

# Drought Update

*September 21, 2004 WATF Meeting*

Roger A. Pielke  
Professor and State Climatologist

(presented at the Water Availability Task Force meeting, CSU, Fort Collins)

Prepared by Odie Bliss

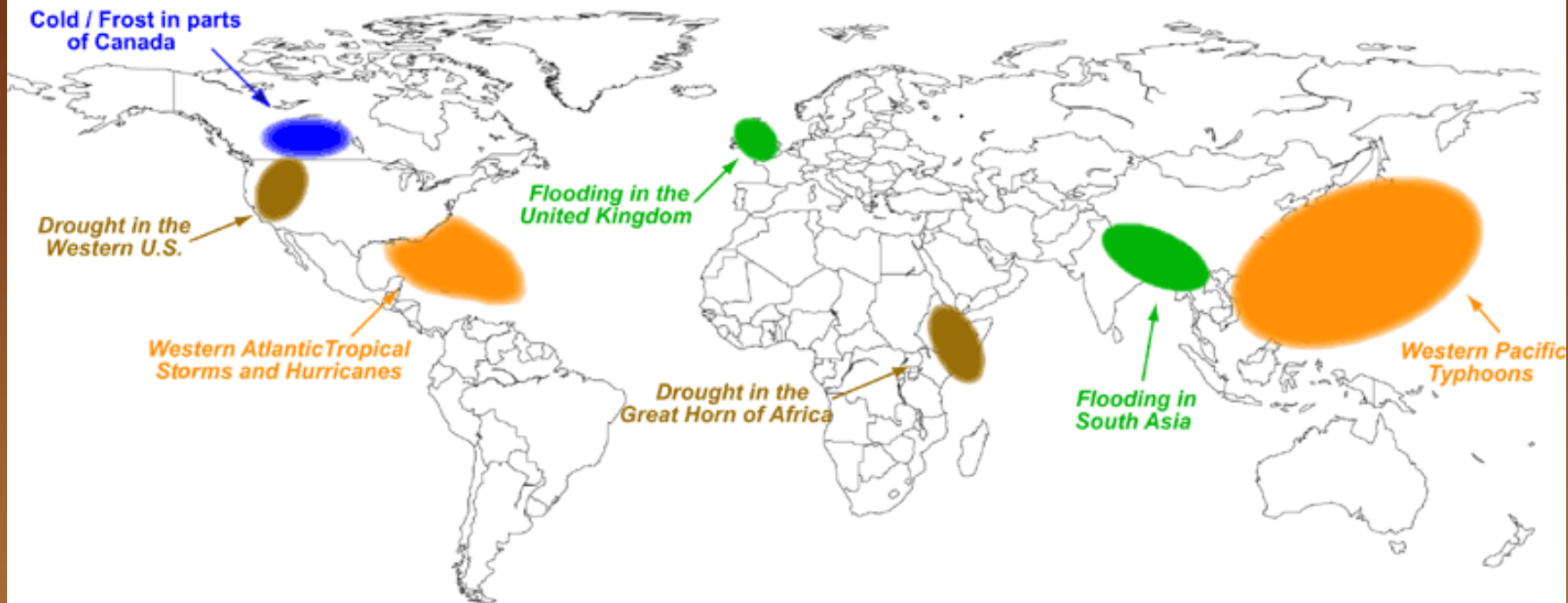
<http://ccc.atmos.colostate.edu>





# Selected Global Significant Events

## AUG 2004



**Click On A Shaded Area For More Information**



**Drought**



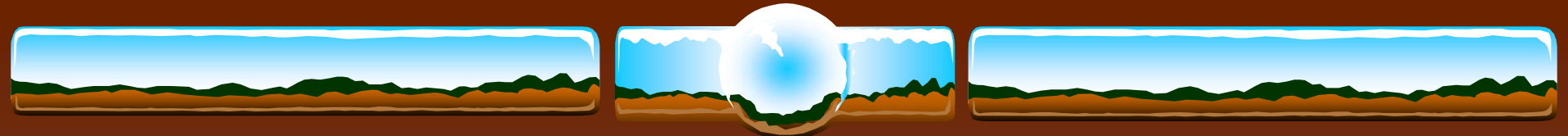
**Cold / Snow**



**Heavy Rain / Flooding**

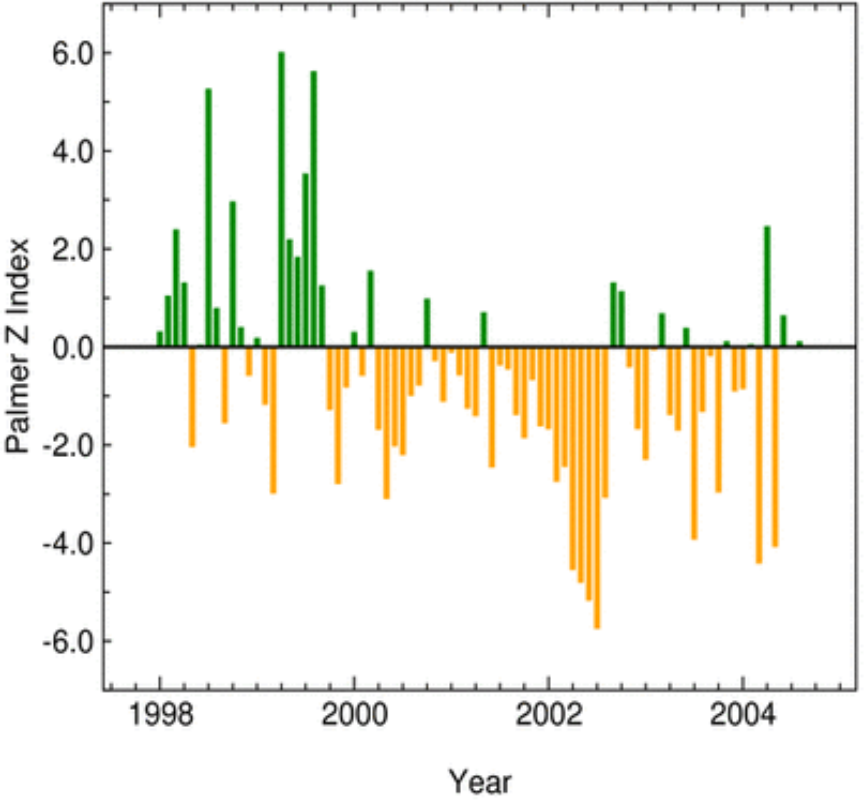


**Tropical Systems**



# Colorado Statewide Z Index\*

January 1998 - August 2004

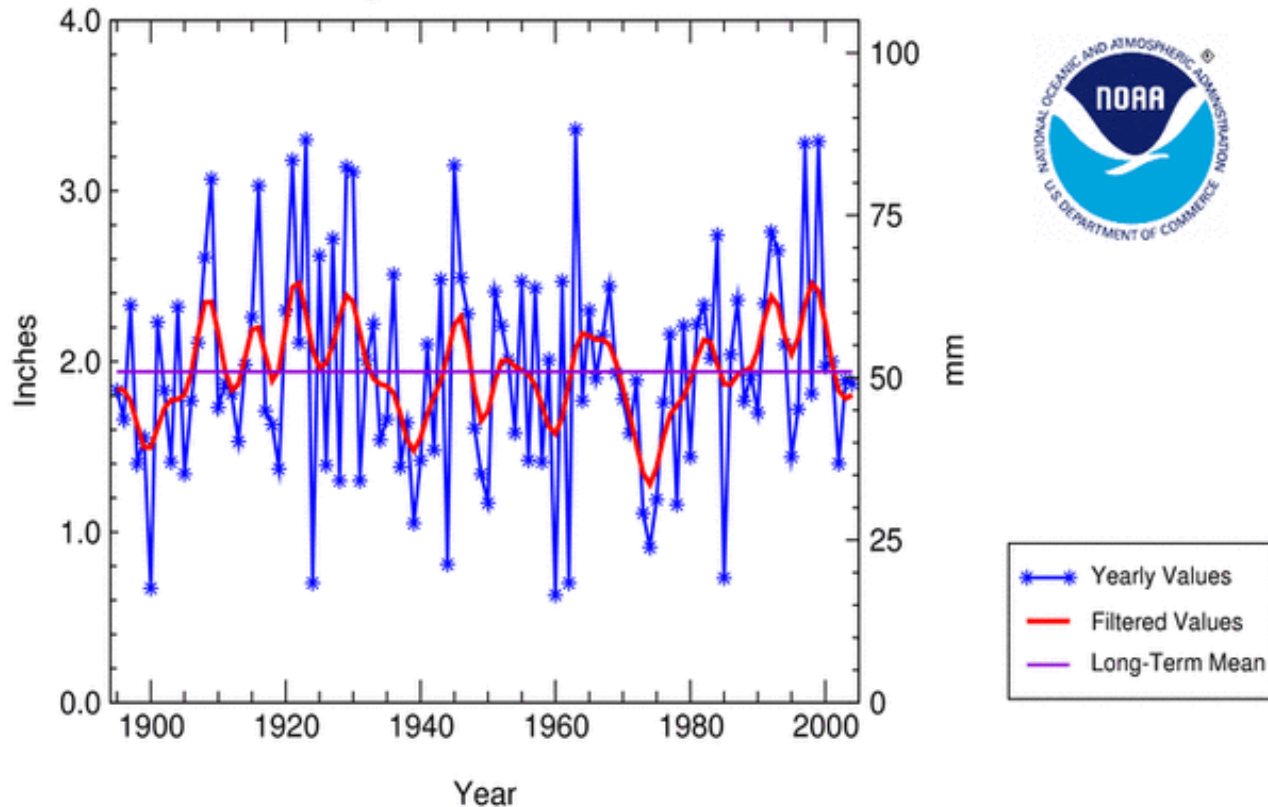


\*Palmer Z Index  
Short-Term Drought



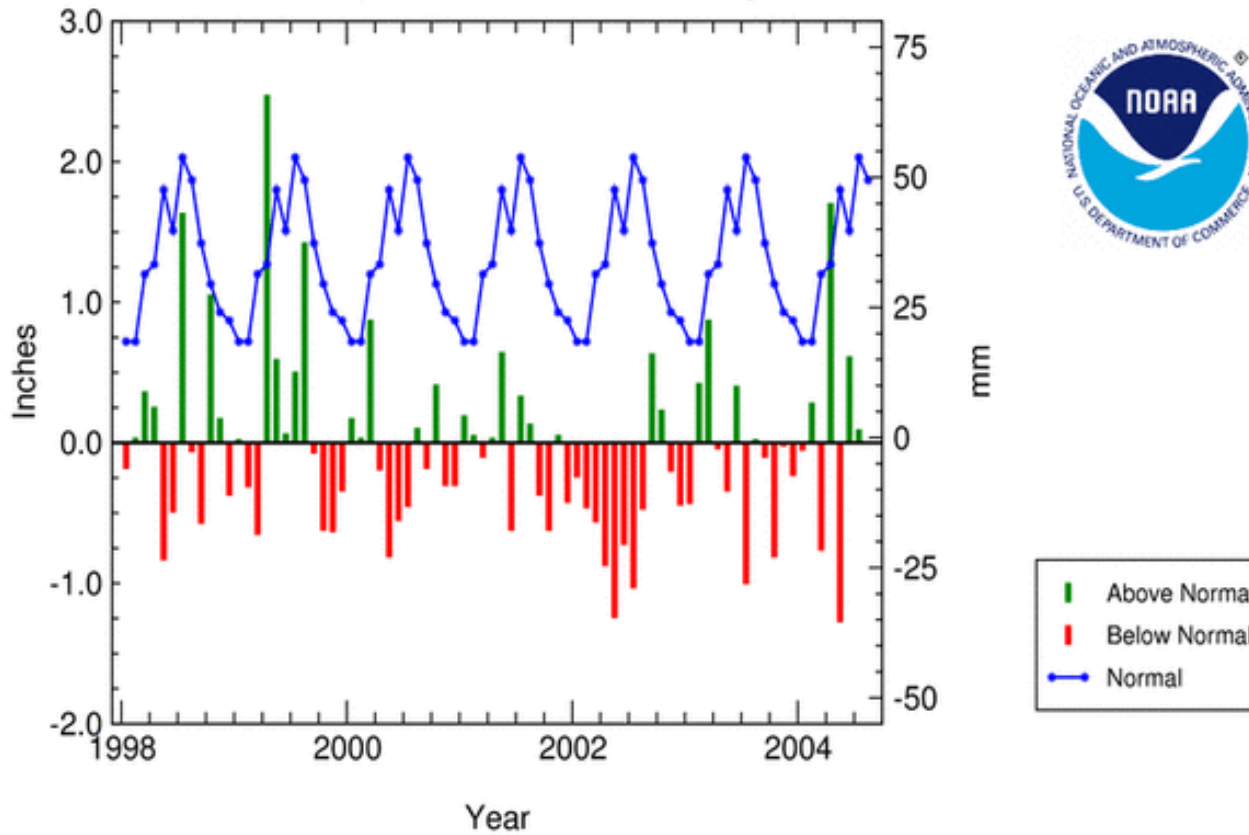
National Climatic Data Center / NESDIS / NOAA

## Colorado Statewide Precipitation August, 1895 - 2004



National Climatic Data Center / NESDIS / NOAA

## Colorado Statewide Precipitation Normal & Departure, Jan 1998 - Aug 2004



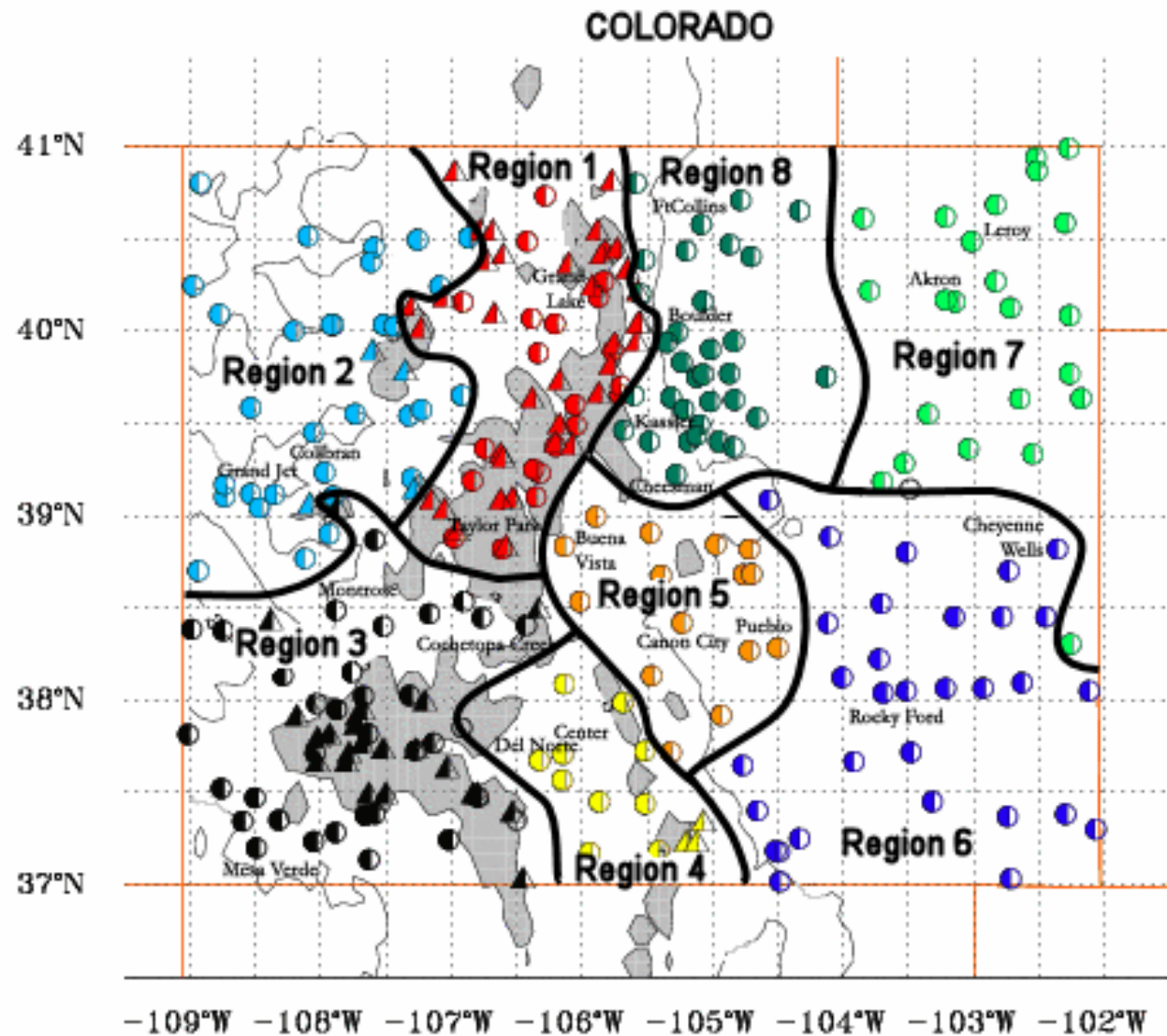
National Climatic Data Center / NESDIS / NOAA

Colorado  
Precipitation  
Ranking  
1895-2004

Statewide Precipitation Ranks  
for Colorado , 2003-2004

Period	Rank
Aug	52 <sup>nd</sup> driest
Jul-Aug	50 <sup>th</sup> wettest ( 61 <sup>st</sup> driest)
Jun-Aug	32 <sup>nd</sup> wettest ( 79 <sup>th</sup> driest)
May-Aug	41 <sup>st</sup> driest
Apr-Aug	35 <sup>th</sup> wettest ( 76 <sup>th</sup> driest)
Mar-Aug	55 <sup>th</sup> driest
Feb-Aug	47 <sup>th</sup> wettest ( 64 <sup>th</sup> driest)
Jan-Aug	50 <sup>th</sup> wettest ( 60 <sup>th</sup> driest)
Dec-Aug	54 <sup>th</sup> wettest ( 56 <sup>th</sup> driest)
Nov-Aug	53 <sup>rd</sup> wettest ( 57 <sup>th</sup> driest)
Oct-Aug	43 <sup>rd</sup> driest
Sep-Aug	43 <sup>rd</sup> driest

