The Climate of Eastern Colorado

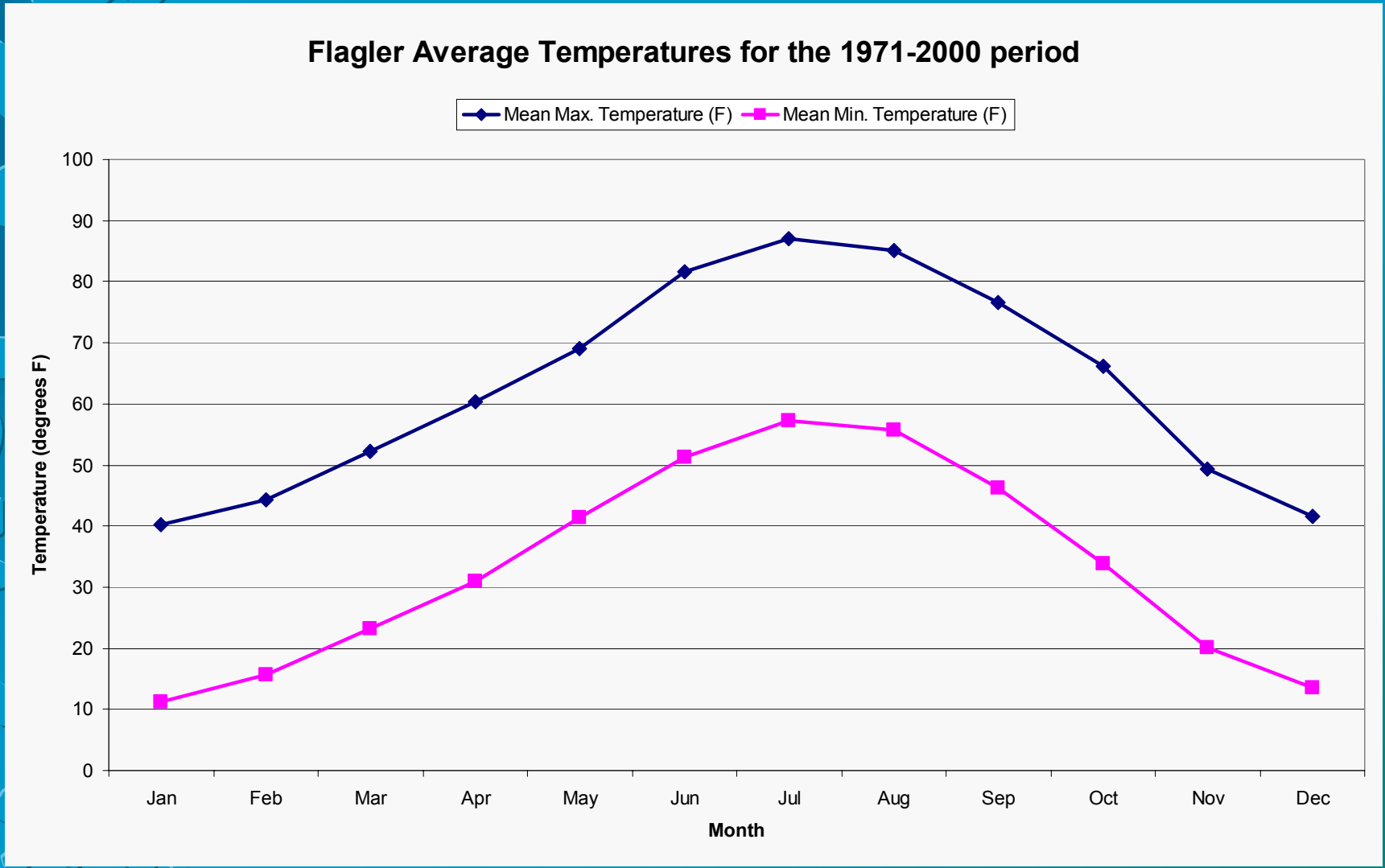
Nolan J. Doesken

Colorado Climate Center

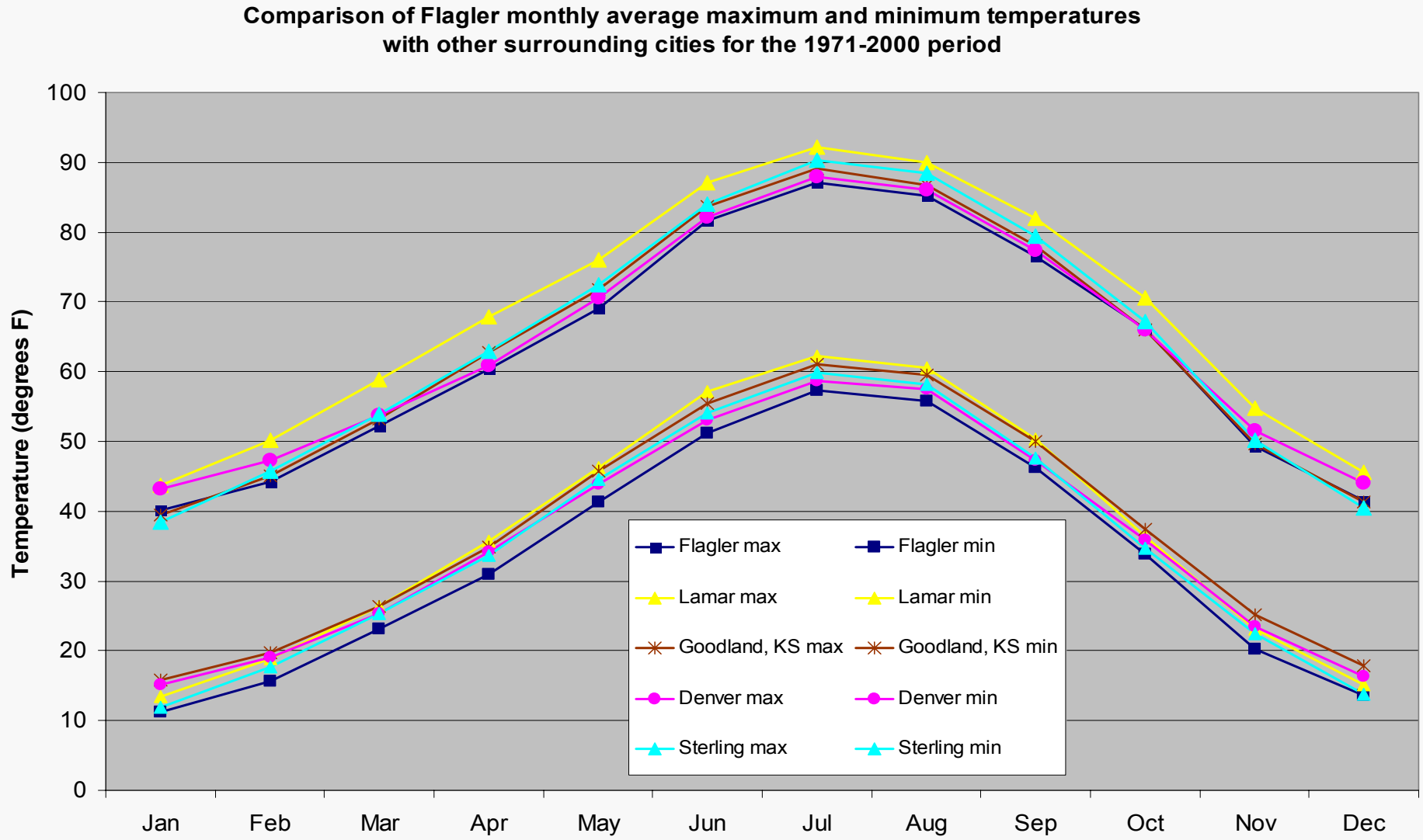
Presented to Flagler Conservation District, 2005 Annual Meeting, January 20, 2005

Prepared by Odie Bliss

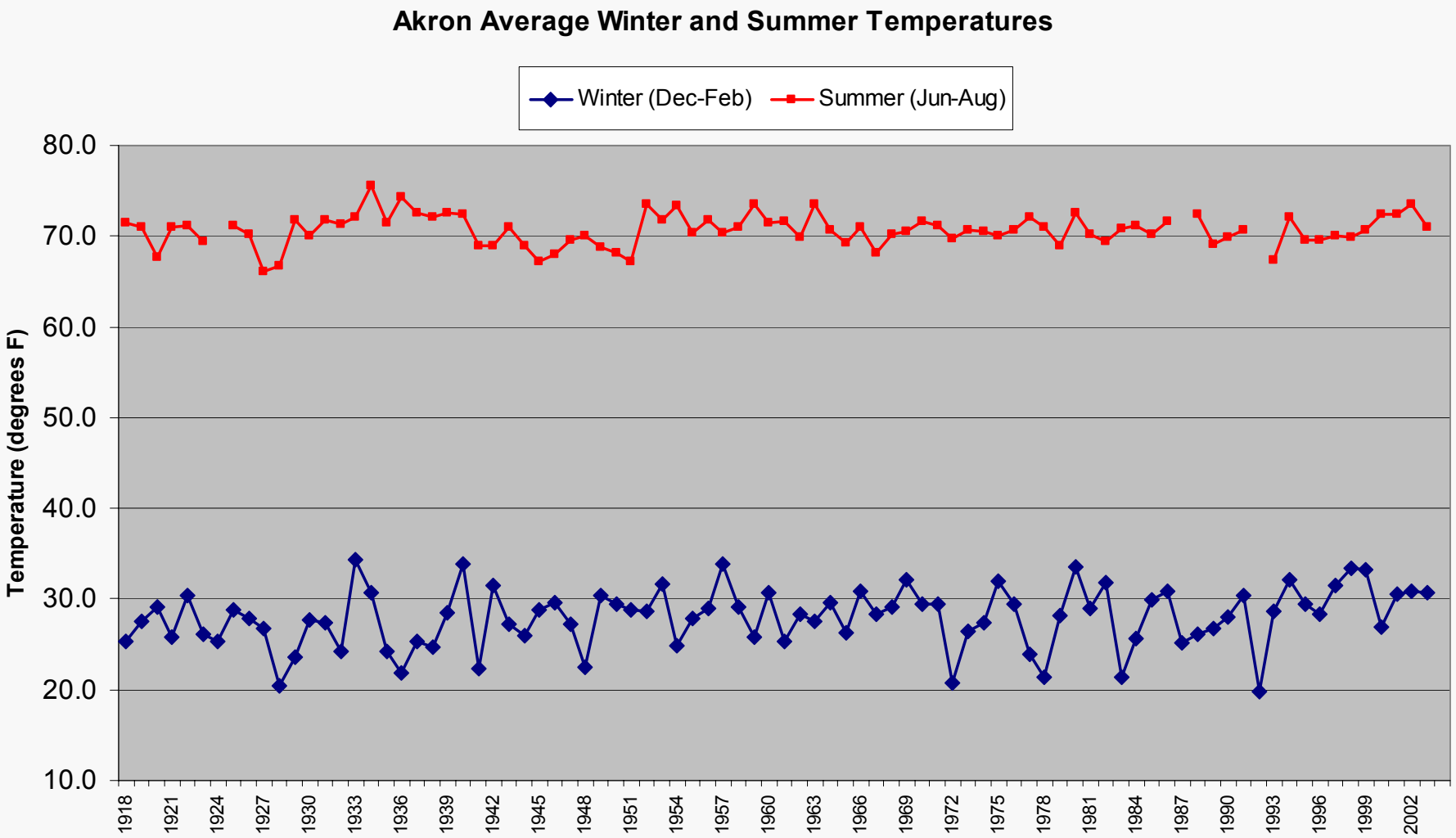
Flagler Temperature Averages



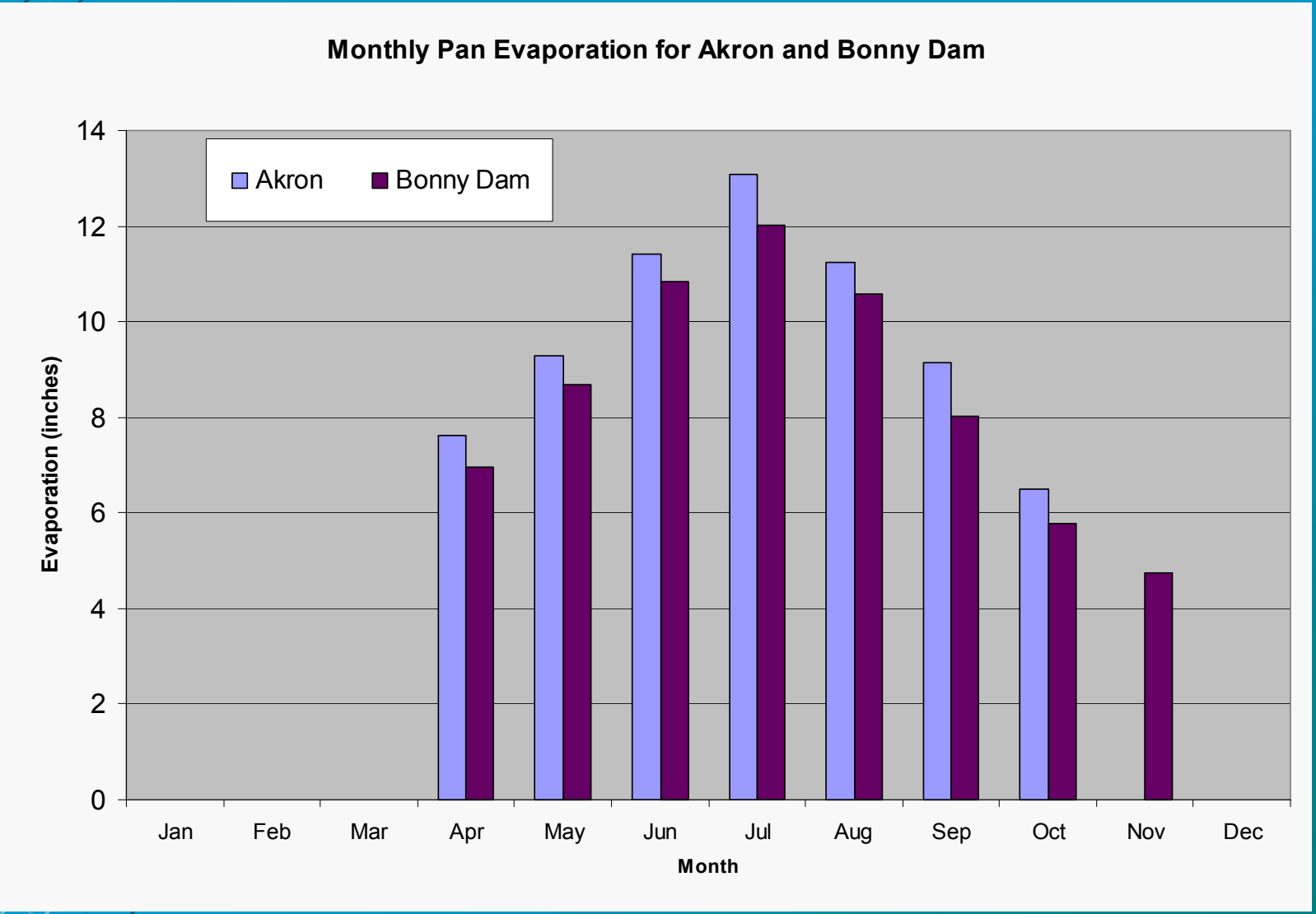
Flagler Temperature Comparison With Surrounding Sites



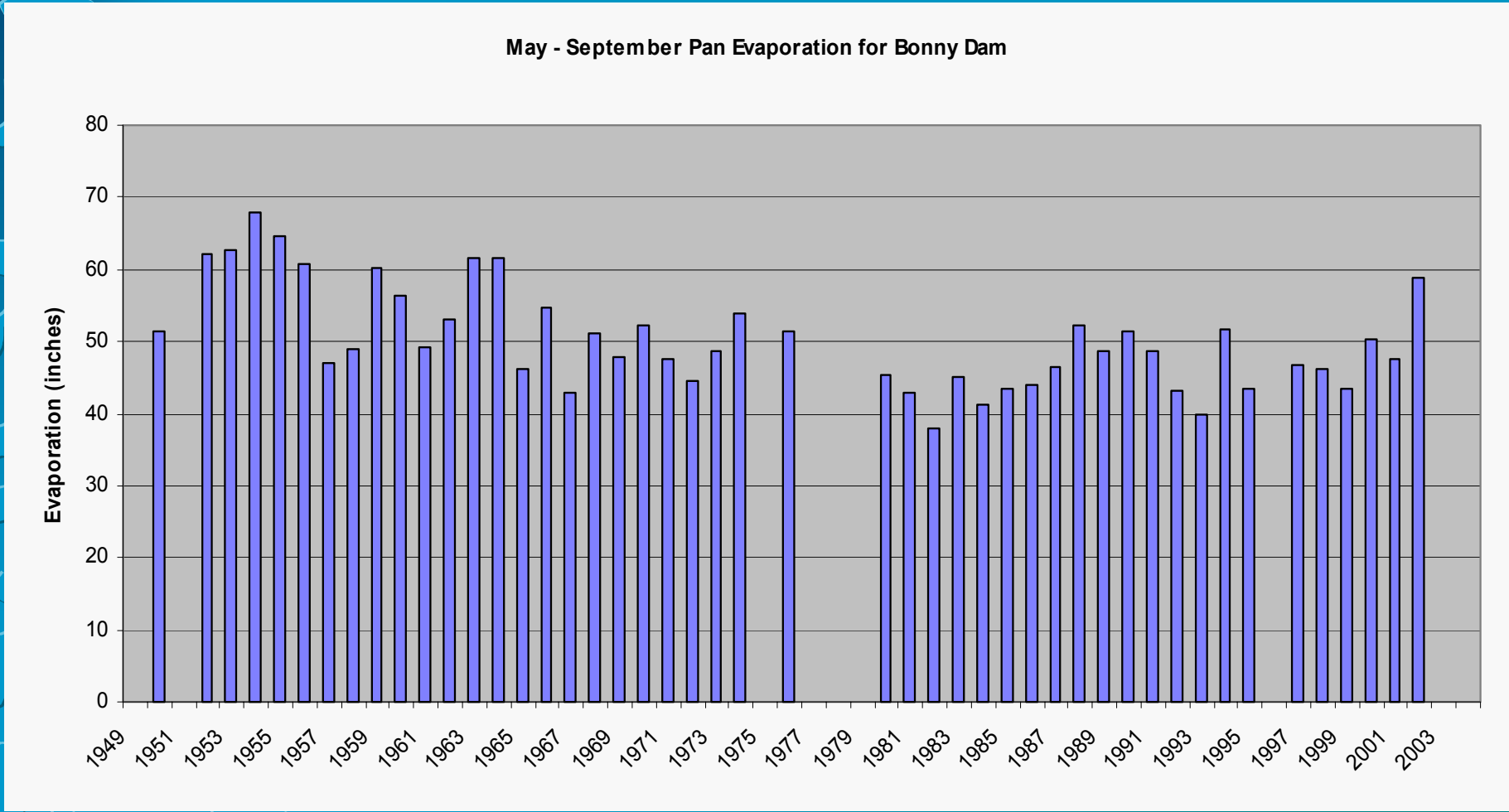
Akron Average Winter and Summer Temperature Comparison



