Spring 2010

Weekly Climate, Water & Drought Assessment

Today's Agenda

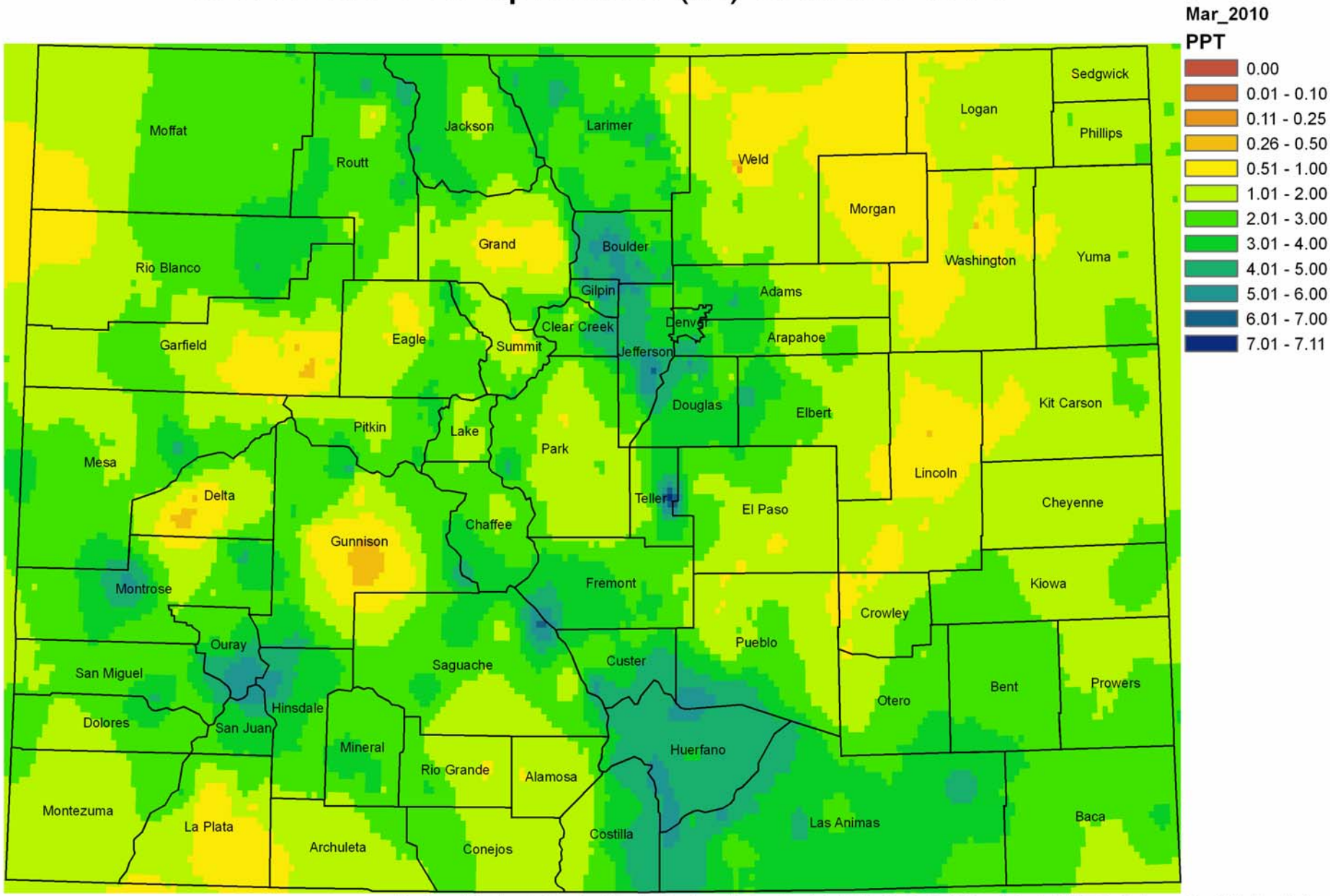
-Assessment of current water conditions

- Precipitation Forecast

- Recommendations for Drought Monitor

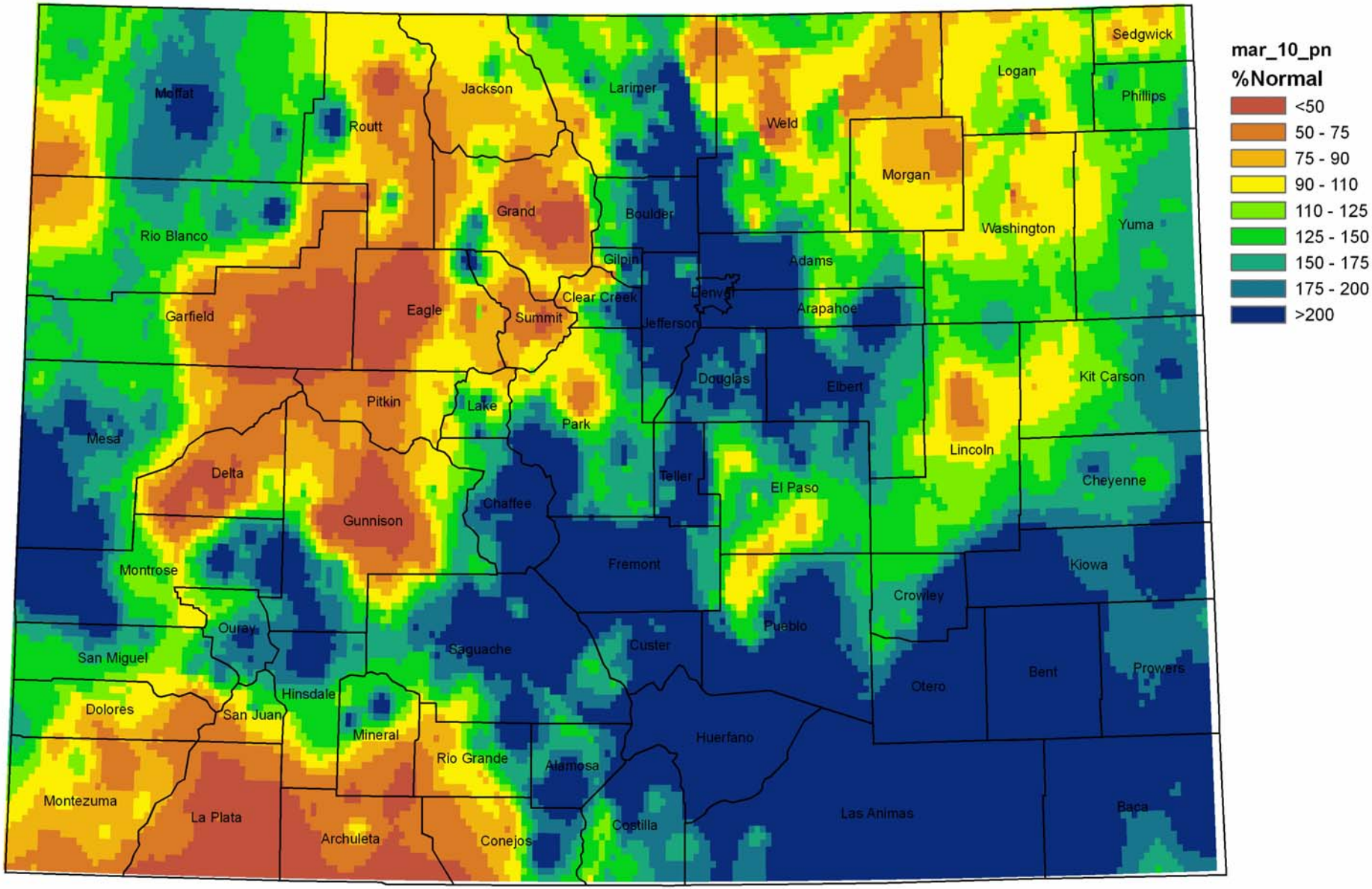
Precipitation/Snowpack Update

Colorado Precipitation (in) March 2010



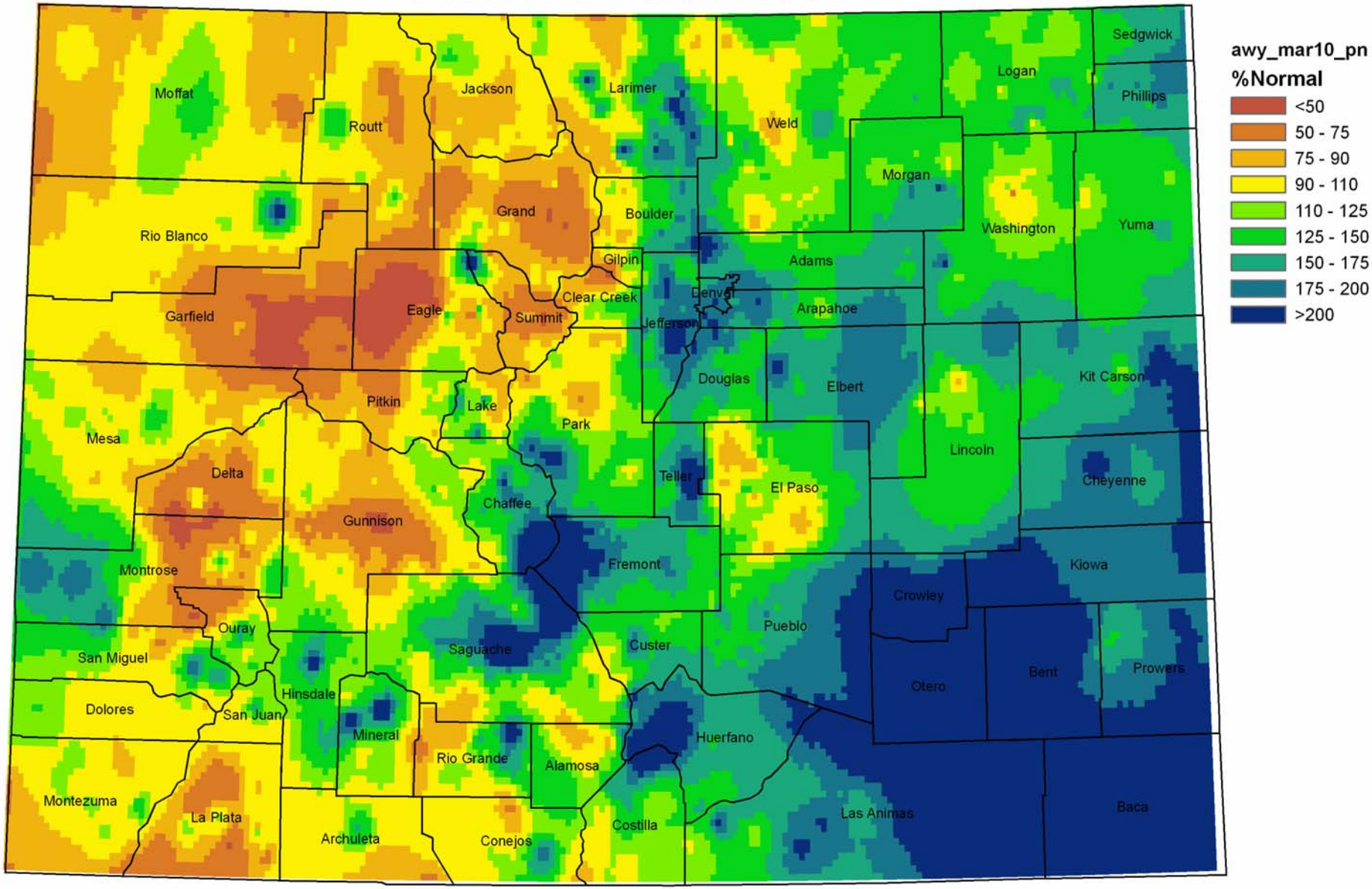
Produced by the Colorado Climate Center utilizing Snotel, NWS, CoCoRaHS and CoAgMet* Preliminary Precipitation Data
Analysis: Inverse Distance Weighting
*Summer only

March 2010 Precipitation as Percent of Average



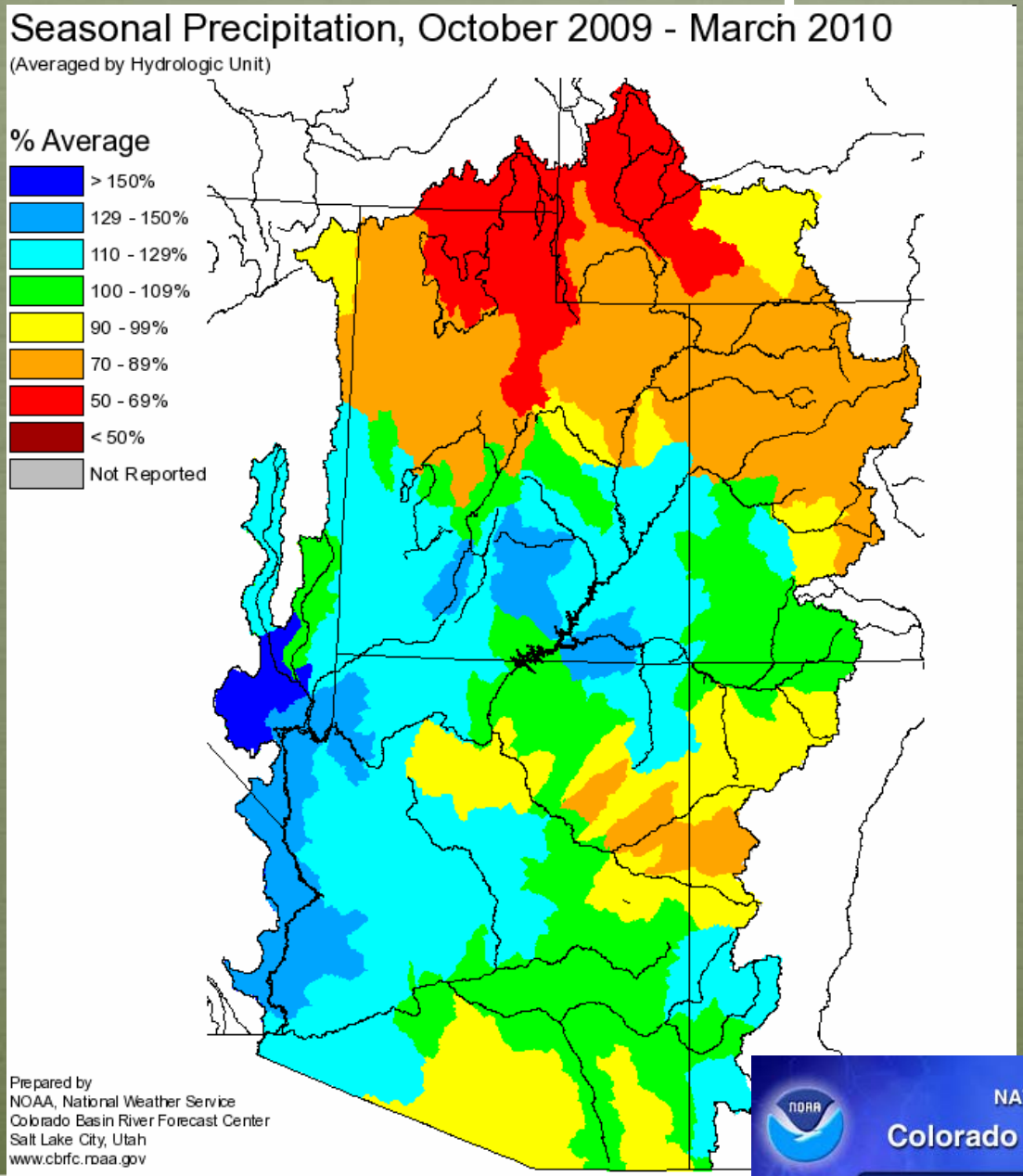
Produced by the Colorado Climate Center utilizing Snotel, NWS, CoCoRaHS and CoAgMet* Preliminary Precipitation Data
Analysis: Inverse Distance Weighting
*Summer only

Water Year 2010 Precipitation as Percentage of Normal
Oct 2009 - Mar 2010



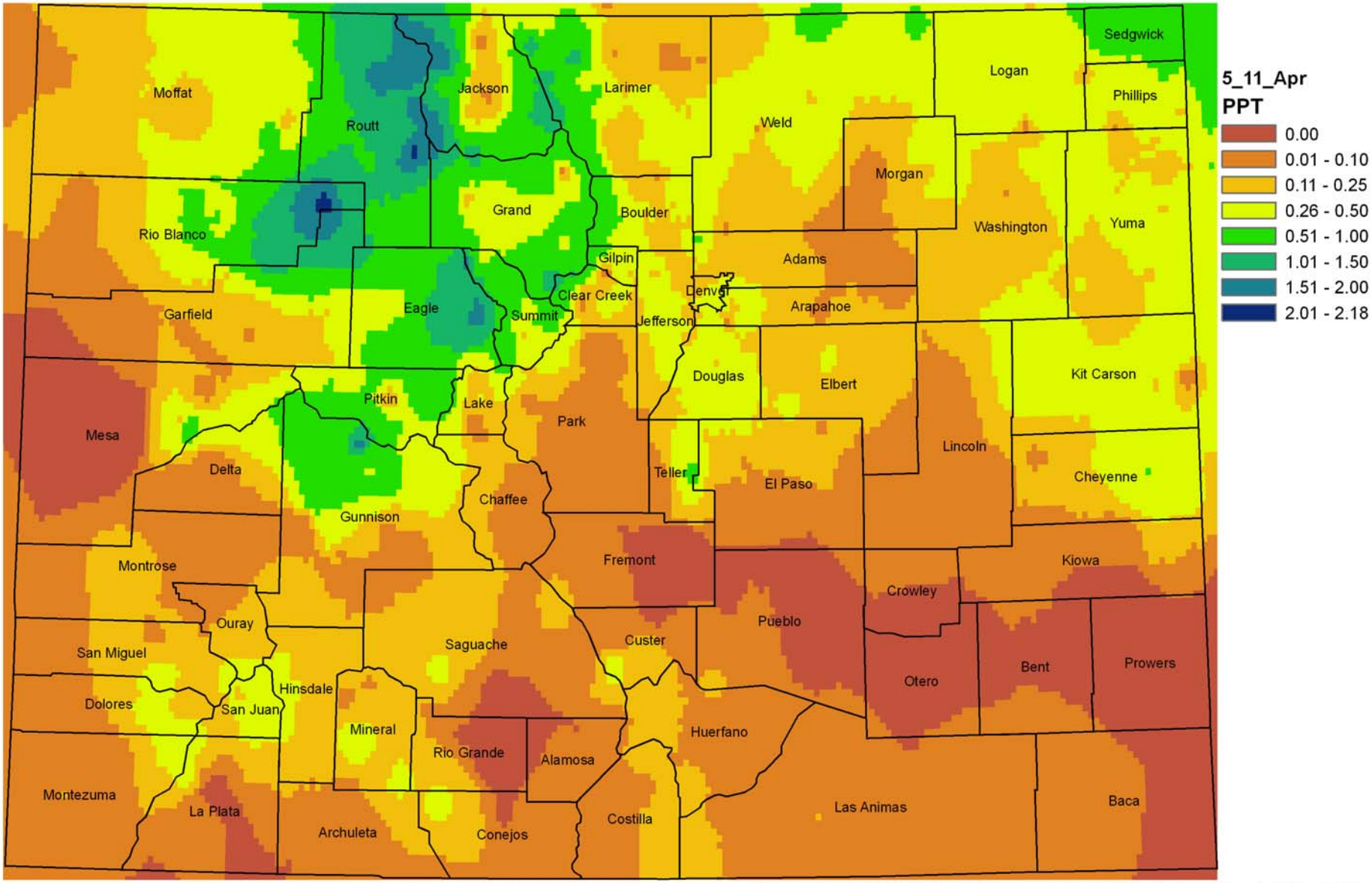
Produced by the Colorado Climate Center utilizing Snotel, NWS, CoCoRaHS and CoAgMet* Preliminary Precipitation Data
Analysis: Inverse Distance Weighting
*Summer only

