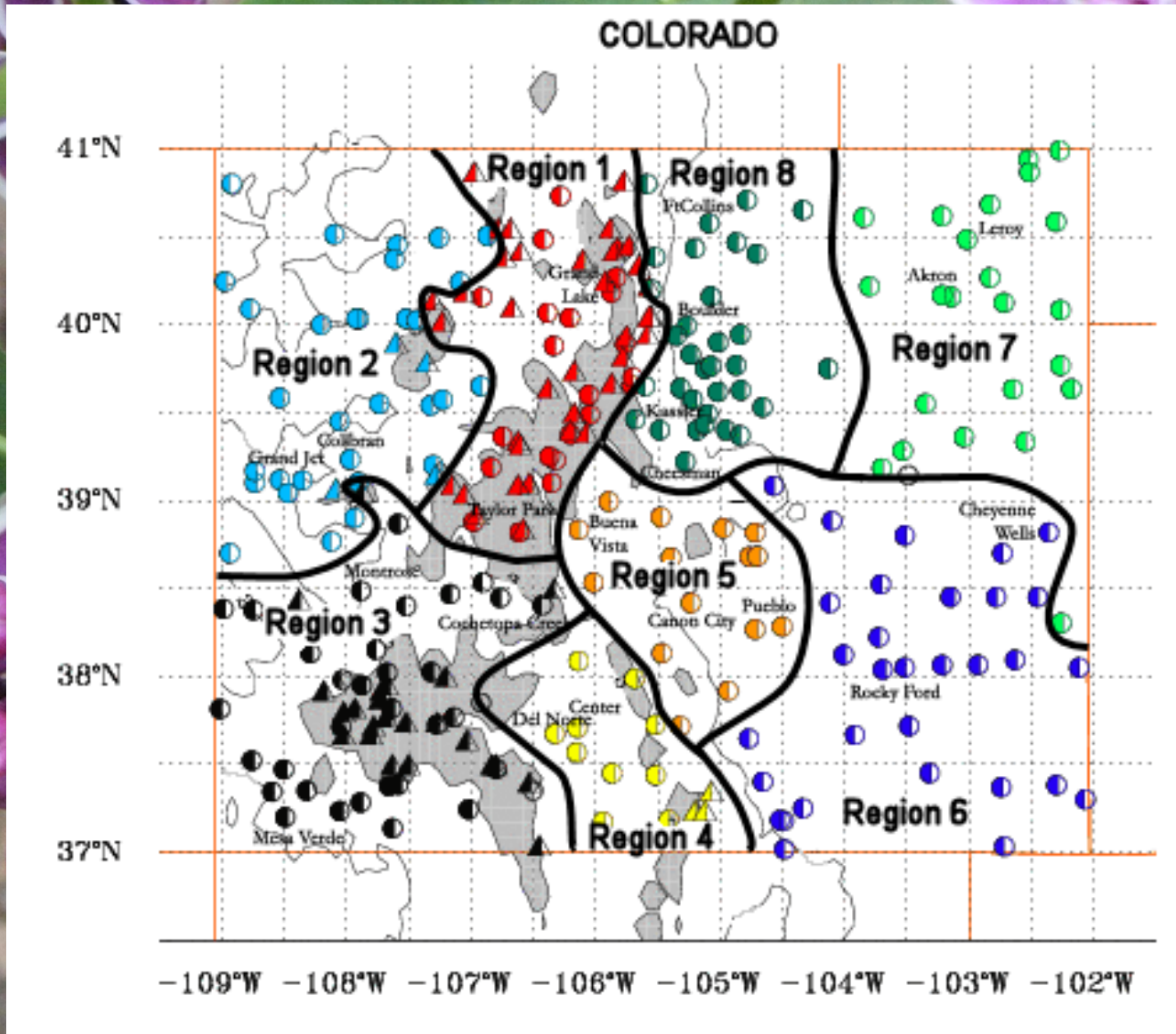
# May 1 -26, 2009 Preliminary Precipitation as Percentage of May Normal



# Water Year Precipitation as Percent of Normal Oct 1, 2008 - May 26, 2009

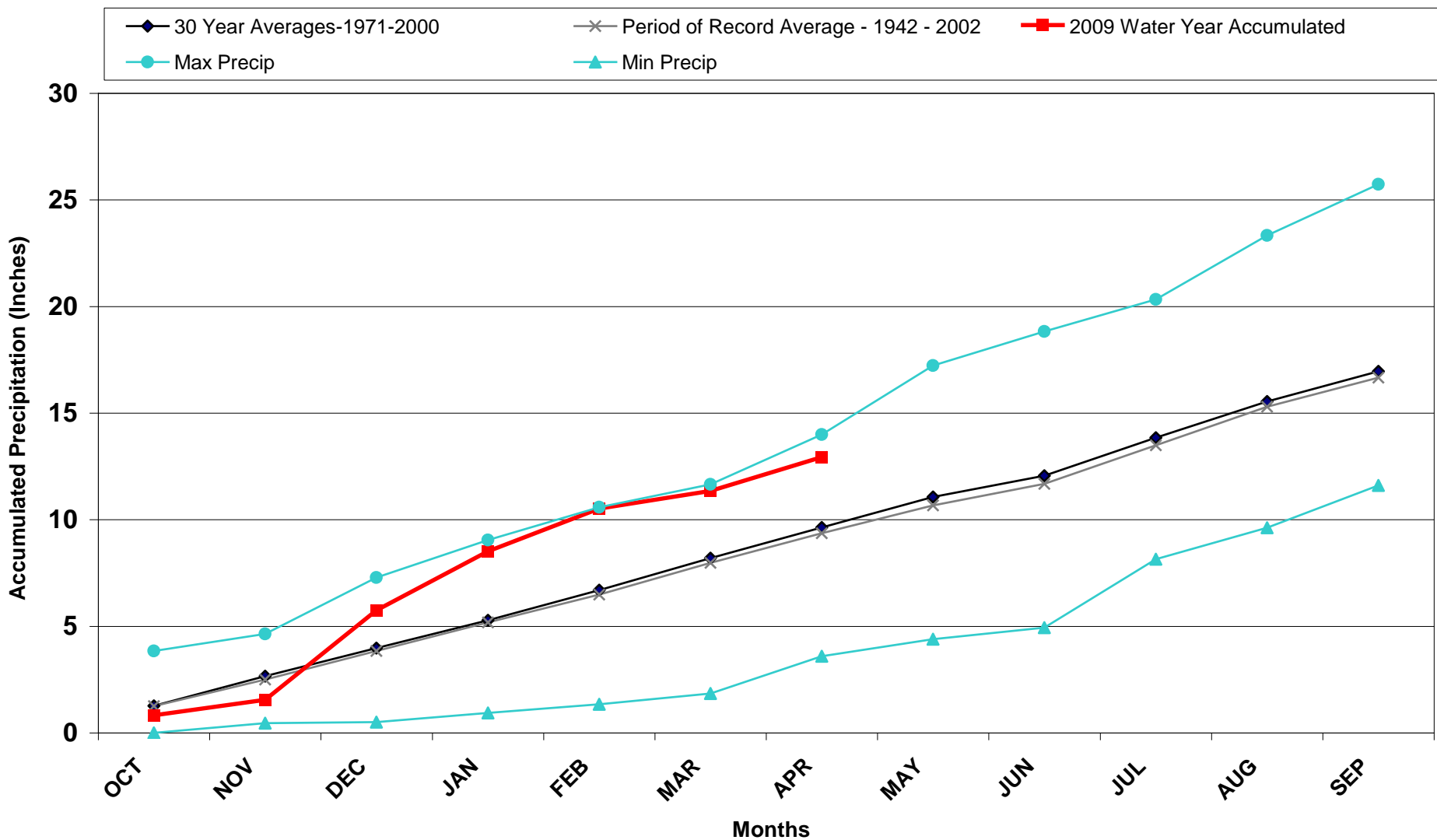


Climate divisions defined by Dr. Klaus Wolter of NOAA's Climate Diagnostic Center in Boulder, CO



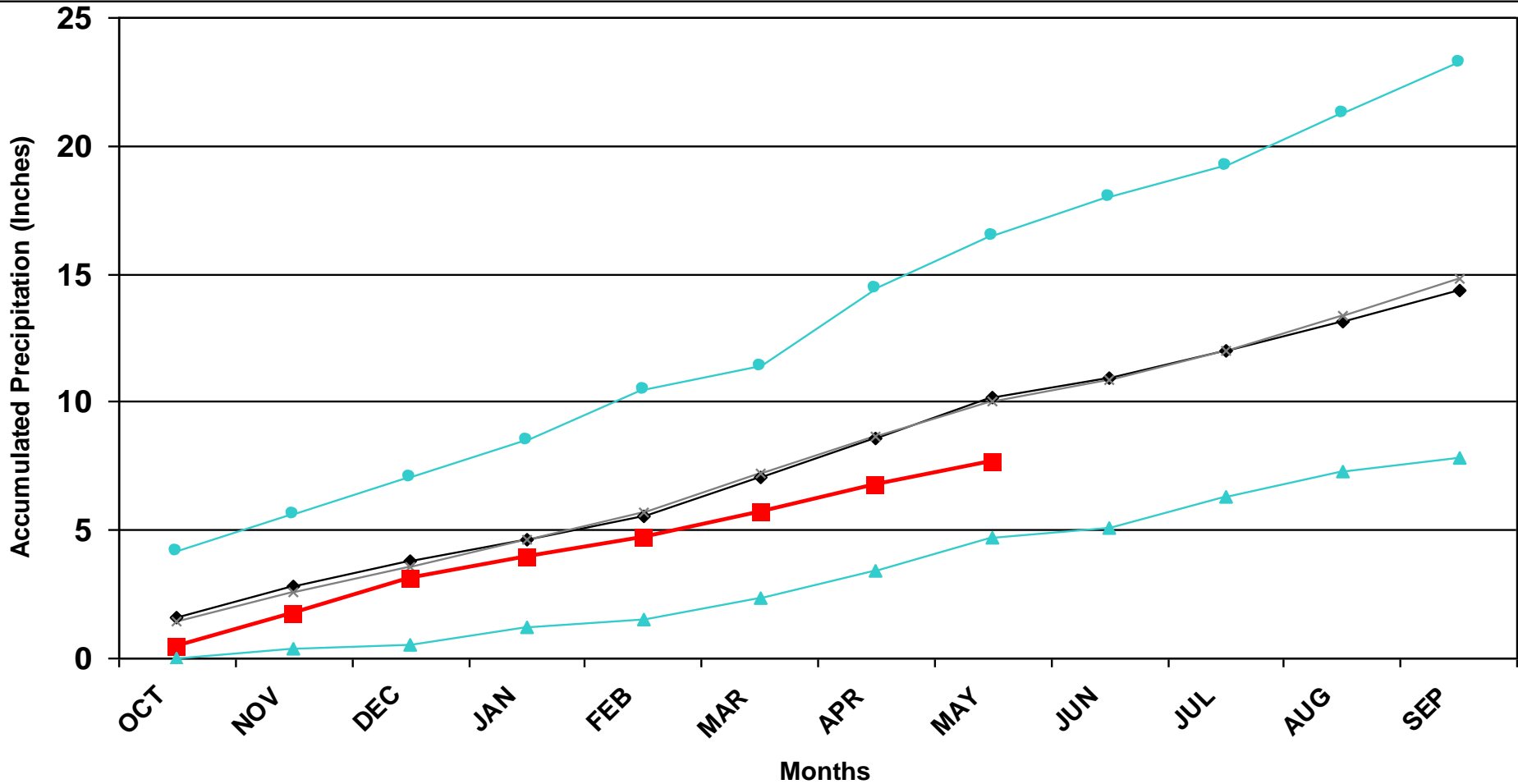
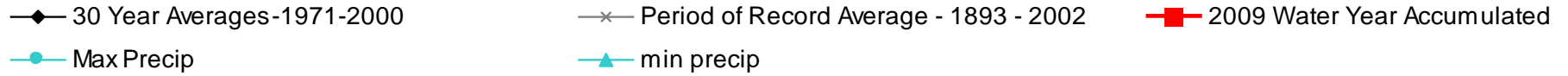
# Division 1 – Taylor Park

