

Drought Update

March 18, 2005 WATF Meeting



Nolan J. Doesken
Colorado Climate Center

presented at the Water Availability Task Force meeting,
Division of Wildlife, Denver, CO, March 18, 2005

Prepared by Odie Bliss

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

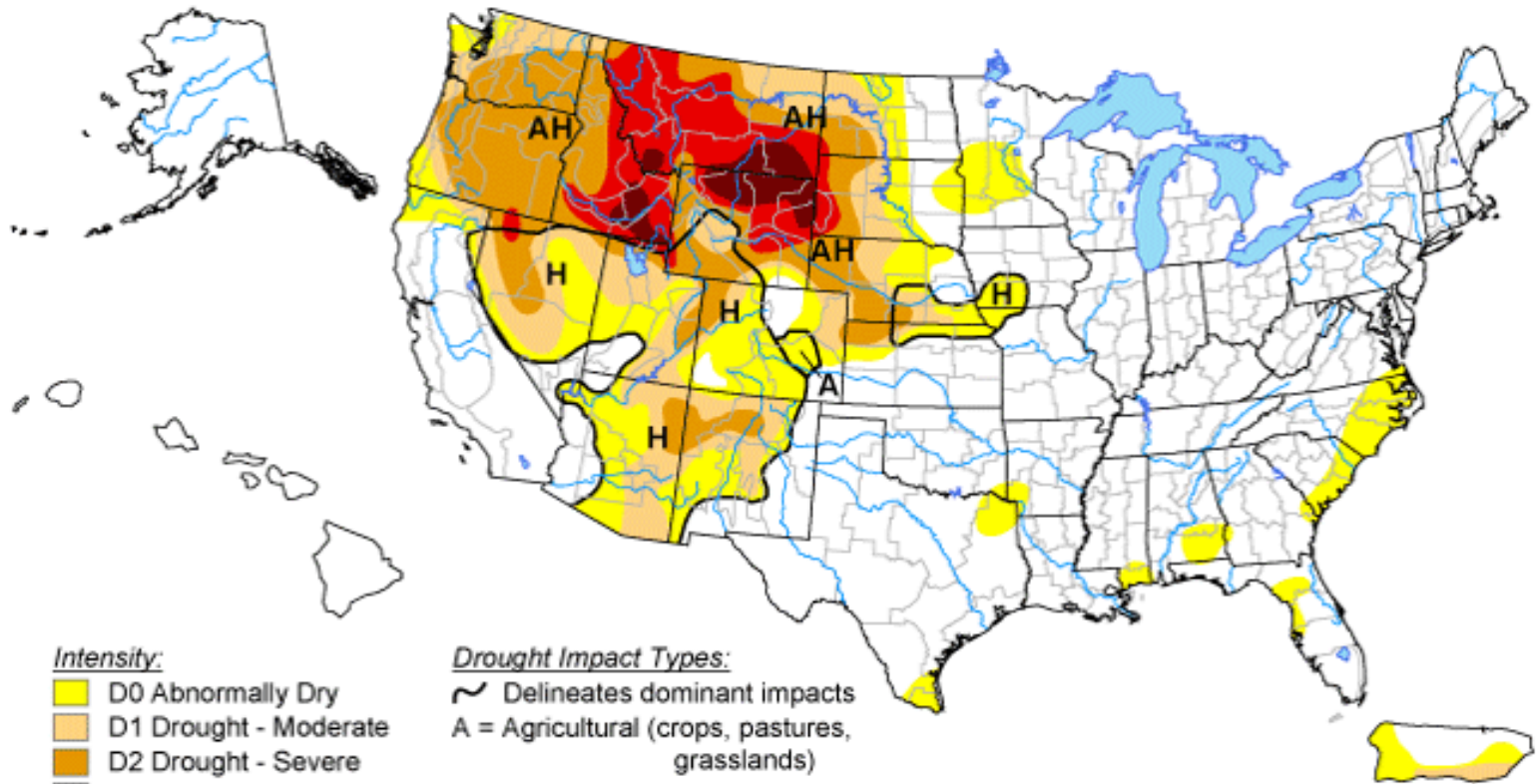


Drought Monitor Map






U.S. Drought Monitor

March 15, 2005


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.



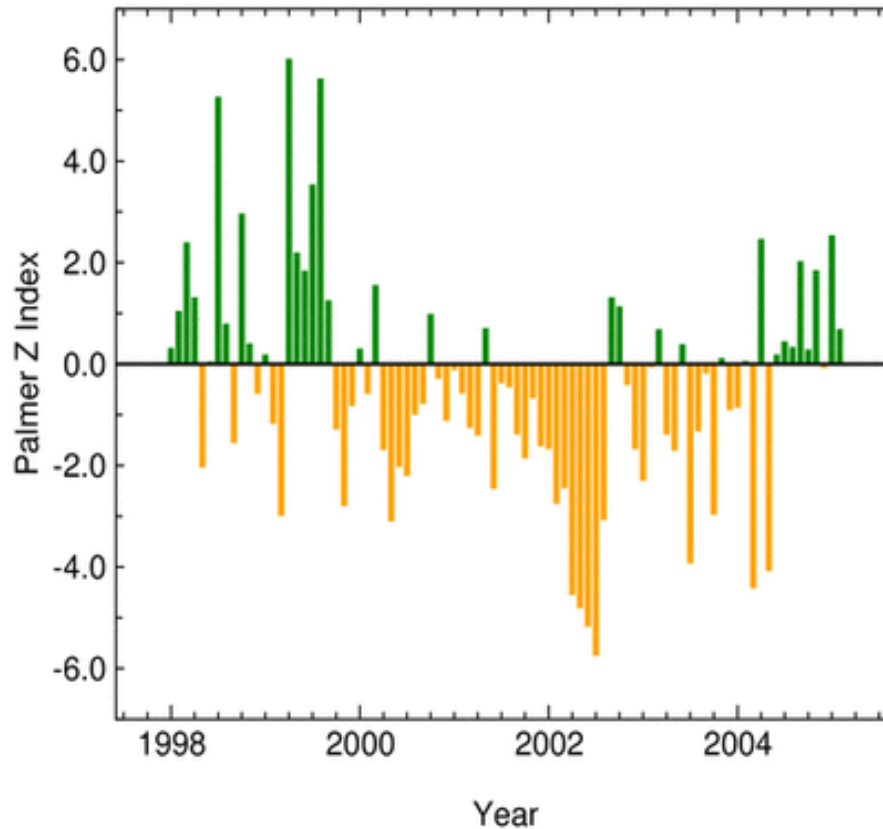
Released Thursday, March 17, 2005

Author: Michael Hayes, NDMC

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

Colorado Statewide Z Index*

January 1998 - February 2005



*Palmer Z Index
Short-Term Drought

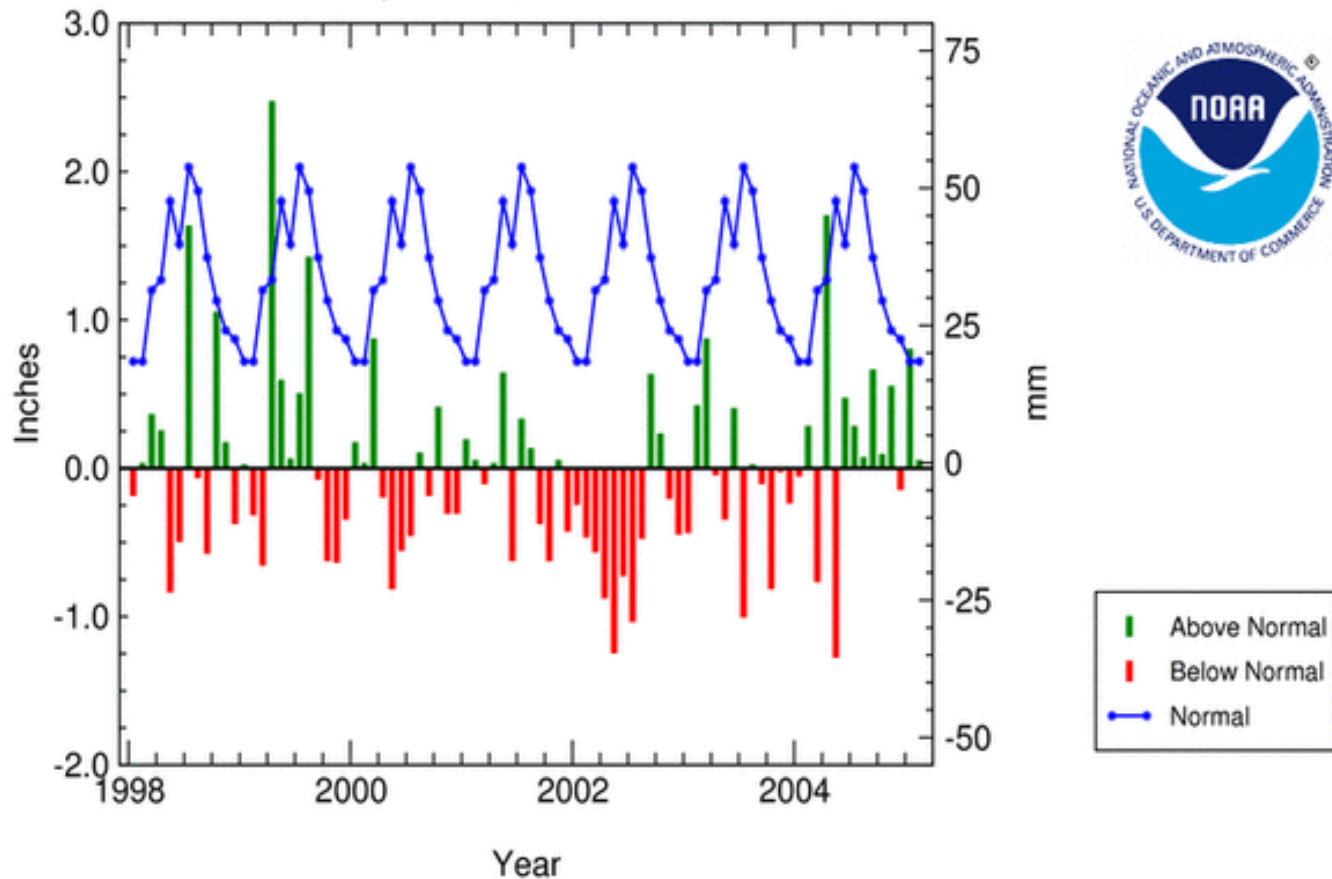


National Climatic Data Center / NESDIS / NOAA



Colorado Statewide Precipitation

Normal & Departure, Jan 1998 - Feb 2005



National Climatic Data Center / NESDIS / NOAA



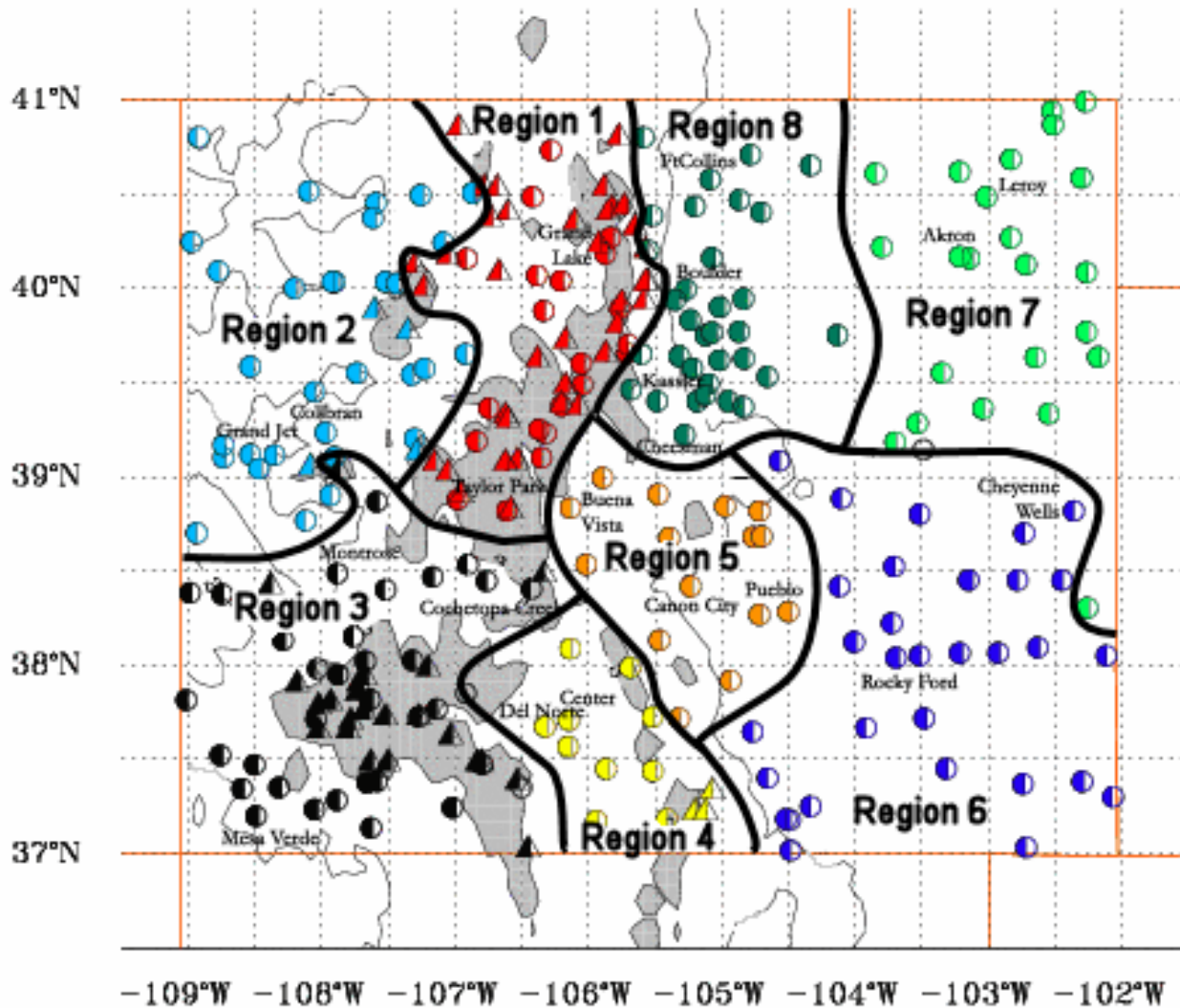
Statewide Precipitation Ranks
for Colorado , 2004-2005

Period	Rank
Feb	<u>49th wettest</u> (<u>60th driest</u>)
Jan-Feb	<u>14th wettest</u> (<u>98th driest</u>)
Dec-Feb	<u>17th wettest</u> (<u>93rd driest</u>)
Nov-Feb	<u>11th wettest</u> (<u>100th driest</u>)
Oct-Feb	<u>17th wettest</u> (<u>94th driest</u>)
Sep-Feb	<u>6th wettest</u> (<u>105th driest</u>)
Aug-Feb	<u>11th wettest</u> (<u>100th driest</u>)
Jul-Feb	<u>13th wettest</u> (<u>98th driest</u>)
Jun-Feb	<u>11th wettest</u> (<u>100th driest</u>)
May-Feb	<u>33rd wettest</u> (<u>78th driest</u>)
Apr-Feb	<u>13th wettest</u> (<u>98th driest</u>)
Mar-Feb	<u>27th wettest</u> (<u>84th driest</u>)

Colorado
Precipitation
Ranking
1895-2004



COLORADO

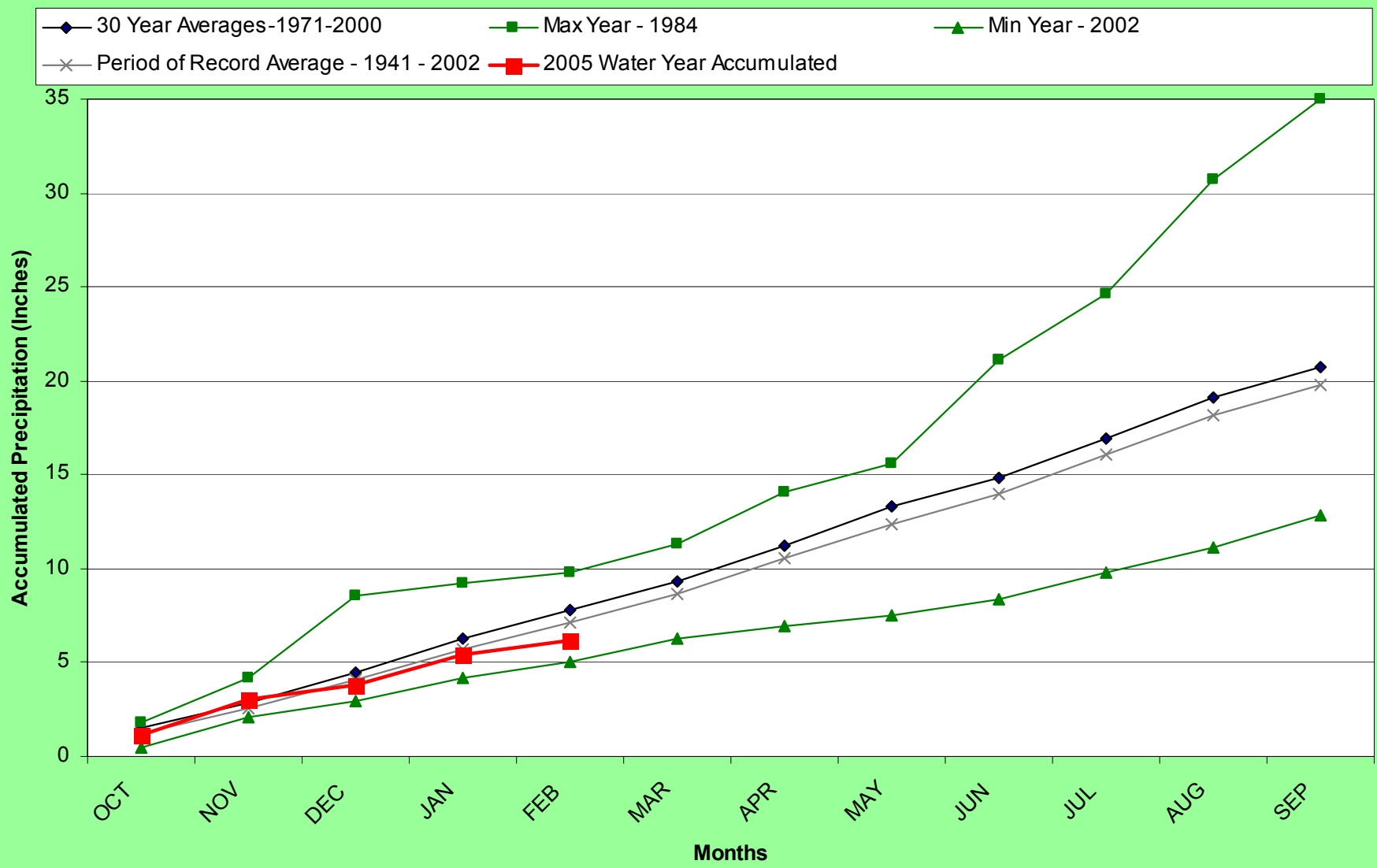


Climate divisions defined by Dr. Klaus Wolter of NOAA's Climate Diagnostic Center in Boulder, CO