WY 2010 Precipitation



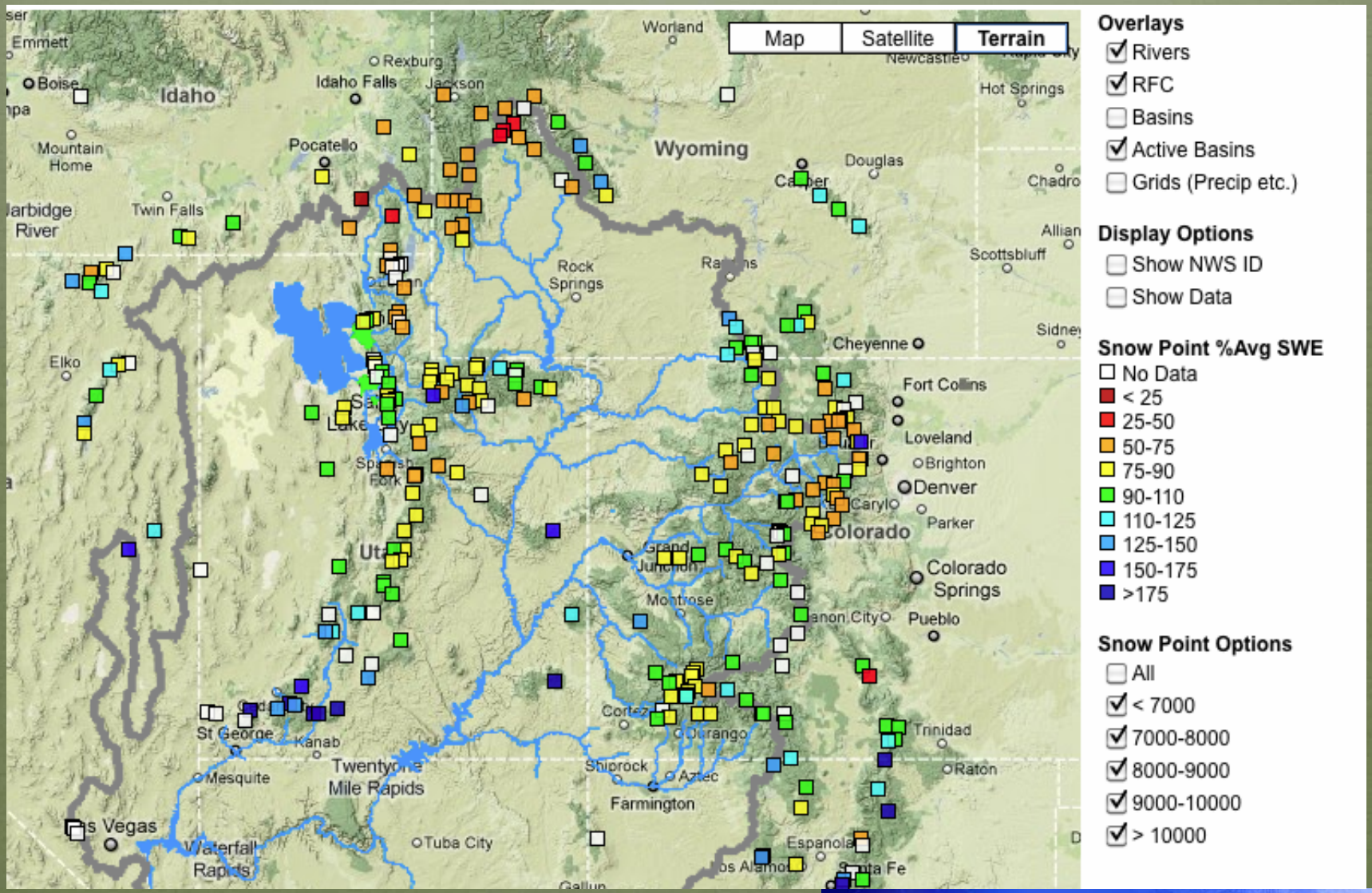
NATIONAL WEATHER SERVICE
Colorado Basin River Forecast Center

Colorado 7 Day Precipitation (in)
5 - 11 April 2010

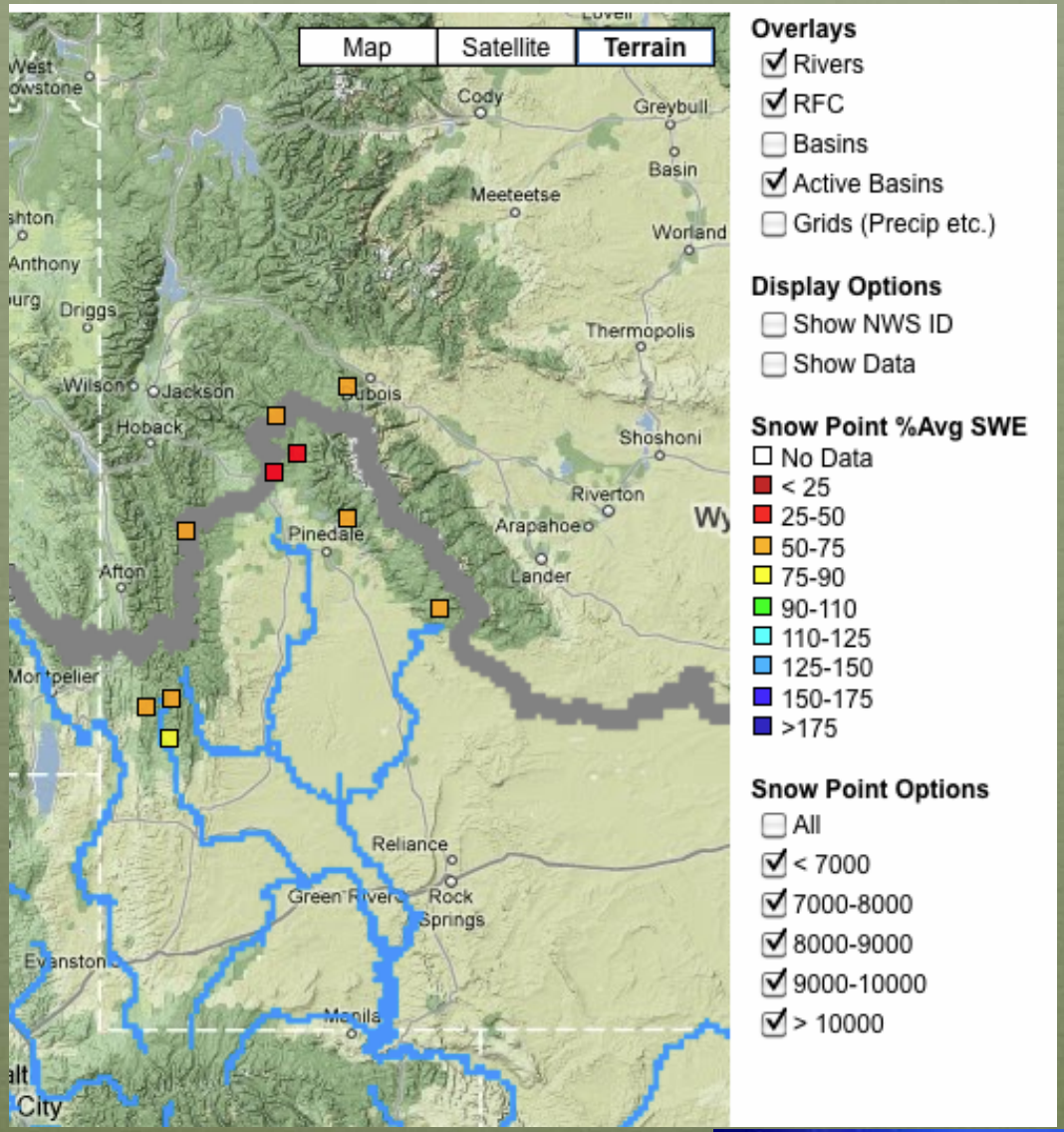


Produced by the Colorado Climate Center utilizing Snotel, NWS, CoCoRaHS and CoAgMet* Preliminary Precipitation Data
Analysis: Inverse Distance Weighting
*Summer only

