The State of the Climate Address

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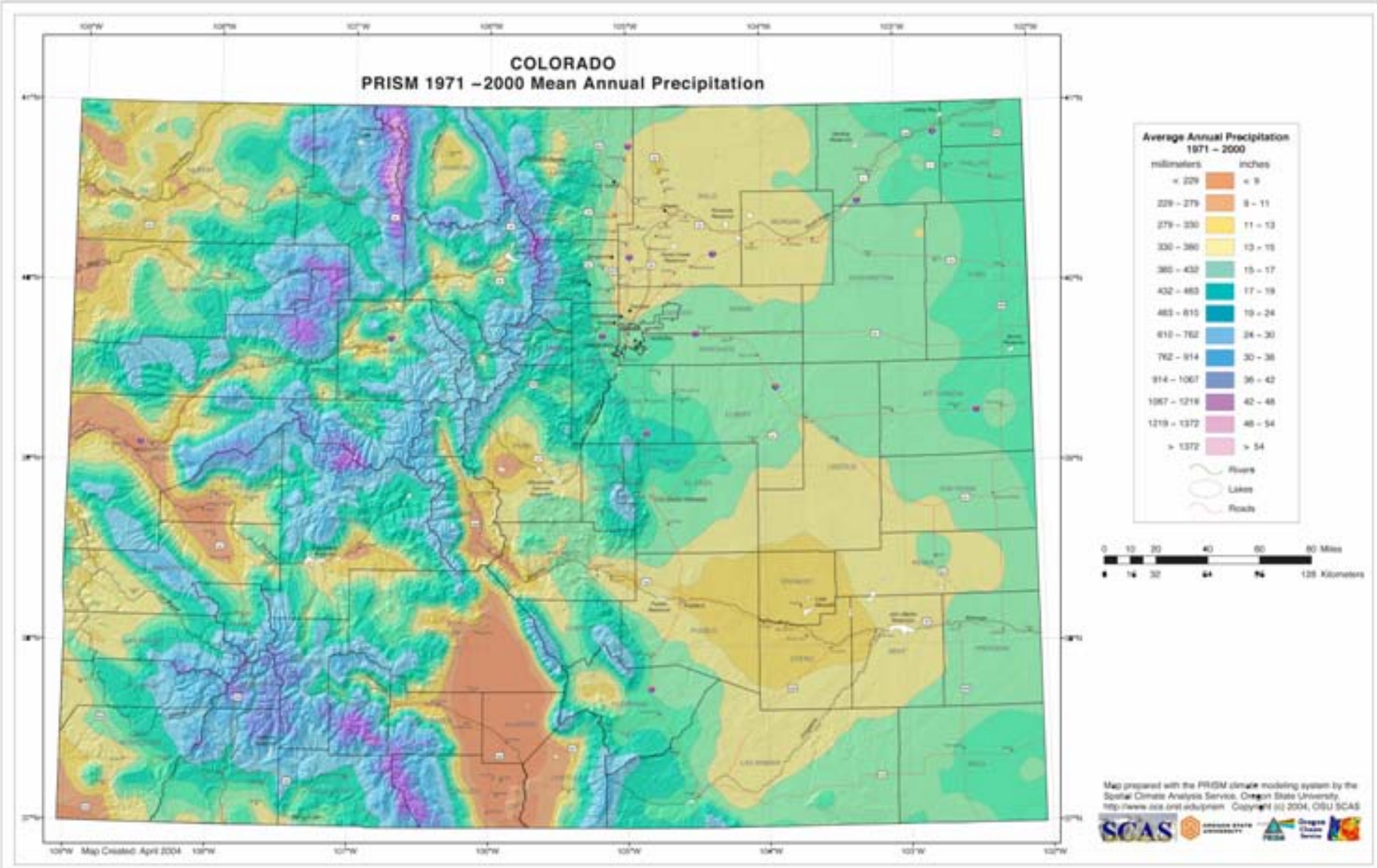
Colorado State University
Knowledge to Go Places

Prepared by Odie Bliss

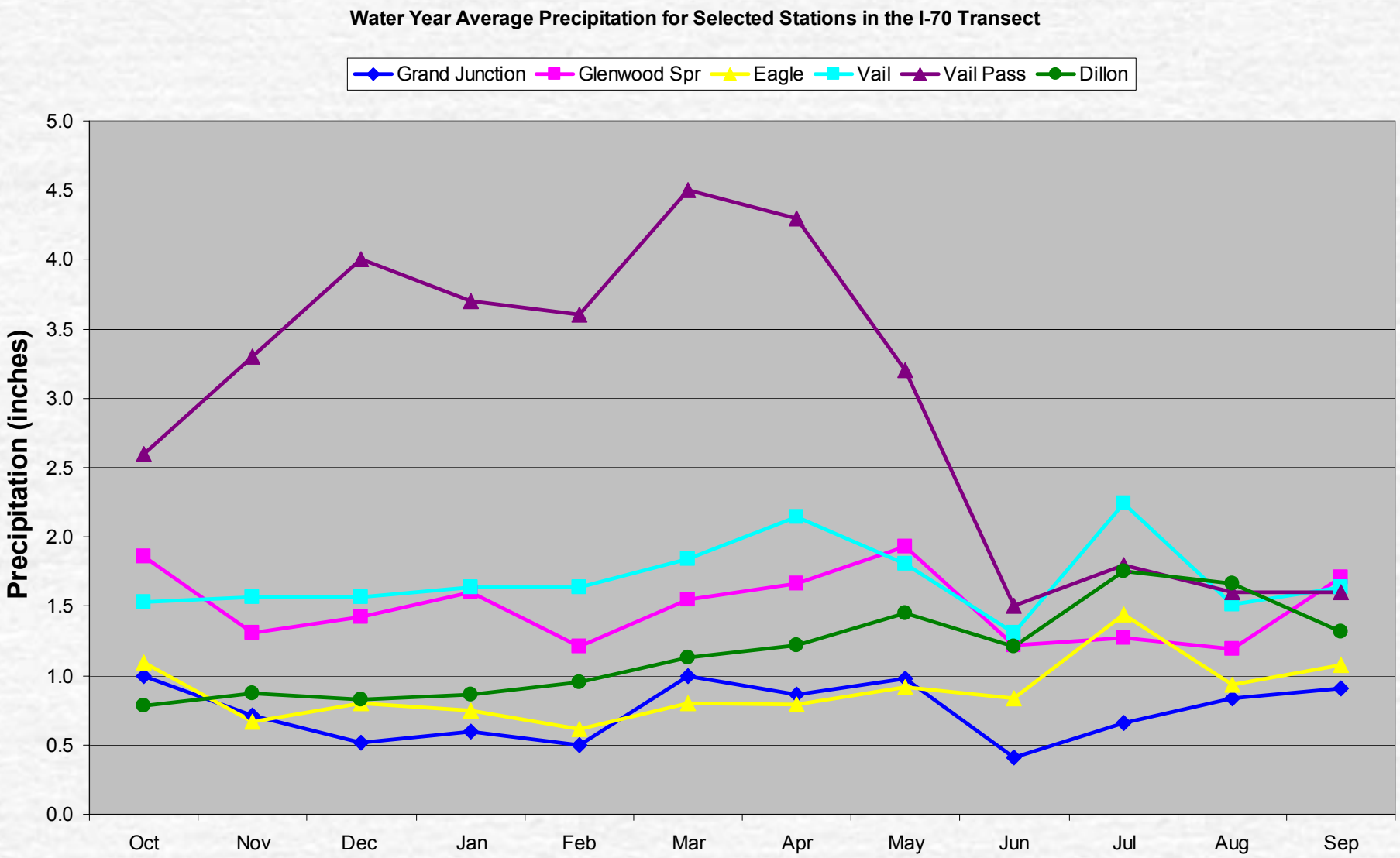
The Basics of the Climate of Colorado

Photo Lynn Kral

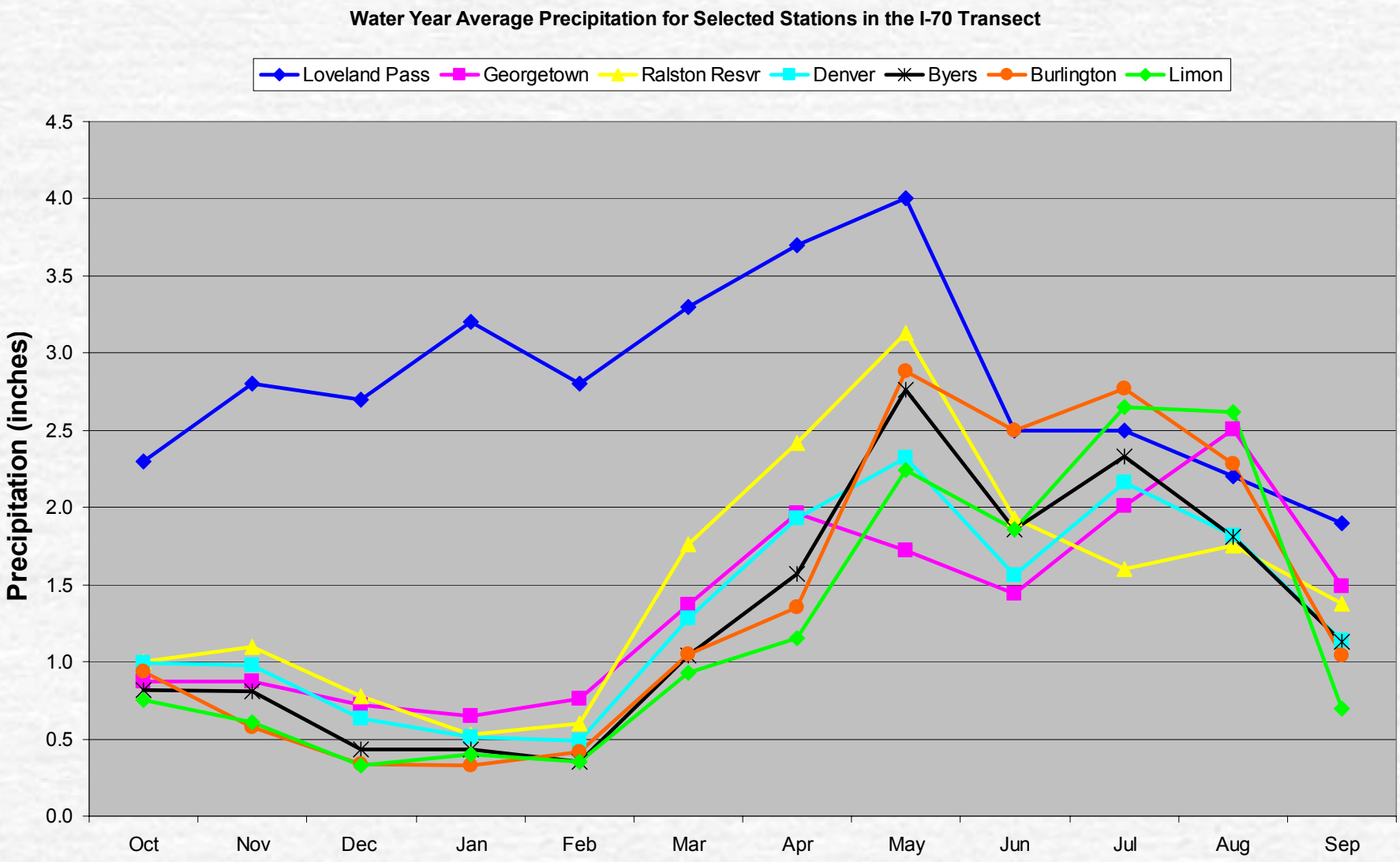
Colorado Average Annual Precipitation



Average Precipitation for Selected Locations

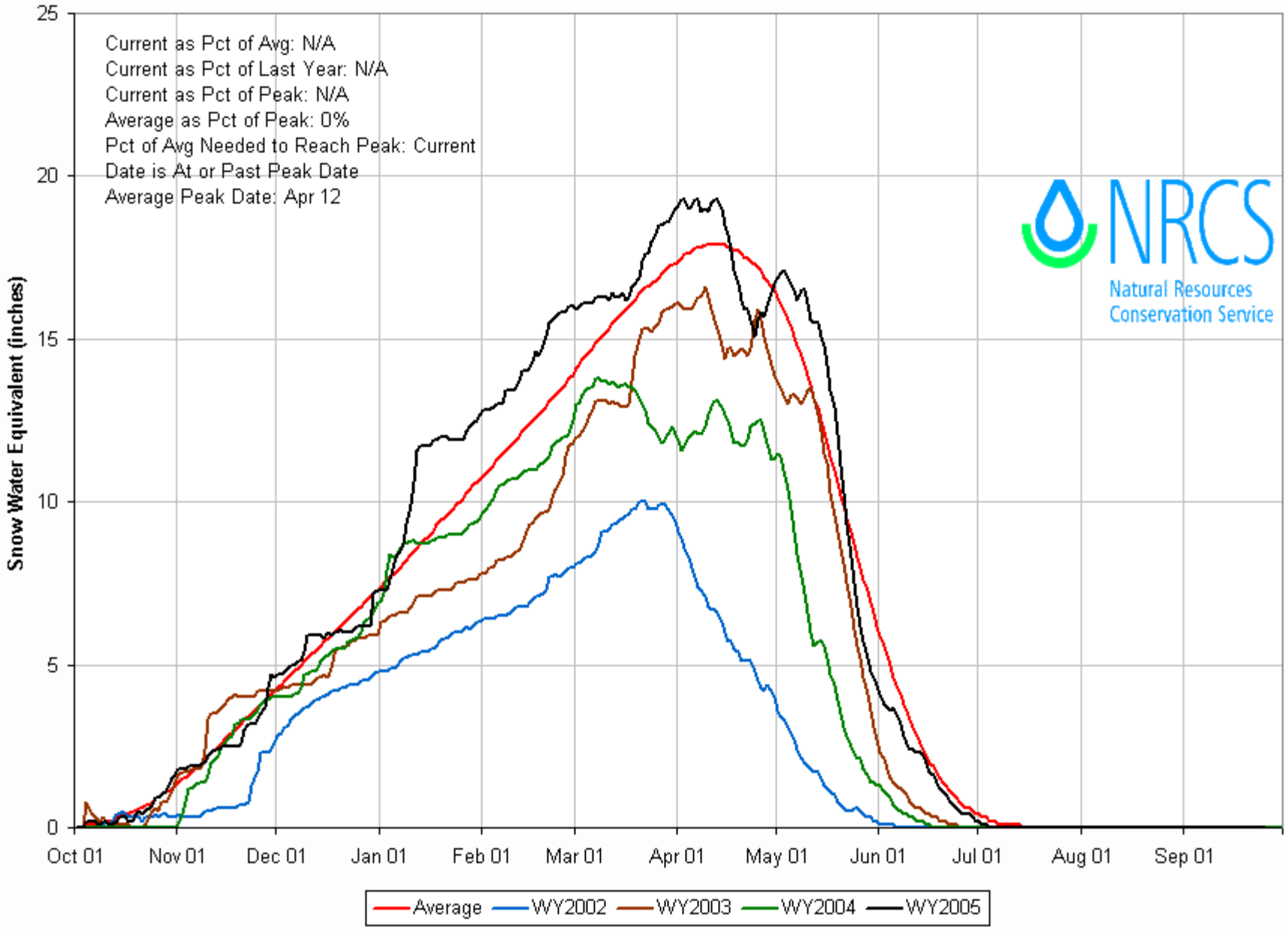


Average Precipitation for Selected Locations

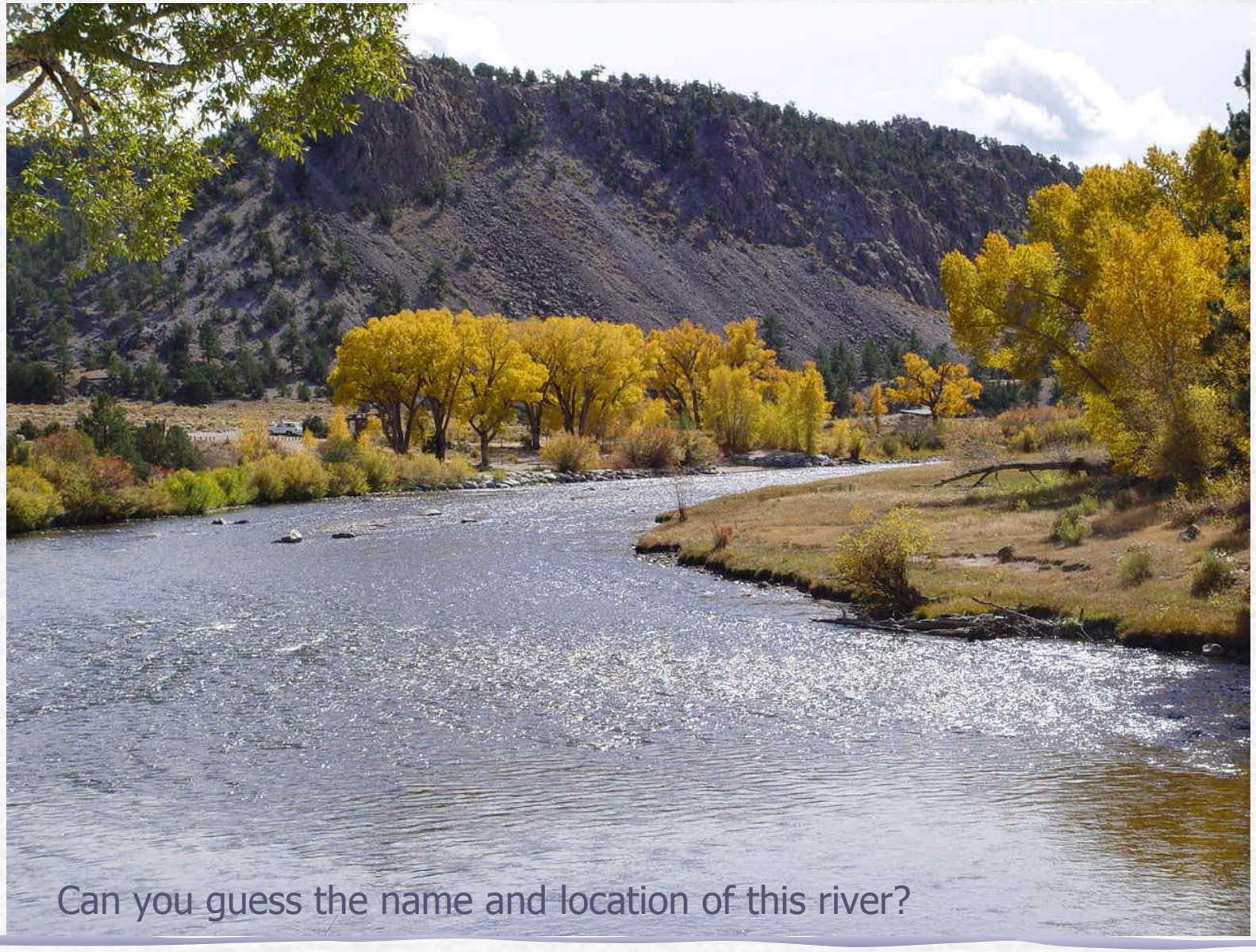


Colorado Statewide Snowpack

Based on Provisional SNOTEL data as of Sep 26, 2005



Typical Streamflow Patterns



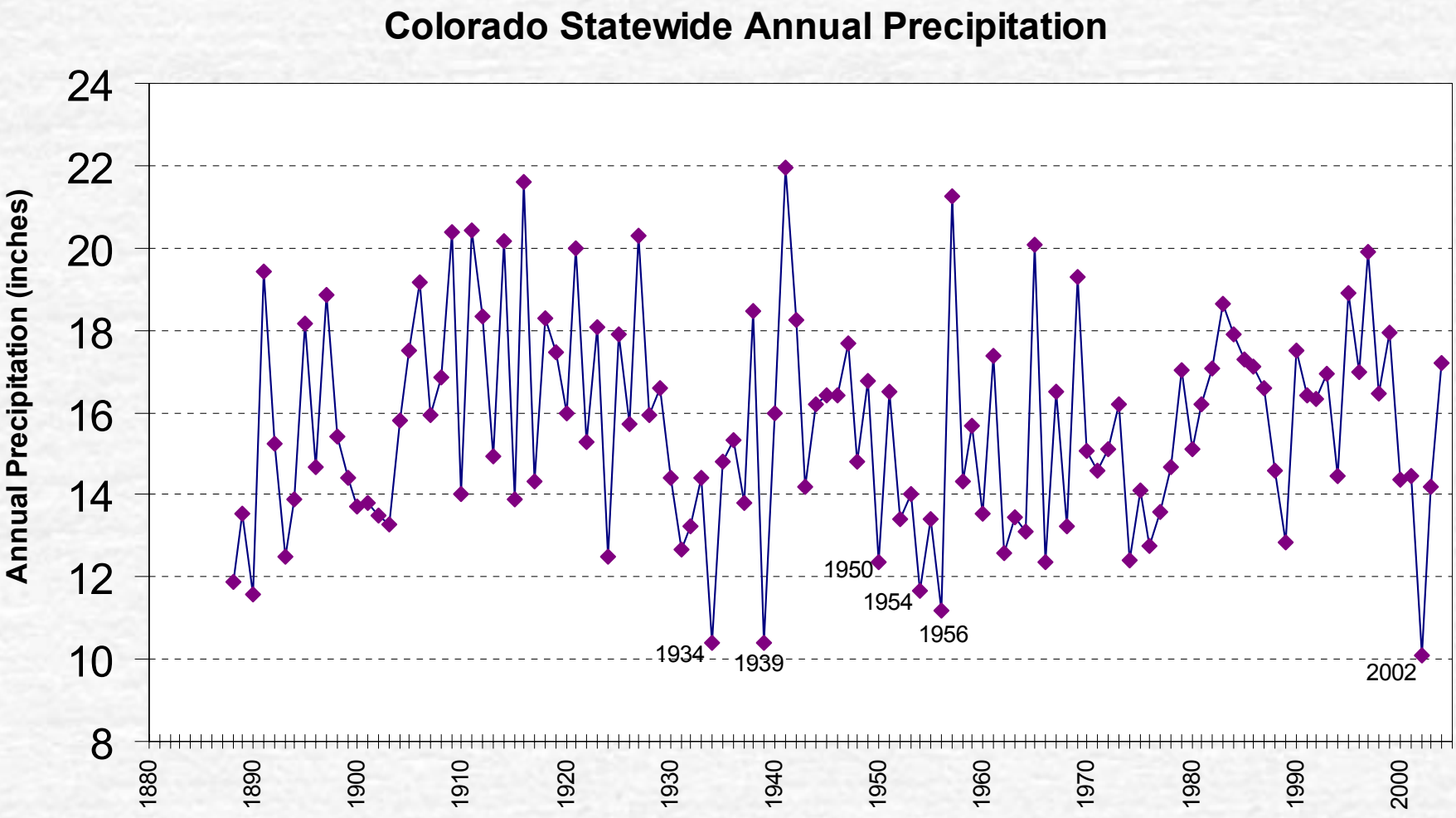
Can you guess the name and location of this river?