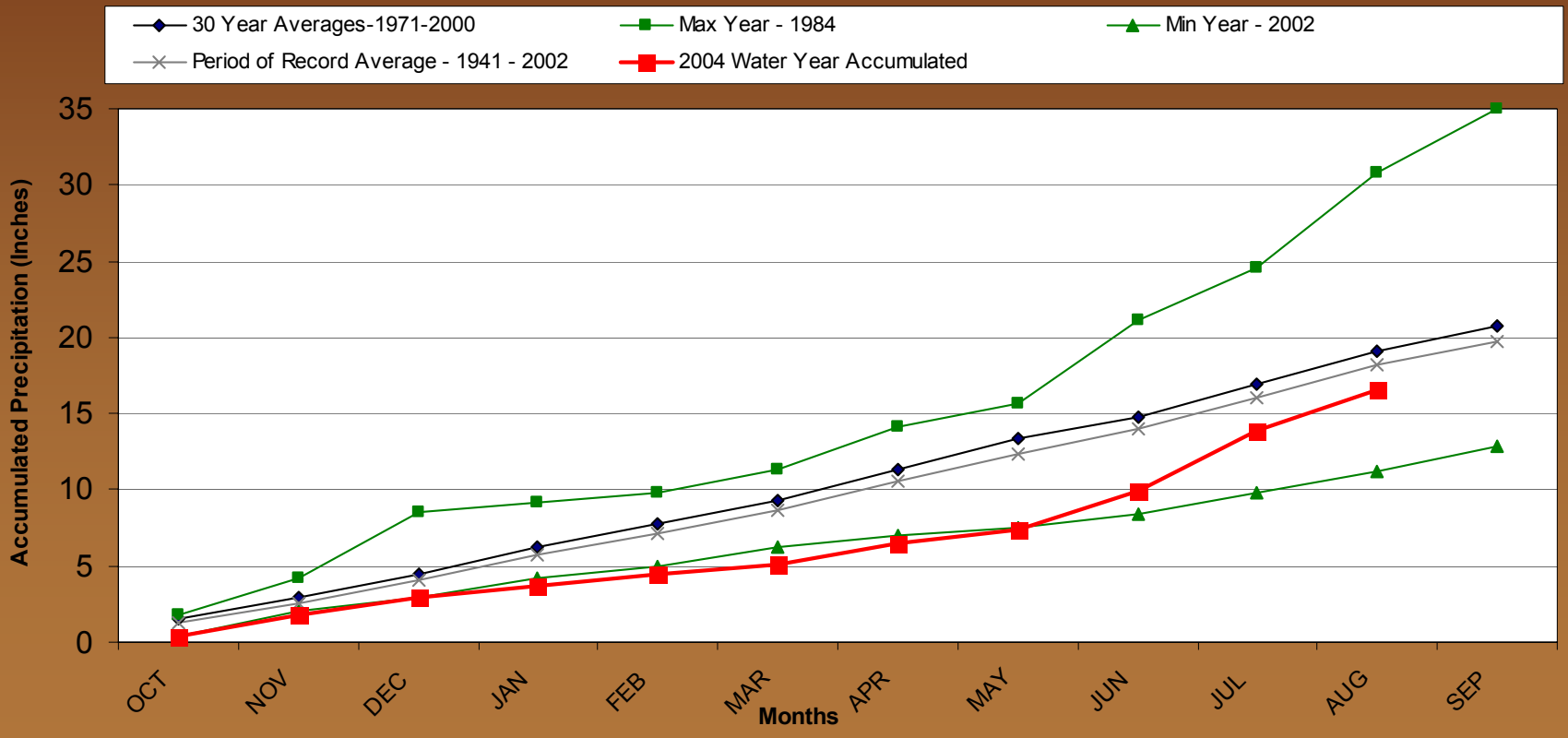
Climate divisions defined by Dr. Klaus Wolter of NOAA's Climate Diagnostic Center in Boulder, CO





# Division 1 - Grand Lake 1NW

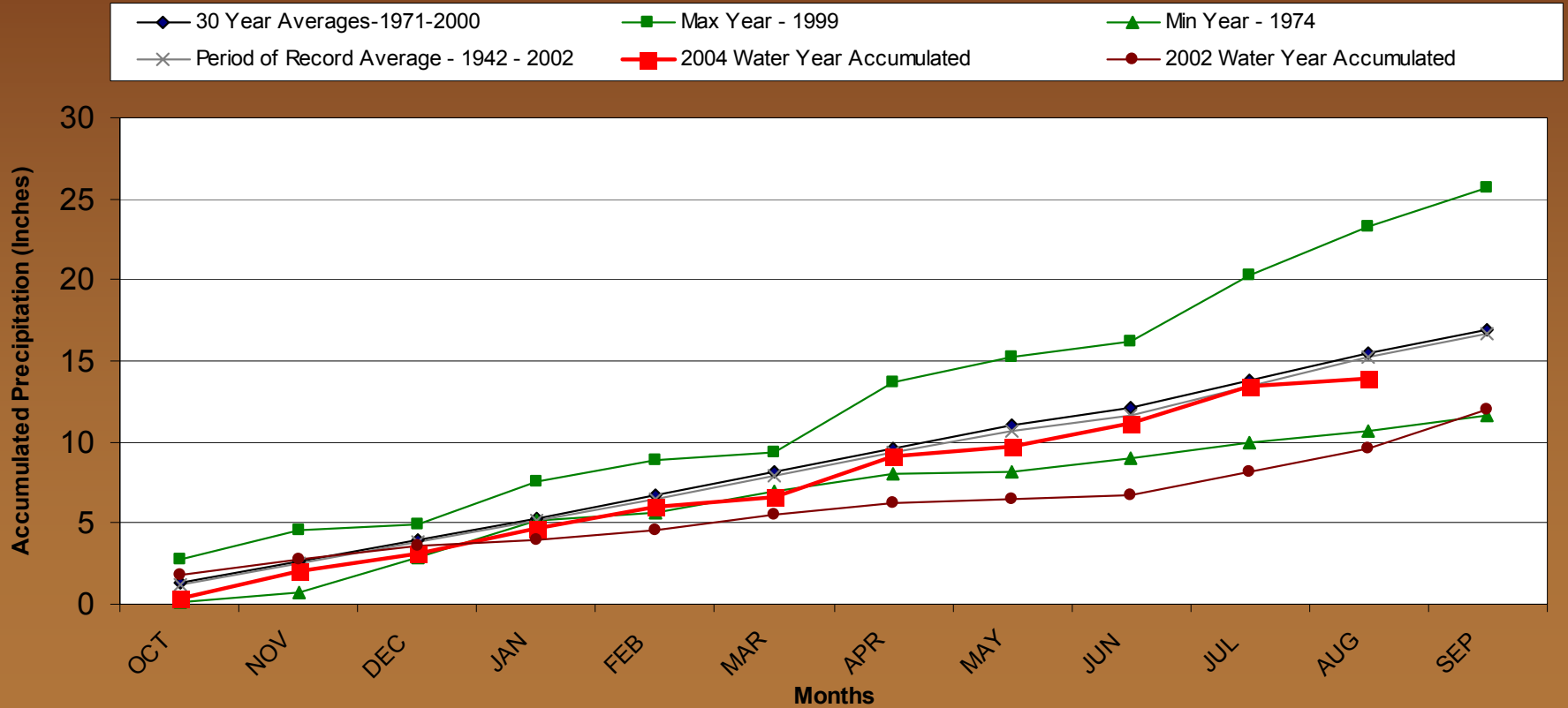
Grand Lake 1 NW  
2004 Water Year  
(through Oct '03 - Aug '04)





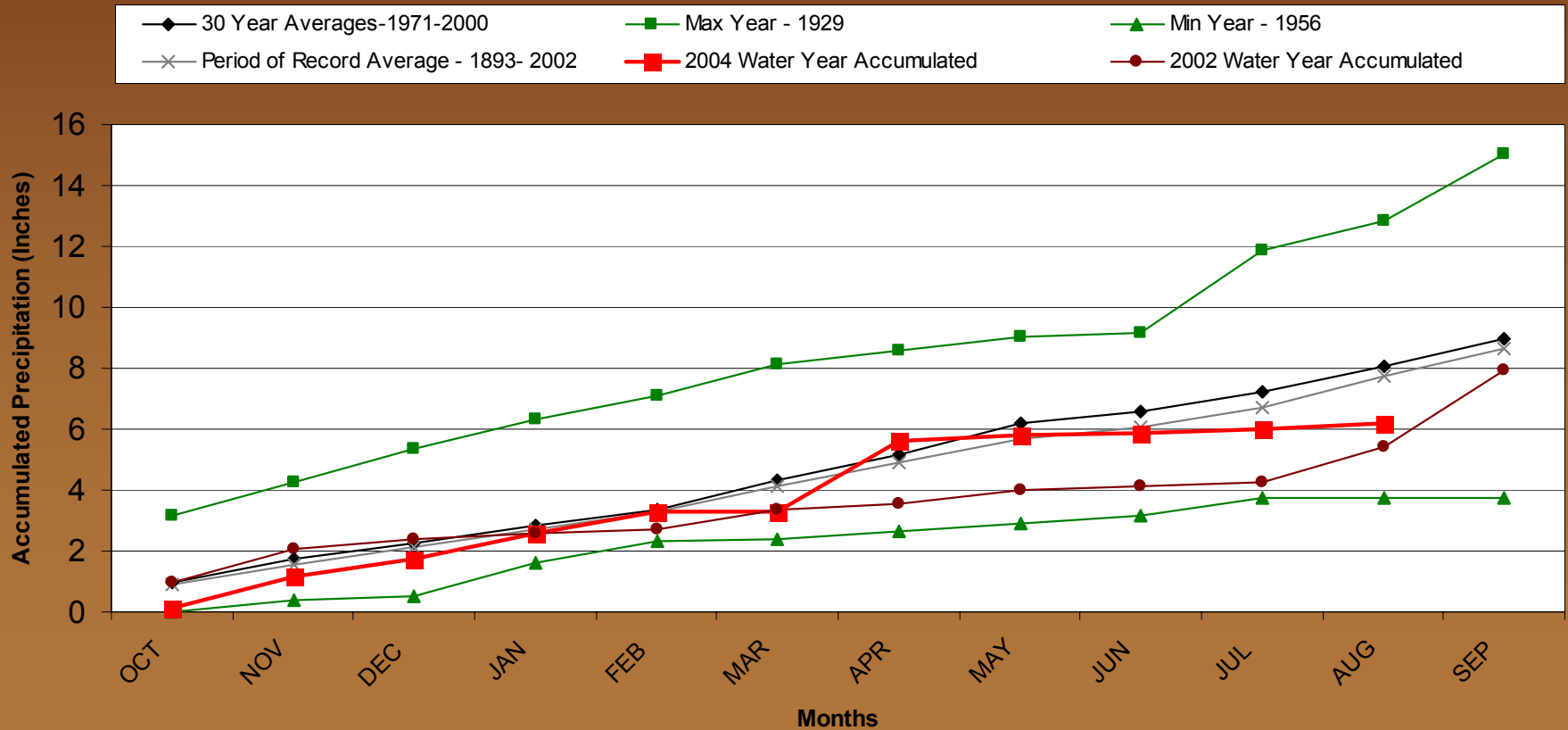
# Division 1- Taylor Park

Taylor Park  
2004 Water Year  
(through Oct '03 - Aug '04)



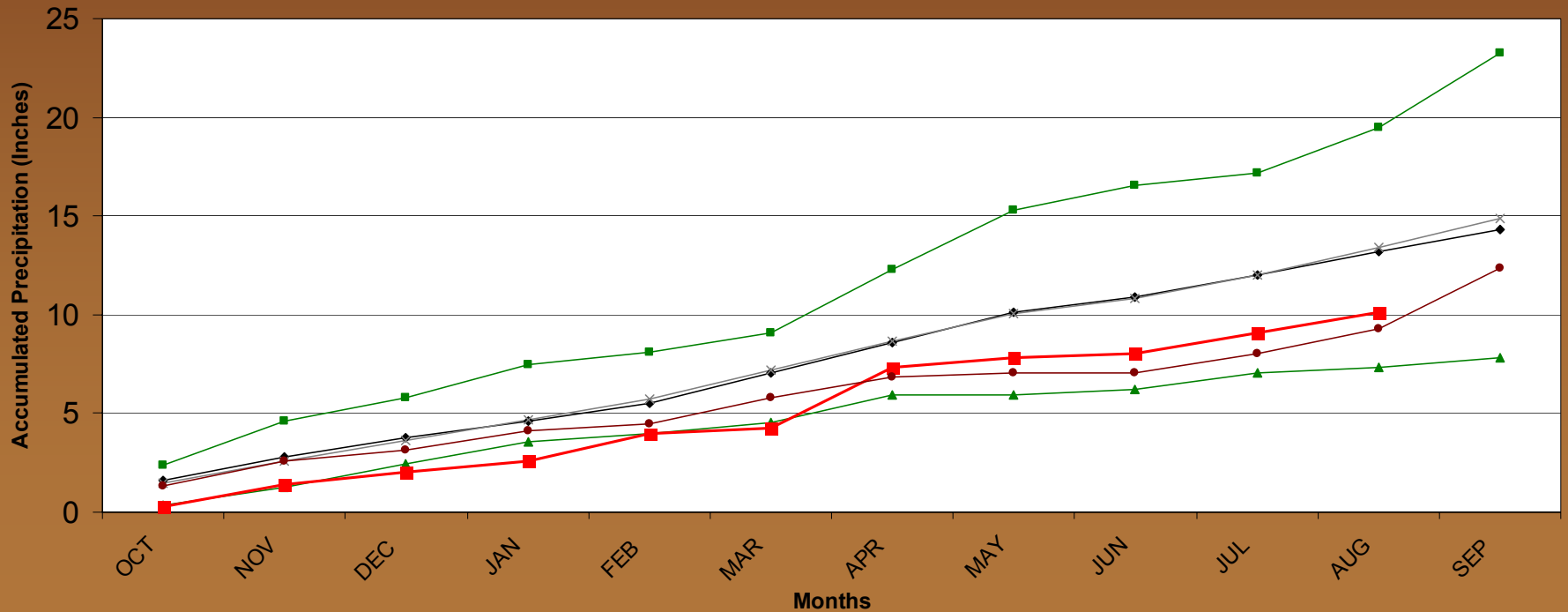
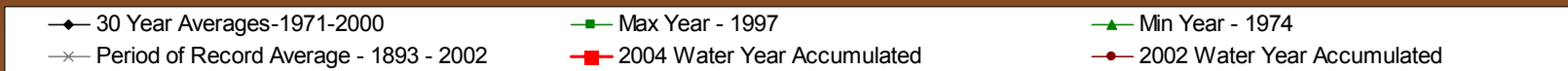
# Division 2 – Grand Junction