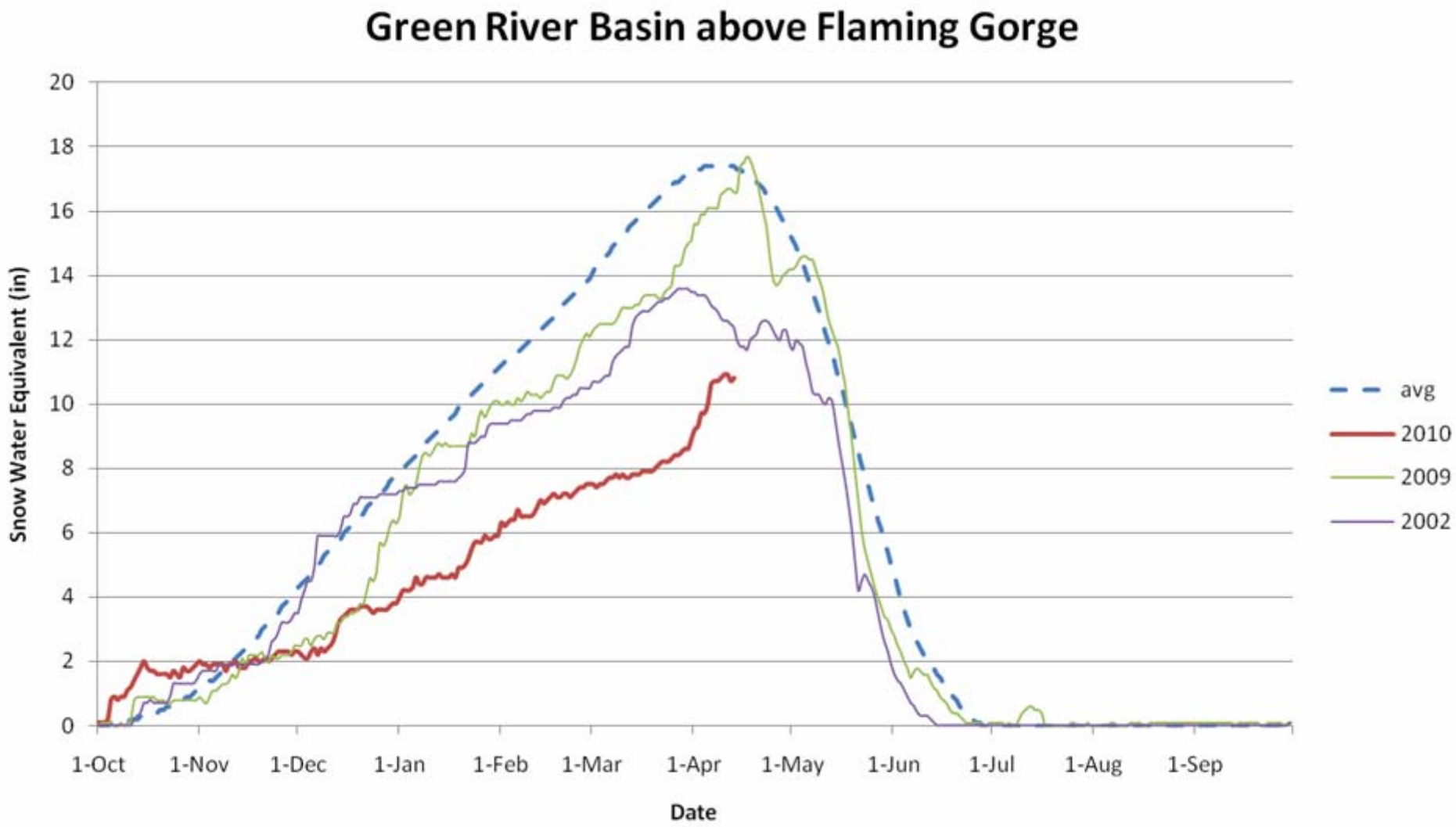
Upper Colorado River Basin



Green River Basin above Flaming Gorge

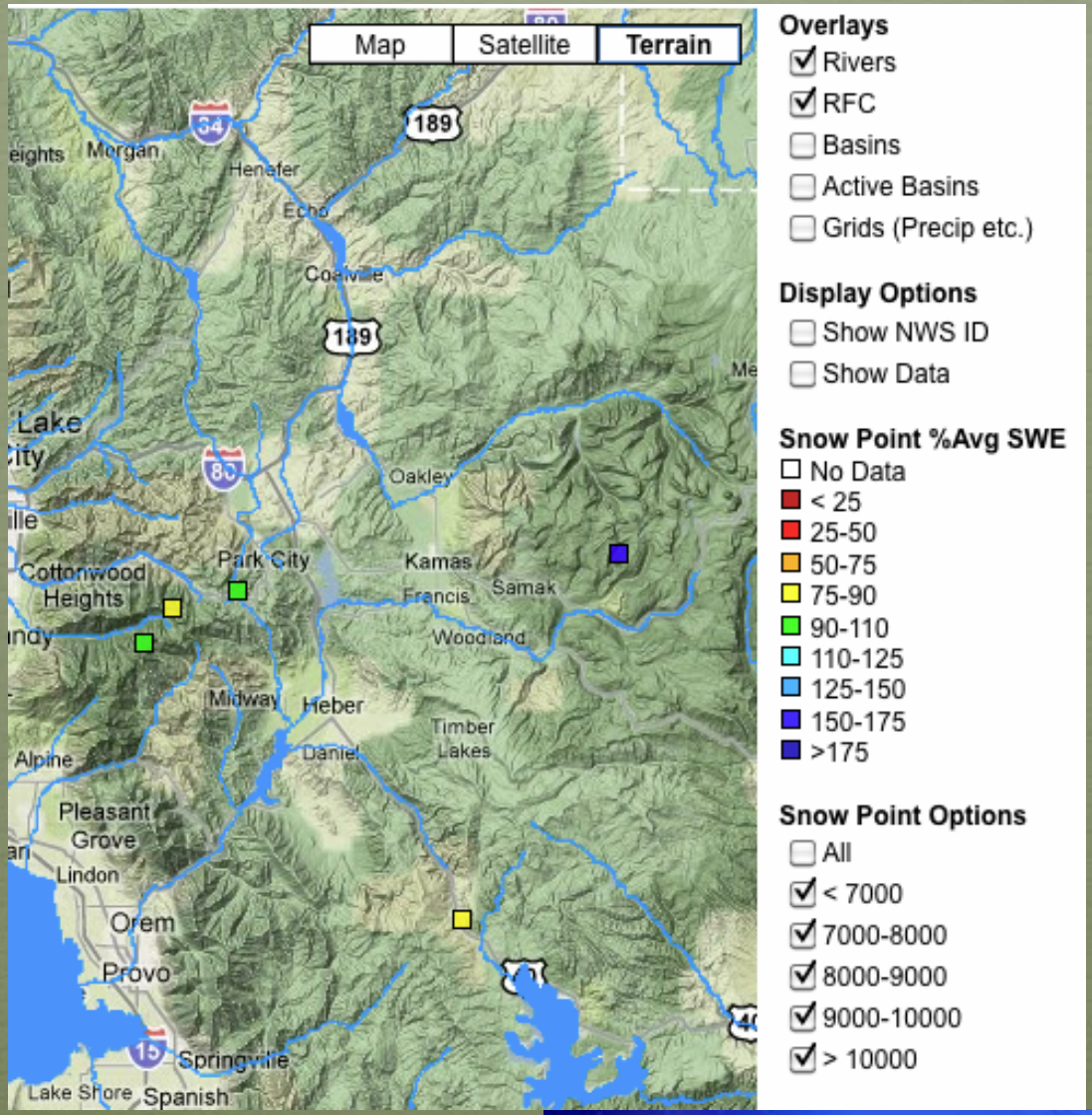


NATIONAL WEATHER SERVICE
Colorado Basin River Forecast Center

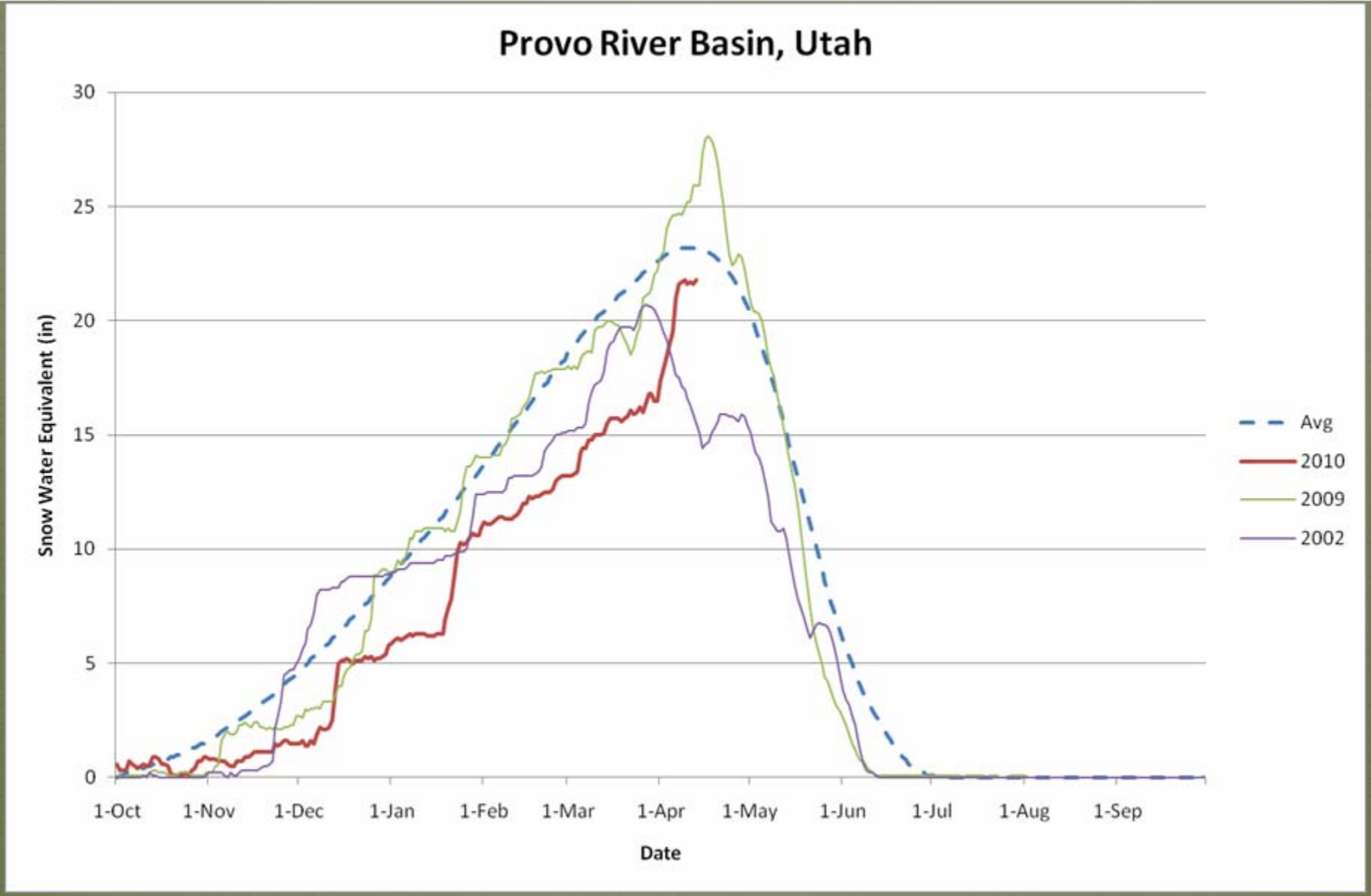


Basin Snowpack: 62%

Provo River Basin

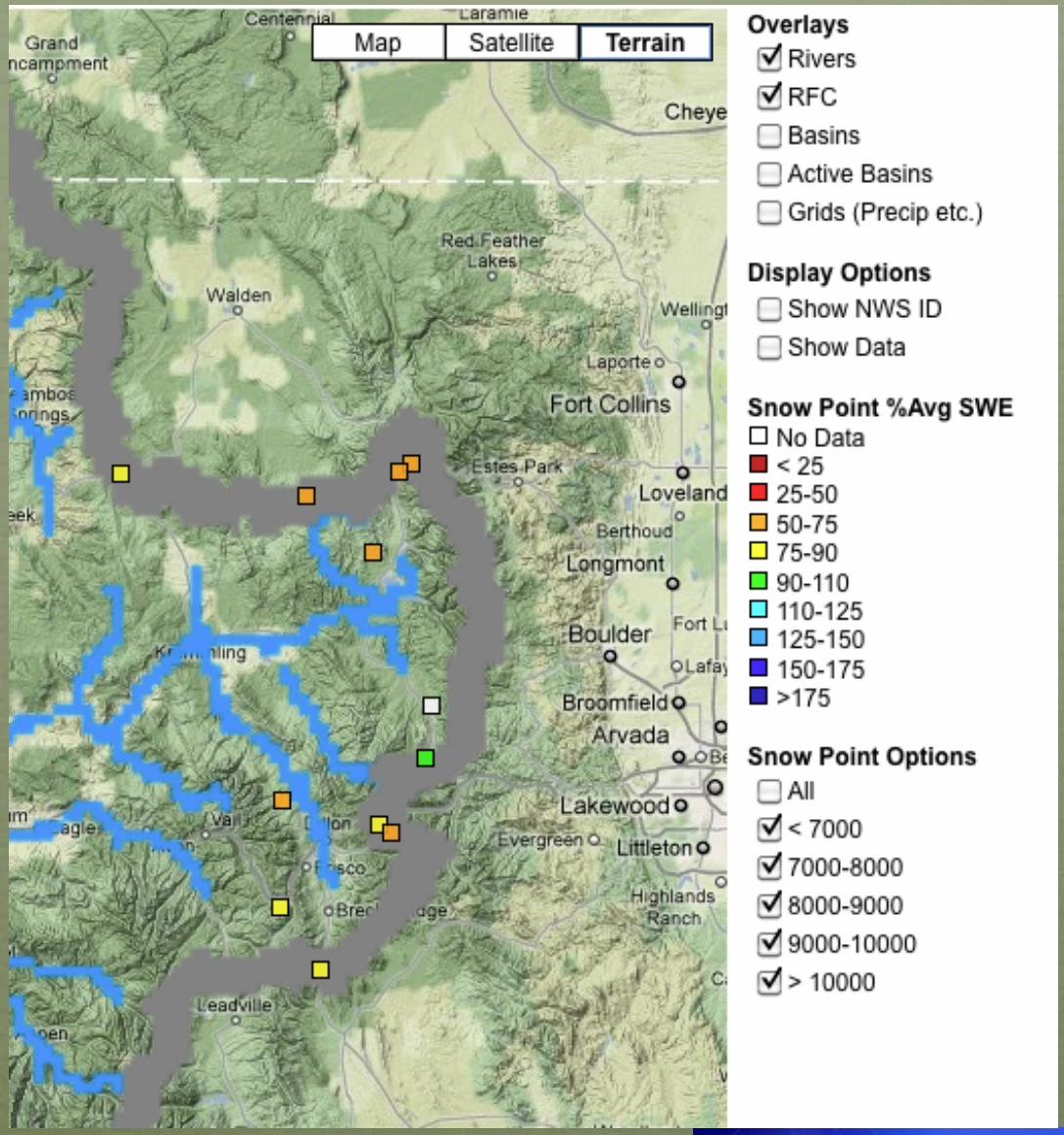


NATIONAL WEATHER SERVICE
Colorado Basin River Forecast Center



Basin snowpack: 94%

Upper Colorado above Kremmling



NATIONAL WEATHER SERVICE
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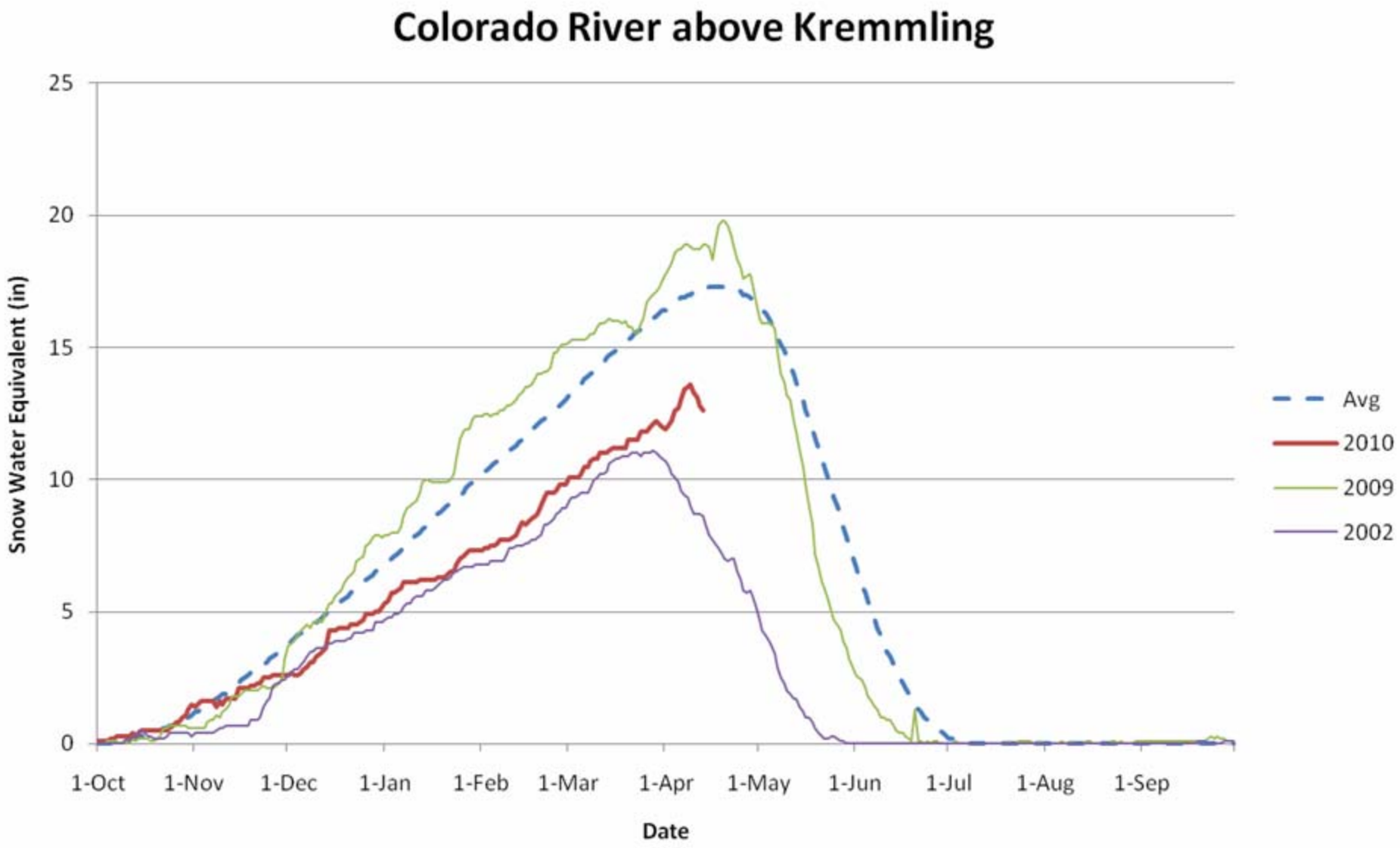
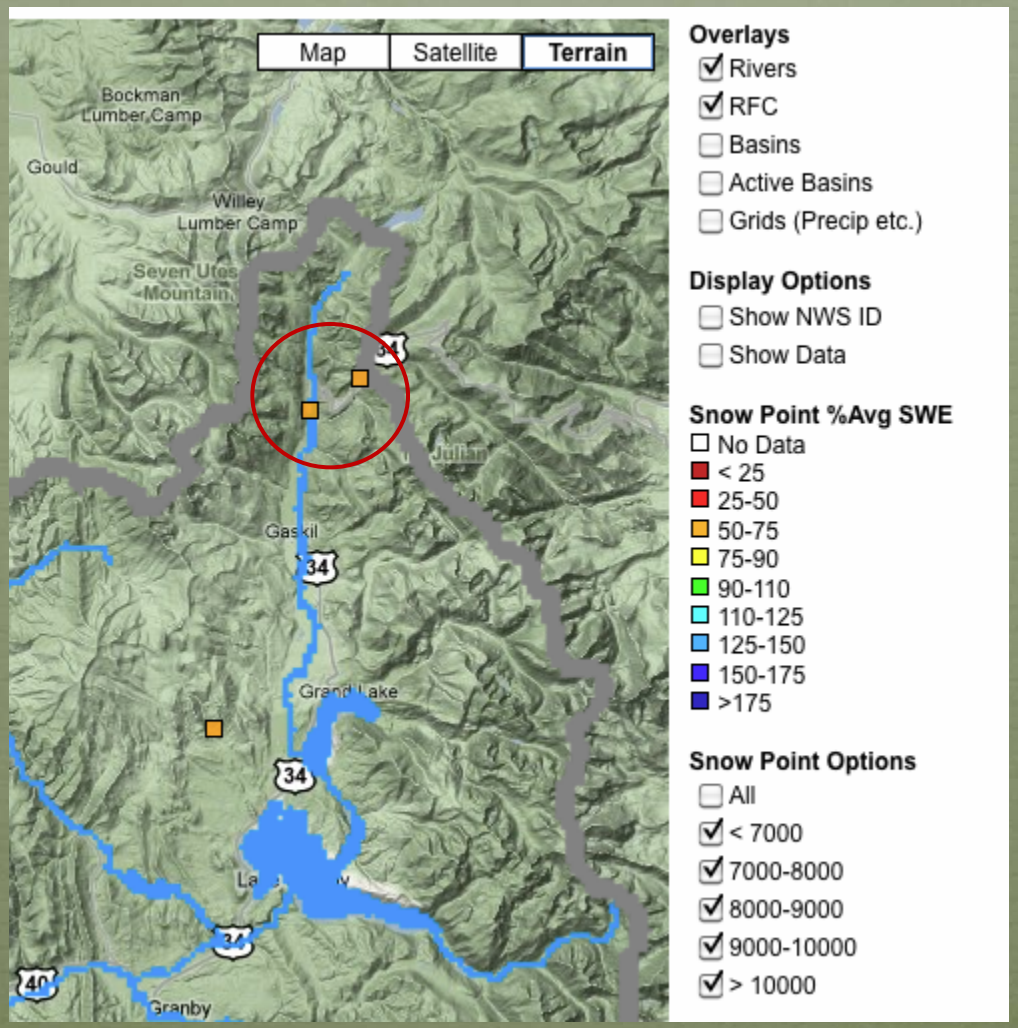
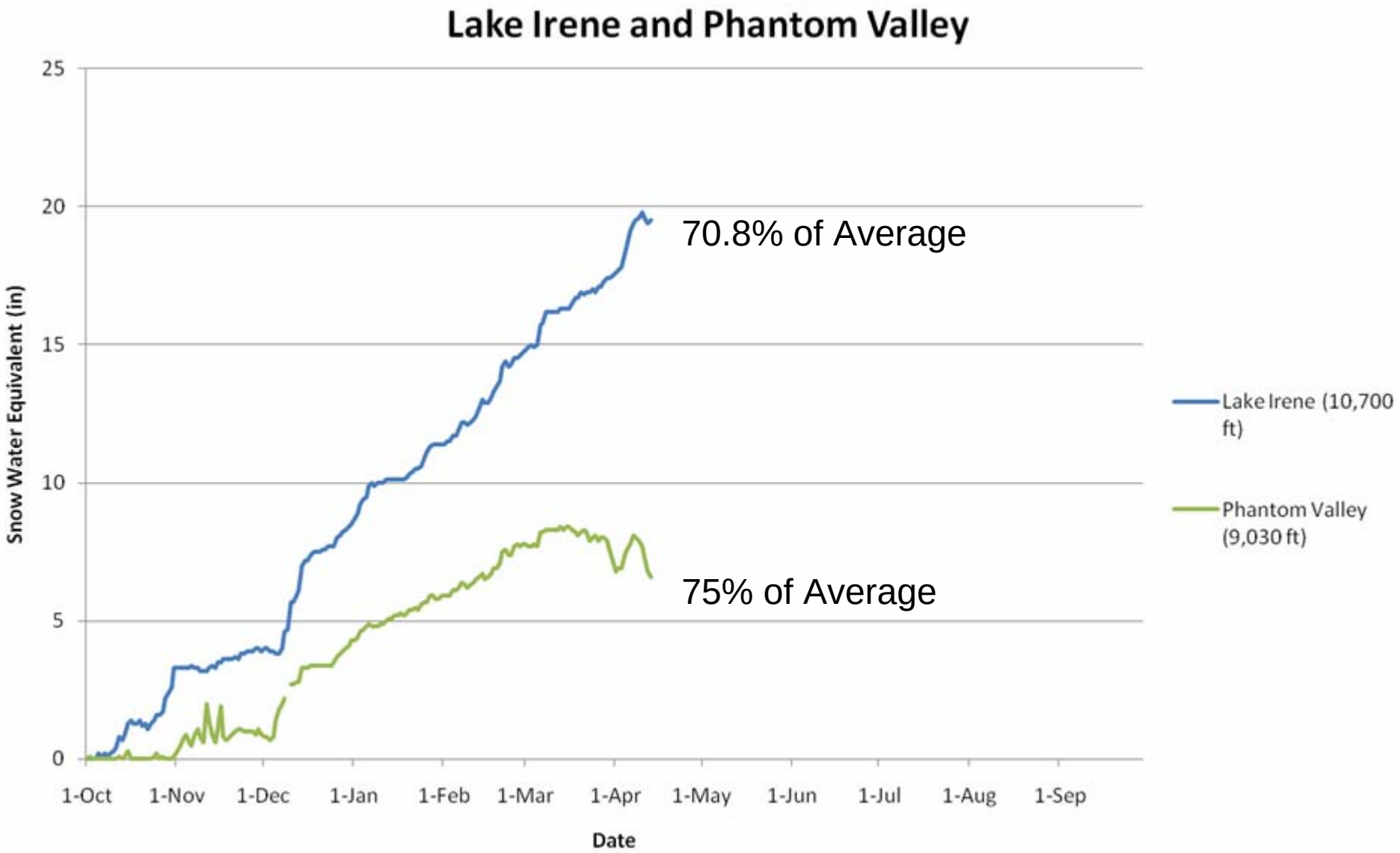