## Taylor Park 2009 Water Year



# Division 2 – Collbran

## Collbran 2SW 2009 Water Year

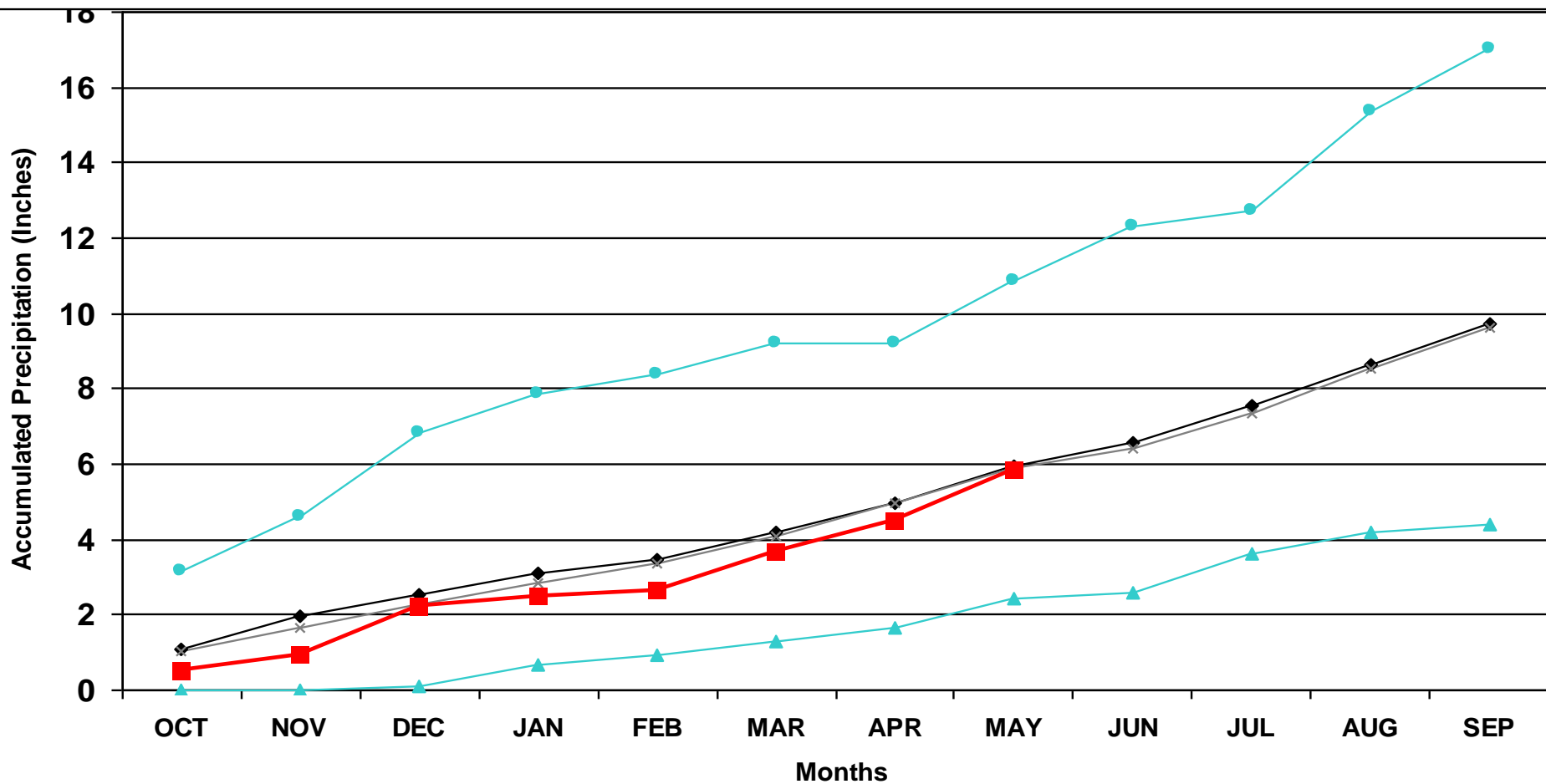




# Division 3 – Montrose

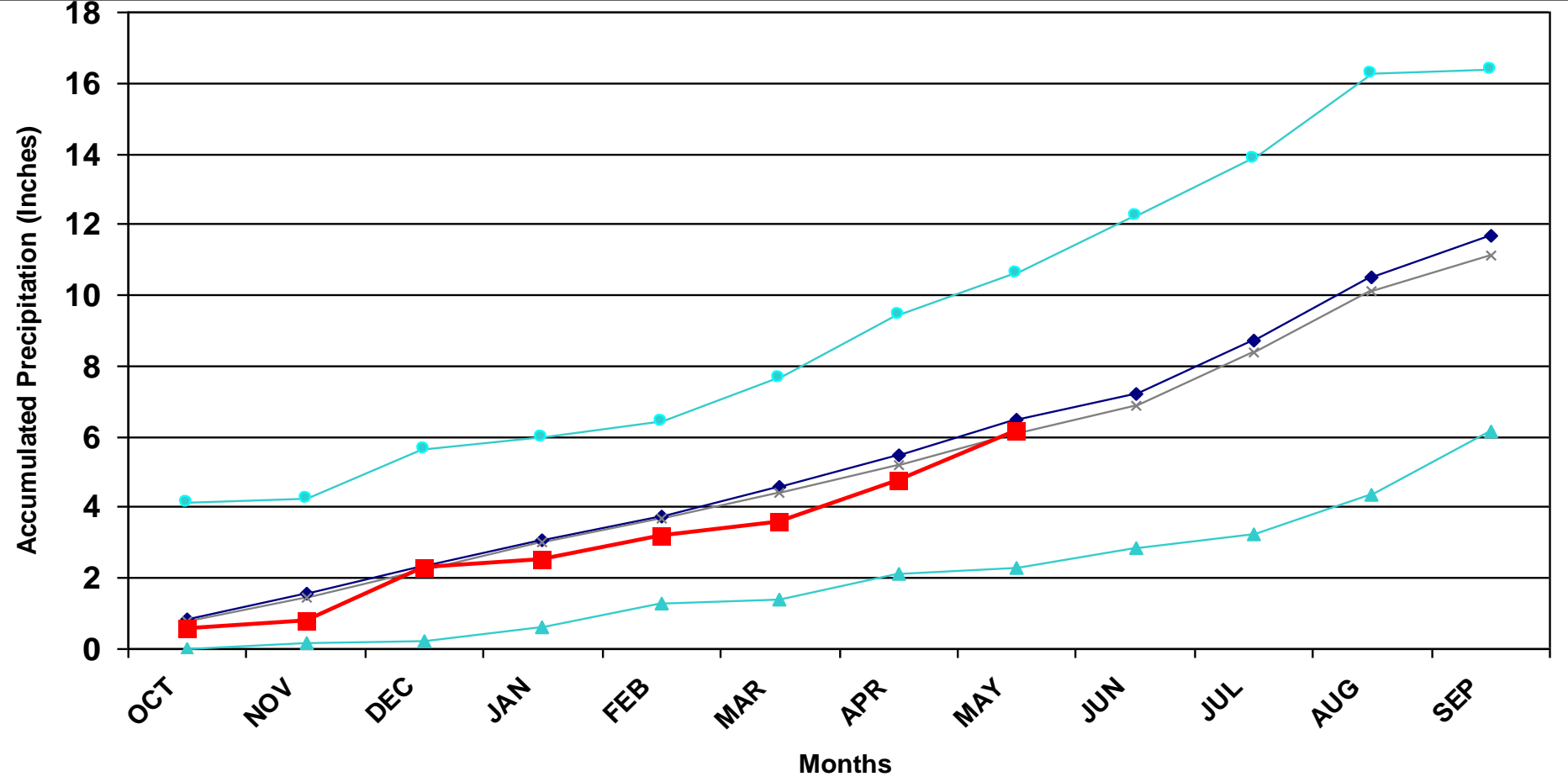
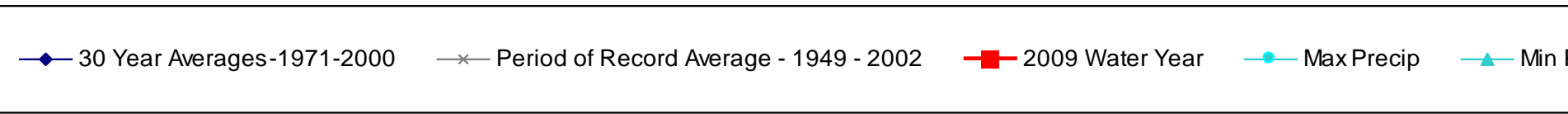
## Montrose #2 2009 Water Year

◆ 30 Year Averages-1971-2000    ✕ Period of Record Average - 1893- 2002    ■ 2009 Water Year Accumulated    ● Max Precip    ▲ Min Precip



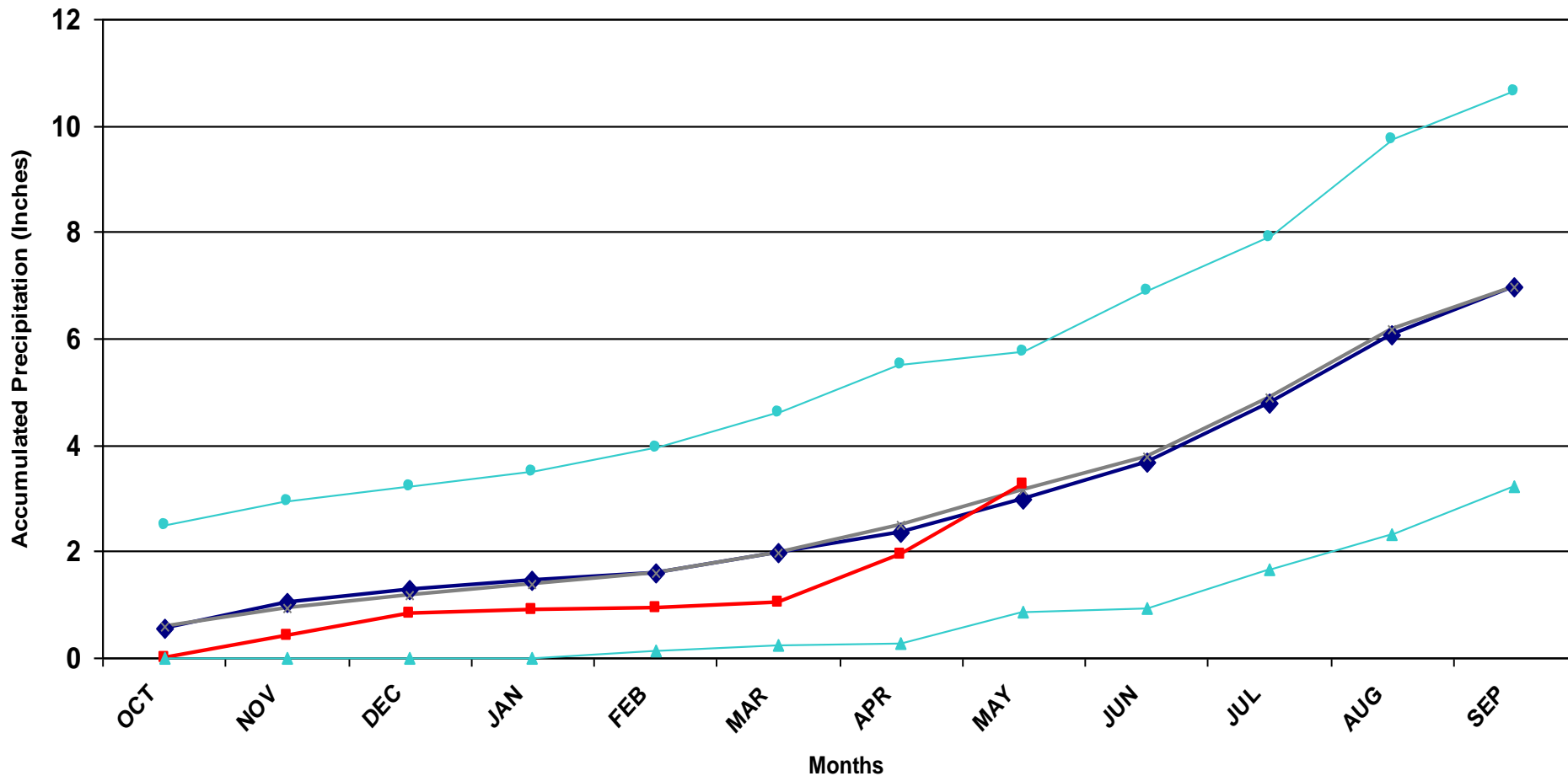
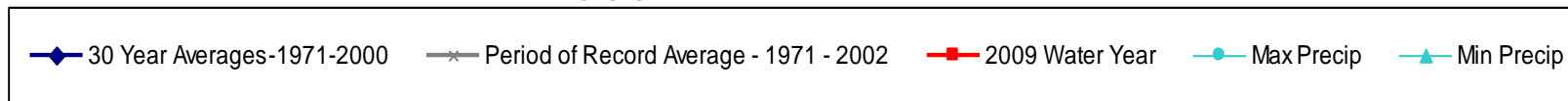
# Division 3 – Cochetopa Creek