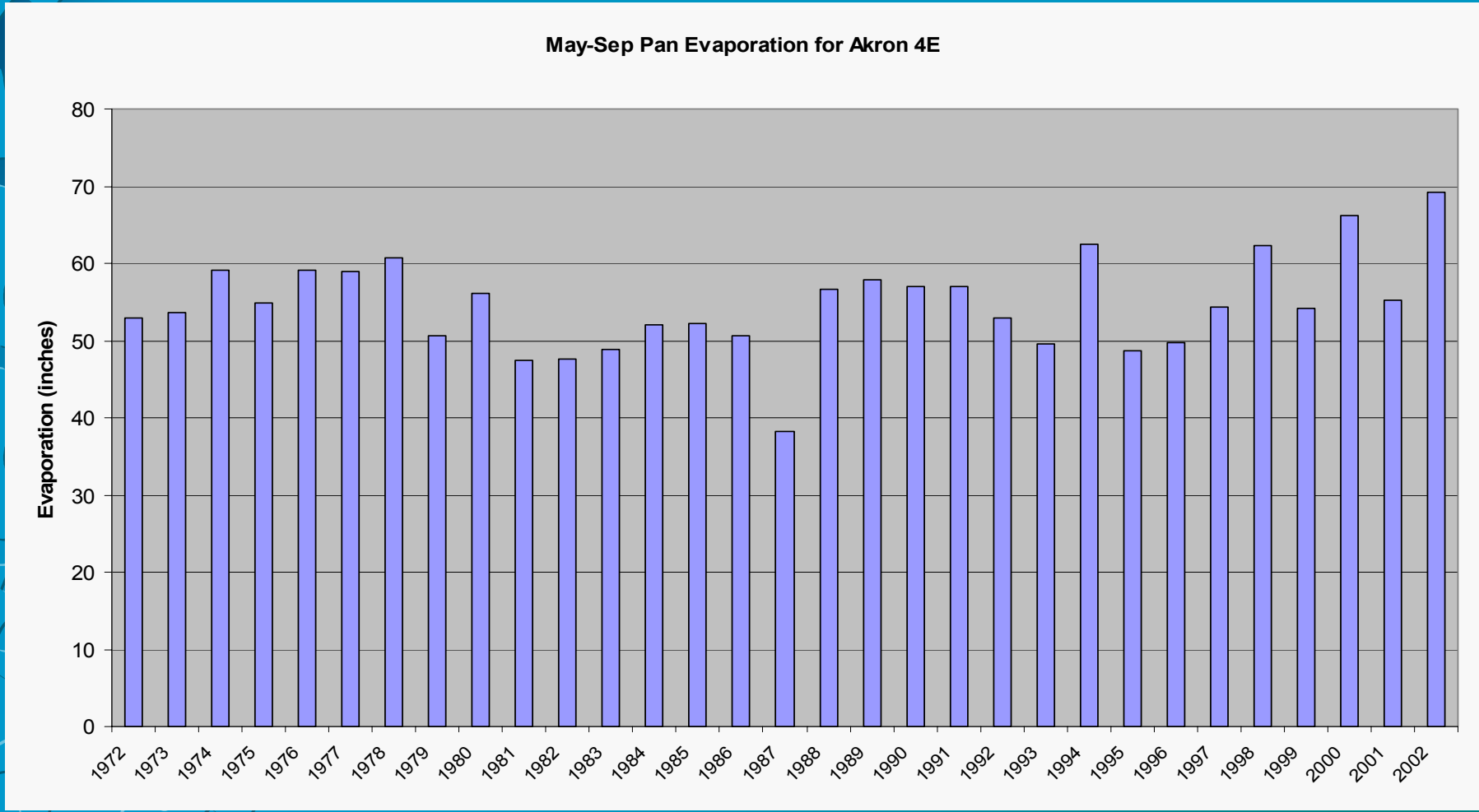
Mean Monthly Pan Evaporation



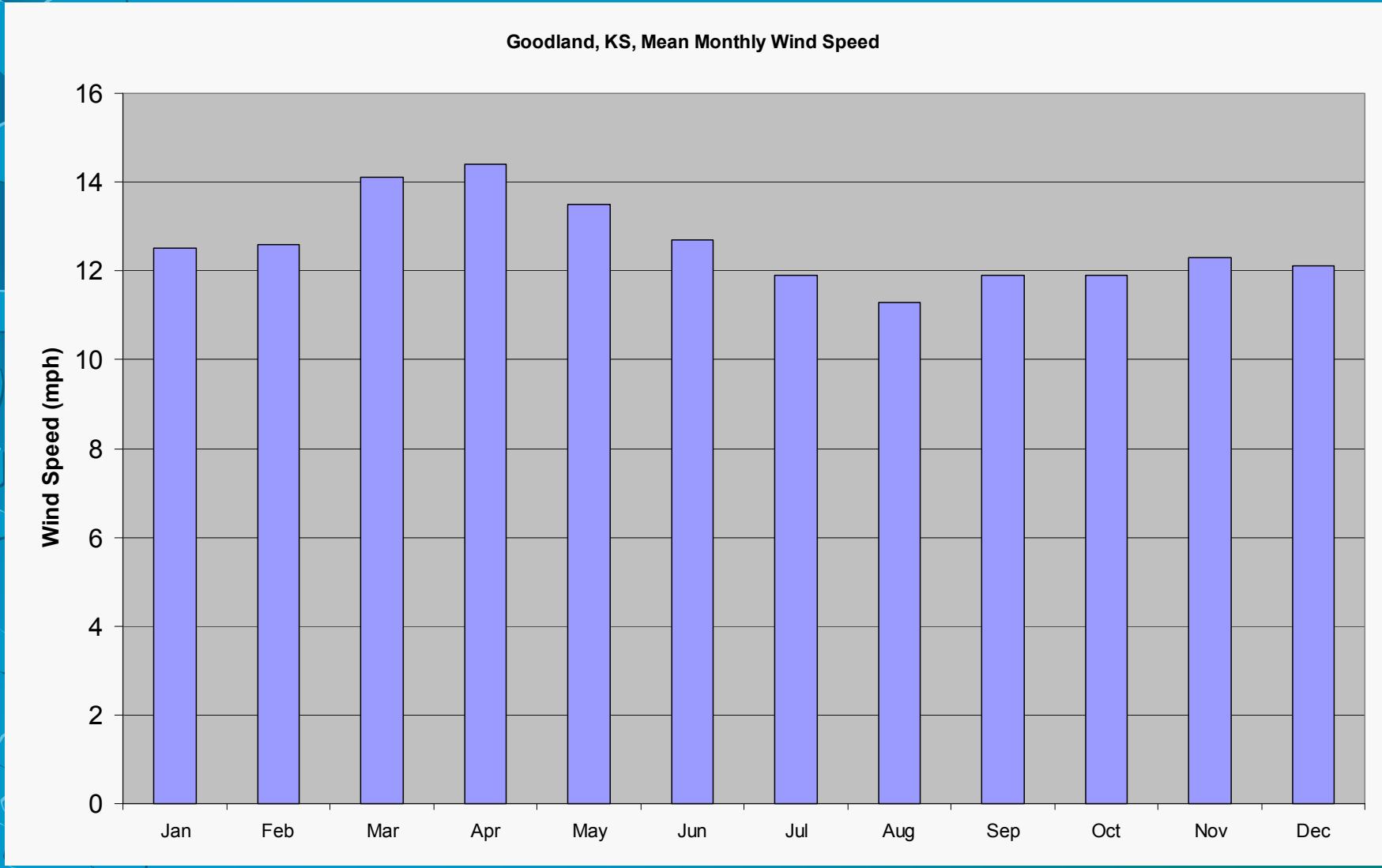
Bonny Dam Pan Evaporation (May-Sep)



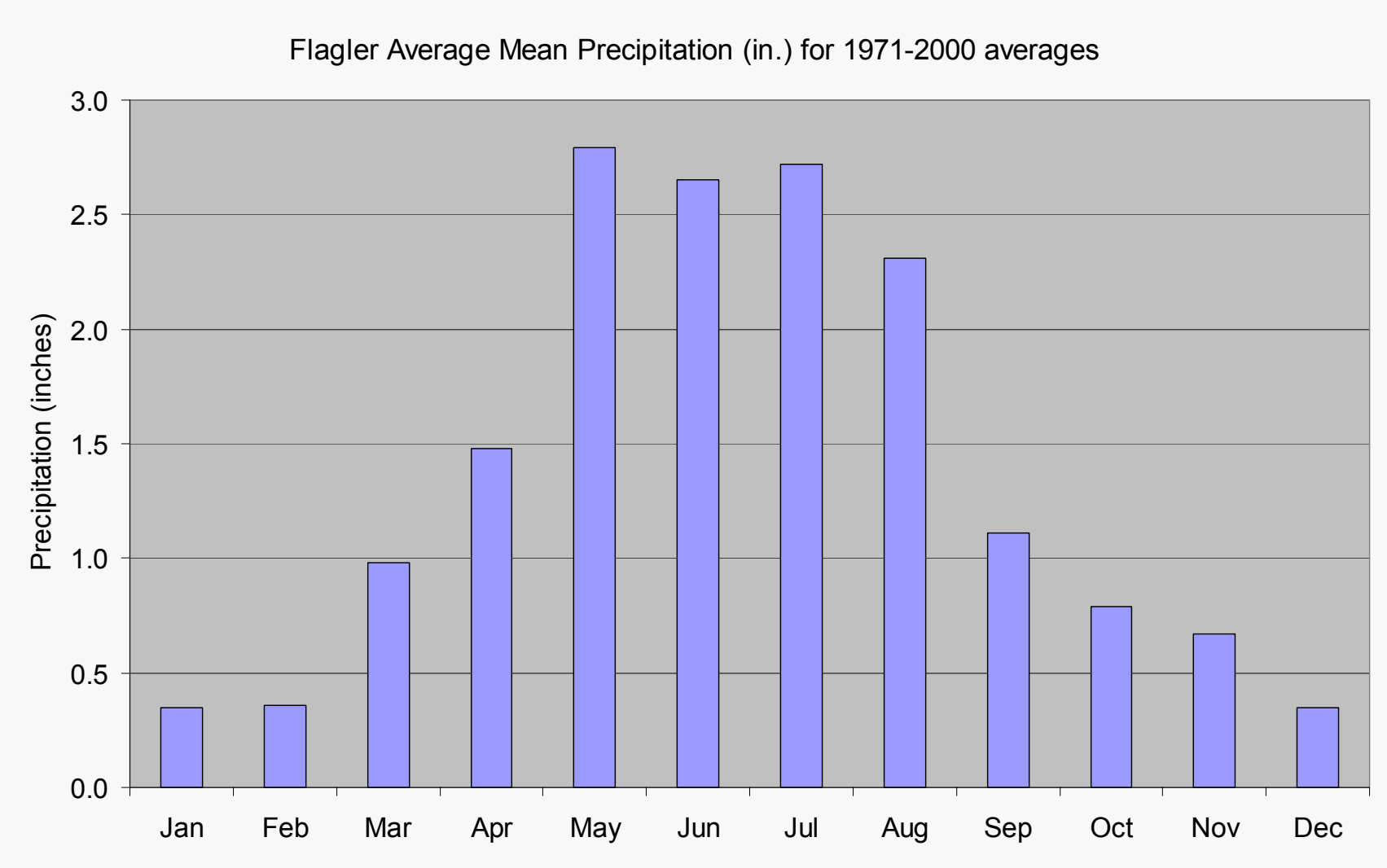
Akron Pan Evaporation (May-Sep)



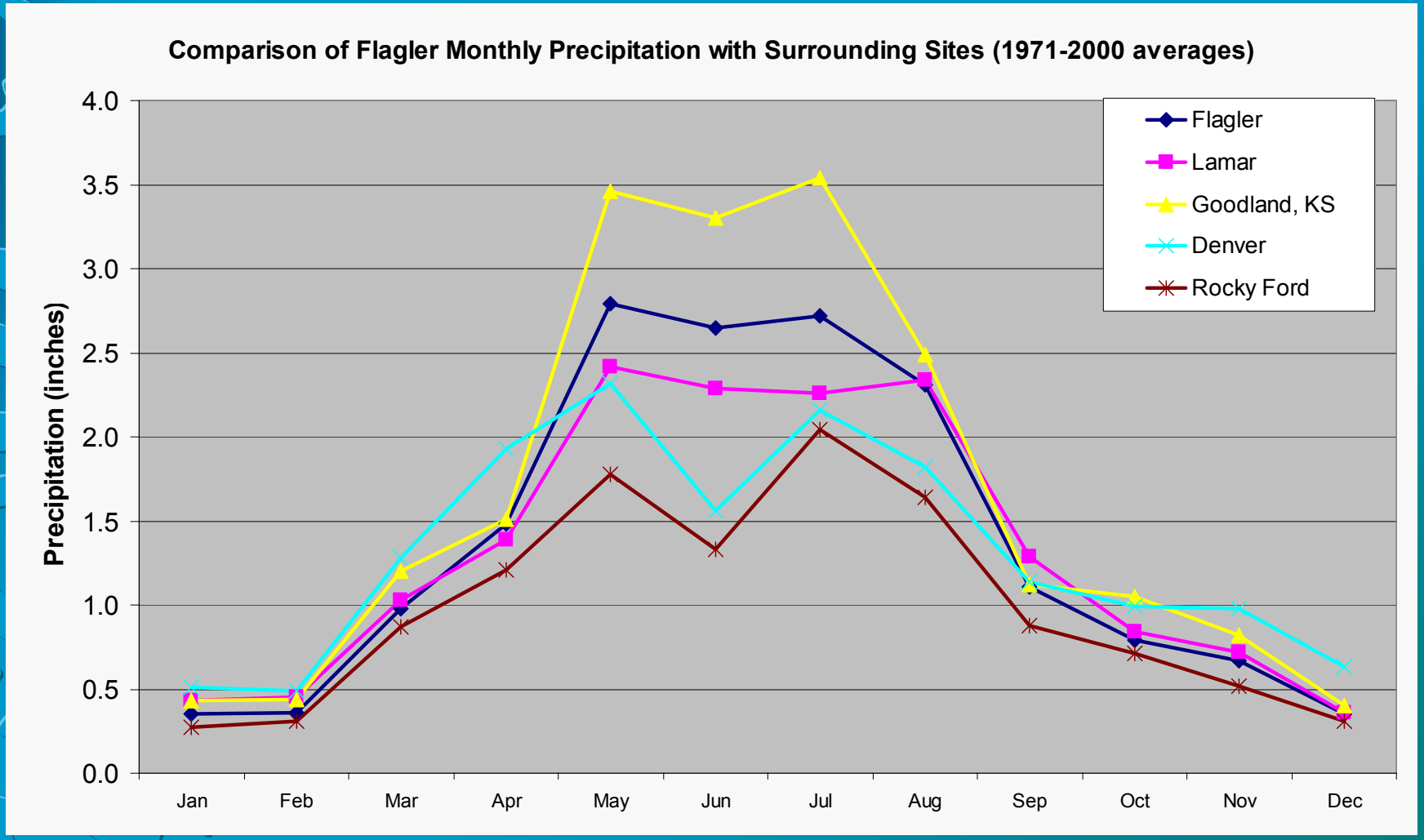
Goodland, KS, Average Wind Speed



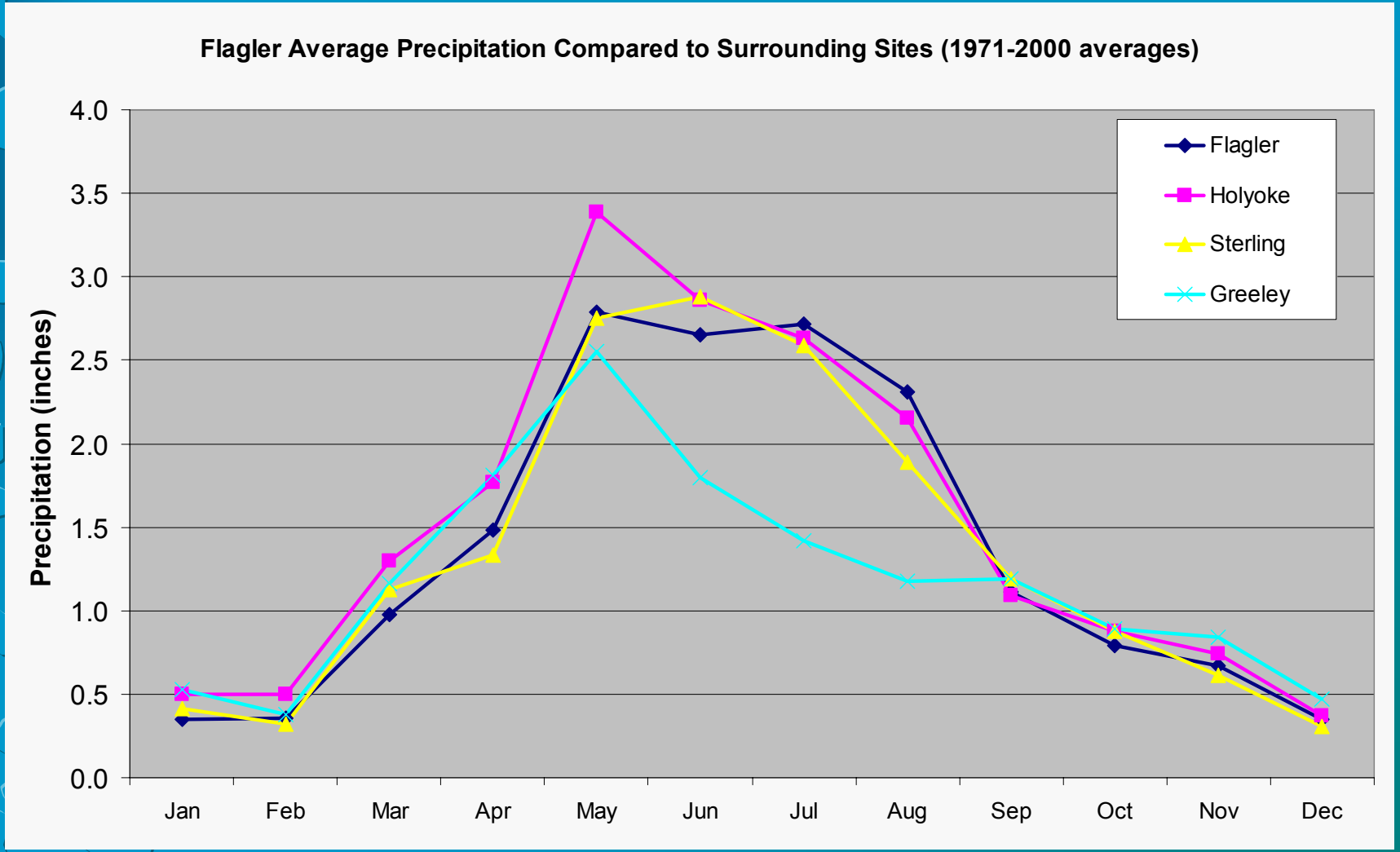
Flagler Average Monthly Precipitation



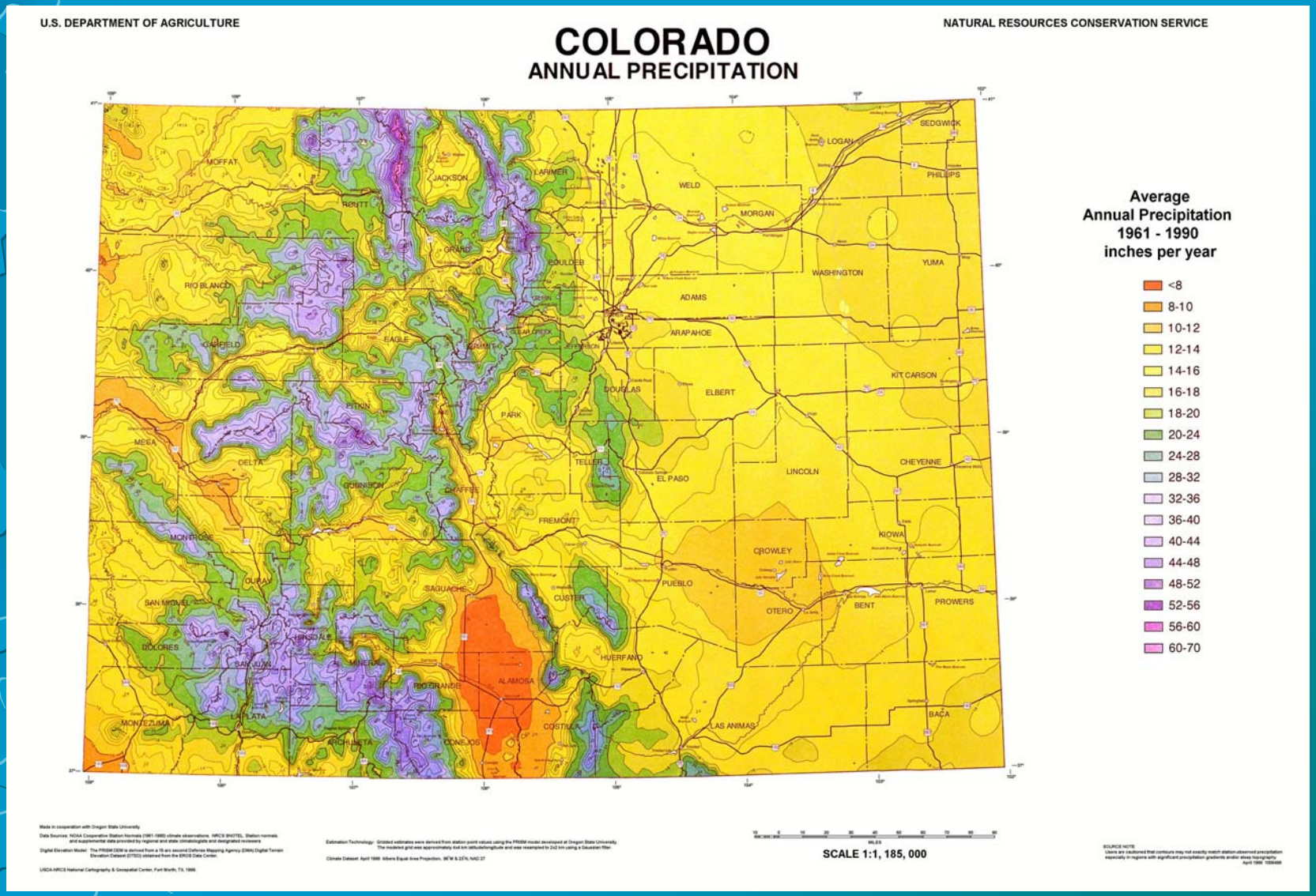
Flagler Monthly Precipitation Compared to Surrounding Sites (1971-2000 averages)