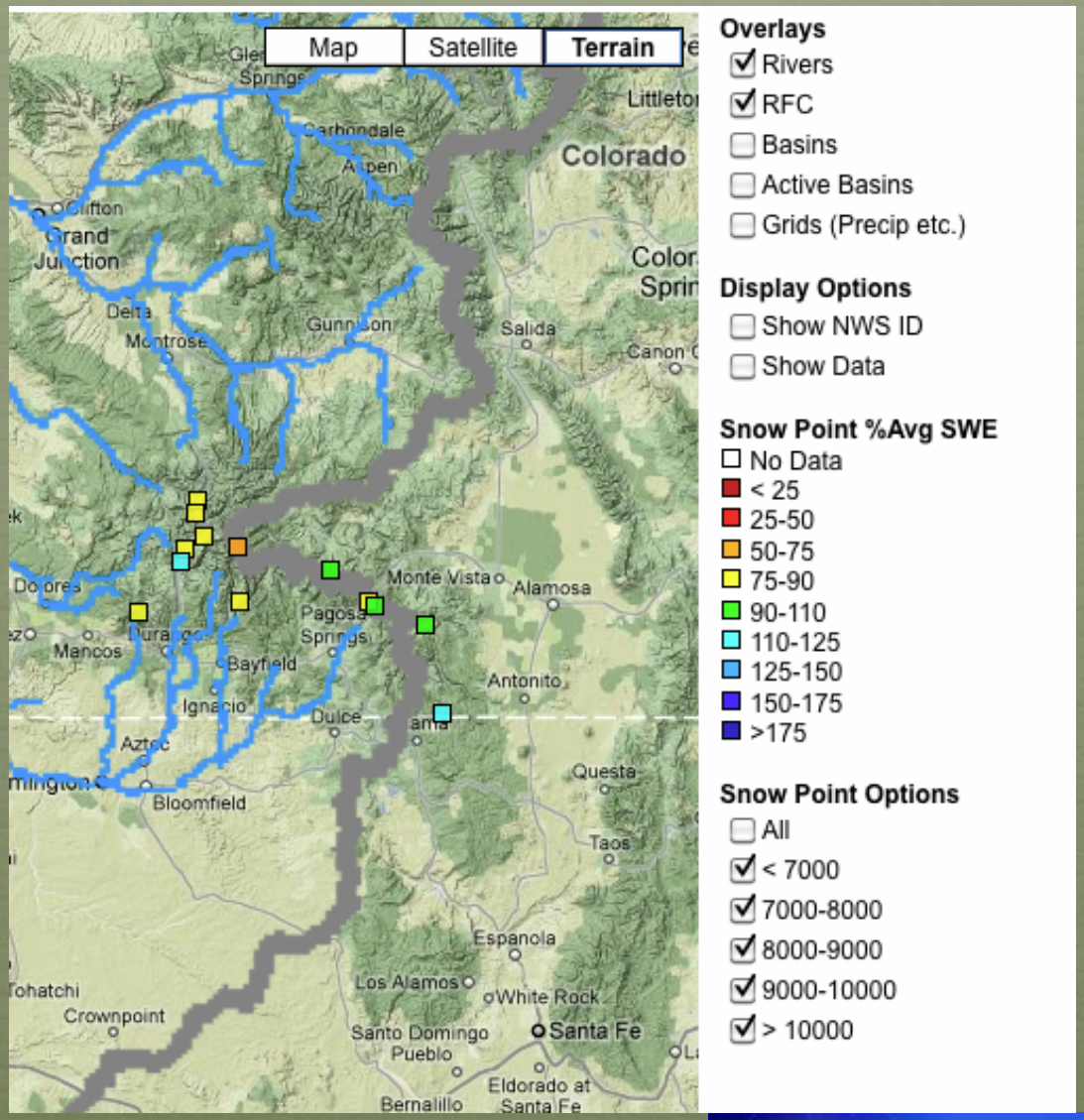
Basin Snowpack: 76%

Lake Irene and Phantom Valley




Lake Irene and Phantom Valley
Snow Water Equivalent (in)
25
20
15
10
5
0
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
Date
70.8% of Average
75% of Average
Lake Irene (10,700 ft)
Phantom Valley (9,030 ft)

San Juan Basin



NATIONAL WEATHER SERVICE
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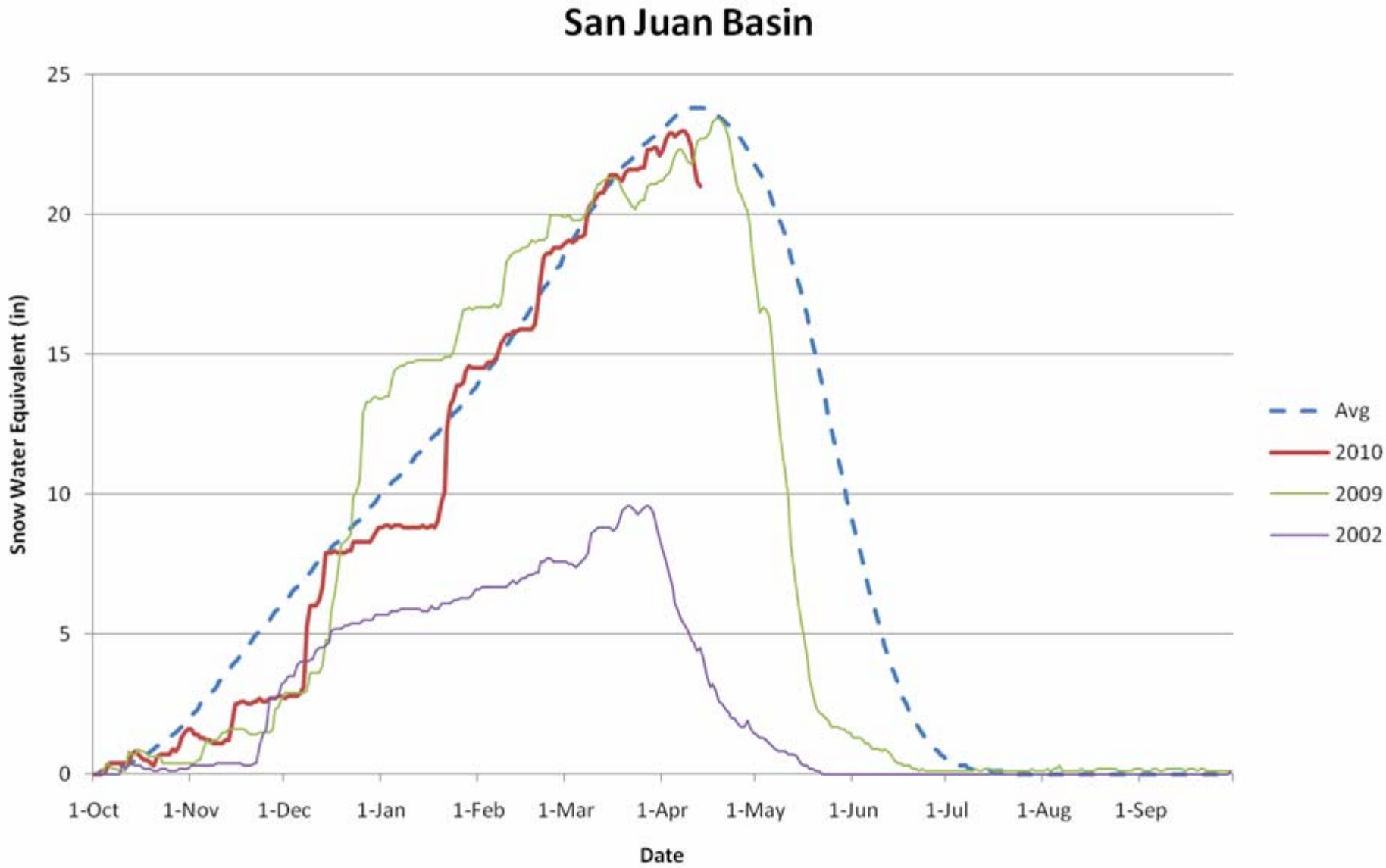
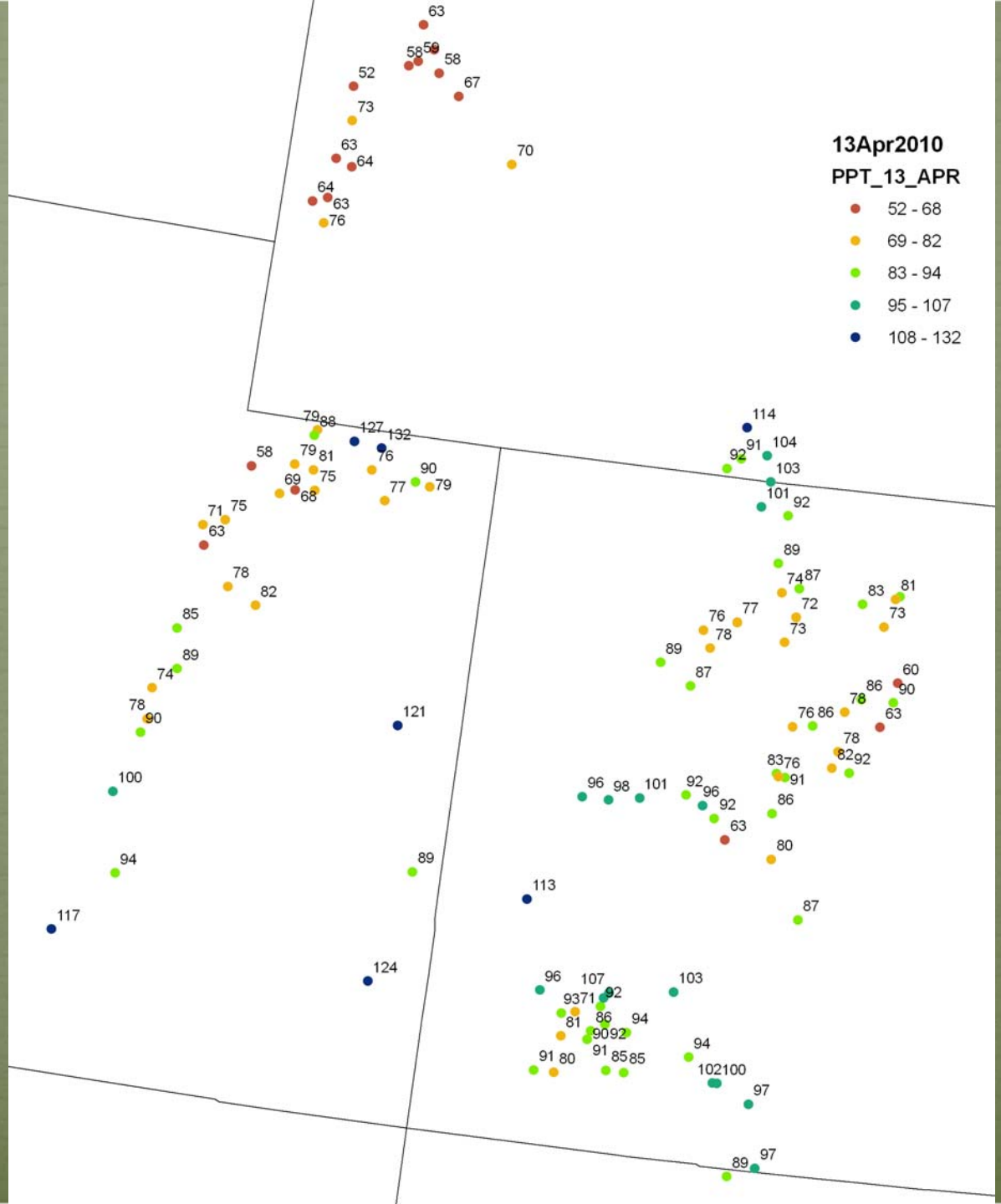