So, Where Have We Been?

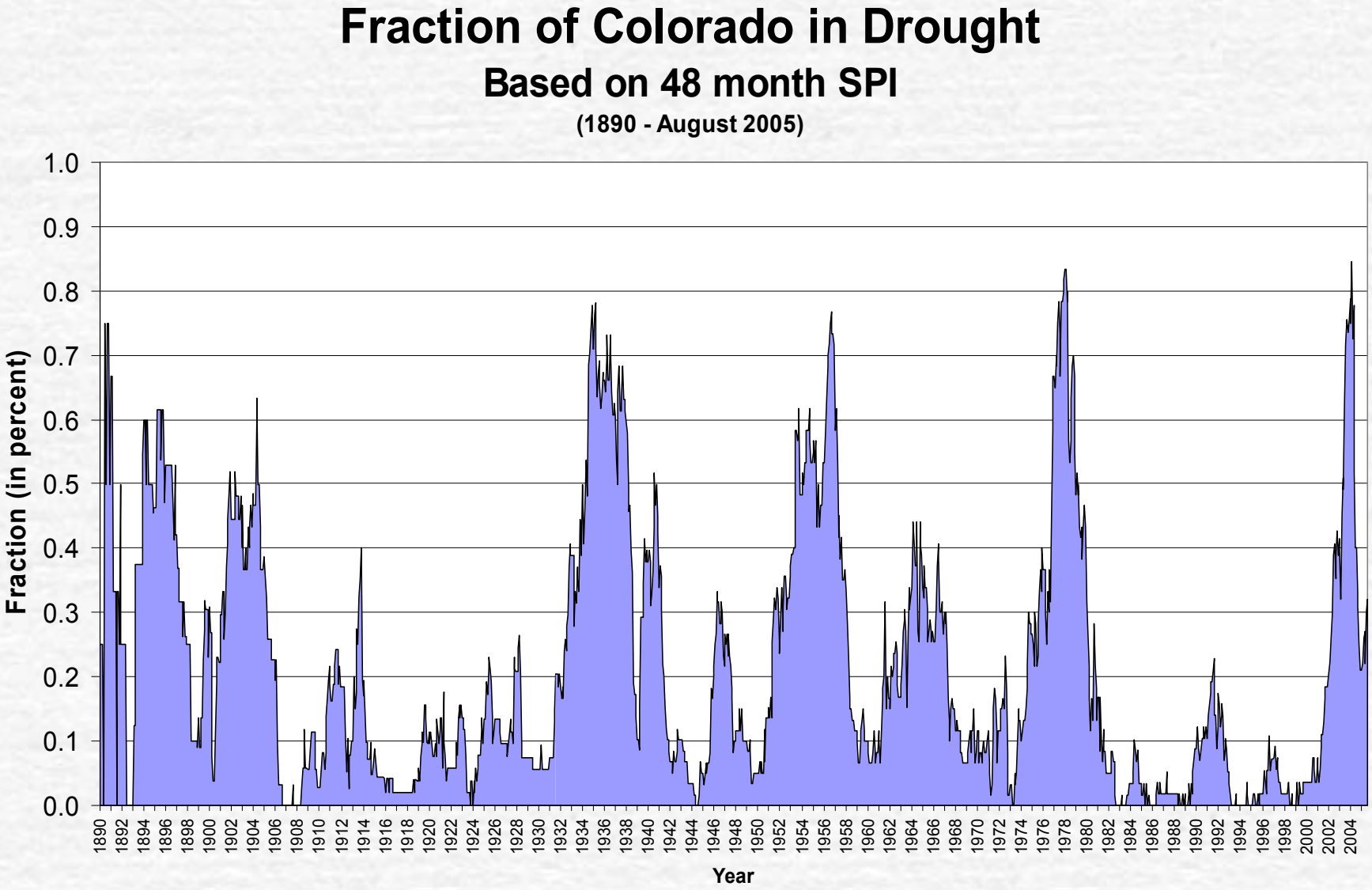
Photo by Matt Stark

Photo by MJ. Brodzik

Statewide Annual Precipitation



48 month SPI


Fraction of Colorado in Drought
Based on 48 month SPI
(1890 - August 2005)
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
1894
1896
1898
1900
1902
1904
1906
1908
1910
1912
1914
1916
1918
1920
1922
1924
1926
1928
1930
1932
1934
1936
1938
1940
1942
1944
1946
1948
1950
1952
1954
1956
1958
1960
1962
1964
1966
1968
1970
1972
1974
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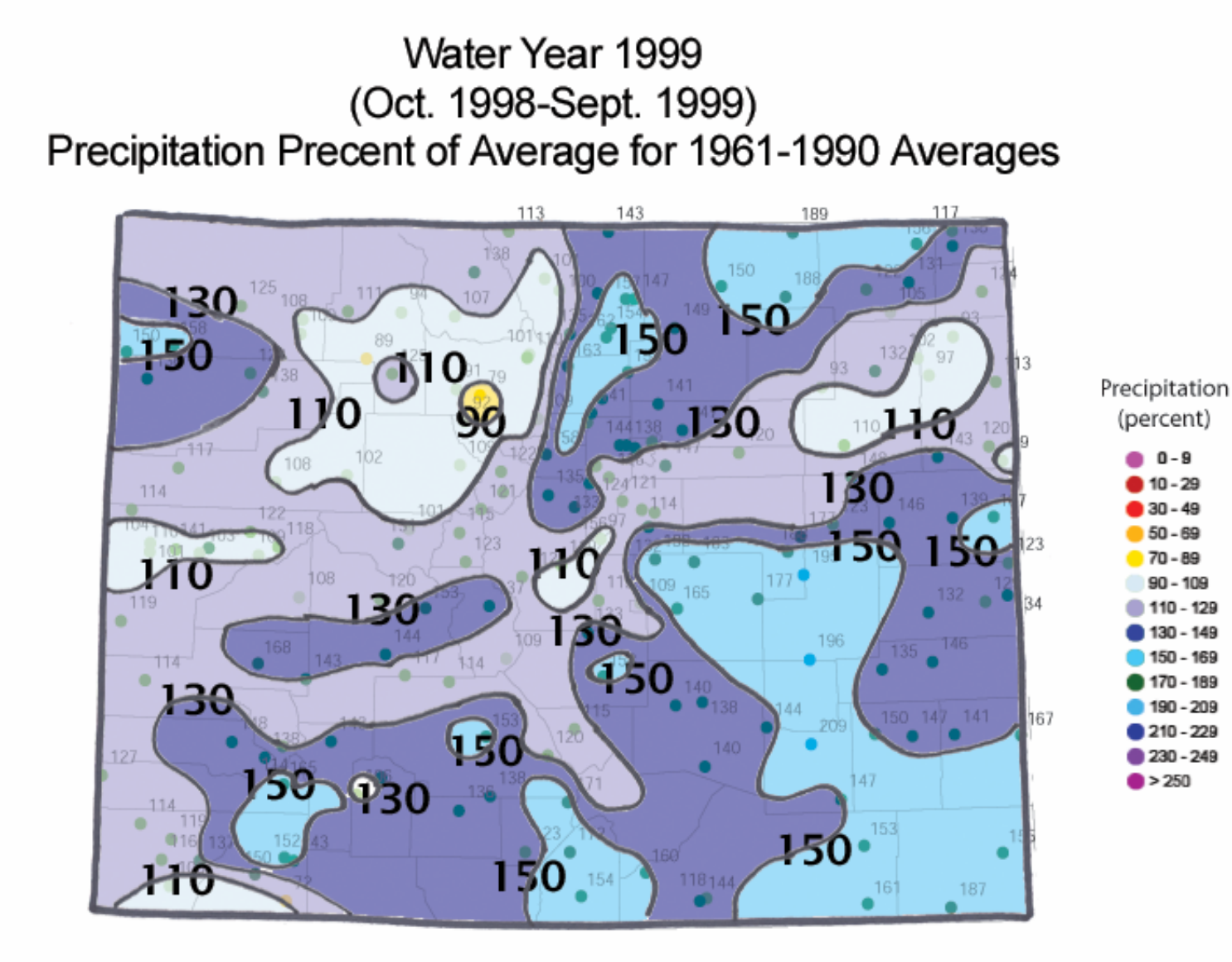
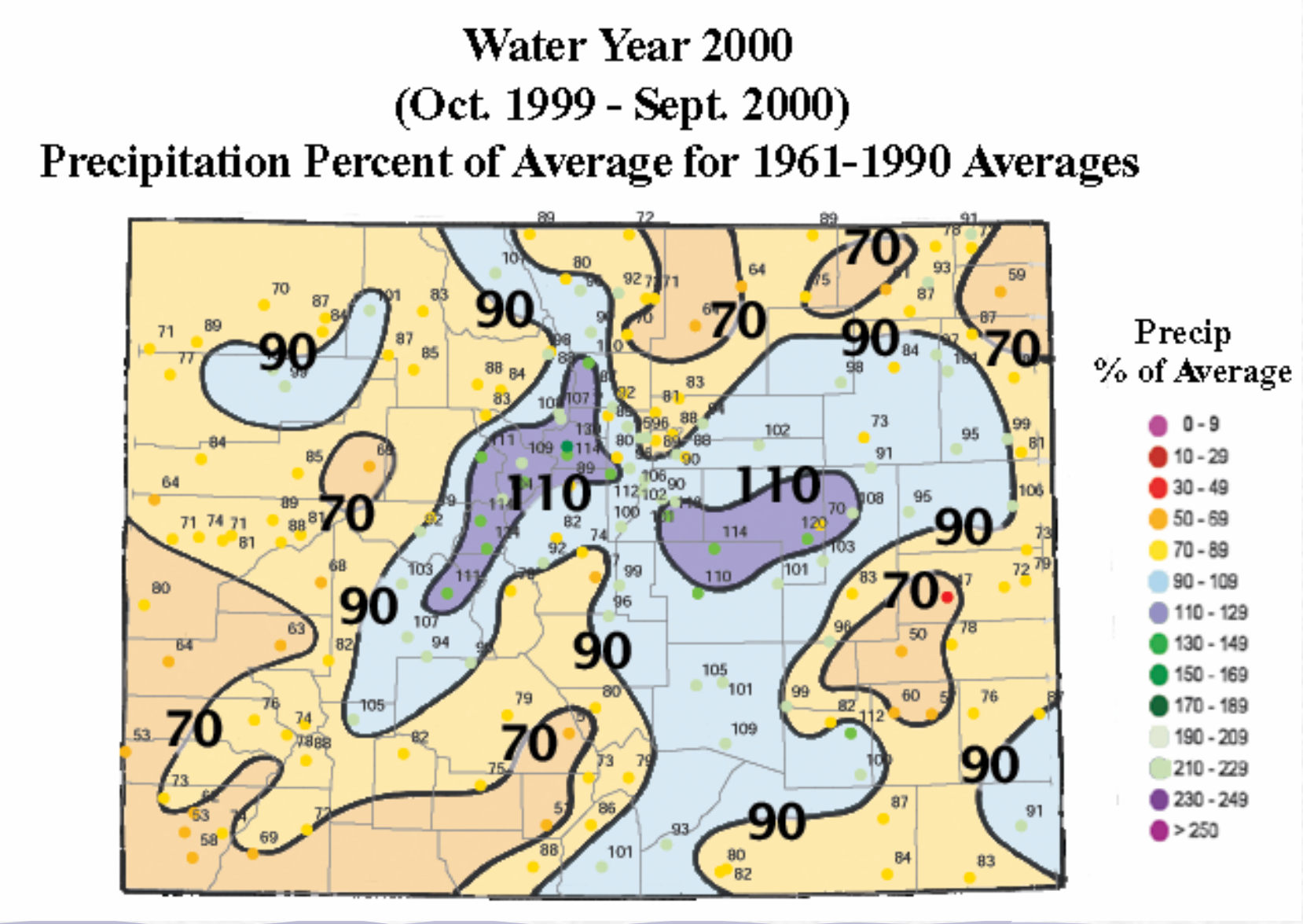
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
Year