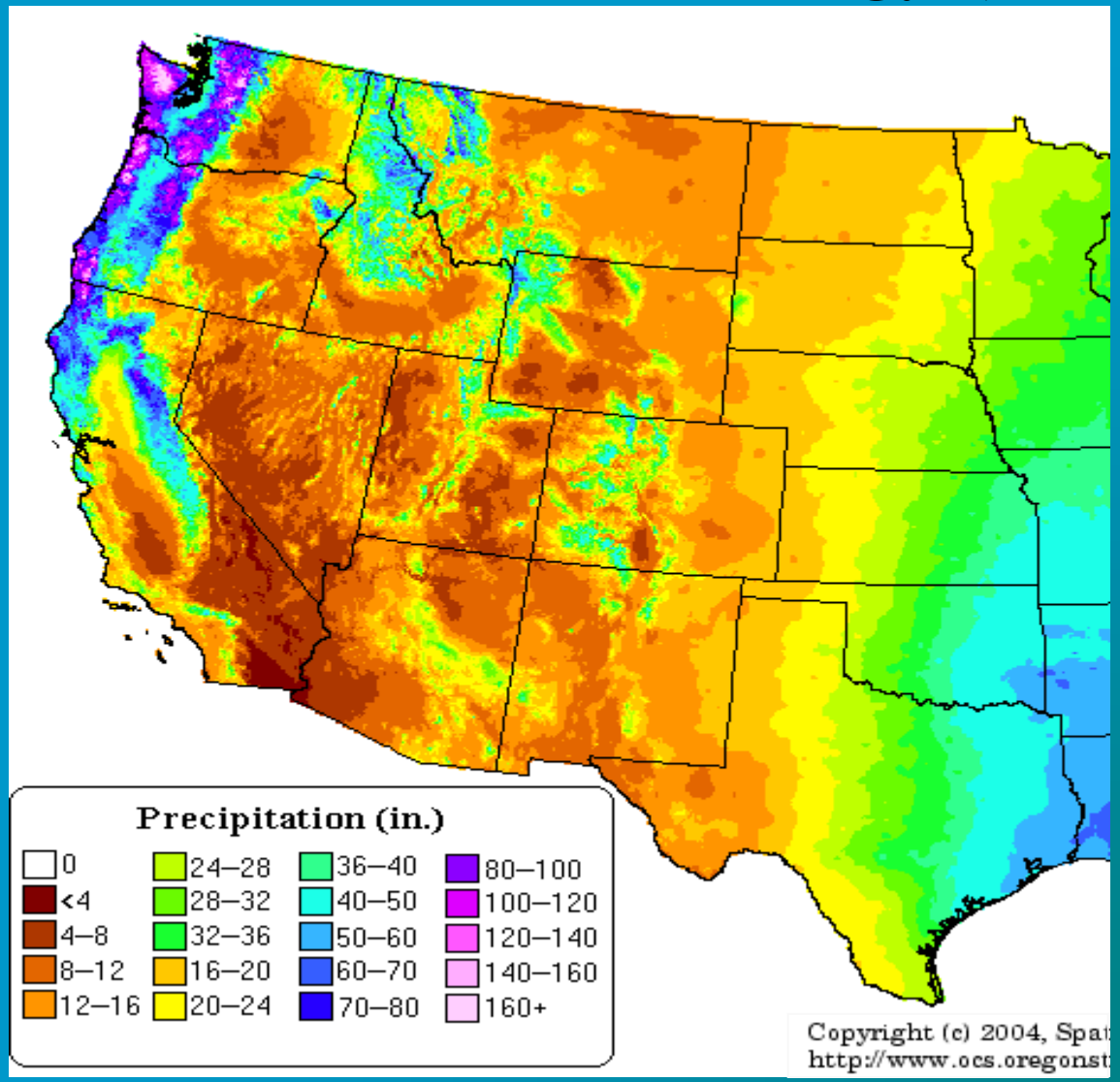
Flagler Average Precipitation Compared to Surrounding Sites



Colorado Average Precipitation



Precipitation: Annual Climatology (1971-2000)



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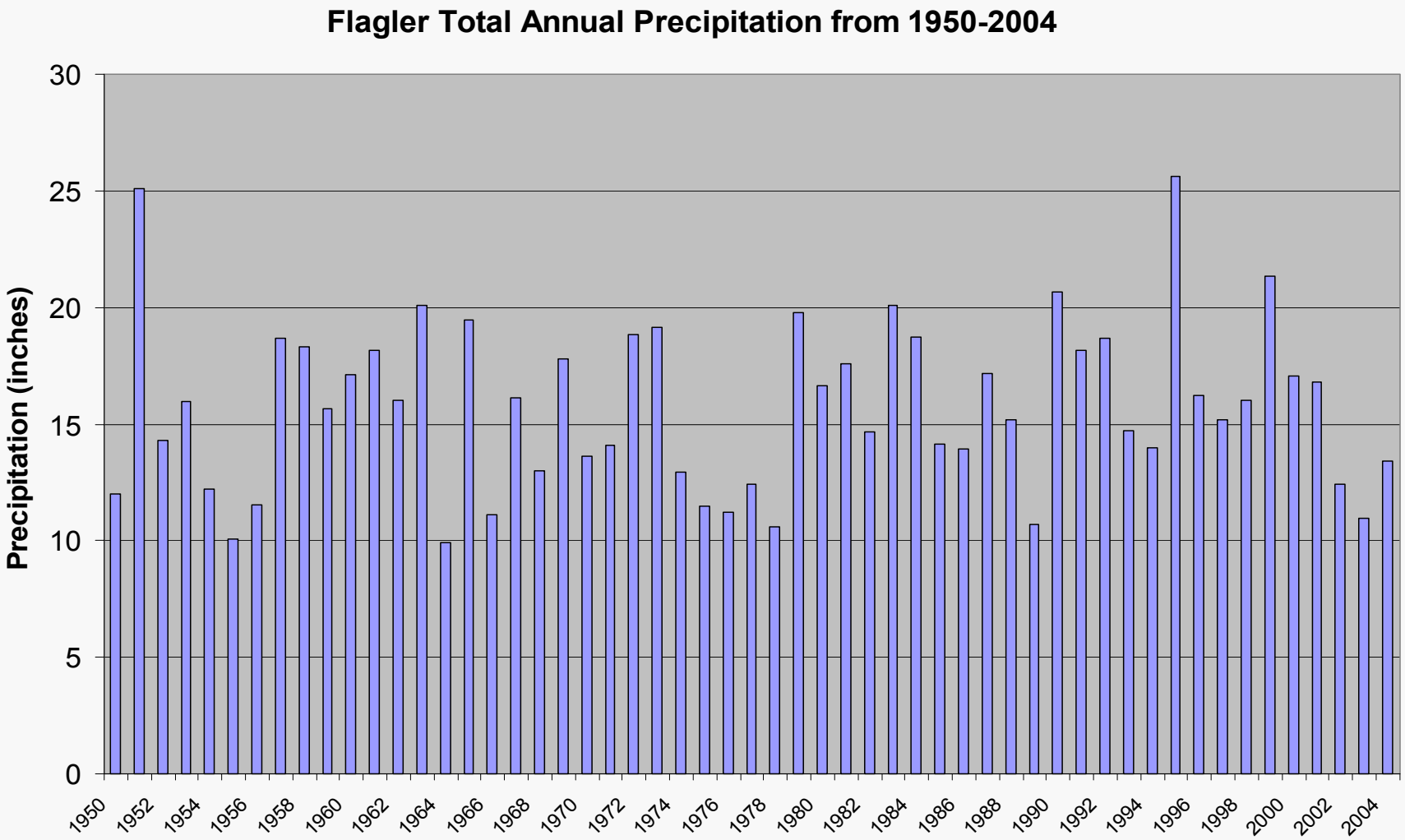
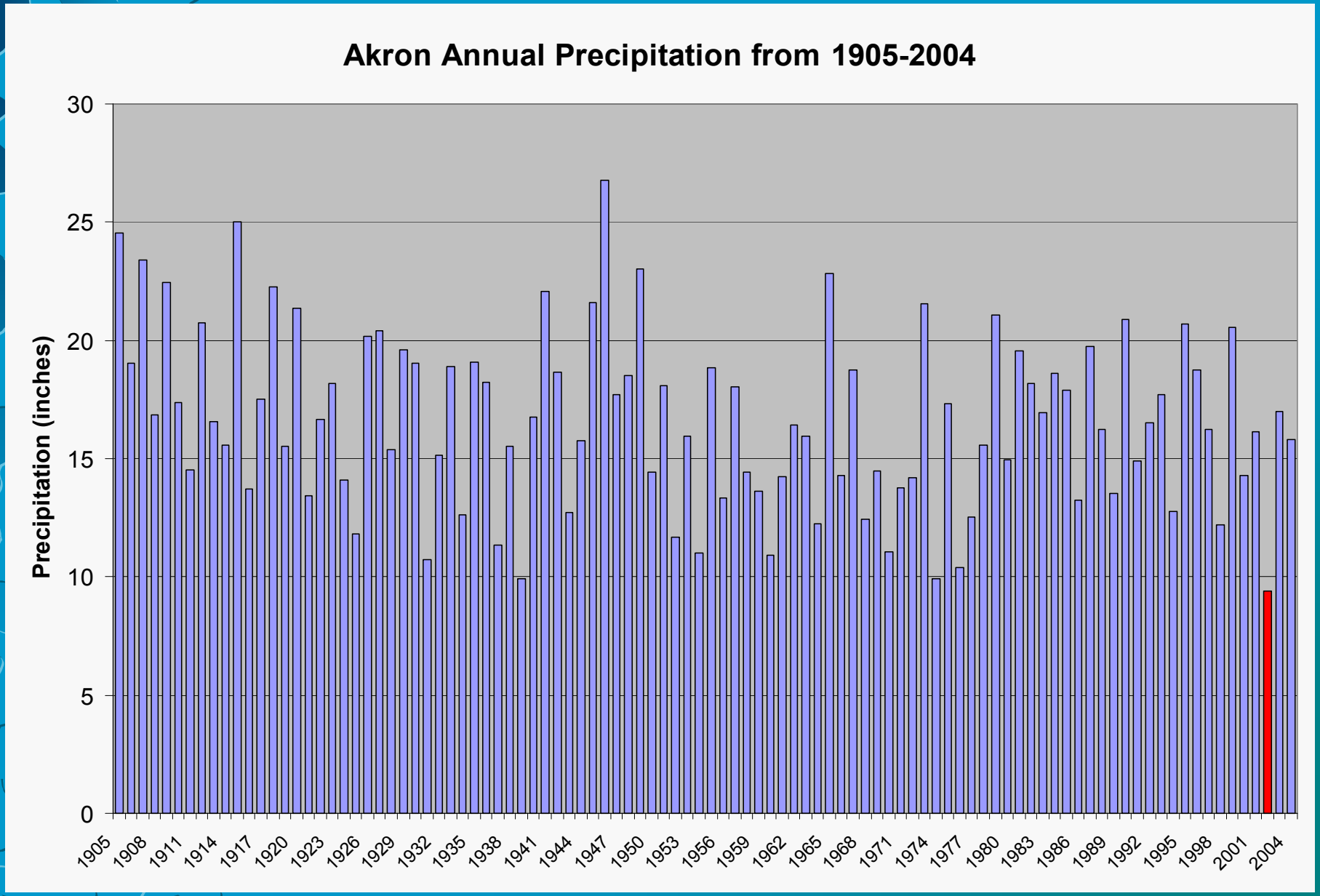
http://www.ocs.oregonstate.edu/prism - Map created Feb 20 2004

Flagler Annual Precipitation Totals

Incomplete records for some years

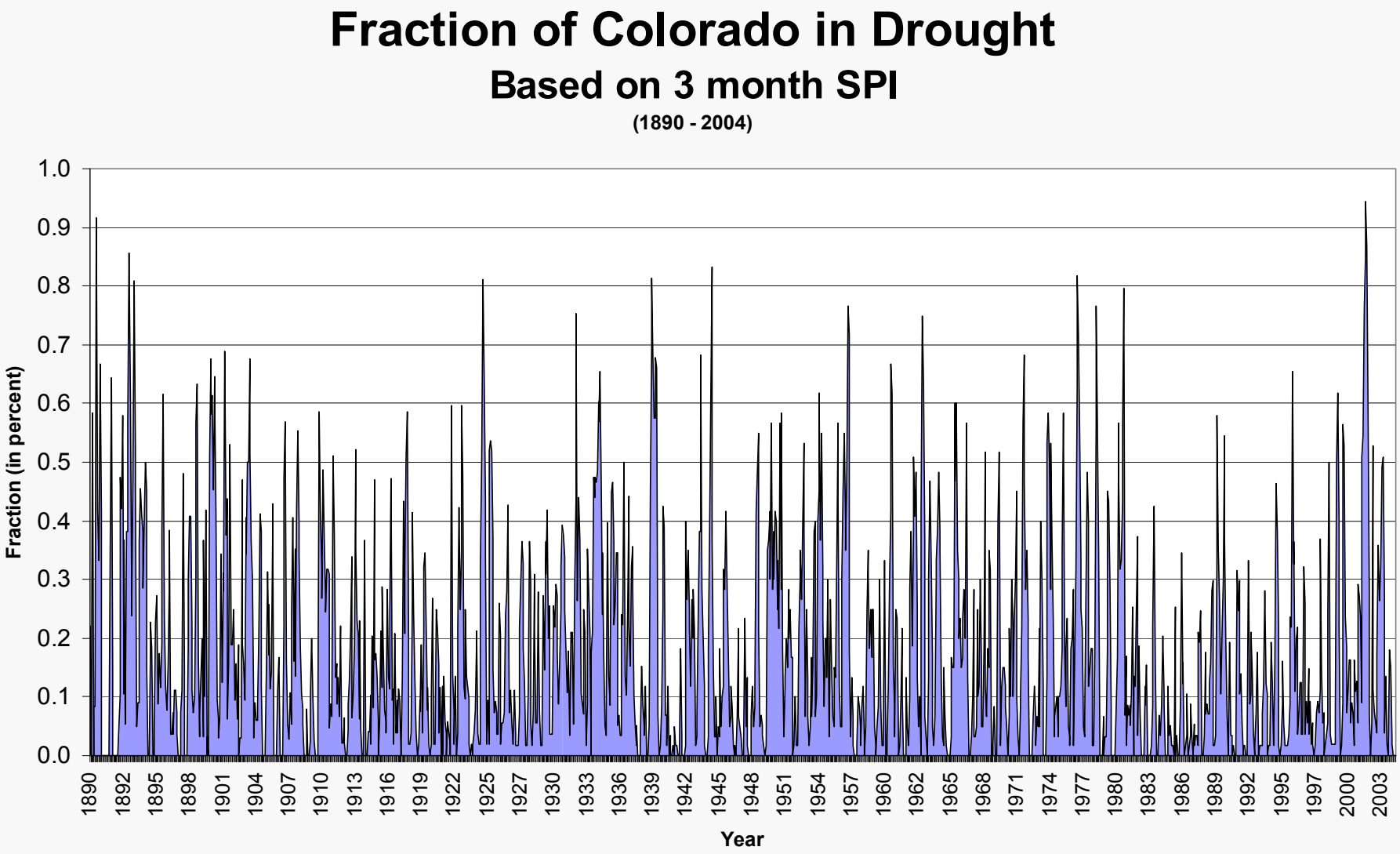


Akron Annual Precipitation Totals



What's the Status of the Drought Now??

3-Month SPI


Fraction of Colorado in Drought
Based on 3 month SPI
(1890 - 2004)
Fraction (in percent)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1890
1892
1895
1898
1901
1904
1907
1910
1913
1916
1919
1922
1925
1927
1930
1933
1936
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1942
1945
1948
1951
1954
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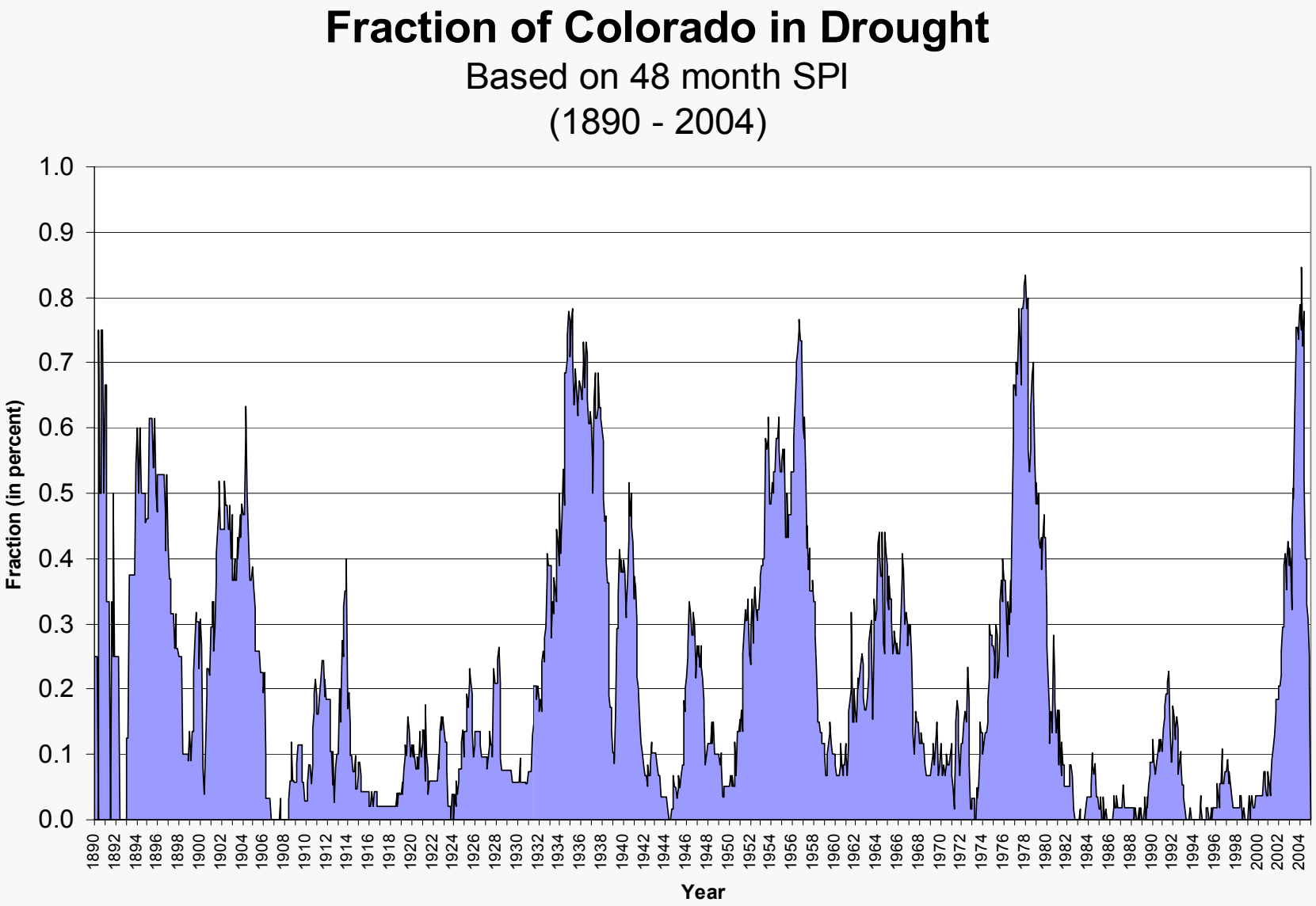
1960
1962
1965
1968
1971
1974
1977
1980
1983
1986
1989
1992
1995
1997
2000
2003
Year