## Cochetopa Creek 2009 Water Year



# Division 4 – Center

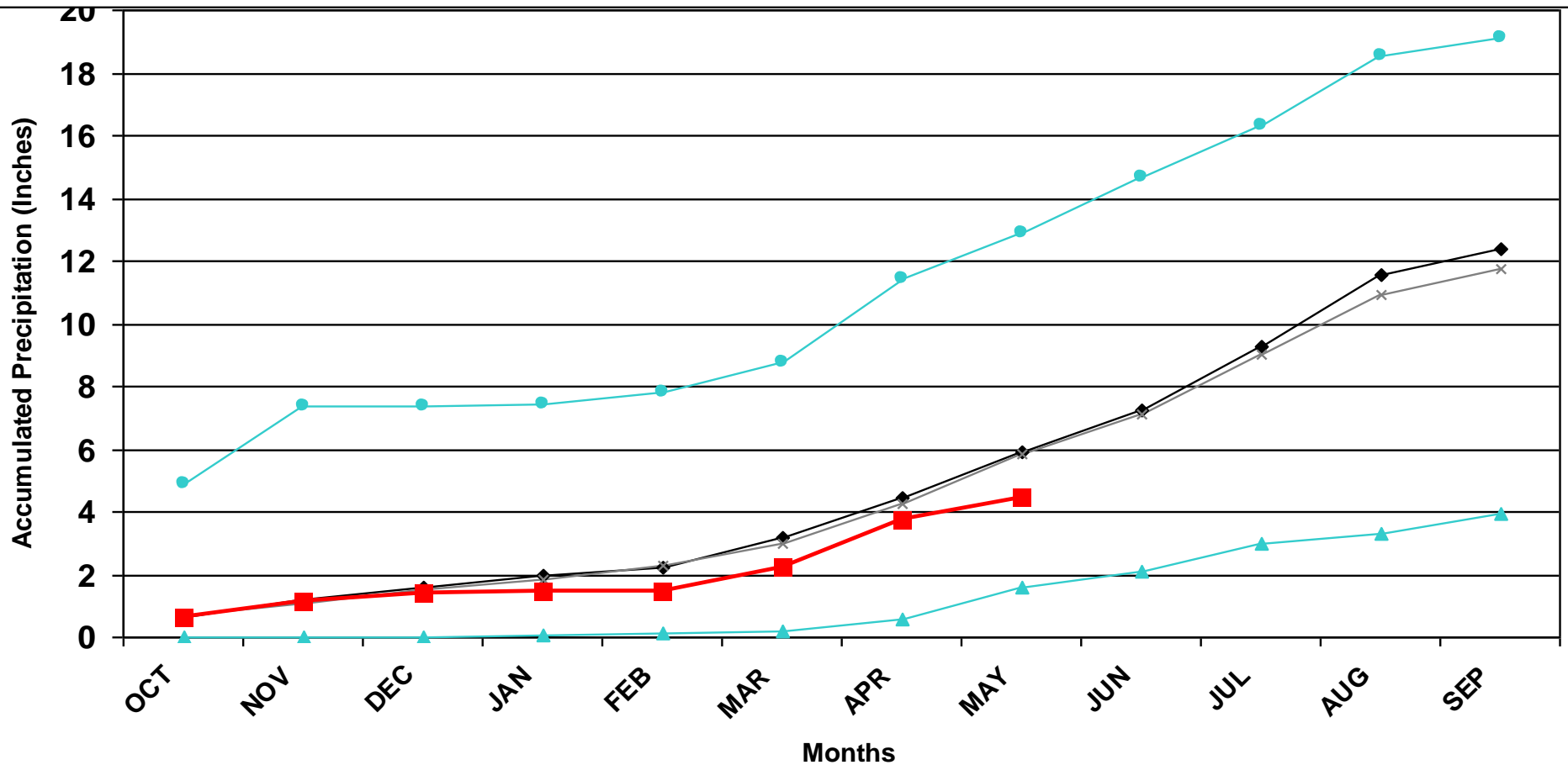
## Center 4SSW 2009 Water Year



# Division 5 – Pueblo

## Pueblo WSO 2009 Water Year

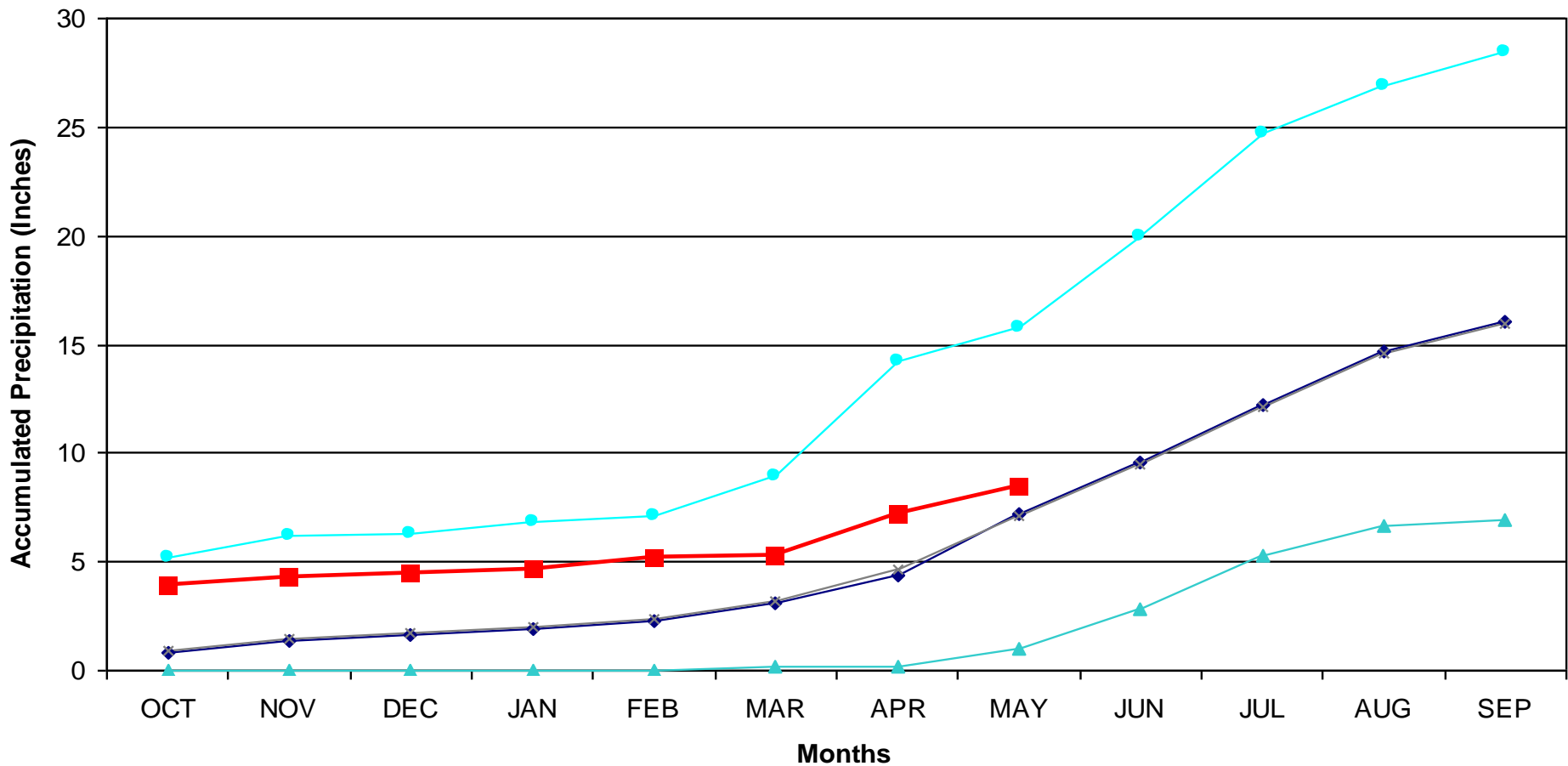
◆ 30 Year Averages-1971-2000    × Period of Record Average - 1874-2000    ■ 2009 Water Year Accumulated    ● Max Precip    ▲ Min



# Division 6 – Cheyenne Wells

## Cheyenne Wells 2009 Water Year

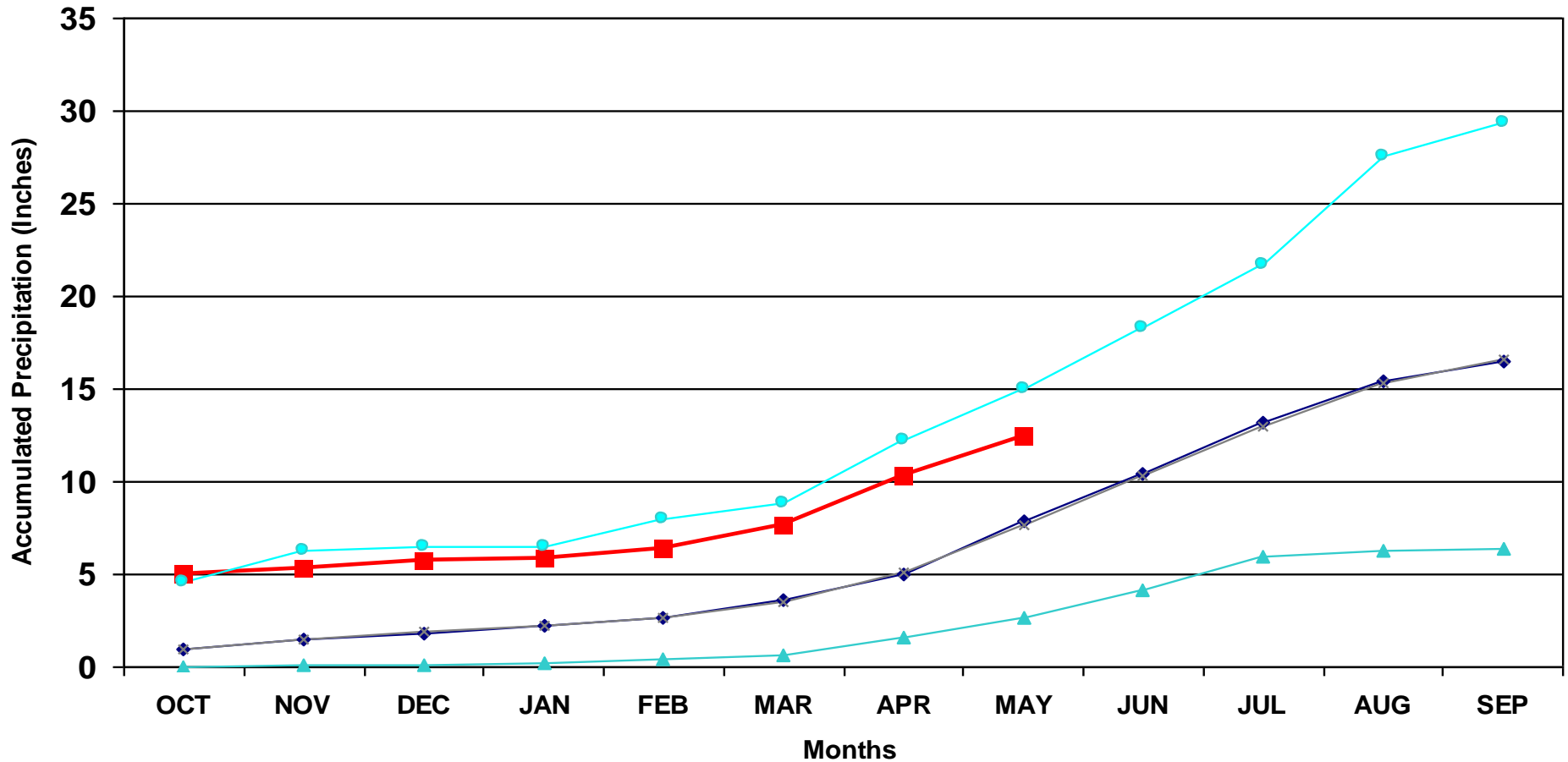
◆ 30 Year Averages-1971-2000    ✕ Period of Record Average - 1971 - 2002    ■ 2009 Water Year    ● Max\_Precip    ▲ Min pre