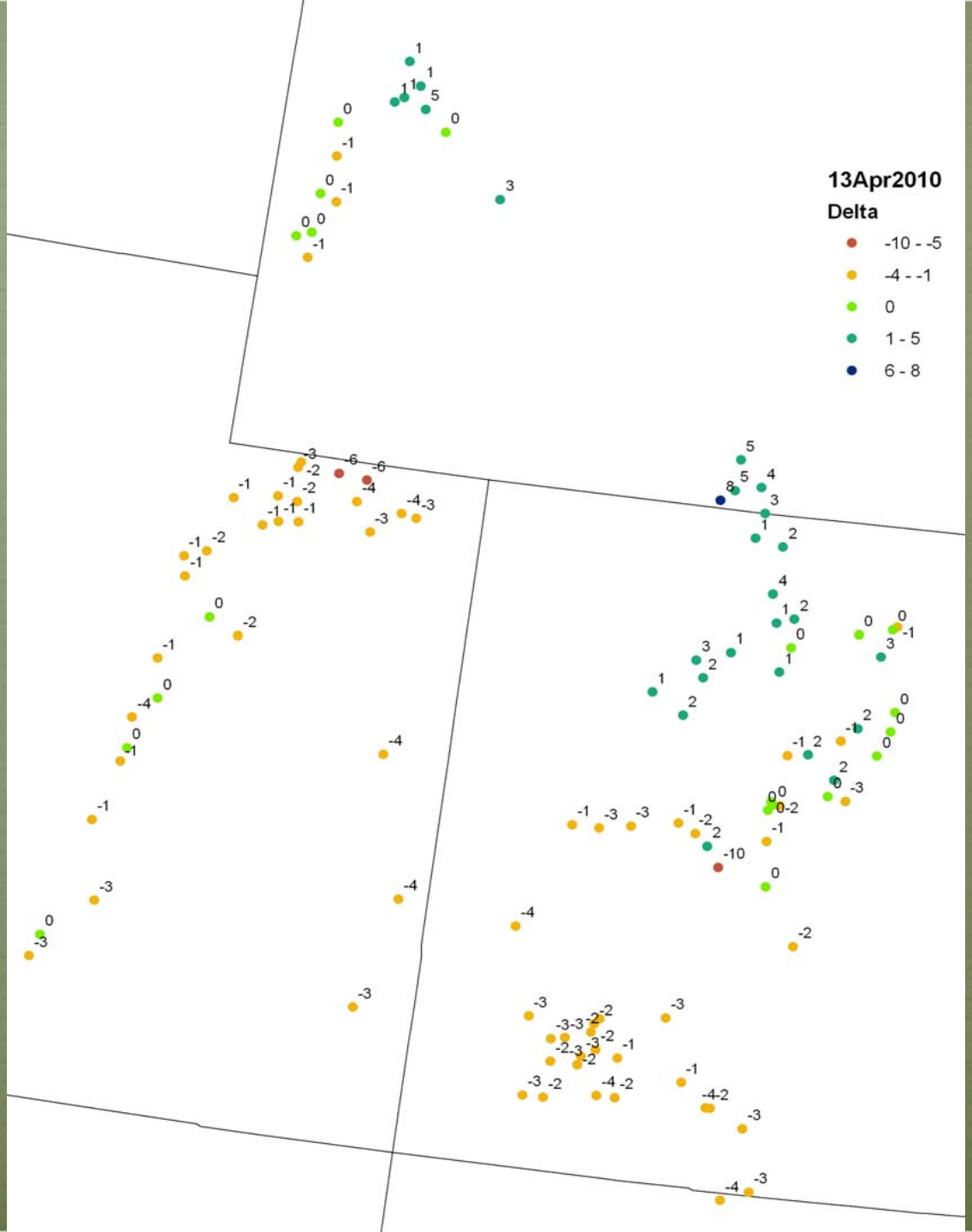
Basin Snowpack: 88%

Snotel WYTD Precipitation as Percentage of Average

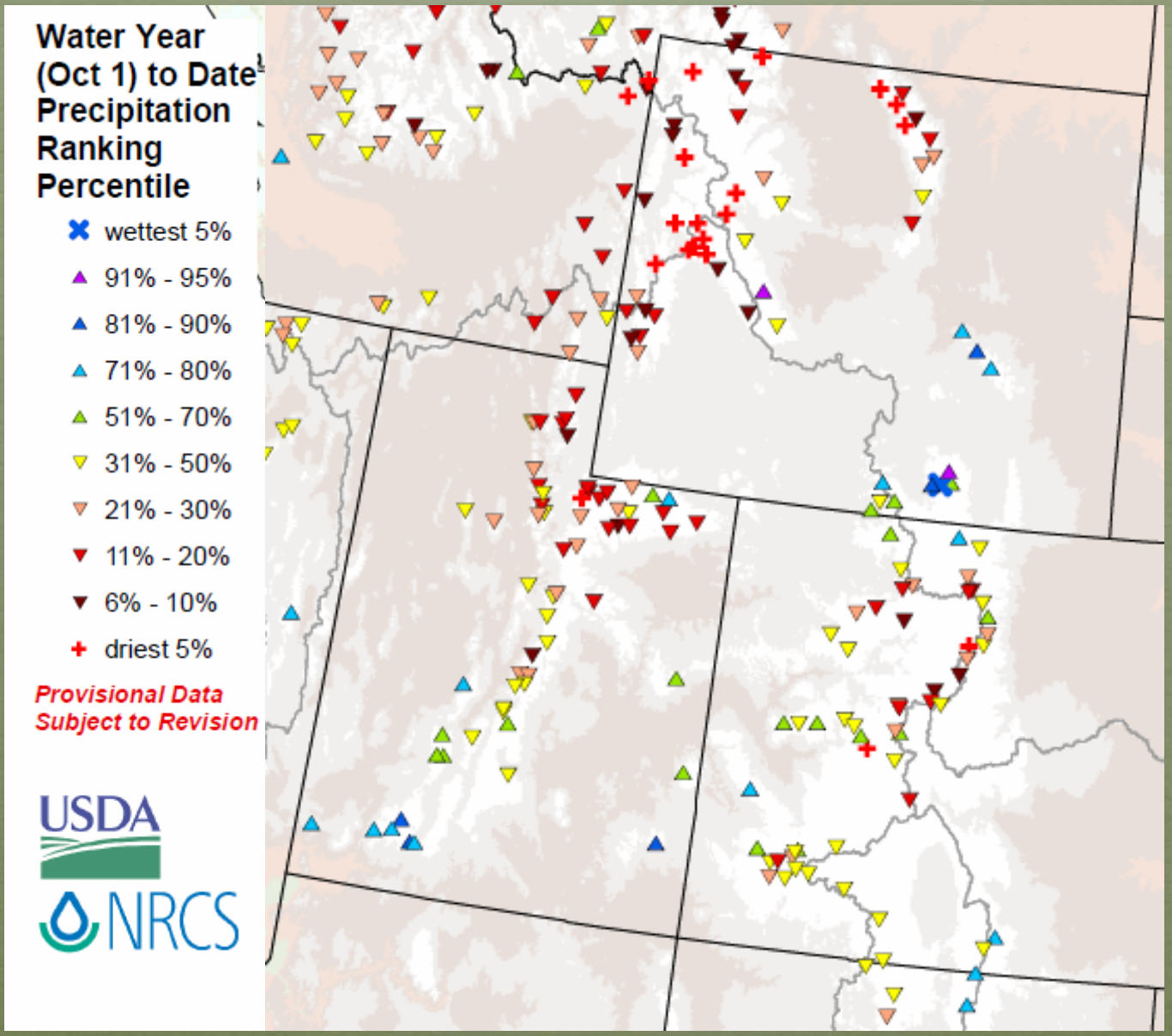


Upper Colorado 81% of Average Overall

1 Week Change in Snotel WYTD Precipitation Percent of Average



Western Snotel Percentiles 13 Apr 2010

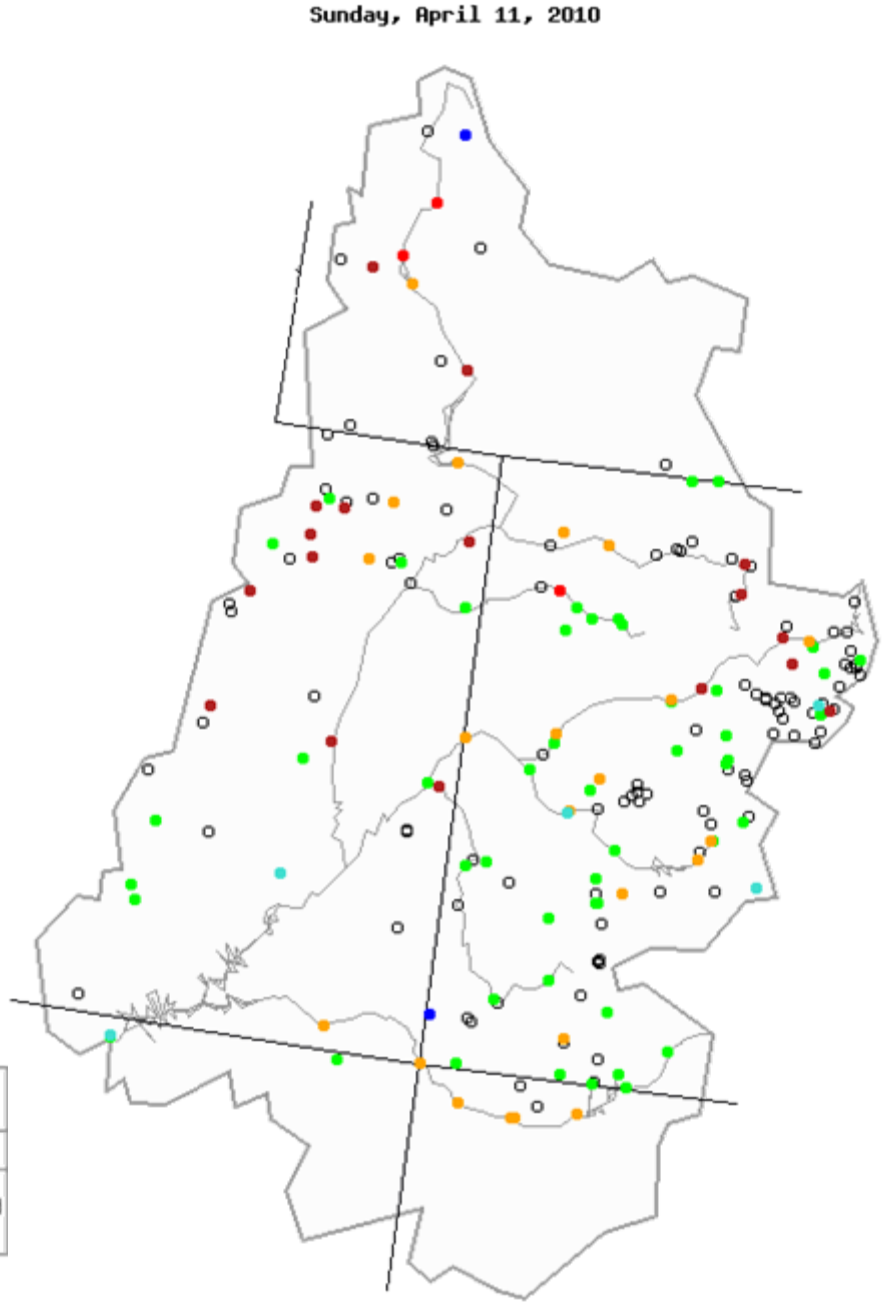


http://www.wcc.nrcs.usda.gov/gis/precip.html

Streamflow Update

Michael E. Lewis - USGS

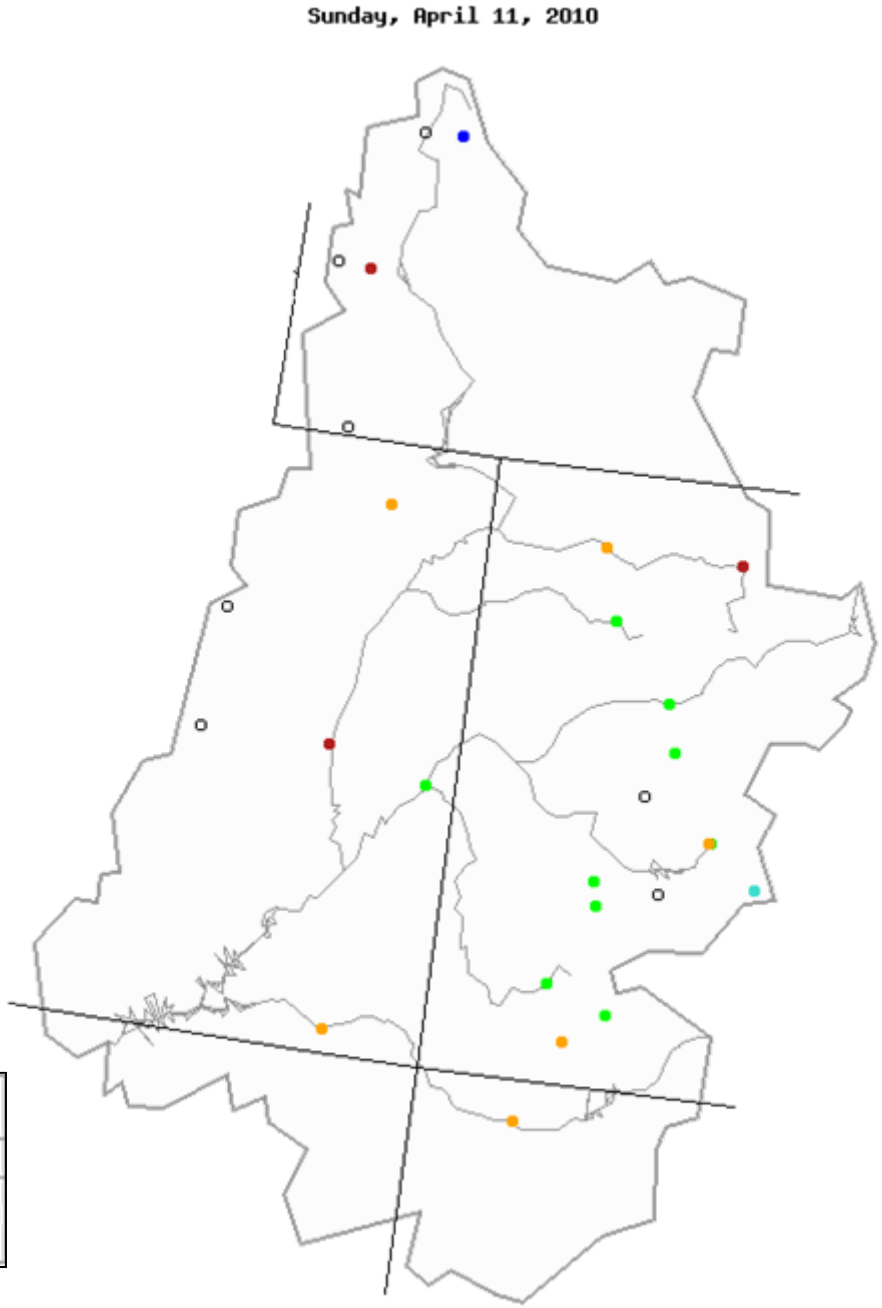
April 11
Map of 7-day average streamflow compared to historical streamflow for the day of the year (Upper Colorado)



Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

USGS

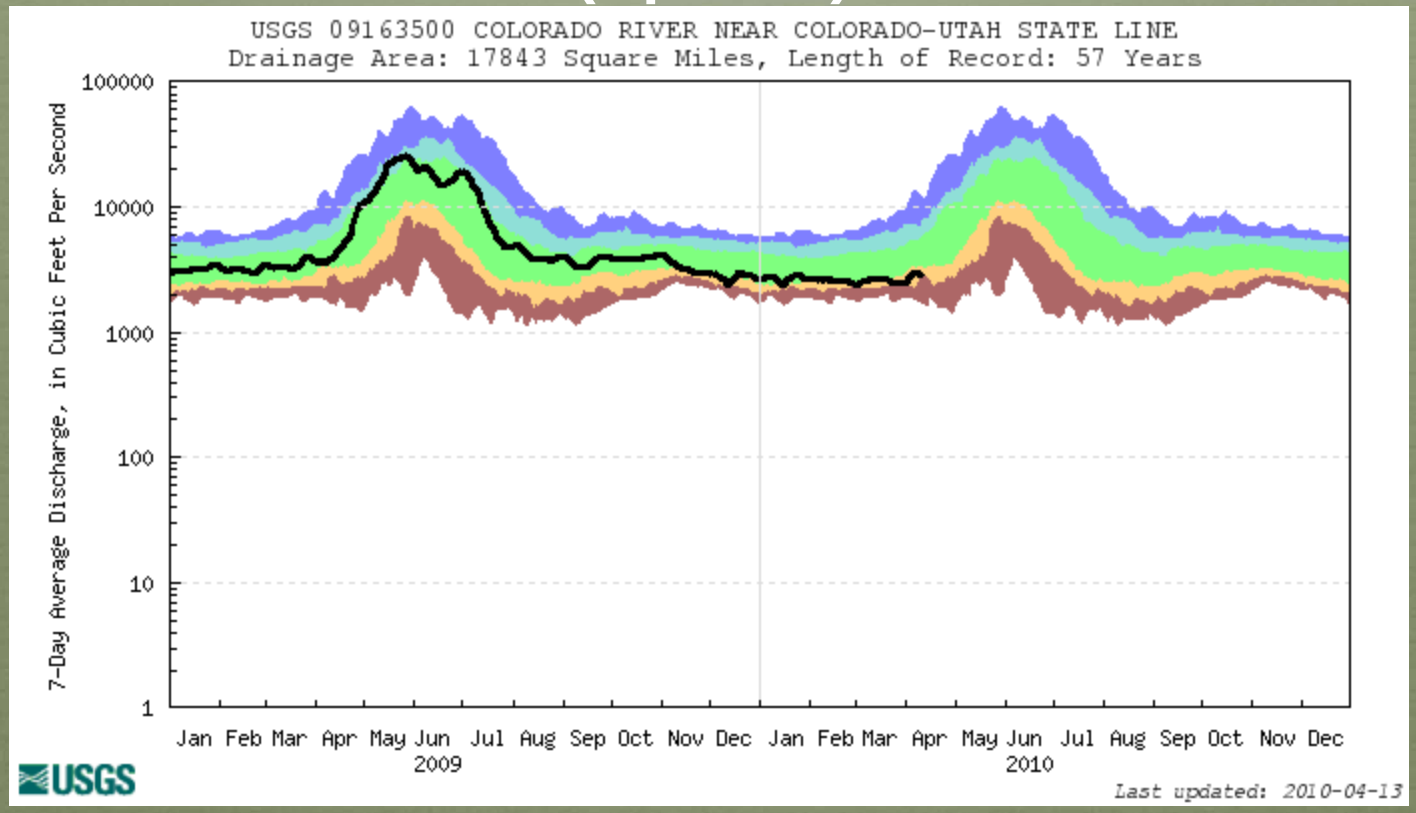
April 11
Map of 7-day average streamflow compared to historical streamflow for the day of the year for HCDN sites (Upper Colorado)



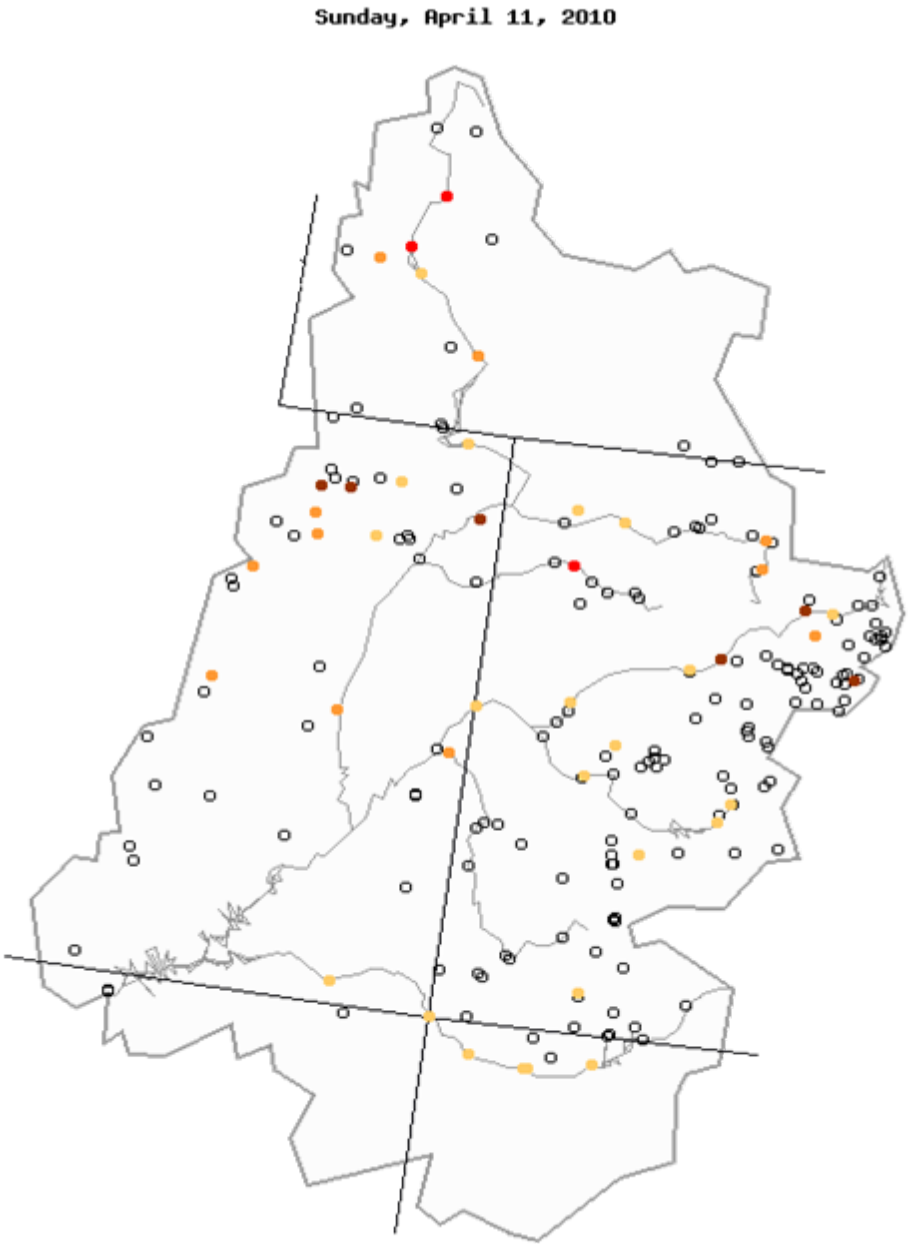
Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

USGS

Time series plot of real-time streamflow compared to historical streamflow for the day of the year (April 11)



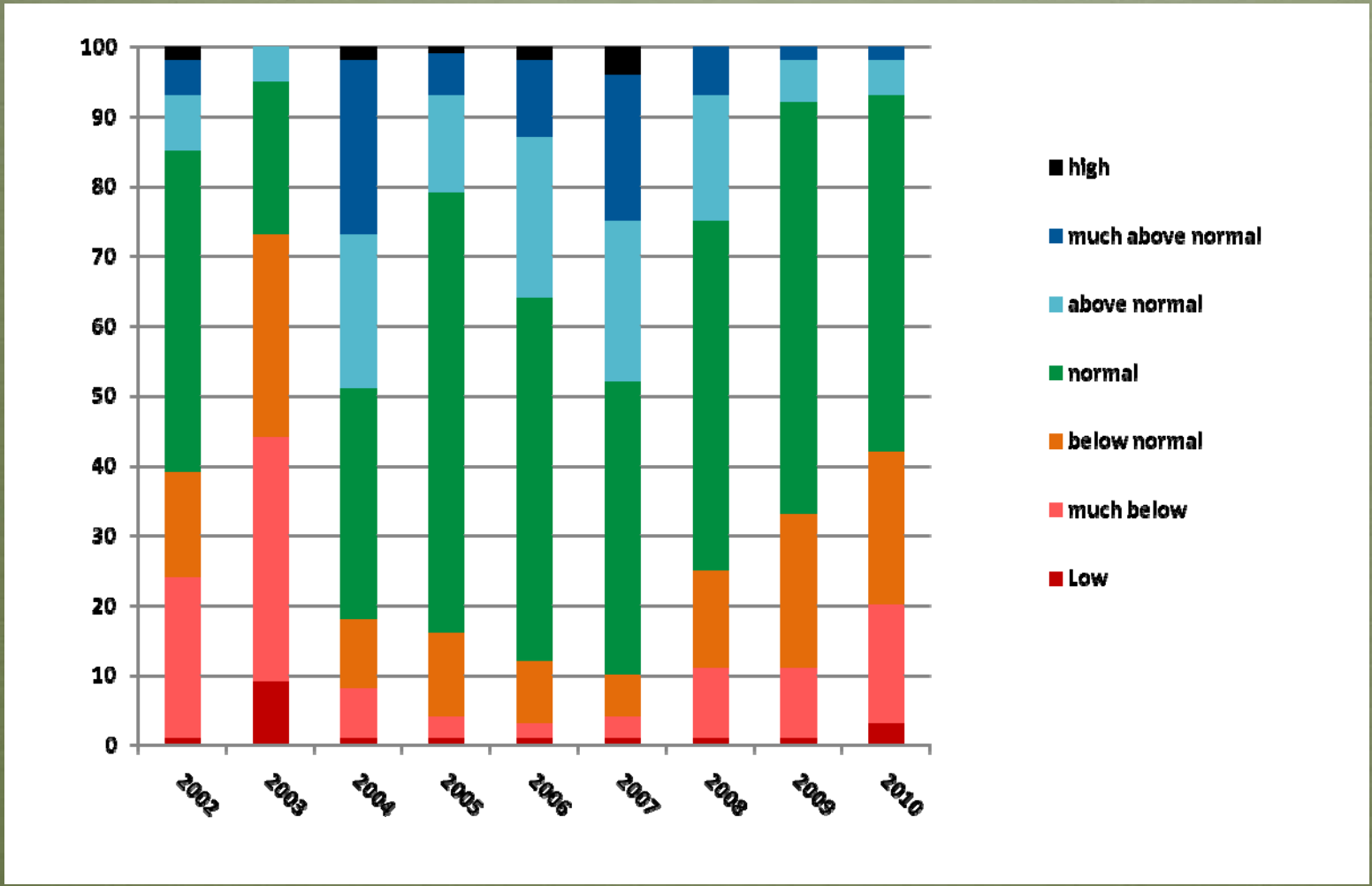
April 11
Map of below normal 7-day average streamflow compared to historical streamflow for the day of the year (Upper Colorado)