## Grand Junction WSFO 2004 Water Year (through Oct '03 - Aug '04)



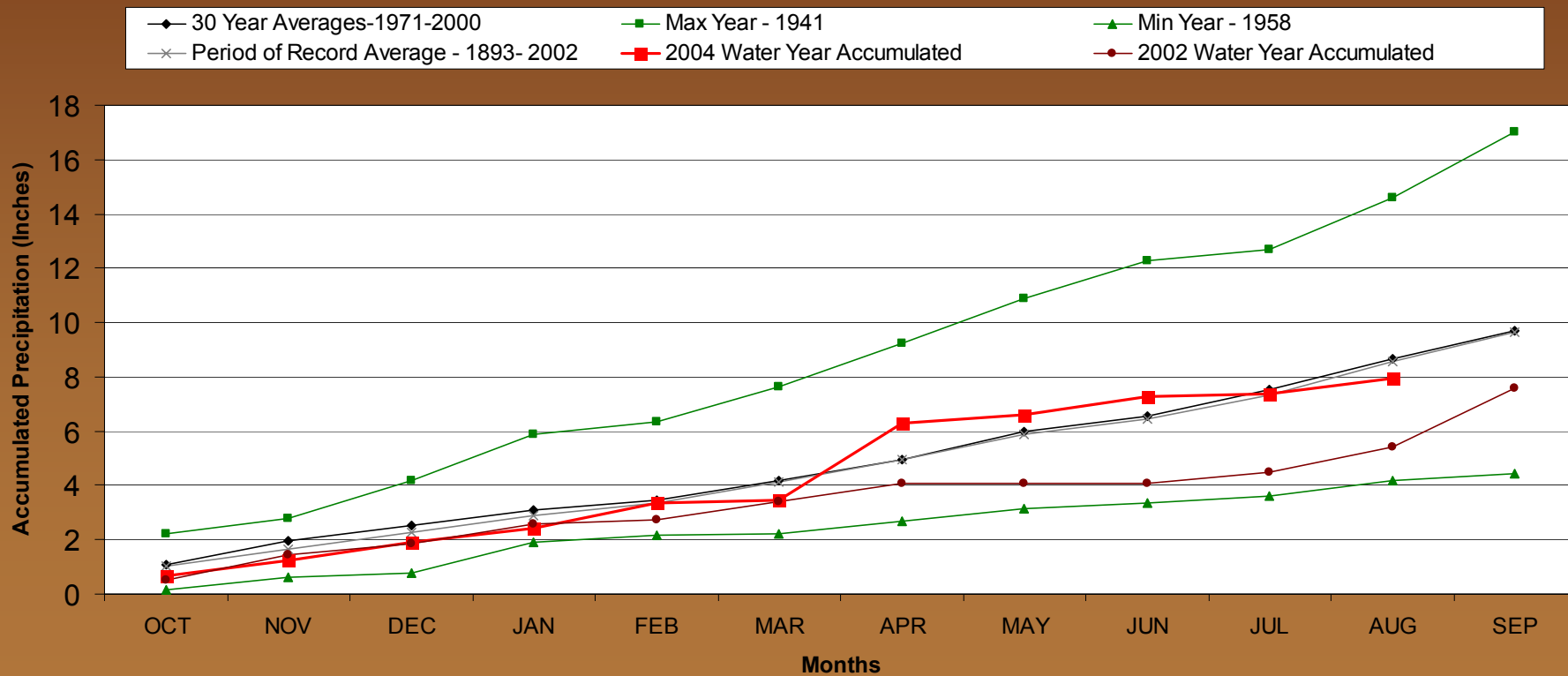
# Division 2 – Collbran

## Collbran 2SW 2004 Water Year (through Oct '03 - Aug '04)



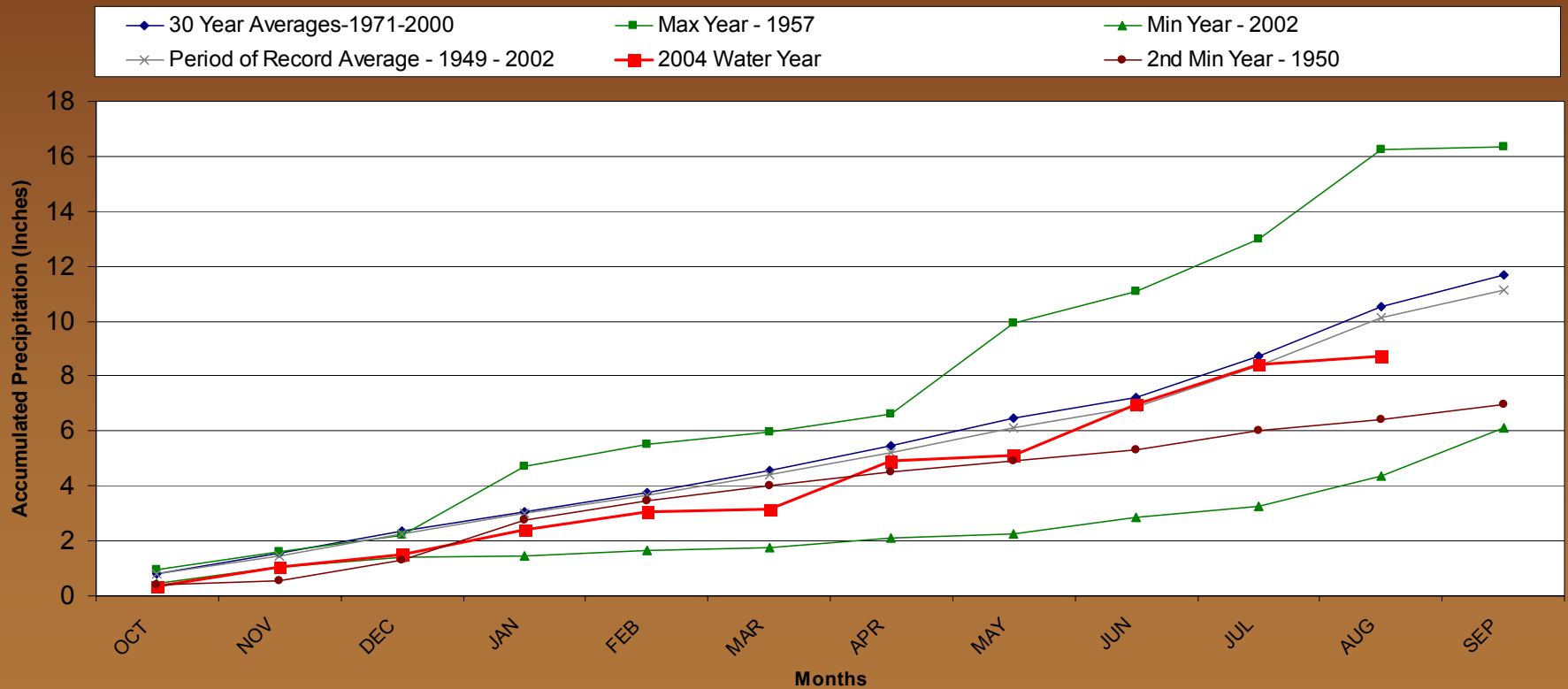
# Division 3 - Montrose

## Montrose #2 2004 Water Year (through Oct '03 - Aug '04)



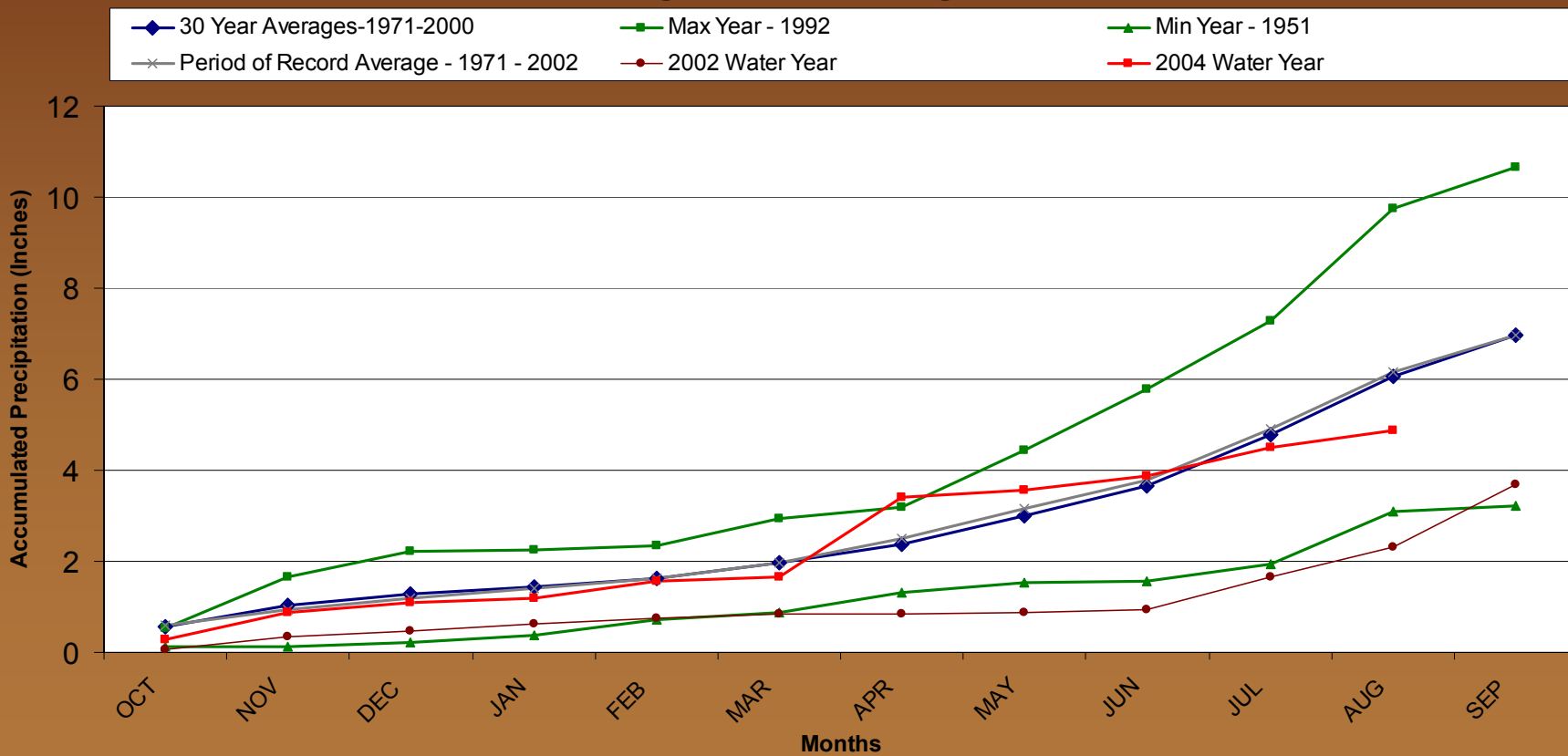
# Division 3 – Cochetopa Creek

Cochetopa Creek  
2004 Water Year  
(through Oct '03 - Aug '04)



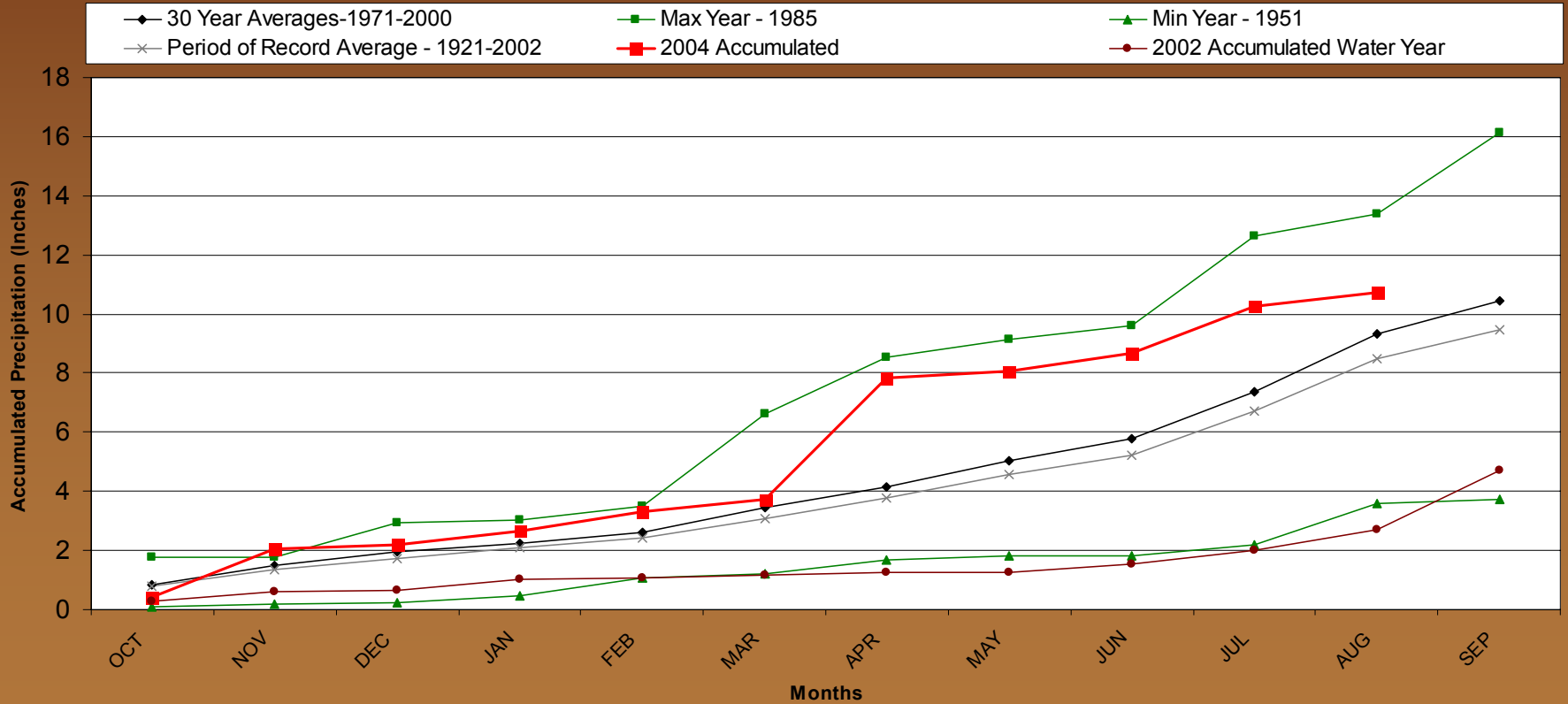
# Division 4 - Center

Center 4SSW  
2004 Water Year  
(through Oct '03 - Aug '04)



# Division 4 – Del Norte

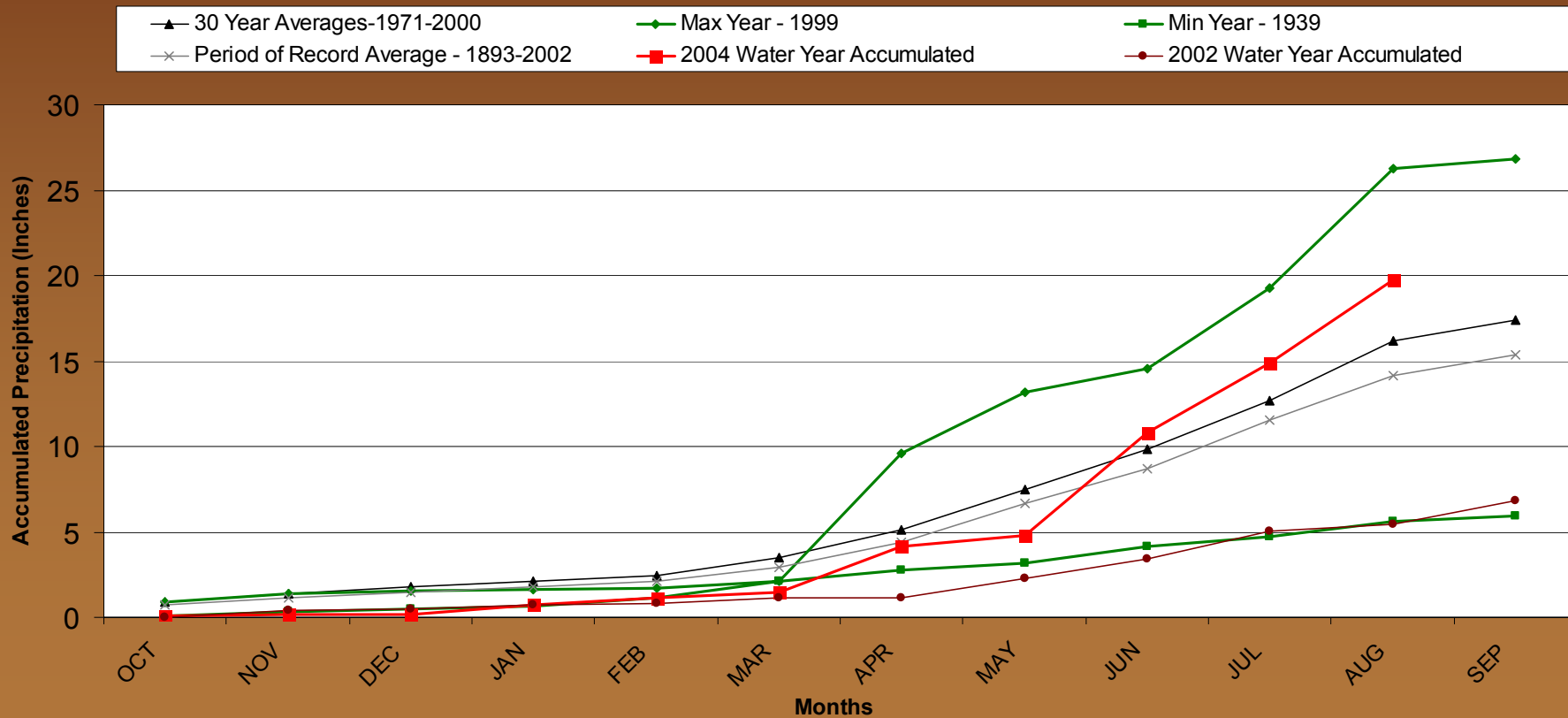
Del Norte  
2004 Water Year  
(through Oct '03 - Aug '04)





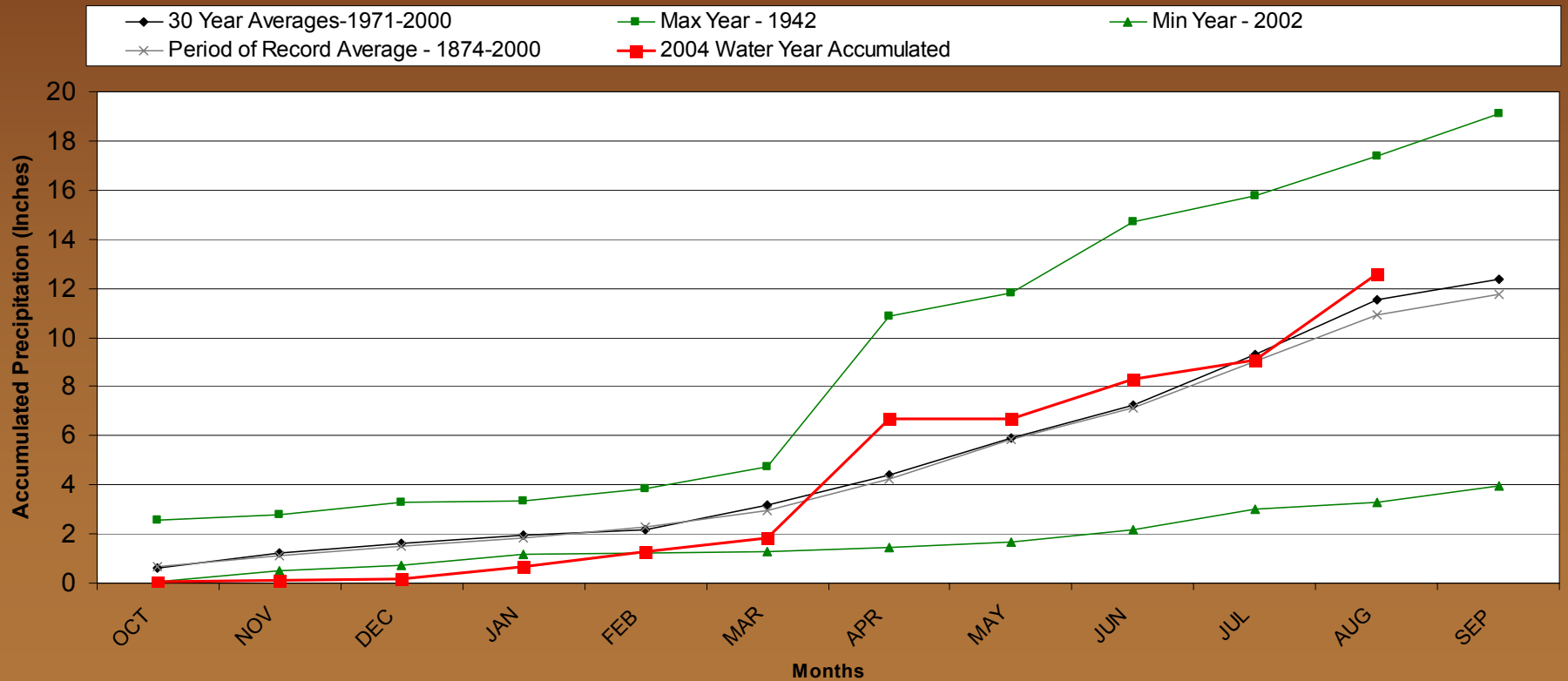
# Division 5 – Colorado Springs

Colorado Springs  
2004 Water Year  
(through Oct '03 - Aug '04)