# Division 6 - Burlington

## Burlington 2009 Water Year

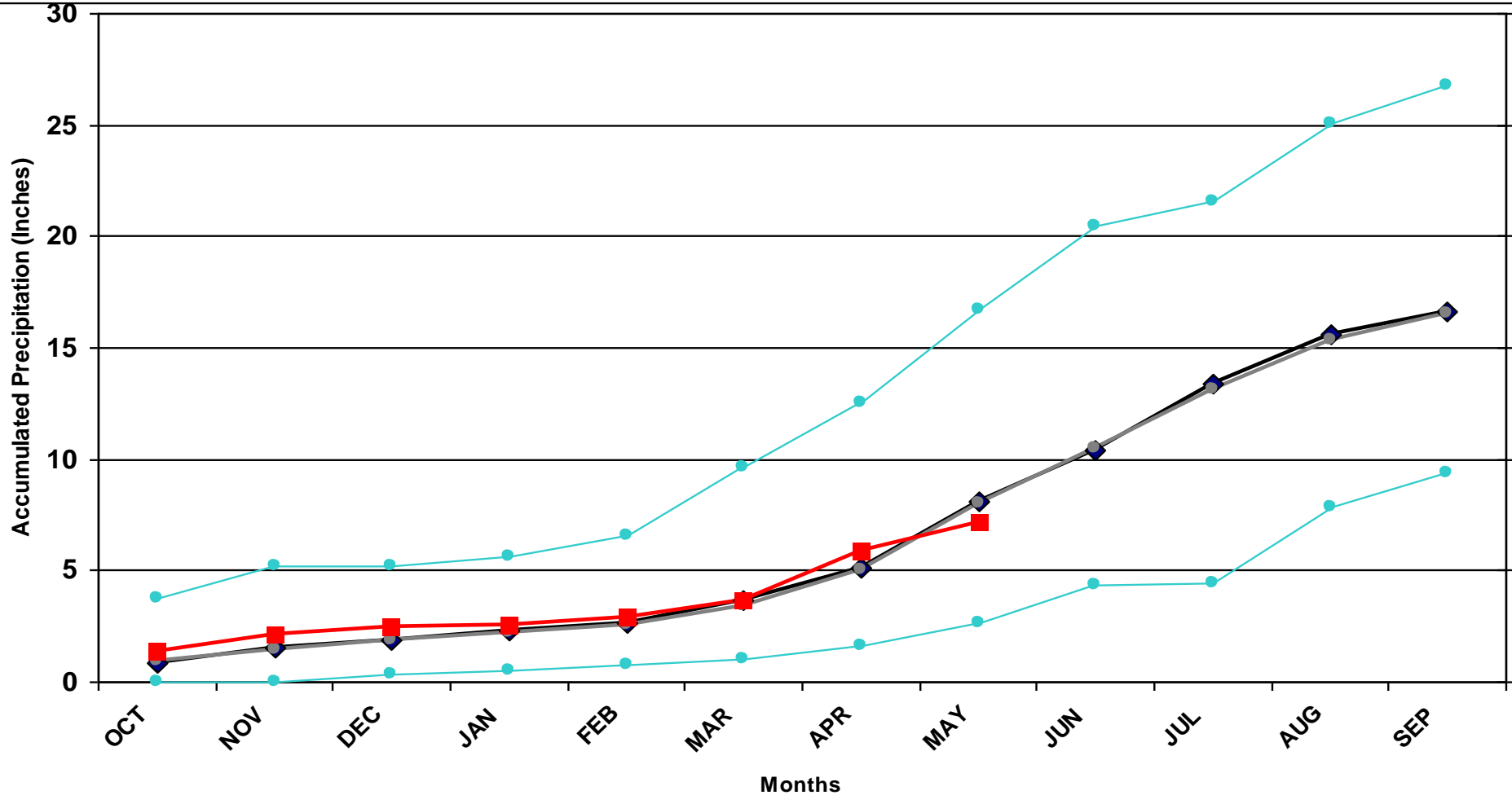
◆ 30 Year Averages-1971-2000    × Period of Record Average - 1892-2002    ■ 2009 Water Year    ● Max Precip    ▲ Min Precip



# Division 7 – Akron

## Akron 4E 2009 Water Year

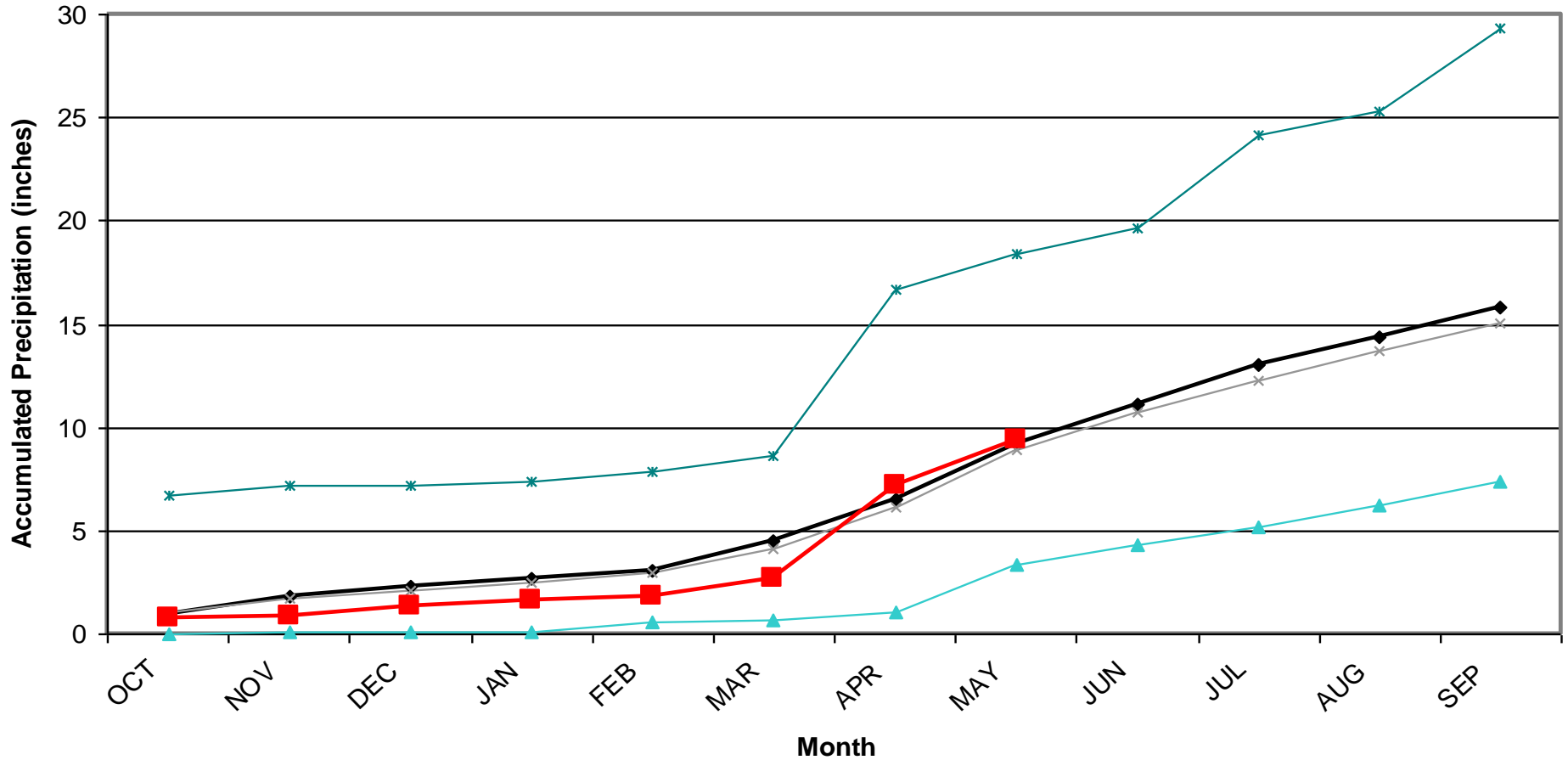
◆ 30 Year Averages-1971-2000      ● Period of Record Average - 1906 - 2002      ■ 2009 Water Year Accumulated  
● Max Precip      ● Min Precip      Year of Max



# Division 8 – Fort Collins

## Fort Collins 2009 Water Year

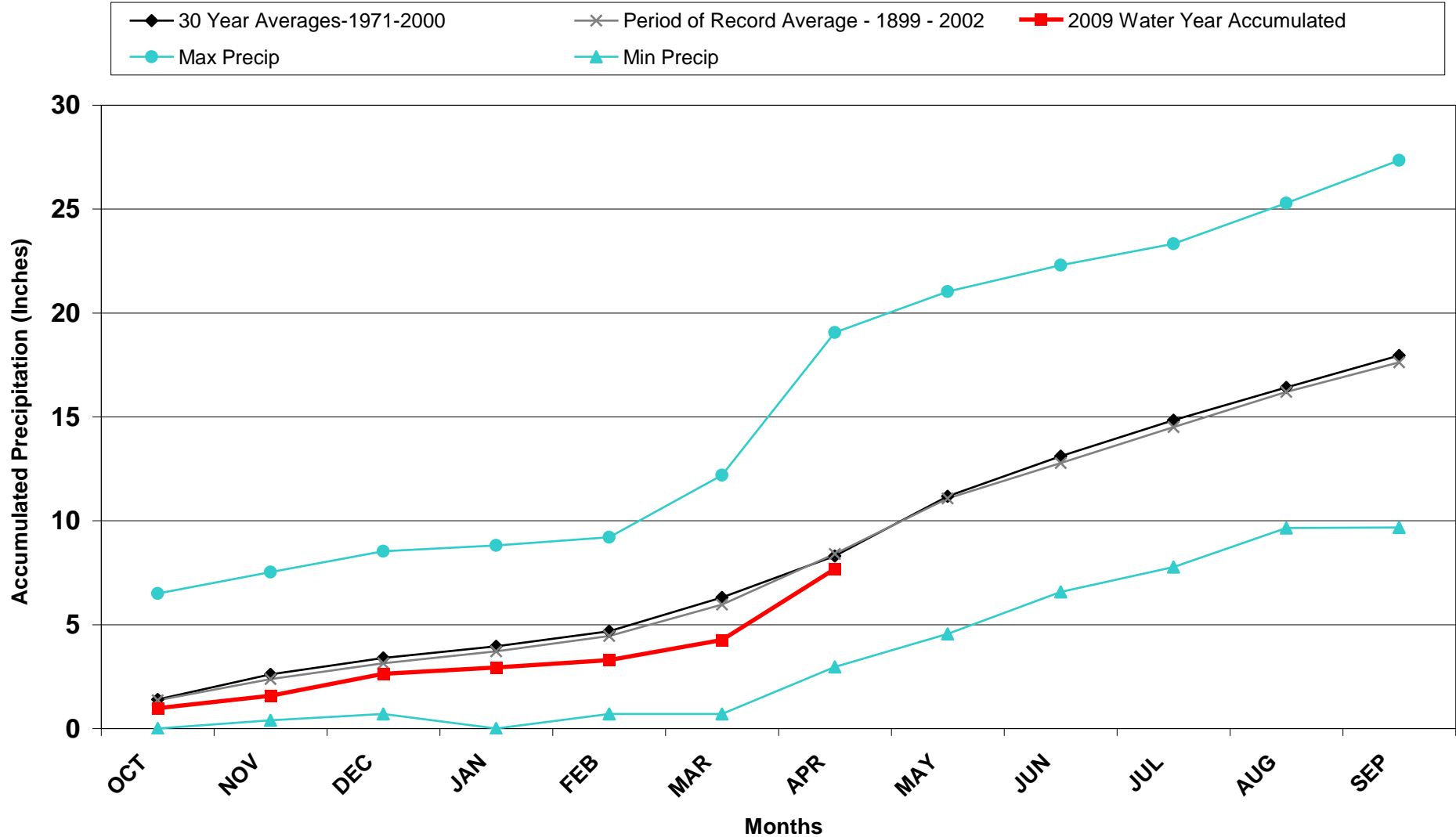
◆ 30 Year Averages-1971-2000    ✕ Period of Record Average - 1890 - 2002    ■ 2009 Water Year    \* Max Precip    ▲ Min P





