Spring 2010

Weekly Climate, Water & Drought Assessment

Today's Agenda

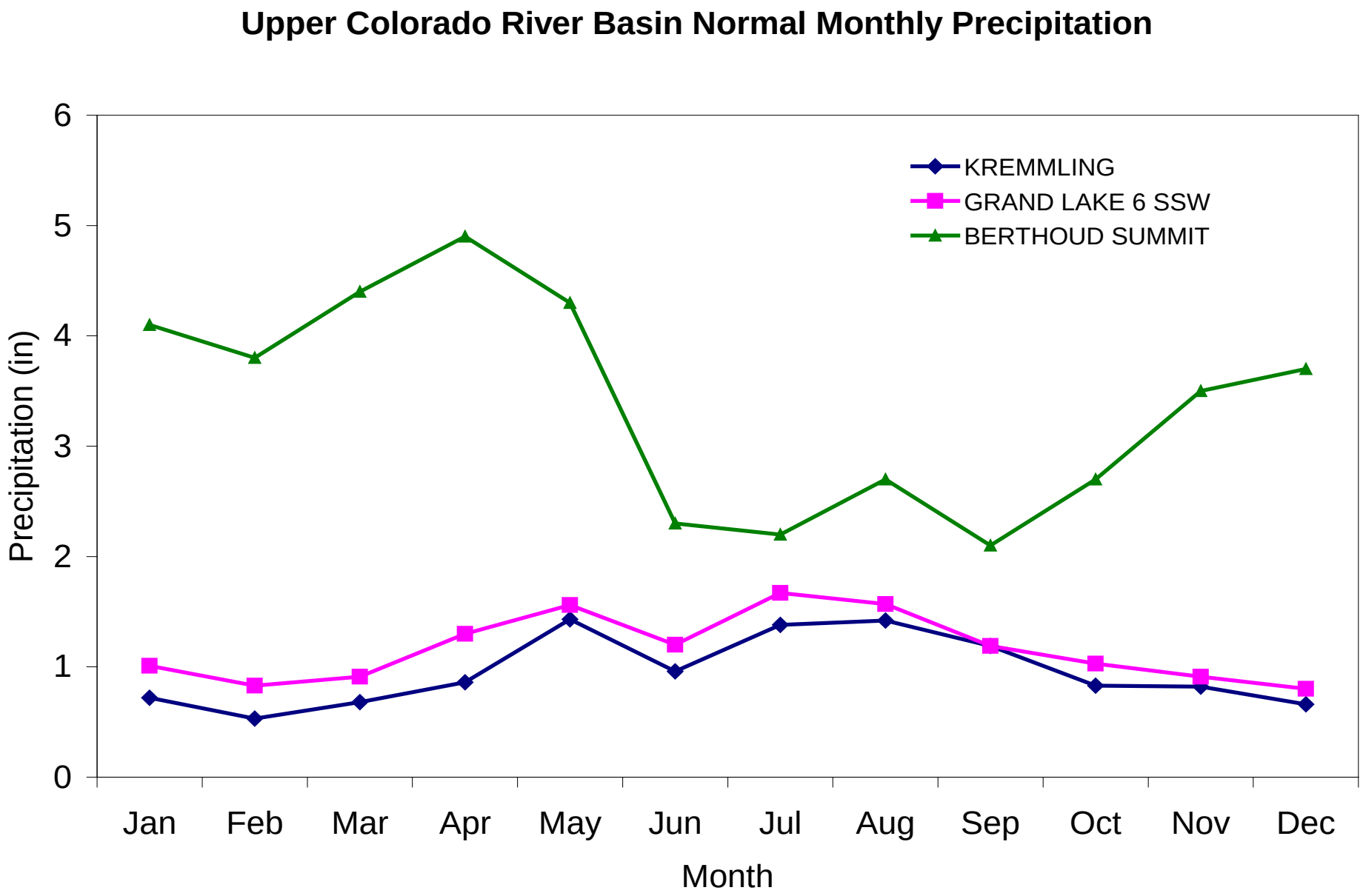
-Assessment of current water conditions

- Precipitation Forecast