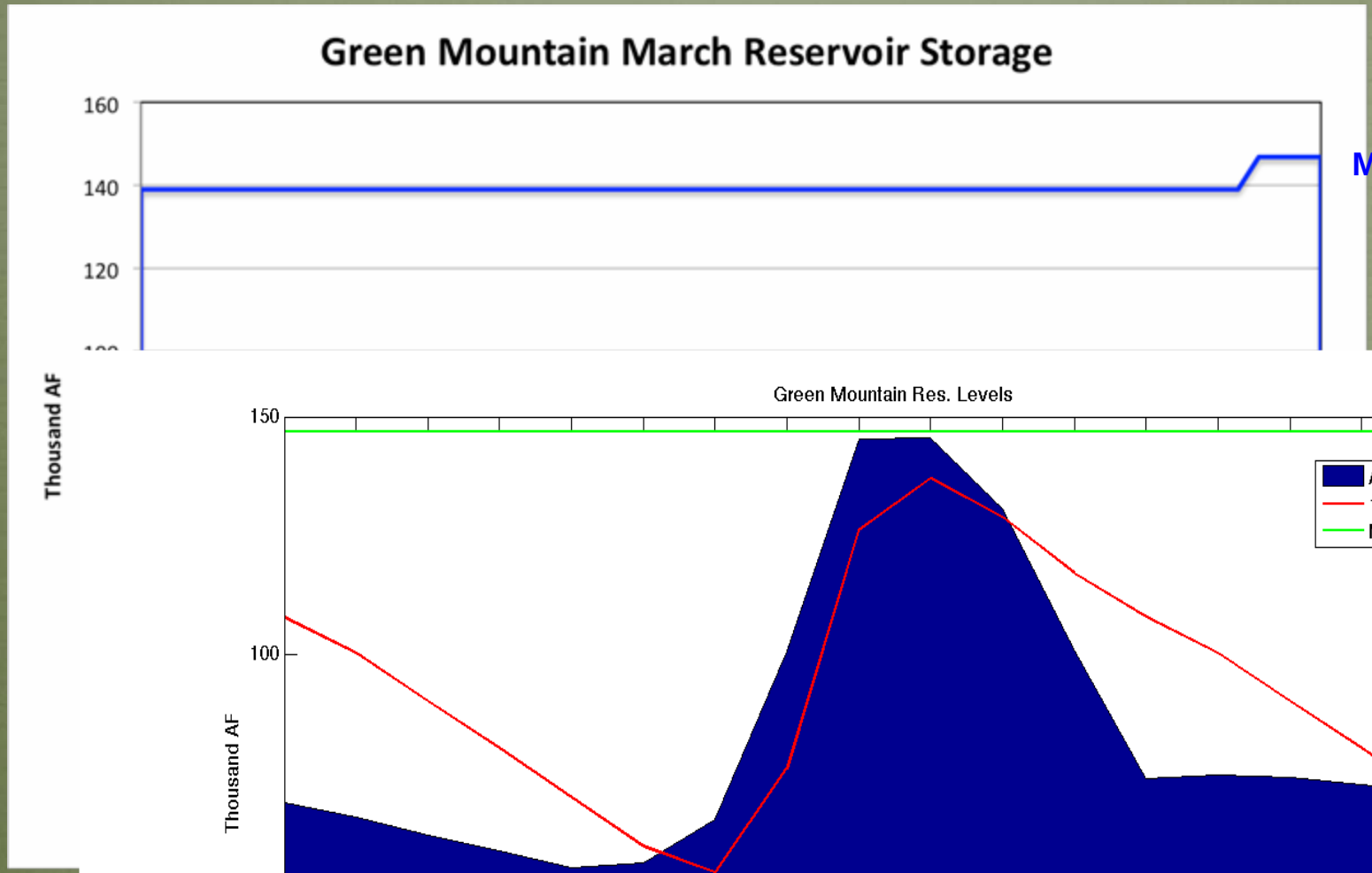
Explanation - Percentile classes				
New low	<=5	6-9	10-24	Not ranked
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

USGS

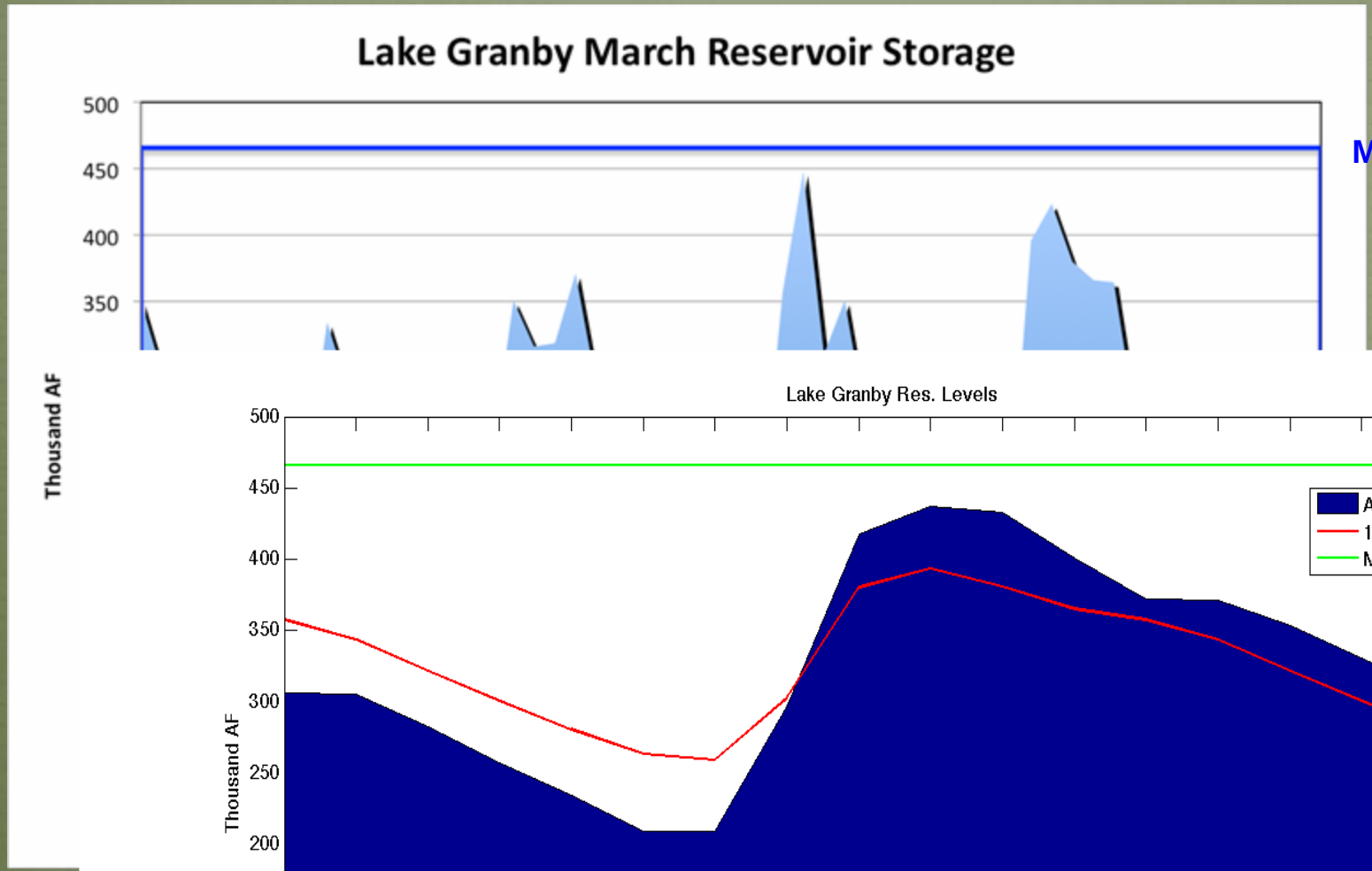
April 11
Percentage of Streamgages per Percentile Class
7-day Average Streamflow