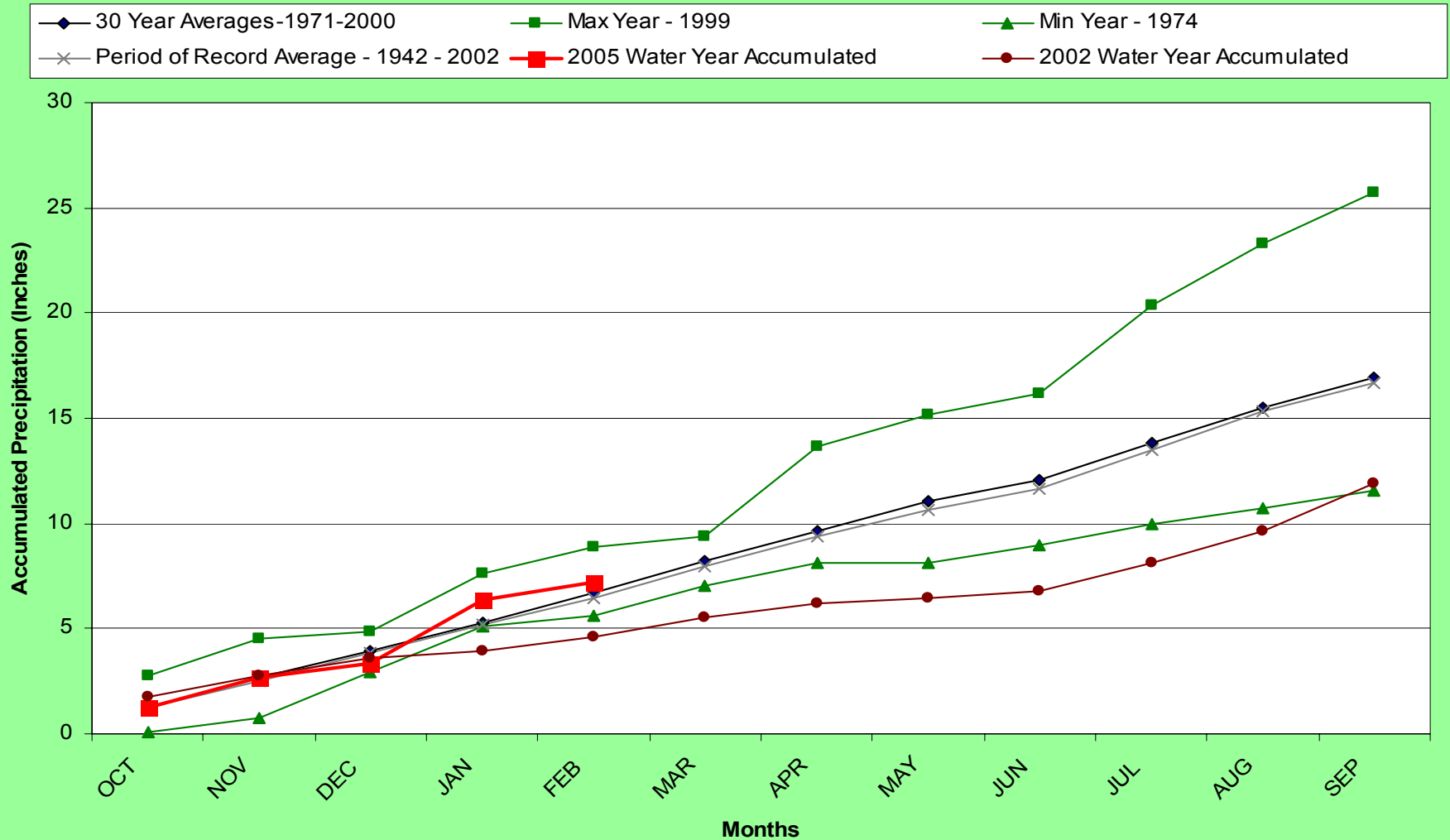
Division 1—Grand Lake 1NW

Grand Lake 1 NW 2005 Water Year



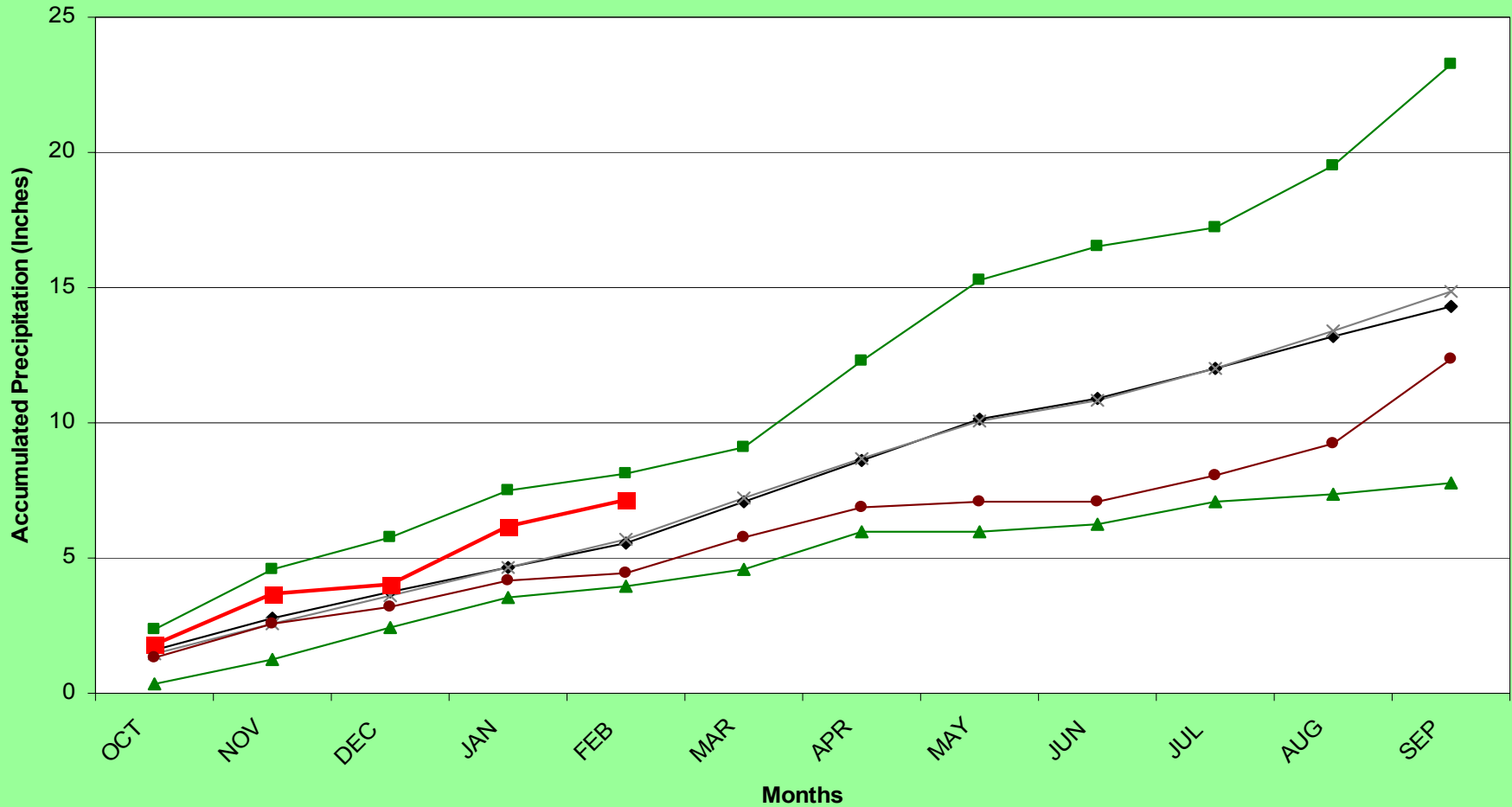
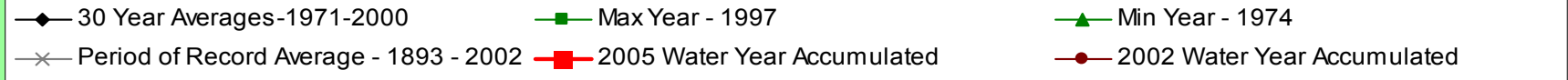
Division 1– Taylor Park