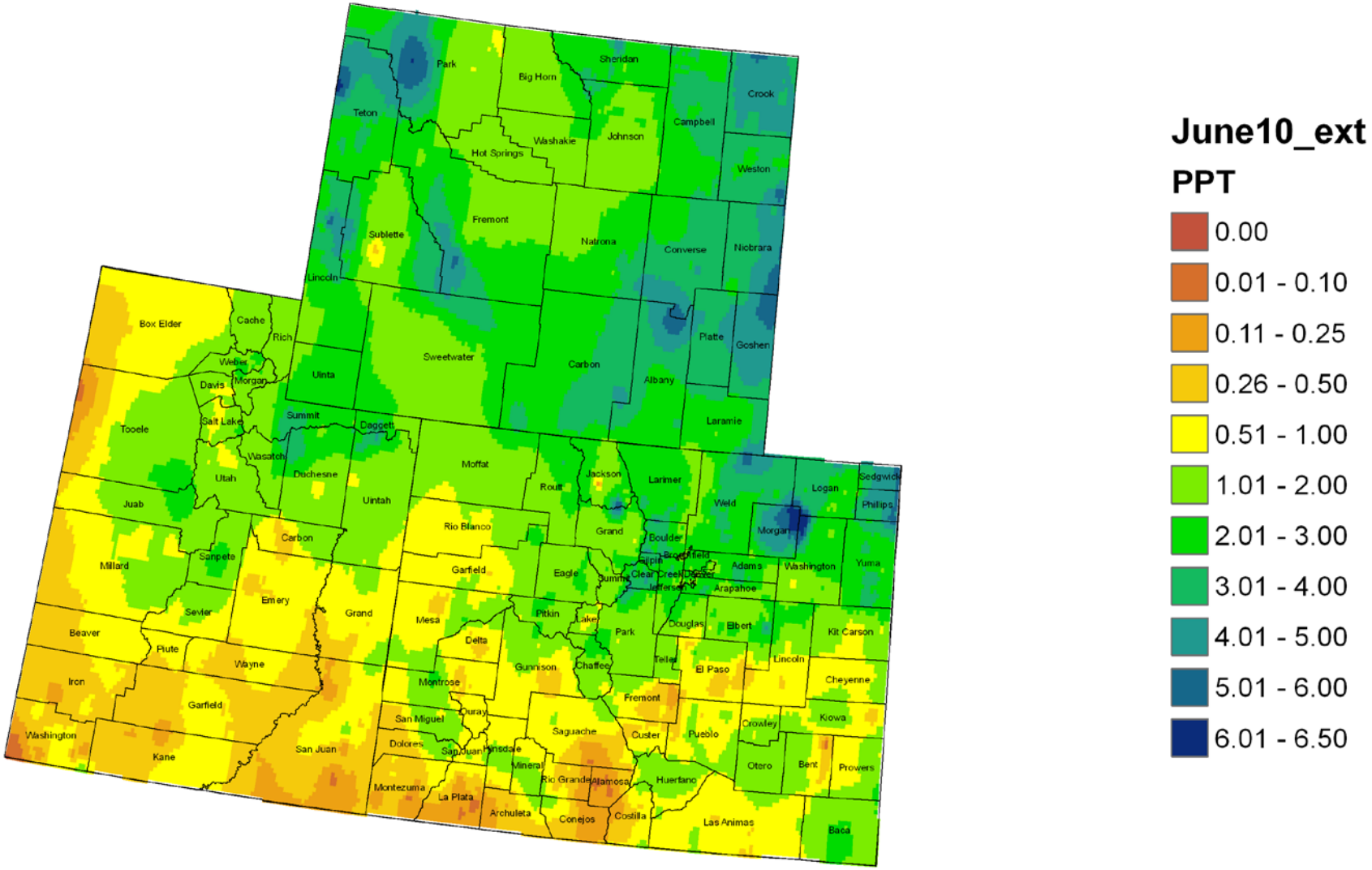
- Recommendations for Drought Monitor

Precipitation/Snowpack Update

Upper Colorado Normal Precipitation



Colorado, Utah and Wyoming June Precipitation (in)