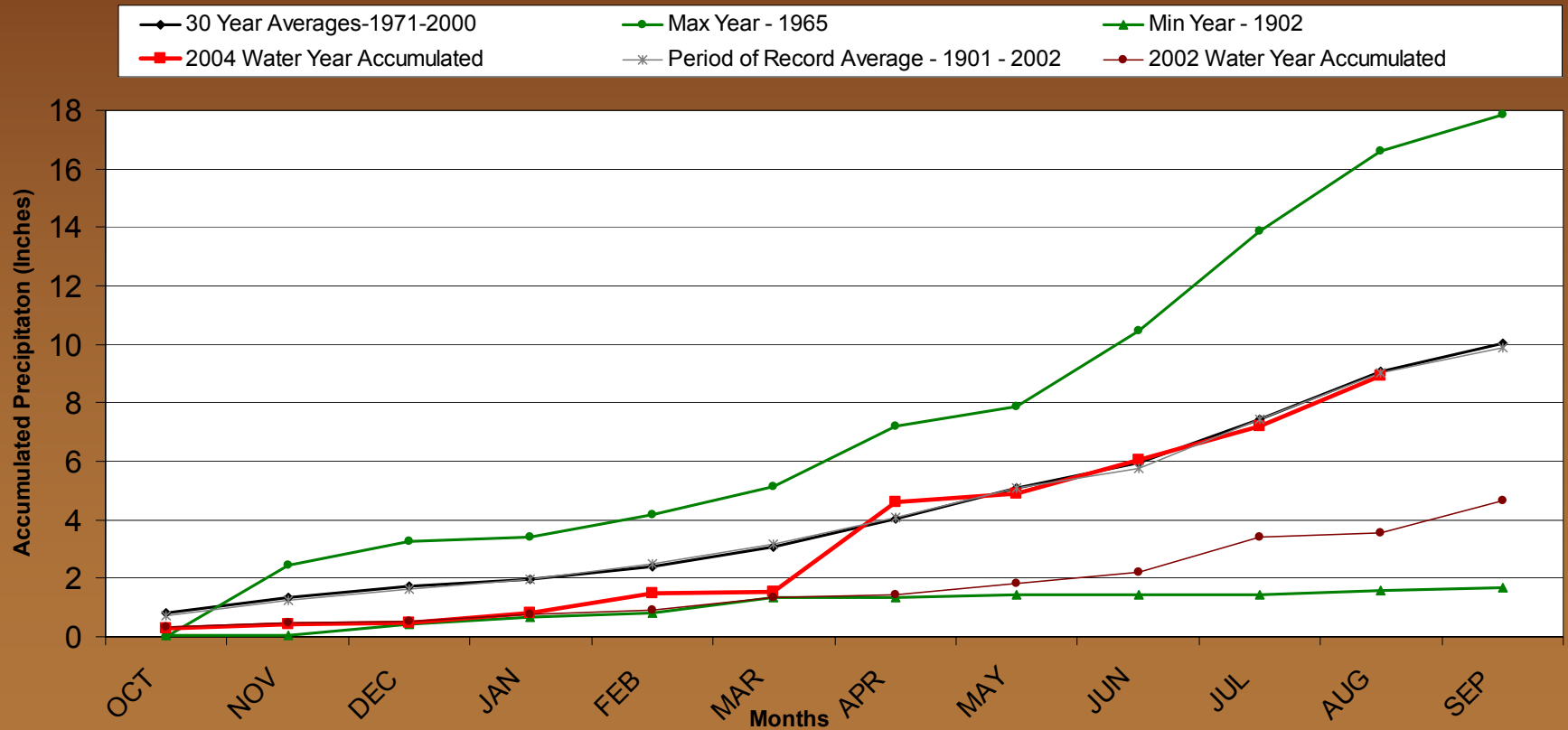
# Division 5 - Pueblo

**Pueblo WSO  
2004 Water Year  
(through Oct '03 - Aug '04)**



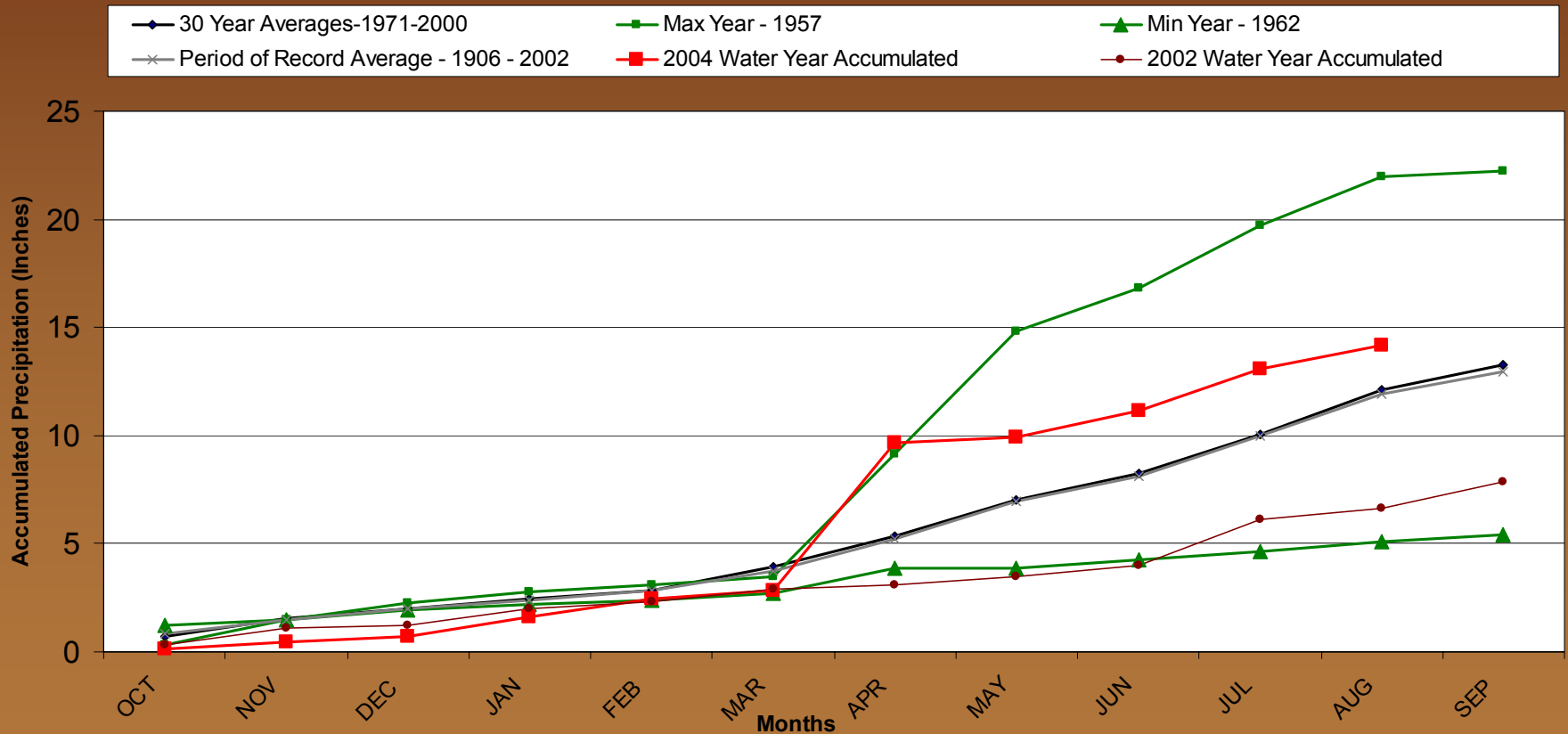
# Division 5 – Buena Vista

## Buena Vista 2004 Water Year through Oct '03 - Aug '04



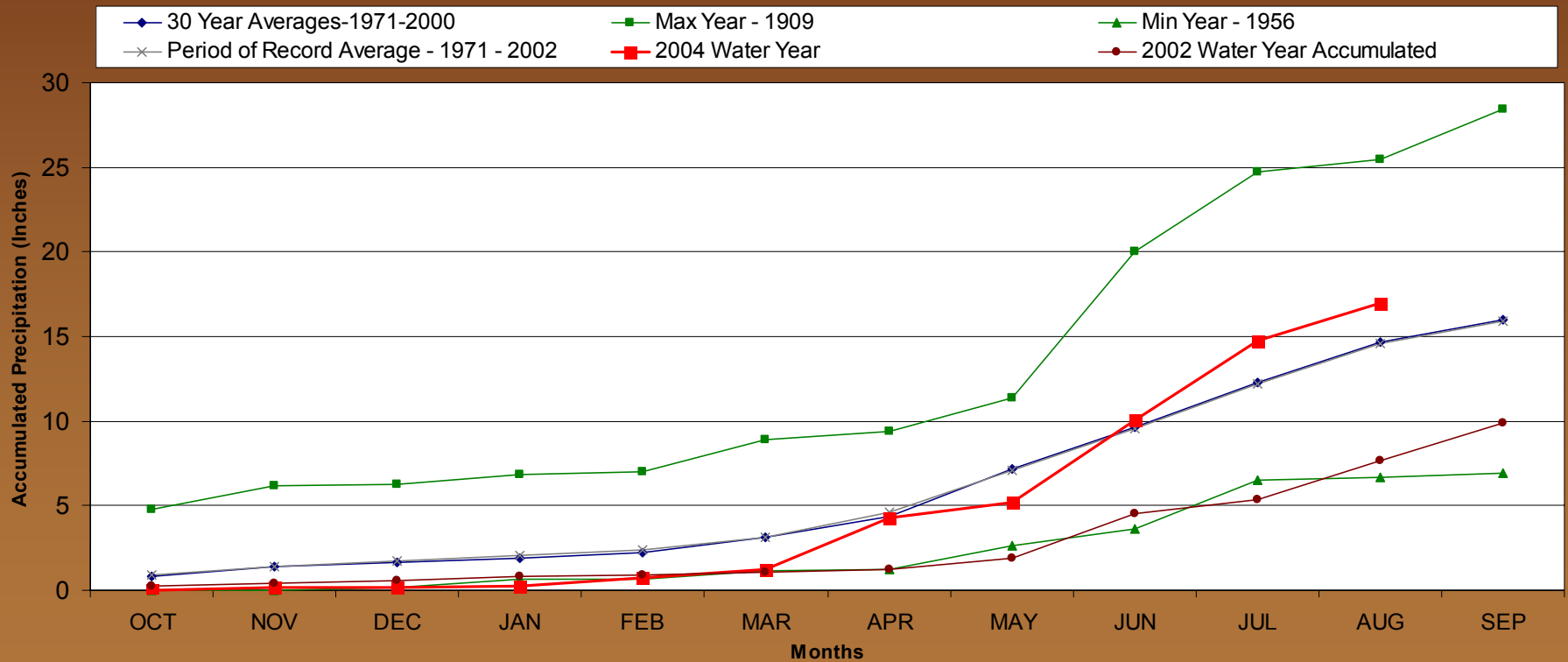
# Division 5 – Canon City

Canon City  
2004 Water Year  
(through Oct '03 - Aug '04)



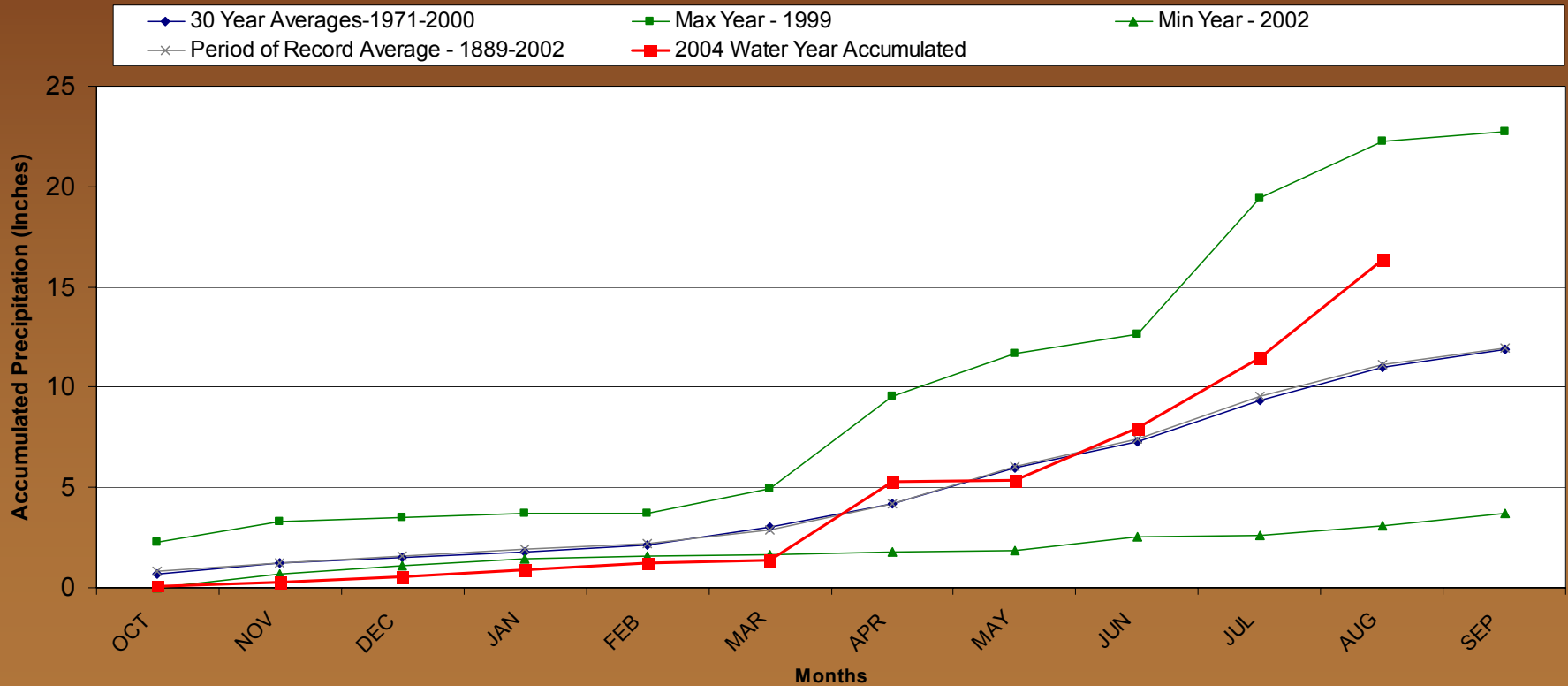
# Division 6 – Cheyenne Wells

**Cheyenne Wells  
2004 Water Year  
(through Oct '03 - Aug '04)**



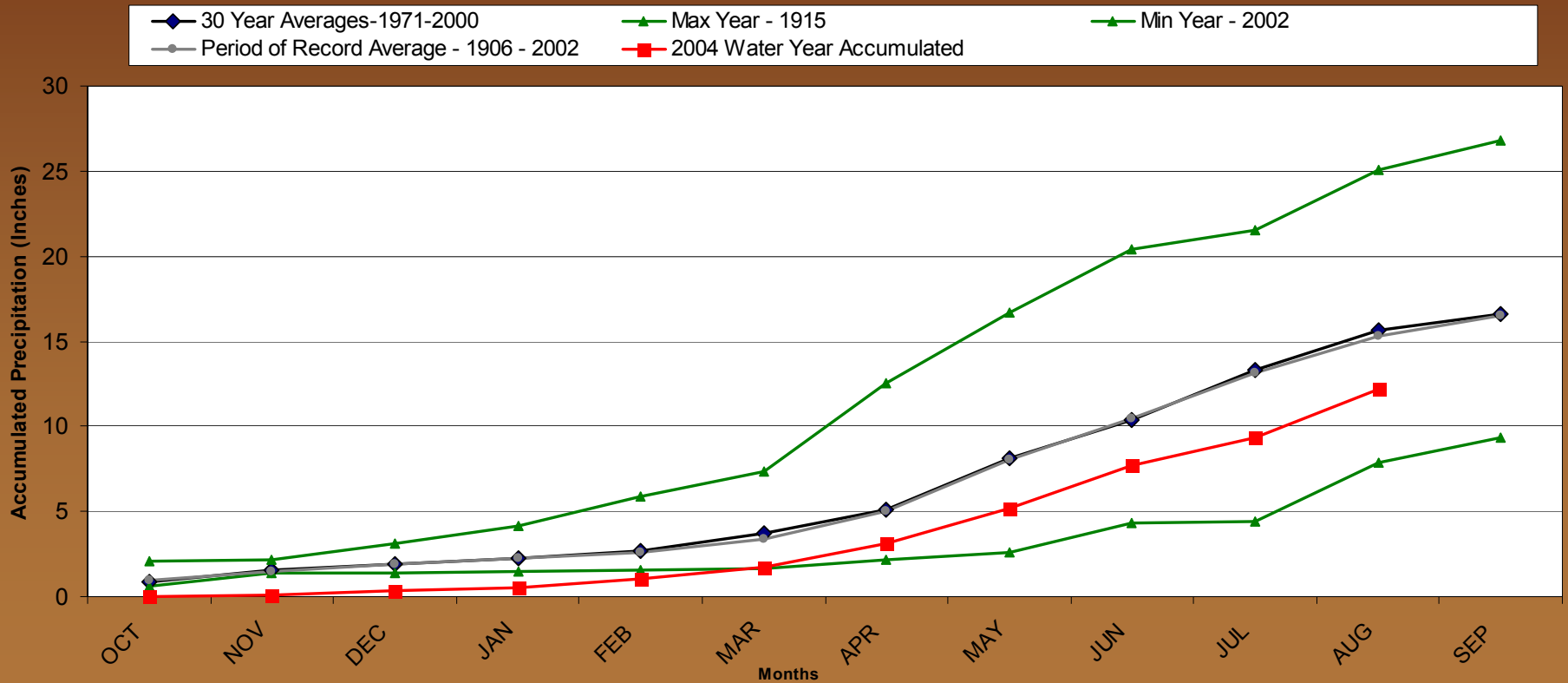
# Division 6 – Rocky Ford

Rocky Ford  
2004 Water Year  
(through Oct '03 - Aug '04)