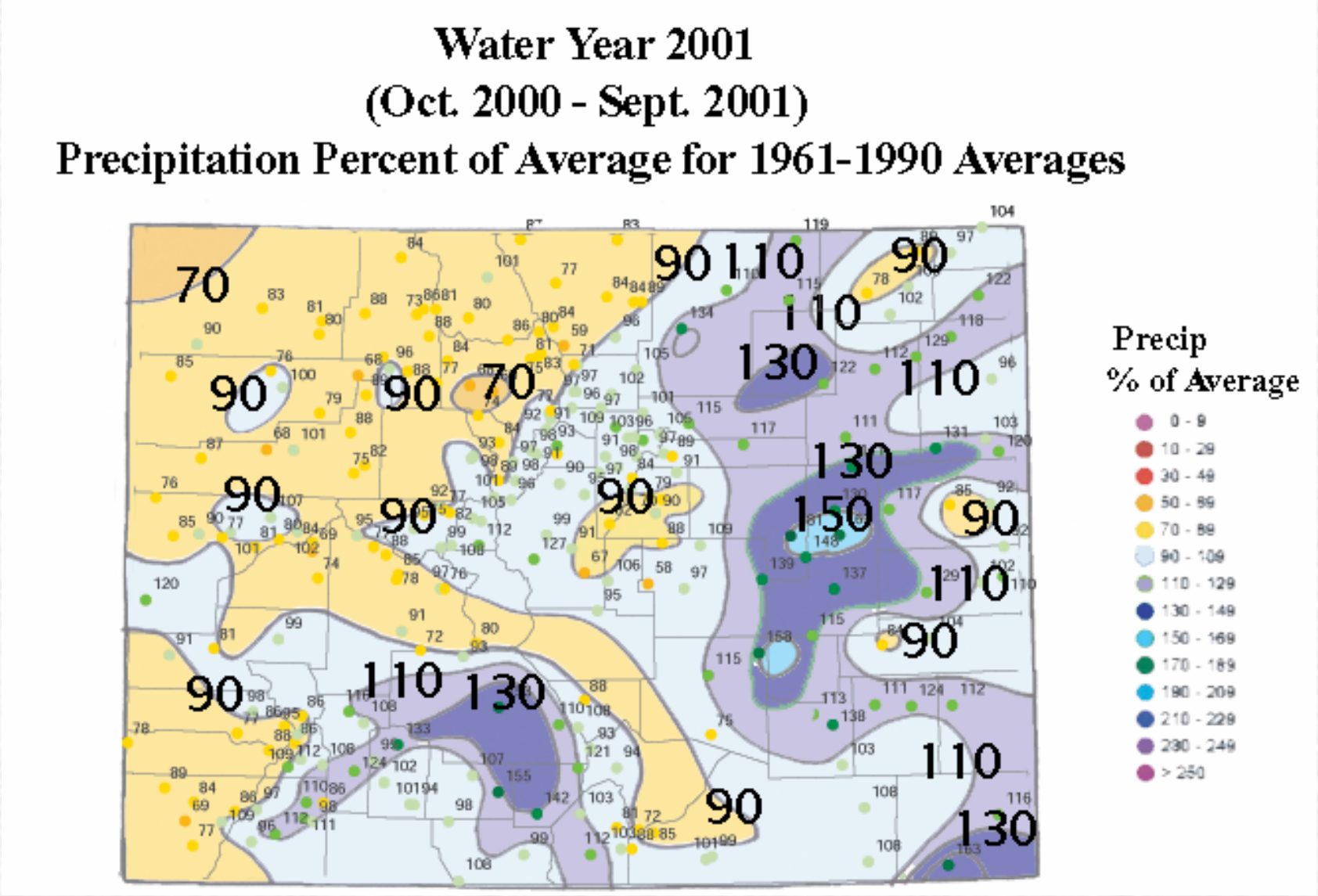
1999 Water Year Precipitation



2000 Water Year Precipitation

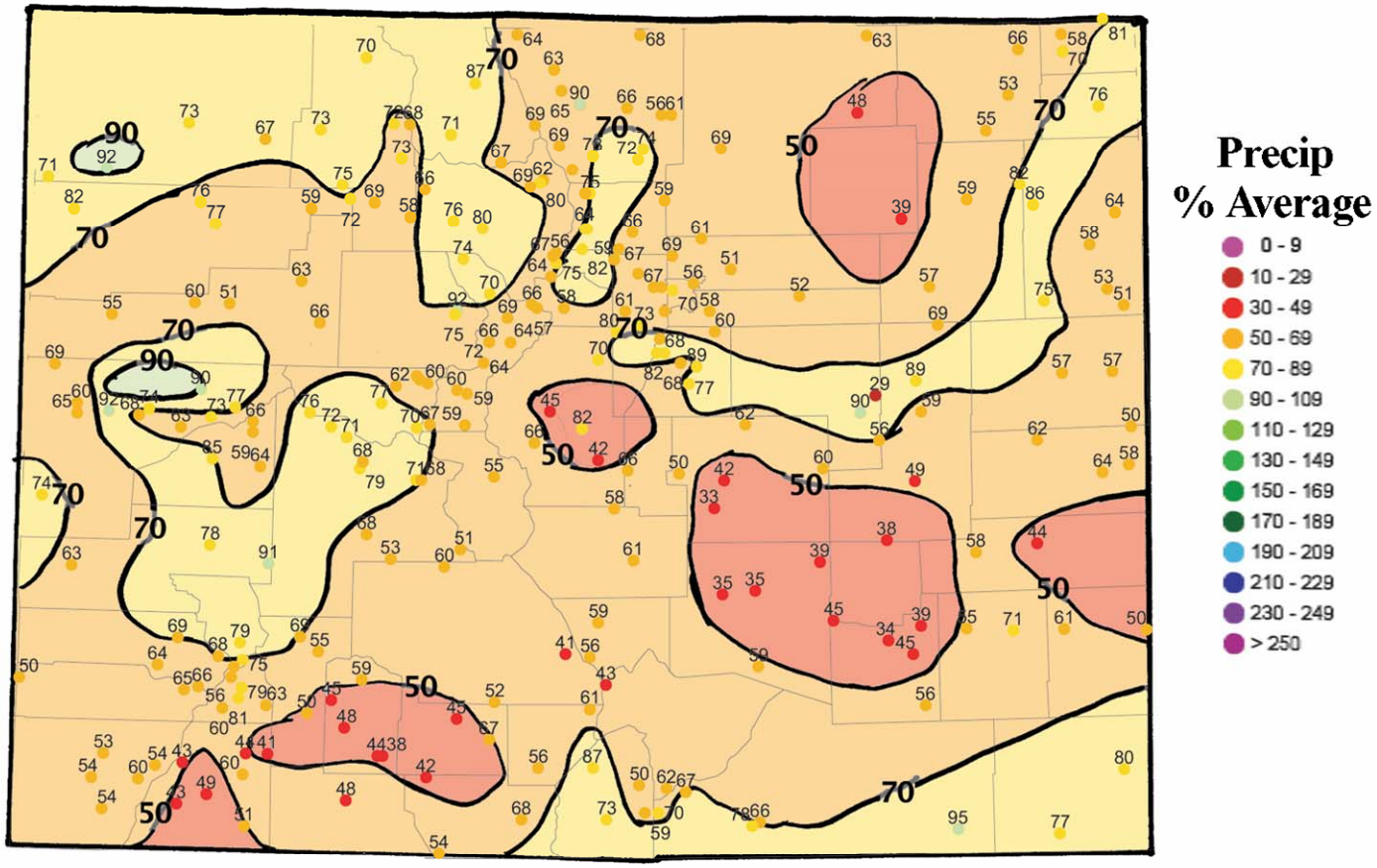


2001 Water Year Precipitation

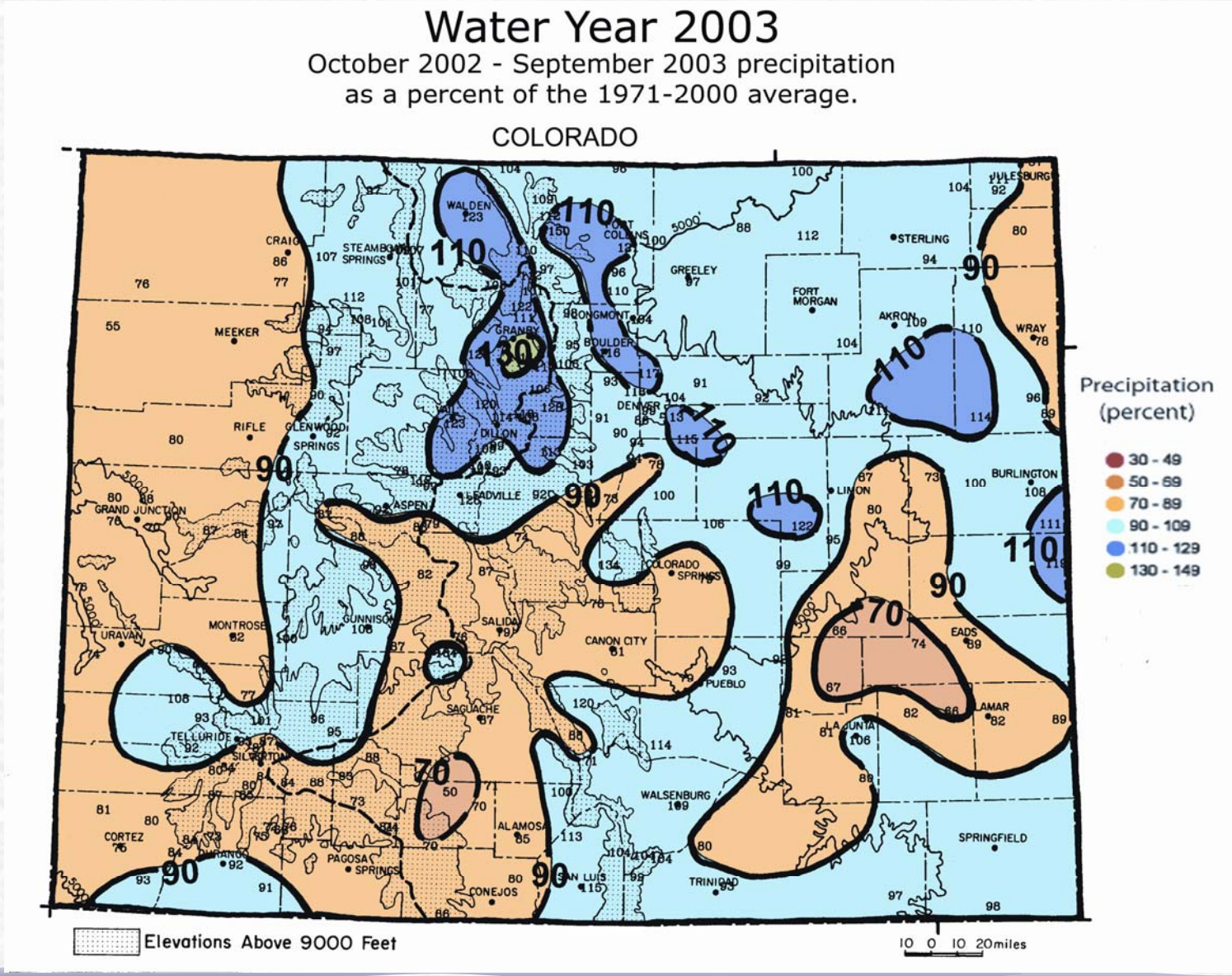


2002 Water Year Precipitation

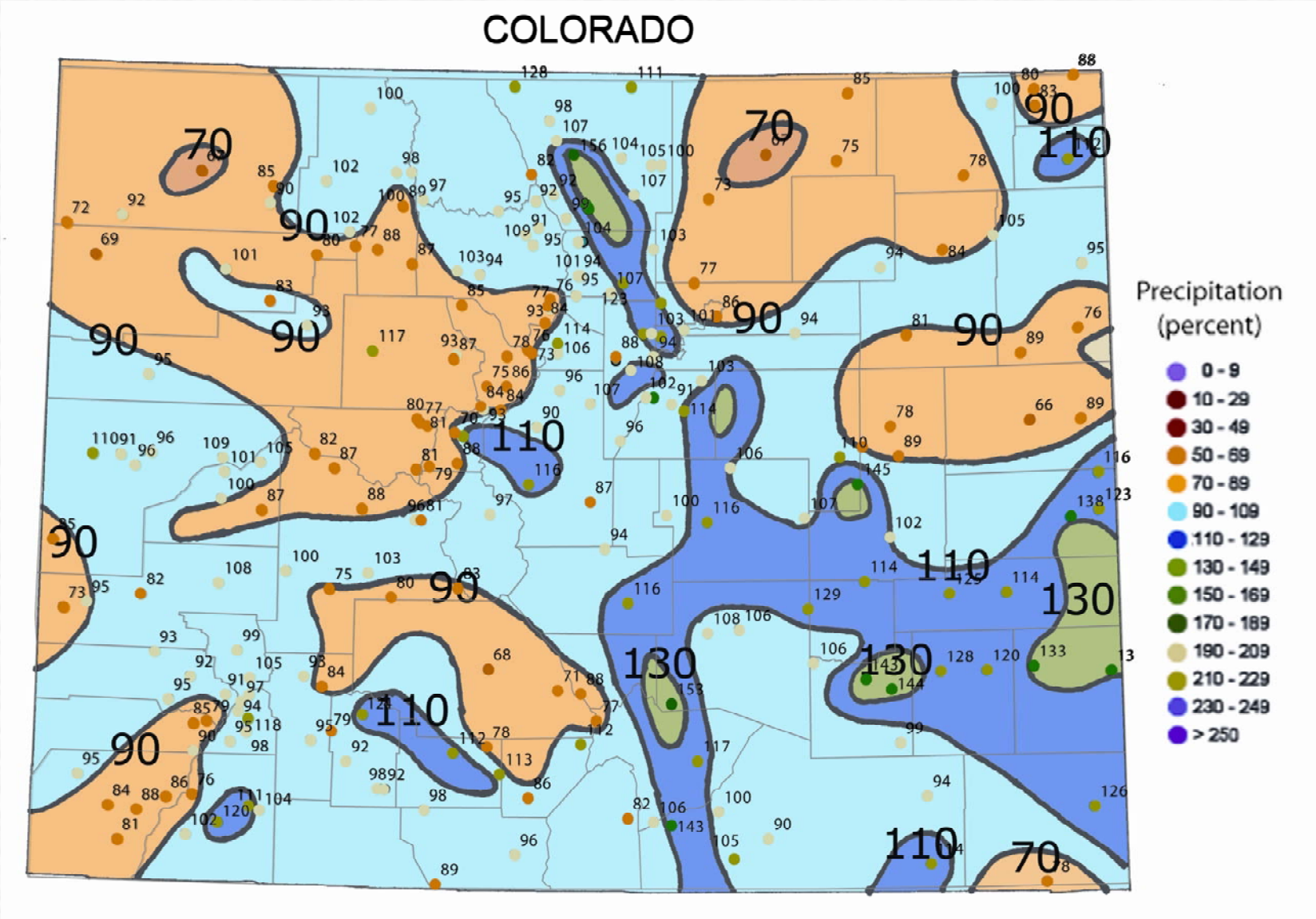
Water Year 2002
(Oct. 2001 - Sept. 2002)
Precipitation Percent of Average for 1961-1990 Averages



2003 Water Year Precipitation

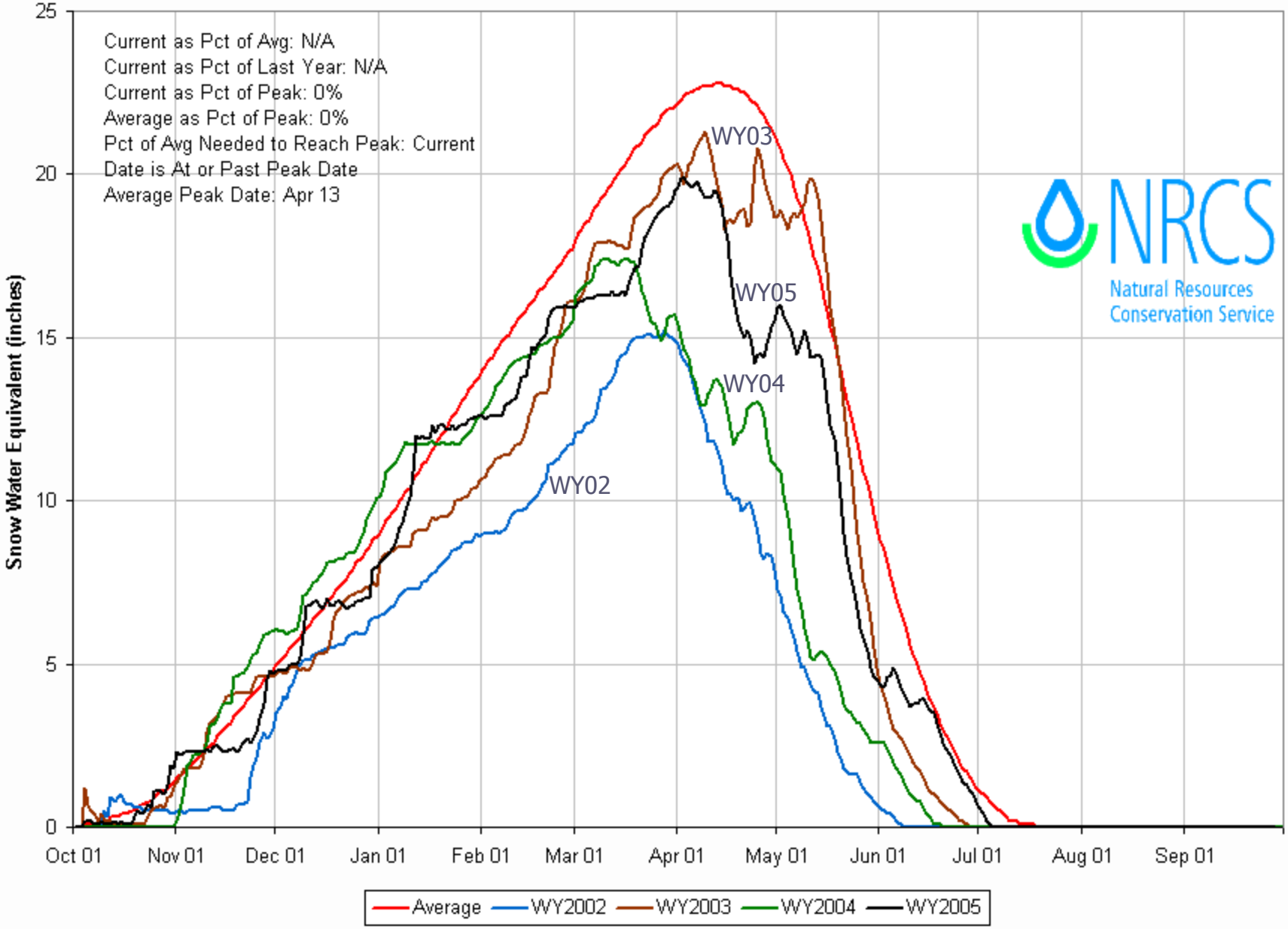


2004 Water Year Precipitation



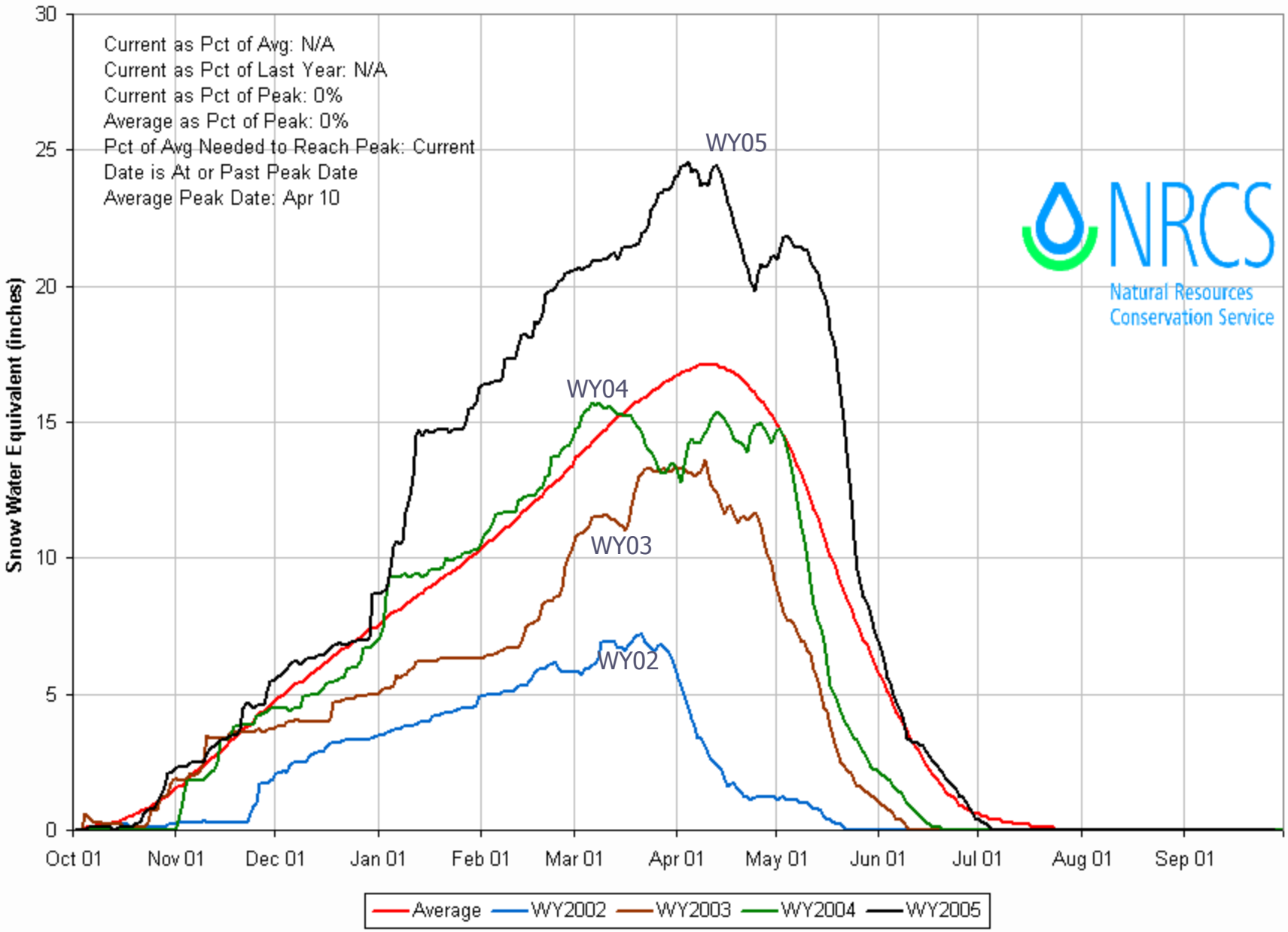
Yampa and White River Basins Snowpack

Based on Provisional SNOTEL data as of Sep 28, 2005

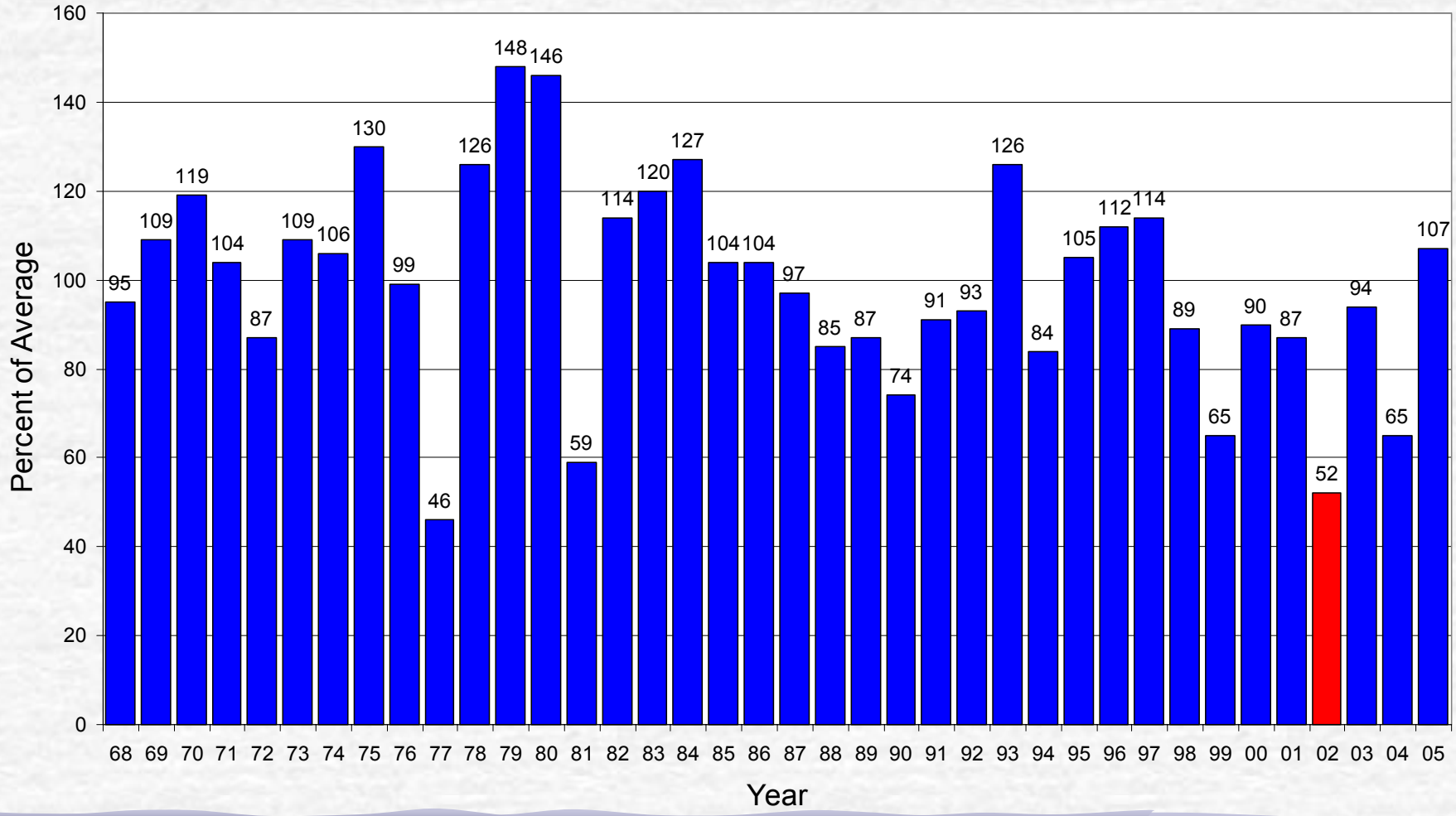


Upper Rio Grande Basin Snowpack

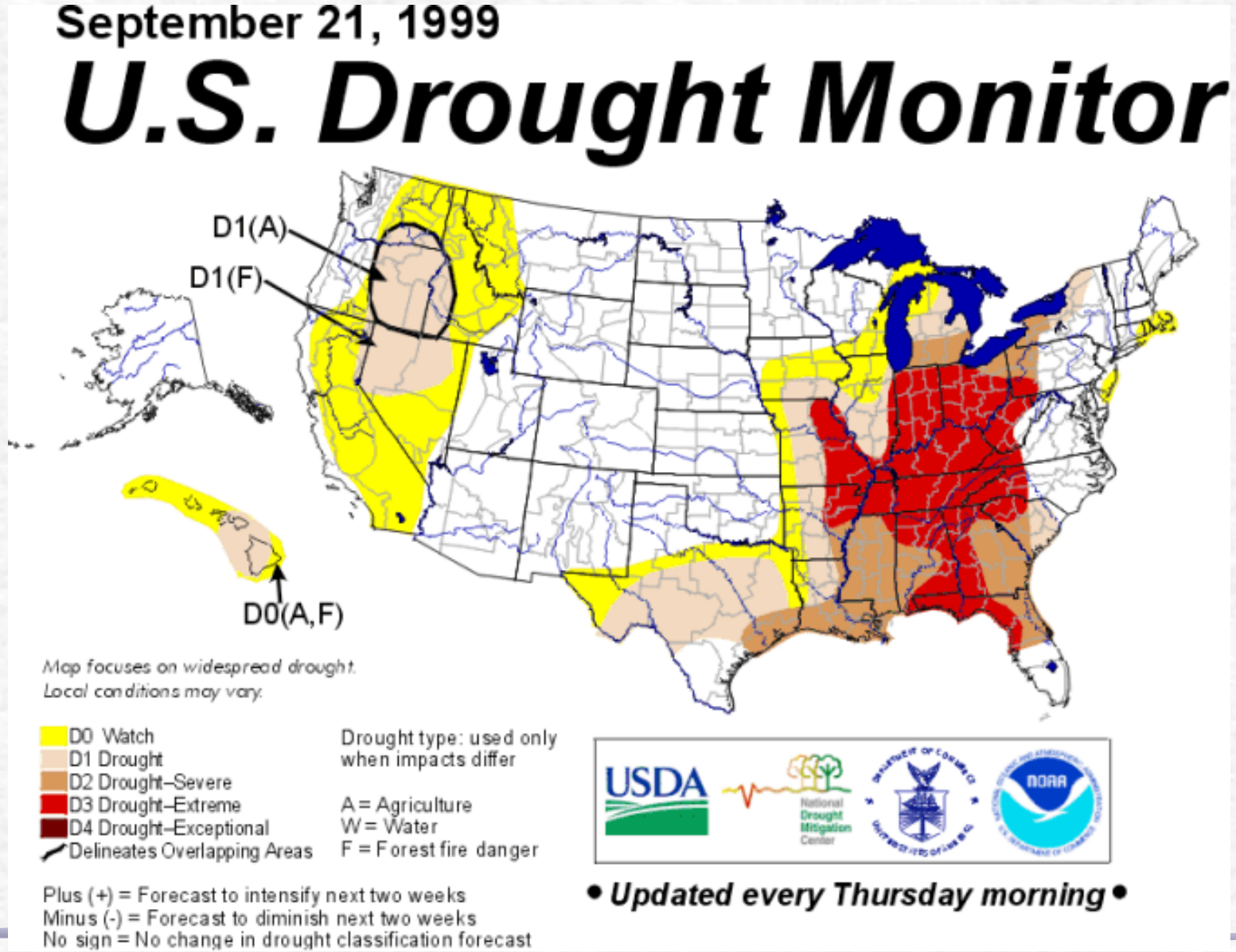
Based on Provisional SNOTEL data as of Sep 28, 2005