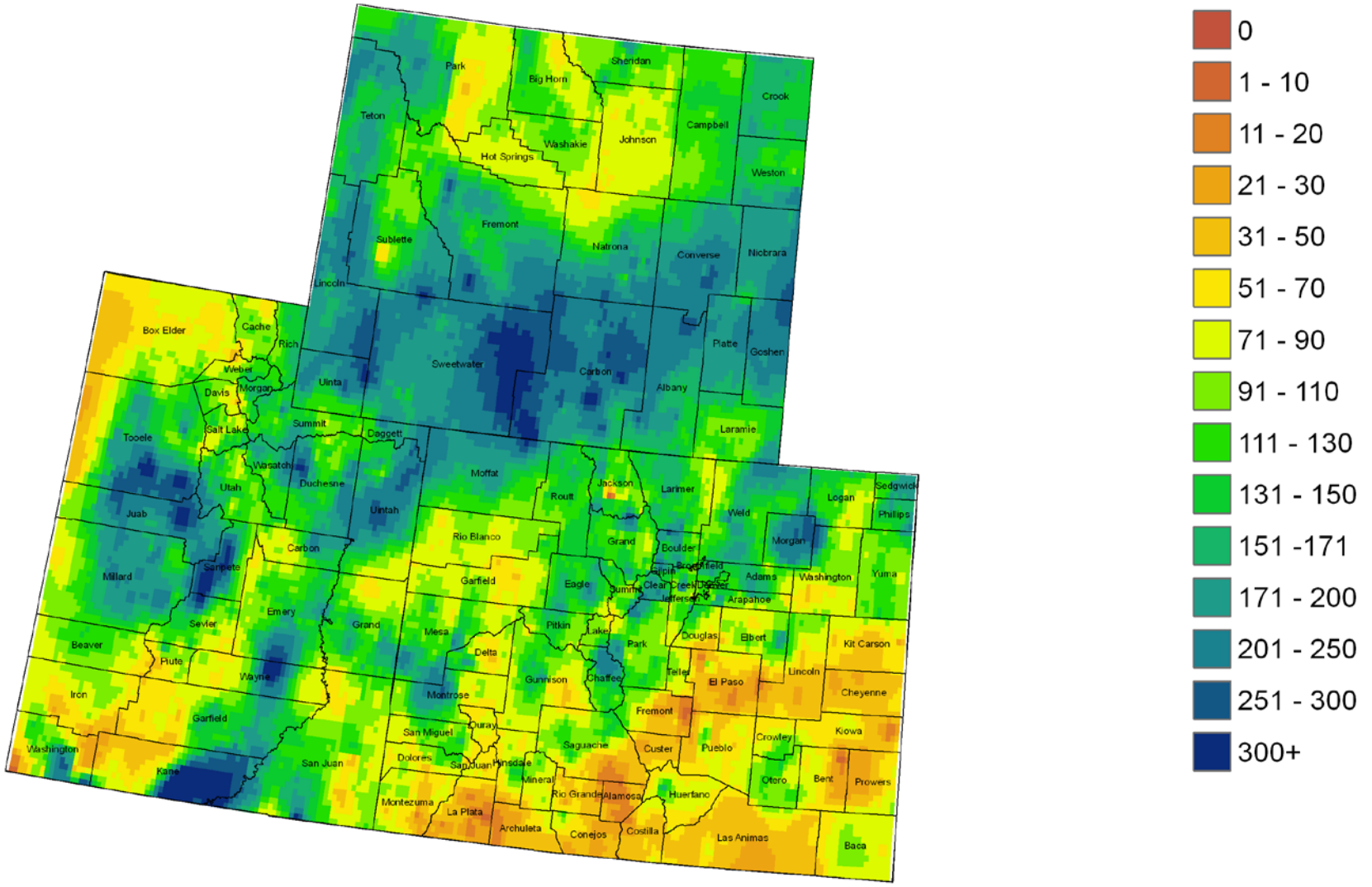


June10_ext

PPT

- 0.00
- 0.01 - 0.10
- 0.11 - 0.25
- 0.26 - 0.50
- 0.51 - 1.00
- 1.01 - 2.00
- 2.01 - 3.00
- 3.01 - 4.00
- 4.01 - 5.00
- 5.01 - 6.00
- 6.01 - 6.50