Taylor Park 2005 Water Year



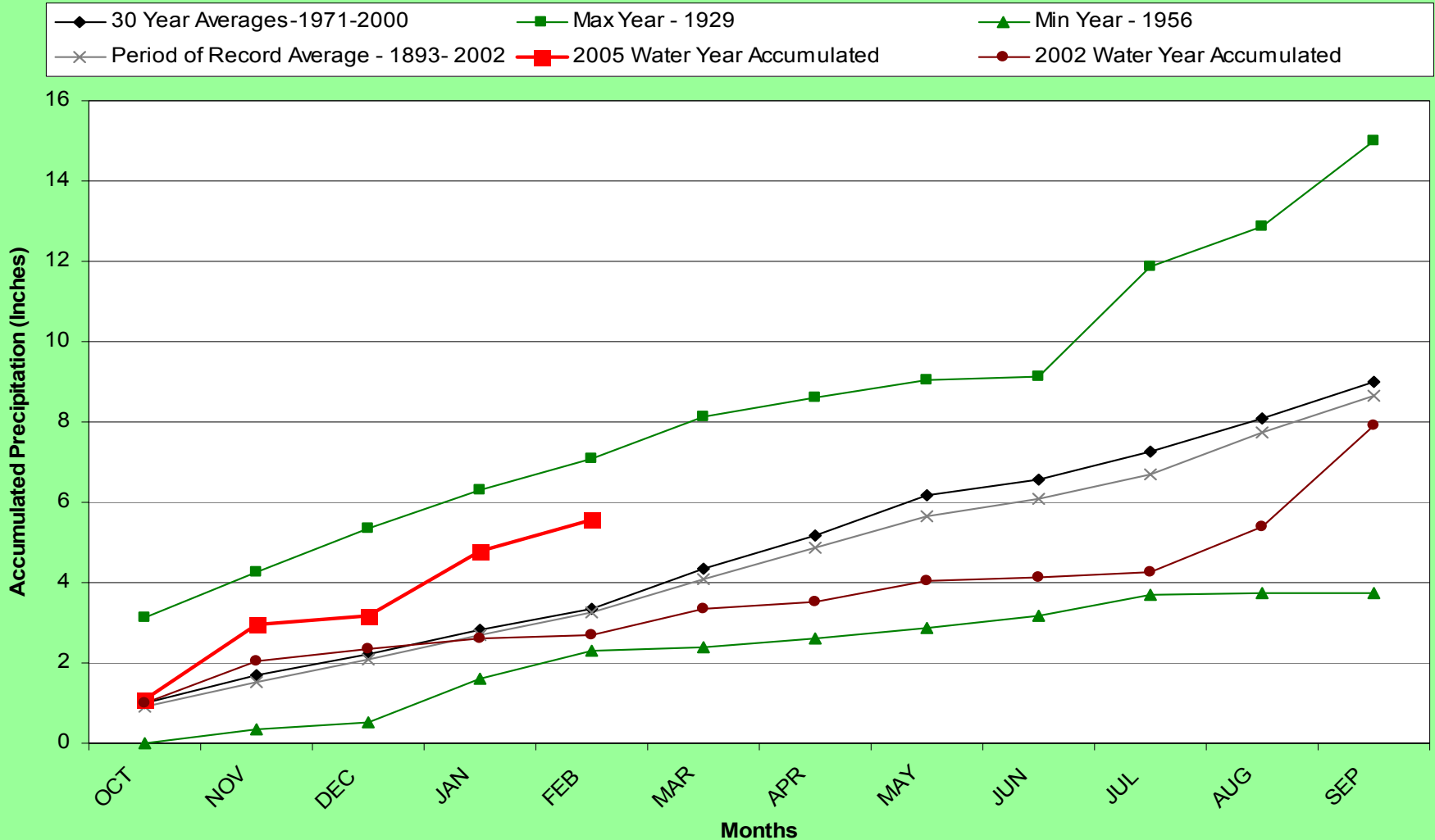
Division 2– Collbran

Collbran 2SW 2005 Water Year



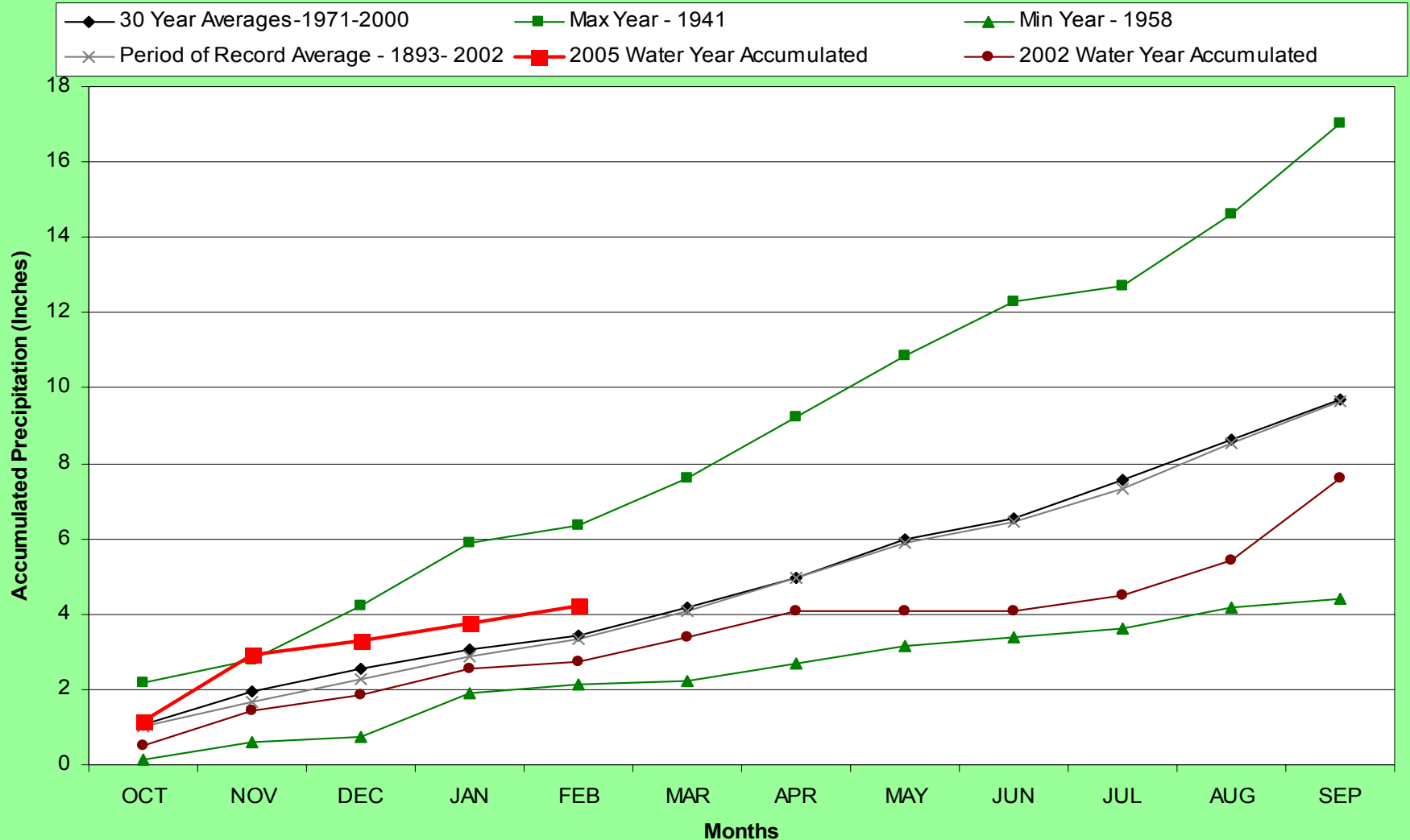
Division 2 – Grand Junction

Grand Junction WSFO 2005 Water Year



Division 3 – Montrose

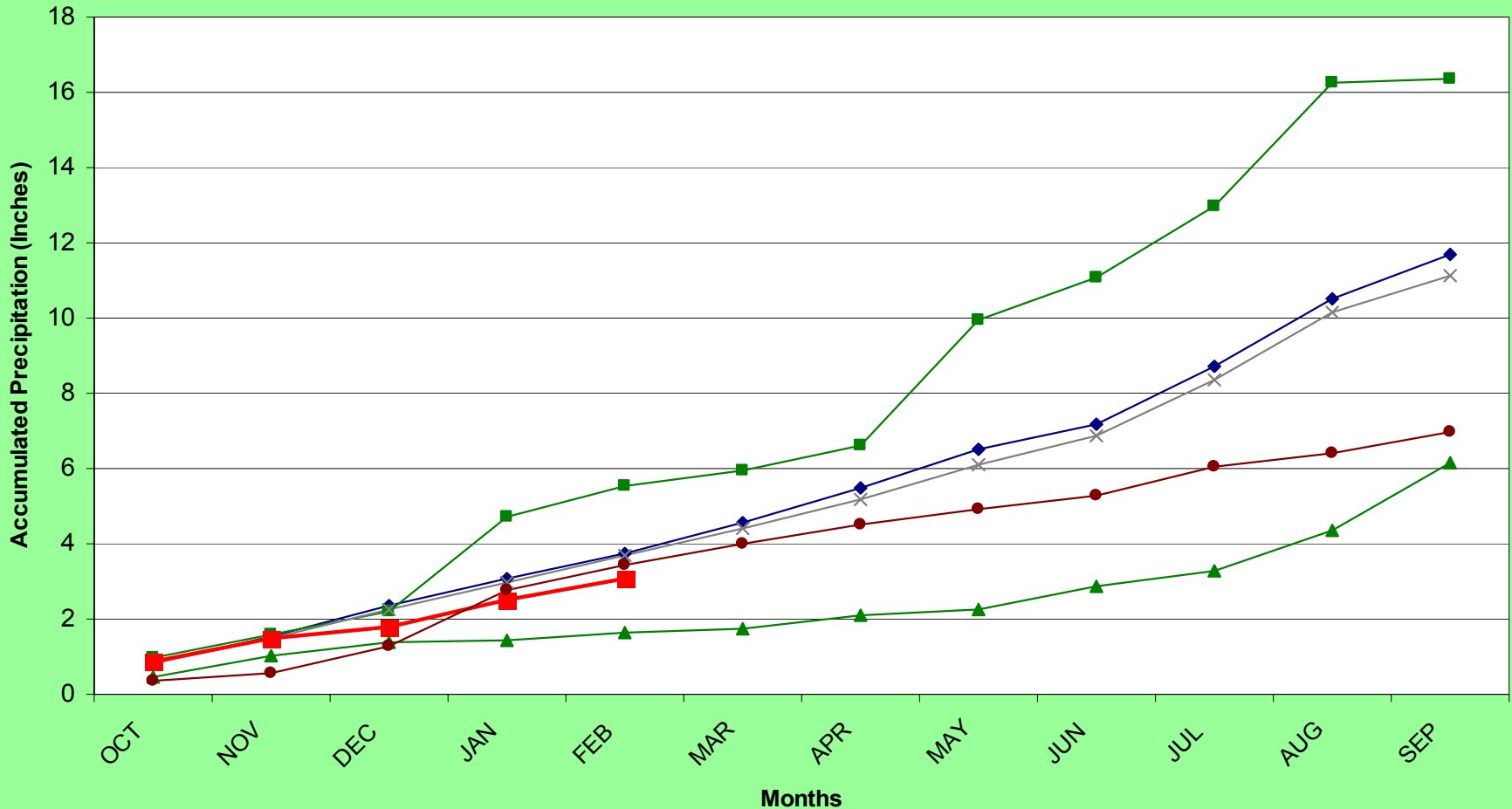
Montrose #2 2005 Water Year



Division 3 – Cochetopa Creek

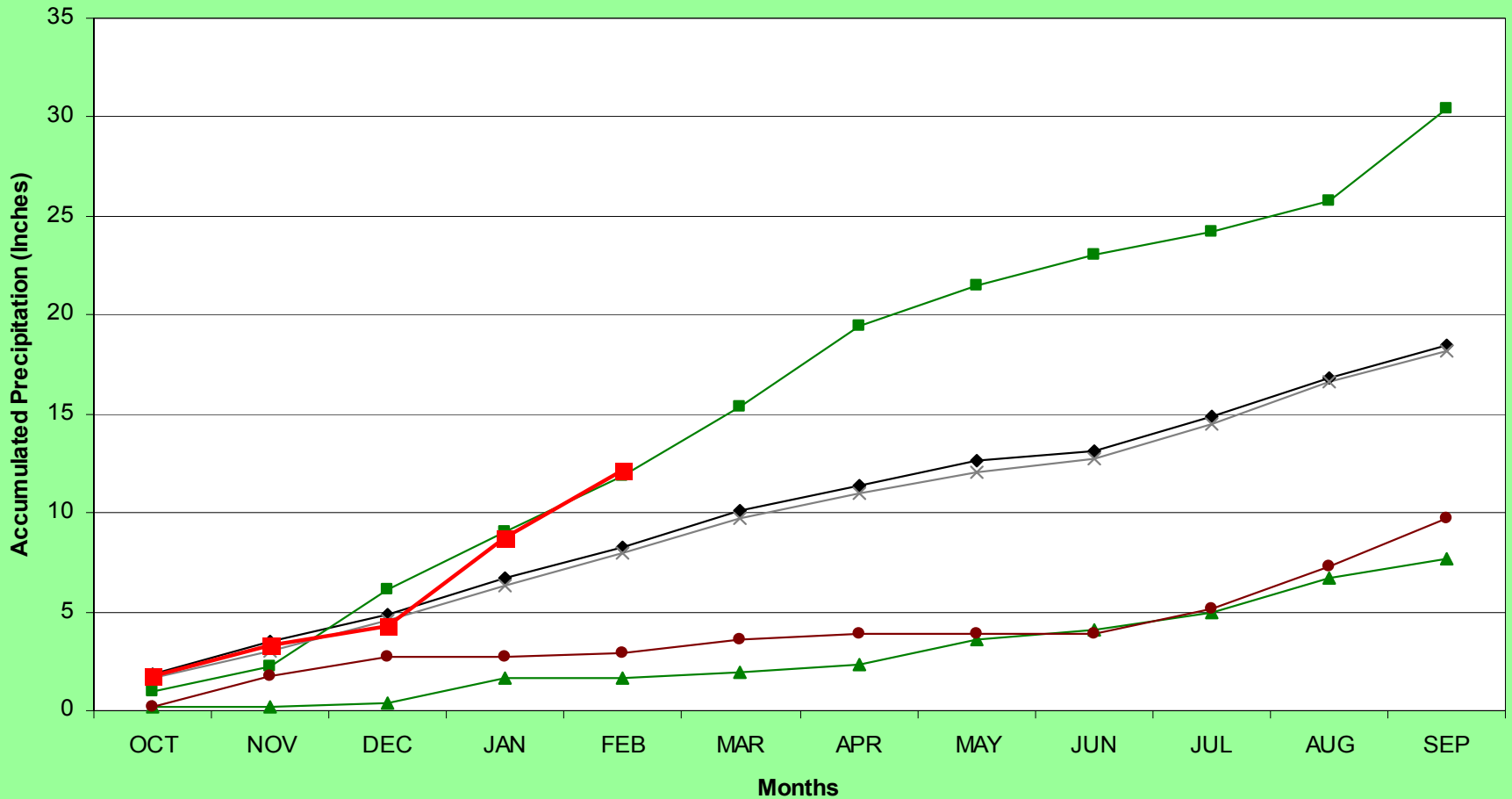
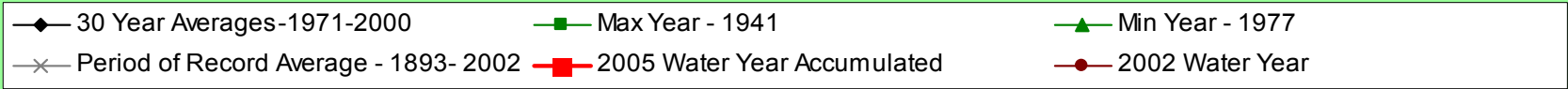
Cochetopa Creek 2005 Water Year

◆ 30 Year Averages-1971-2000 ■ Max Year - 1957 ▲ Min Year - 2002
× Period of Record Average - 1949 - 2002 ■ 2005 Water Year ● 2nd Min Year - 1950