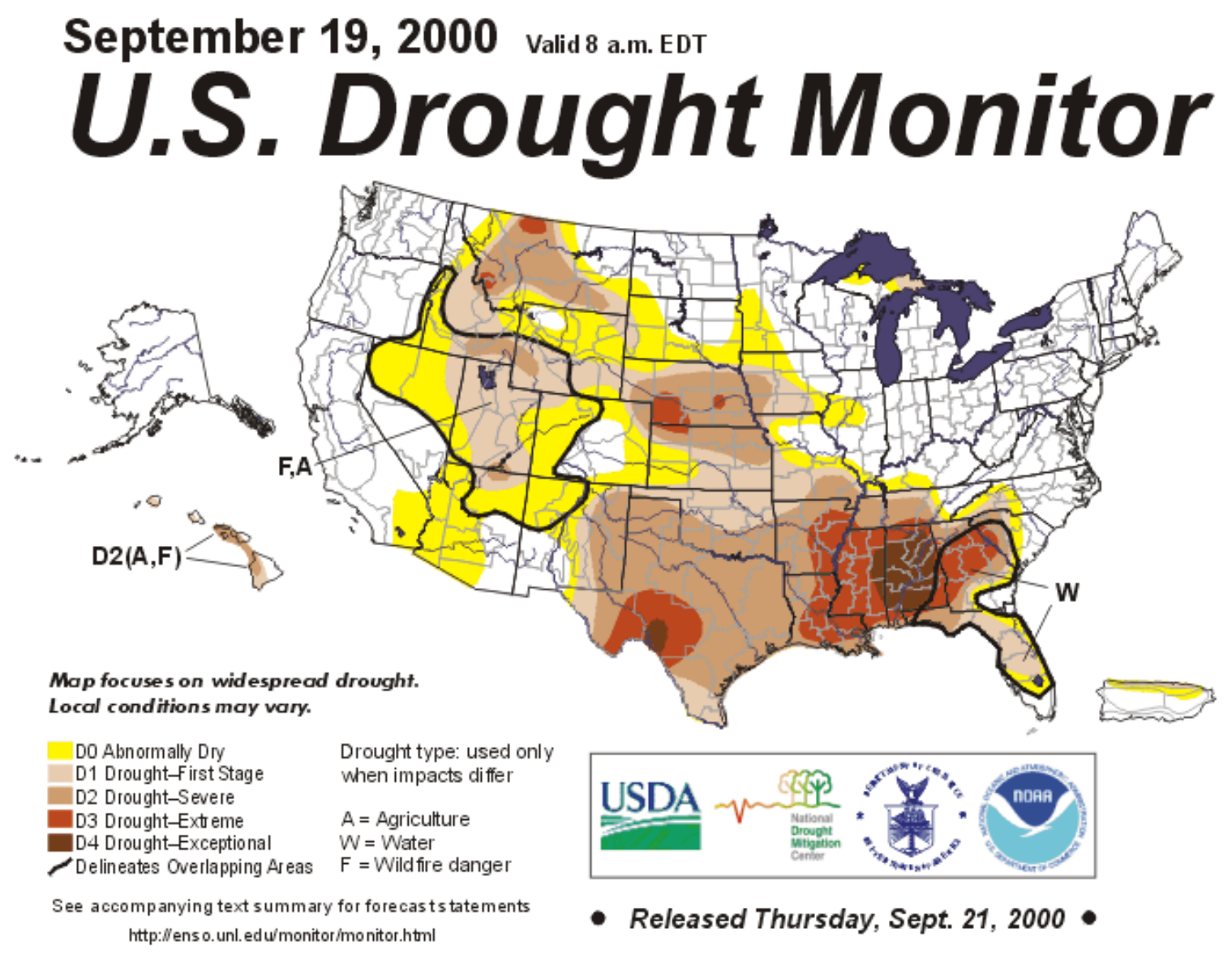
April 1 Snowpack



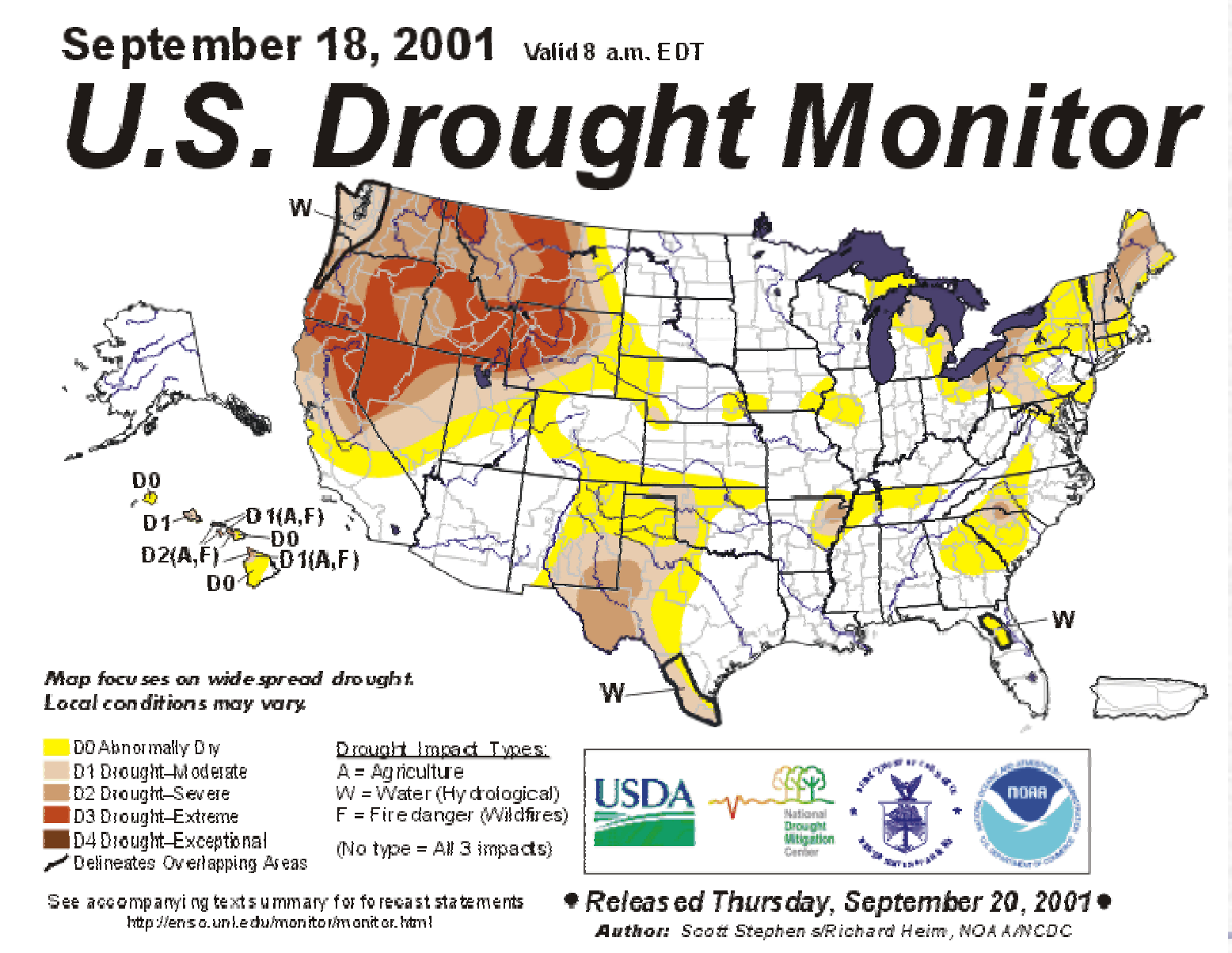
Drought Monitor – Sep 21, 1999



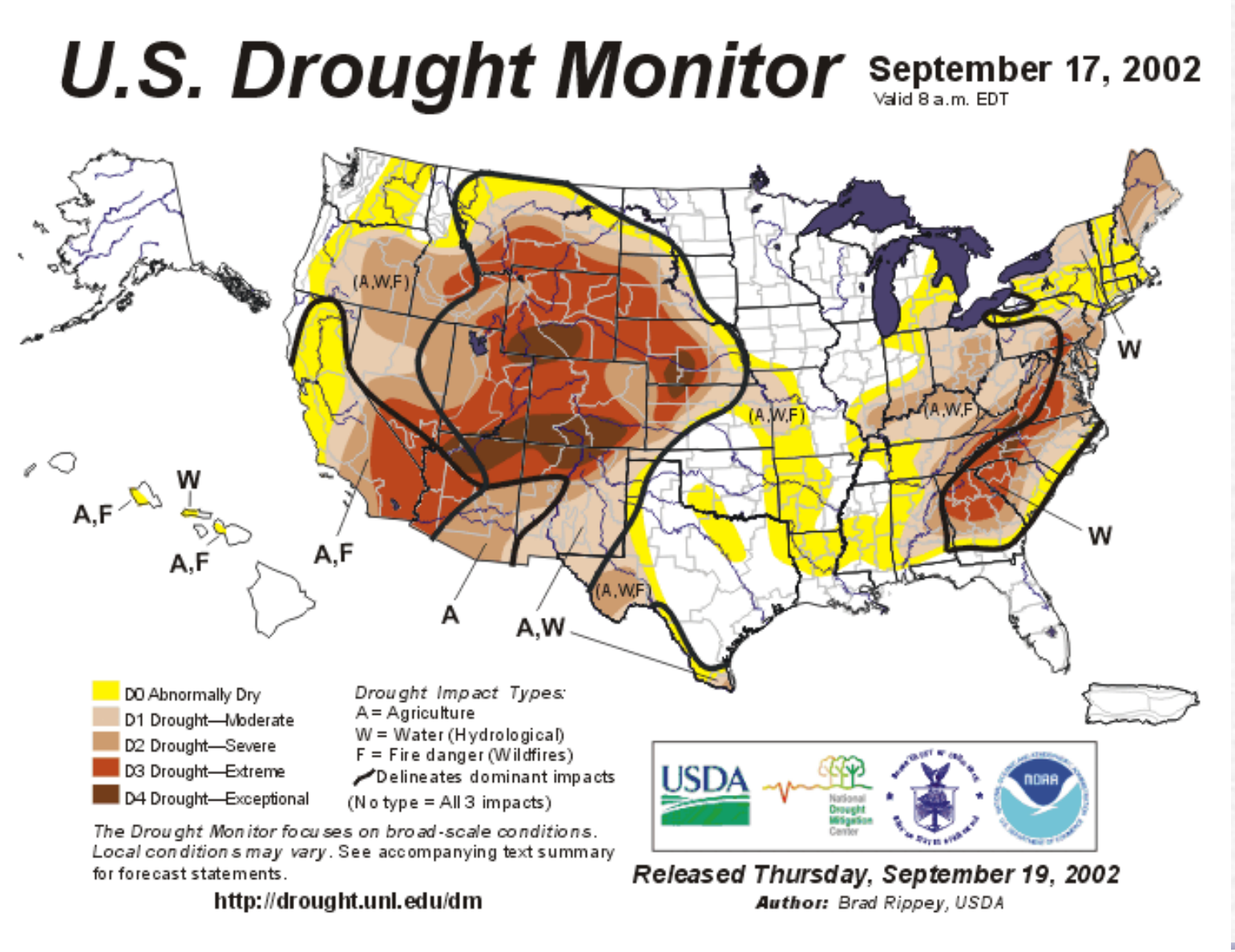
Drought Monitor – Sep 19, 2000



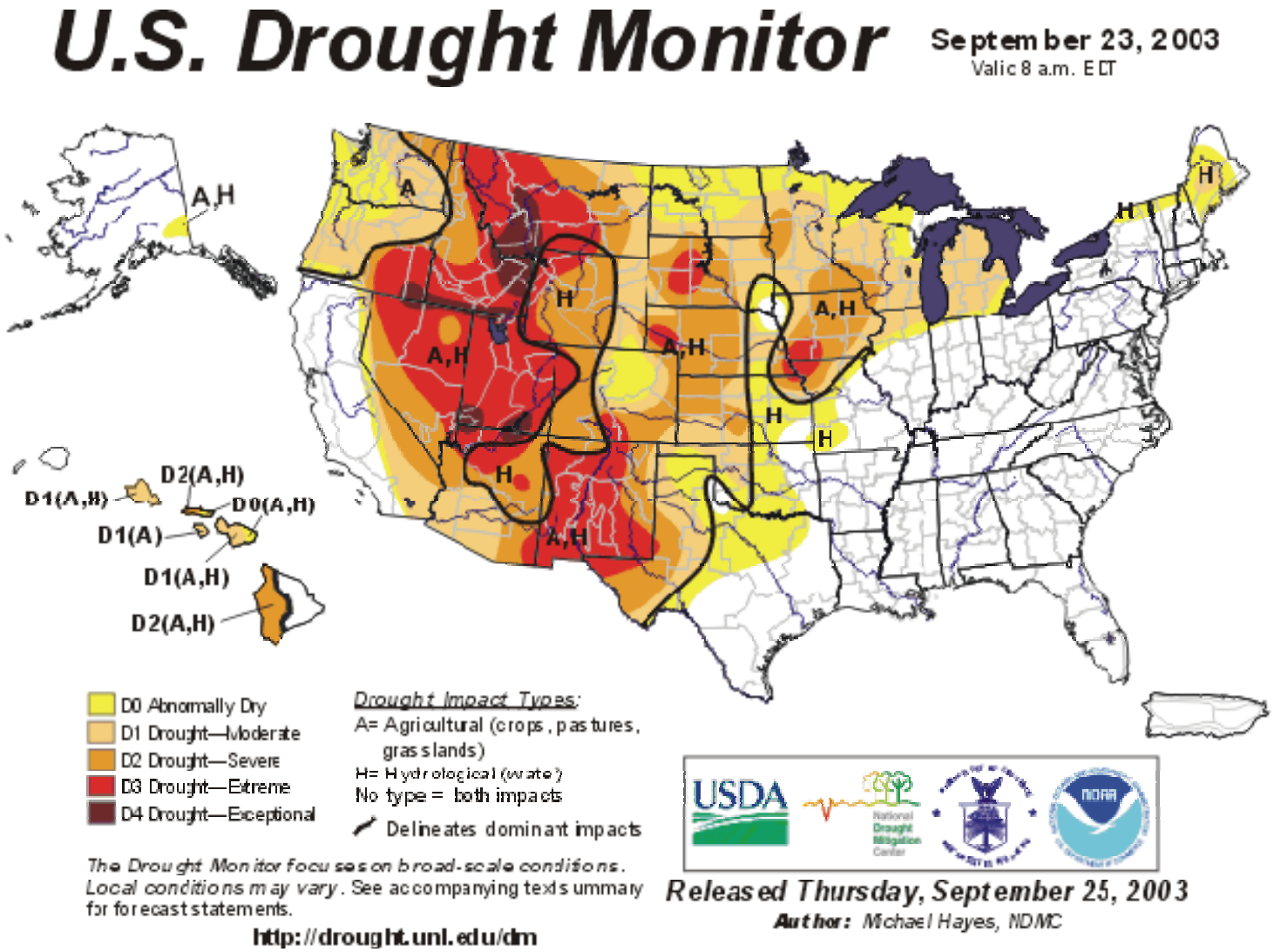
Drought Monitor – Sep 18, 2001



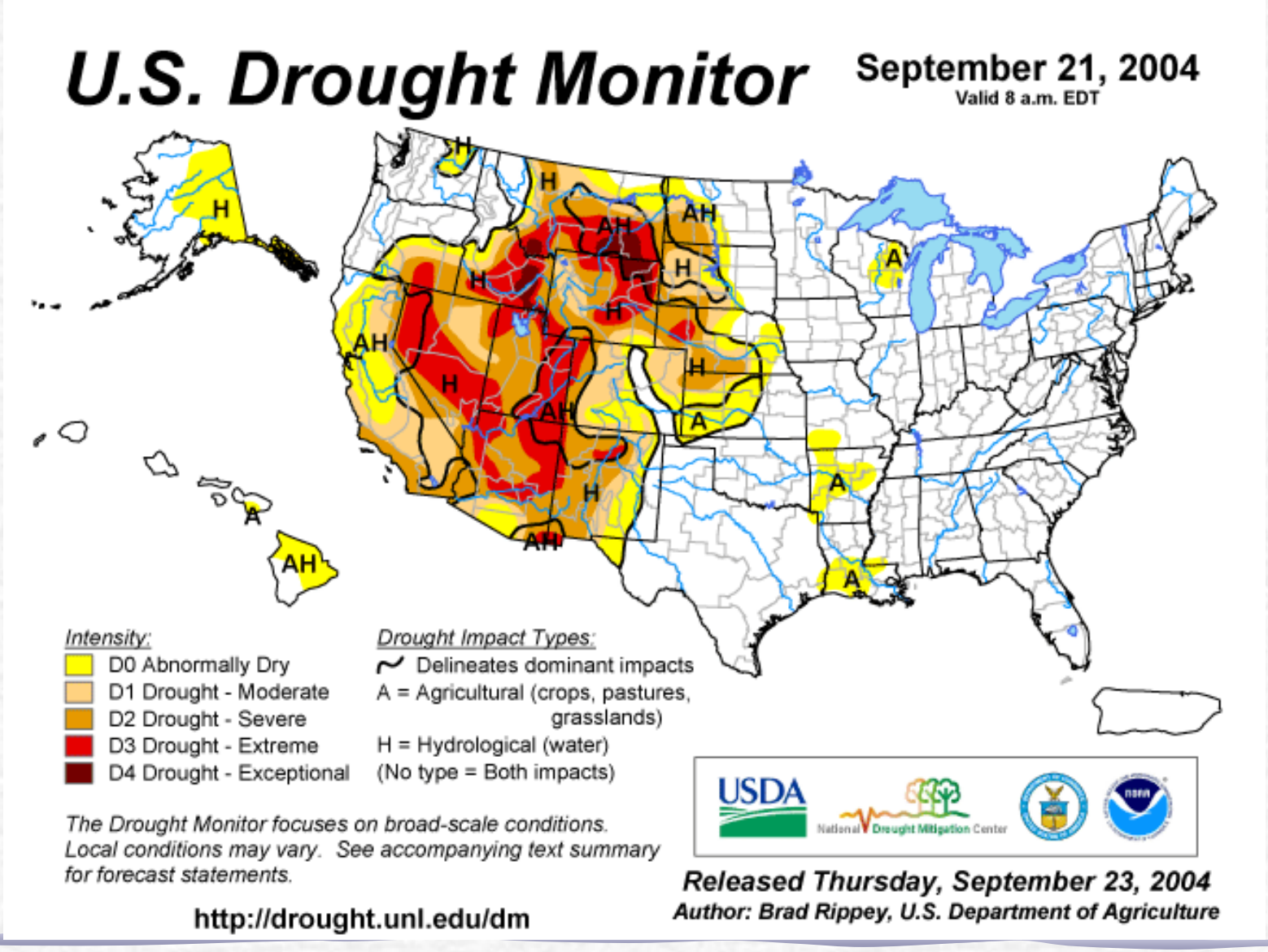
Drought Monitor – Sep 17, 2002



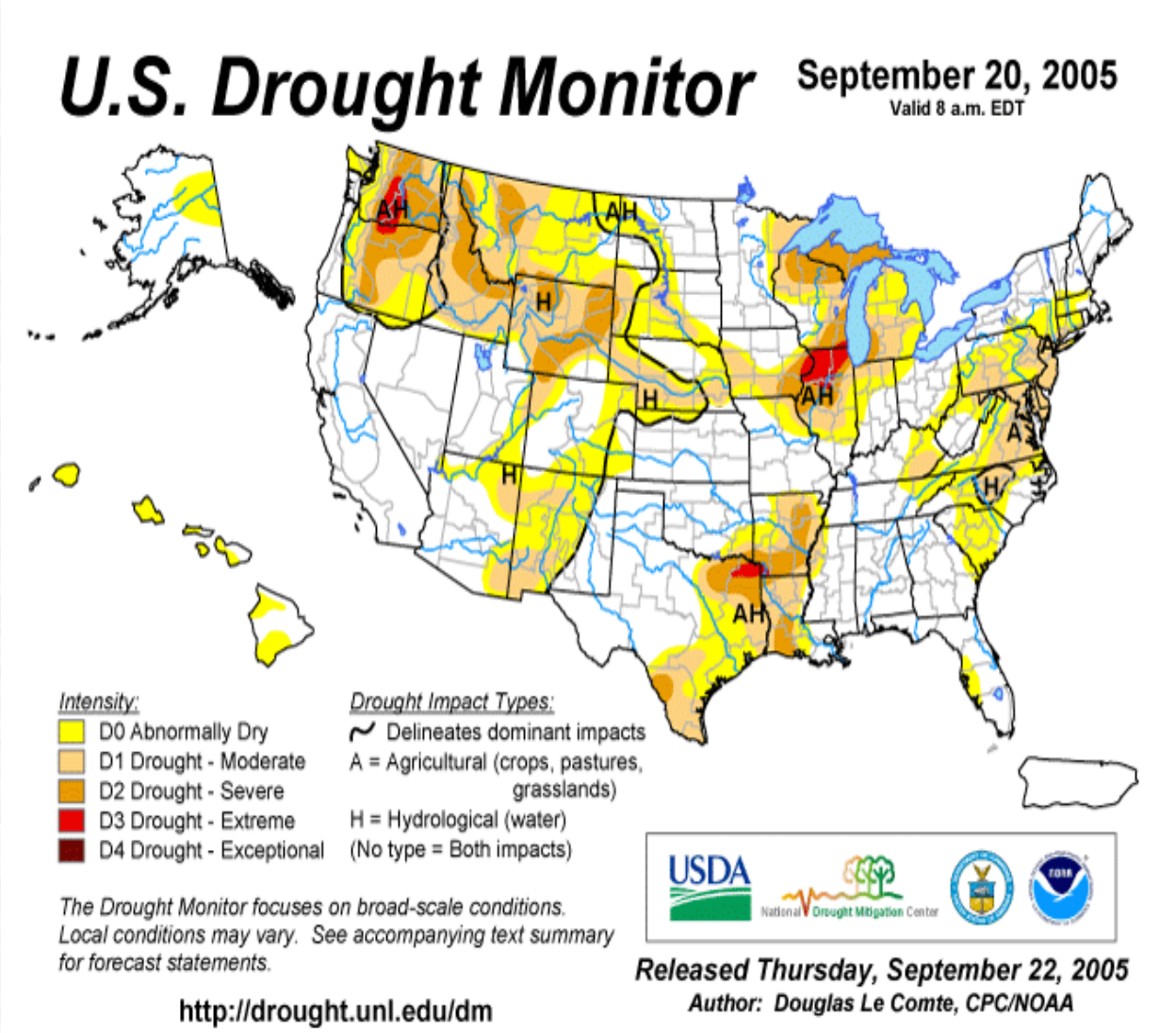
Drought Monitor – Sep 23, 2003



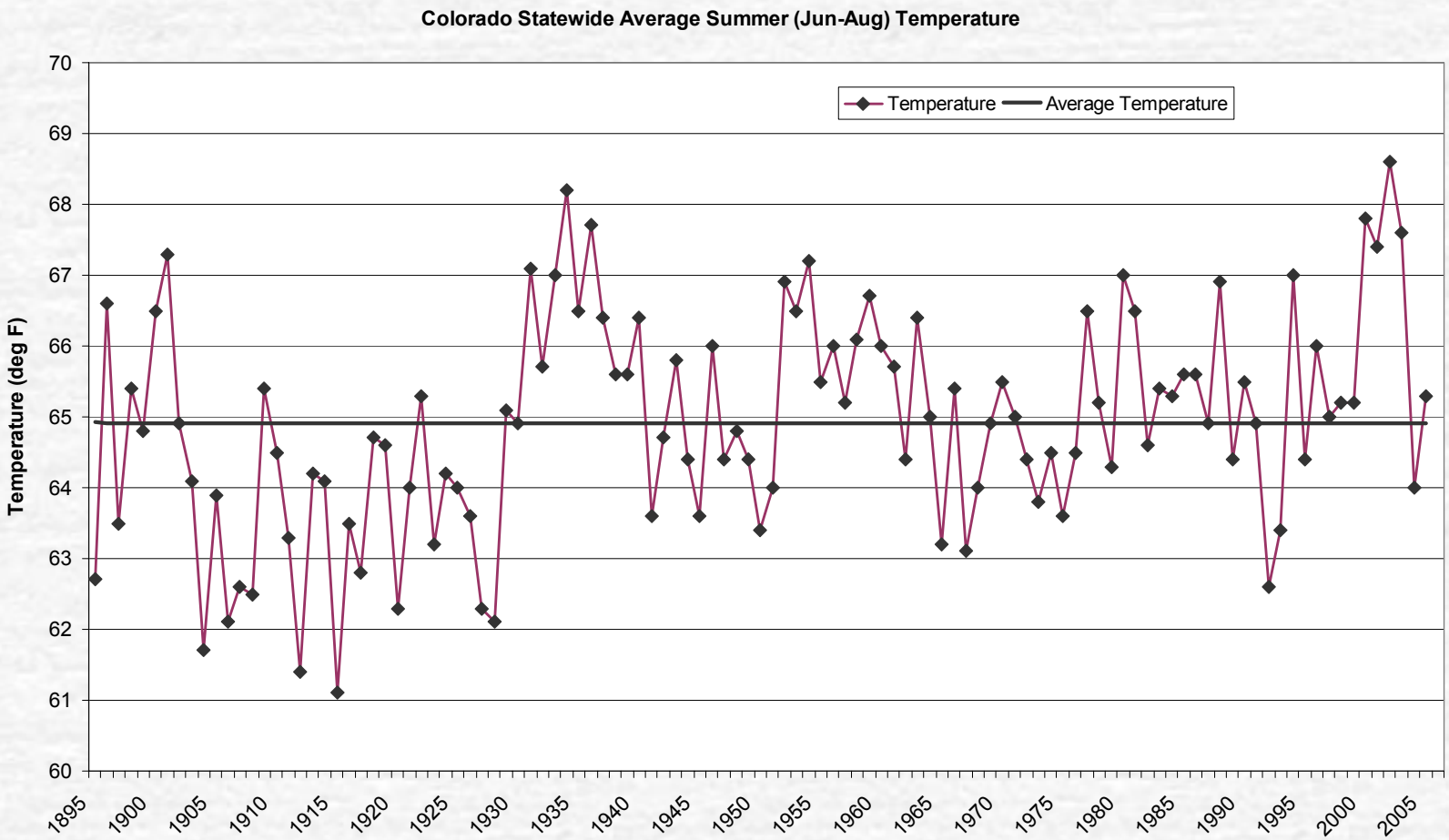
Drought Monitor – Sep 21, 2004



Drought Monitor – Sep 20, 2005

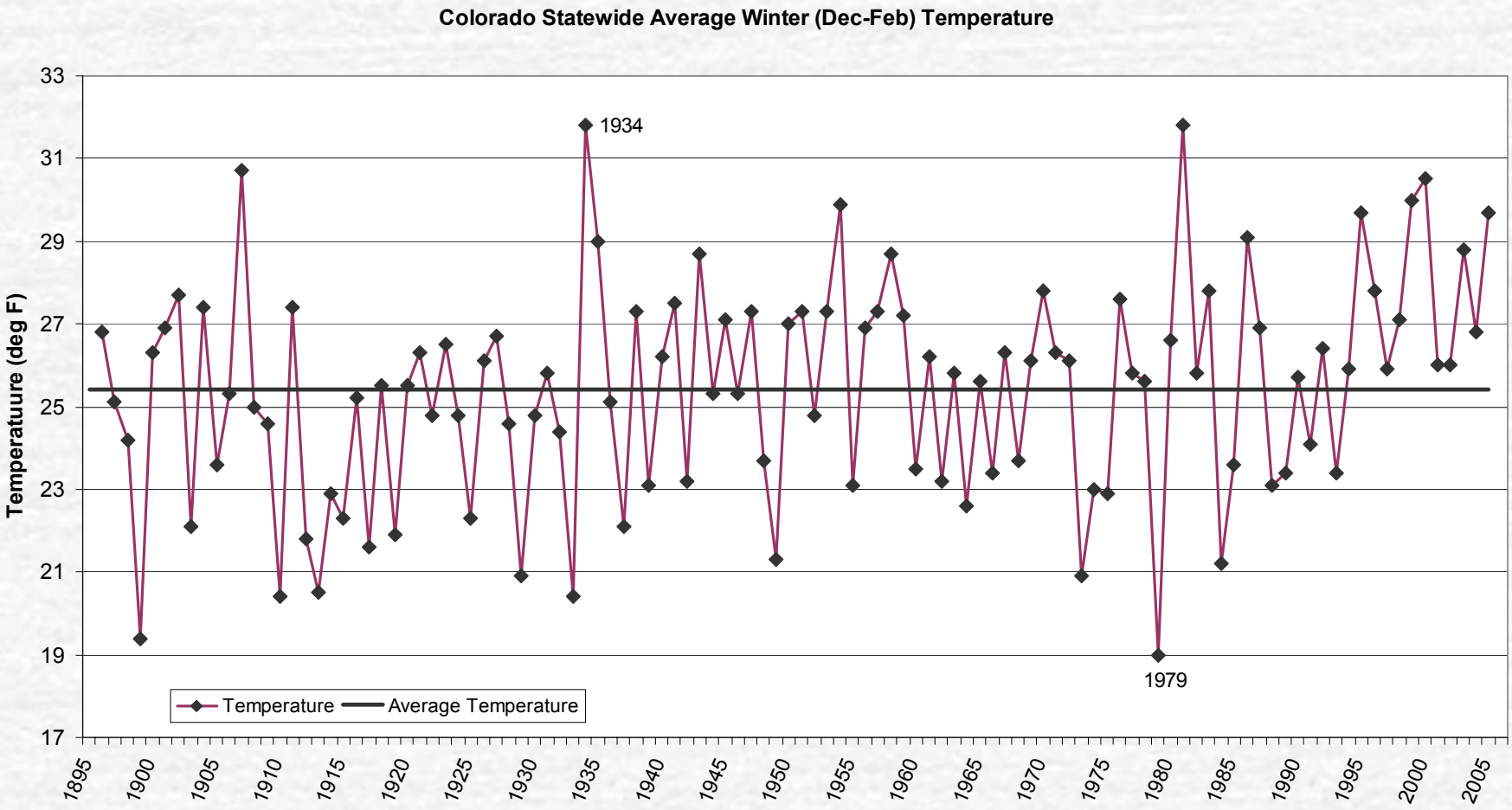


Colorado Average Summer (Jun-Aug) Temperature, 1895-2005



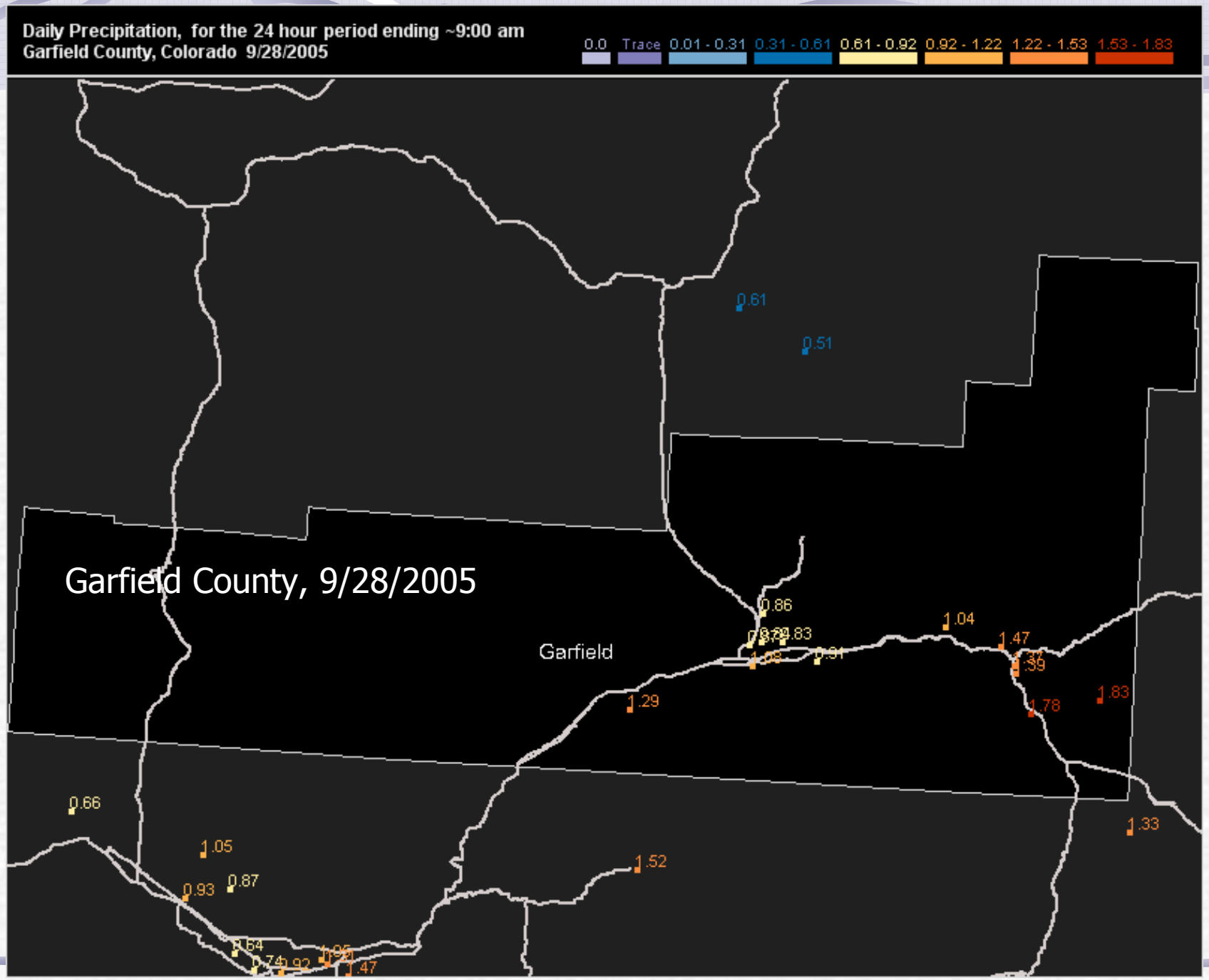