Colorado, Utah and Wyoming June Precipitation as Percentage of Normal

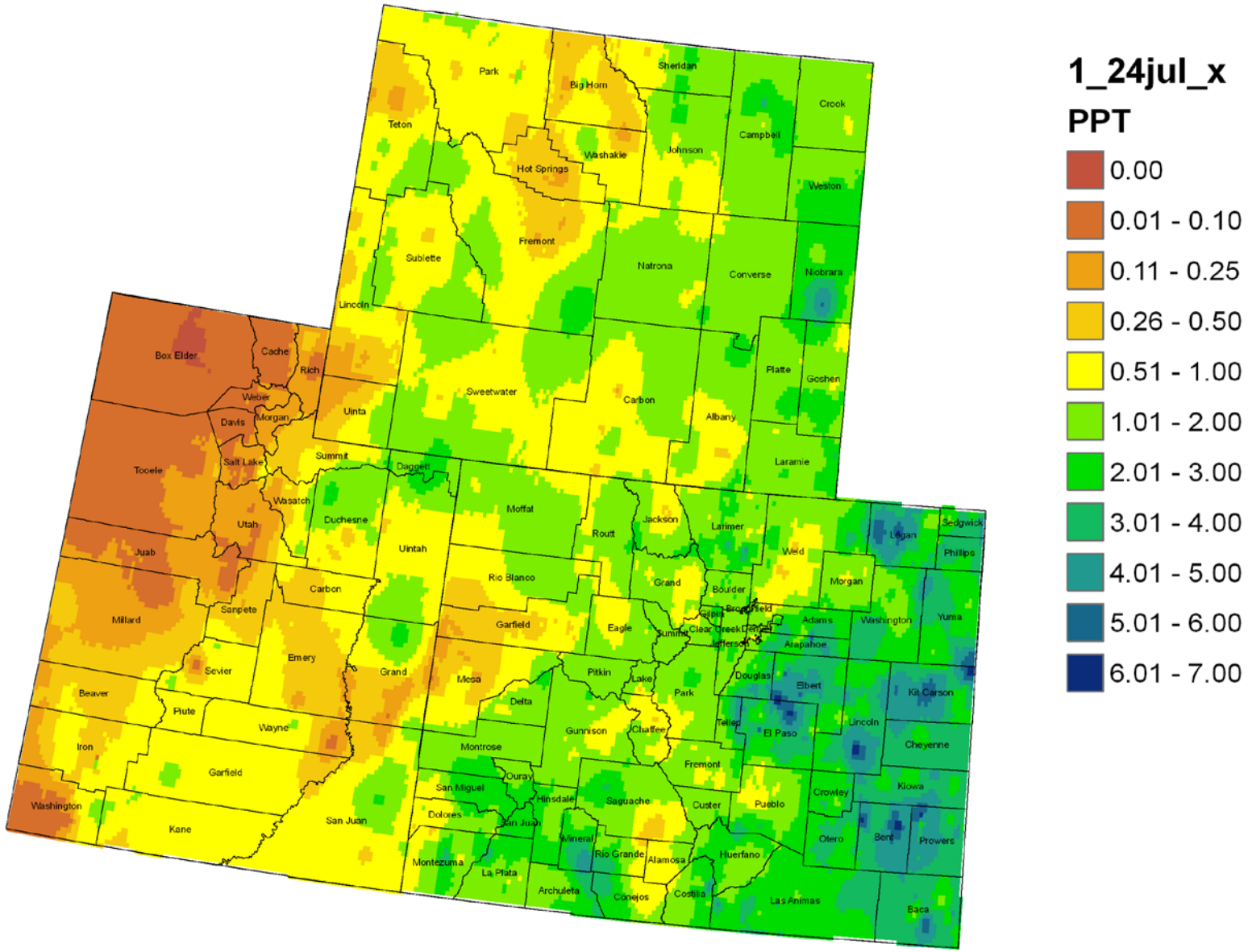


june10_pn

%norm

- 0
- 1 - 10
- 11 - 20
- 21 - 30
- 31 - 50
- 51 - 70
- 71 - 90
- 91 - 110
- 111 - 130
- 131 - 150
- 151 -171
- 171 - 200
- 201 - 250
- 251 - 300
- 300+