# Division 8 – Kassler

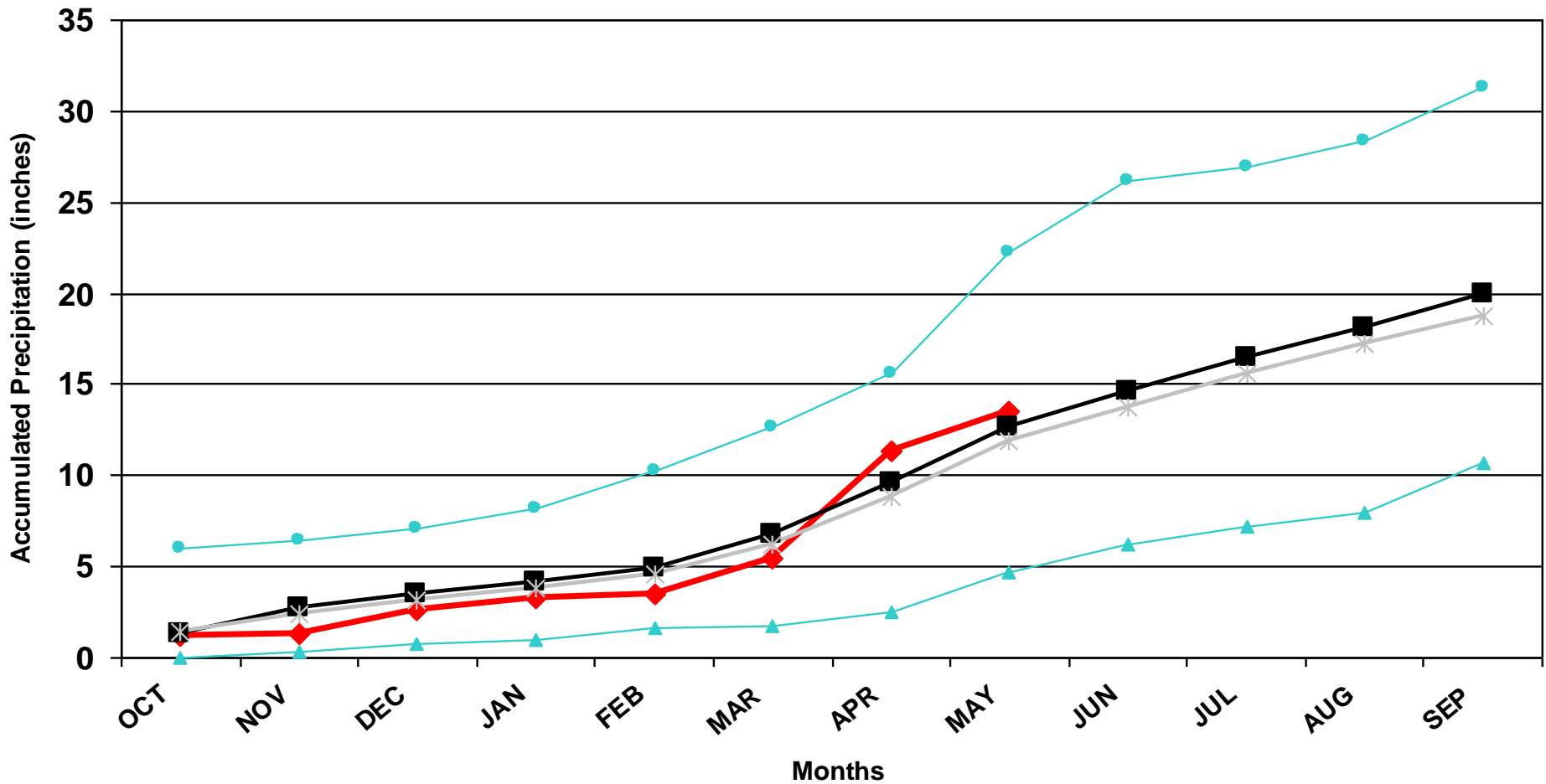
## Kassler 2009 Water Year



# Division 8 - Boulder

## Boulder 2009 Water Year

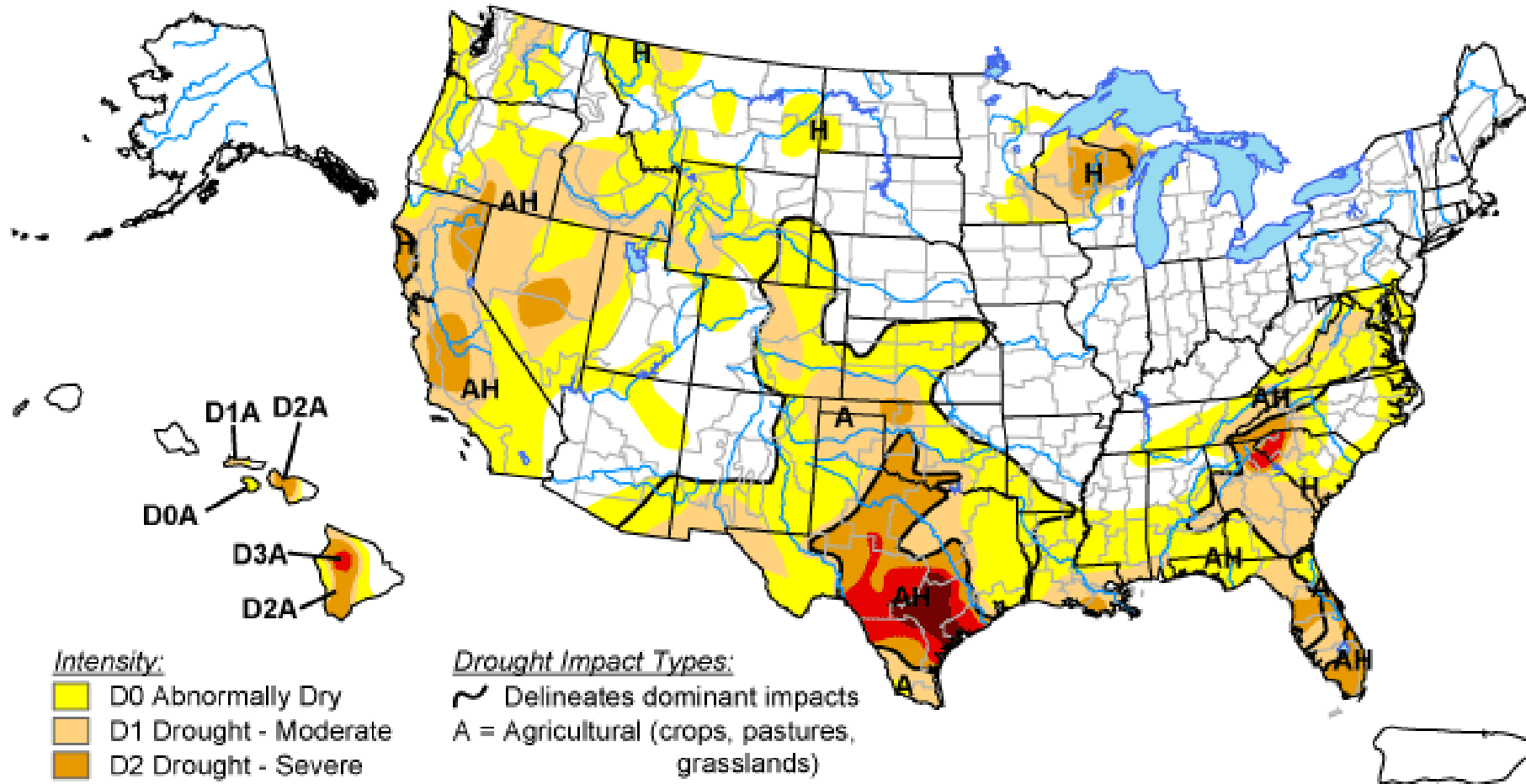
◆ 2009 Water Year    ■ 30 Year Averages-1971-2000    \* Period of Record Average - 1894-2002    ● Max Precip    ▲ Min Precip








# U.S. Drought Monitor

March 17, 2009


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, March 19, 2009

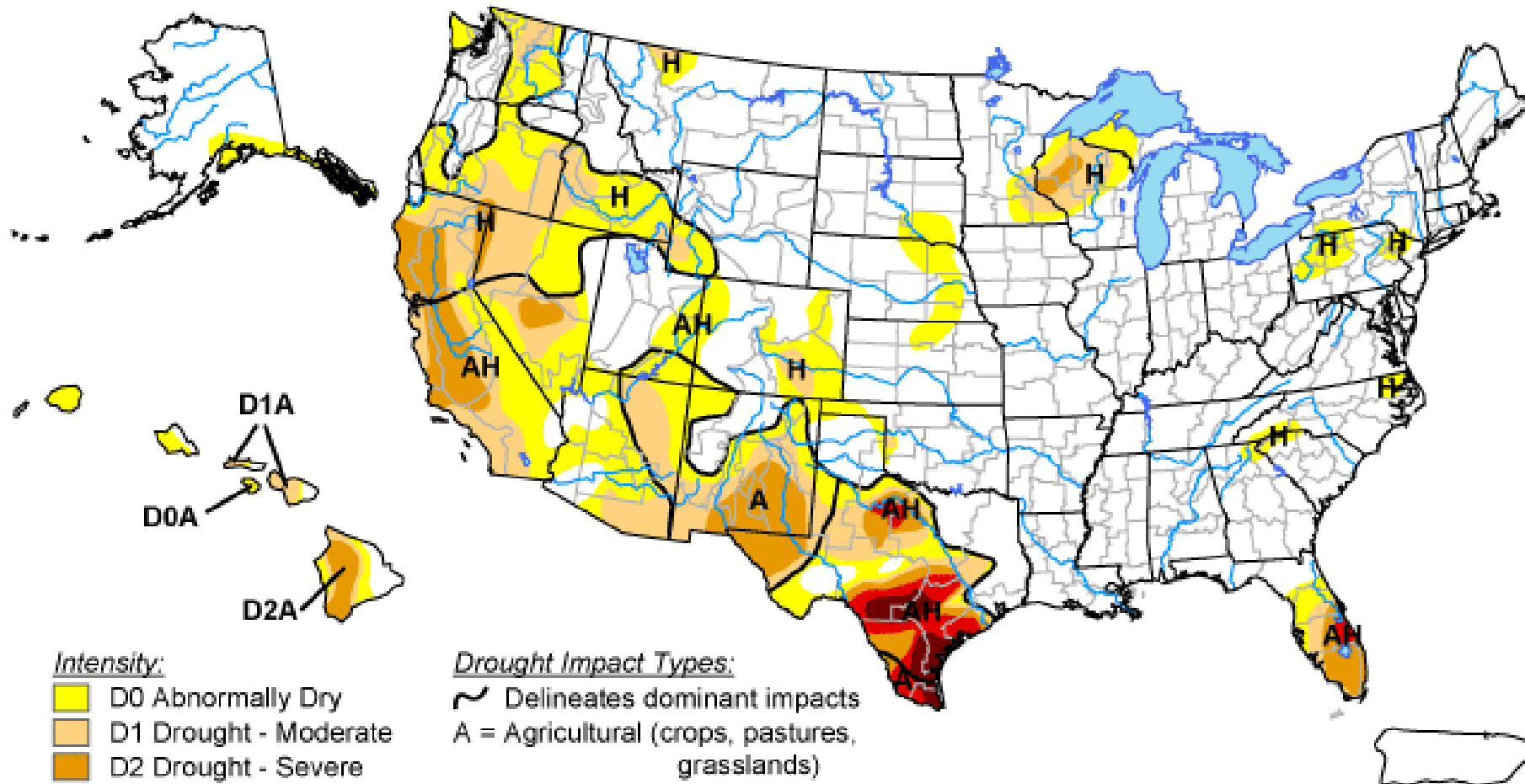
Author: Laura Edwards, Western Regional Climate Center