http://www.ncdc.noaa.gov/oa/climate/research/cag3/co.html

Colorado Average Winter (Dec-Feb) Temperature, 1895-2005

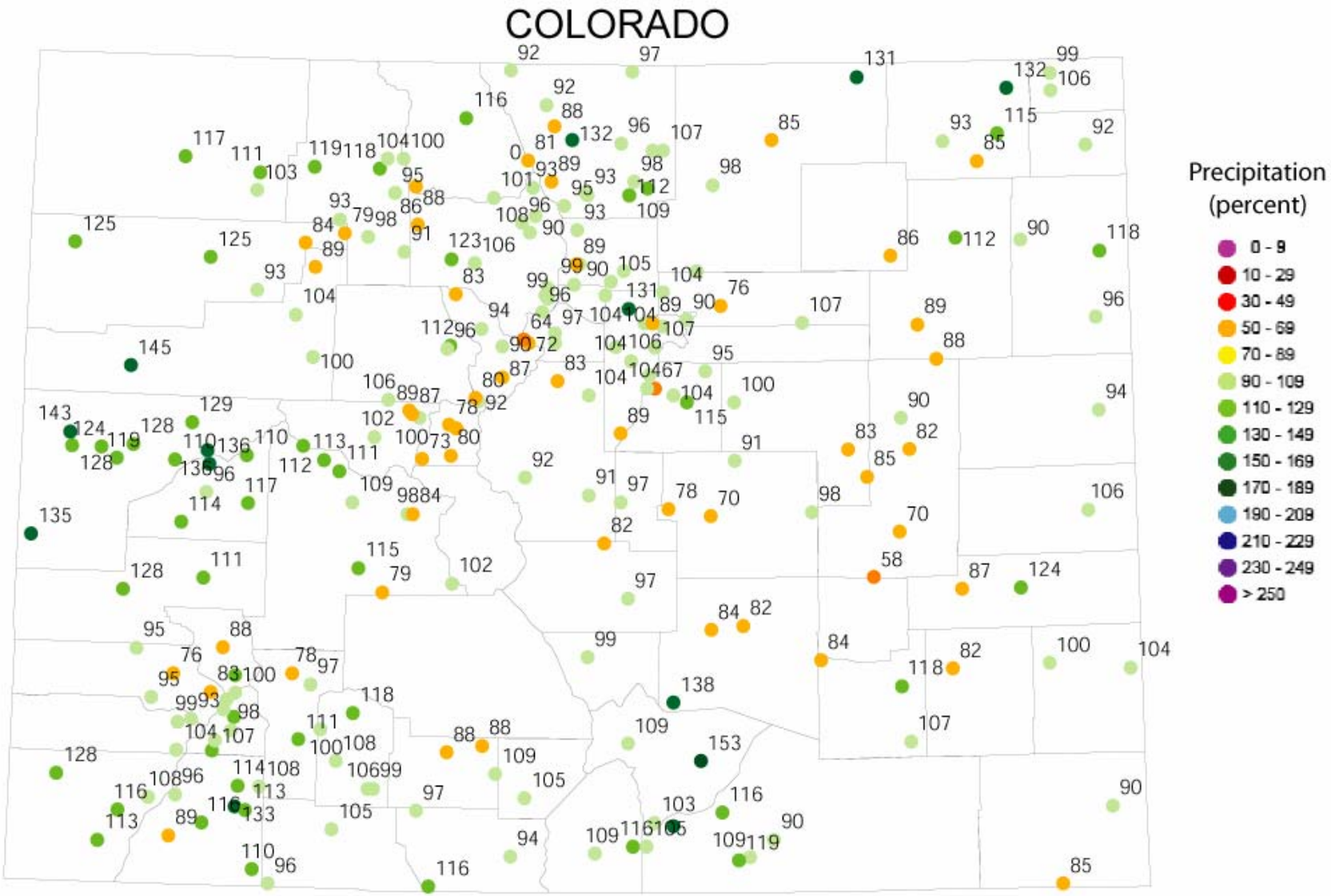


Where We Stand Today

Hotel Colorado photo by Frank Sterns


Daily Precipitation, for the 24 hour period ending ~9:00 am
Garfield County, Colorado 9/28/2005
0.0
Trace
0.01 - 0.31
0.31 - 0.61
0.61 - 0.92
0.92 - 1.22
1.22 - 1.53
1.53 - 1.83
Garfield County, 9/28/2005
Garfield
0.61
0.51
0.86
1.04
1.47
1.83
1.78
1.29
0.66
1.05
0.93
0.87
1.52
1.33
1.47

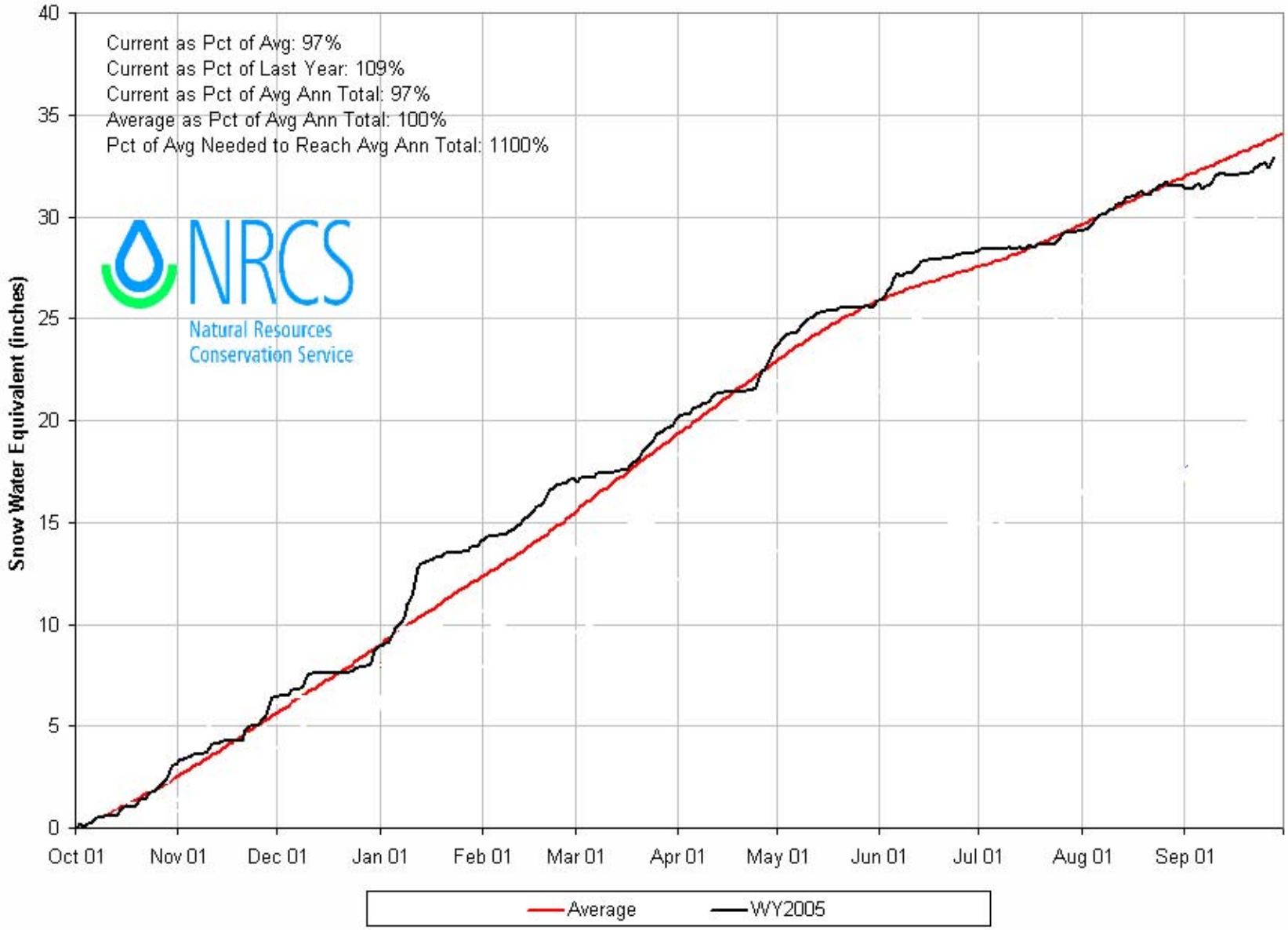
2005 Water Year Precipitation



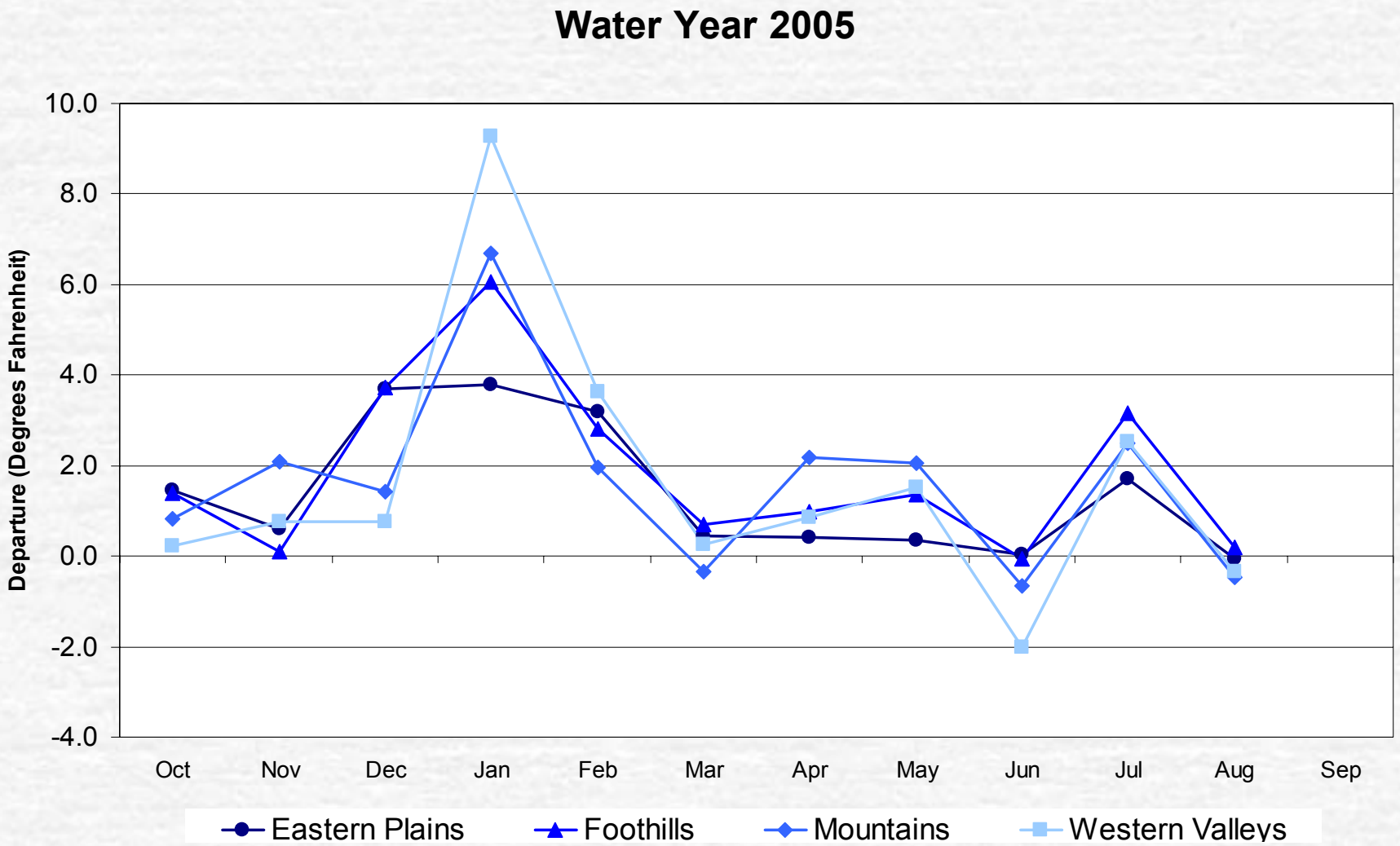
Water Year 2005 (October 2004 through August 2005) precipitation as a percent of the 1971-2000 average.