48-Month SPI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1890
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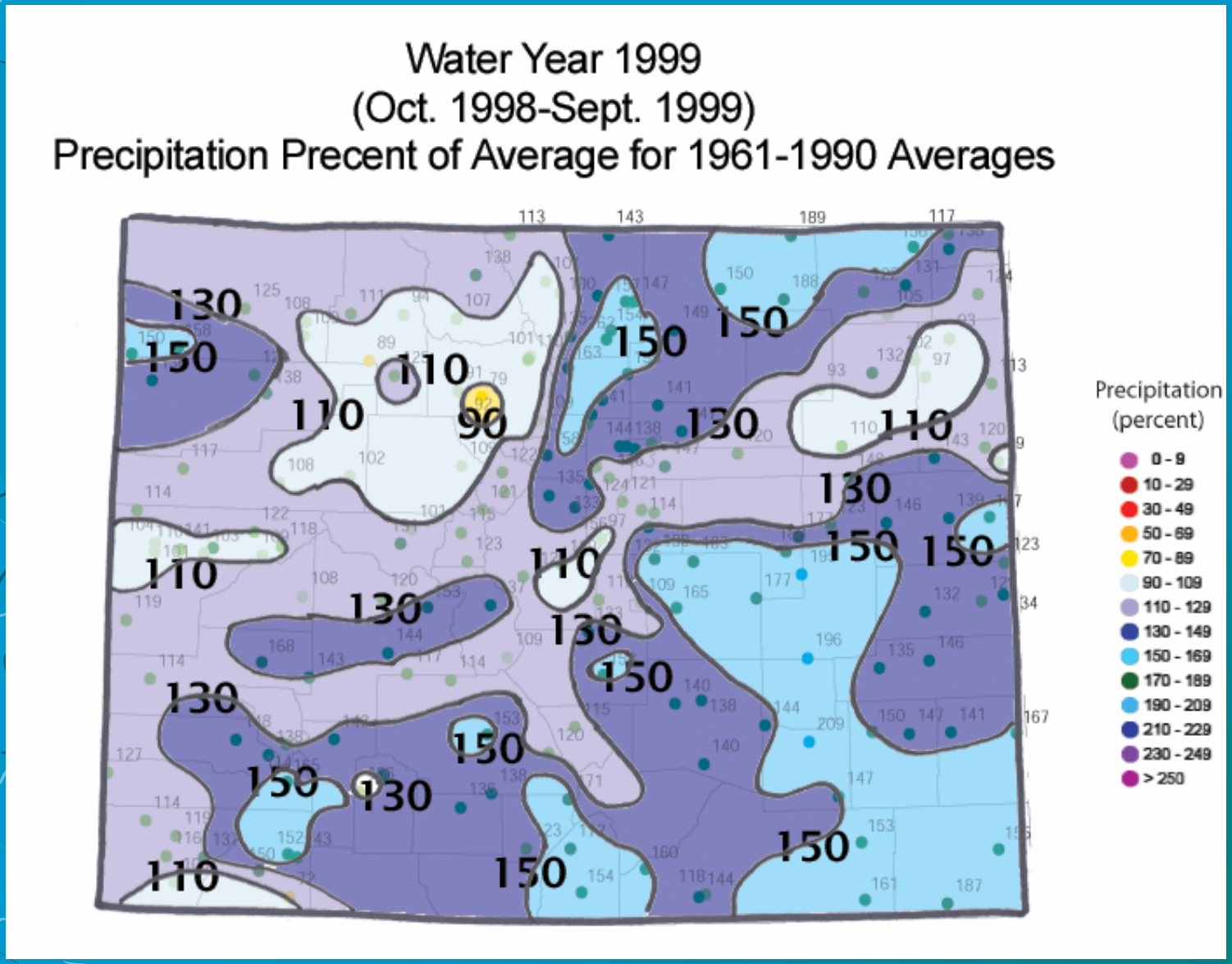
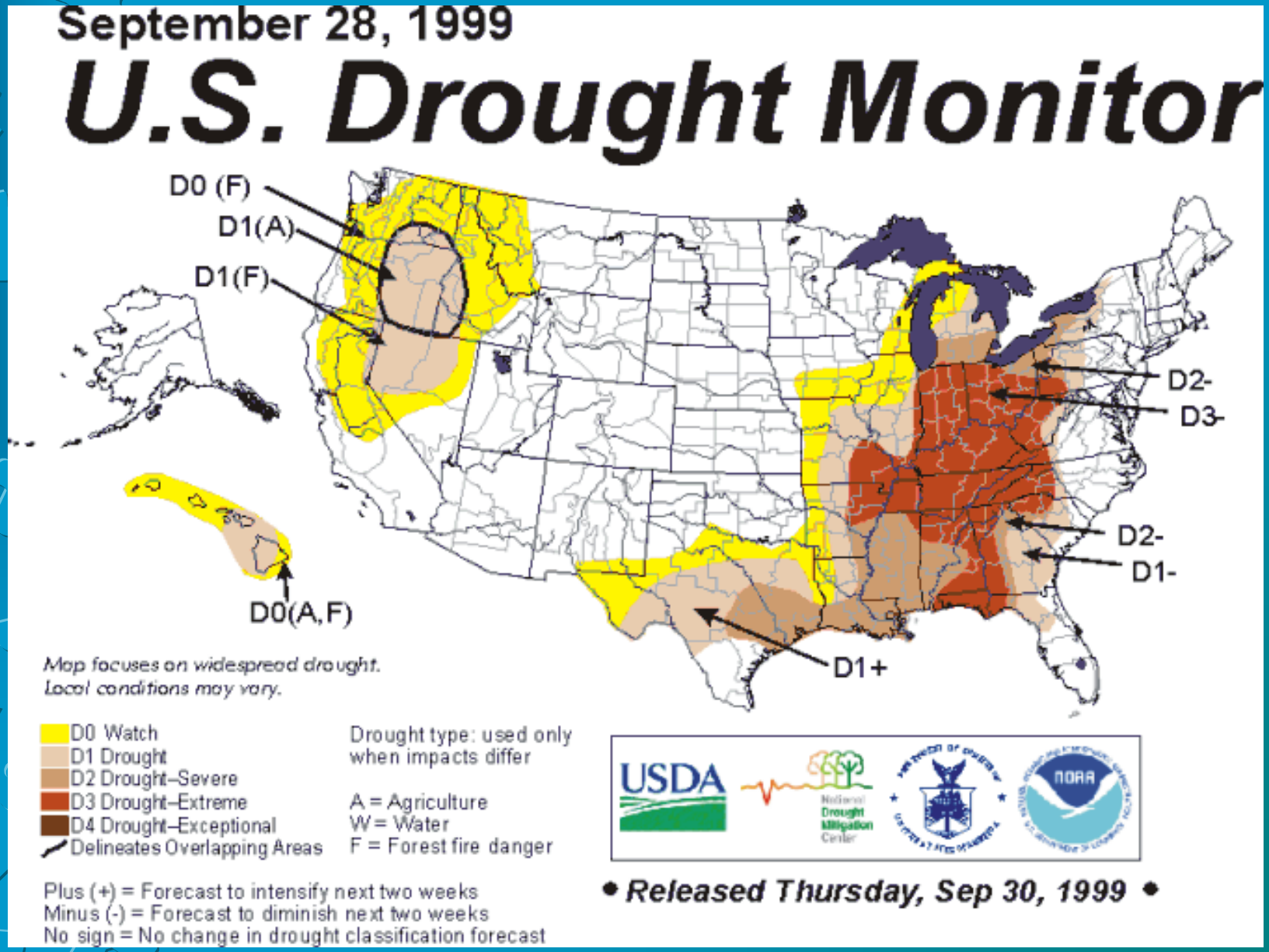
2000
2002
2004
Year

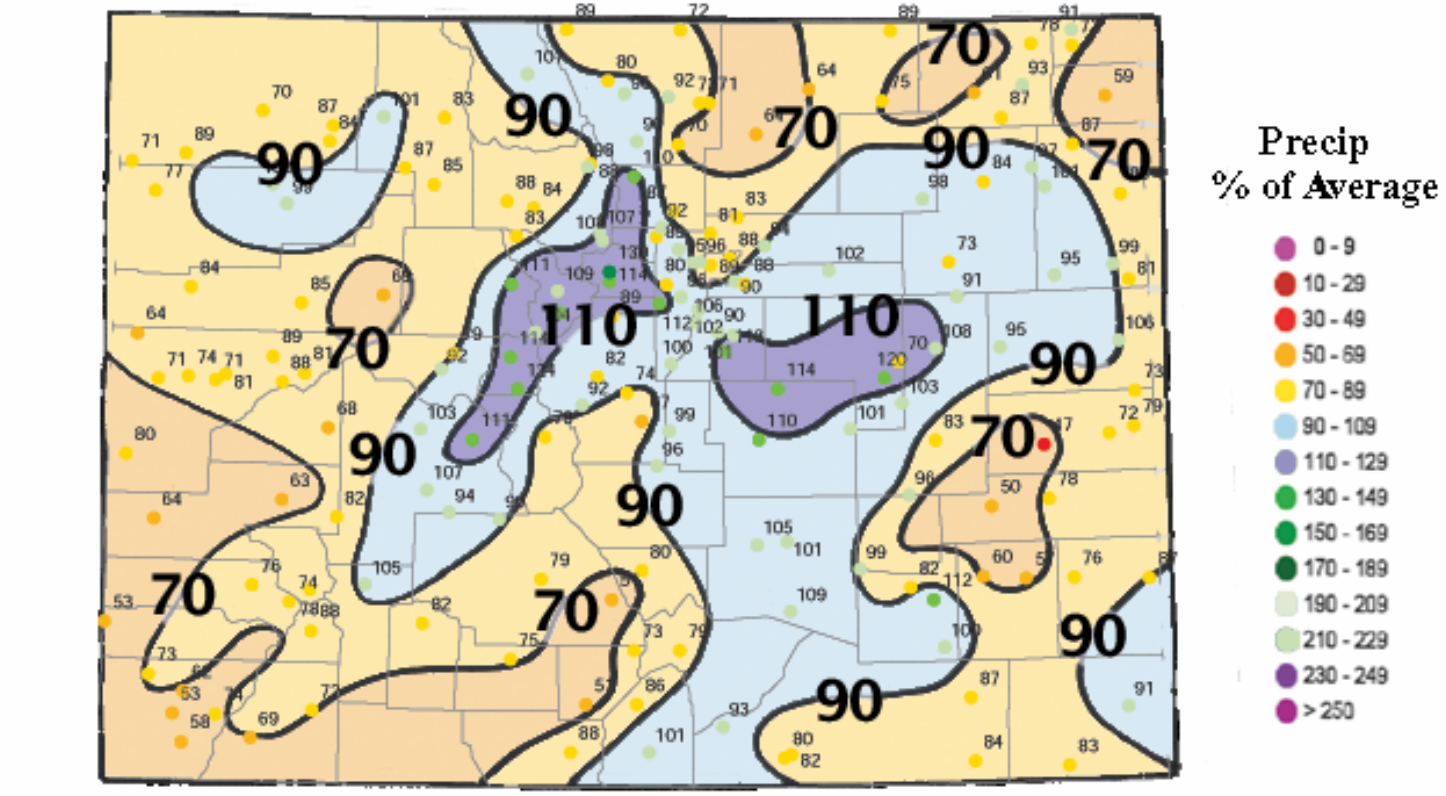
1999 Water Year Precipitation



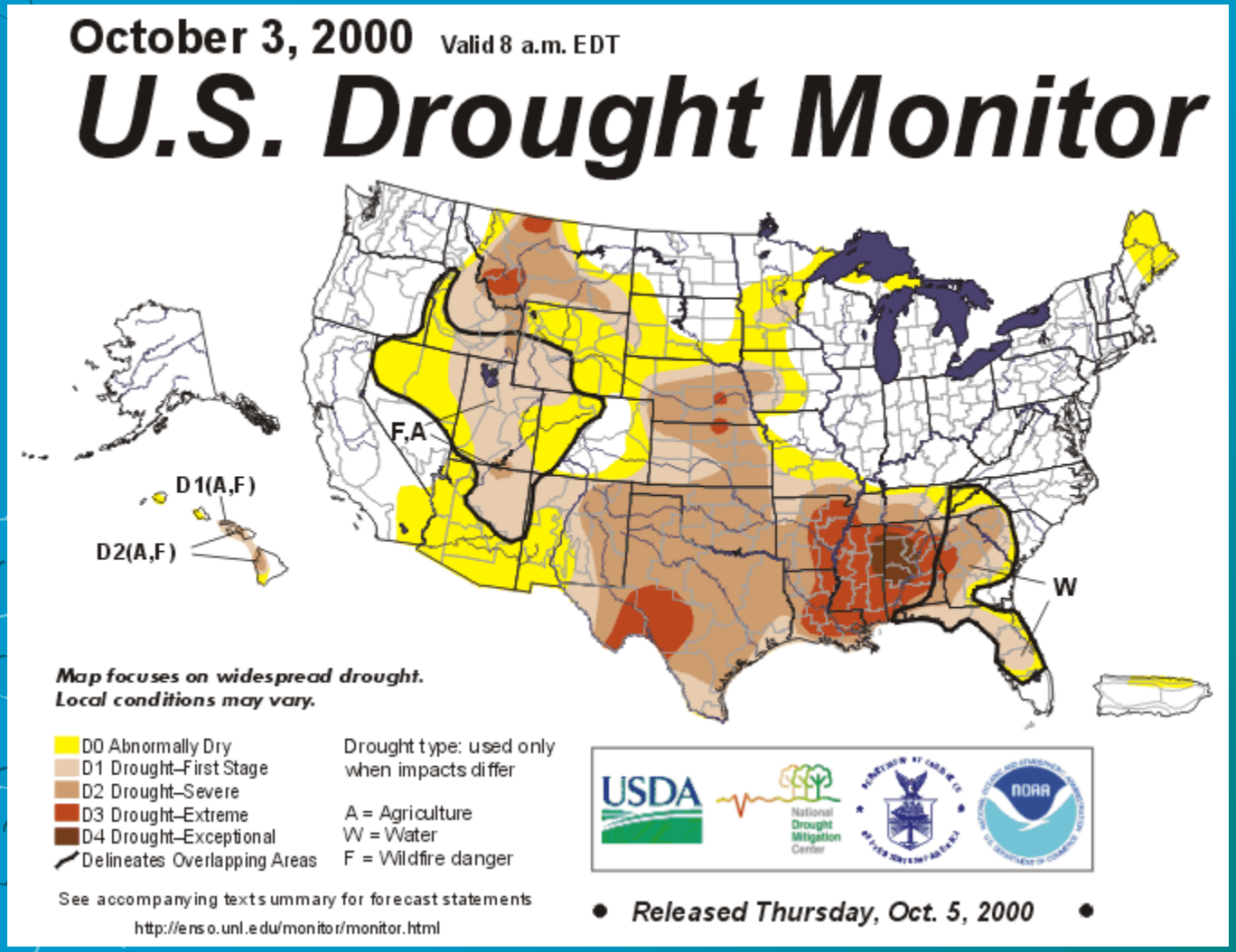
September 1999 Drought Monitor Map



2000 Water Year Precipitation

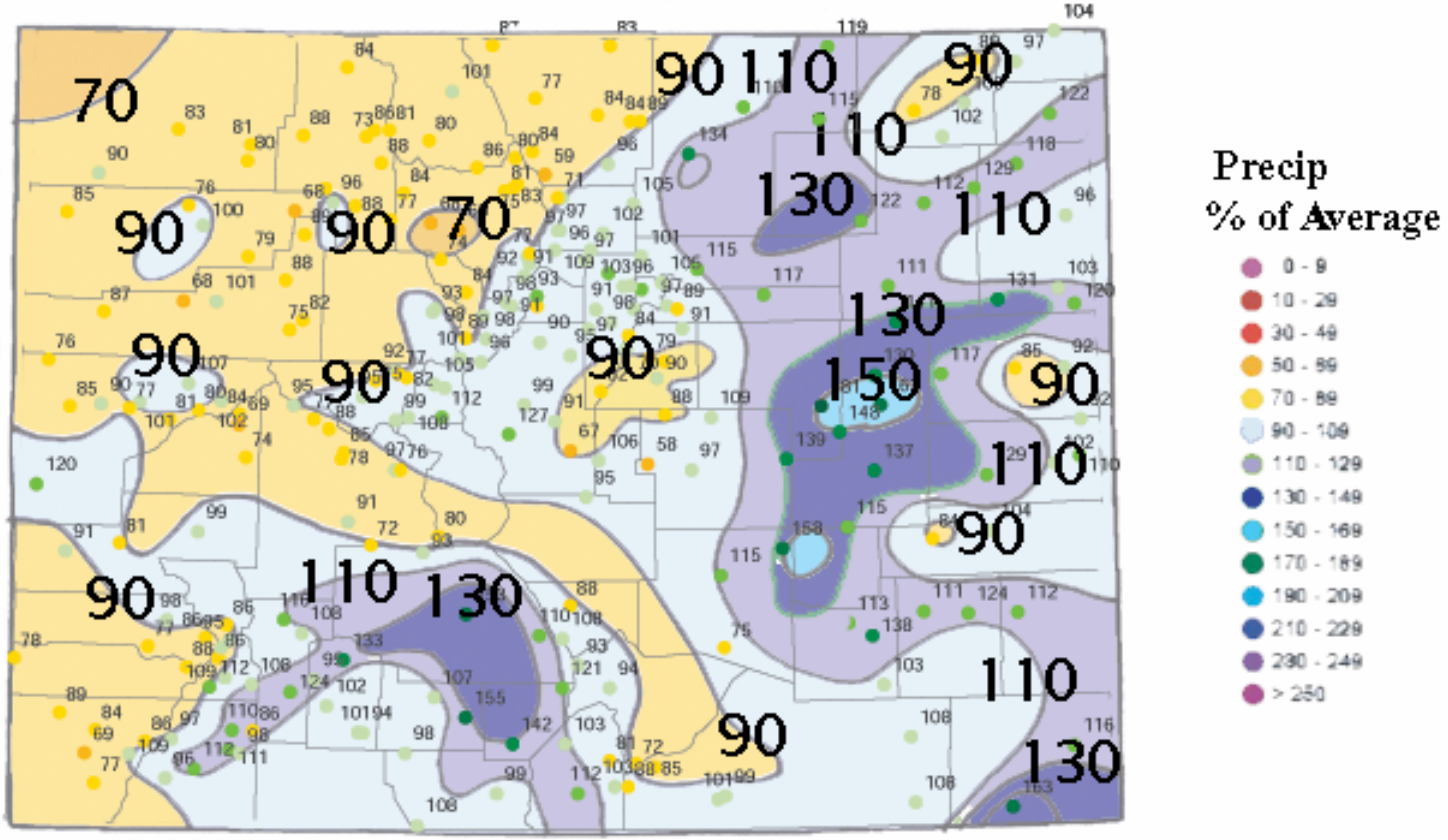


October 2000 Drought Monitor Map

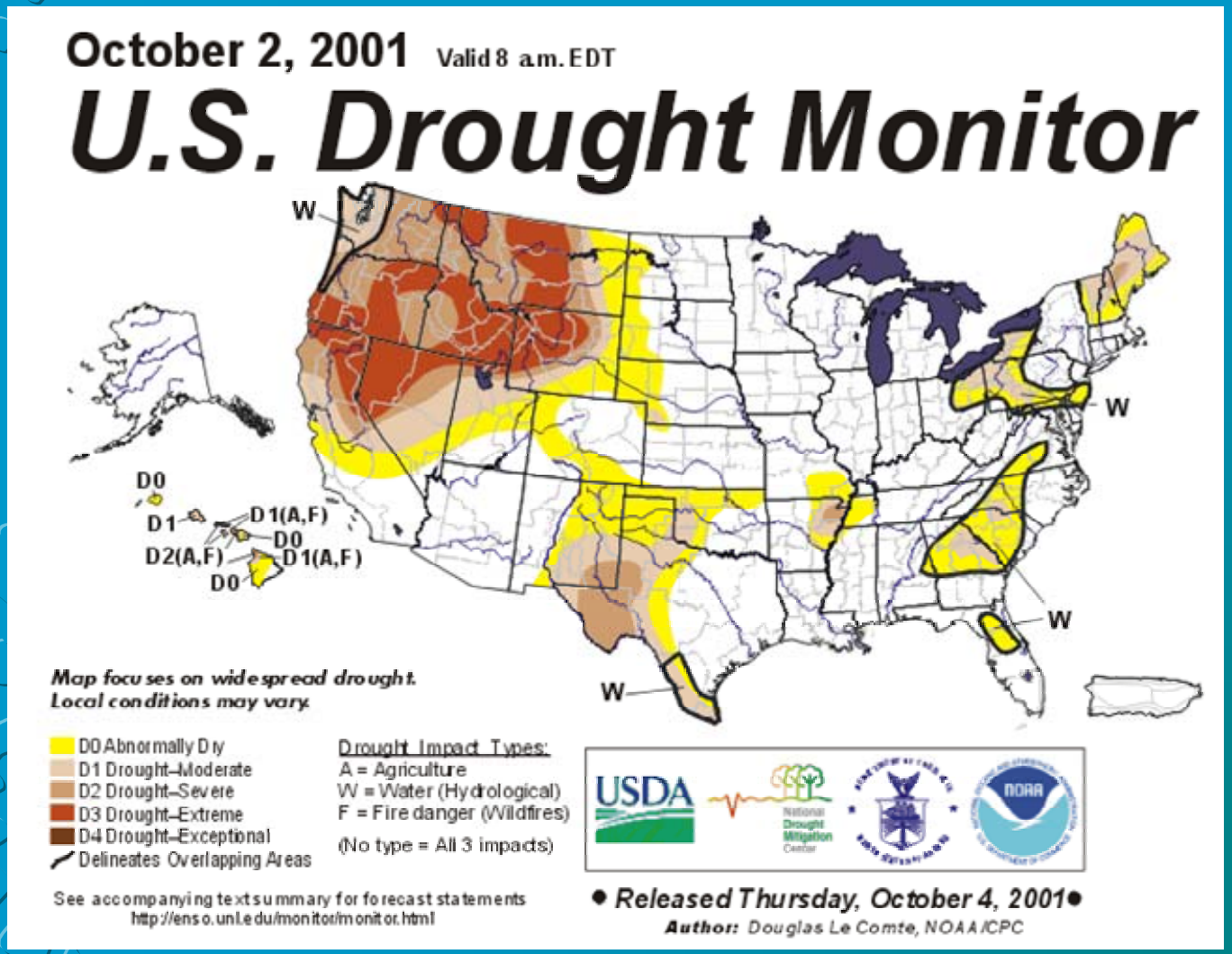


2001 Water Year Precipitation

Water Year 2001
(Oct. 2000 - Sept. 2001)
Precipitation Percent of Average for 1961-1990 Averages