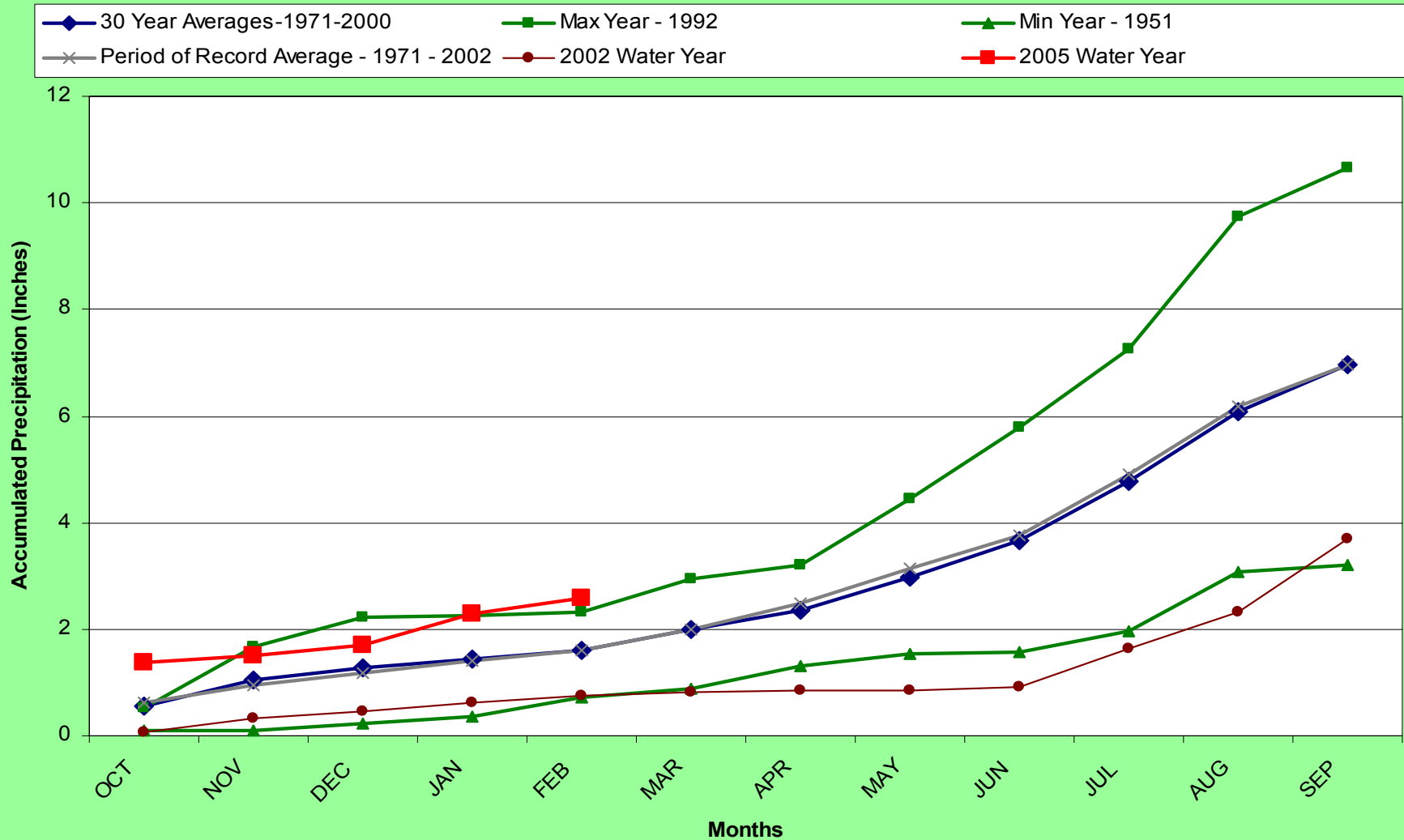
Division 3 – Mesa Verde

Mesa Verde NP 2005 Water Year



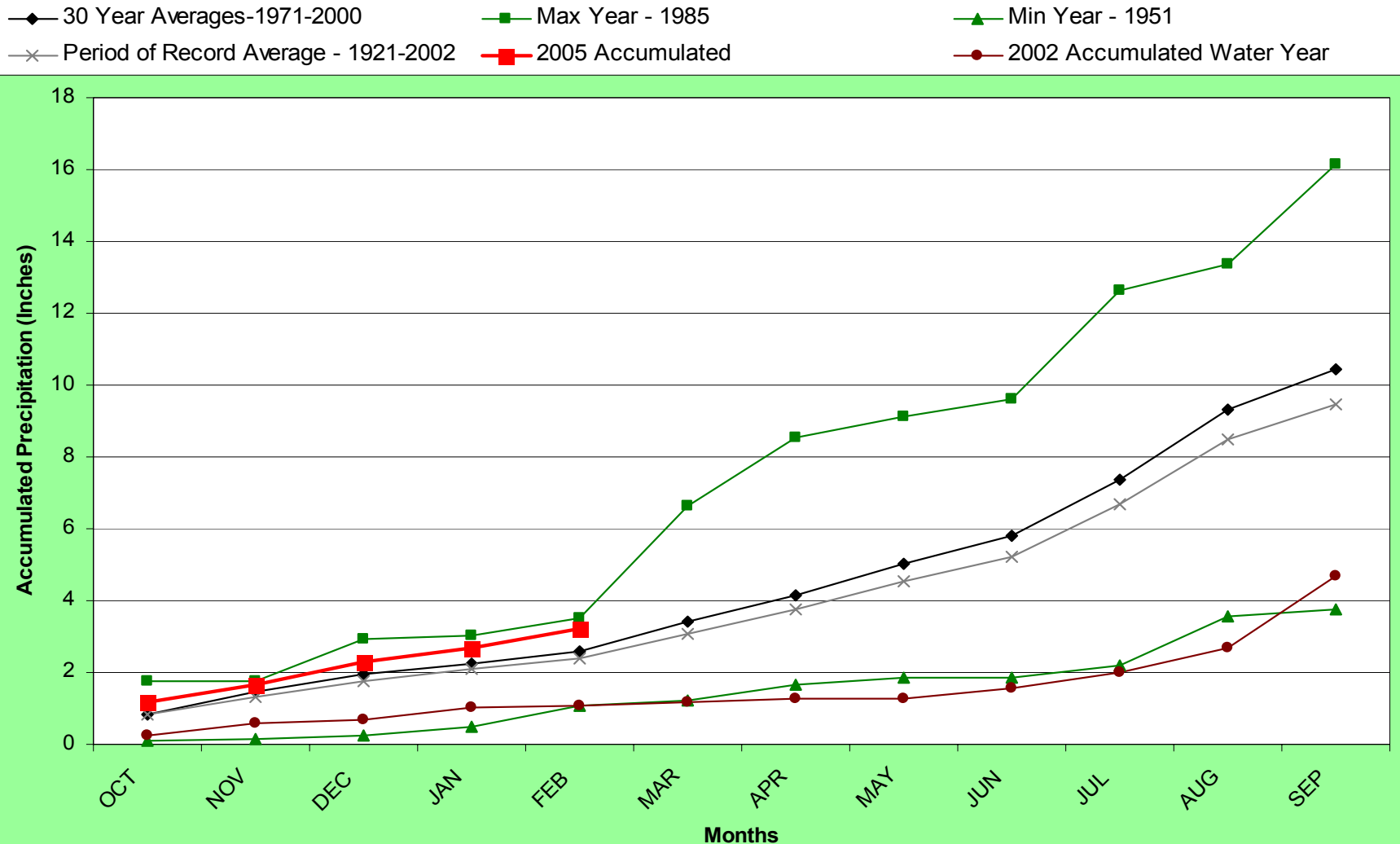
Division 4 – Center

Center 4SSW 2005 Water Year



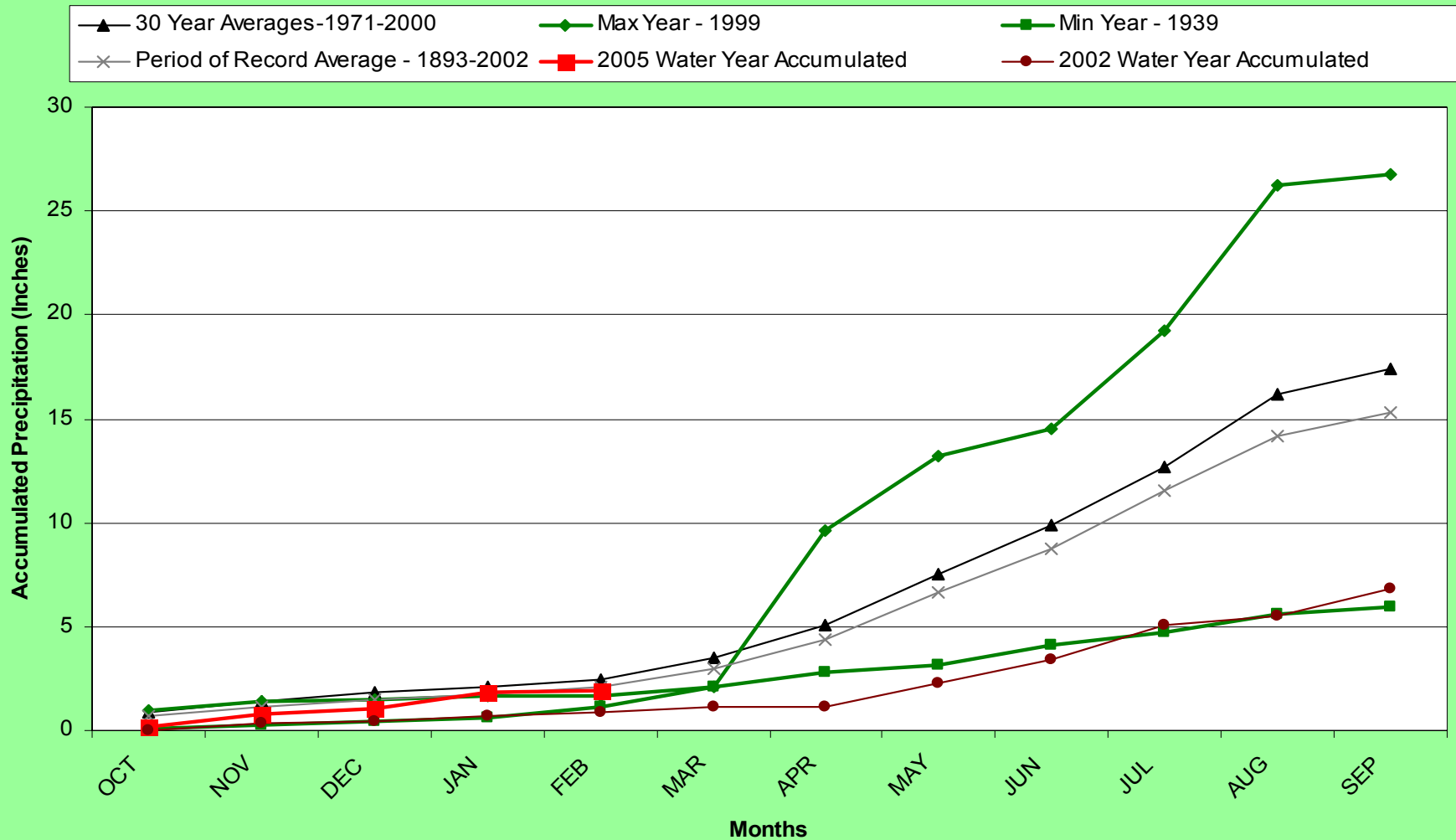
Division 4 – Del Norte

Del Norte 2005 Water Year



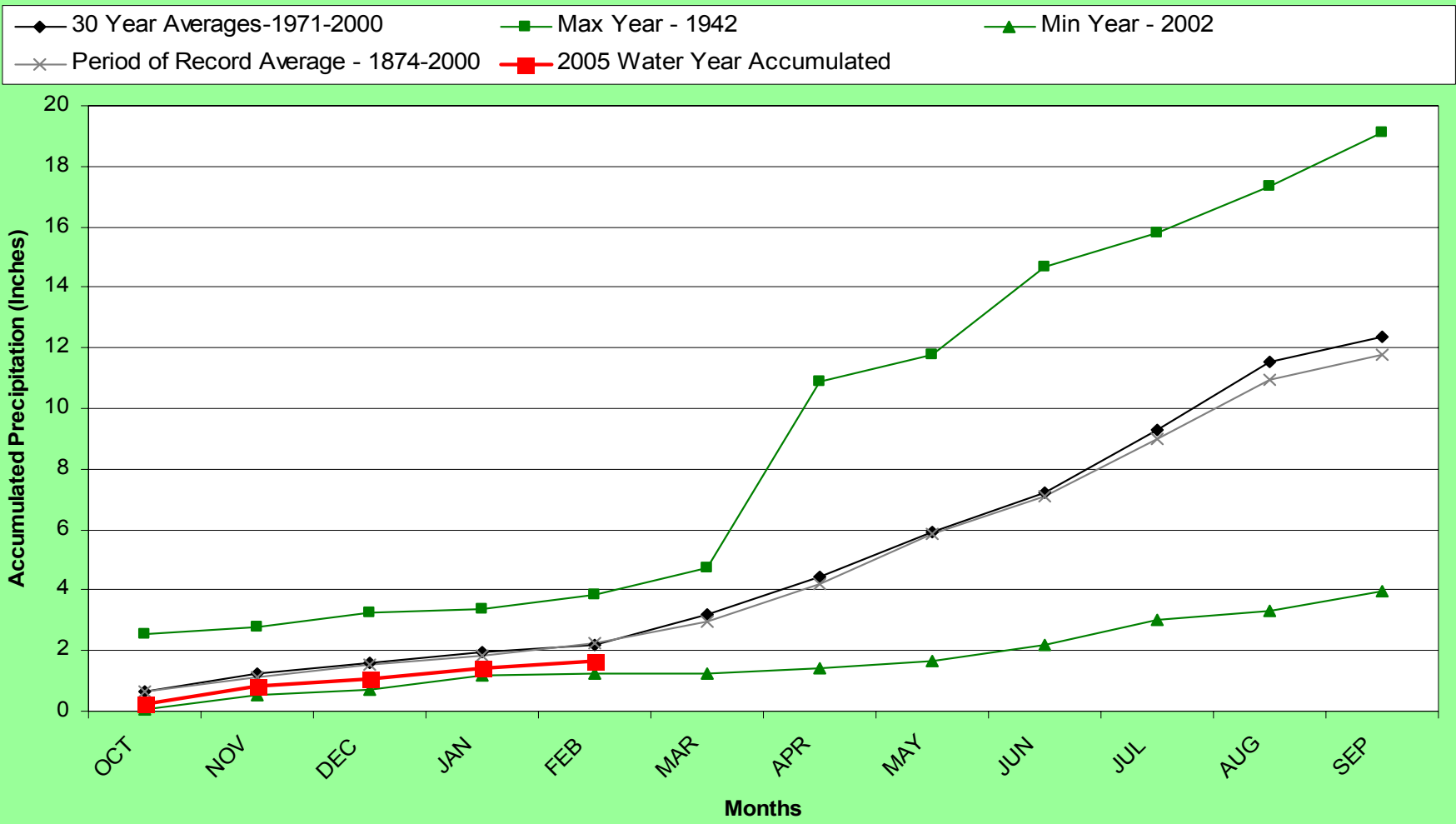
Division 5 – Colorado Springs

Colorado Springs 2005 Water Year



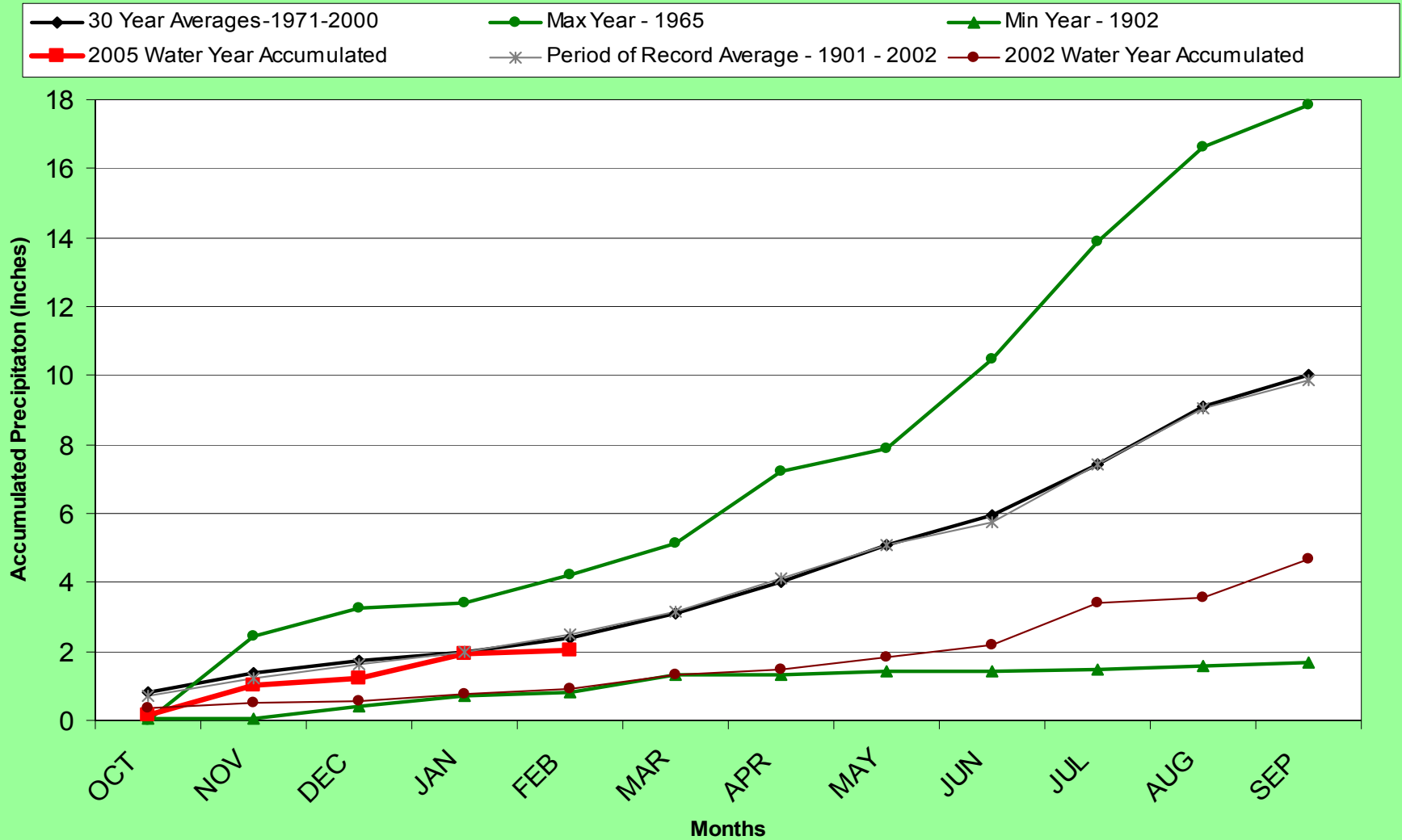
Division 5 – Pueblo

Pueblo WSO 2005 Water Year



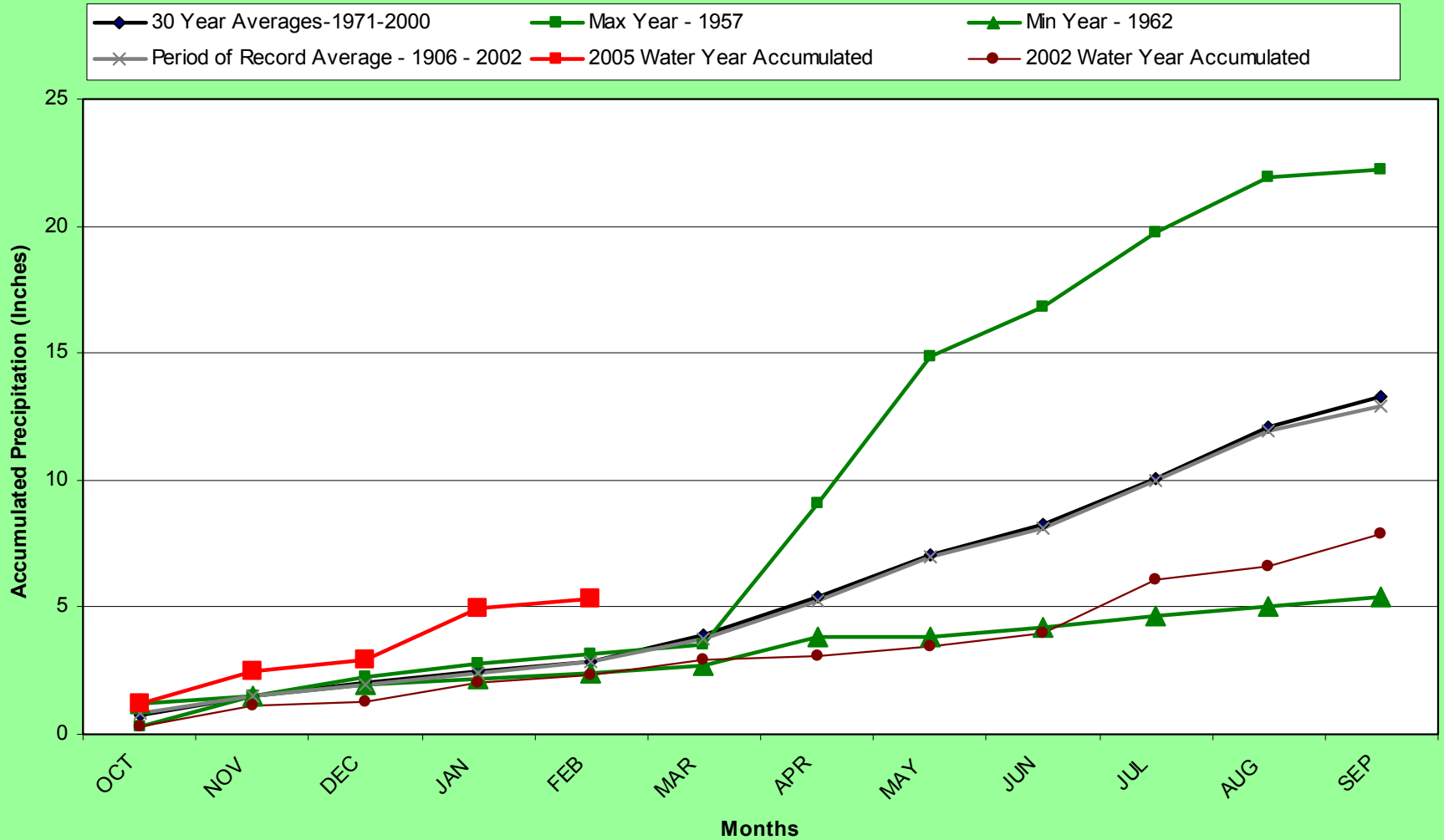
Division 5 – Buena Vista

Buena Vista 2005 Water Year



Division 5 – Canon City

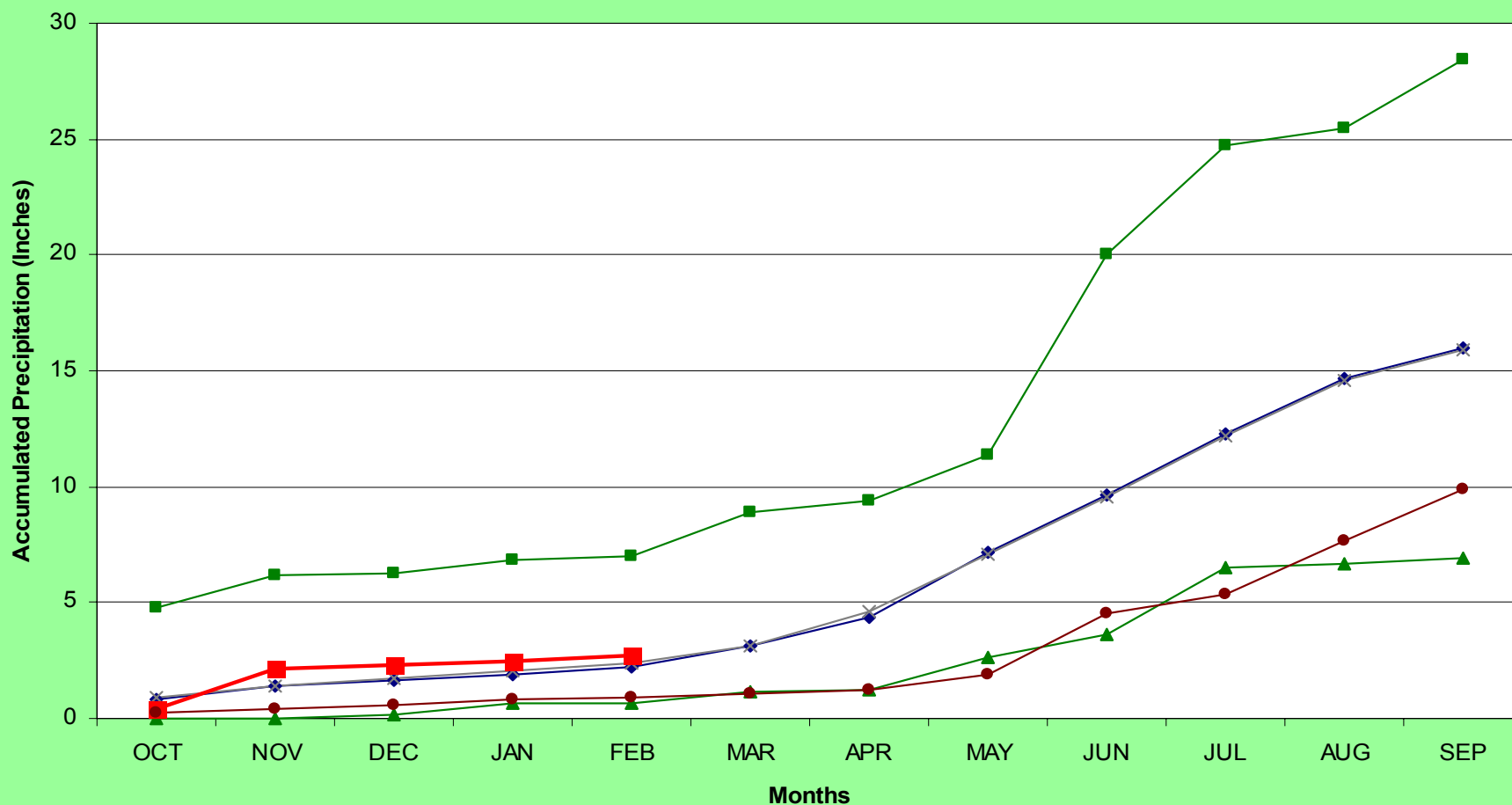