Colorado Statewide Time Series Year-to-Date Precipitation Summary

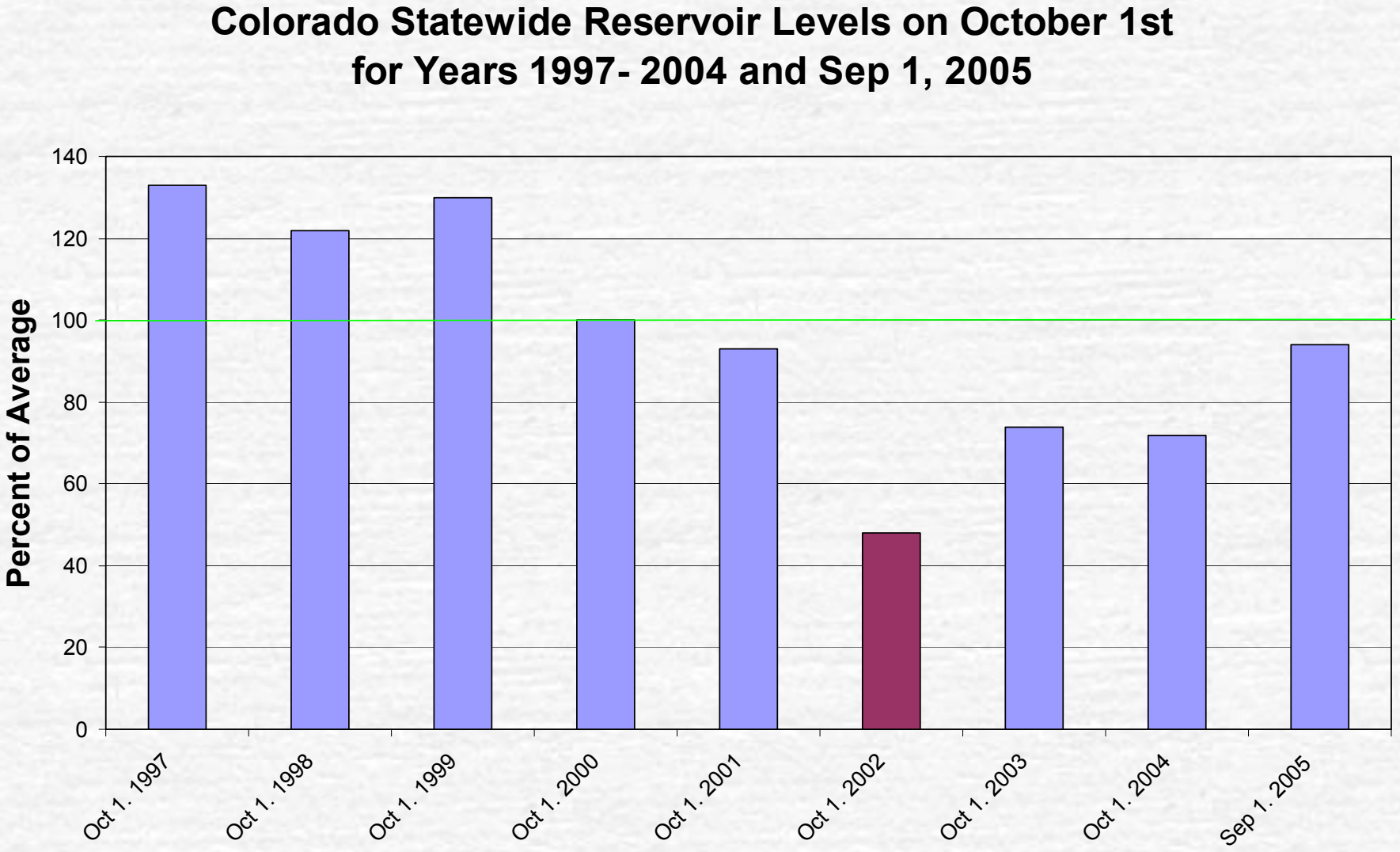
Based on Provisional SNOTEL data as of Sep 28, 2005



Colorado Temperature Departures



Colorado Reservoir Storage

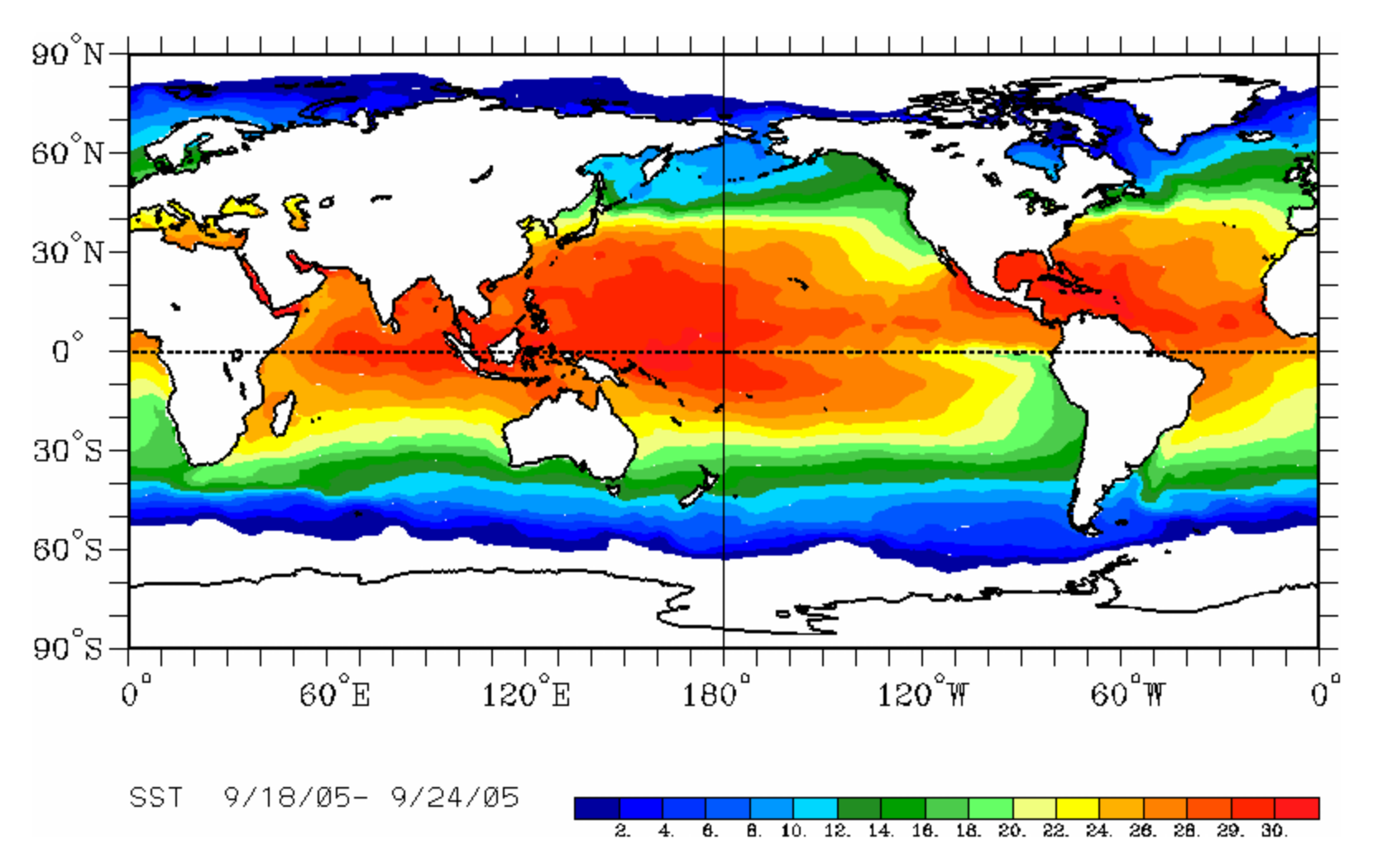


Provisional Data Provided by NRCS

So, What Comes Next?

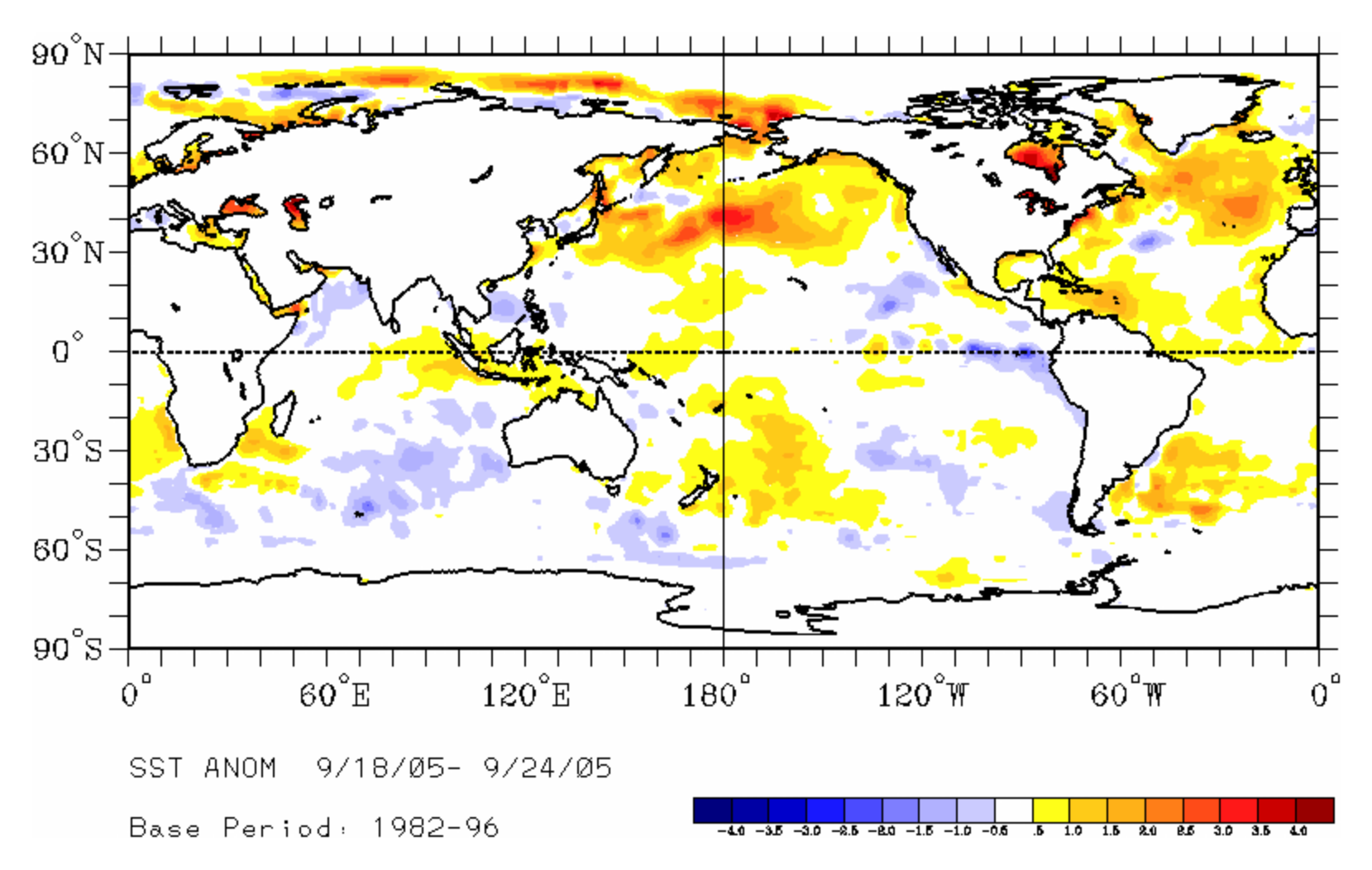
Photo by S. J. Lindquist

SST (Sea Surface Temperatures)



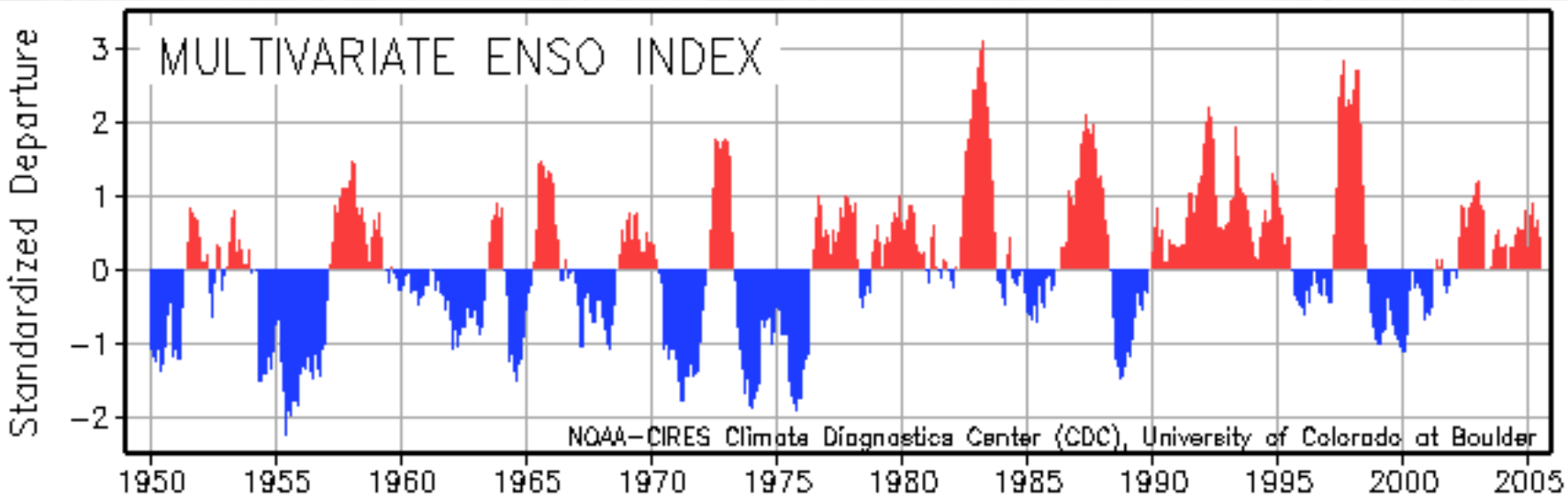
http://www.cdc.noaa.gov/map/clim/sst.shtml

SST Anomalies



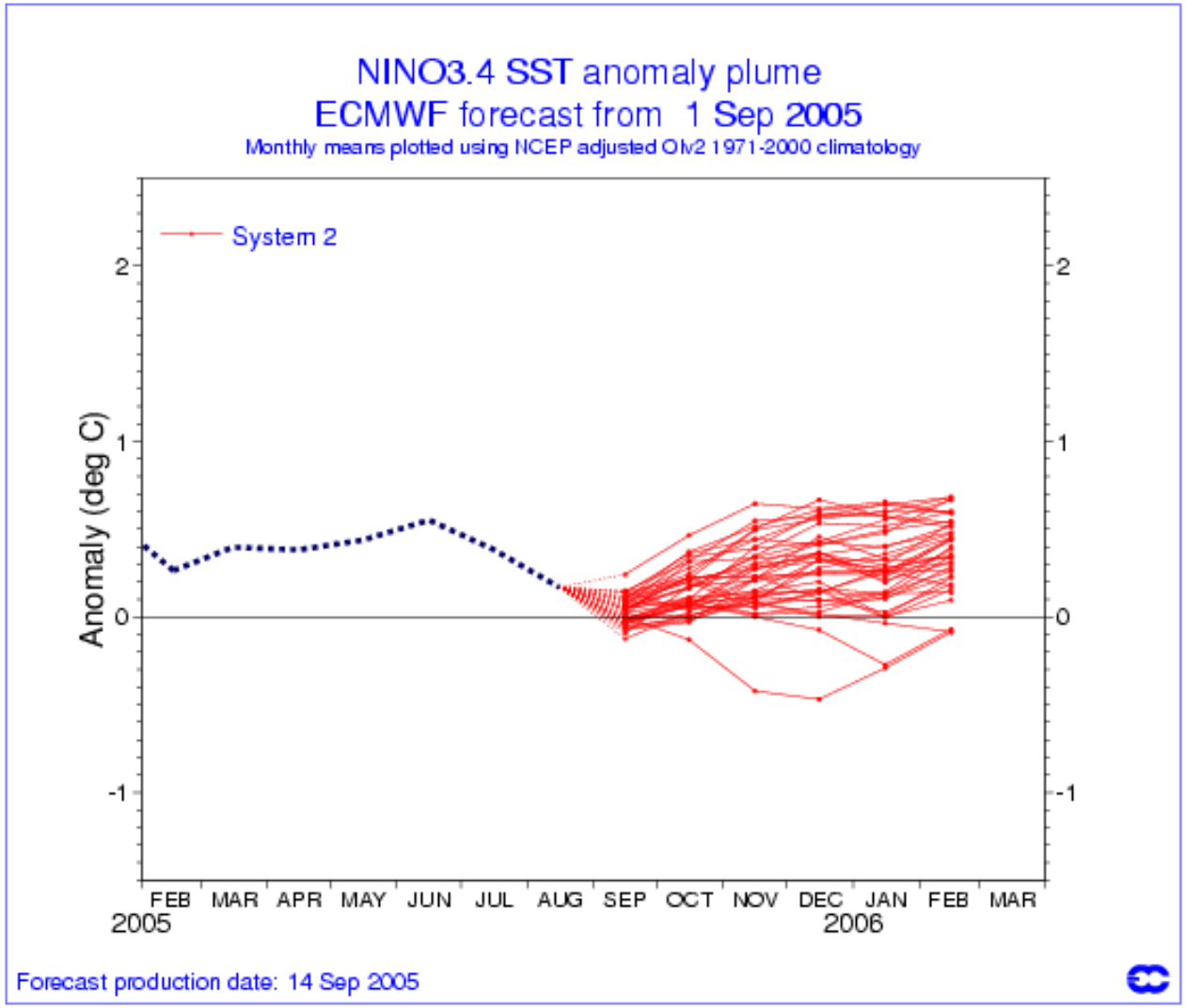
http://www.cdc.noaa.gov/map/clim/sst.shtml

El Nino Southern Oscillation



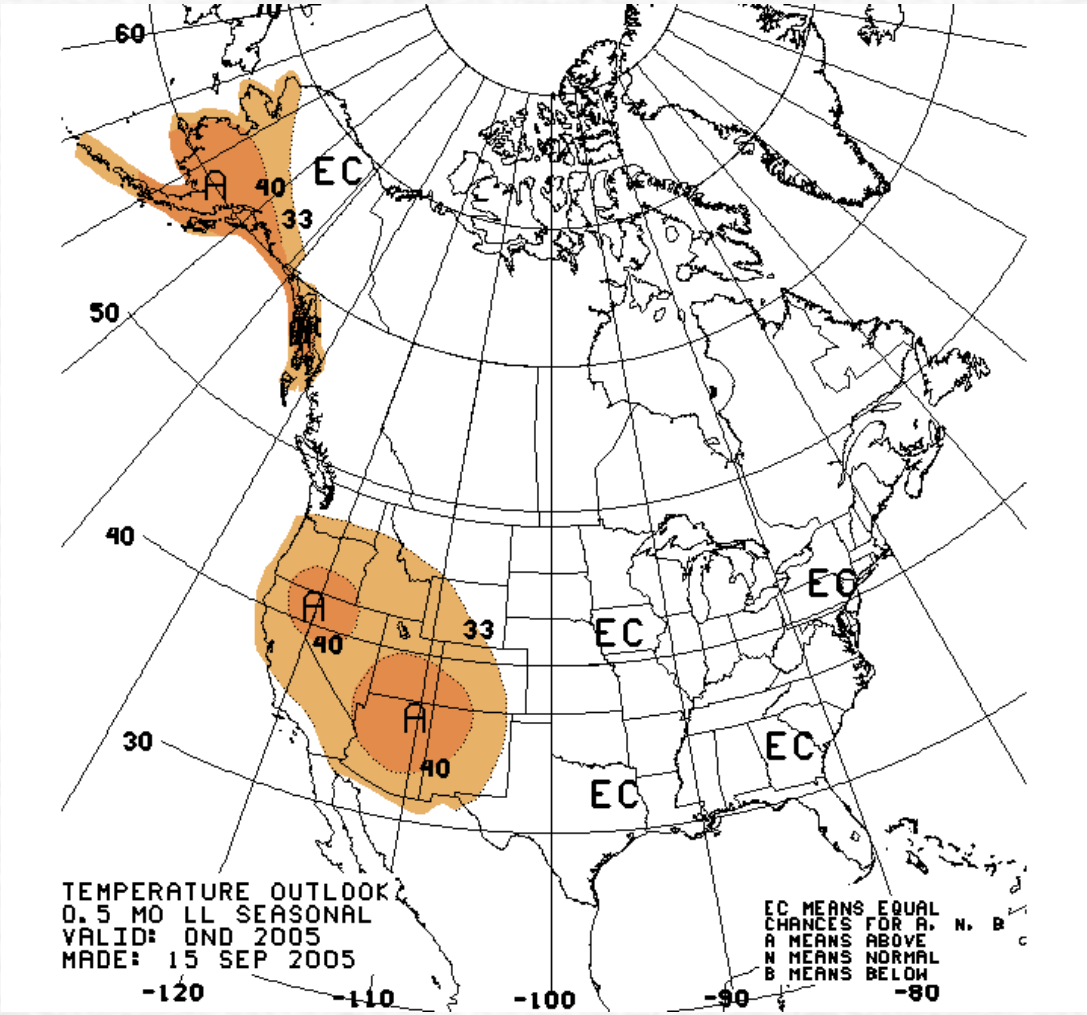
http://www.cdc.noaa.gov/people/klaus.wolter/MEI/