# Division 7 – Akron

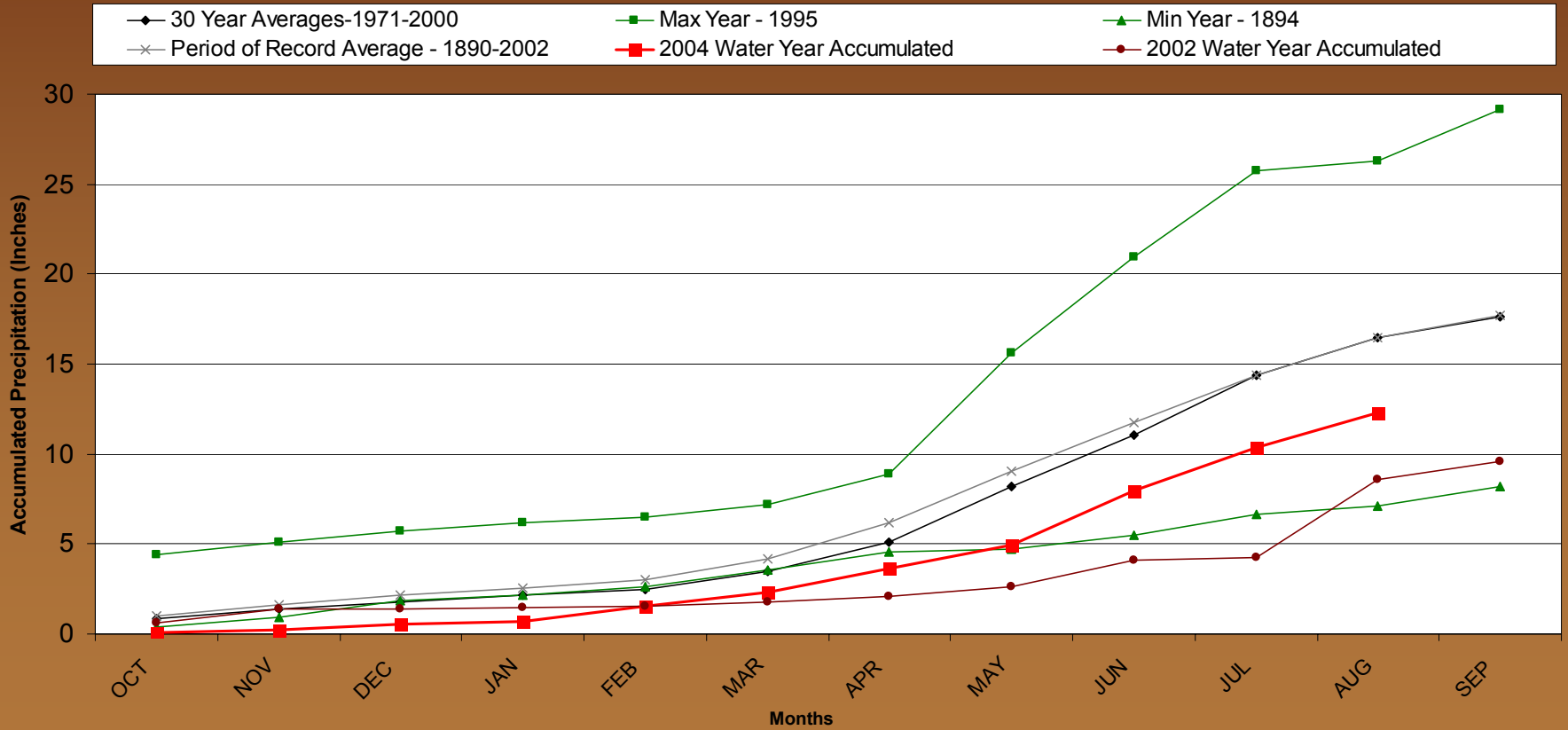
Akron 4E  
2004 Water Year  
(through Oct '03 - Aug '04)





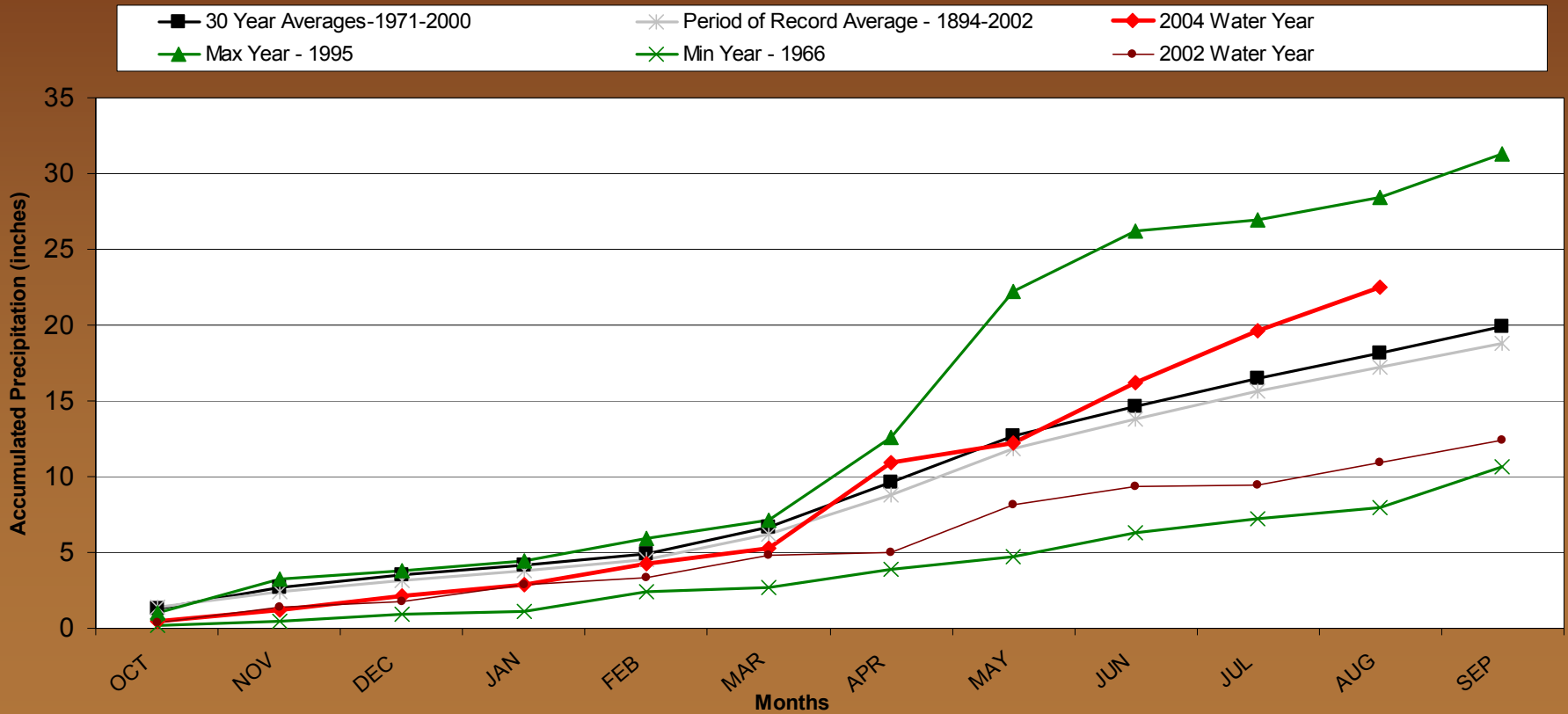
# Division 7 - Leroy

Leroy 5SW  
2004 Water Year  
(through Oct '03 - Aug '04)



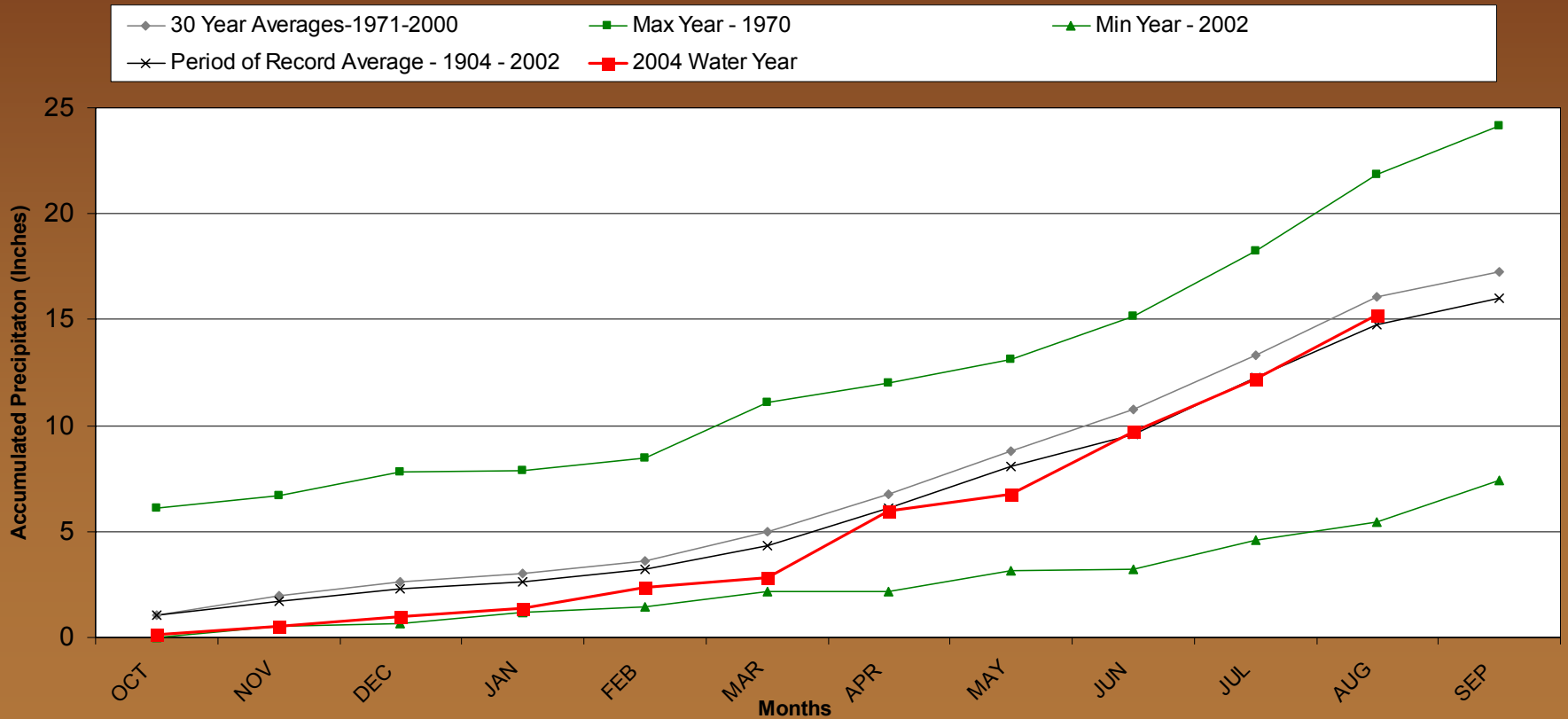
# Division 8 – Boulder

**Boulder**  
**2004 Water Year**  
**through Oct '03 - Aug '04**



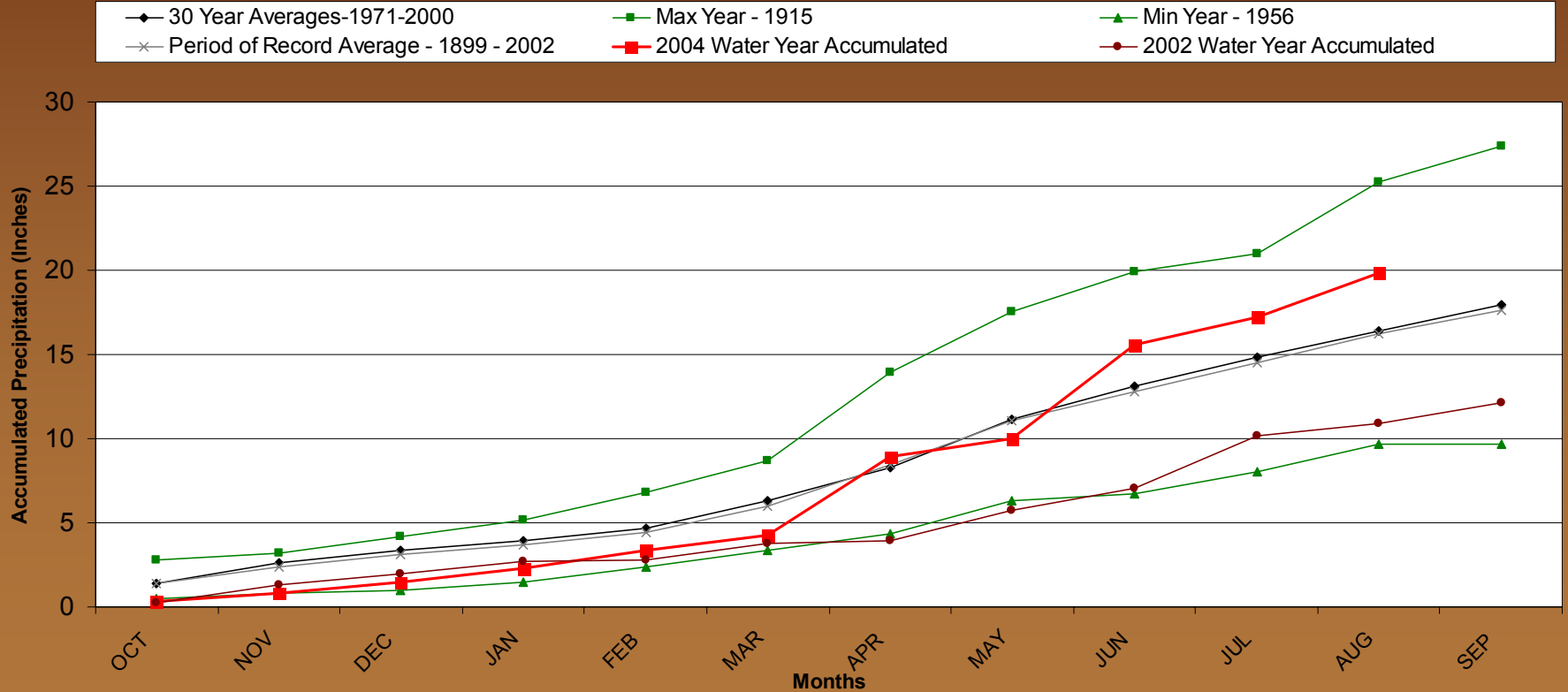
# Division 8 – Cheesman

**Cheesman  
2004 Water Year  
(through Oct '03 - Aug '04)**



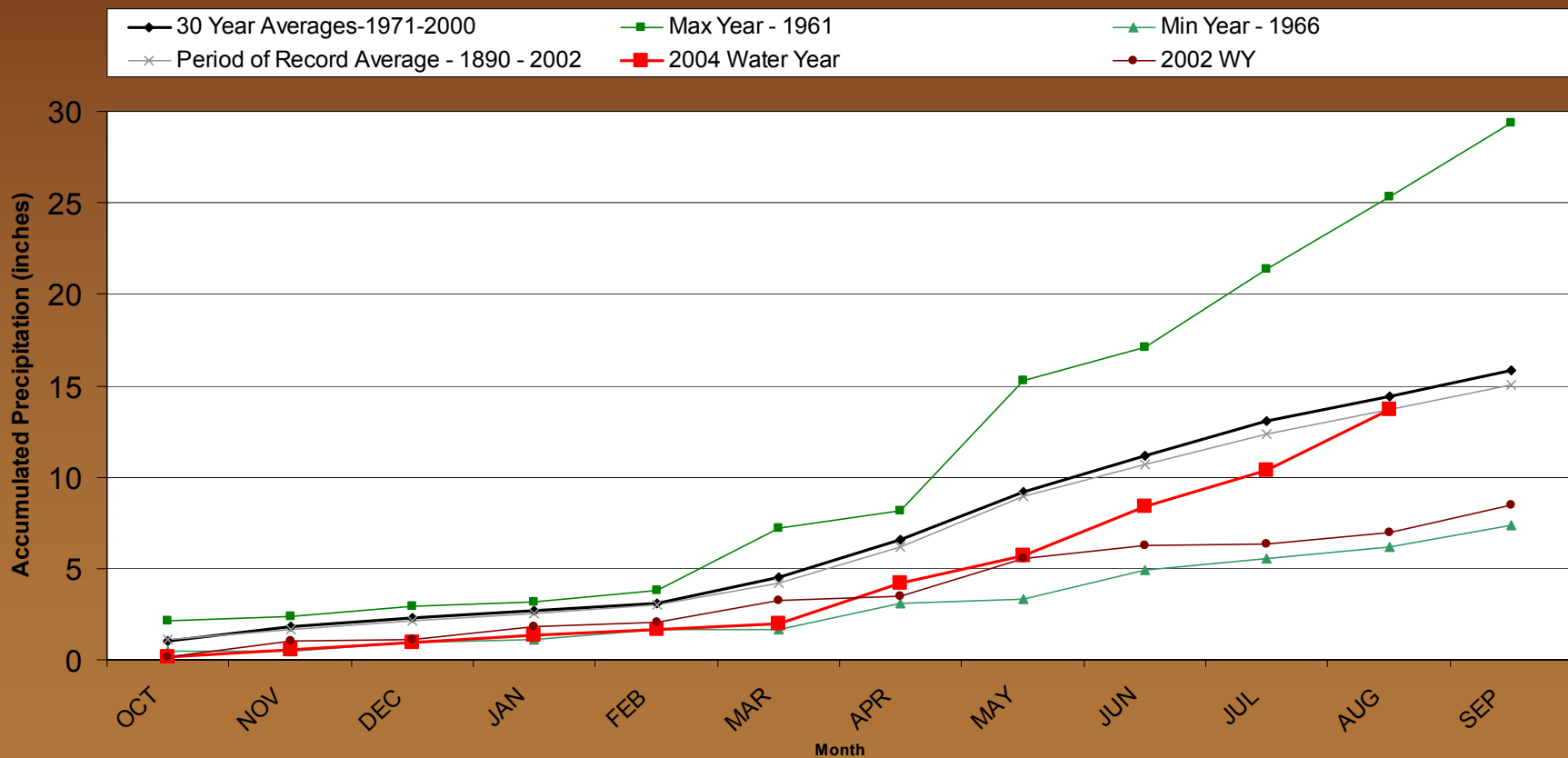
# Division 8 – Kassler

**Kassler**  
**2004 Water Year**  
**(through Oct '03 - Aug '04)**

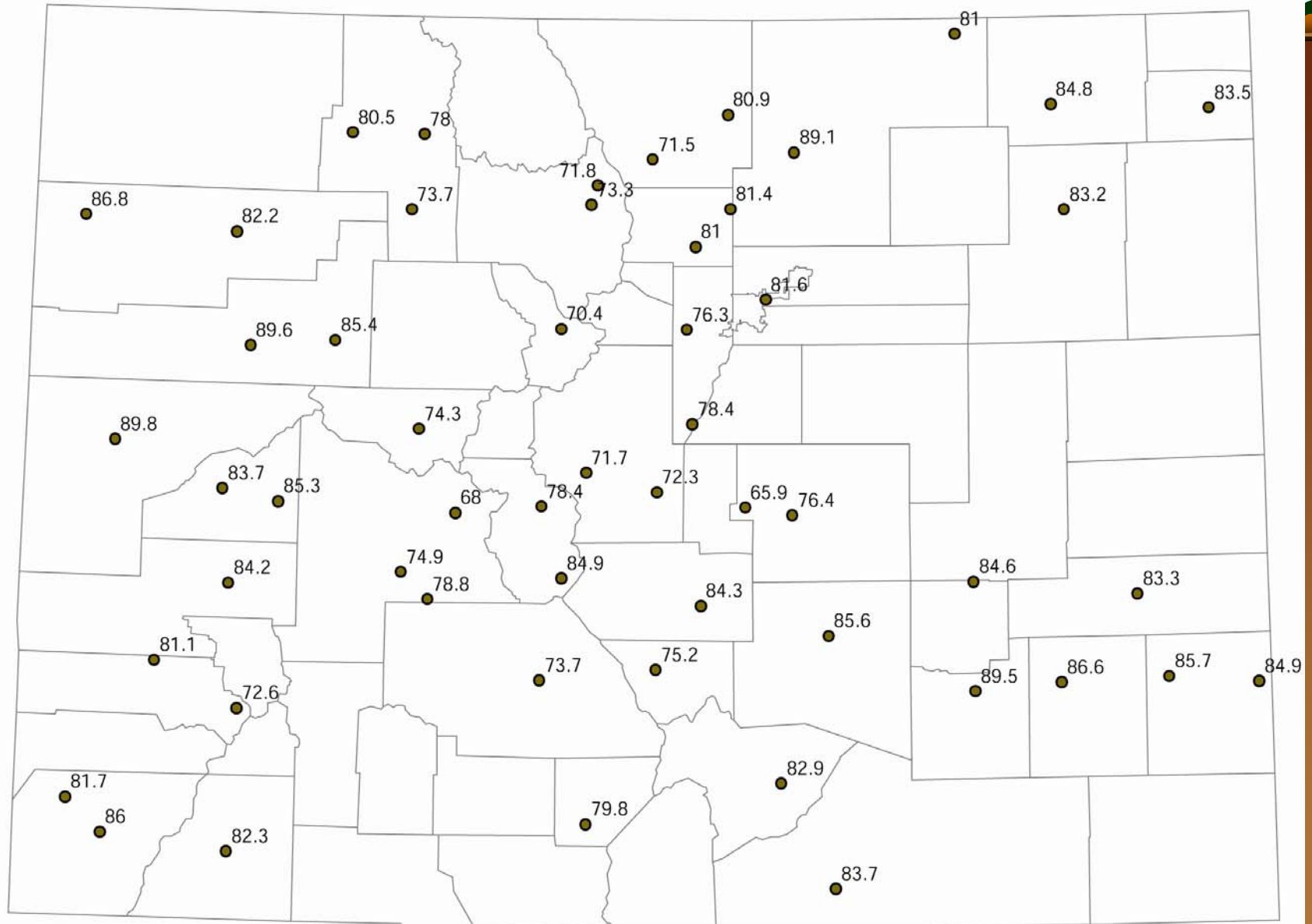


# Division 8 – Fort Collins

Fort Collins  
2004 Water Year  
(through Oct '03 - Aug '04)