Reservoir Update

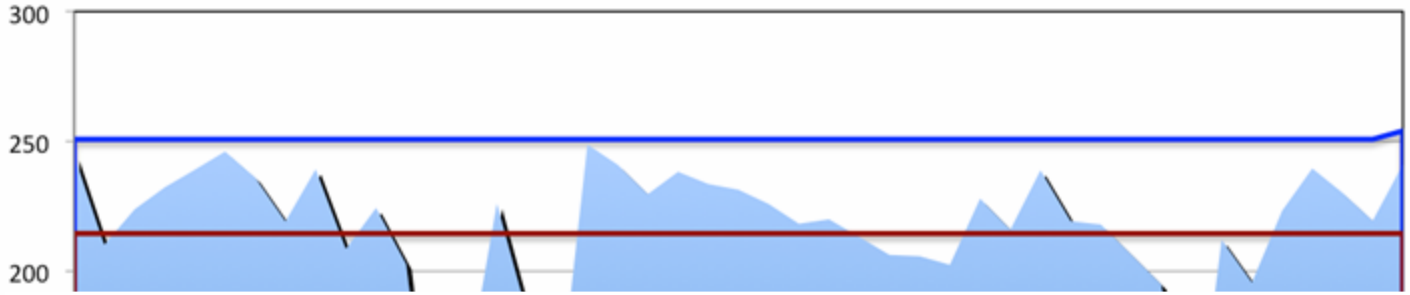


Max Capacity



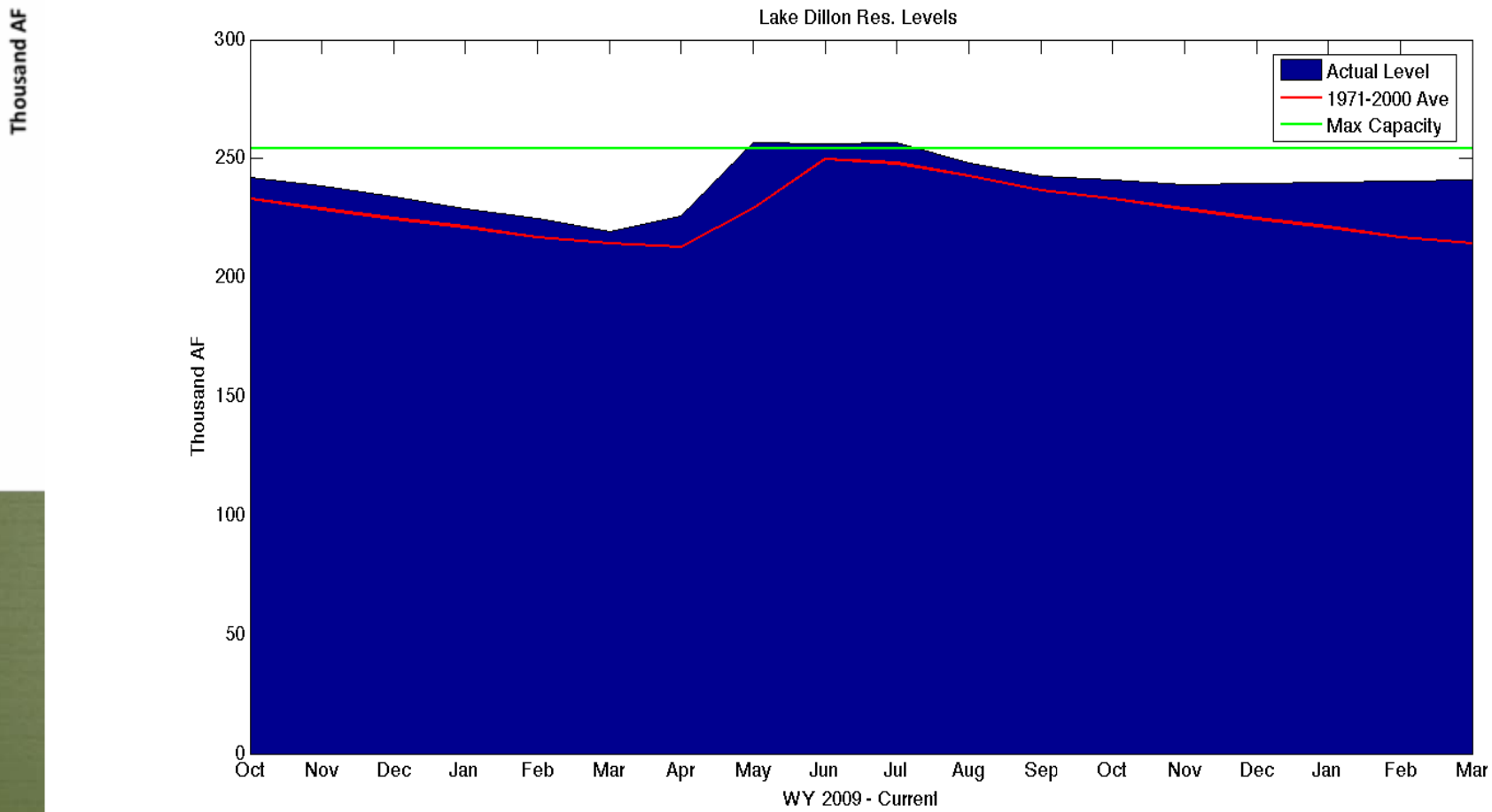
Max Capacity

Lake Dillon March Reservoir Storage

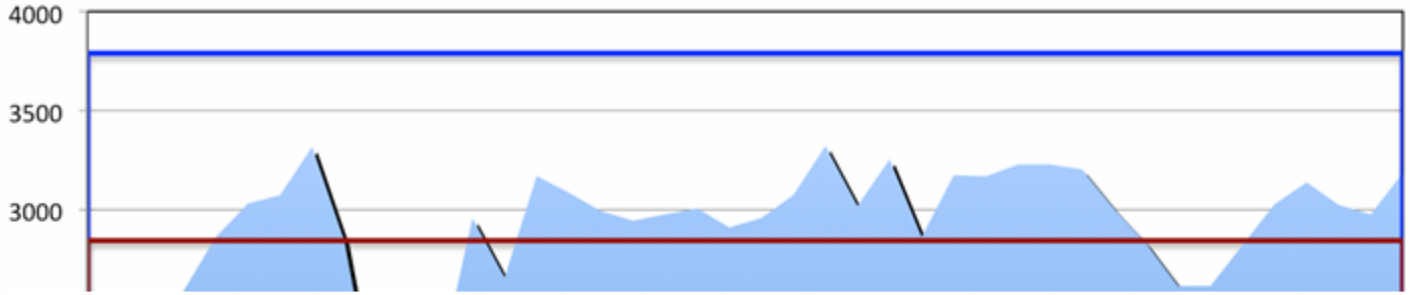


Max Capacity

1971-2000 Average



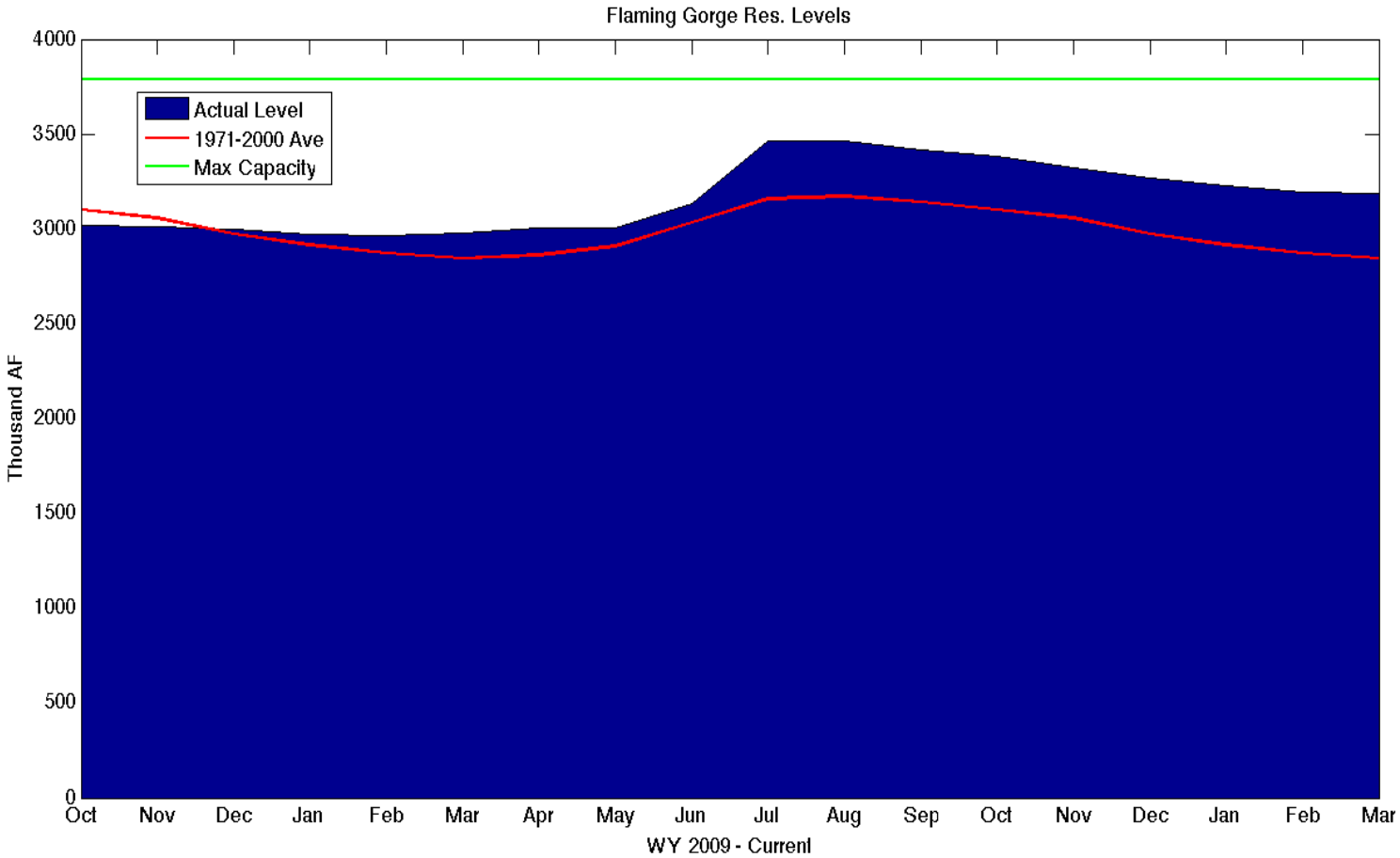
Flaming Gorge March Reservoir Storage



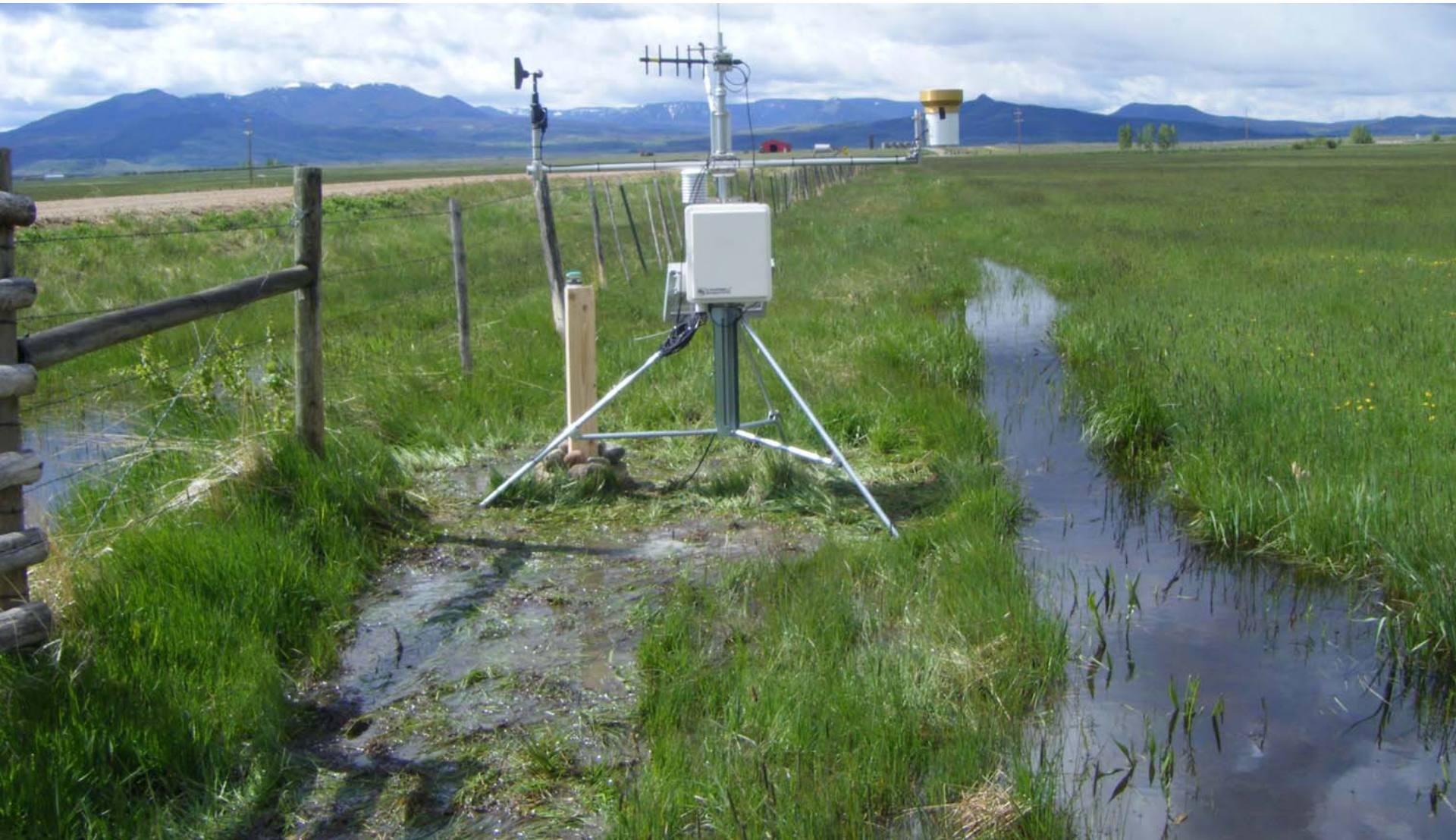
Max Capacity

1971-2000 Average

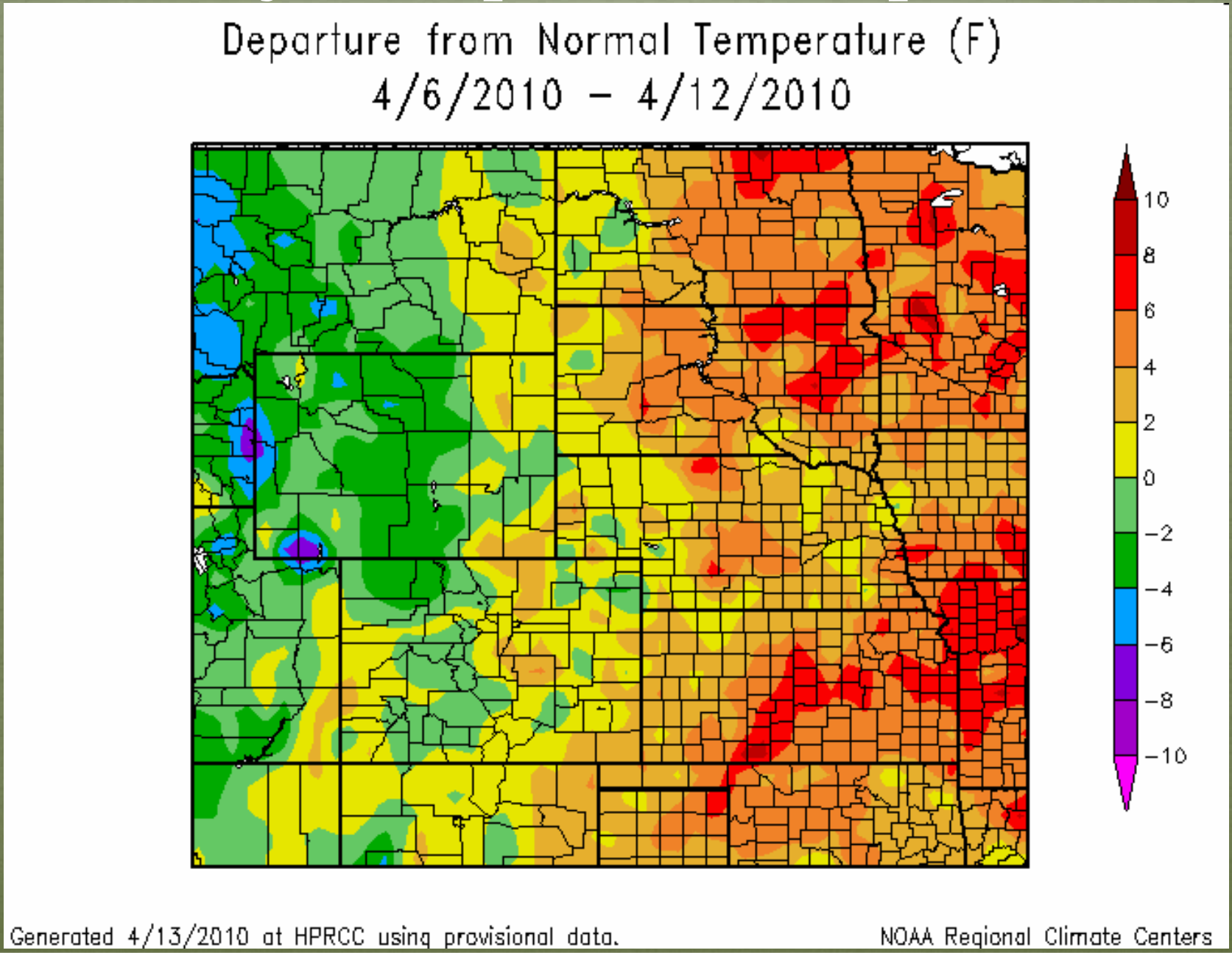
Thousand AF

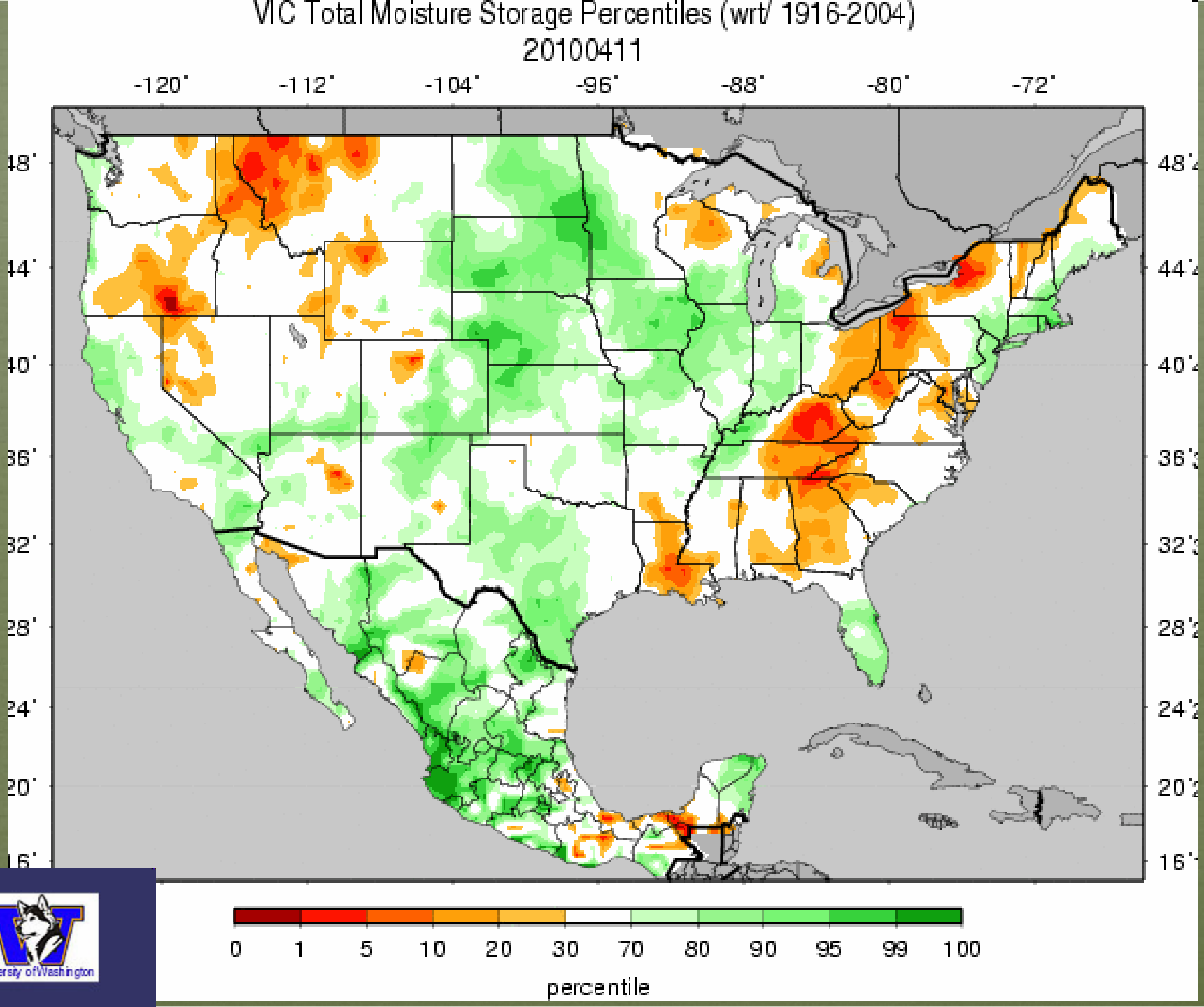


Water Demand



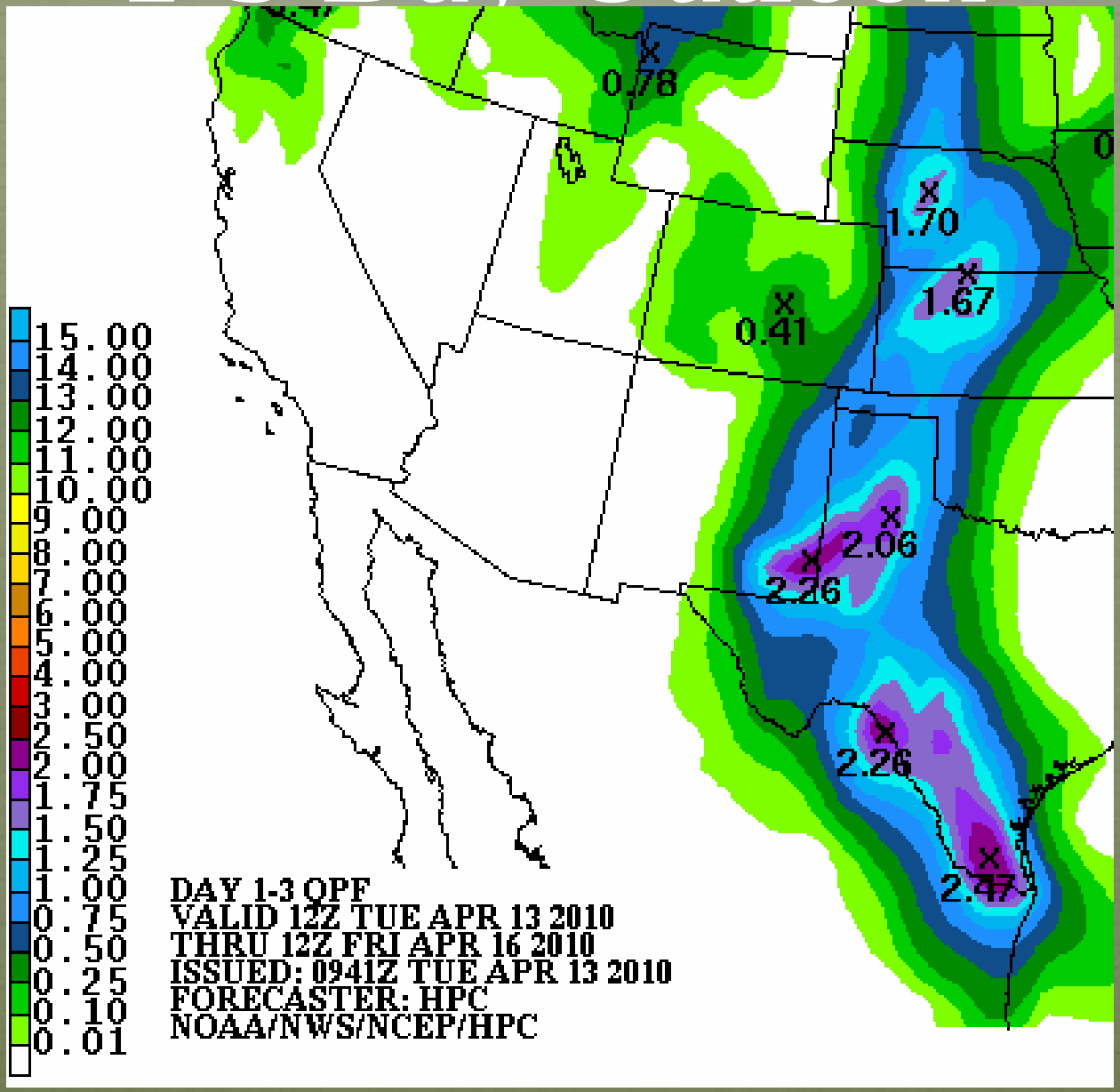
7 Day Temperature Departure




VIC Total Moisture Storage Percentiles (wrt/ 1916-2004)
20100411
-120°
-112°
-104°
-96°
-88°
-80°
-72°
48°
44°
40°
36°
32°
28°
24°
20°
16°
0
1
5
10
20
30
70
80
90
95
99
100
percentile