El Nino Forecast



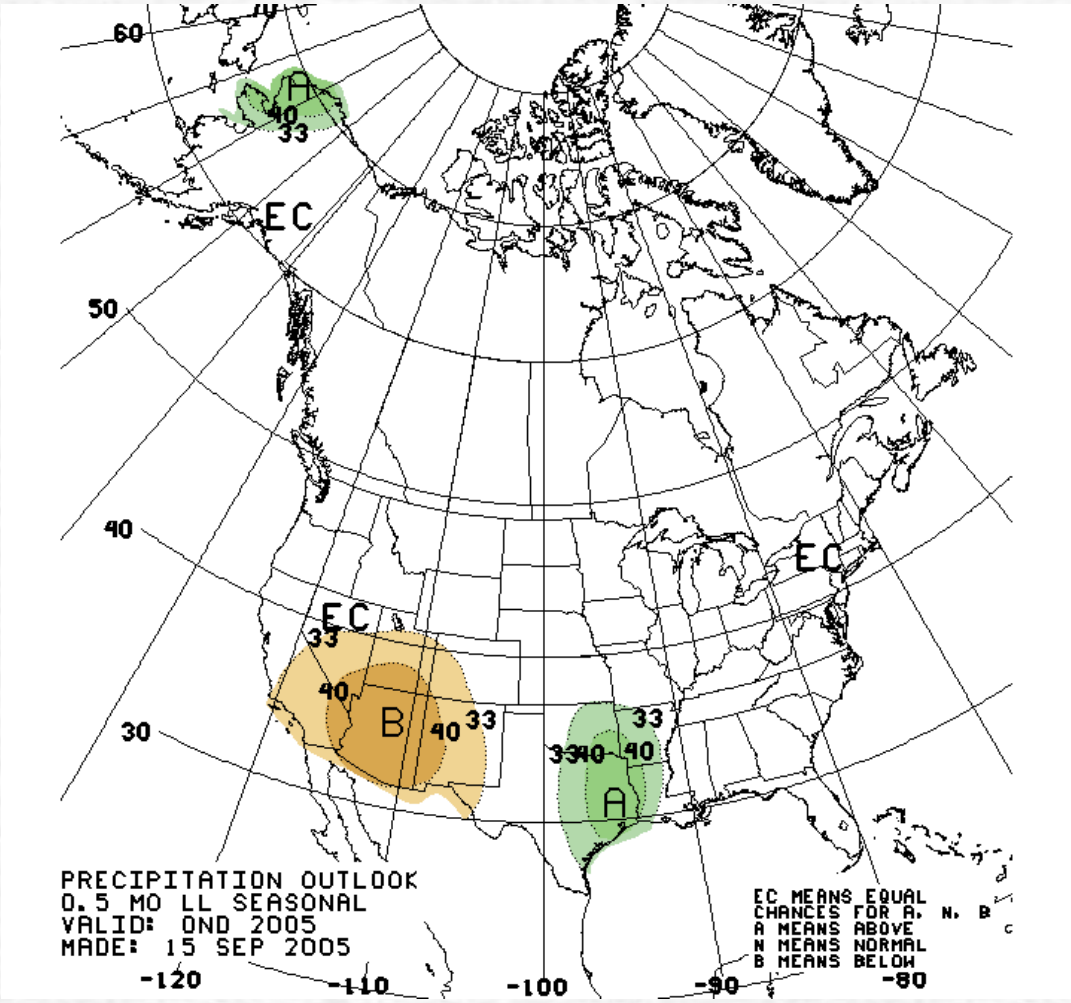
http://www.cdc.noaa.gov/people/klaus.wolter/SWcasts/

Temperature Oct-Dec 2005



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

Precipitation
Oct-Dec 2005



From the Colorado Prediction Center
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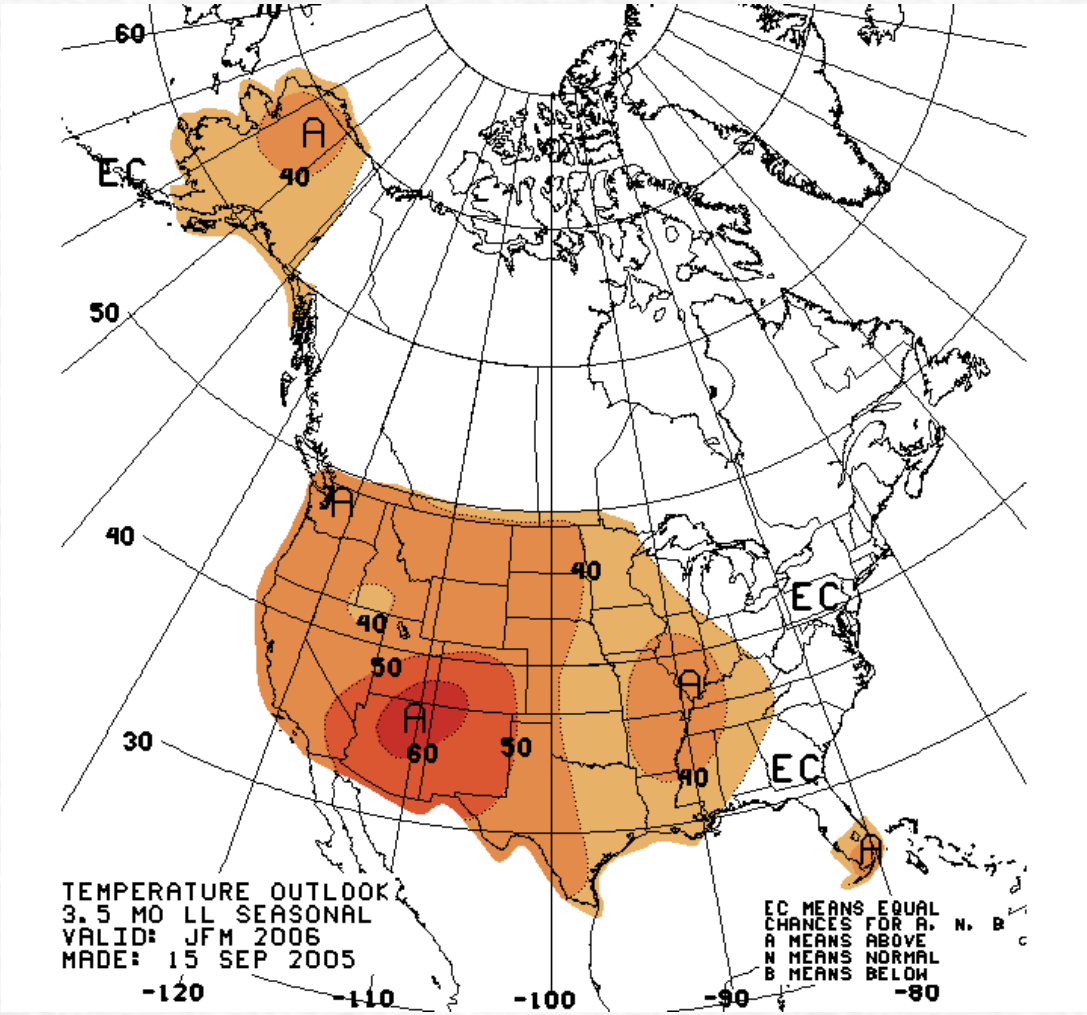
Temperature
Jan-Mar 2006



From the Colorado Prediction Center
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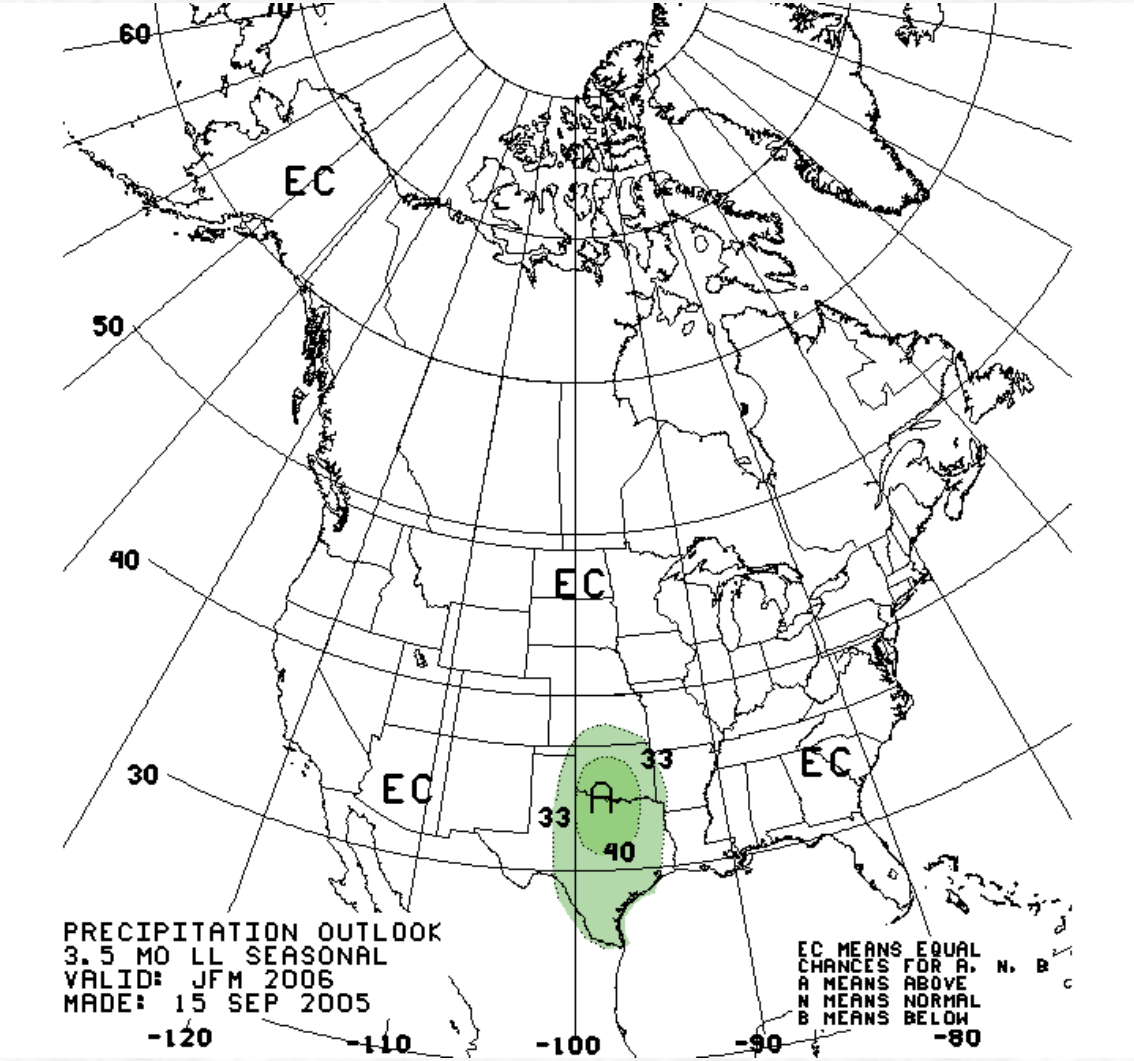
Precipitation
Jan-Mar 2006



From the Colorado Prediction Center
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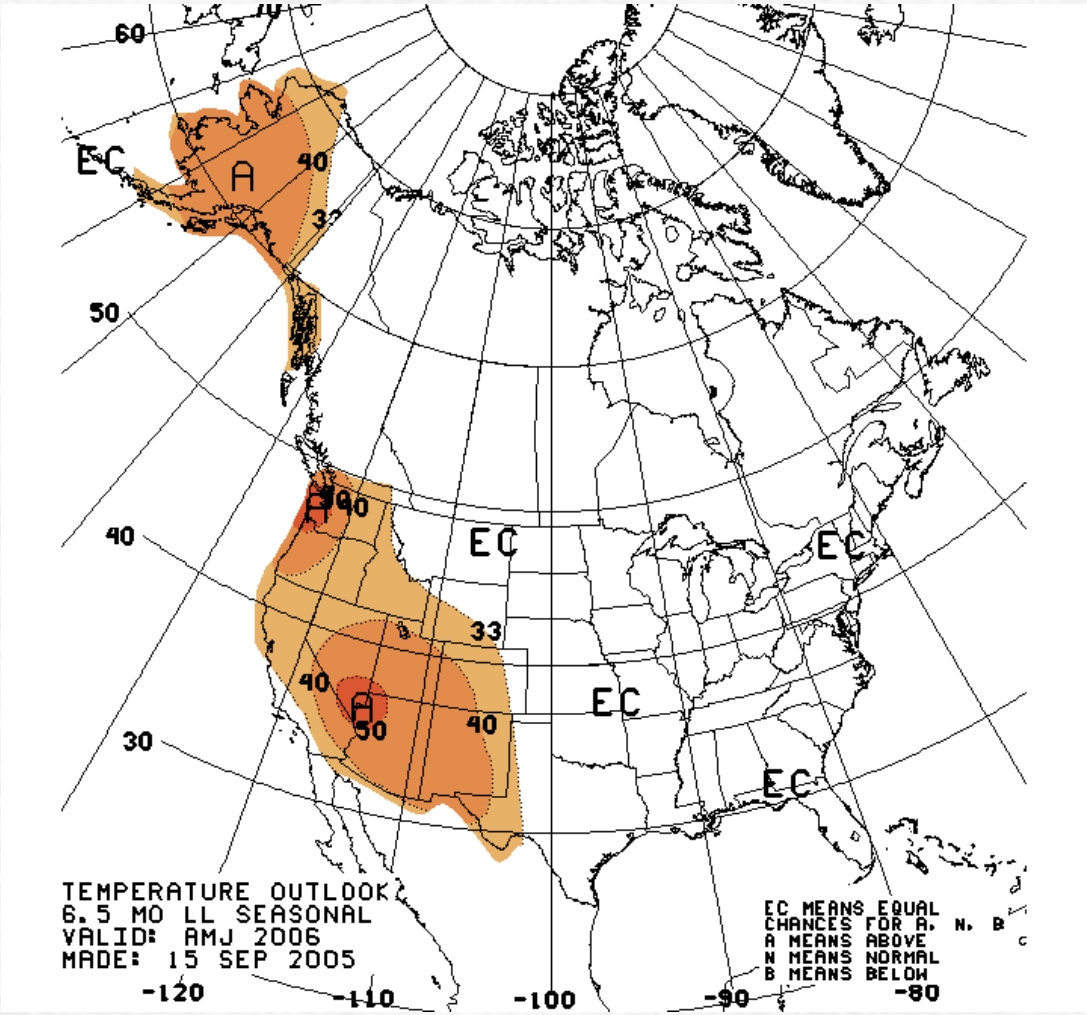
Temperature Apr-Jun 2006



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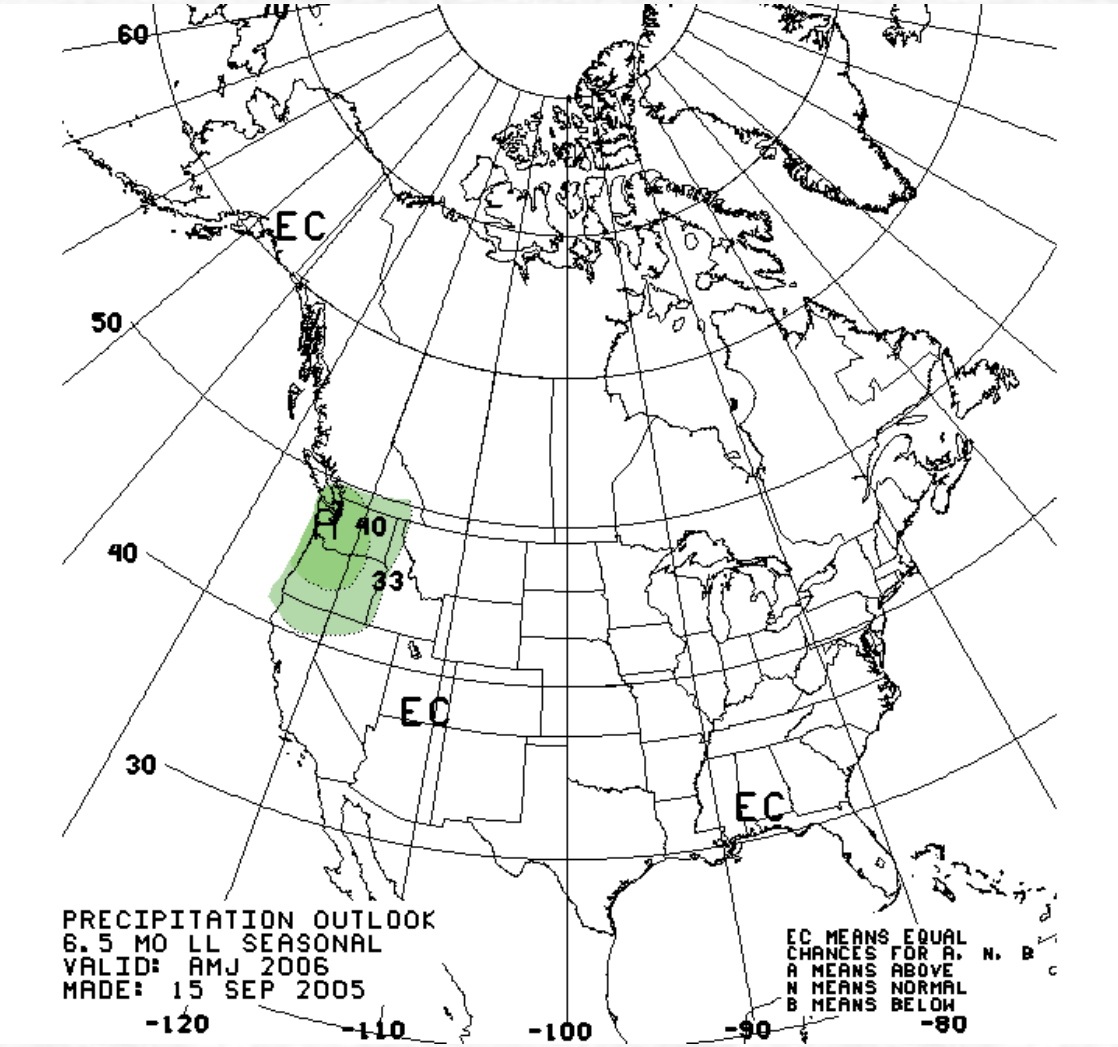
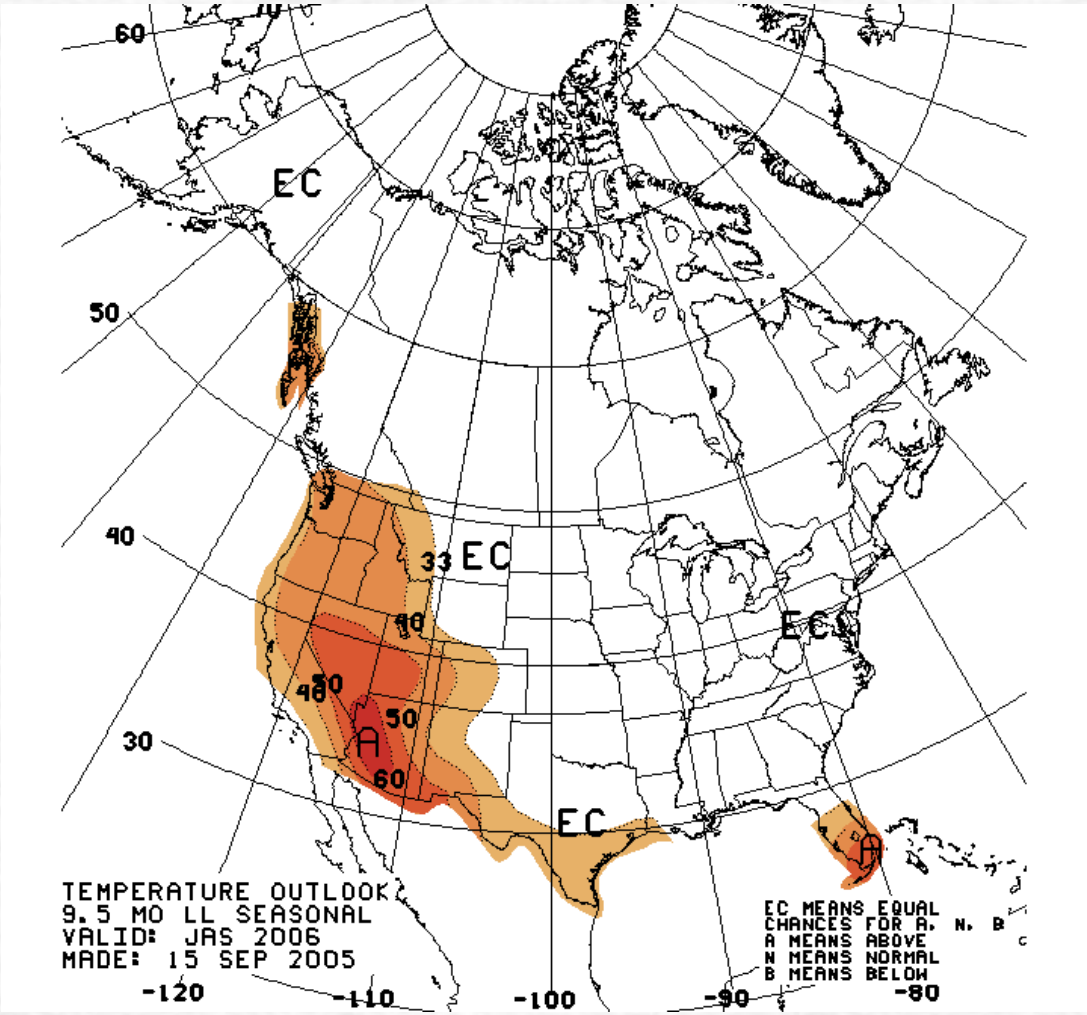
Precipitation Apr-Jun 2006