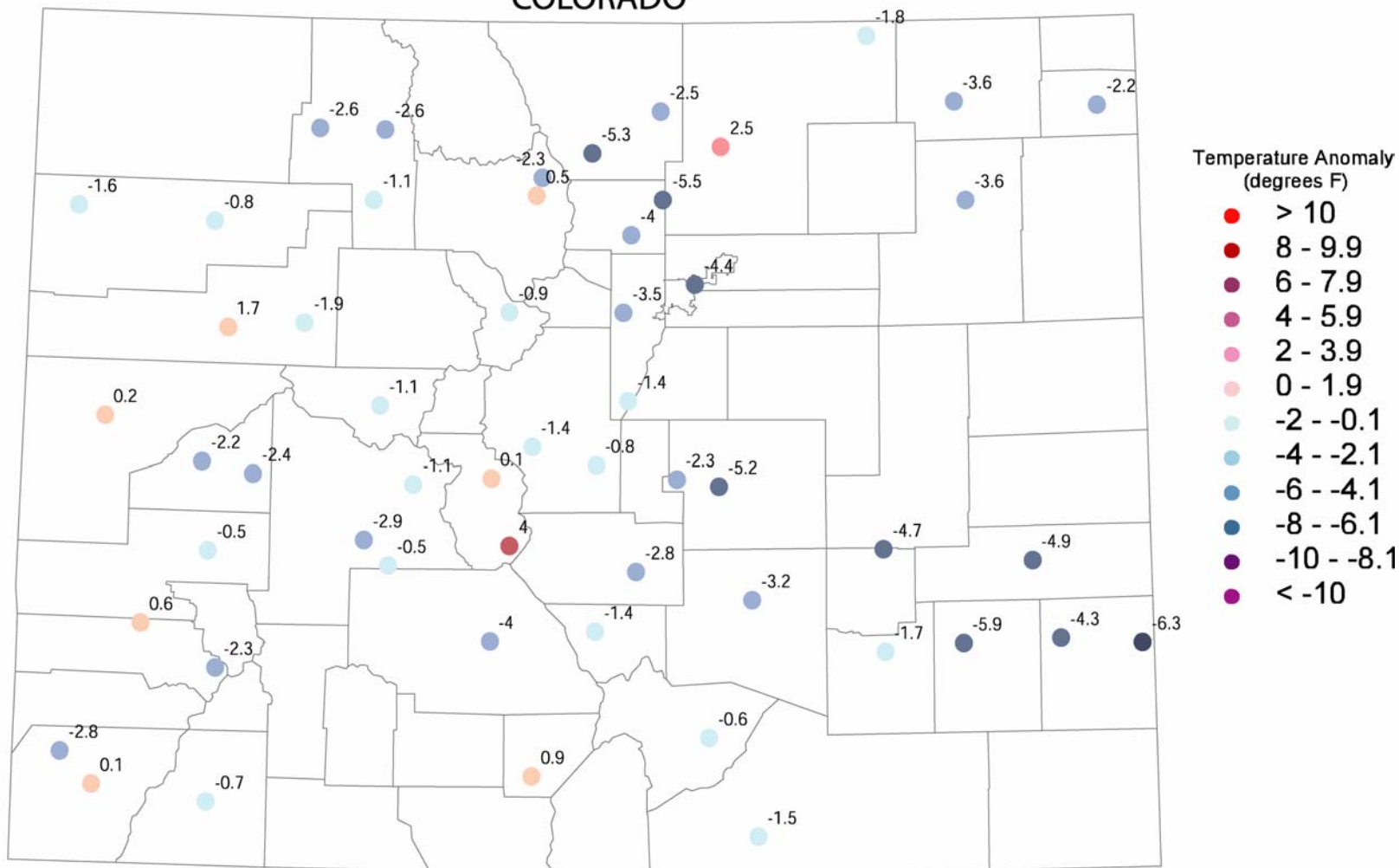
# COLORADO



August average maximum temperatures (1971-2000 period).



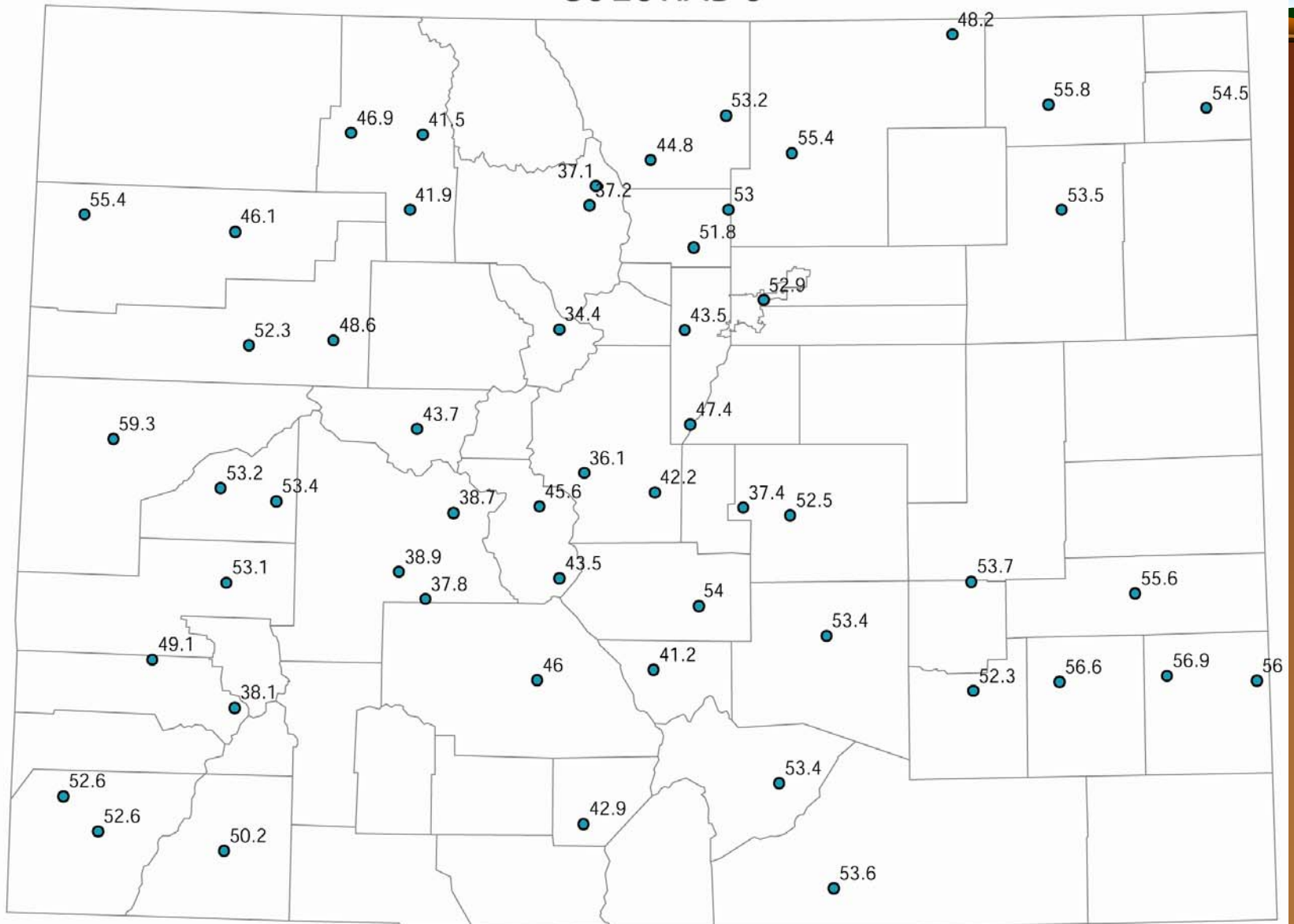
# COLORADO



August 2004 maximum temperature departures from the 1971-2000 averages.

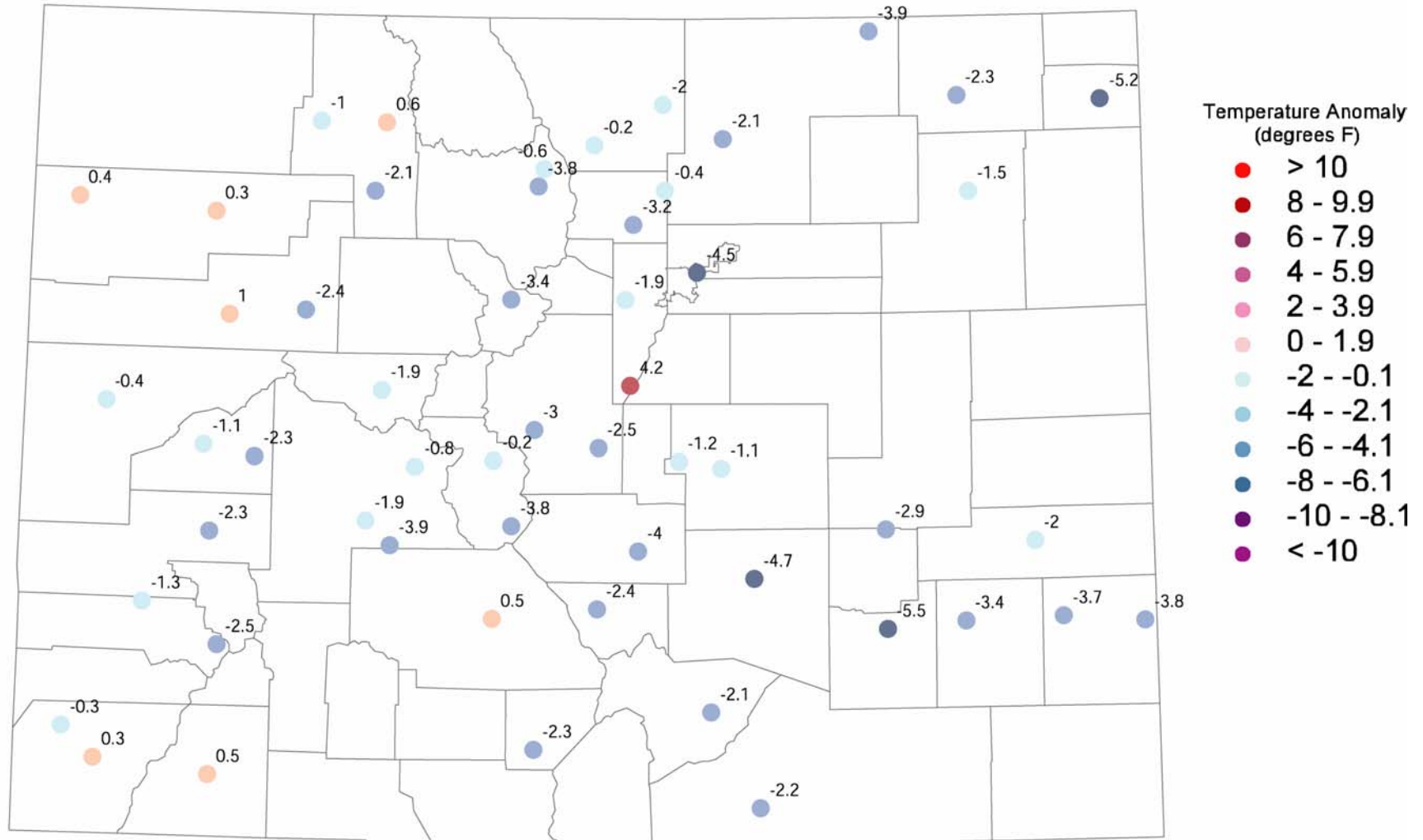


# COLORADO



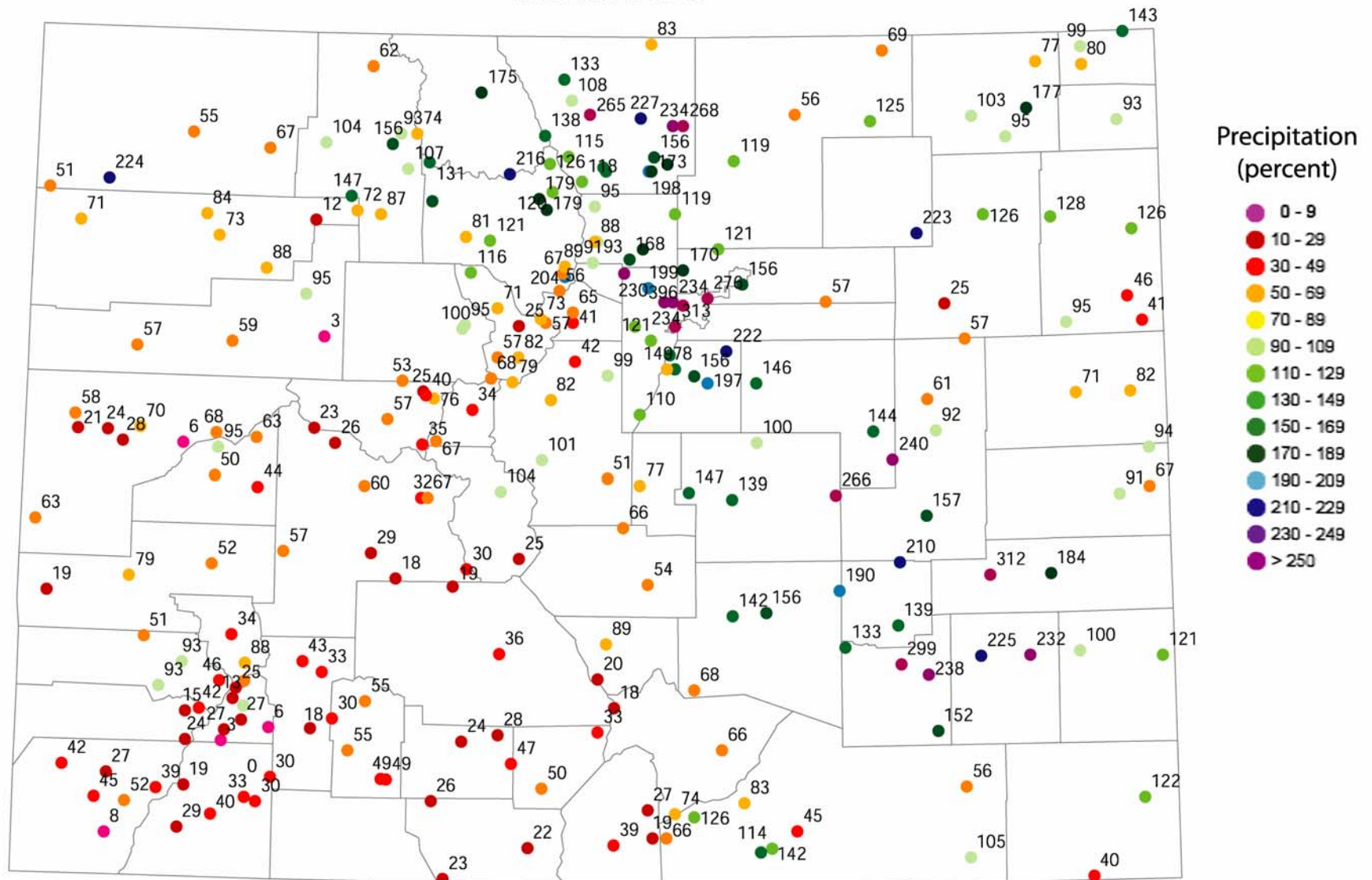
August average minimum temperatures (1971-2000 period).