Canon City 2005 Water Year



Division 6 – Cheyenne Wells

Cheyenne Wells 2005 Water Year

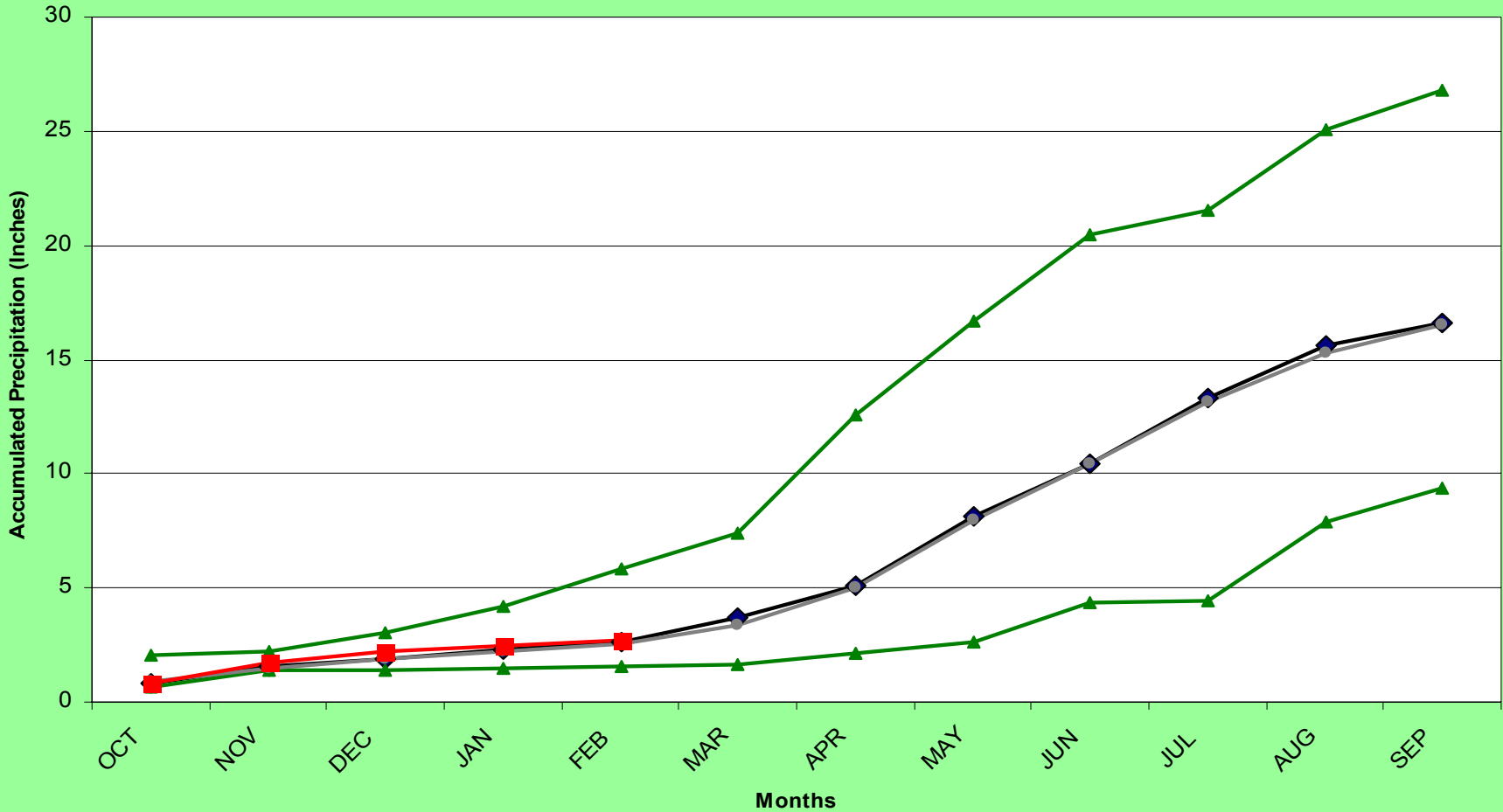
◆ 30 Year Averages-1971-2000 ■ Max Year - 1909 ▲ Min Year - 1956
✕ Period of Record Average - 1971 - 2002 ■ 2005 Water Year ● 2002 Water Year Accumulated



Division 7 – Akron

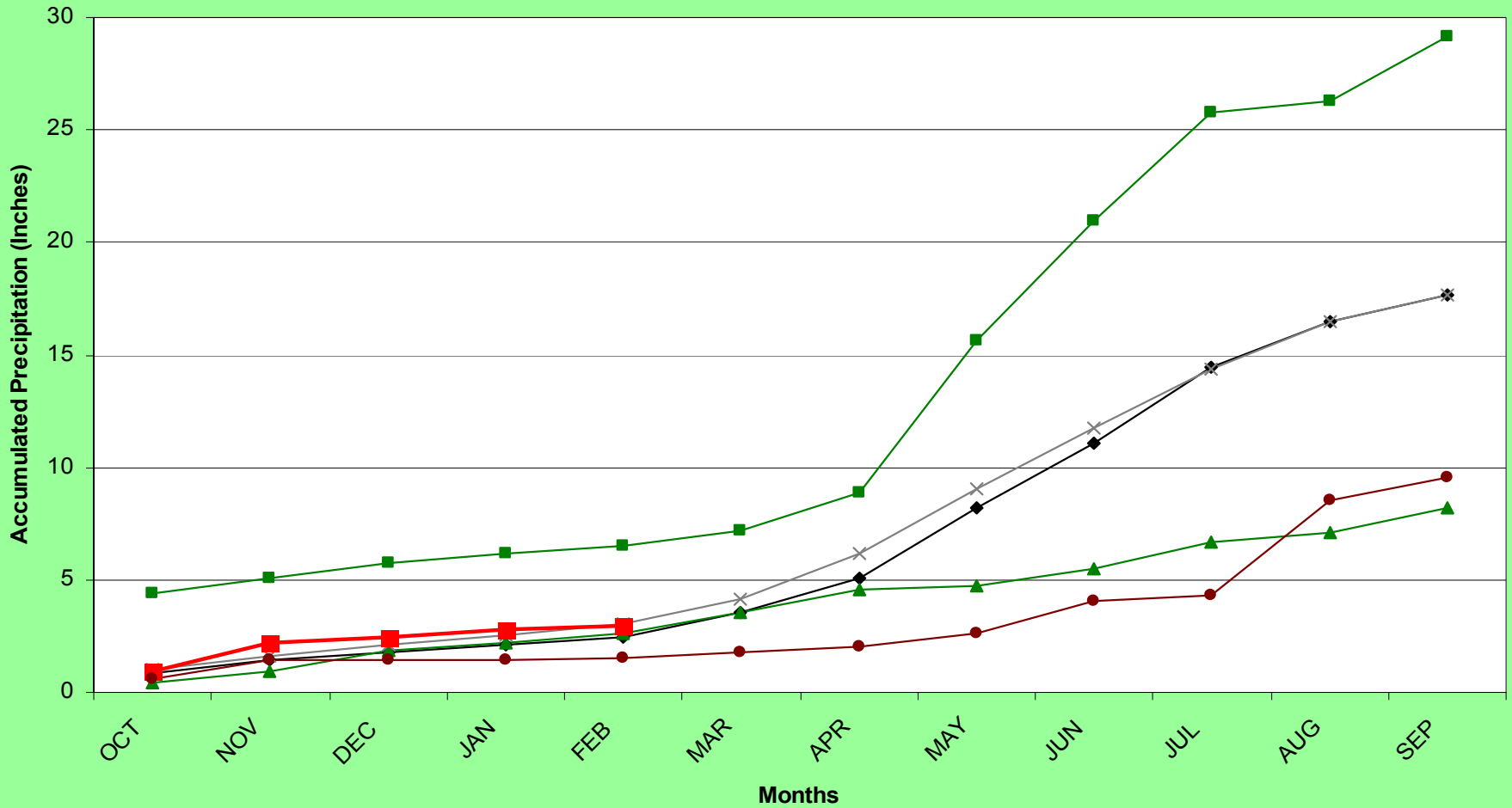
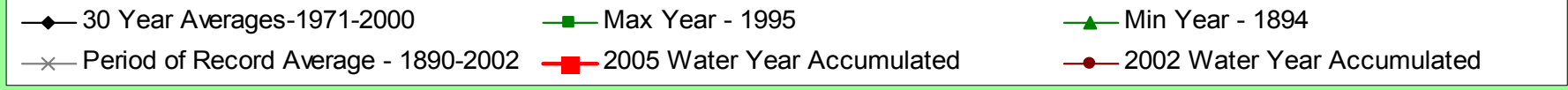
Akron 4E 2005 Water Year

◆ 30 Year Averages-1971-2000 ▲ Max Year - 1915 ▲ Min Year - 2002
● Period of Record Average - 1906 - 2002 ■ 2005 Water Year Accumulated



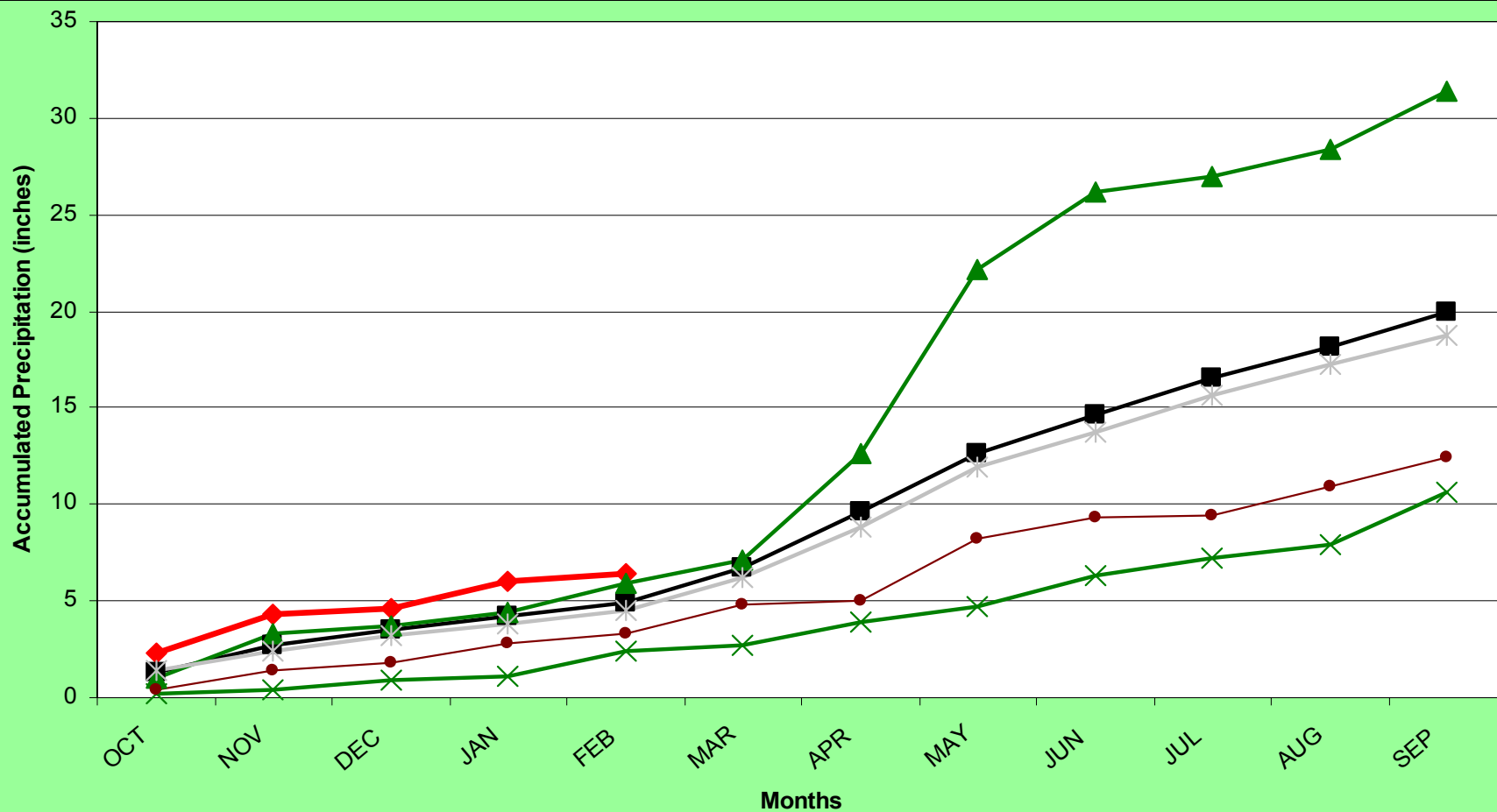
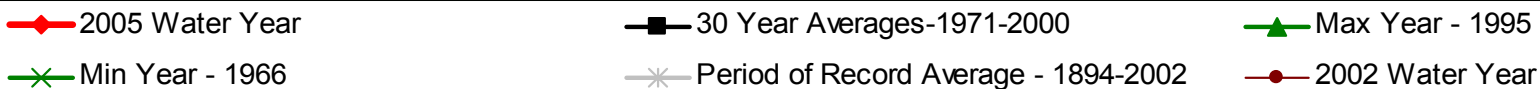
Division 7 – Leroy