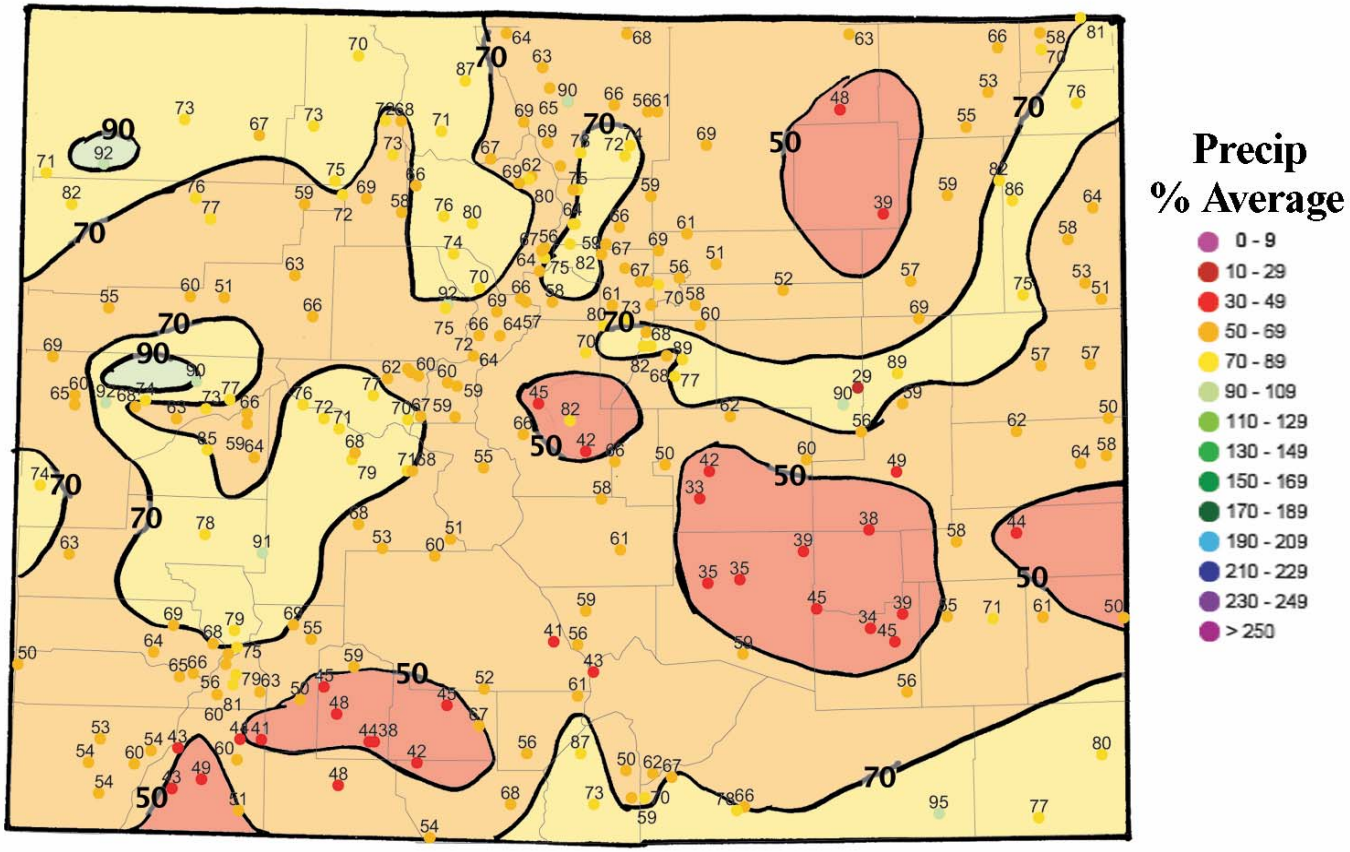


October 2001 Drought Monitor Map

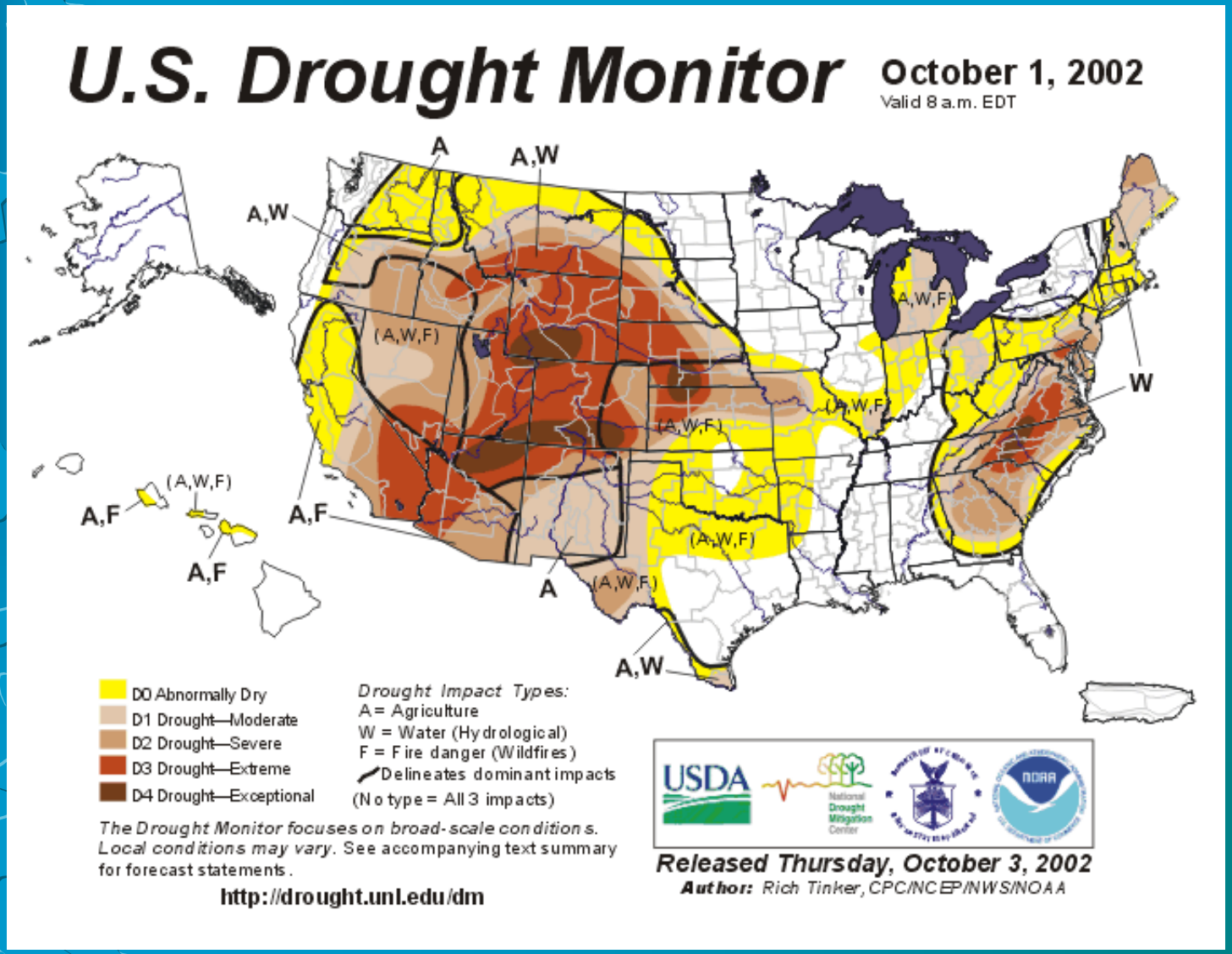


2002 Water Year Precipitation

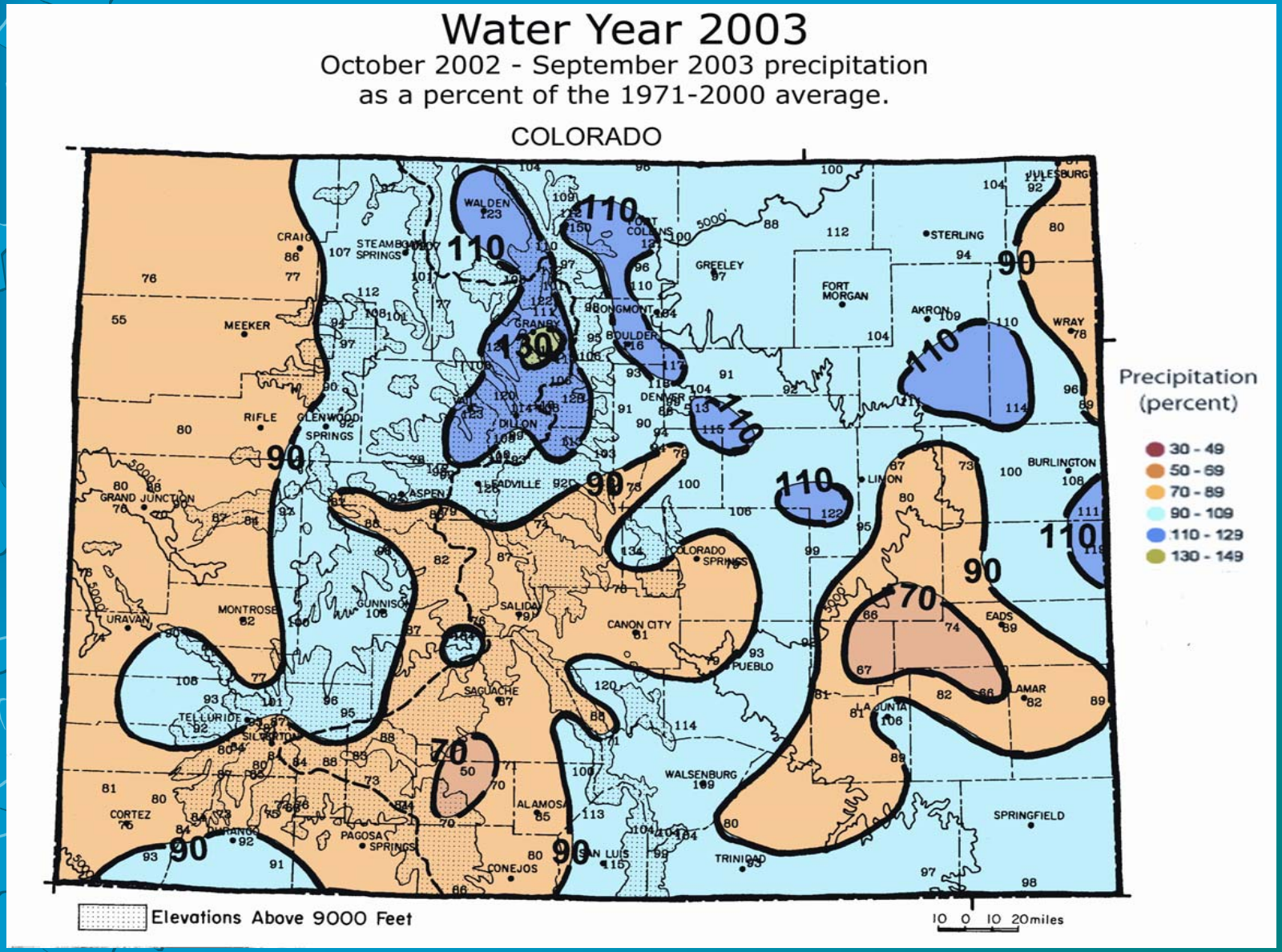
Water Year 2002
(Oct. 2001 - Sept. 2002)
Precipitation Percent of Average for 1961-1990 Averages