Colorado, Utah and Wyoming Precipiation (in)
1 - 24 July 2010

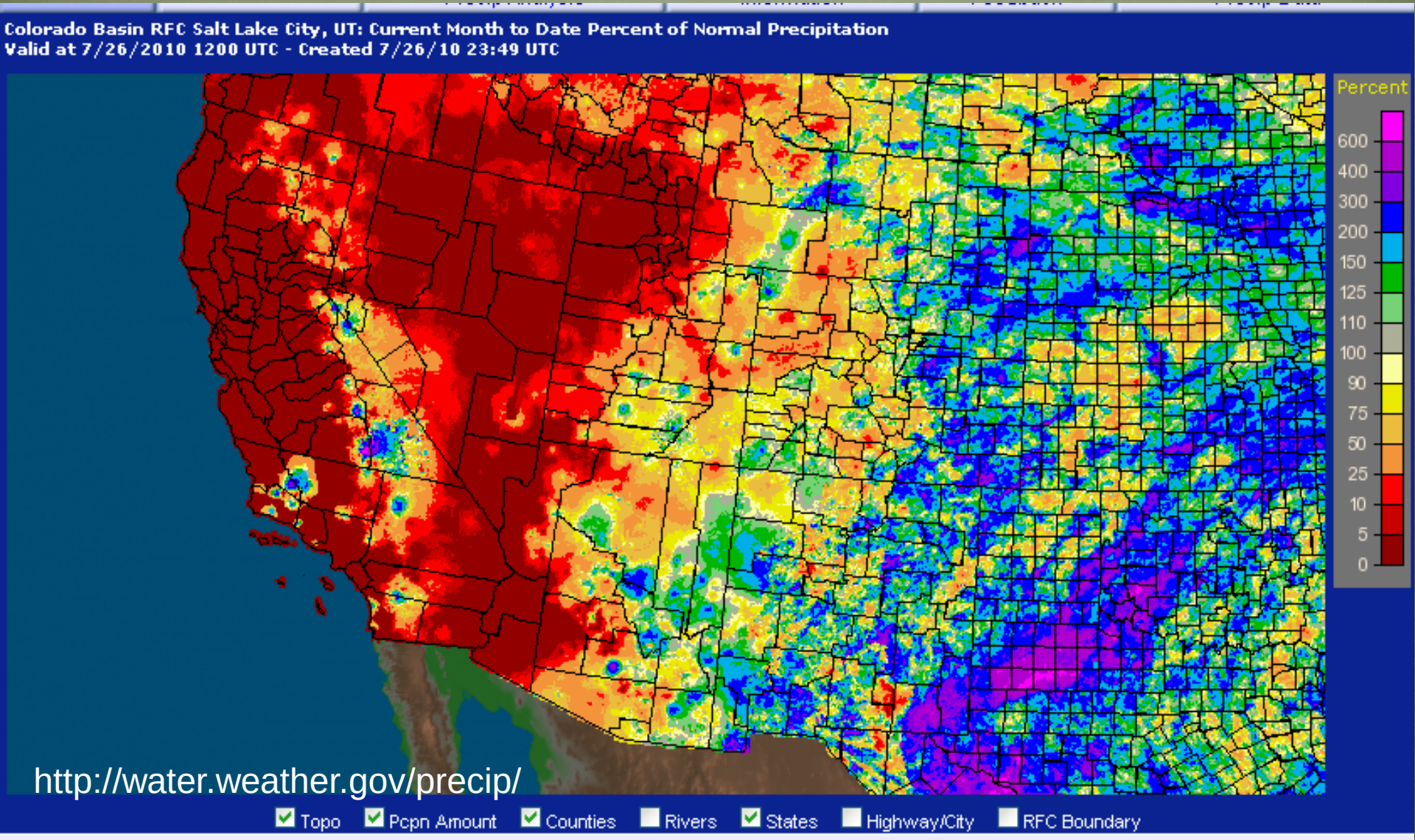


1_24jul_x

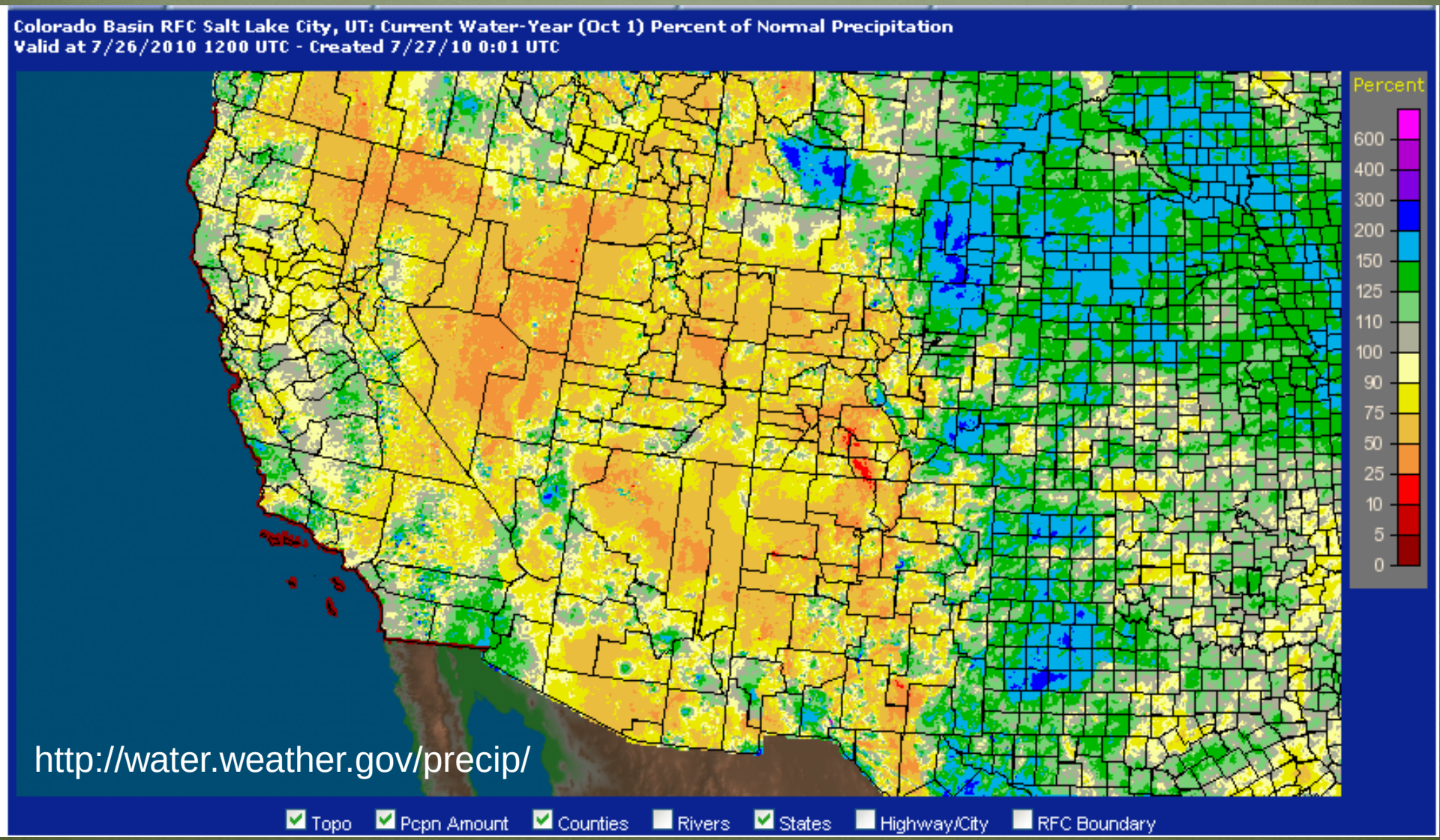
PPT

- 0.00
- 0.01 - 0.10
- 0.11 - 0.25
- 0.26 - 0.50
- 0.51 - 1.00
- 1.01 - 2.00
- 2.01 - 3.00
- 3.01 - 4.00
- 4.01 - 5.00
- 5.01 - 6.00
- 6.01 - 7.00