Leroy 5SW 2005 Water Year



Division 8 – Boulder

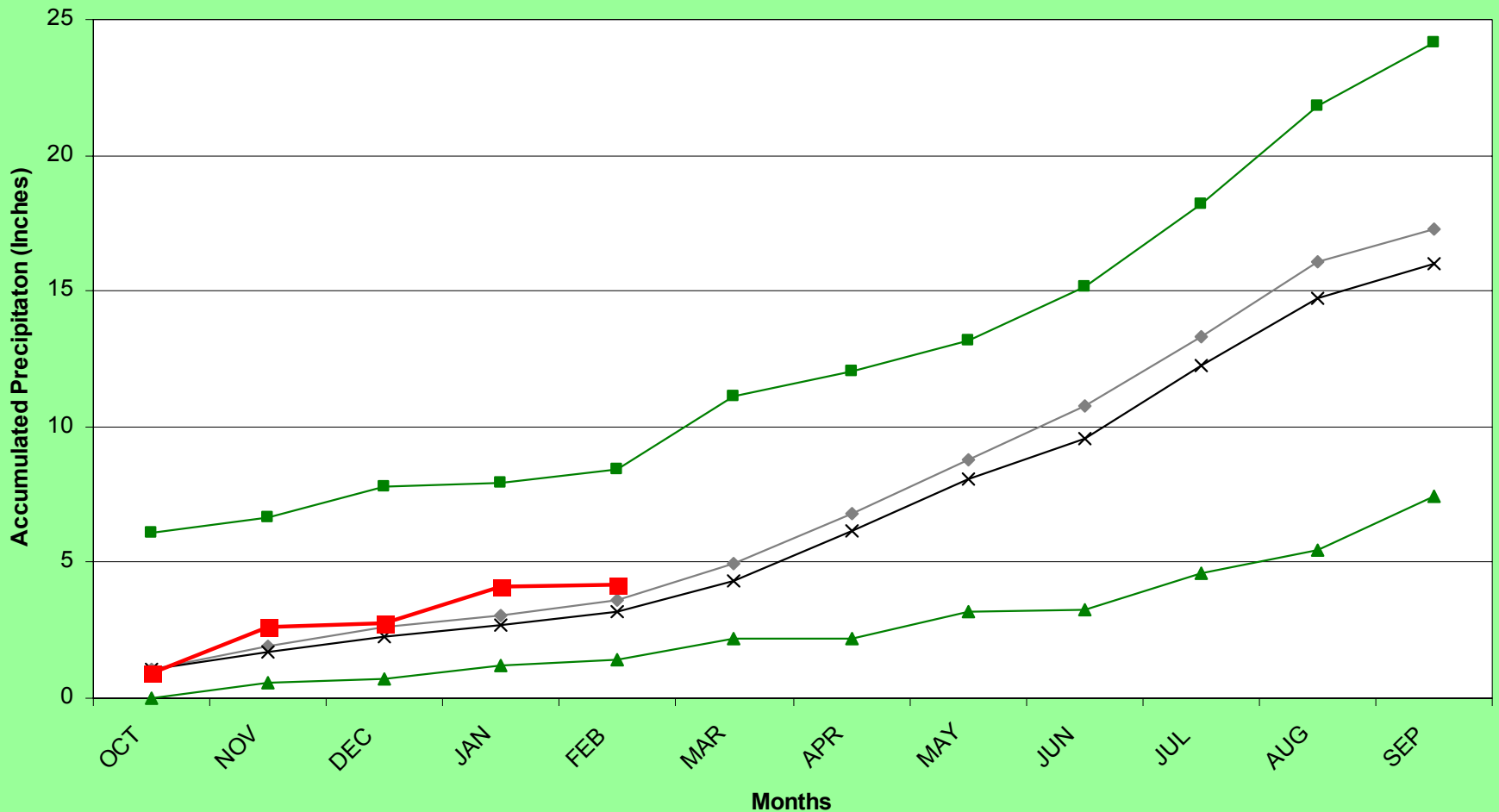
Boulder 2005 Water Year



Division 8 – Cheesman

Cheesman 2005 Water Year

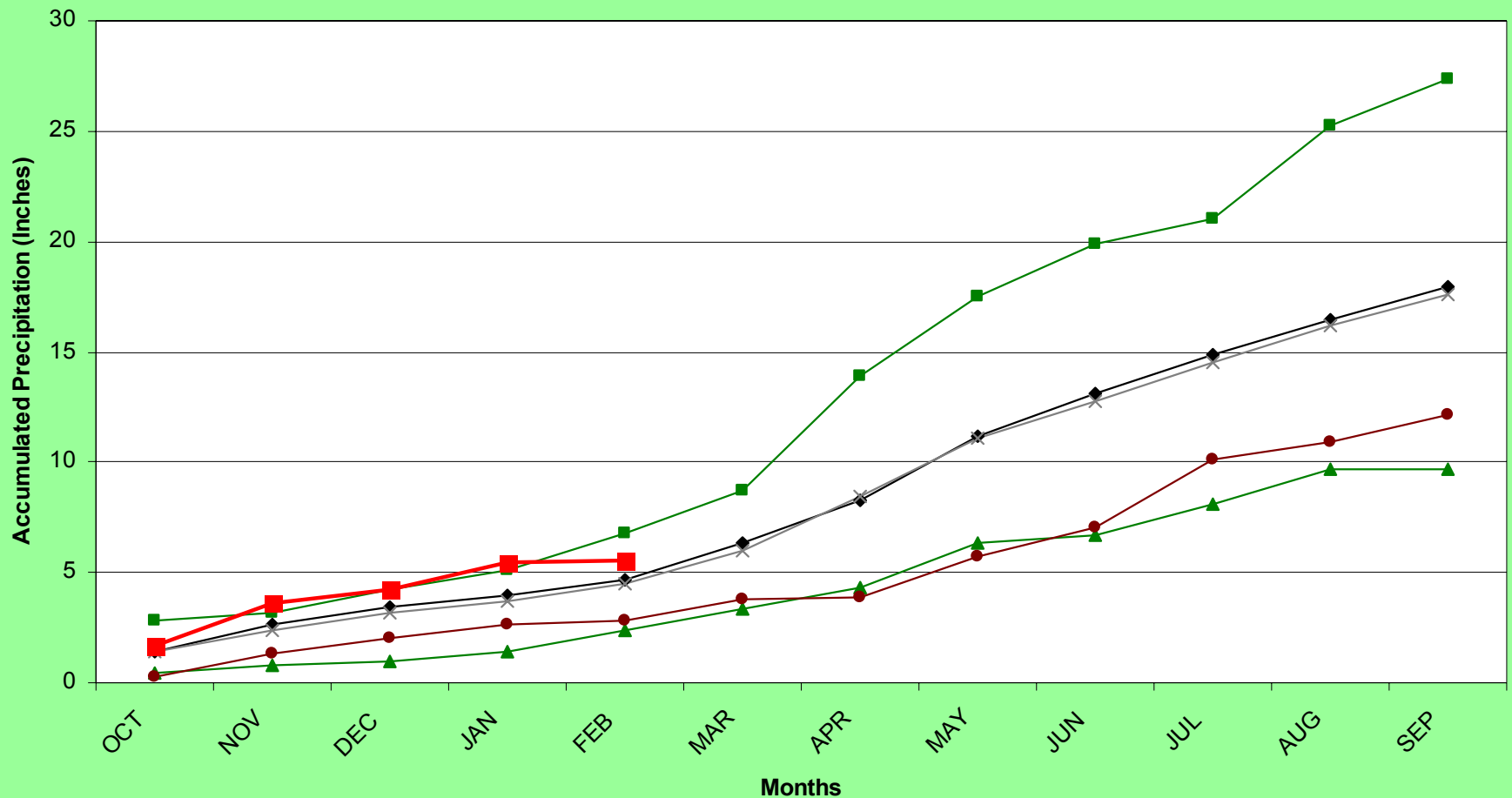
◆ 30 Year Averages-1971-2000 ■ Max Year - 1970 ▲ Min Year - 2002
× Period of Record Average - 1904 - 2002 ■ 2005 Water Year



Division 8 – Kassler

Kassler 2005 Water Year

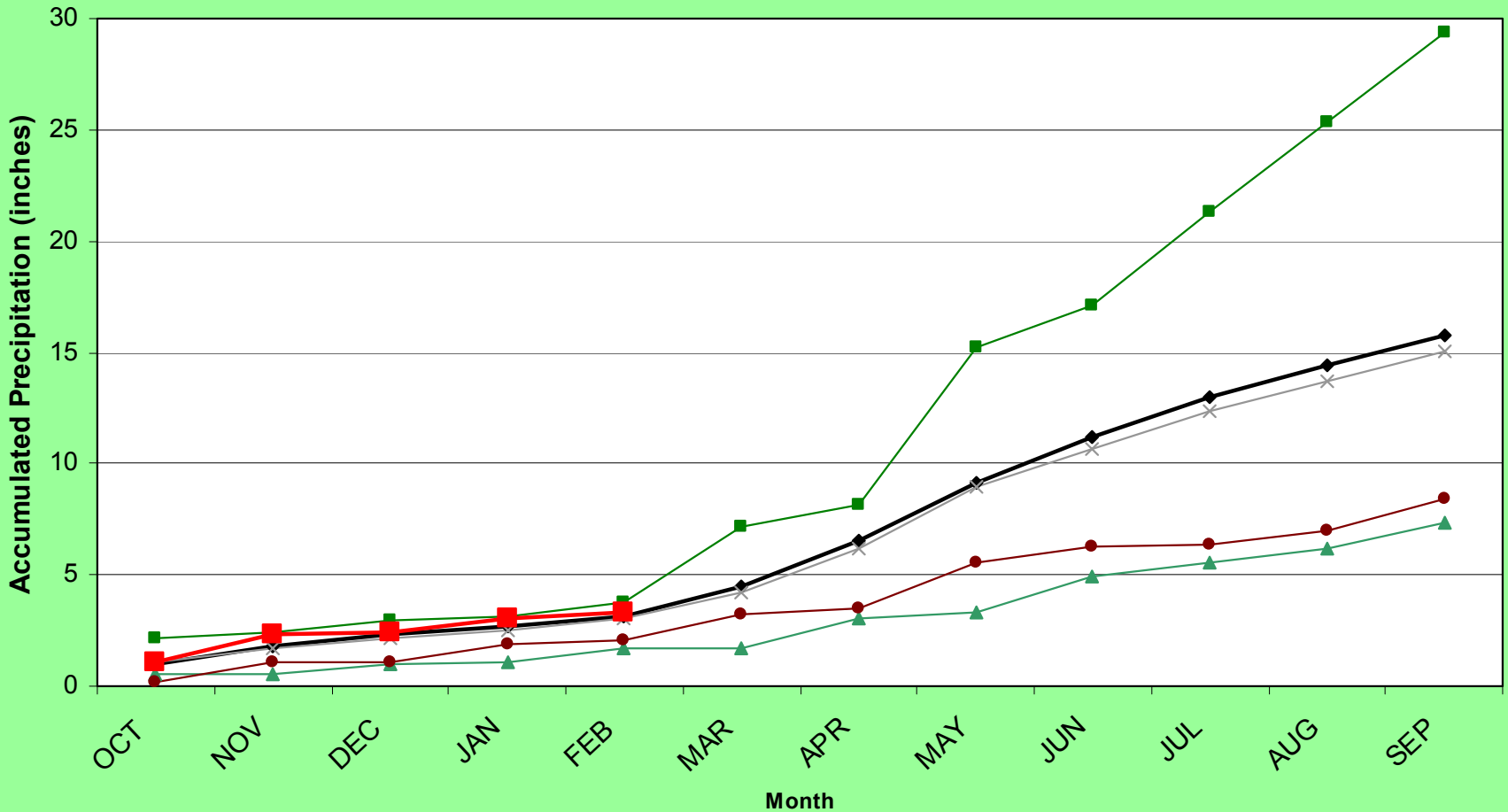
◆ 30 Year Averages-1971-2000 ■ Max Year - 1915 ▲ Min Year - 1956
✕ Period of Record Average - 1899 - 2002 ■ 2005 Water Year Accumulated ● 2002 Water Year Accumulated



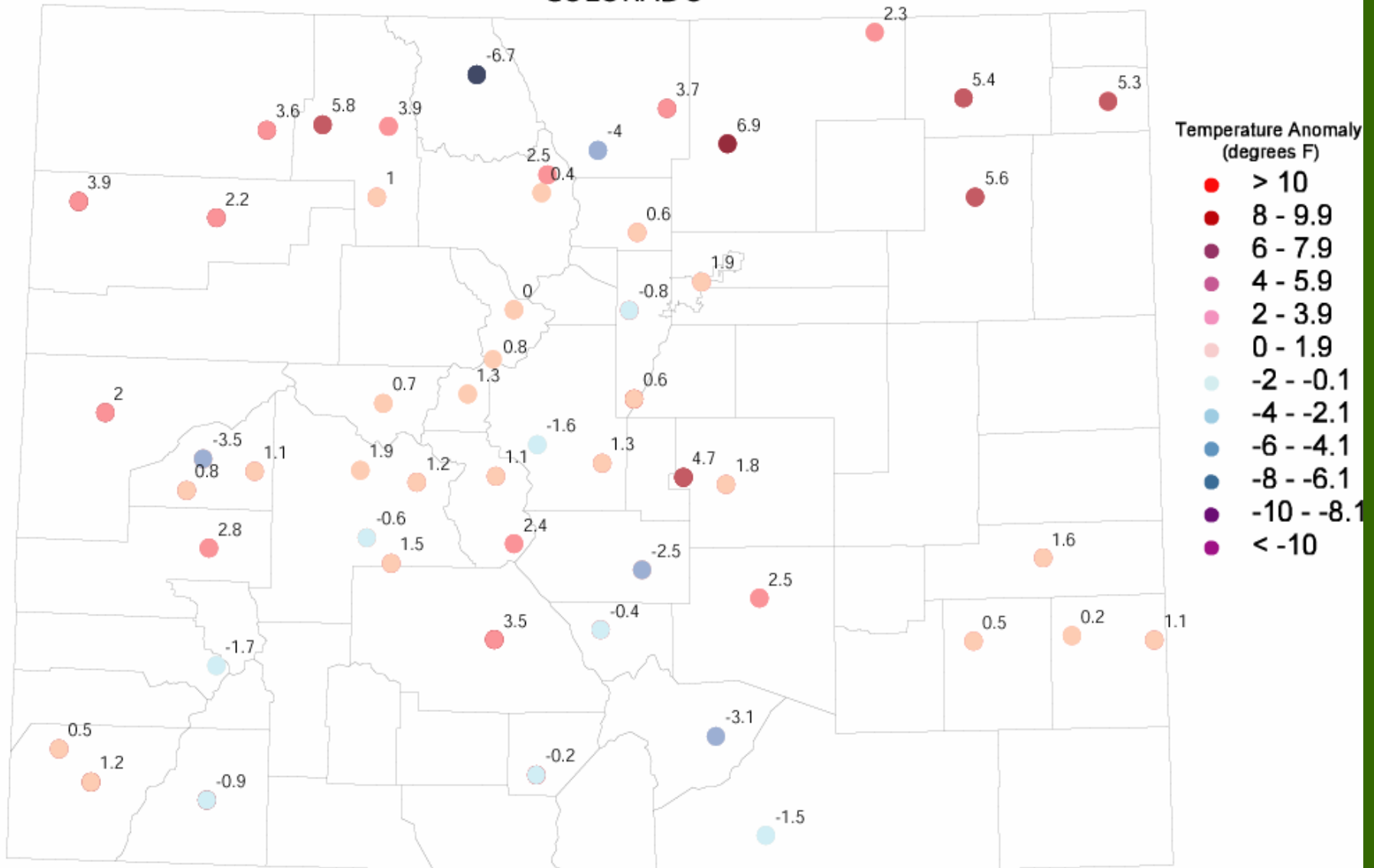
Division 8 – Fort Collins

Fort Collins 2005 Water Year

◆ 30 Year Averages-1971-2000 ■ Max Year - 1961 ▲ Min Year - 1966
× Period of Record Average - 1890 - 2002 ■ 2005 Water Year ● 2002 WY

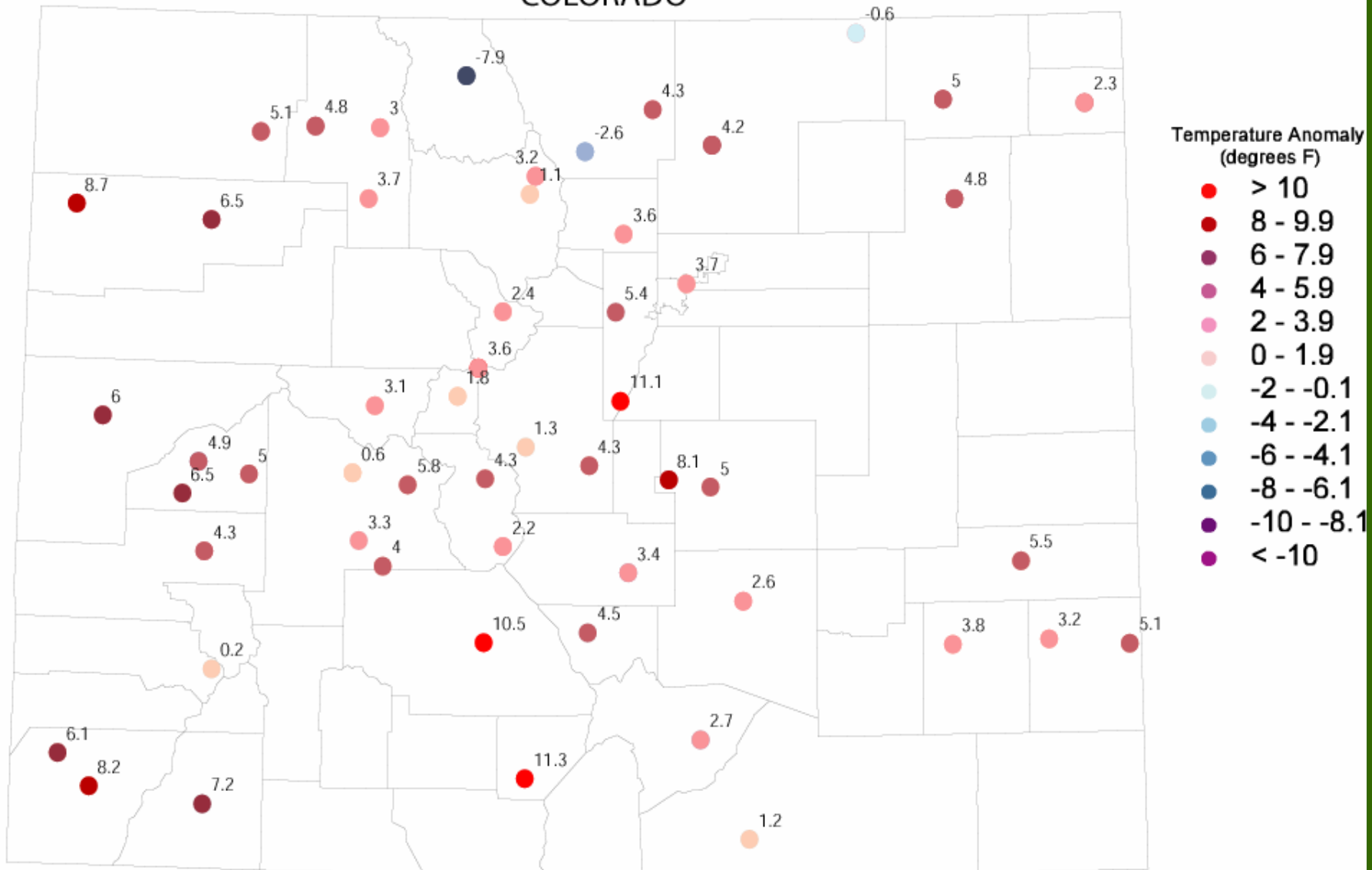


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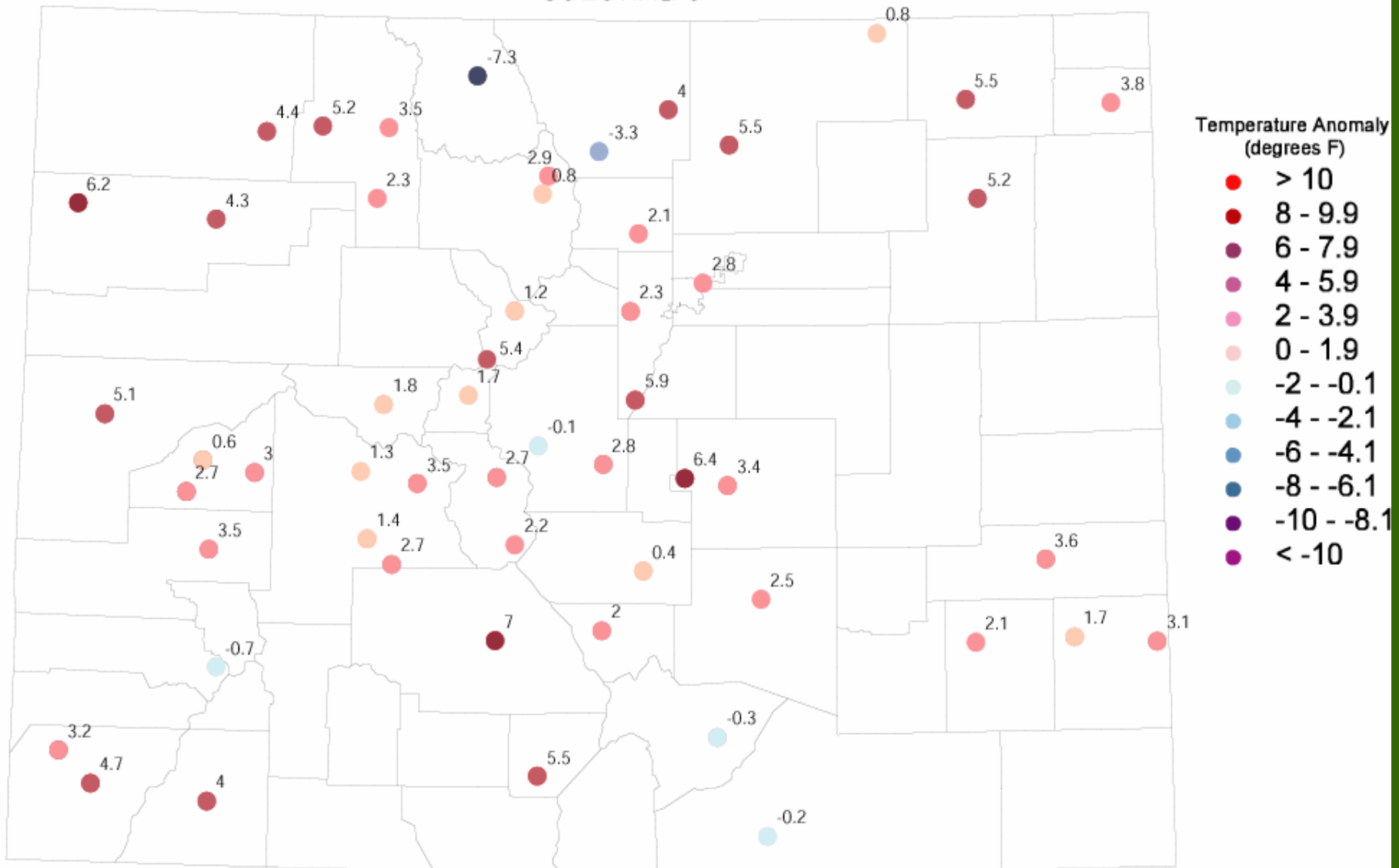
February 2005 maximum temperature departures from the 1971-2000 averages.