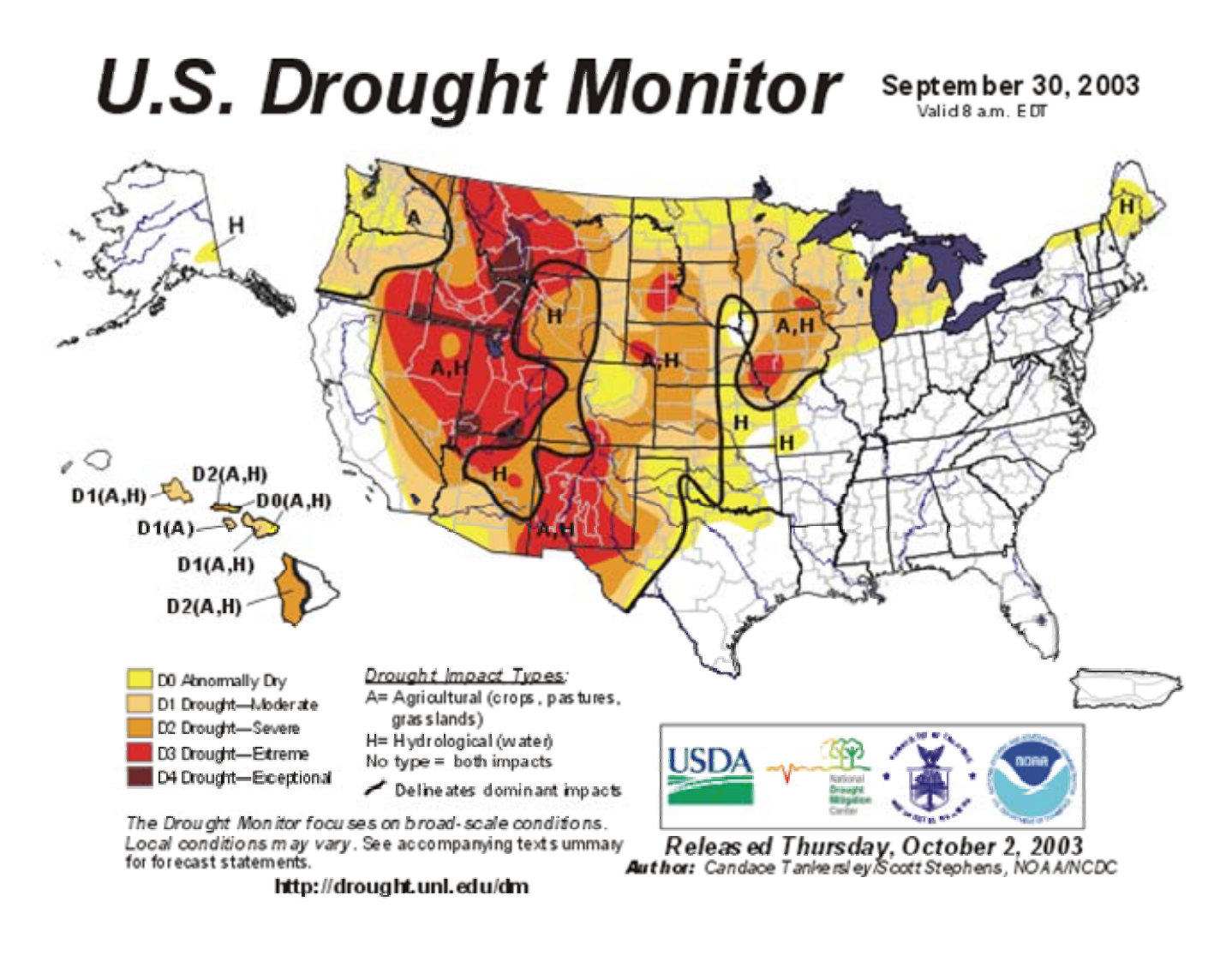
October 2002 Drought Monitor Map



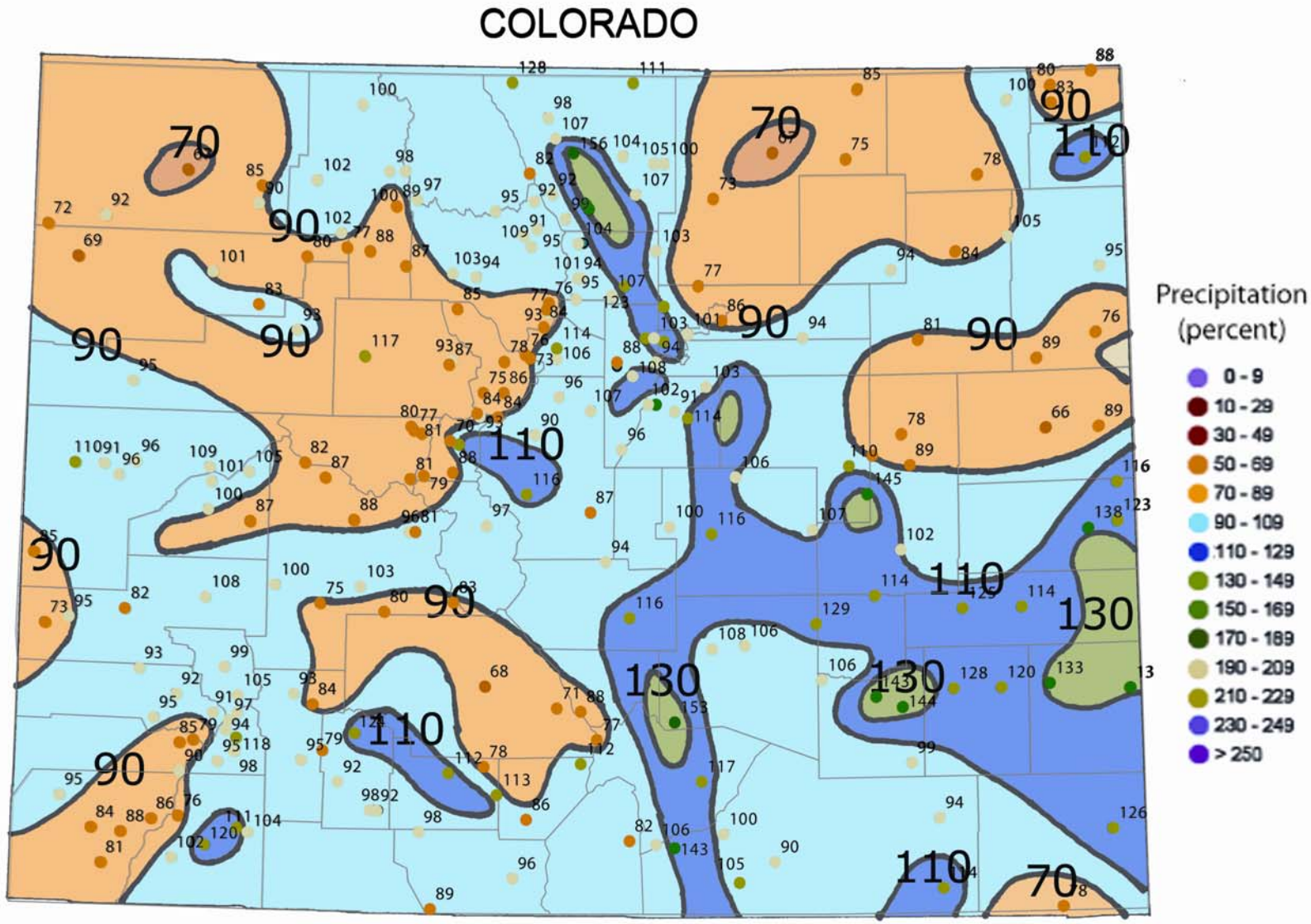
2003 Water Year Precipitation



September 2003 Drought Monitor Map

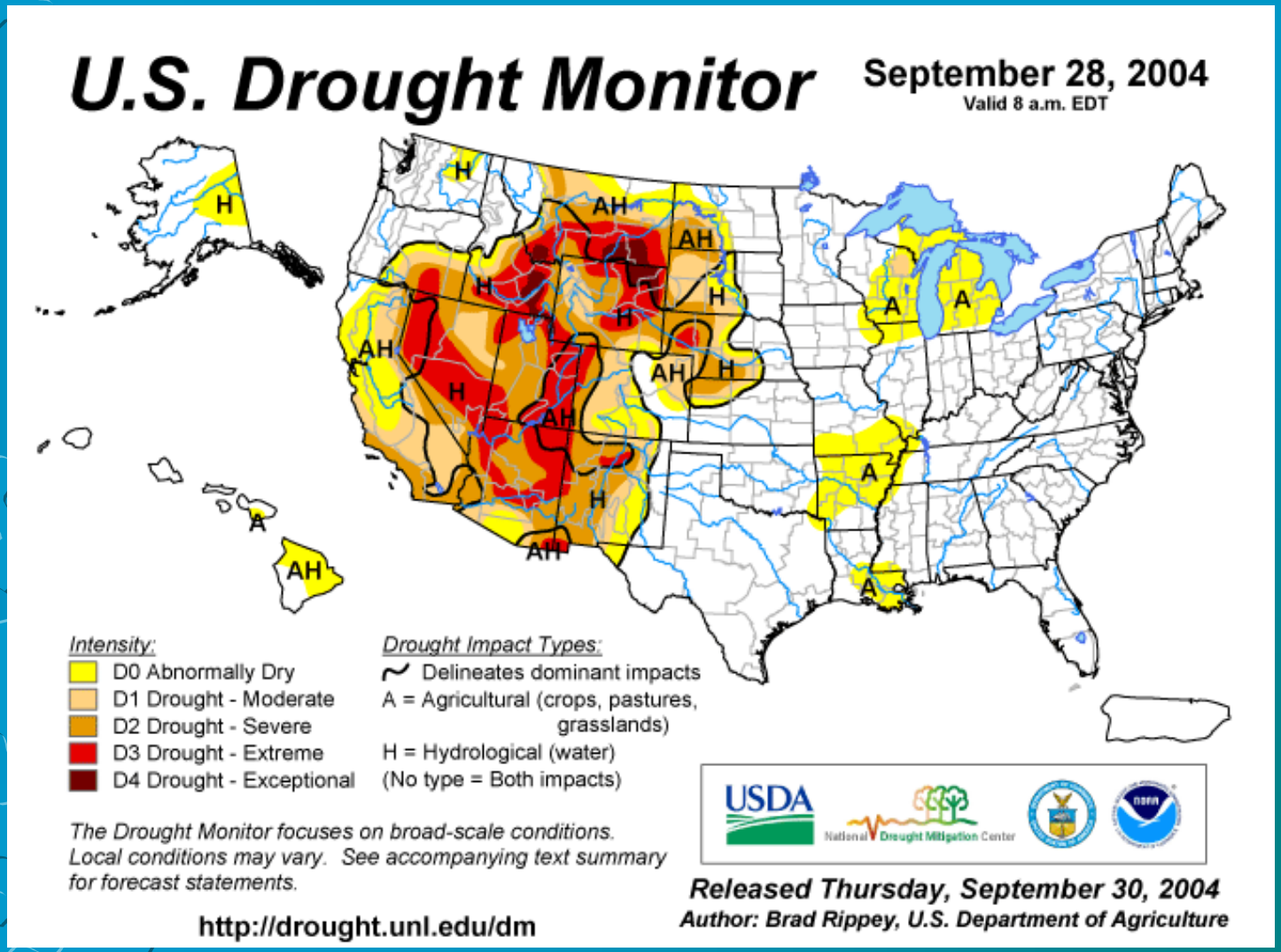


2004 Water Year Precipitation

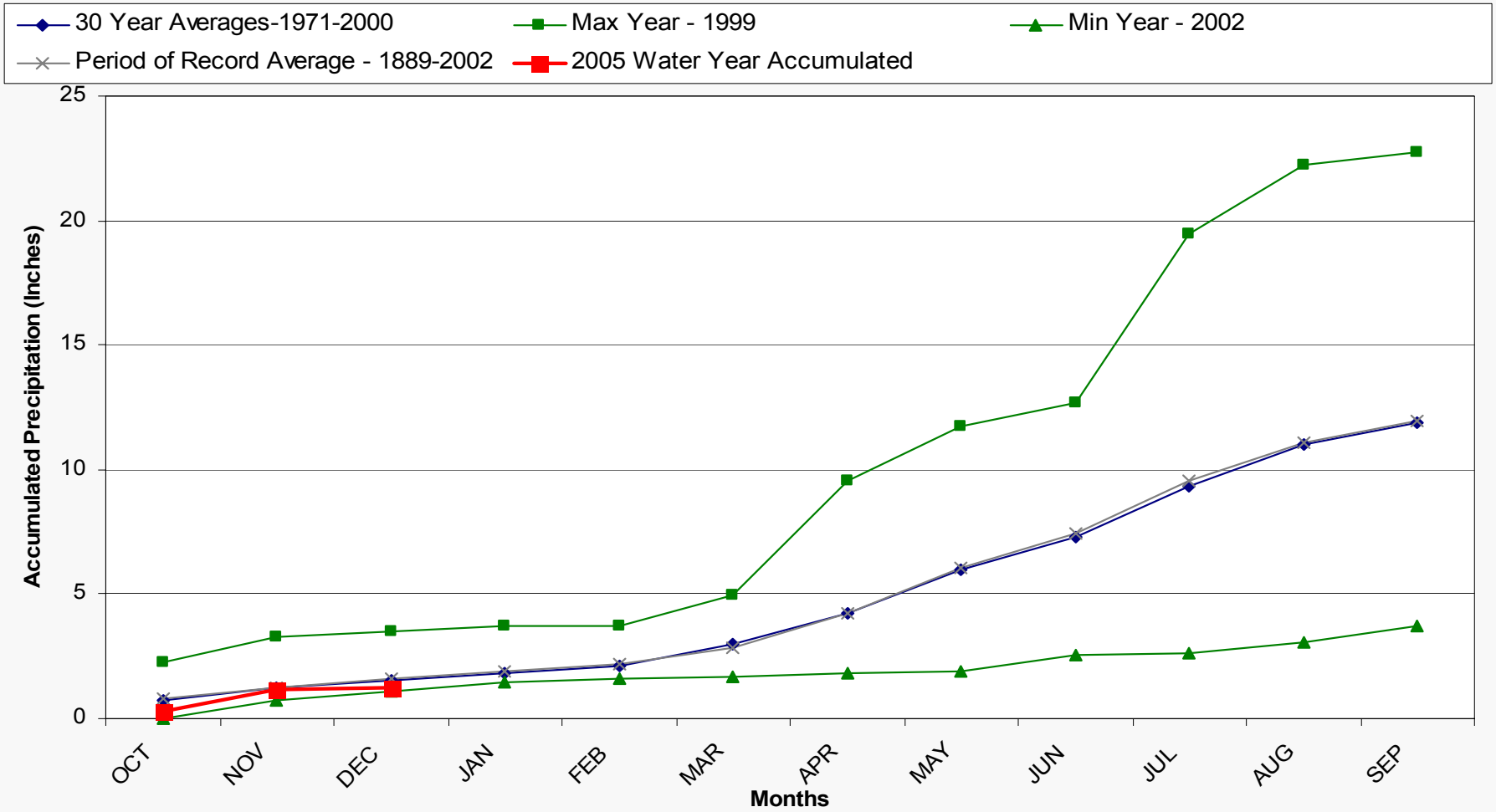


Water Year 2004 (October 2003 through September 2004) precipitation as a percent of the 1971-2000 average.