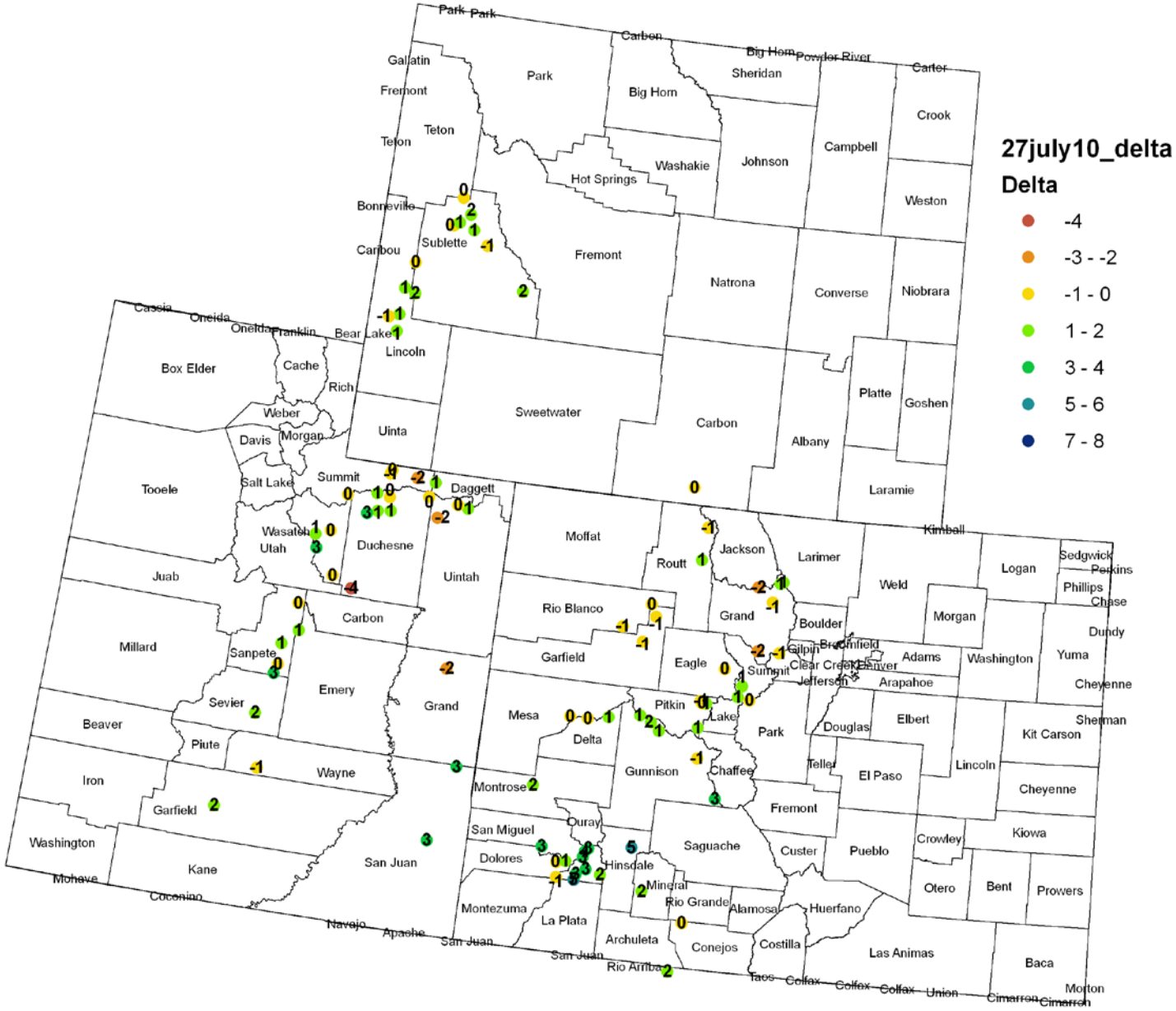
July Precipitation as Percent of Normal

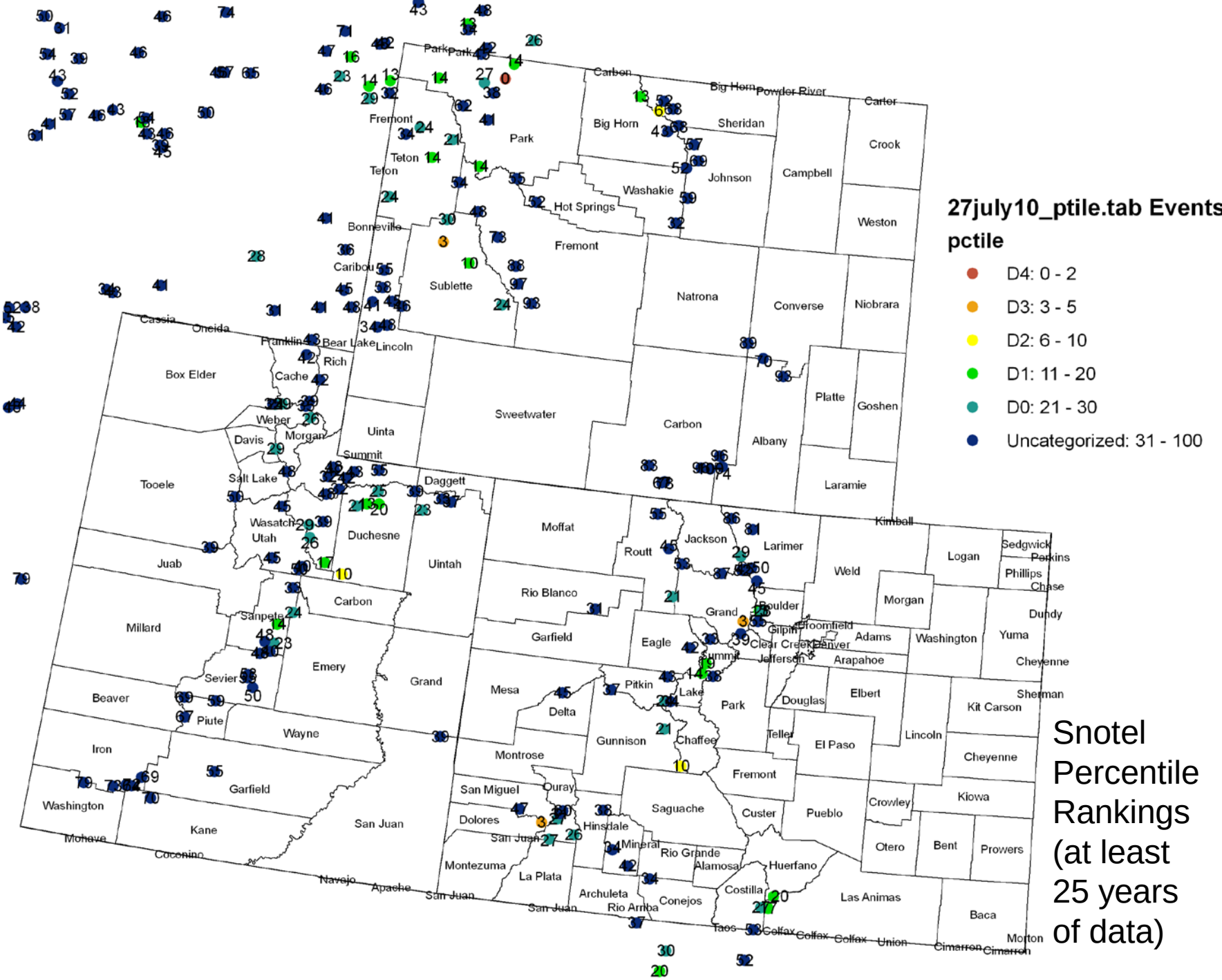


Water Year Precipitation (Oct 1, 2009 – current) as Percent of Normal



1 Week Change in Snotel WYTD Precipitation % Average