COLORADO



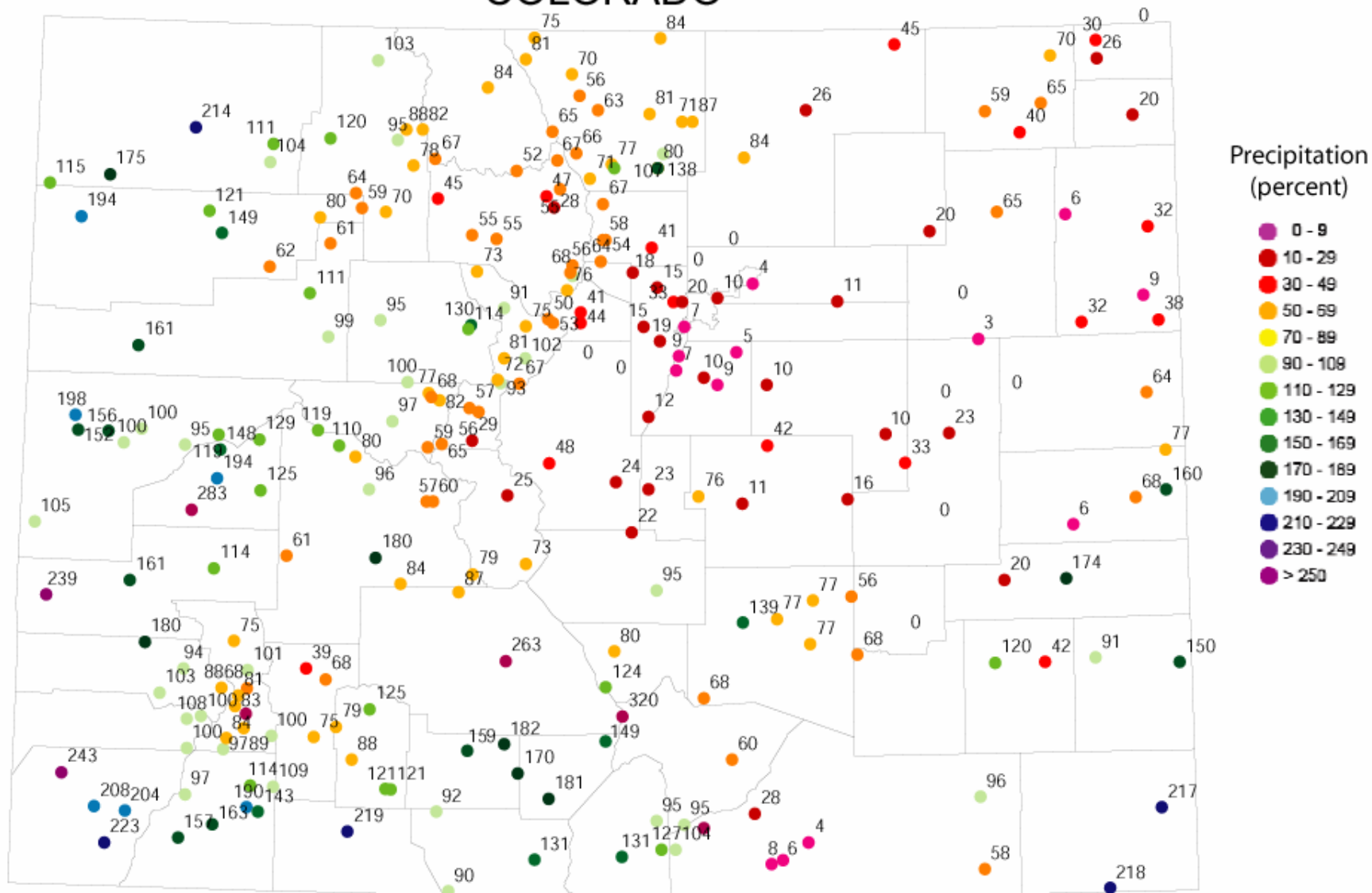
February 2005 minimum temperature departures from the 1971-2000 averages.

COLORADO



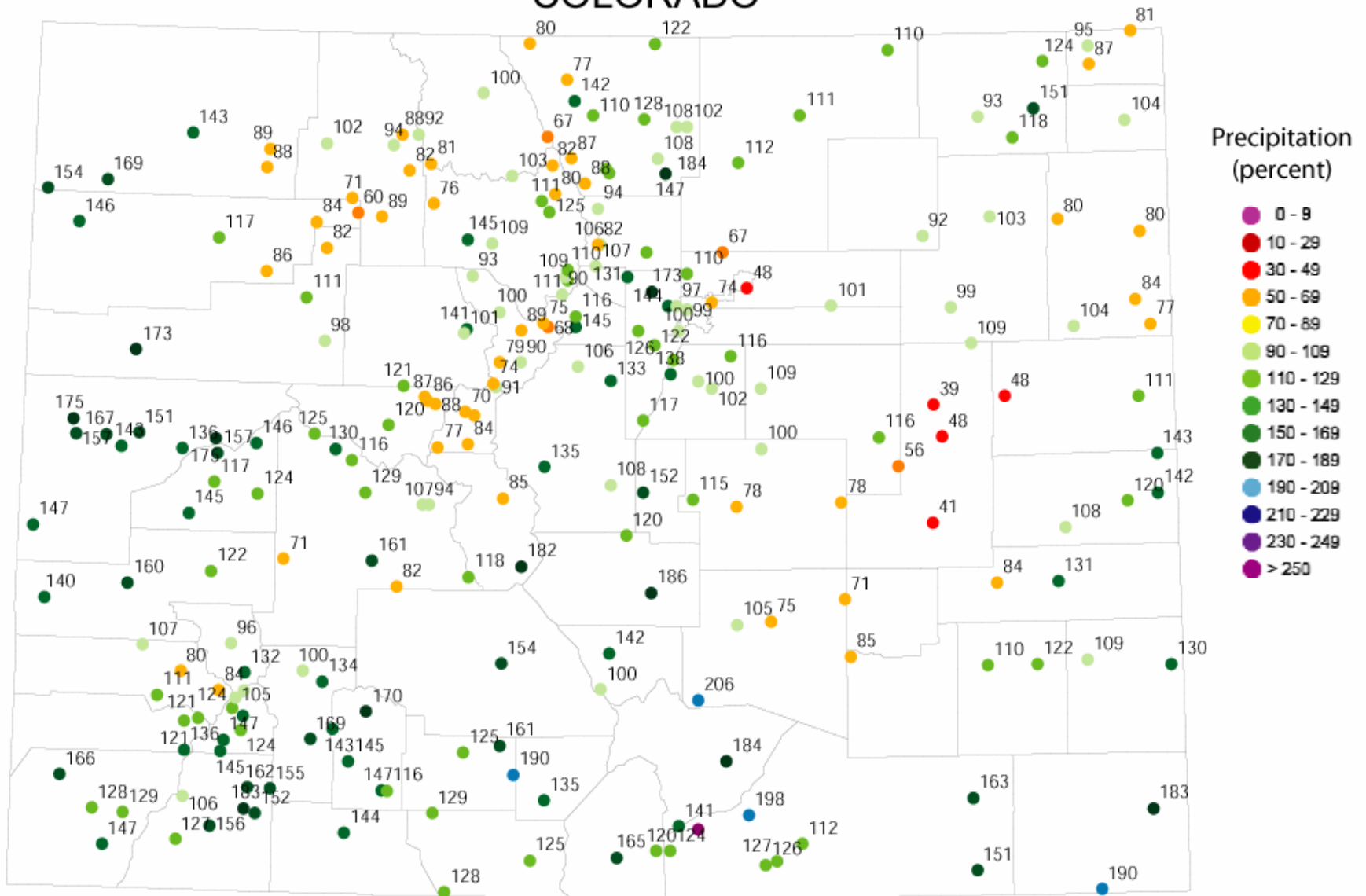
February 2005 average temperature departures from the 1971-2000 averages.

COLORADO



February 2005 precipitation as a percent of the 1971-2000 average.

COLORADO

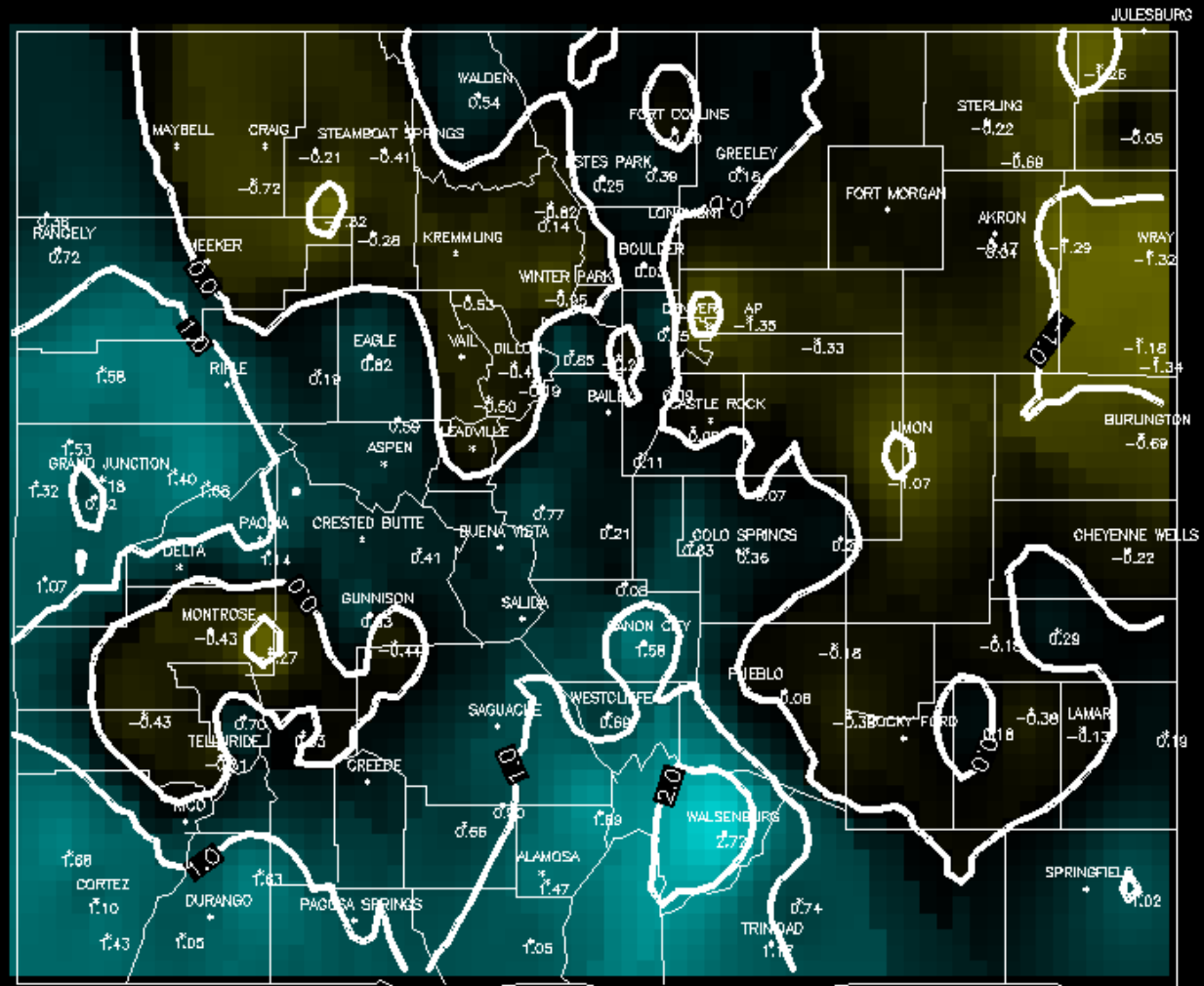


Water Year 2005 (October 2004 through February 2005) precipitation as a percent of the 1971-2000 average.

3 Month SPI

Colorado

2/2005 3 mon. SPI



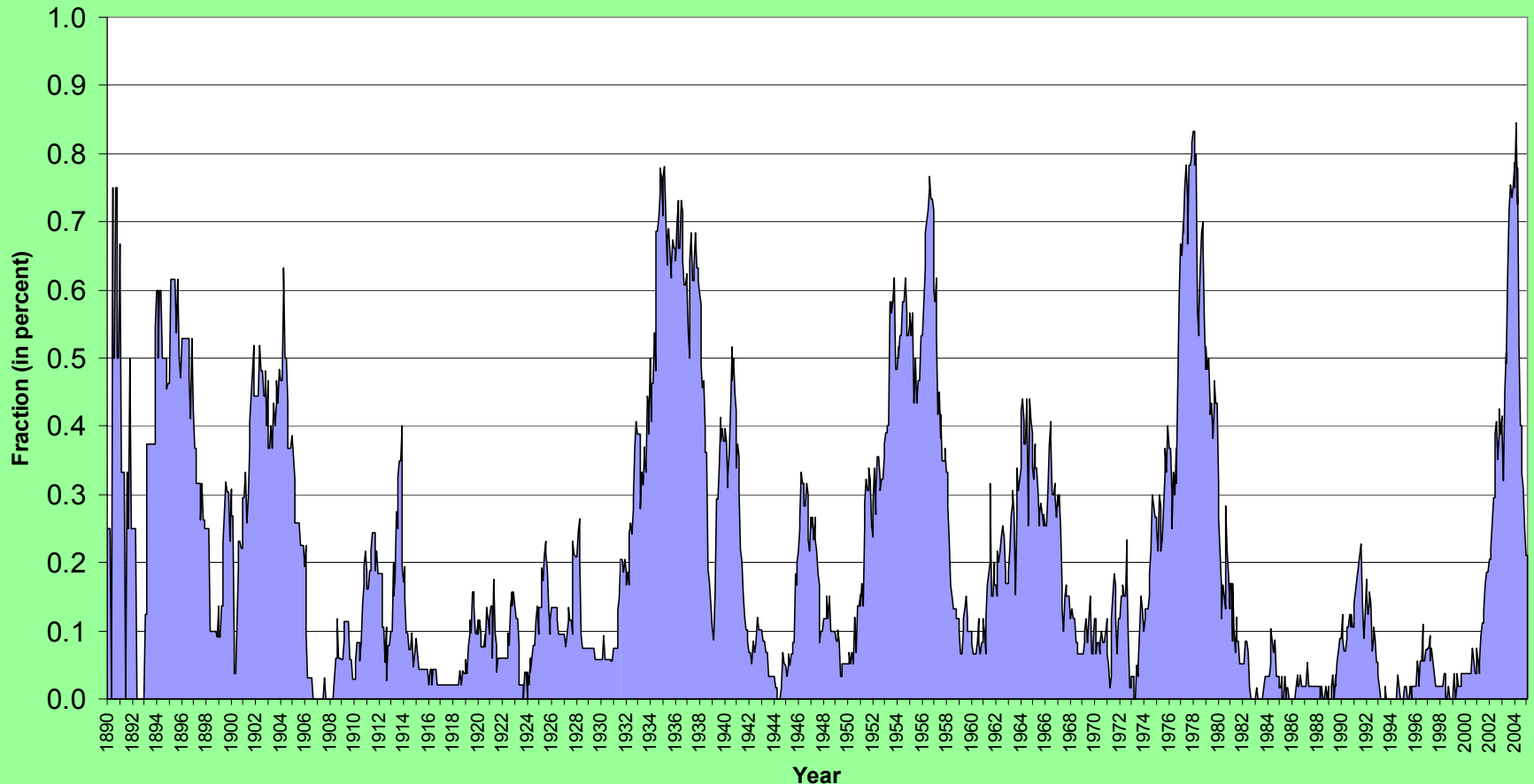
99 % <math>< 2.0</math>	3 % <math>< -1.0</math>
82 % <math>< 1.0</math>	0 % <math>< -2.0</math>
42 % <math>< 0.0</math>	0 % <math>< -3.0</math>

Produced by:
Colorado Climate Center
Fort Collins, CO



Fraction of Colorado in Drought

Fraction of Colorado in Drought Based on 48 month SPI (1890 - Feb 2005)