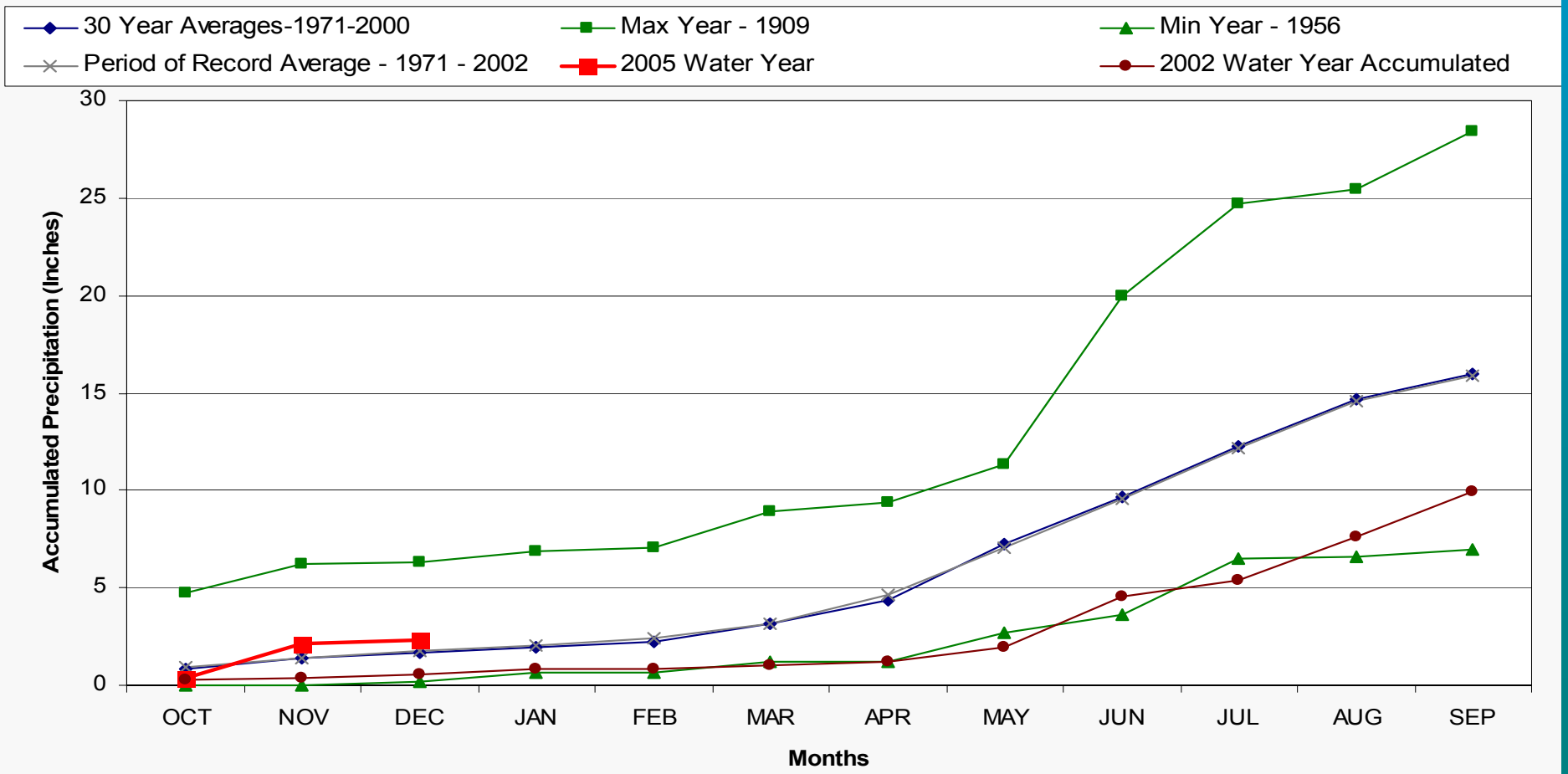
September 2004 Drought Monitor Map



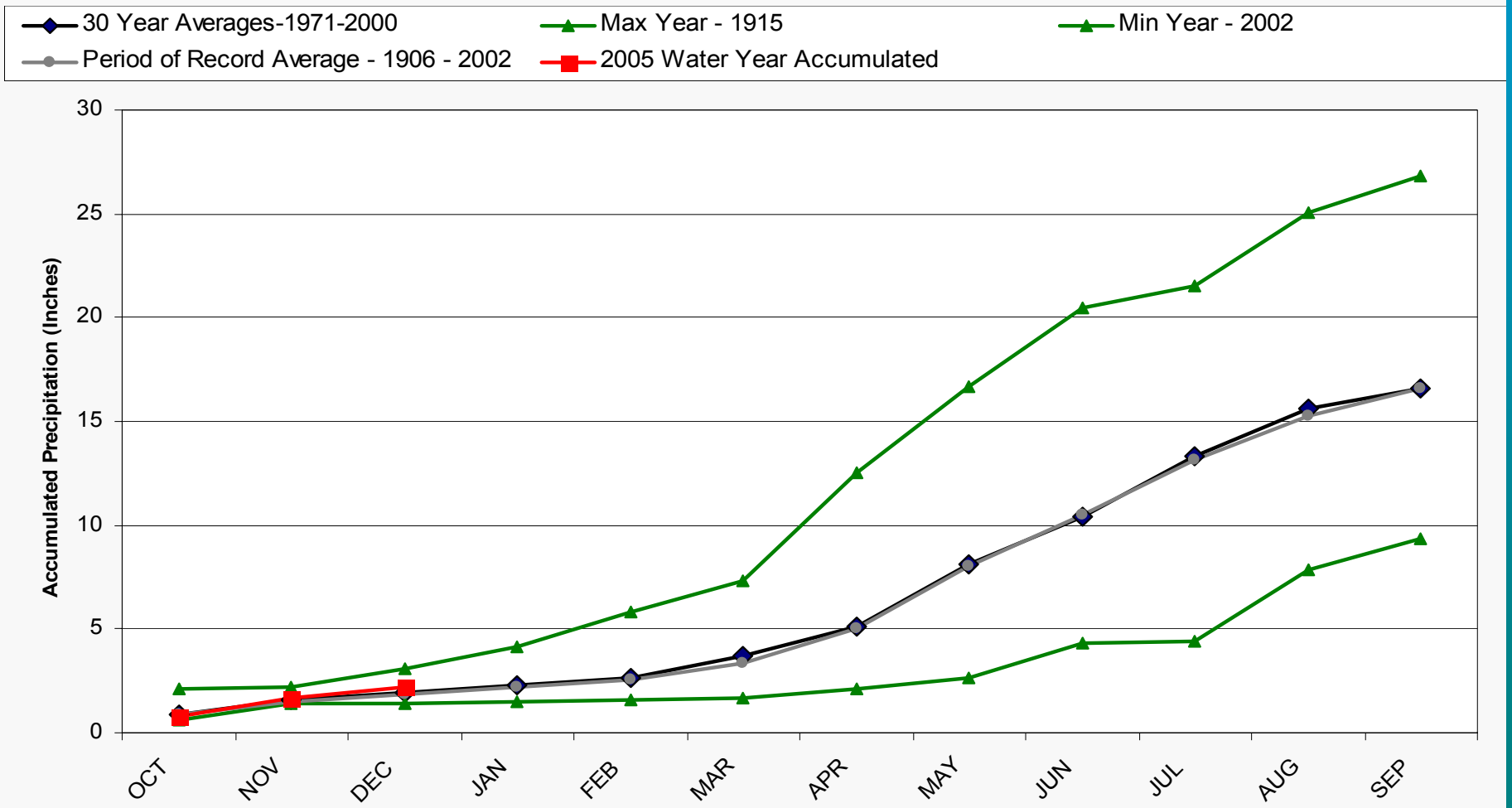
Division 6 – Rocky Ford



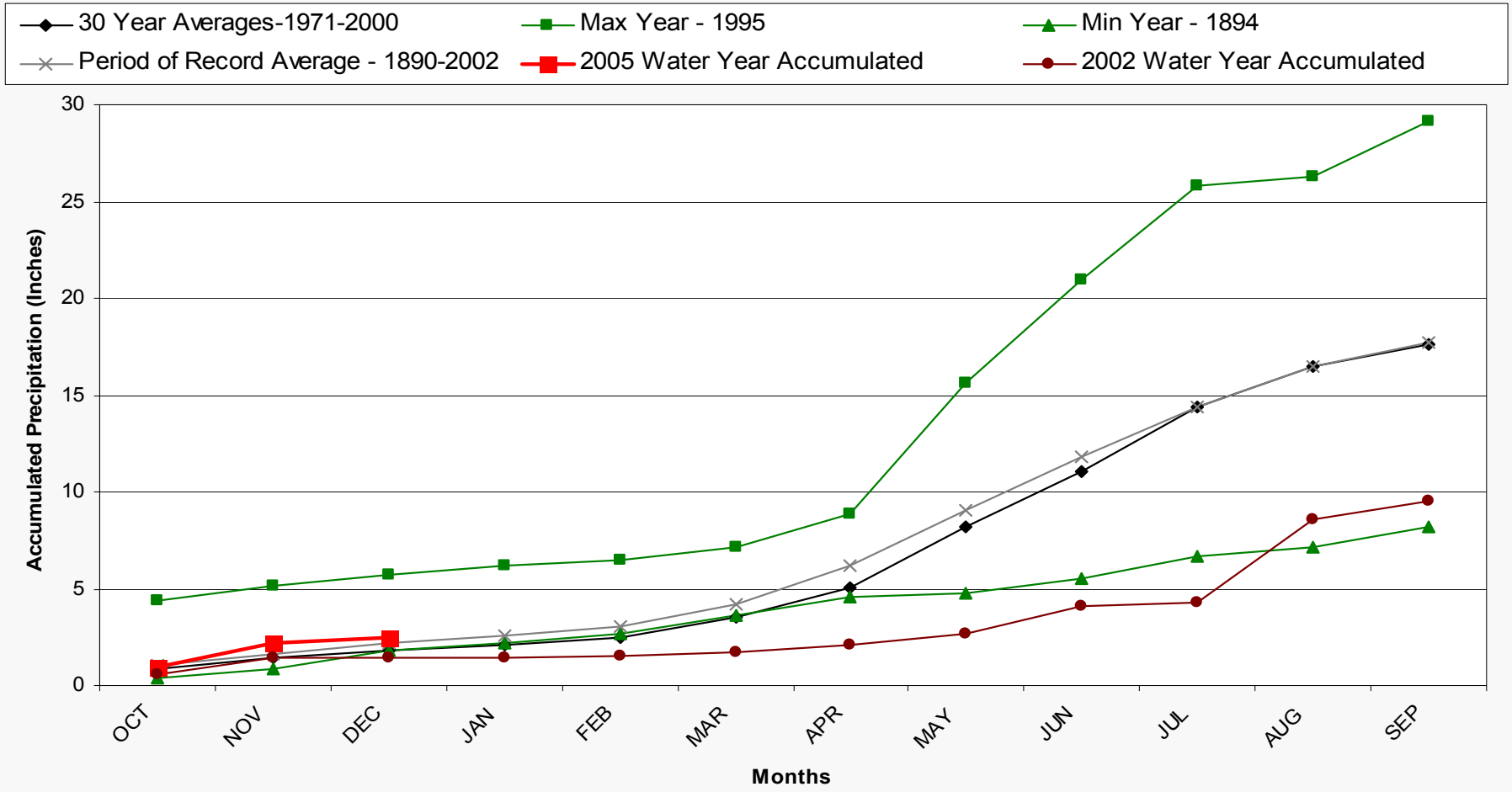
Division 6 – Cheyenne Wells



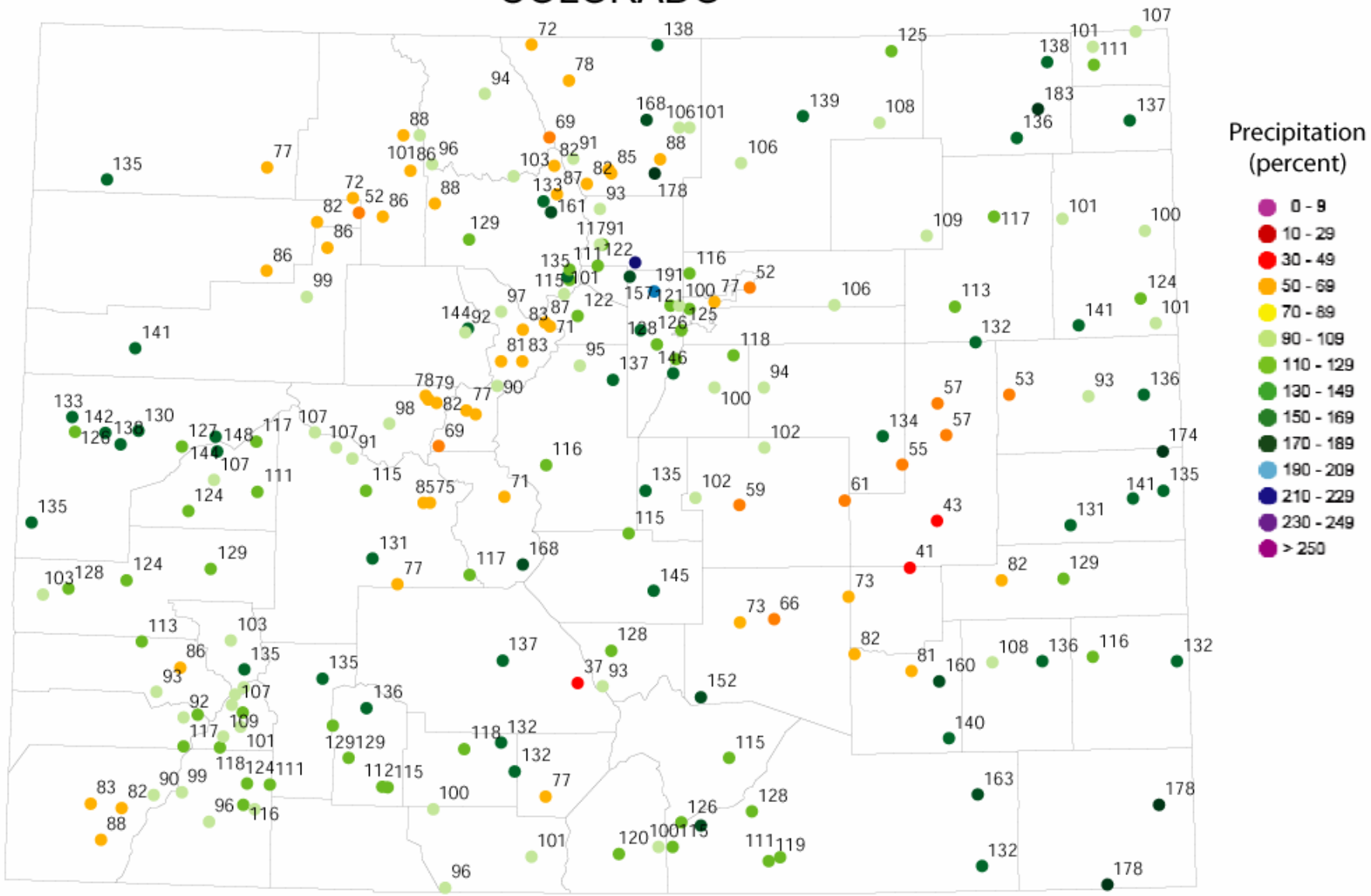
Division 7 – Akron



Division 7 - Leroy



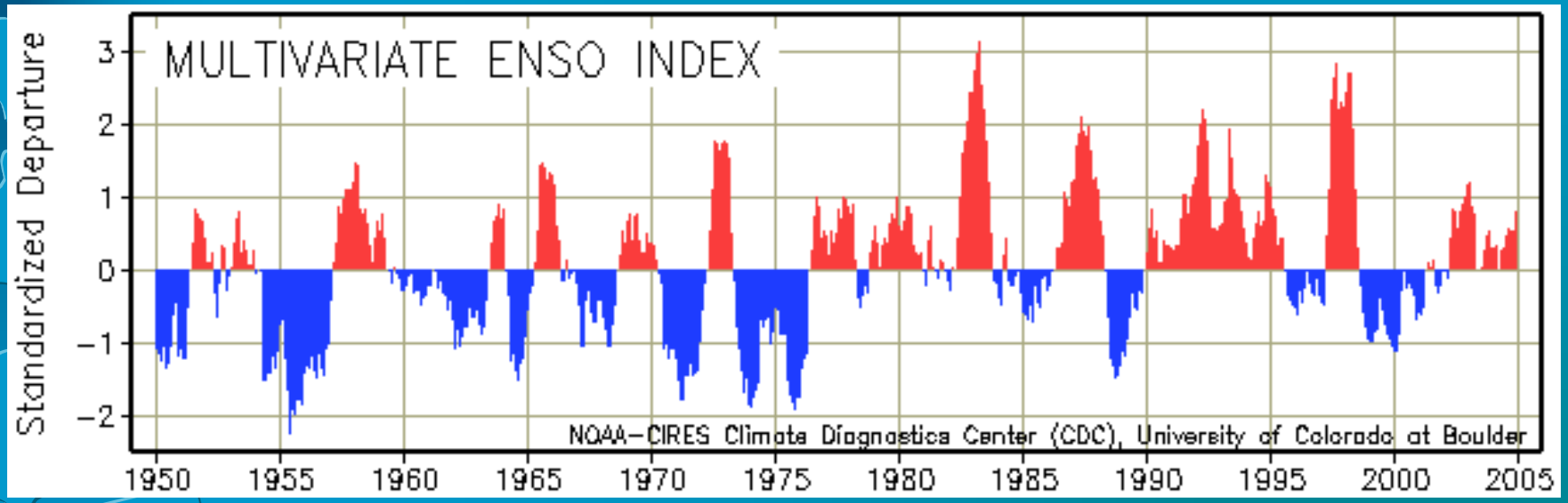
COLORADO



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

What Comes Next?

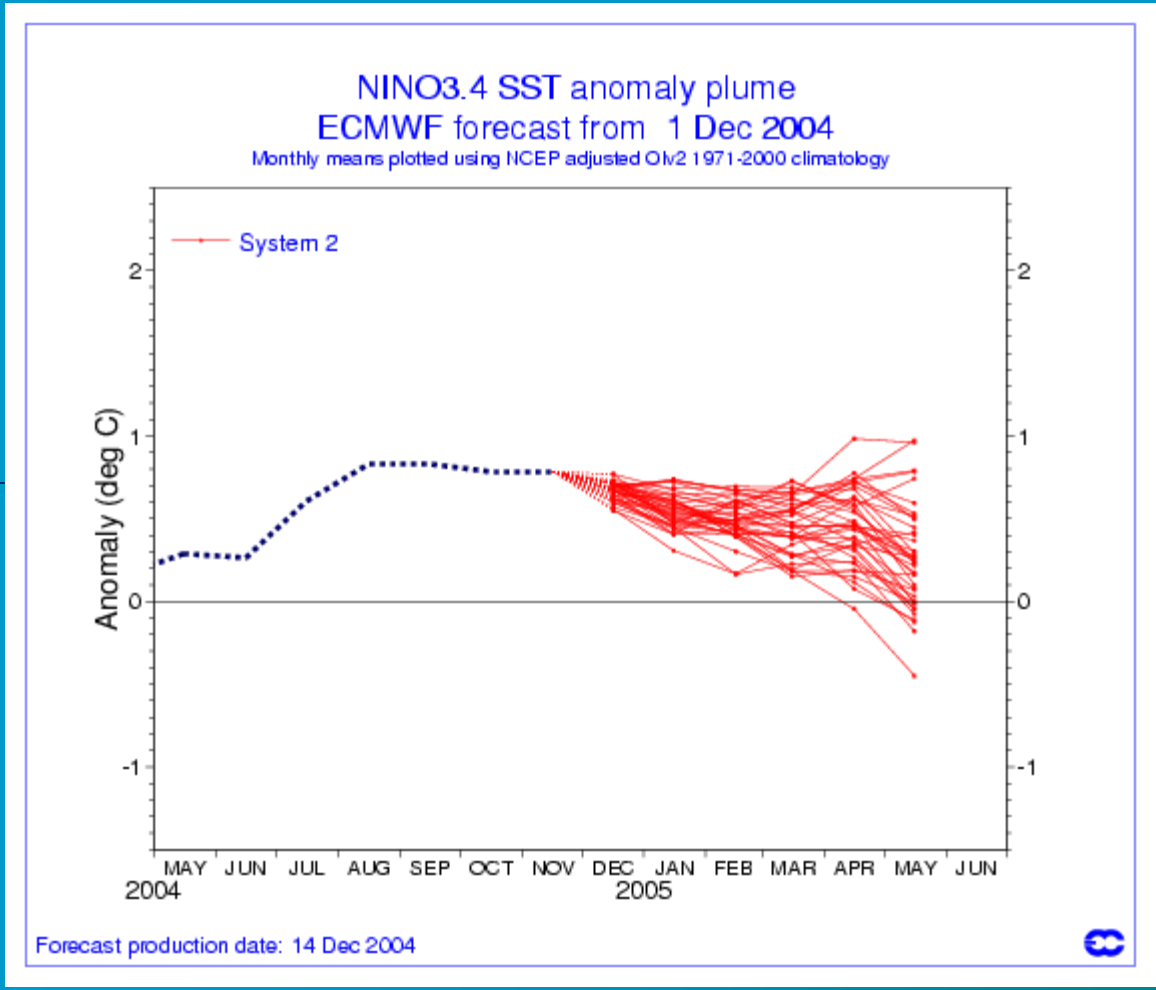
Multivariate ENSO Index (MEI)



Last update: January 7, 2005

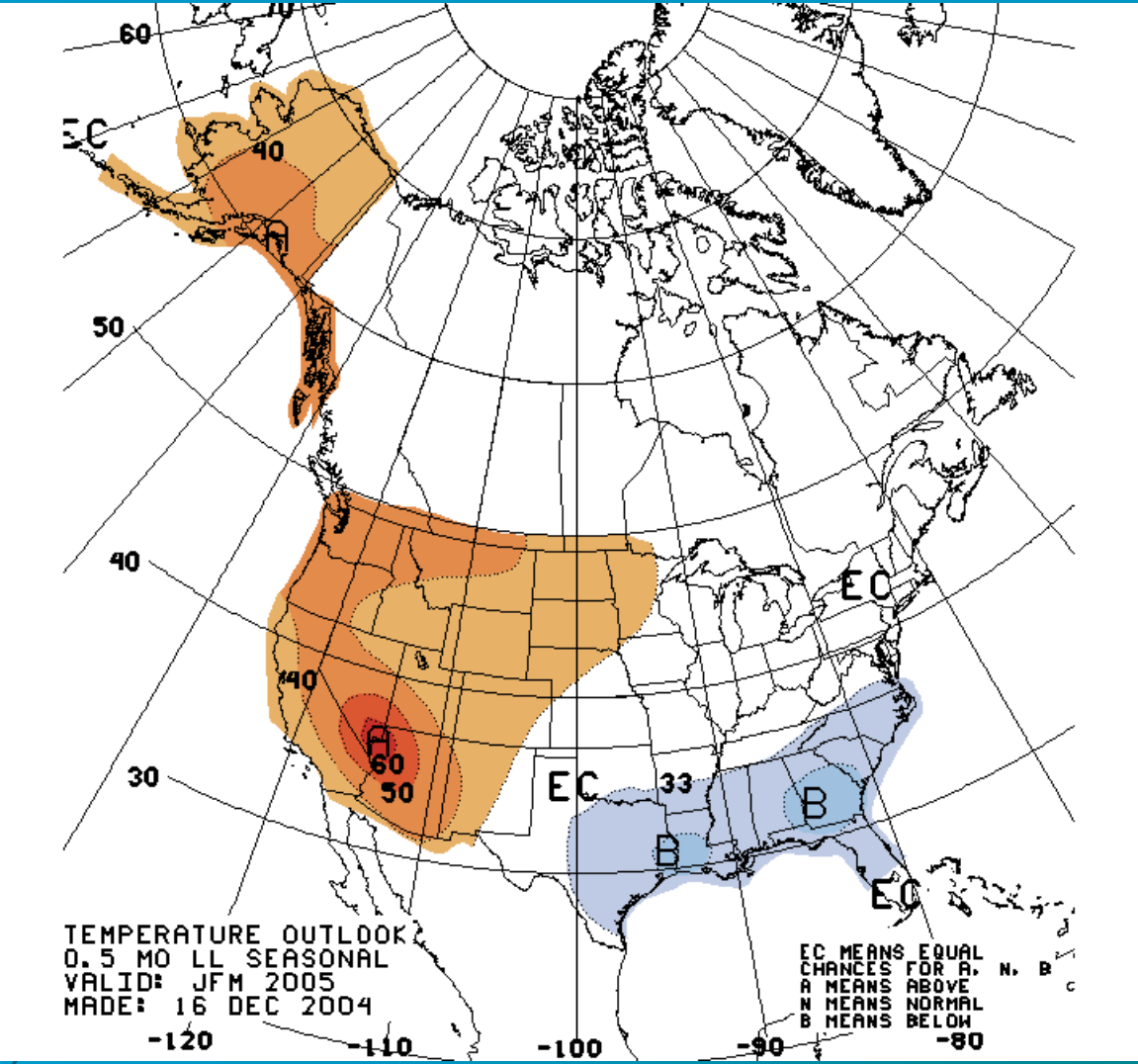
http://www.cdc.noaa.gov/people/klaus.wolter/MEI/

El Nino Forecast



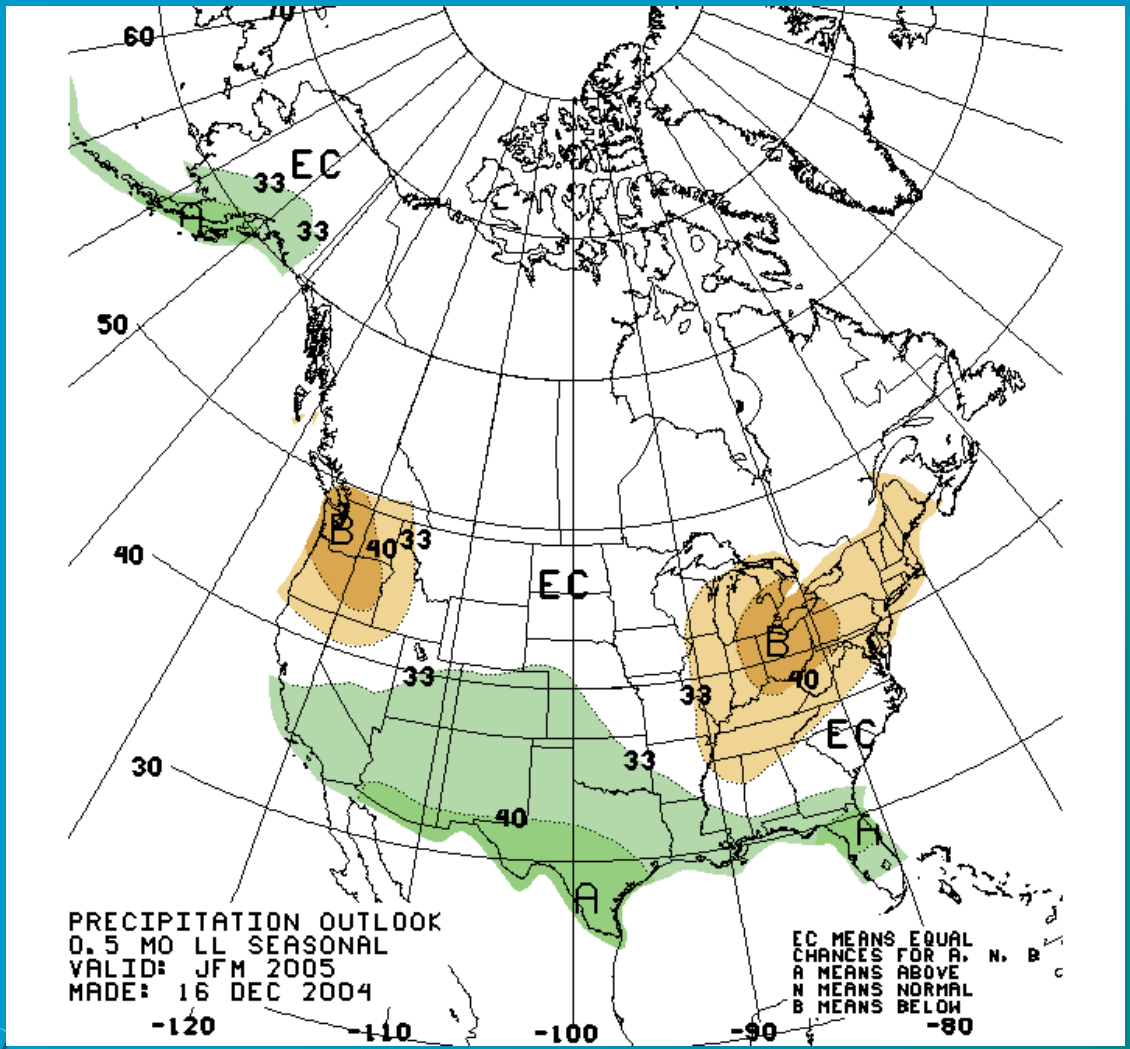
http://www.cdc.noaa.gov/people/klaus.wolter/SWcasts/

Temperature
Jan-Mar 2005



From the Colorado Prediction Center
http://www.cpc.ncep.noaa.gov/products/predictions/multi_season/13_seasonal_outlooks/color/churchill.html

Precipitation
Jan-Mar 2005



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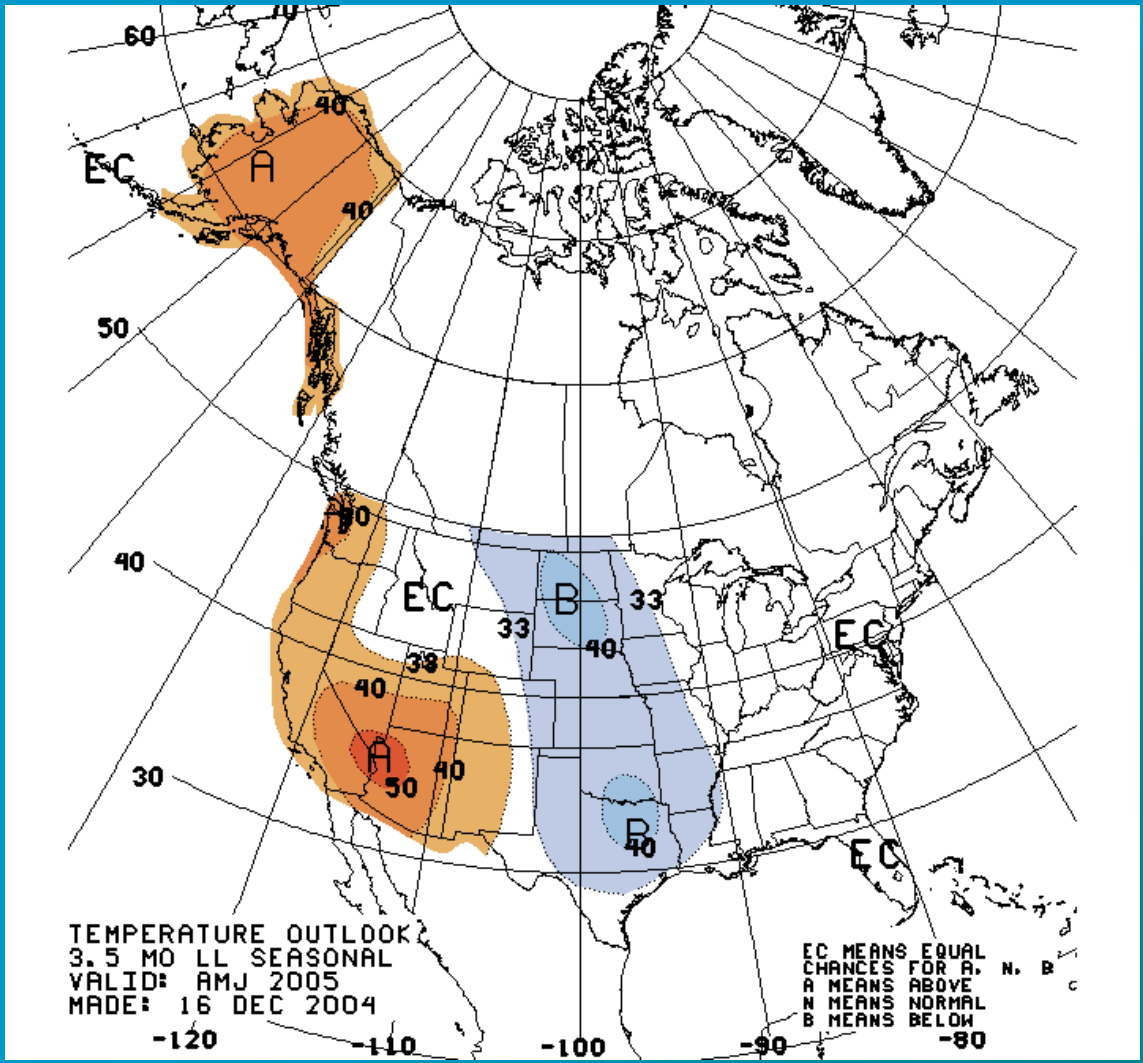
http://www.cpc.ncep.noaa.gov/products/predictions/multi_season/13_seasonal_outlooks/color/churchill.html