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

Temperature
Jul-Sep 2006



From the Colorado Prediction Center
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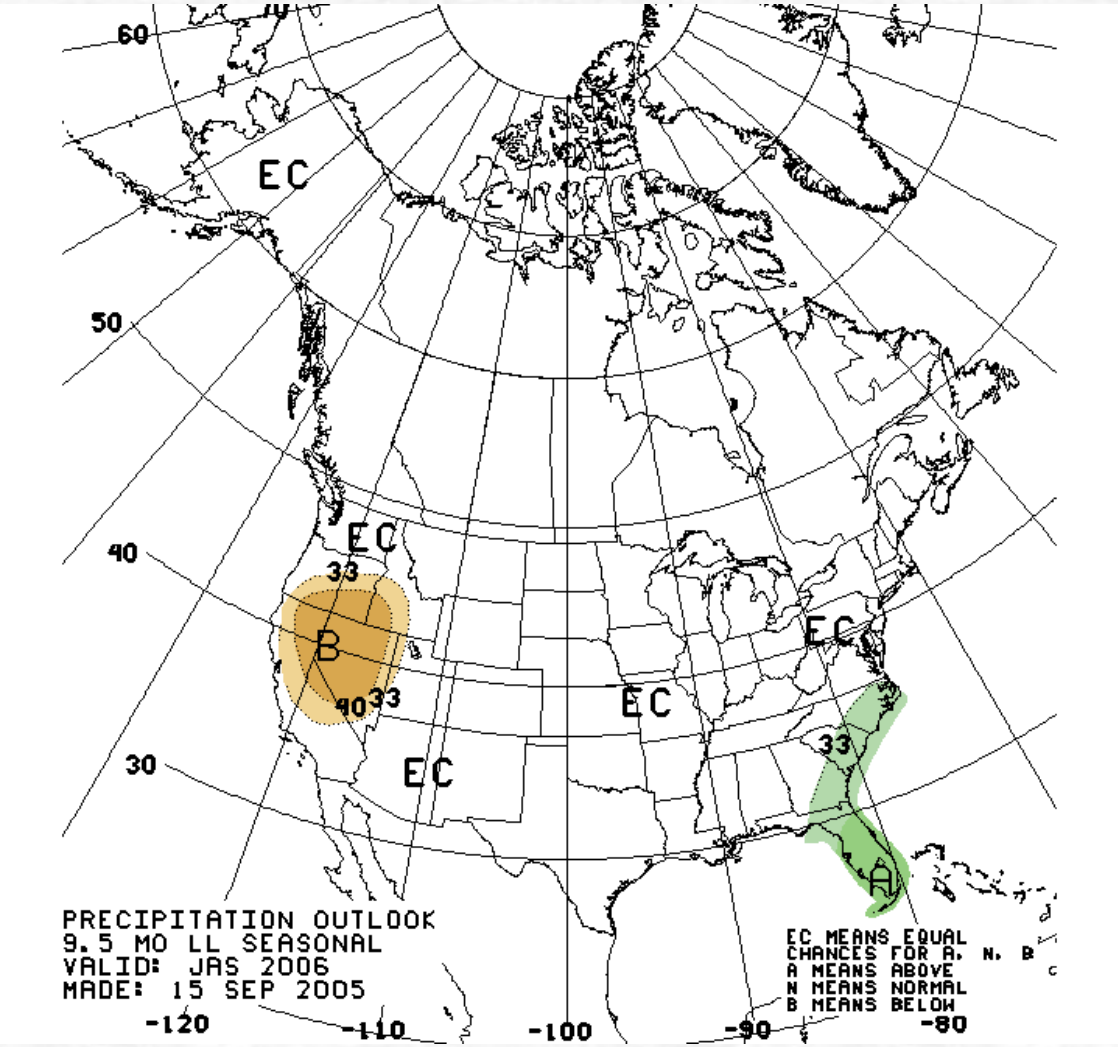
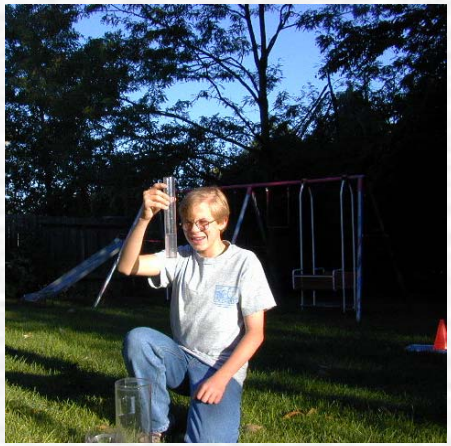
Precipitation
Jul-Sep 2006



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

My Suggestion?

Sign up for CoCoRaHS!

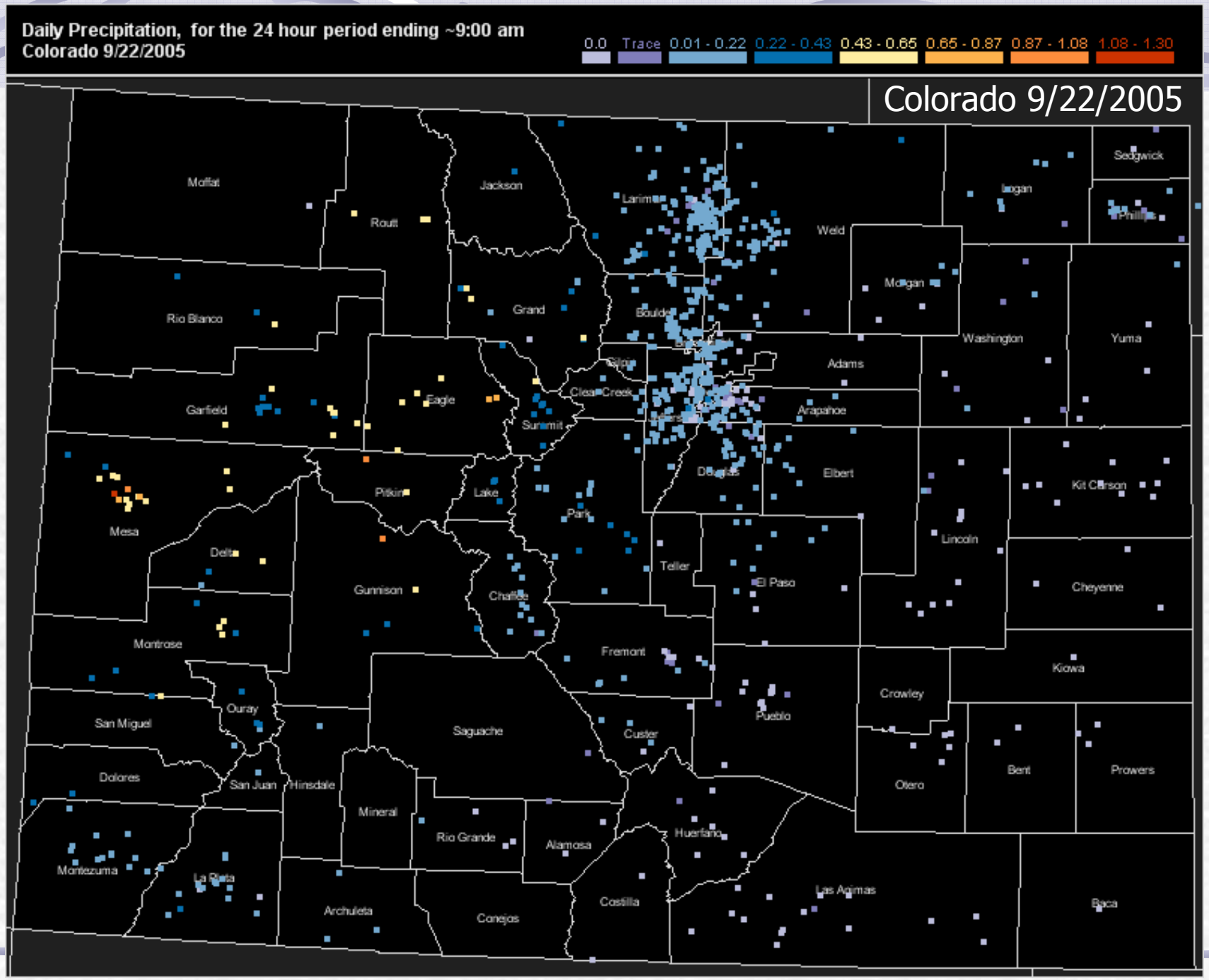


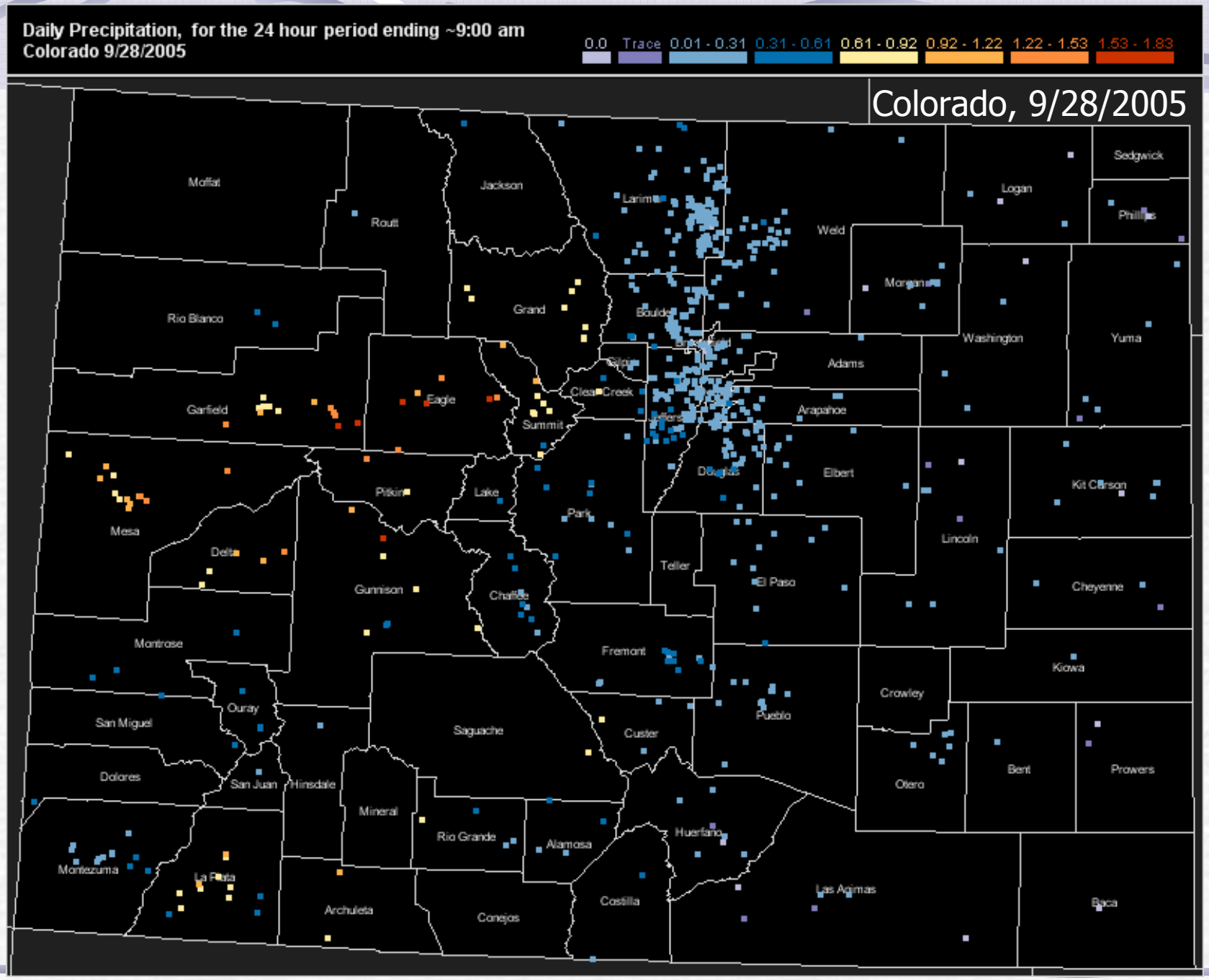
Community Collaborative Rain, Hail and Snow Network

CoCoRaHS

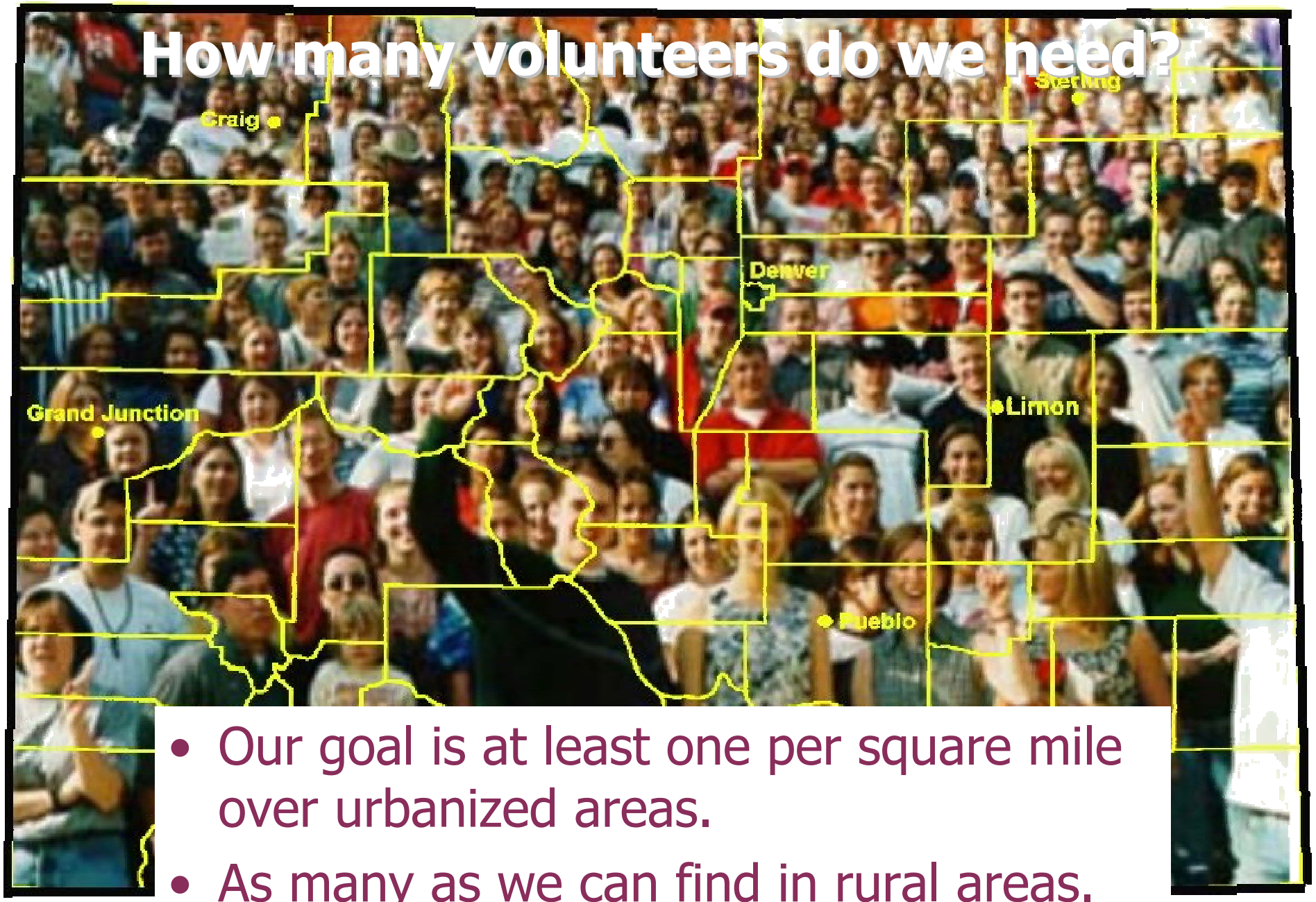
Community Collaborative Rain, Hail & Snow Network

NSF


Daily Precipitation, for the 24 hour period ending ~9:00 am
Colorado 9/22/2005
0.0
Trace
0.01 - 0.22
0.22 - 0.43
0.43 - 0.65
0.65 - 0.87
0.87 - 1.08
1.08 - 1.30
Colorado 9/22/2005
Moffat
Routt
Jackson
Larimer
Weld
Logan
Sedgwick
Phillips
Morgan
Rio Blanco
Grand
Boulder
Washington
Yuma
Adams
Garfield
Eagle
Clear Creek
Summit
Arapahoe
Elbert
Kit Carson
Pitkin
Lake
Park
Mesa
Delta
Lincoln
Teller
El Paso
Cheyenne
Gunnison
Chaffee
Montrose
Fremont
Kiowa
Crowley
Ouray
Pueblo
San Miguel
Saguache
Custer
Dolores
San Juan
Hinsdale
Otero
Bent
Prowers
Mineral
Rio Grande
Alamosa
Huerfano
Montezuma
La Plata
Las Animas
Costilla
Archuleta
Conejos
Baca


Daily Precipitation, for the 24 hour period ending ~9:00 am
Colorado 9/28/2005
0.0
Trace
0.01 - 0.31
0.31 - 0.61
0.61 - 0.92
0.92 - 1.22
1.22 - 1.53
1.53 - 1.83
Colorado, 9/28/2005
Moffat
Routt
Jackson
Larimer
Weld
Logan
Sedgwick
Phillips
Morgan
Rio Blanco
Grand
Boulder
Washington
Yuma
Adams
Garfield
Eagle
Clear Creek
Summit
Arapahoe
Elbert
Kit Carson
Pitkin
Lake
Park
Mesa
Delta
Lincoln
Teller
El Paso
Gunnison
Chaffee
Cheyenne
Montrose
Fremont
Kiowa
Crowley
Ouray
San Miguel
Saguache
Pueblo
Custer
Dolores
San Juan
Hinsdale
Otero
Bent
Prowers
Mineral
Rio Grande
Alamosa
Huerfano
Montezuma
La Plata
Las Animas
Baca
Archuleta
Conejos
Costilla

How many volunteers do we need?



- Our goal is at least one per square mile over urbanized areas.
- As many as we can find in rural areas.

For More Information, Visit the CoCoRaHS Web Site

http://www.cocorahs.org

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Informal Science Education Program,
National Science Foundation
and
many local charter sponsors.

Colorado Climate Center

Data and Power Point Presentations available for downloading

http://ccc.atmos.colostate.edu

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

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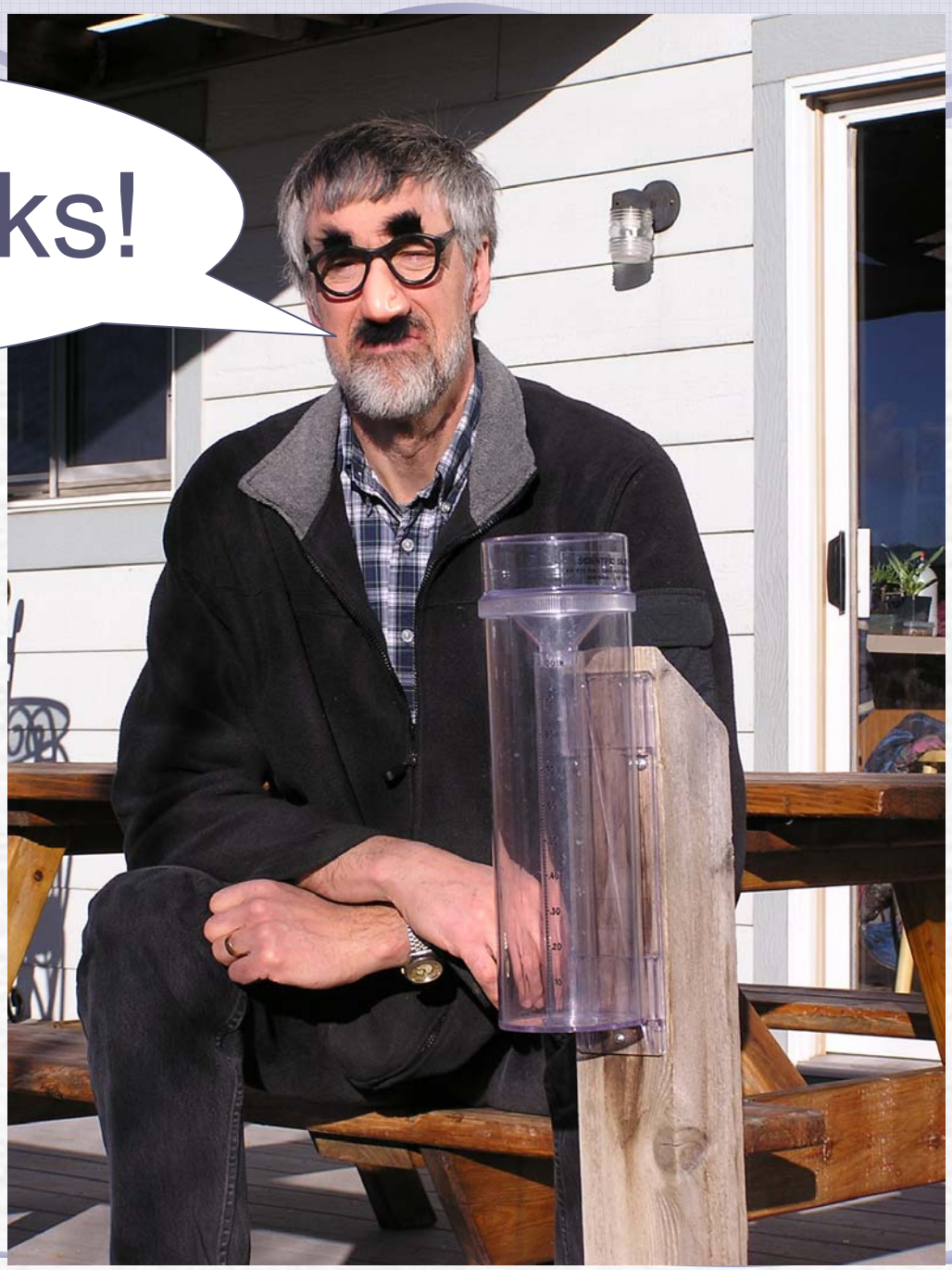
That’s all folks!

THE END