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






# U.S. Drought Monitor

May 19, 2009

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, May 21, 2009

Authors: M. Rosencrans, D. Miskus, A. Artusa, CPC/NOAA

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

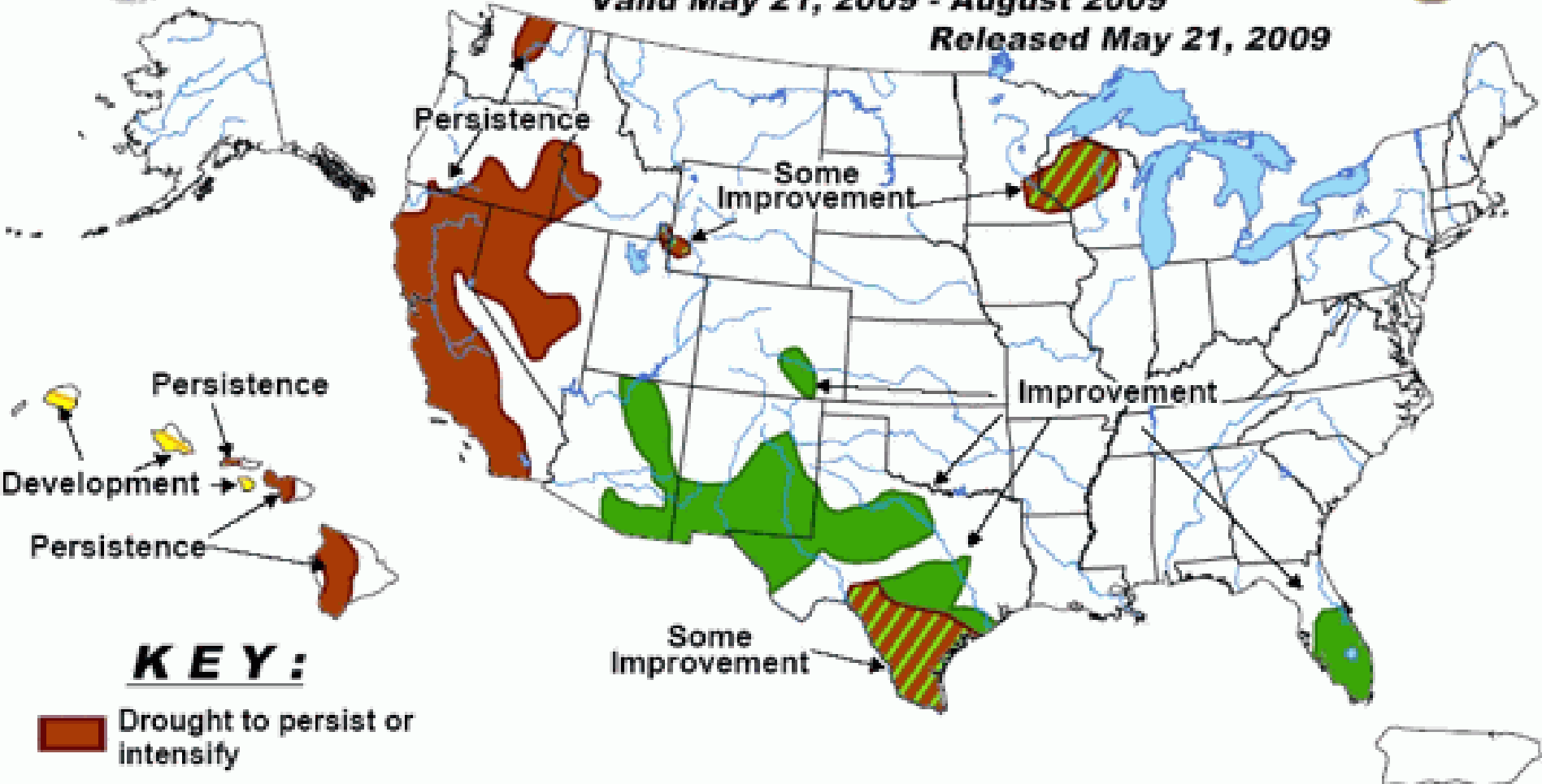


# U.S. Seasonal Drought Outlook

## Drought Tendency During the Valid Period

Valid May 21, 2009 - August 2009

Released May 21, 2009

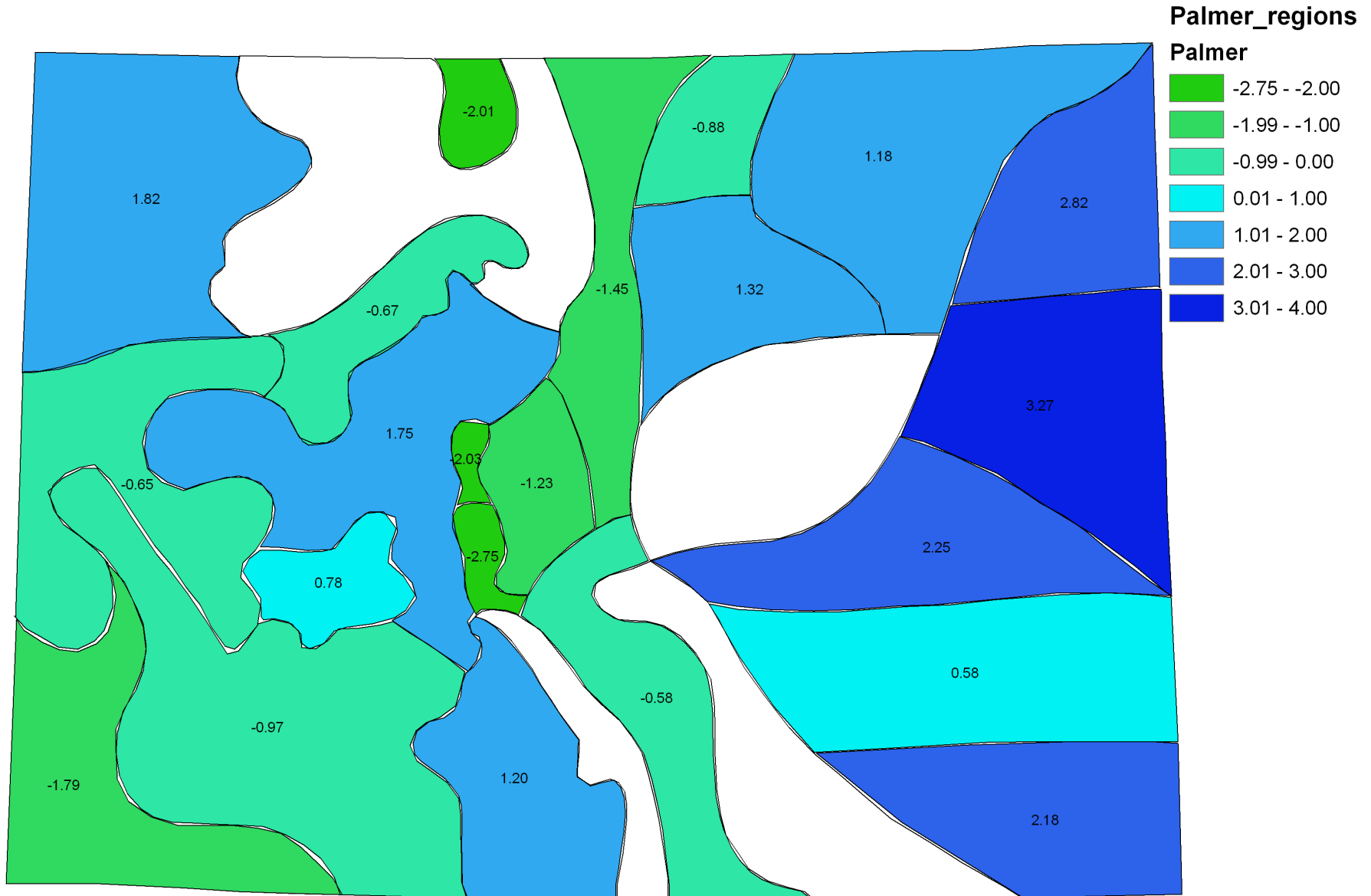


### **KEY:**

-  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.

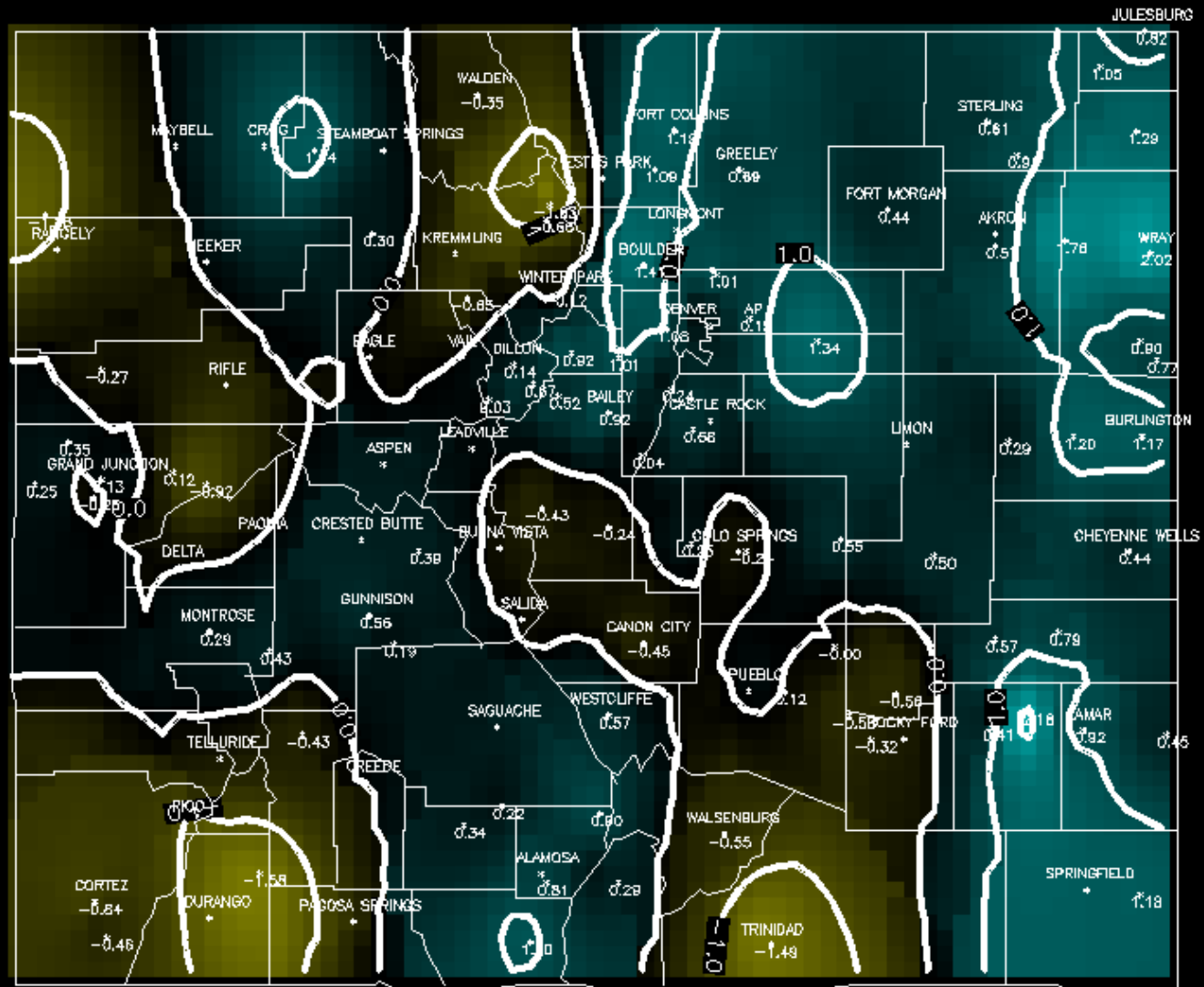
# Modified Palmer Drought Index April 2009



# 3-month SPI

Colorado

4/2009 3 mon. SPI



100% >>> 2.0  
88% >>> 1.0  
36% >>> 0.0

4% >>> -1.0  
0% >>> -2.0  
0% >>> -3.0

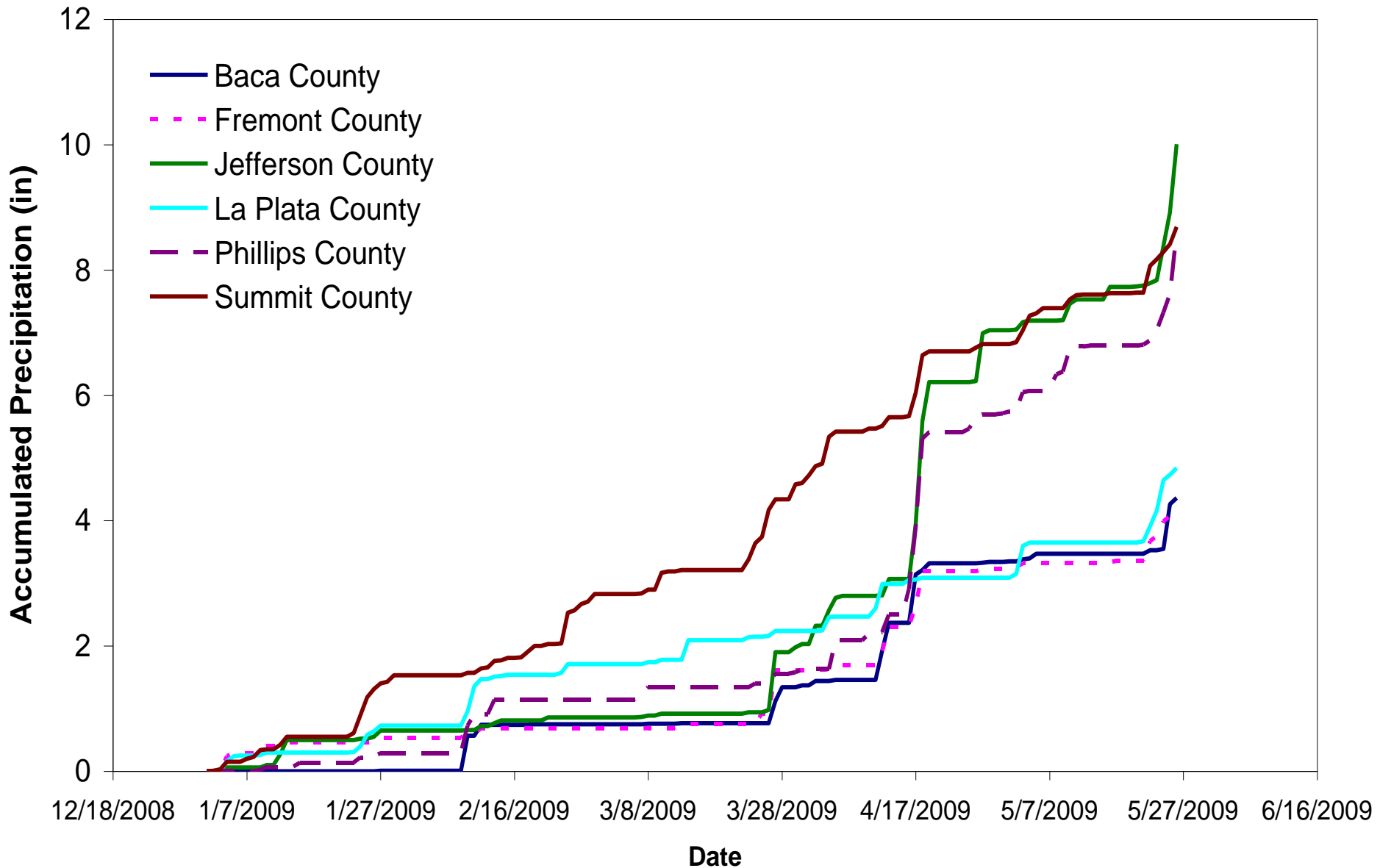
Produced by:  
Colorado Climate Center  
Fort Collins, CO