Temperature
Apr-Jun 2005



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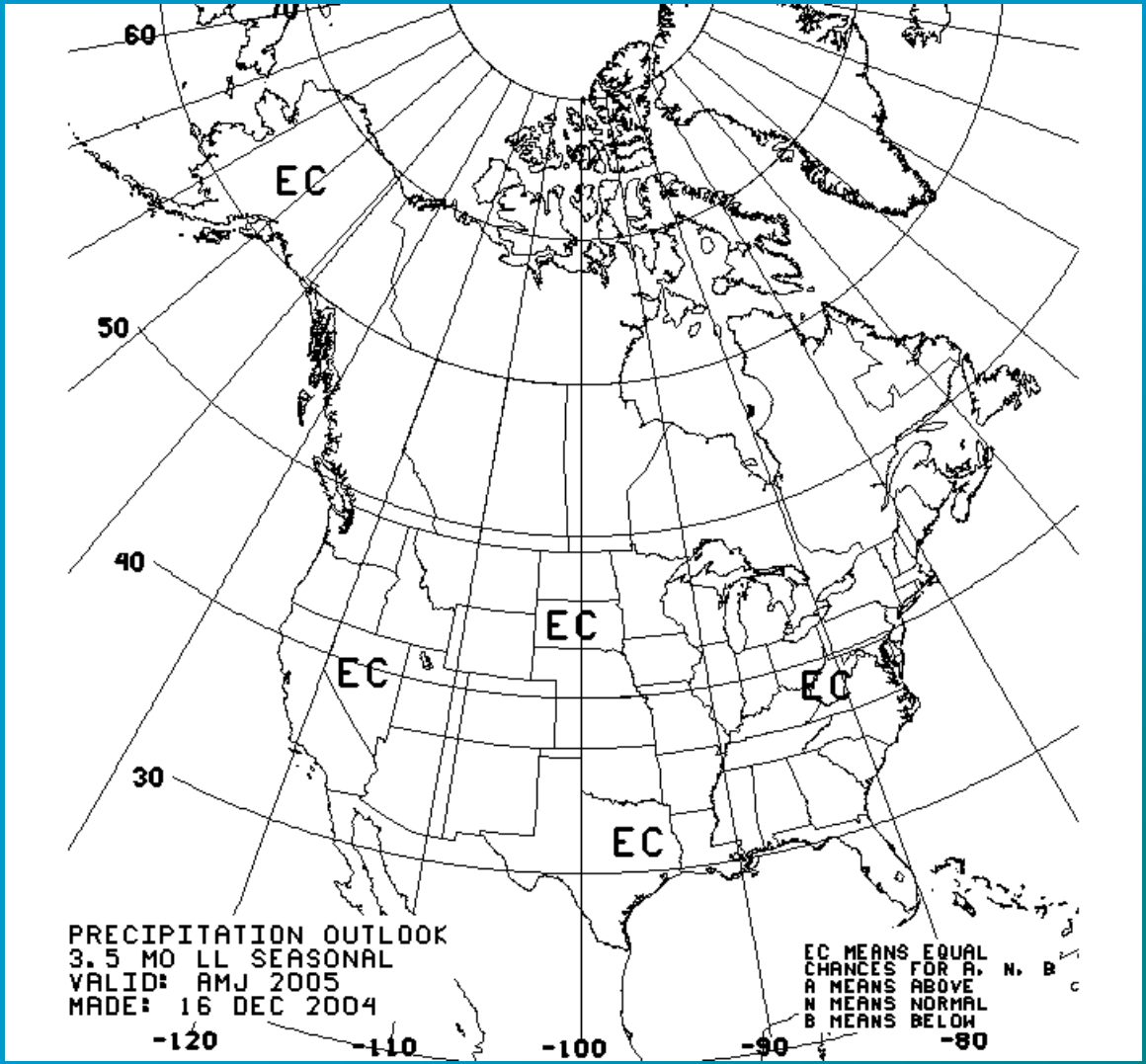
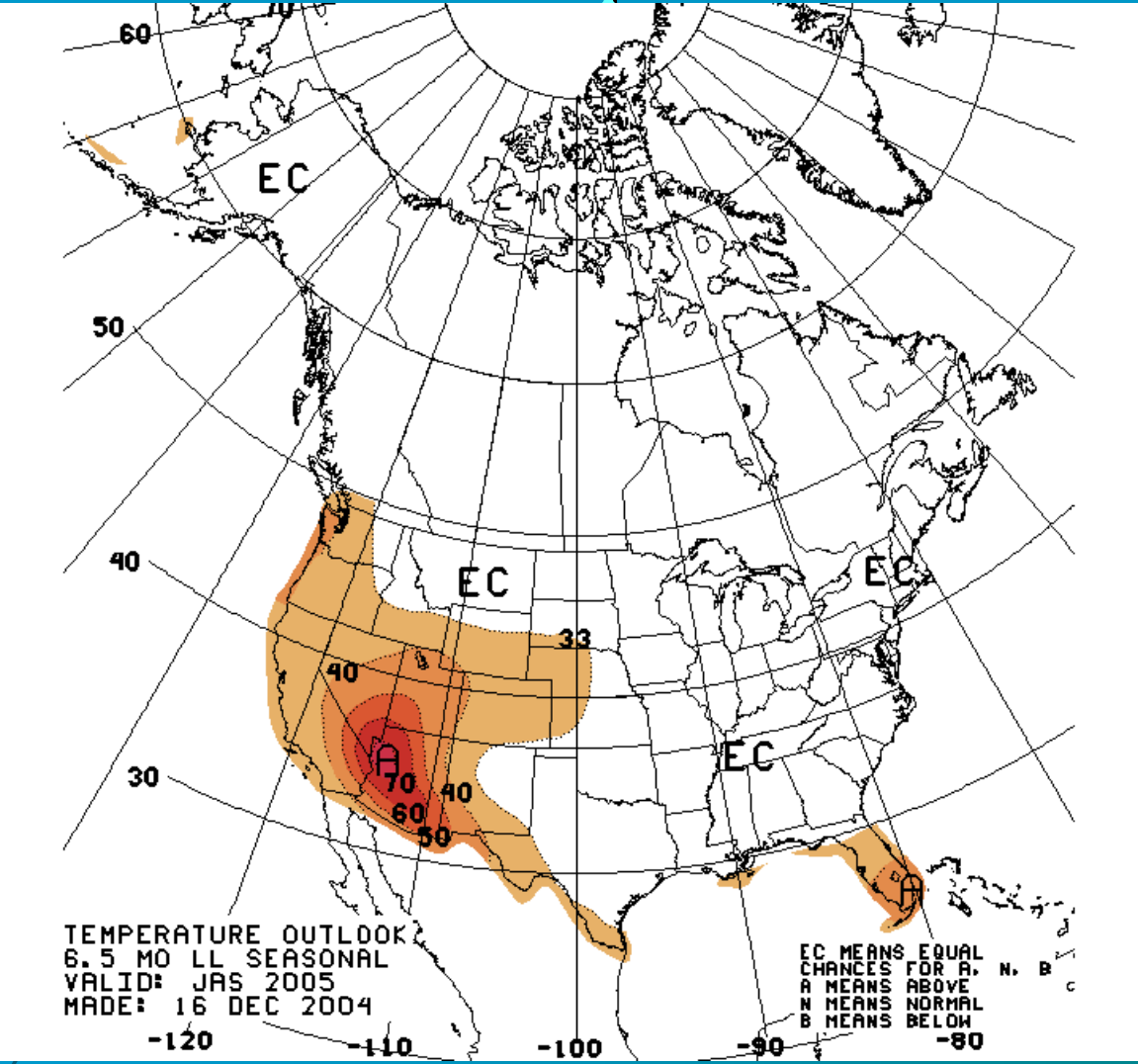
Precipitation
Apr-Jun 2005



From the Colorado Prediction Center
http://www.cpc.ncep.noaa.gov/products/predictions/multi_season/13_seasonal_outlooks/color/churchill.html

Temperature Jul-Sep 2005



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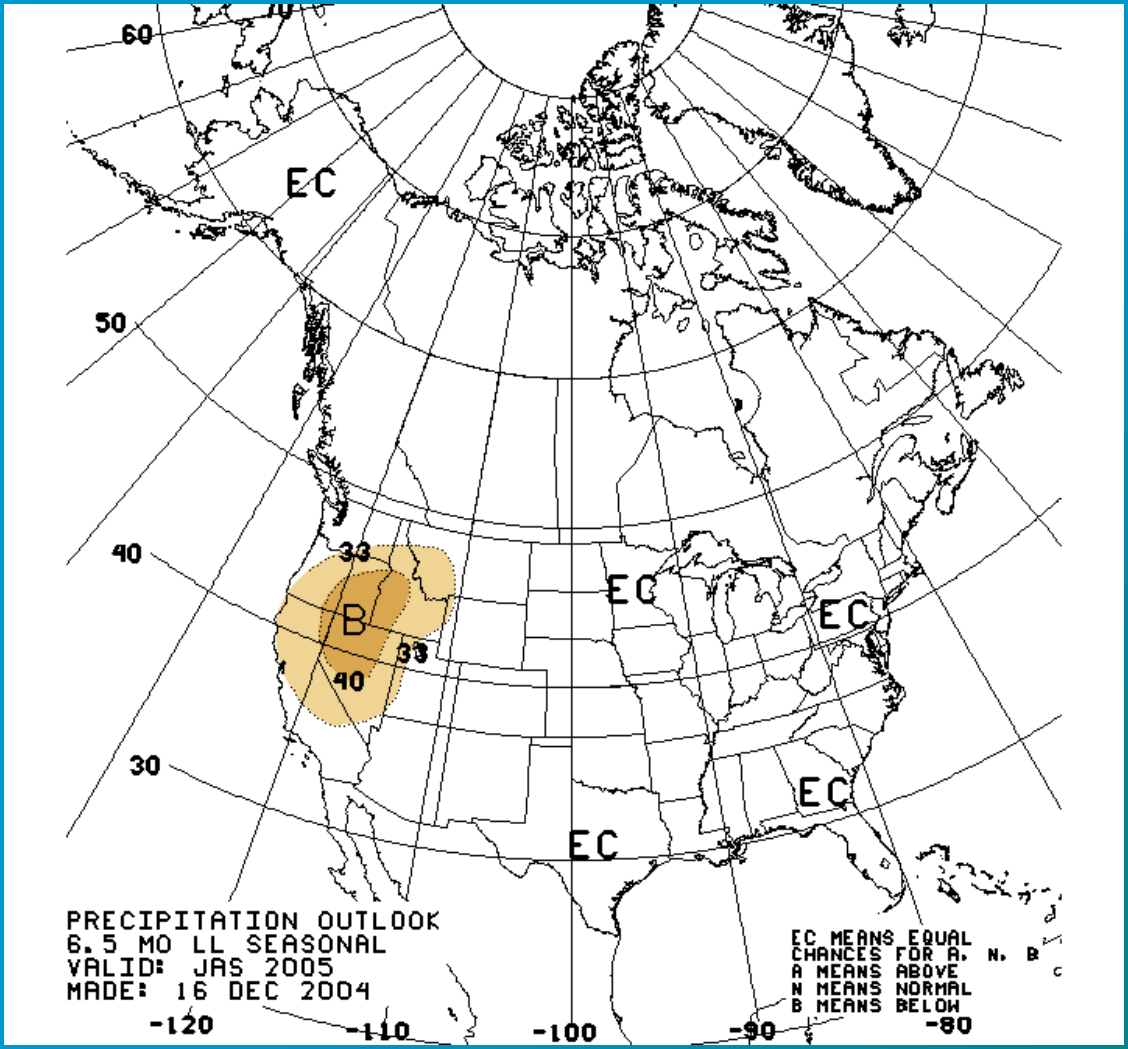
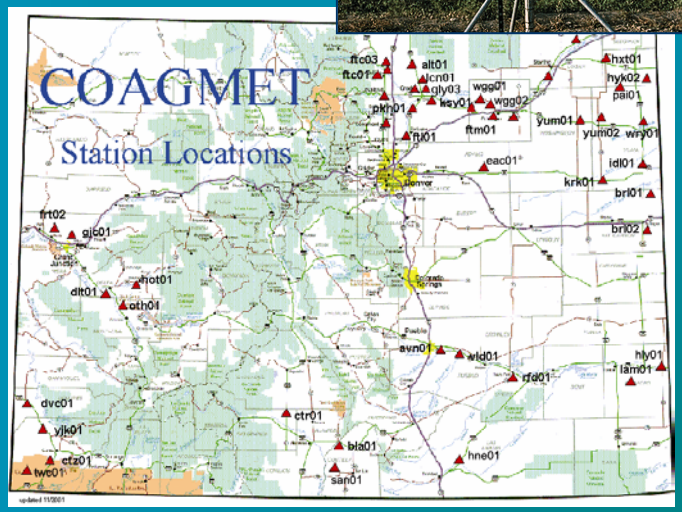
Precipitation
Jul-Sep 2005



From the Colorado Prediction Center
http://www.cpc.ncep.noaa.gov/products/predictions/multi_season/13_seasonal_outlooks/color/churchill.html

CoAgMet
Weather Data for Agriculture

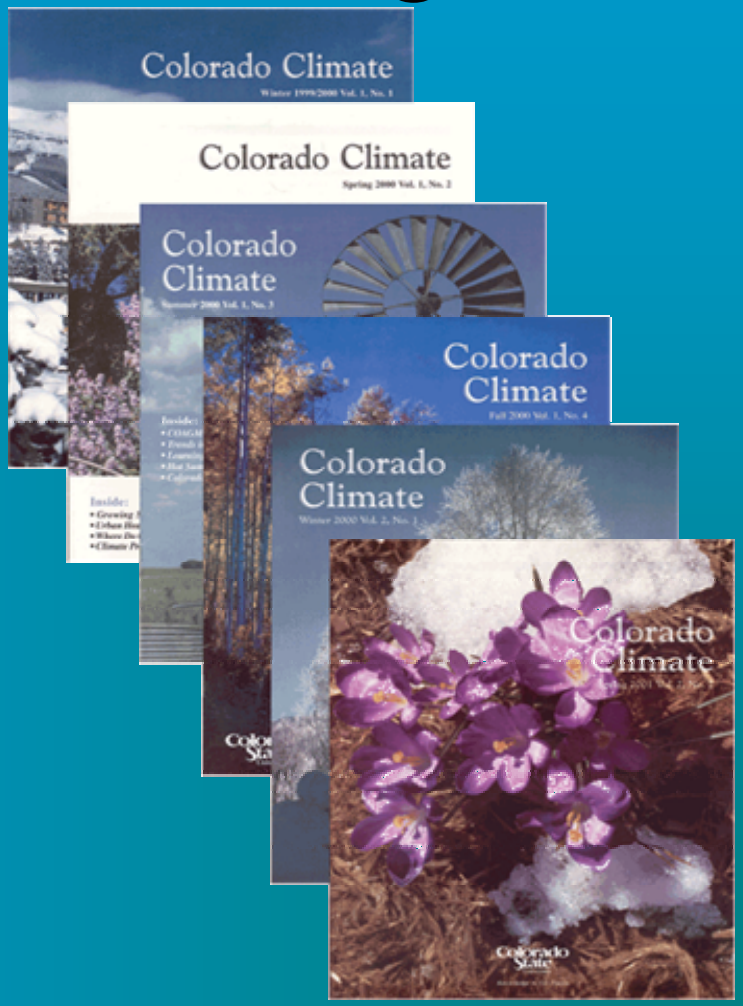
- *Automated weather stations with daily and hourly readings of:*
  - *Temperature*
  - *Humidity*
  - *Wind*
  - *Precipitation*
  - *Solar energy*
  - *Evapotranspiration*



http://www.coagmet.com

Colorado Climate Magazine

- *Good bedtime reading about the climate of Colorado -- recent and historic*
- *$15/year subscription pays printing and mailing costs*



http://ccc.atmos.colostate.edu/magazine.php

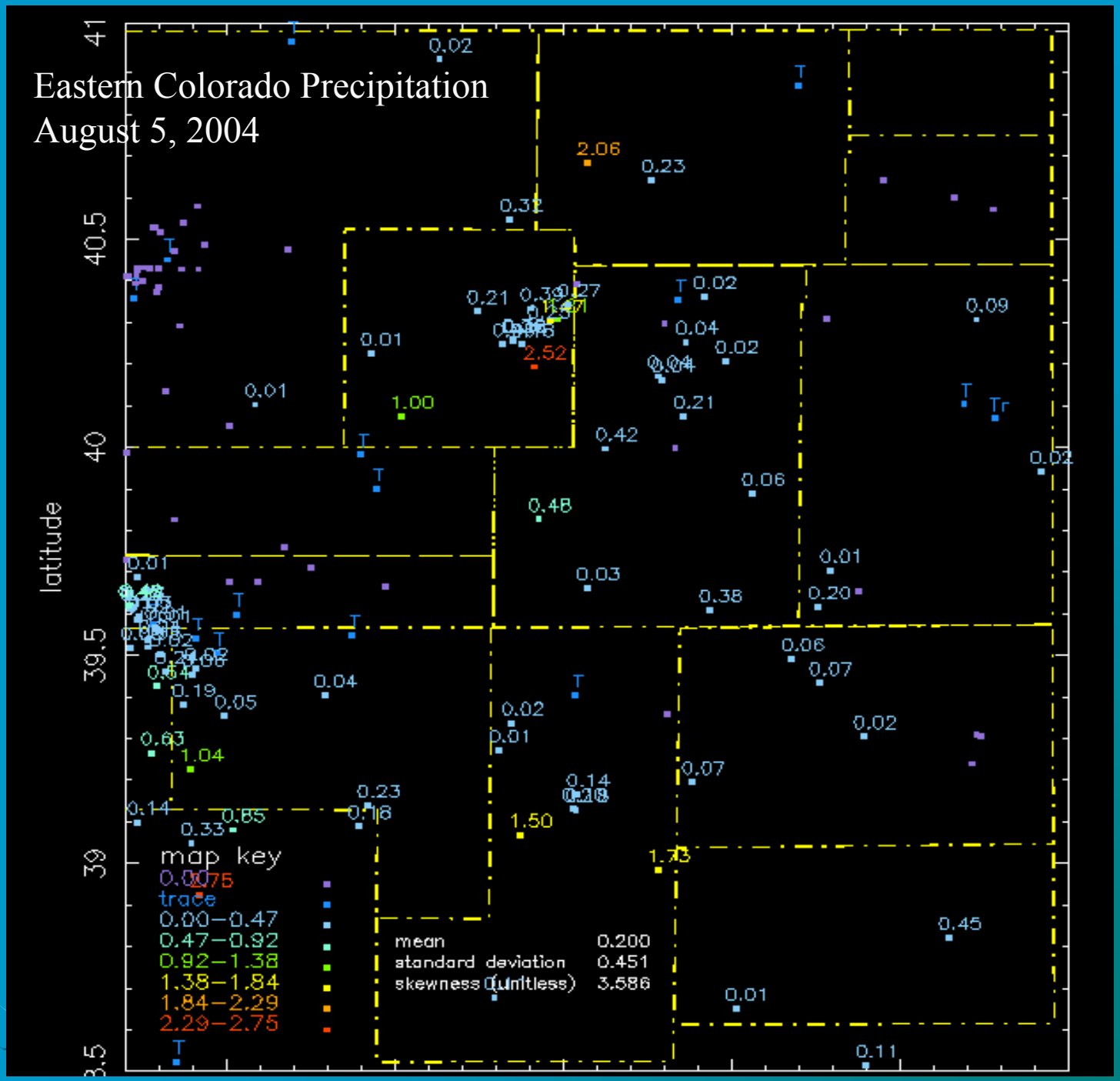
CoCoRaHS

Community Collaborative Rain, Hail, and Snow Network

http://www.cocorahs.org

- Over 1,000 volunteers participate in rain, hail and snow measurements.
- More accurate maps, verifies forecasting, radar research, crop damage, drought/flooding, educational purposes.

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


Eastern Colorado Precipitation
August 5, 2004
latitude
41
40.5
40
39.5
39
38.5
map key
0.0075
trace
0.00–0.47
0.47–0.92
0.92–1.38
1.38–1.84
1.84–2.29
2.29–2.75
mean 0.200
standard deviation 0.451
skewness (unitless) 3.586

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"