# COLORADO



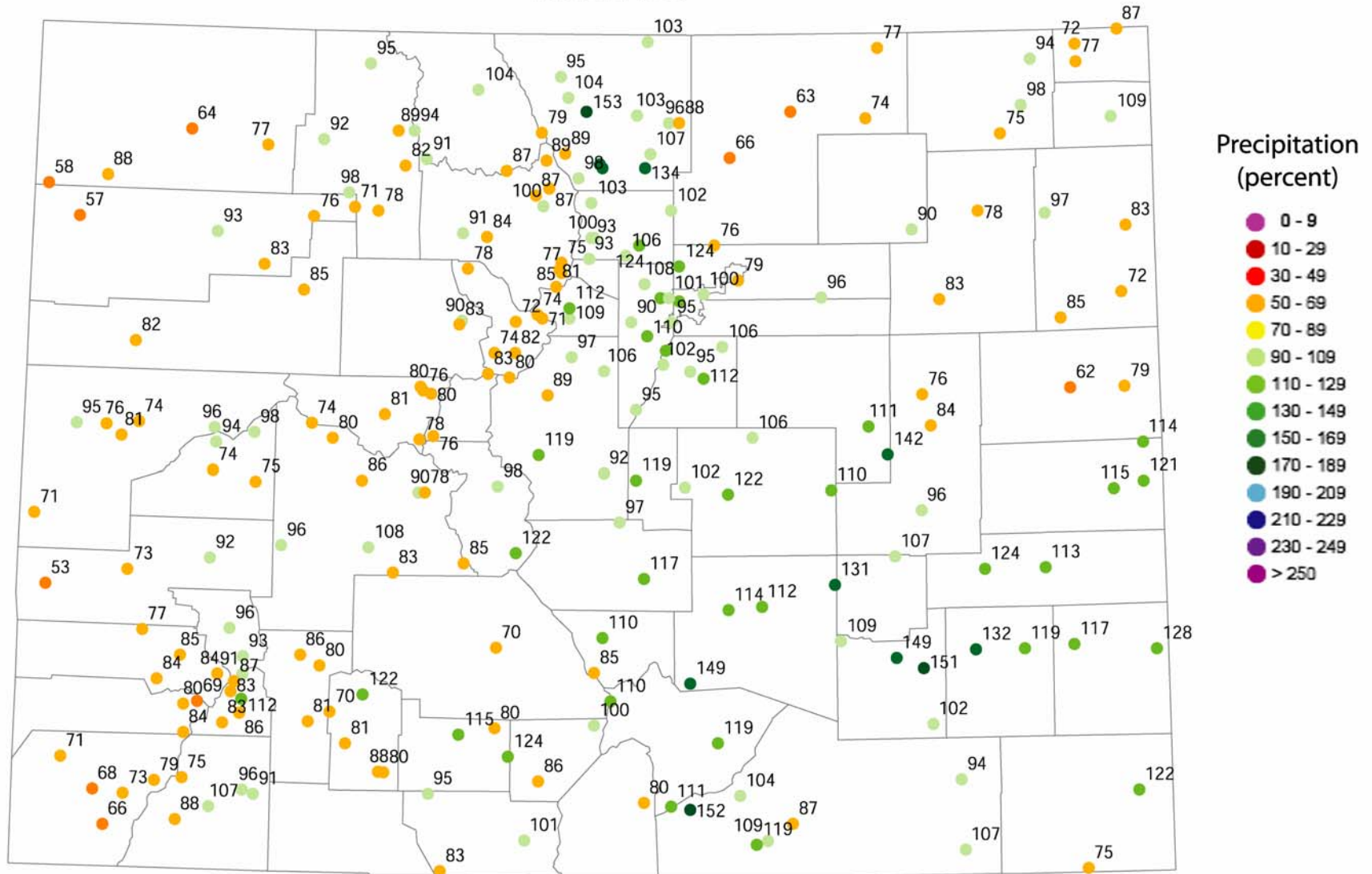
August 2004 minimum temperature departures from the 1971-2000 averages.

# COLORADO



August 2004 precipitation as a percent of the 1971-2000 average.

# COLORADO



Water Year 2004 (October 2003 through August 2004) precipitation as a percent of the 1971-2000 average.

# 3 Month SPI

Colorado

8/2004 3 mon. SPI



100 %	> 2.0	15 %	< -1.0
75 %	> 1.0	1 %	< -2.0
40 %	> 0.0	0 %	< -3.0

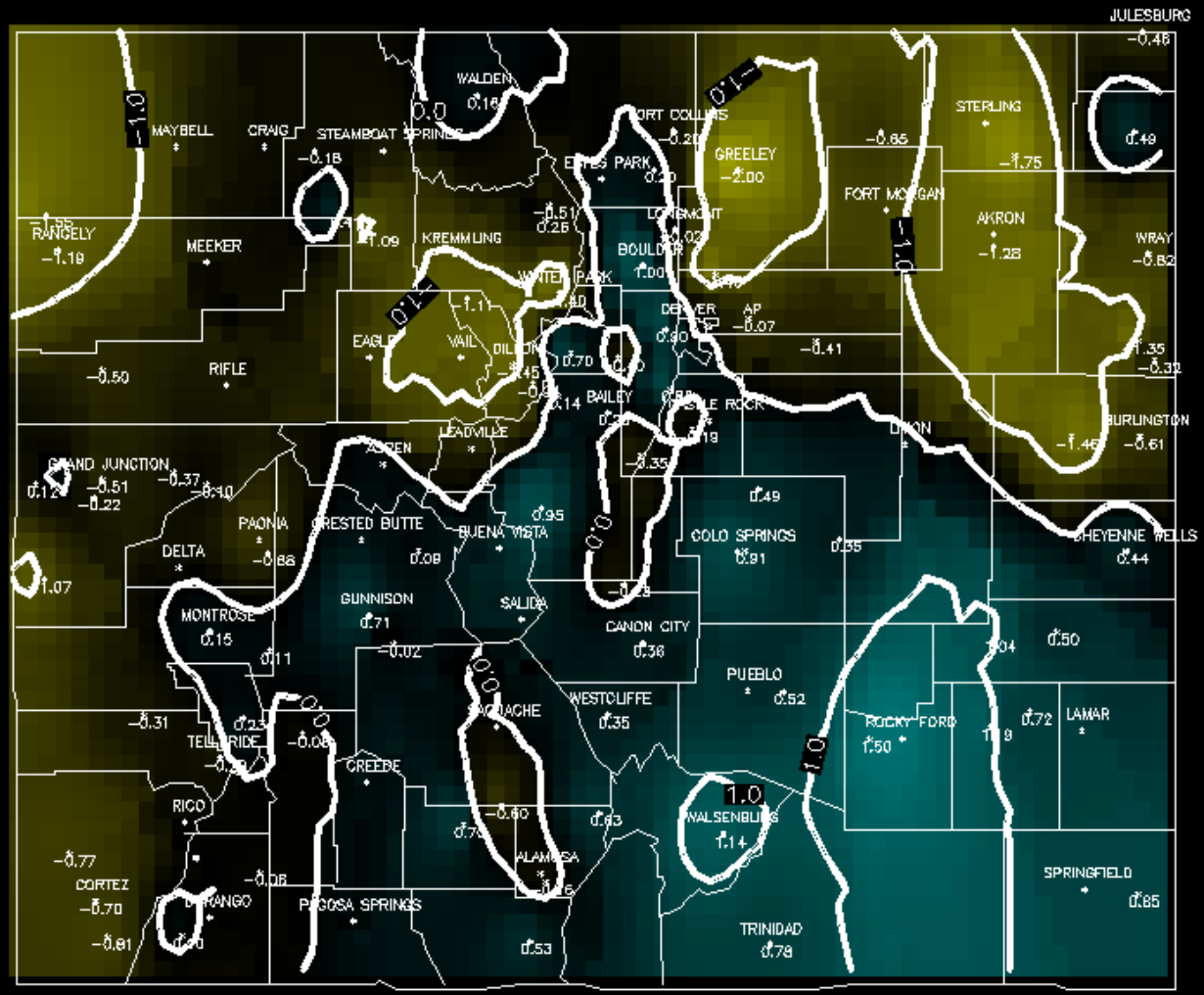
Produced by:  
Colorado Climate Center  
Fort Collins, CO



# 12 Month SPI

Colorado

8/2004 12 mon. SPI

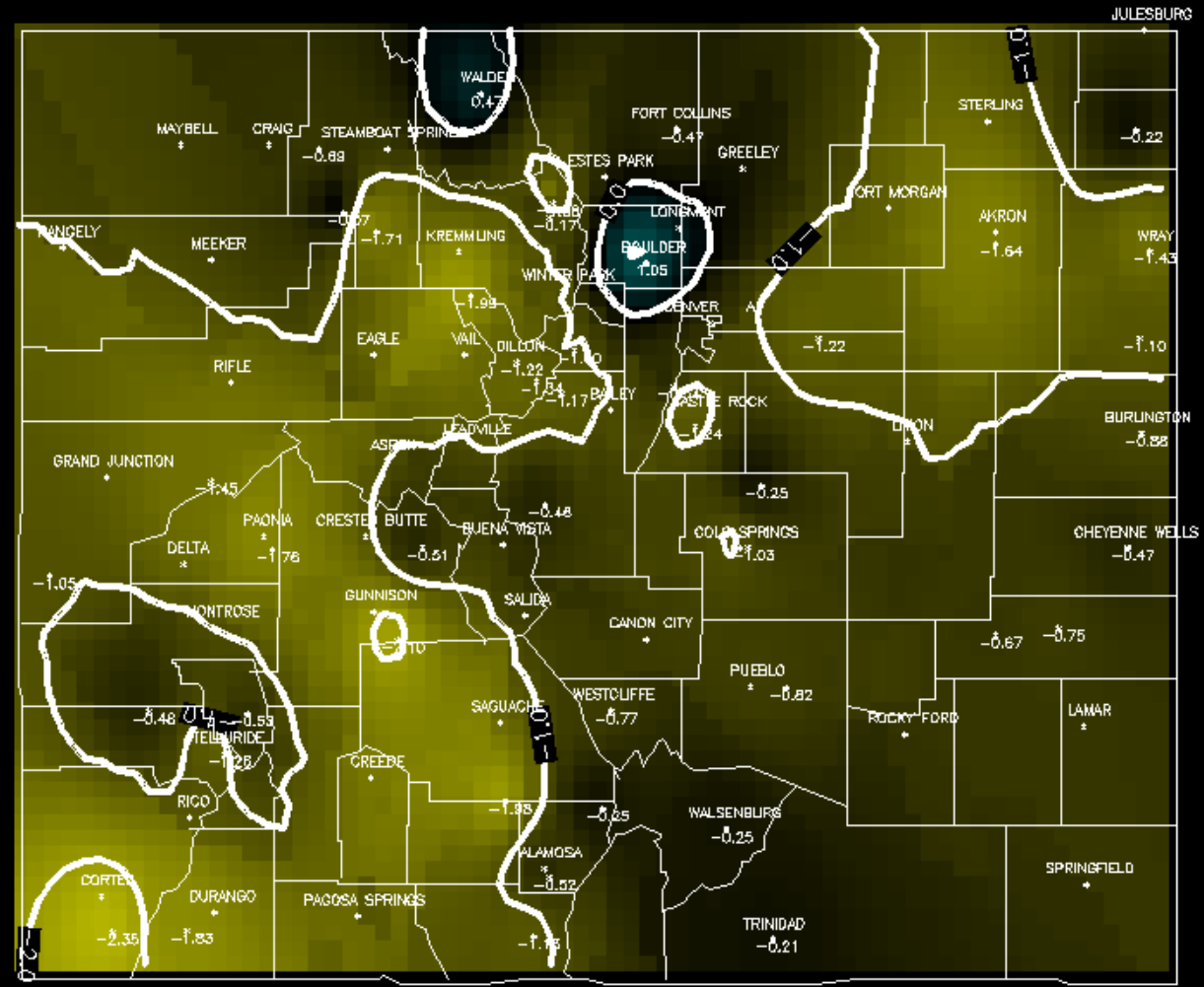


Produced by:  
Colorado Climate Center  
Fort Collins, CO

# 48 Month SPI

Colorado

8/2004 48 mon. SPI



100% < 2.0	40% < -1.0
100% < 1.0	1% < -2.0
98% < 0.0	0% < -3.0

Produced by:  
Colorado Climate Center  
Fort Collins, CO

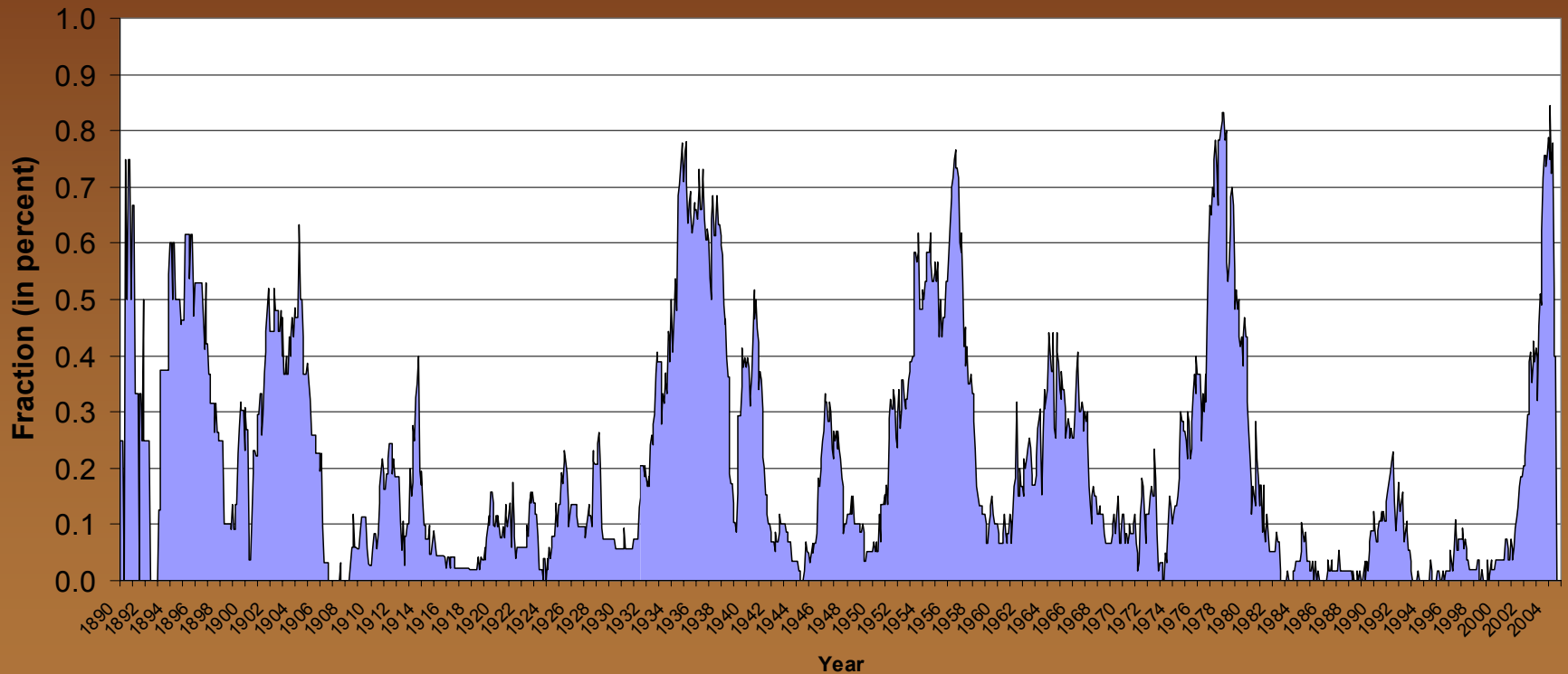




# Fraction of Colorado in Drought

## Fraction of Colorado in Drought

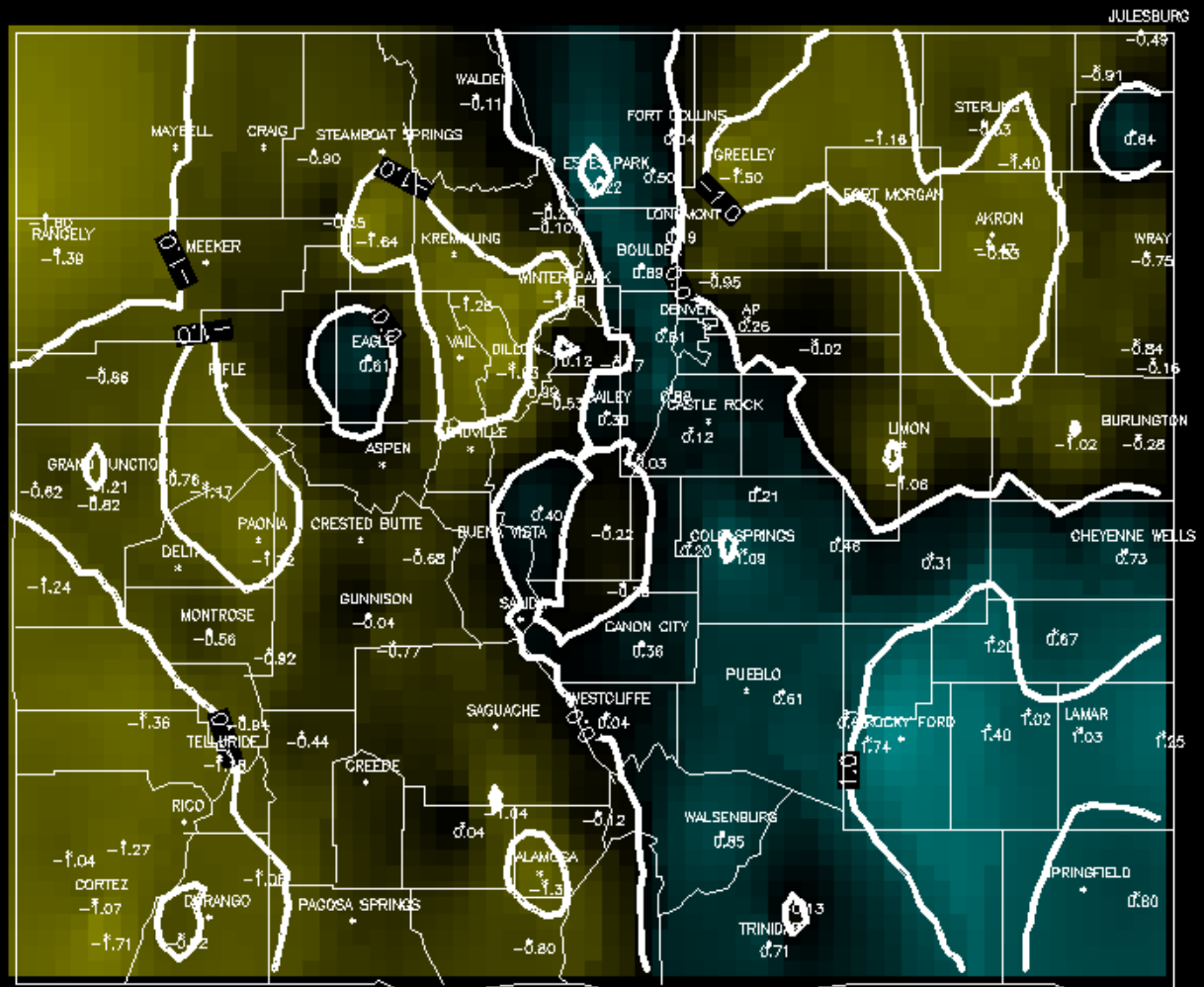
Based on 48 month SPI  
(1890 - August 2004)



Calibration period is 1961-2000. Data values produced by John Kleist.