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

48 Month SPI

Colorado

2/2005 48 mon. SPI



100% > 2.0
100% > 1.0
97% > 0.0
21% > -1.0
0% > -2.0
0% > -3.0

Produced by:
Colorado Climate Center
Fort Collins, CO

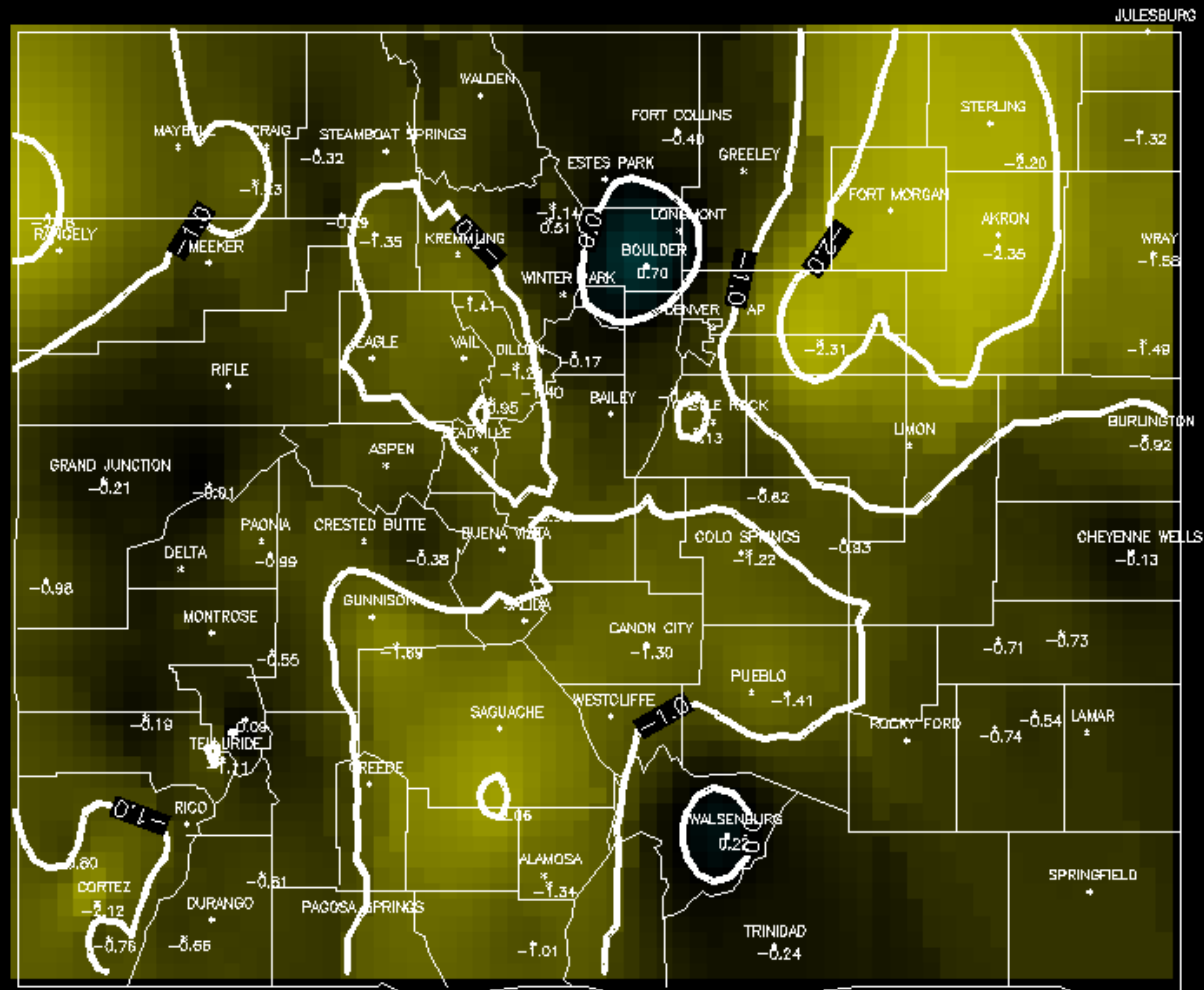


Projected Conditions at 0.2 Probability Level

48 Month SPI at 12 months

Colorado

2/2005 48 mon. SPI – Projected 12 mon. at P=0.20



100 % <<< 2.0	40 % <<< -1.0
100 % << 1.0	7.2 % <<< -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

Colorado

2/2005 48 mon. SPI – Projected 12 mon. at P=0.50



100 % < 2.0	18 % < -1.0
100 % < 1.0	0 % < -2.0
87 % < 0.0	0 % < -3.0

Produced by:
Colorado Climate Center
Fort Collins, CO

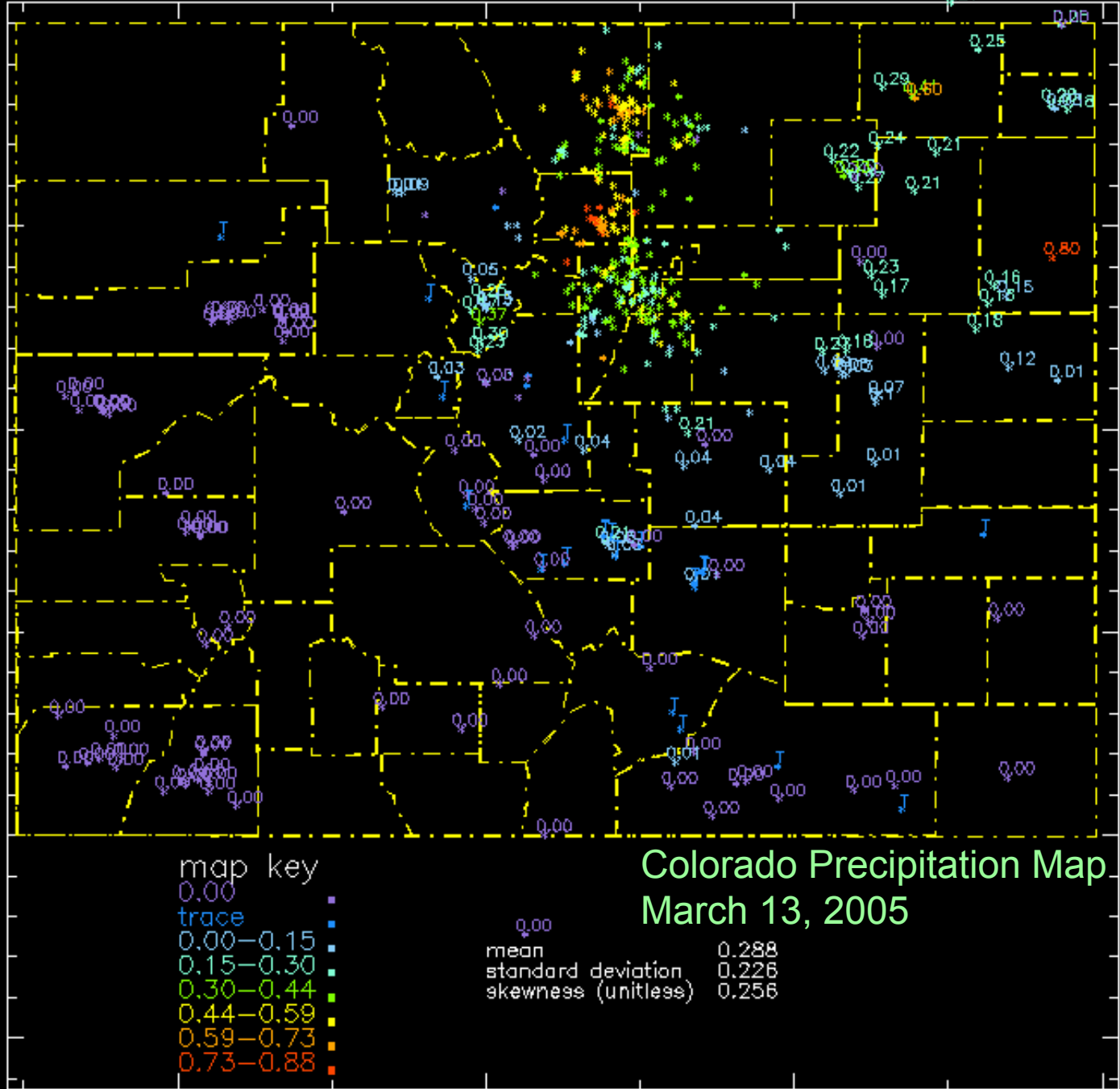


How About CoCoRaHS?



latitude

41
40
39
38
37
36

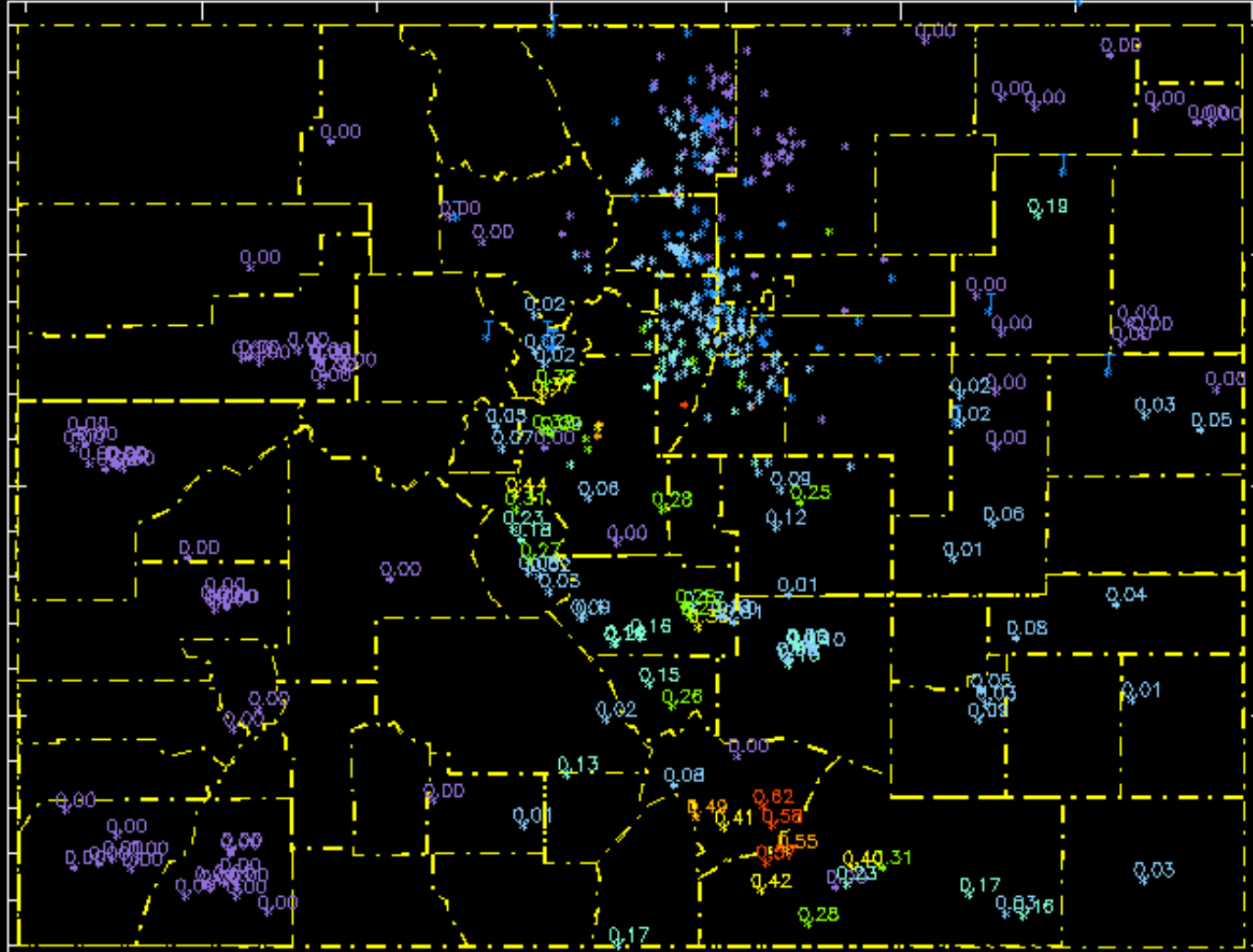


Colorado Precipitation Map March 13, 2005



latitude

41
40
39
38
37
36



map key

- 0.00
- trace
- 0.00-0.12
- 0.12-0.23
- 0.23-0.34
- 0.34-0.44
- 0.44-0.55
- 0.55-0.66

0.02
 mean
 standard deviation
 skewness (unitless)

Colorado Precipitation Map March 14, 2005

0.063
 0.111
 2.658

108 106 104 102



*For more information visit the
CoCo RaHS Web site*

www.cocorahs.org



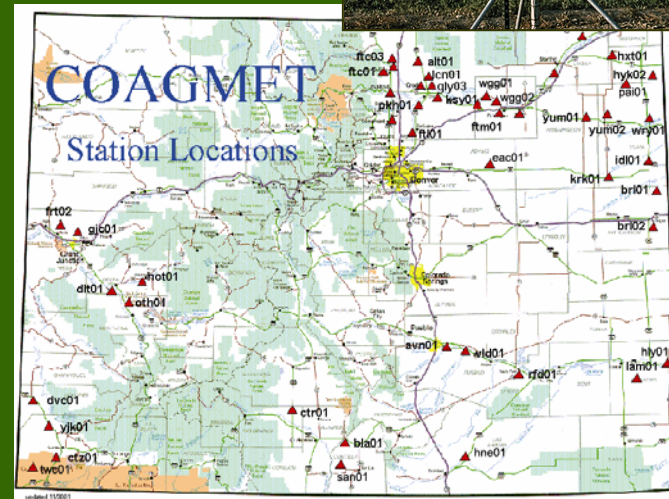
*Support for this project provided by
Informal Science Education Program,
National Science Foundation
and
many local charter sponsors.*



CoAgMet

Weather Data for Agriculture

- *Automated weather stations with daily and hourly readings of:*
 - *Temperature*
 - *Humidity*
 - *Wind*
 - *Precipitation*
 - *Solar energy*
 - *Evapotranspiration*

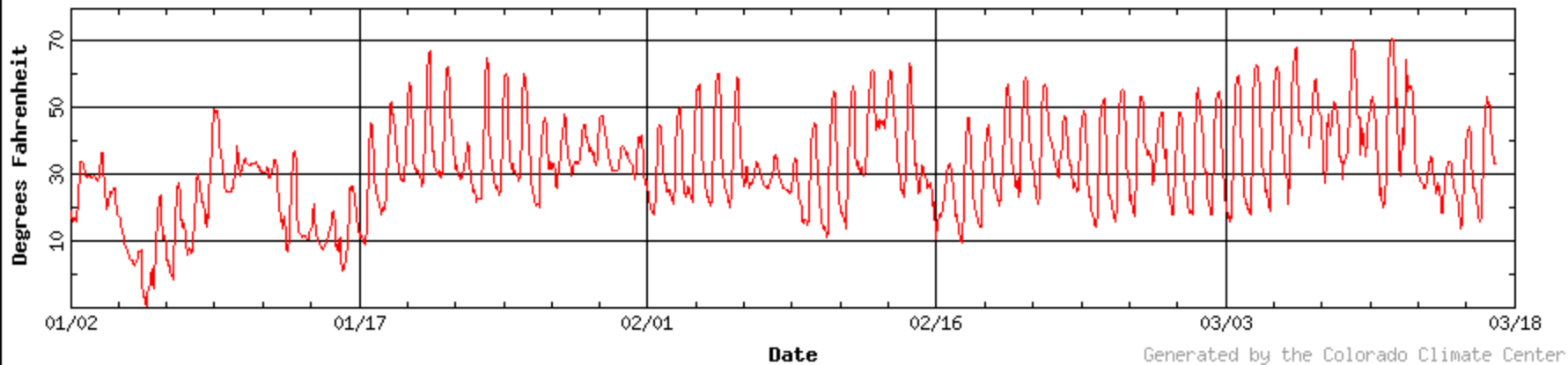


<http://www.coagmet.com>

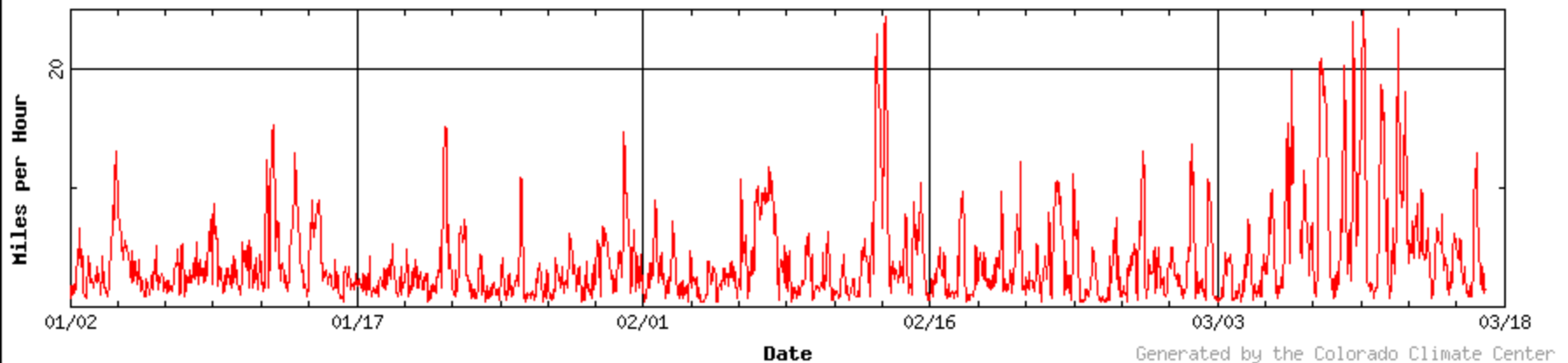


Kersey, Colo, CoAgMet Data

Temperature for KSY01 (01-02-2005 - 03-18-2005)



Wind Speed for KSY01 (01-02-2005 - 03-18-2005)



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”