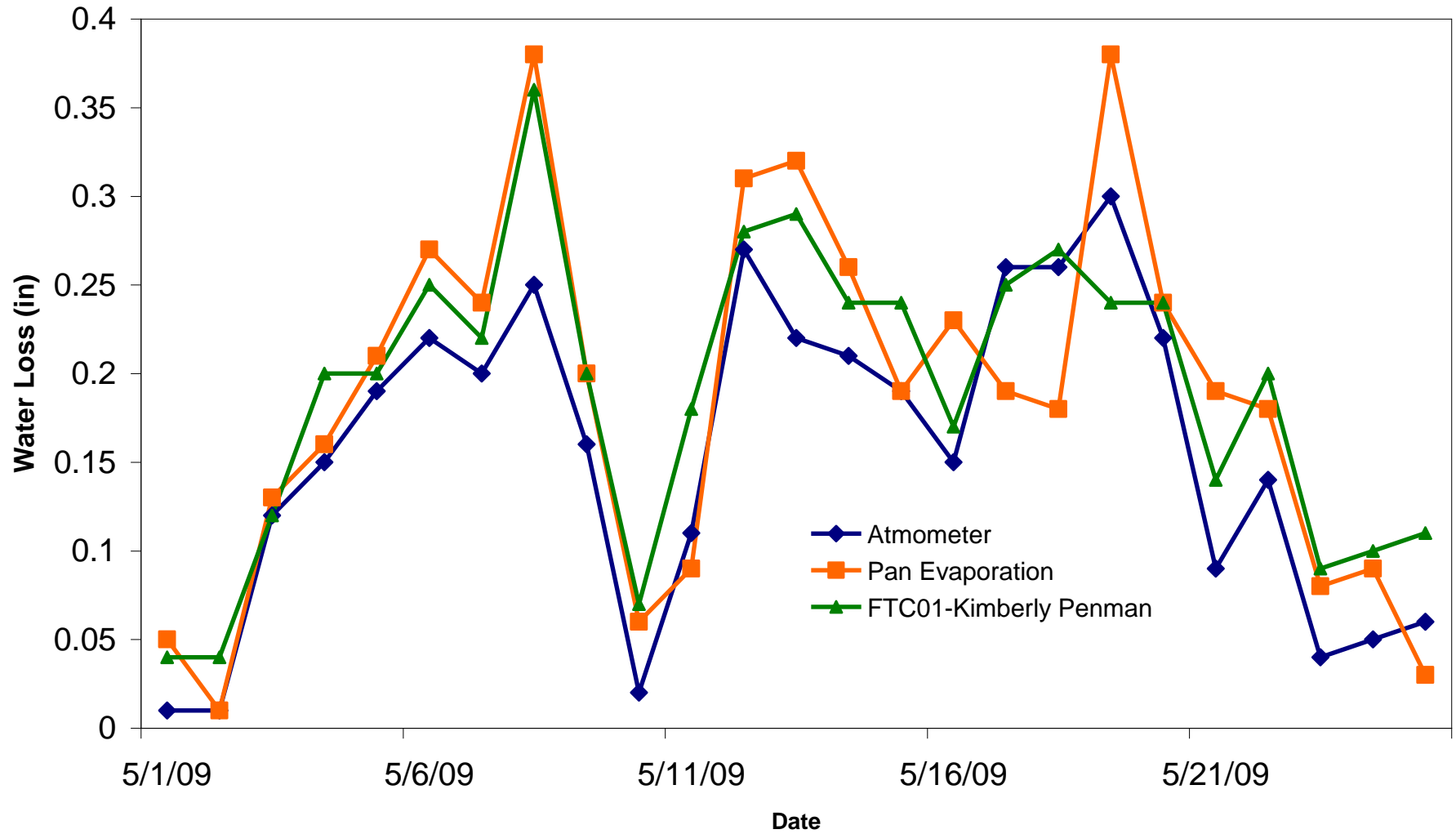




# CoCoRaHS Accumulated Daily Precipitation for Selected Counties (Jan 1 - May 26, 2009)



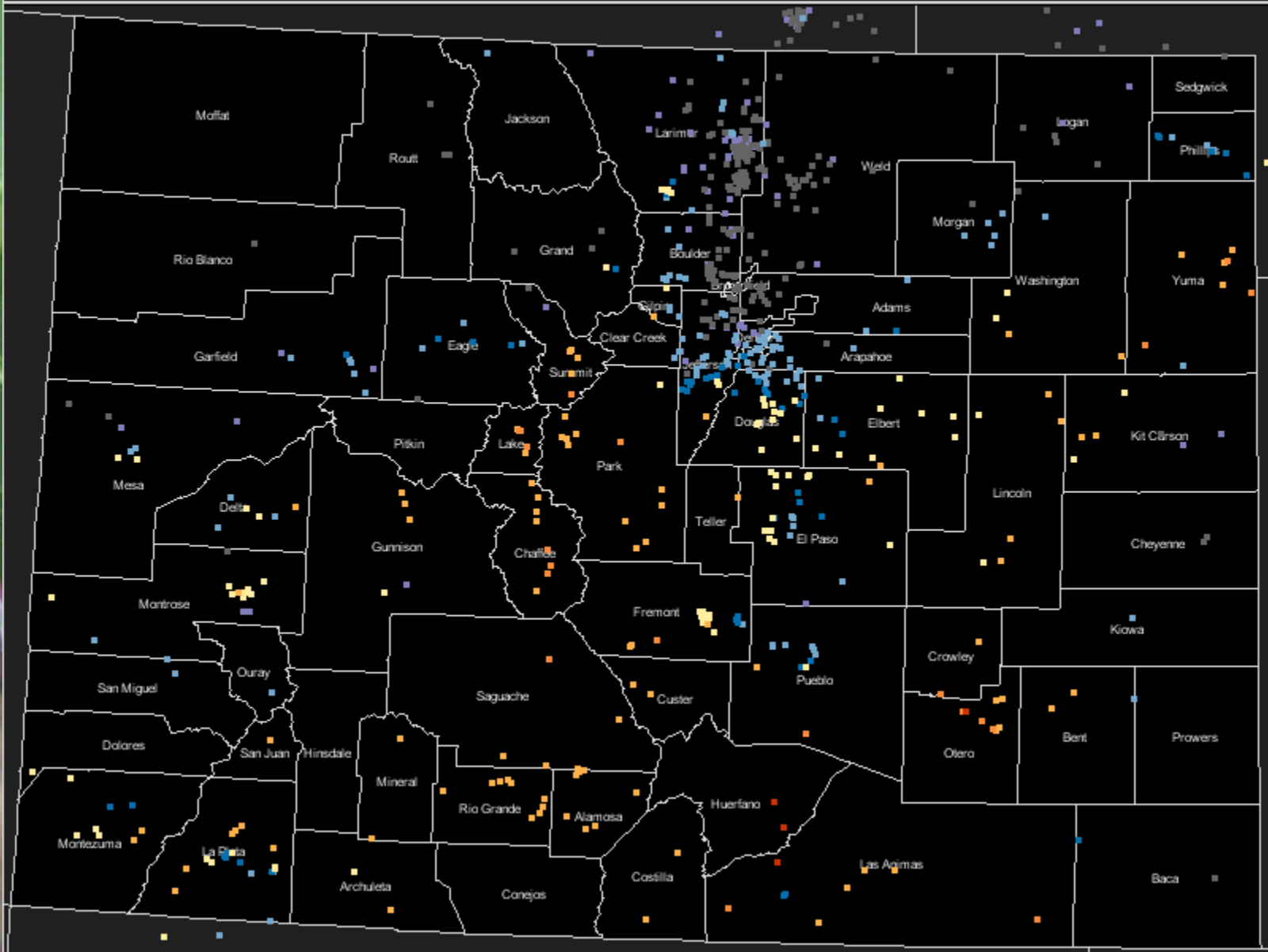
# Evapotranspiration/Pan Evaporation Comparison Fort Collins, CO