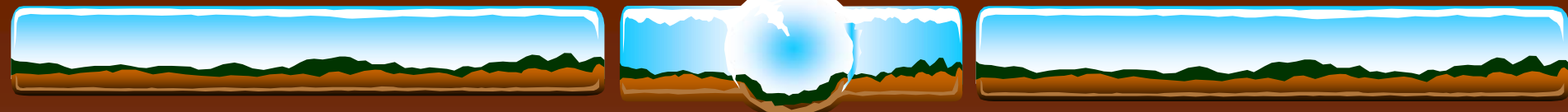
Colorado

8/2004 12 mon. SPI - Projected 6 mon. at P=0.20



Produced by:  
Colorado Climate Center  
Fort Collins, CO

Projected  
Conditions  
at 0.2  
Probability  
Level  
12 Month  
SPI at 6  
months



Colorado 8/2004 12 mon. SPI – Projected 6 mon. at P=0.50

Projected Conditions at 0.5 Probability Level 12 Month SPI at 6 months



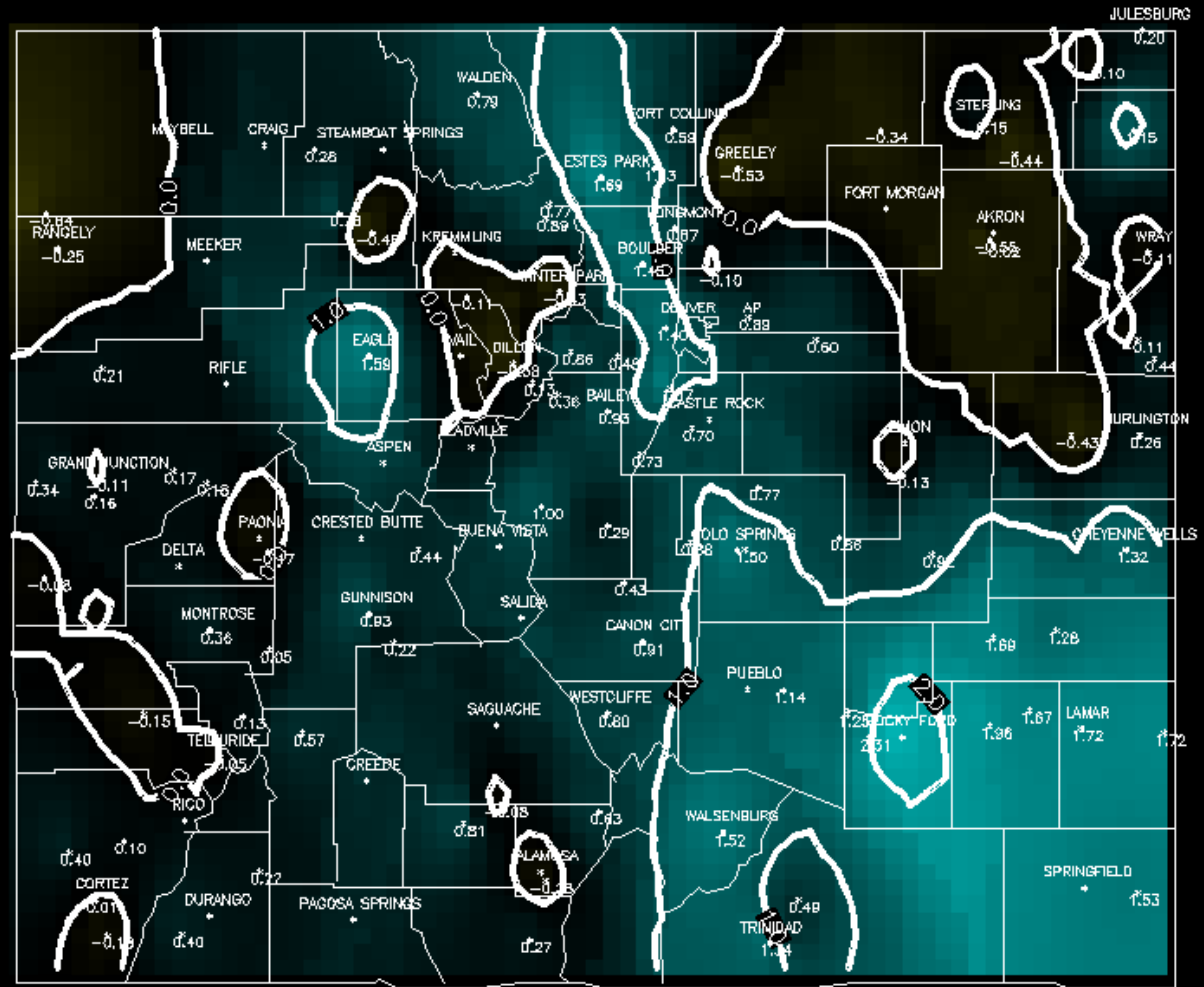
100% > 2.0 1% < -1.0  
 87% > 1.0 0.2% < -2.0  
 55% > 0.0 0.2% < -3.0

Produced by: Colorado Climate Center Fort Collins, CO

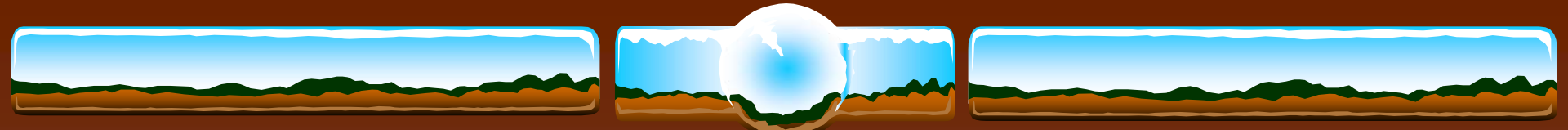
Projected  
Conditions  
at 0.8  
Probability  
Level  
12 Month  
SPI at 6  
months

Colorado

8/2004 12 mon. SPI – Projected 6 mon. at P=0.80



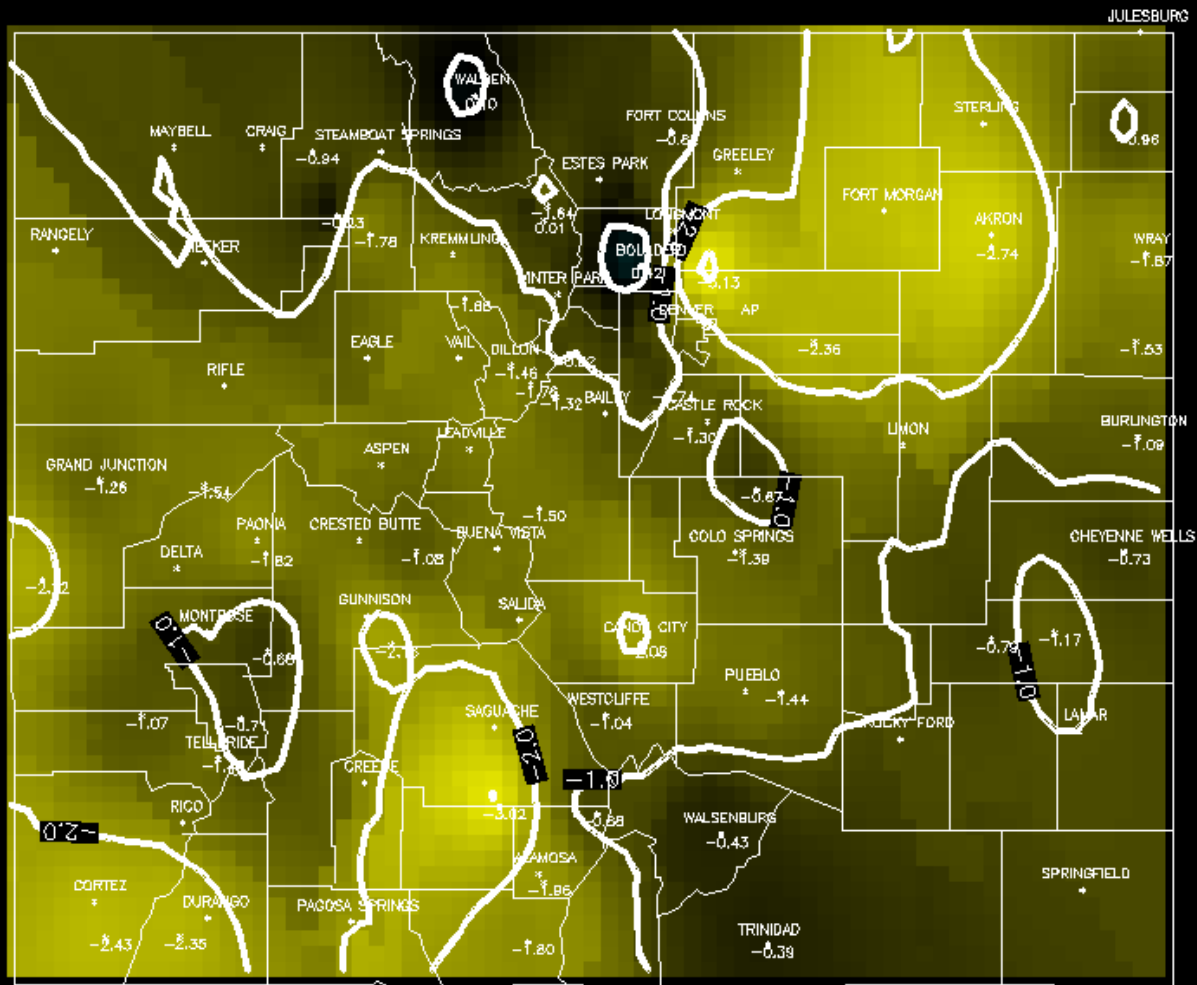
Produced by:  
Colorado Climate Center  
Fort Collins, CO



## Colorado

8/2004 48 mon. SPI – Projected 12 mon. at P=0.20

Projected  
Conditions  
at 0.2  
Probability  
Level  
48 Month  
SPI at 12  
months

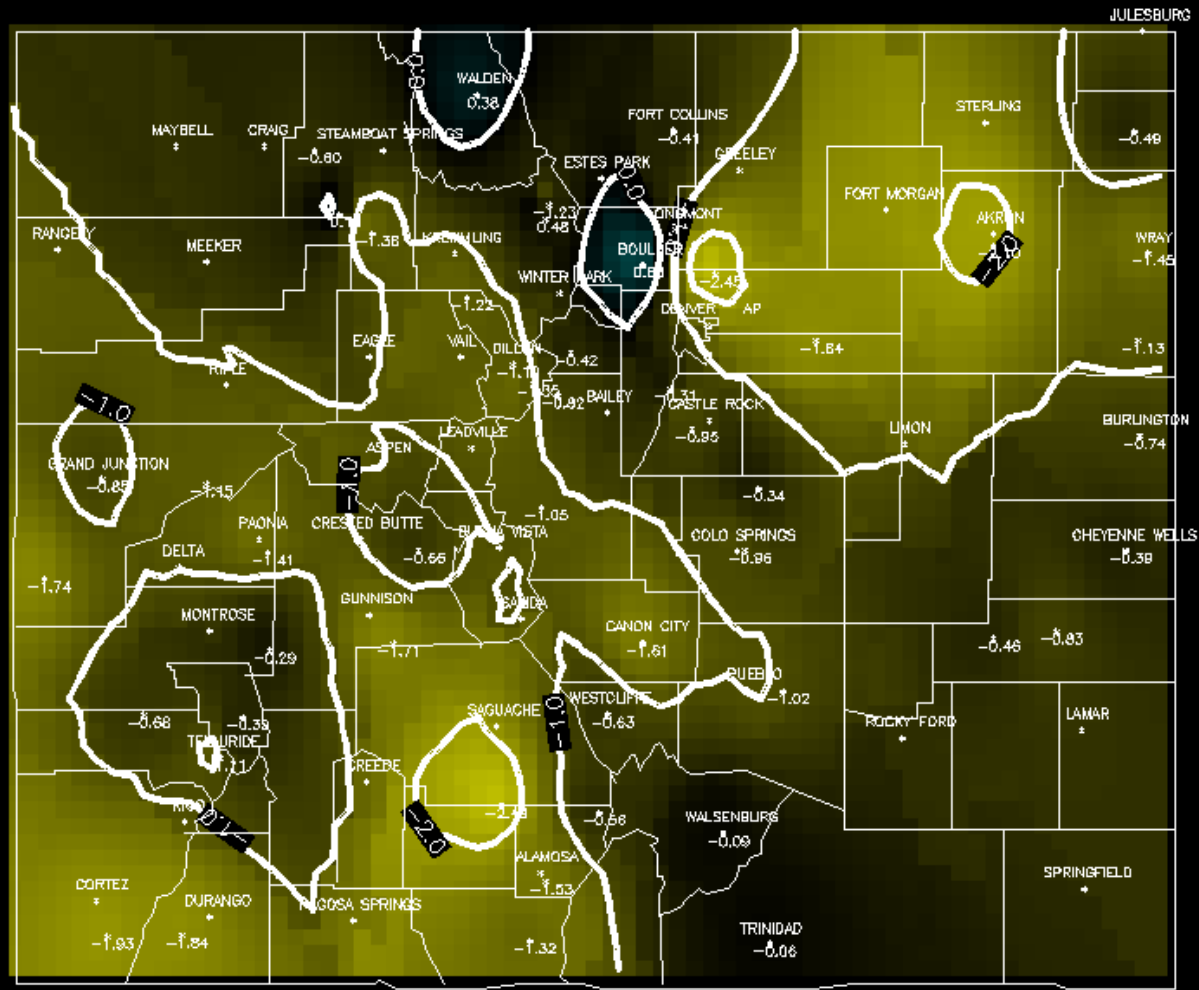


100 % < 2.0	88 % < -1.0
100 % < 1.0	16 % < -2.0
100 % < 0.0	0 % < -3.0

Produced by:  
Colorado Climate Center  
Fort Collins, CO

# Colorado

8/2004 48 mon. SPI – Projected 12 mon. at P=0.50



100 % < 2.0	43 % < -1.0
100 % < 1.0	27 % < -2.0
98 % < 0.0	0 % < -3.0

Produced by:  
Colorado Climate Center  
Fort Collins, CO

Projected  
Conditions  
at 0.5  
Probability  
Level  
48 Month  
SPI at 12  
months

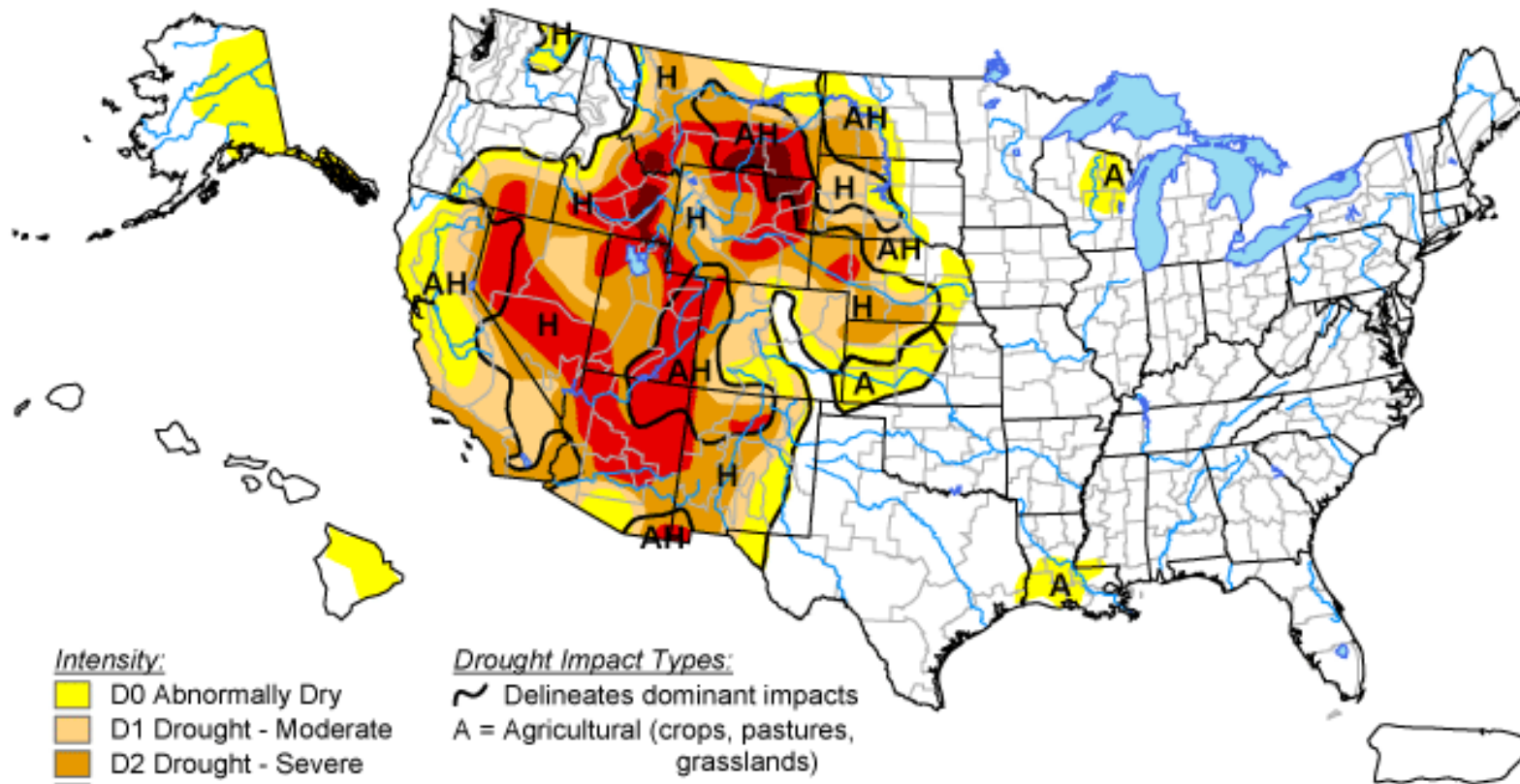









# U.S. Drought Monitor

September 14, 2004


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)
- (No type = Both impacts)

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



Released Thursday, September 16, 2004

Author: Douglas Le Comte, CPC/NOAA

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





# Colorado Climate Center

## Colorado State University

Data and Power Point Presentations available for downloading

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

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