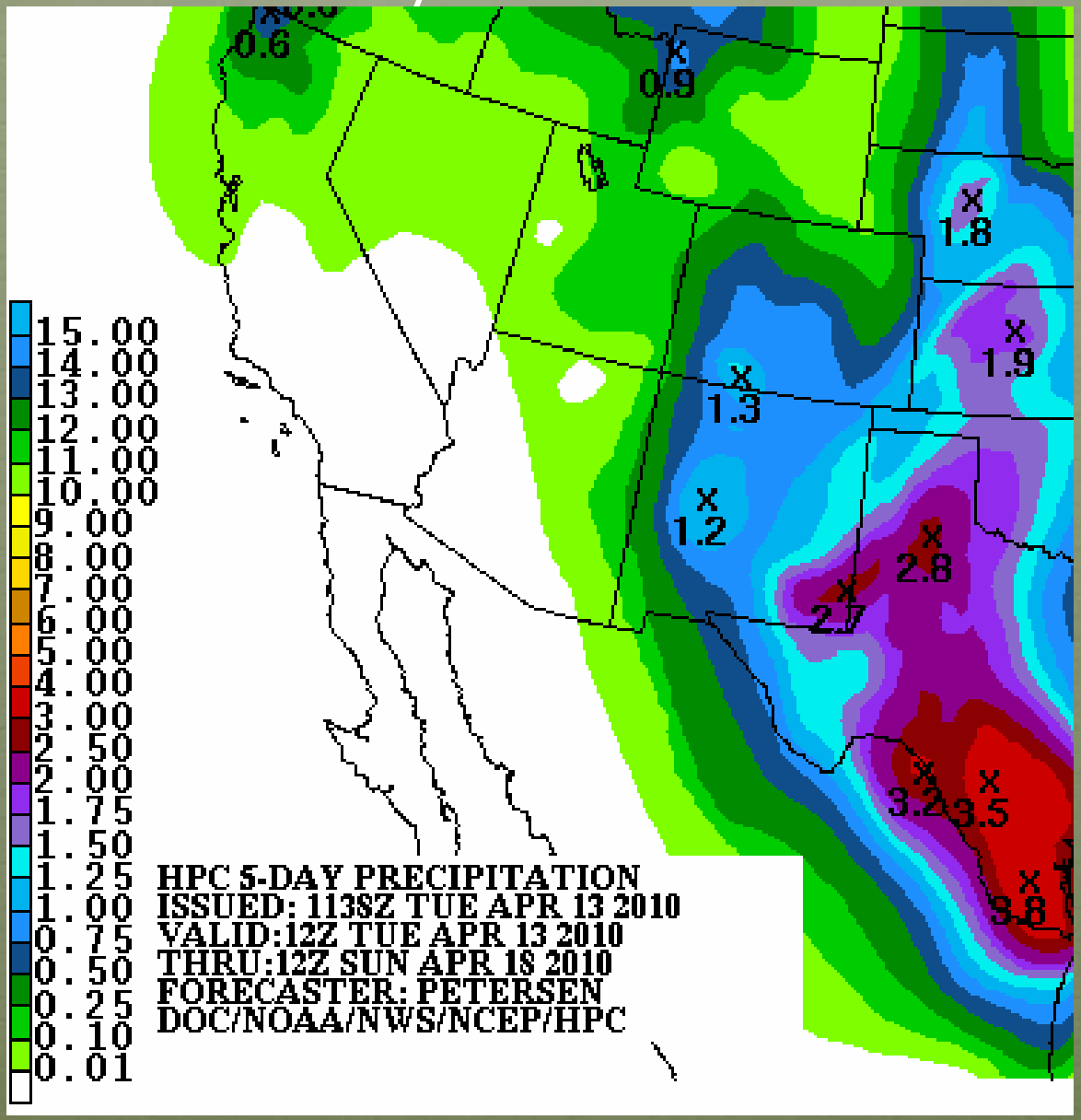
Precipitation Forecast

1-3 Day Outlook



http://www.hpc.ncep.noaa.gov/

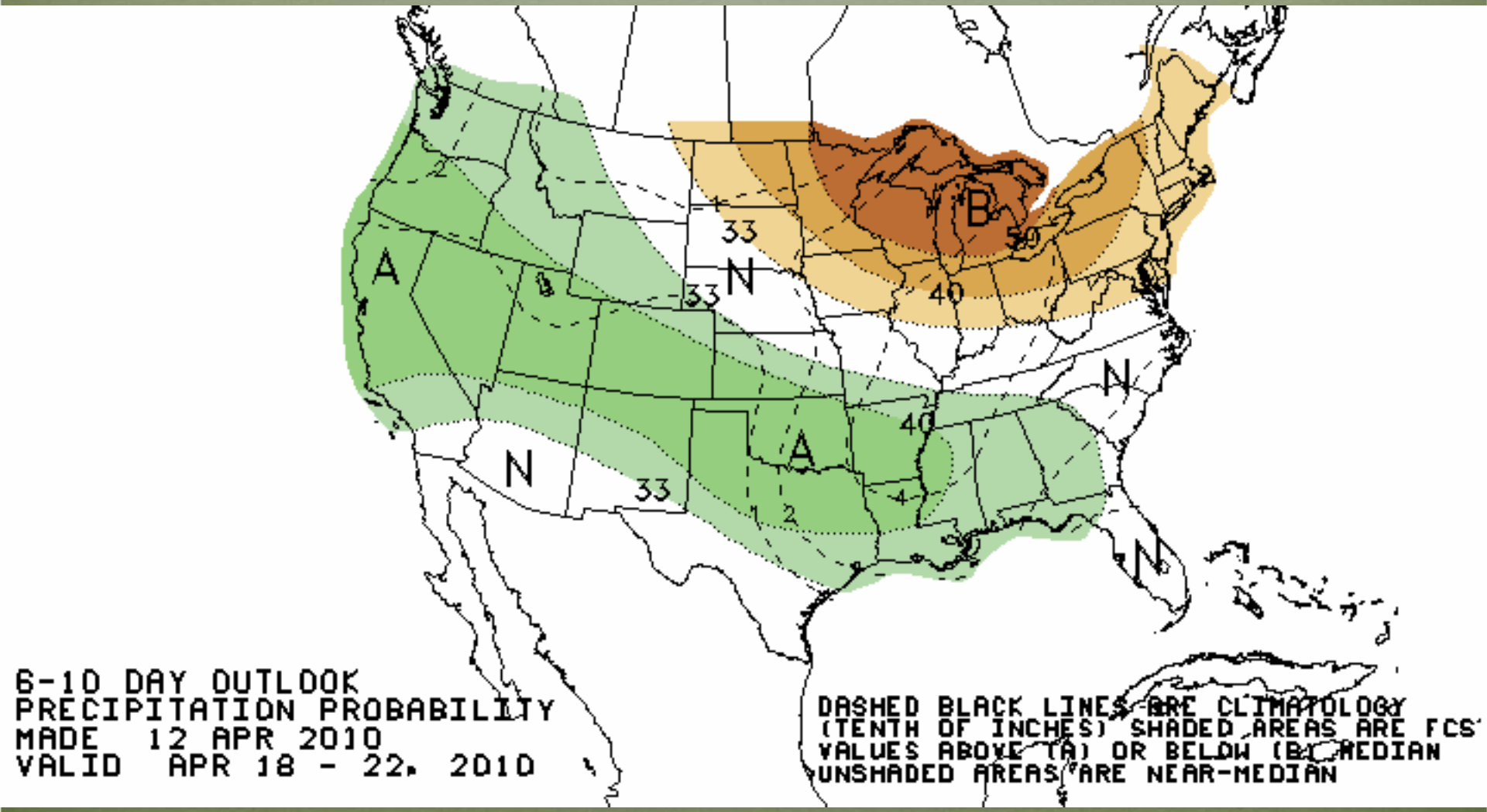
5 Day Outlook



http://www.hpc.ncep.noaa.gov/

6-10 Day Outlook

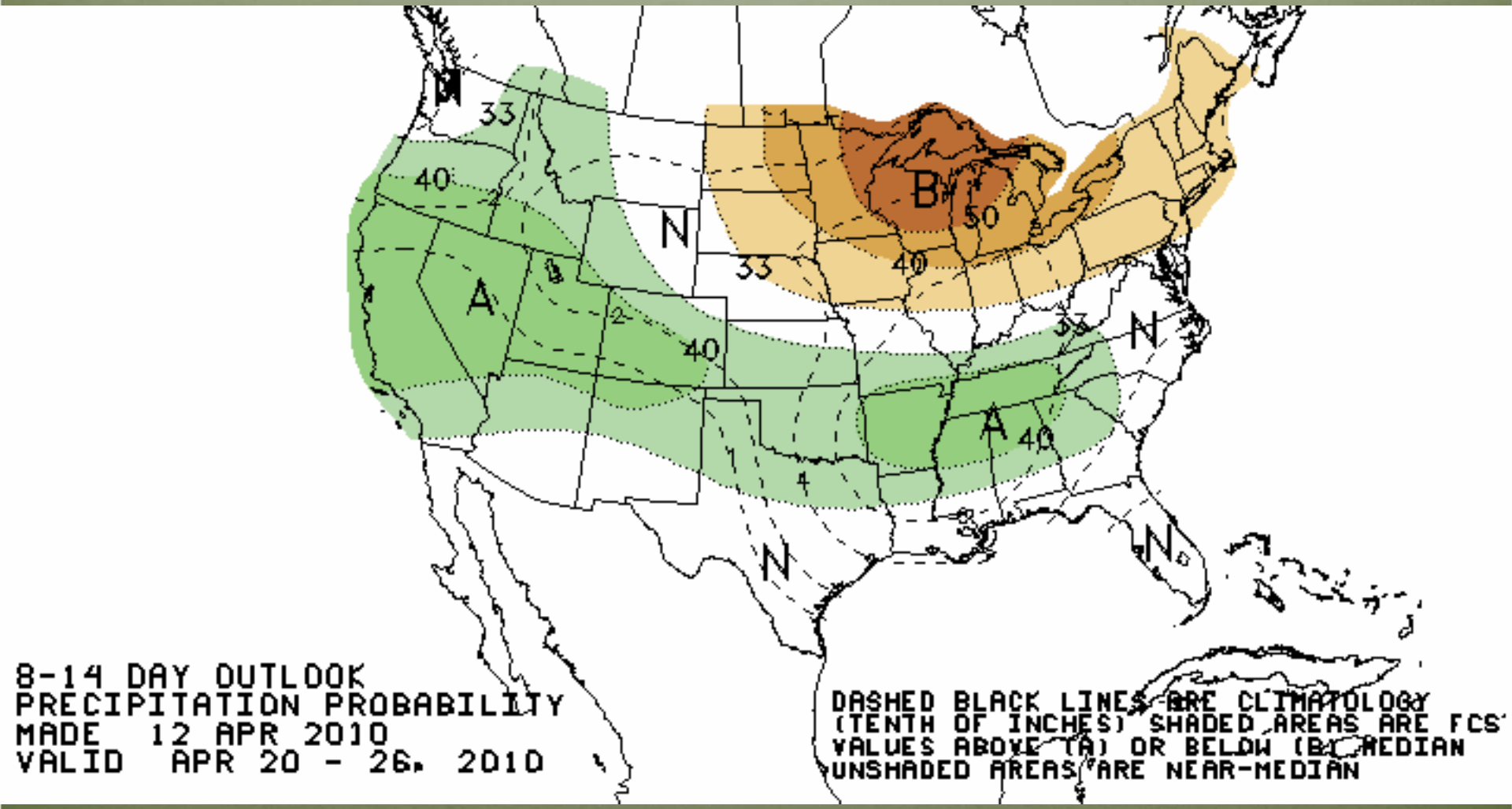
18 April - 22 April 2010



http://www.cpc.ncep.noaa.gov/

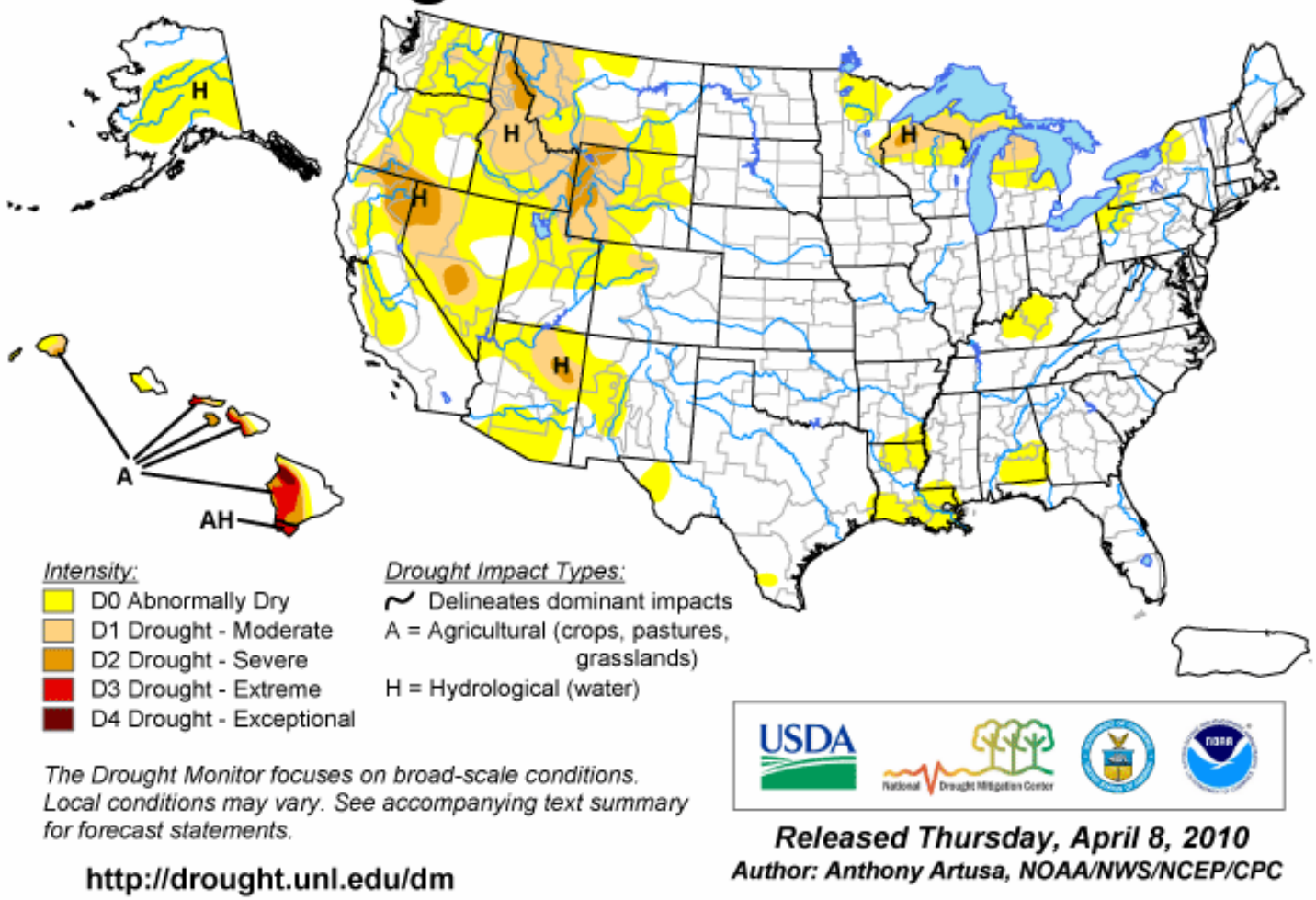
8-14 Day Outlook

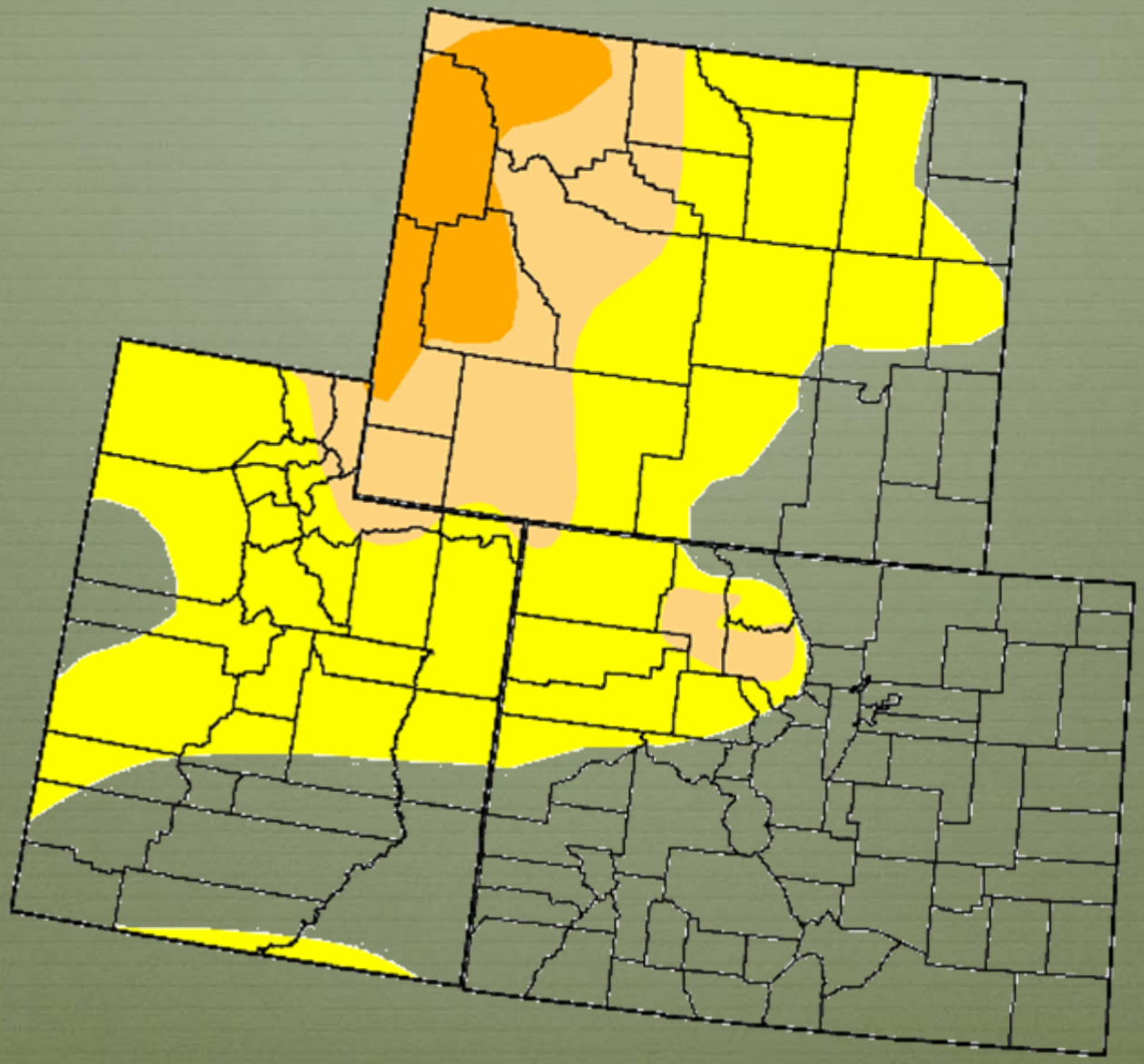
20 April – 26 April 2010



http://www.cpc.ncep.noaa.gov/

Recommendations





INFO

For more information

Summary

- **Beneficial moisture fell this past week in the headwaters of the the Upper Colorado River in northern Utah, western Wyoming and northern Colorado continuing the trend from last week. Heaviest snows fell near and north of Steamboat Springs where large increases in snow water equivalent were noted. Most other areas received some precipitation but not enough to have much effect on seasonal snow water equivalent percentages. Based on recent precipitation, some small reduction in the D1 area in northern Colorado is warranted while the D0 location still seems accurate. Heavy precipitation in portions of western Utah warrant some reduction in D1 and D0 areas coordinated with Wyoming officials.**

  Cool weather early in the period has been followed by a significant warming trend the past few days. The first major surges in snow melt runoff have begun in many watersheds. Rapid rises in river levels were noted in parts of southwest Colorado such as the Dolores River. USGS Streamflow data now show some improvements in streamflow across the whole region compared to average, although early streamflow values for early April remain below levels seen in the past several few years.

  We are now at the point where basin average snow water equivalents usually reach their peaks for the season, and low elevation snowmelt begins to proceed quickly. The next few weeks are especially critical as we move towards the typical high flow periods on the larger rivers in late May and early June. Forecasts continue to show potentially active weather over the Central Rocky Mountain region for the next 1-2 weeks and cooler weather for the next 1-2 days. Warmer than average sea surface temperatures still persist off the coast of South America which may continue favorable for heavier spring precipitation over portions of the Central and Southern Rockies.