# May 22, 2009

Daily Precipitation (inches x.xx), for the 24 hour period ending ~7:00 am

Colorado 5/22/2009

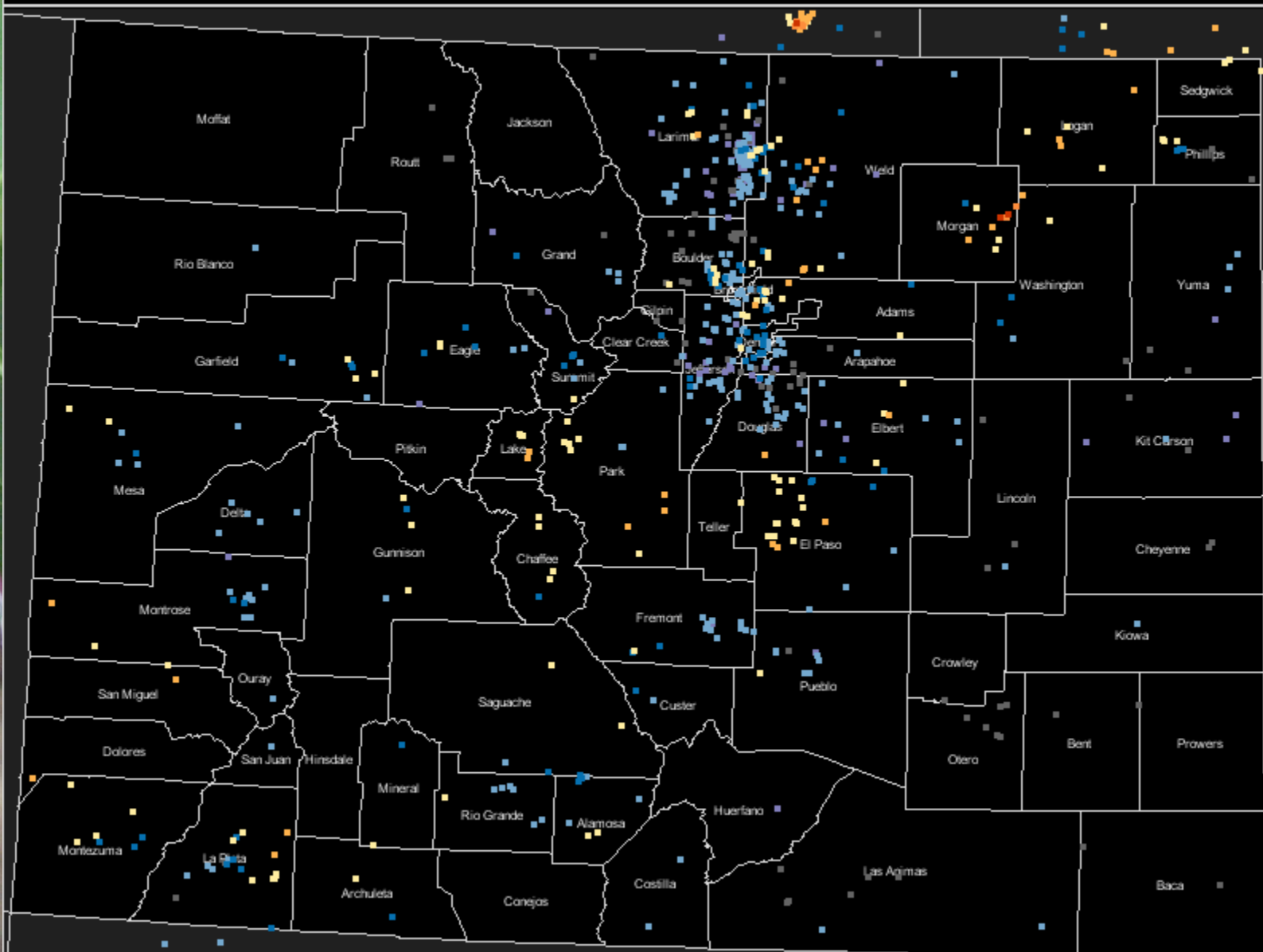


# May 23, 2009

Daily Precipitation (inches x.xx), for the 24 hour period ending ~7:00 am

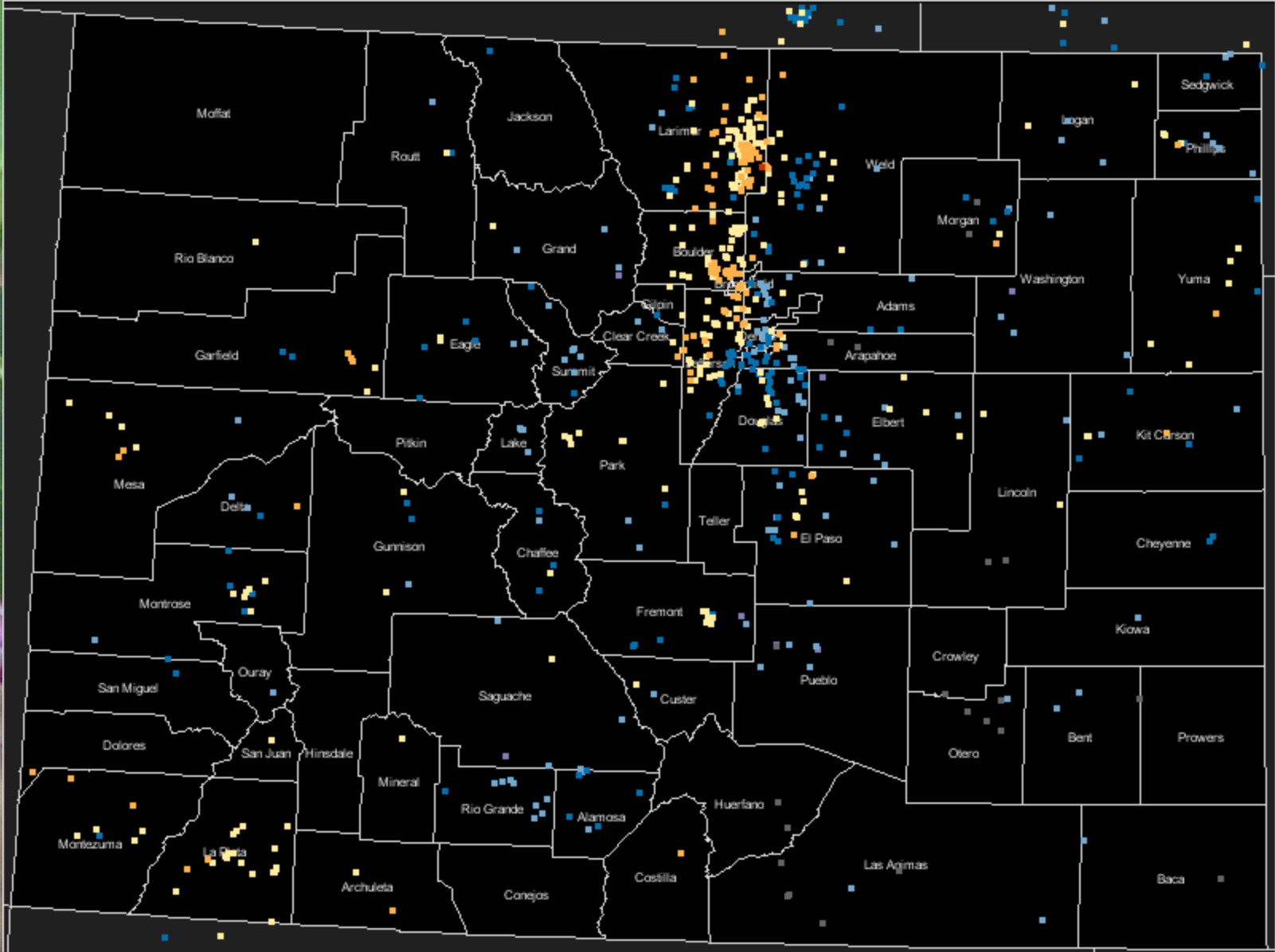
Colorado 5/23/2009

0.0 Trace 0.01 - 0.11 0.12 - 0.22 0.23 - 0.55 0.56 - 1.33 1.34 - 2.00 2.01 - 2.23



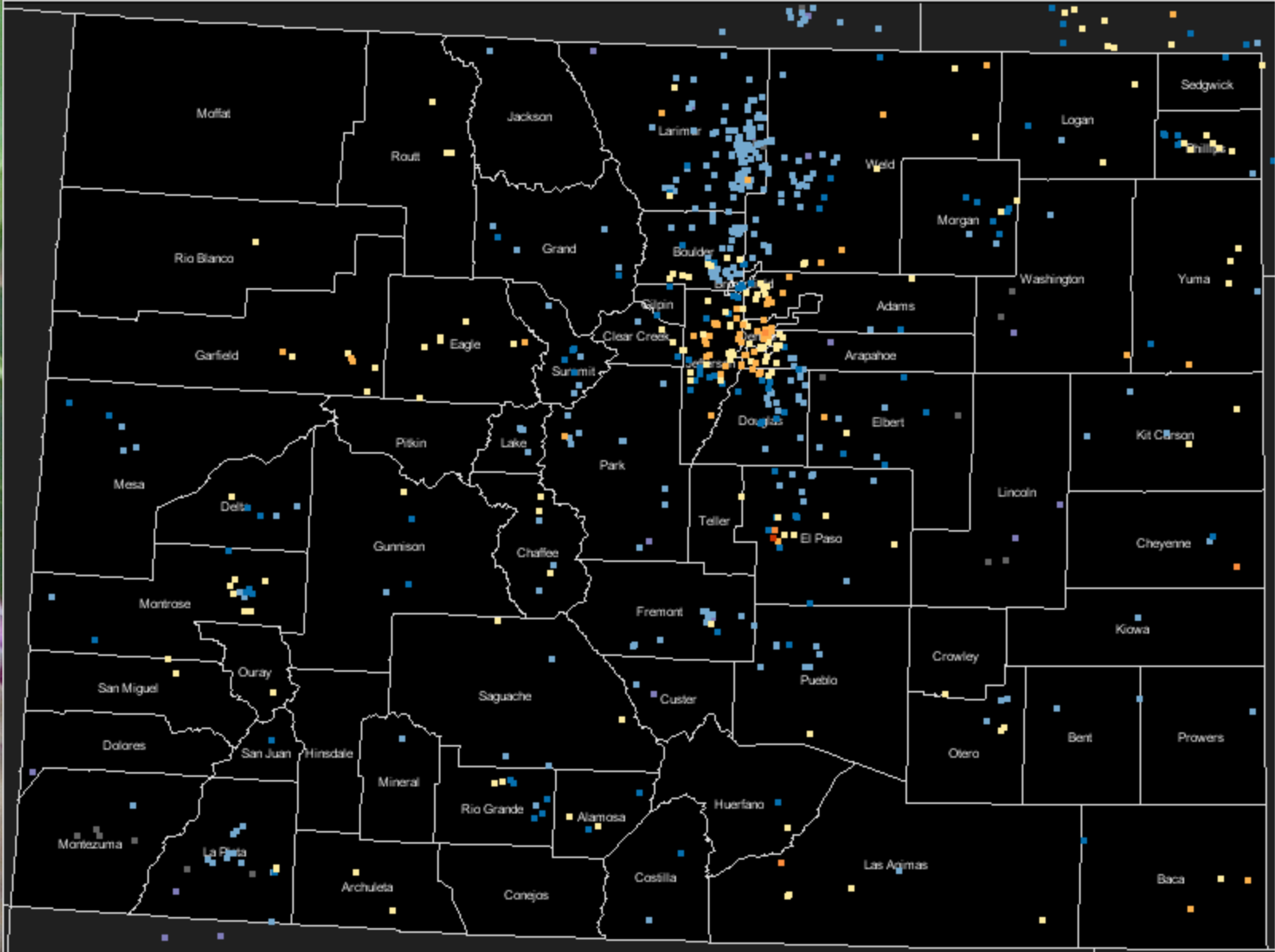
# May 24, 2009

Daily Precipitation (inches x.xx), for the 24 hour period ending ~7:00 am  
Colorado 5/24/2009

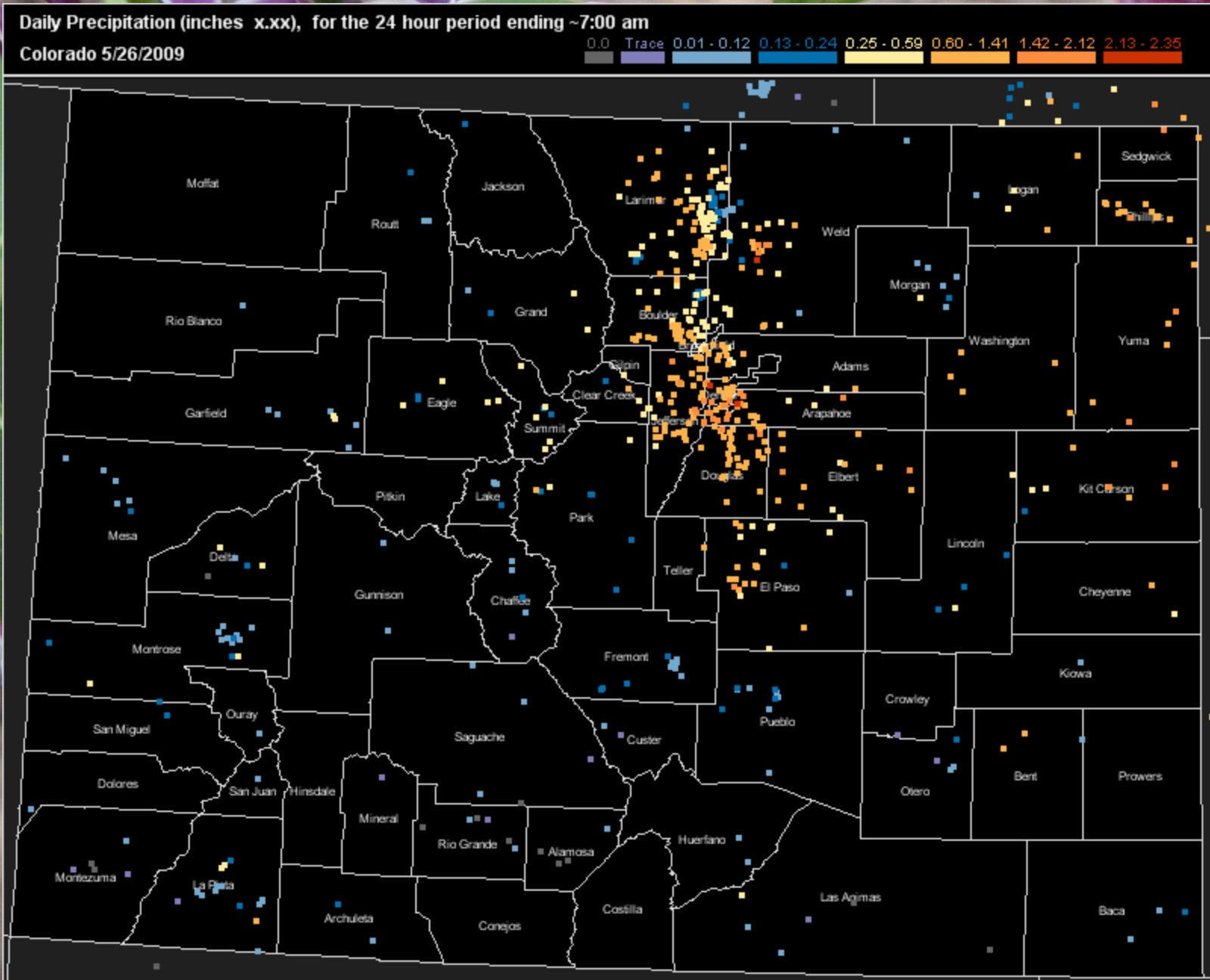


# May 25, 2009

Daily Precipitation (inches x.xx), for the 24 hour period ending ~7:00 am  
Colorado 5/25/2009



# May 26, 2009





# Colorado Climate Center

Data and Power Point Presentations  
available for downloading

<http://ccc.atmos.colostate.edu>

- click on “Drought Resources”
- then click on “Presentations”

**Colorado  
State  
University**

*Knowledge to Go Places*