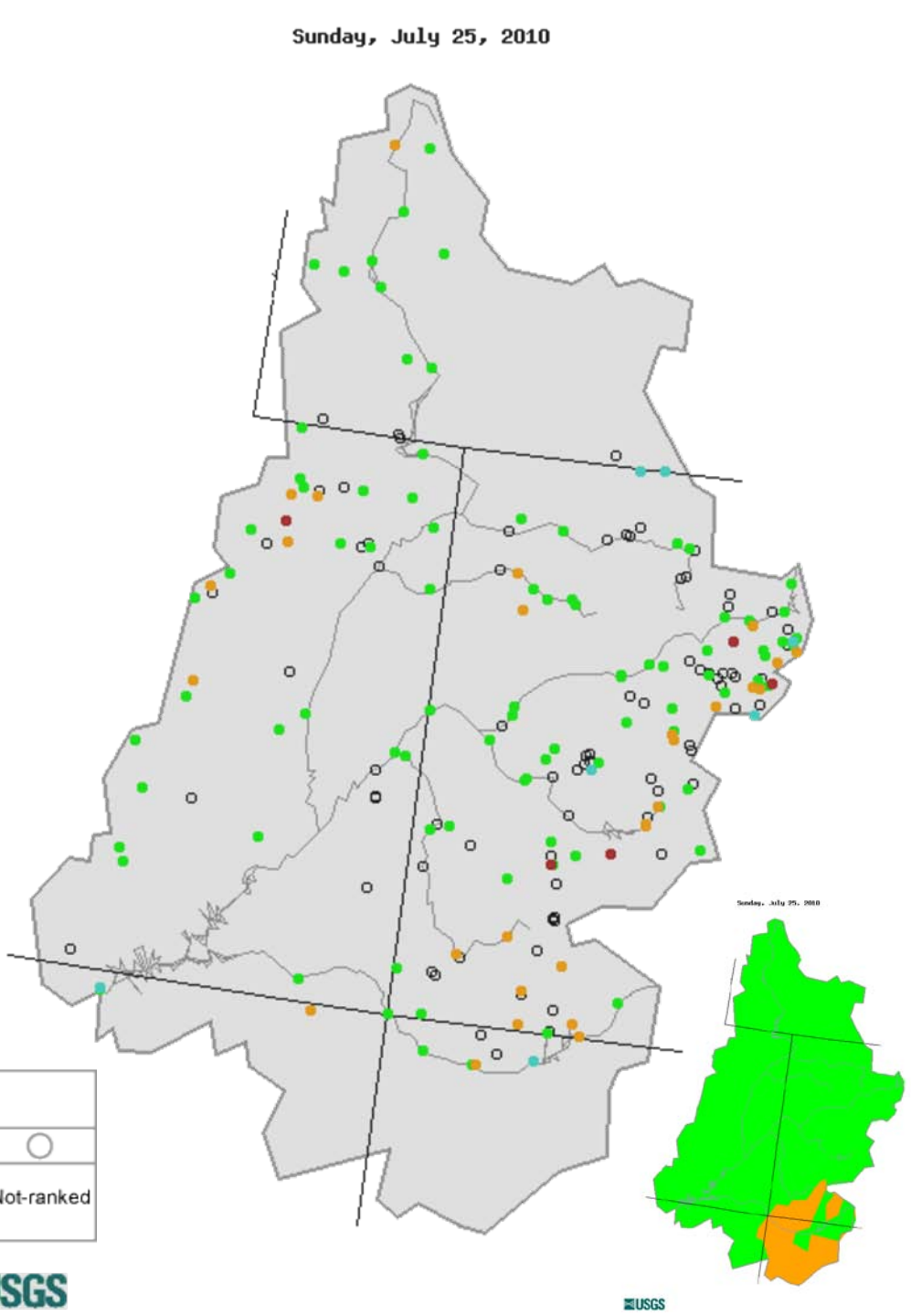



27july10_ptile.tab Events
pctile
D4: 0 - 2
D3: 3 - 5
D2: 6 - 10
D1: 11 - 20
D0: 21 - 30
Uncategorized: 31 - 100
Snotel Percentile Rankings (at least 25 years of data)

Streamflow Update

Michael Lewis USGS

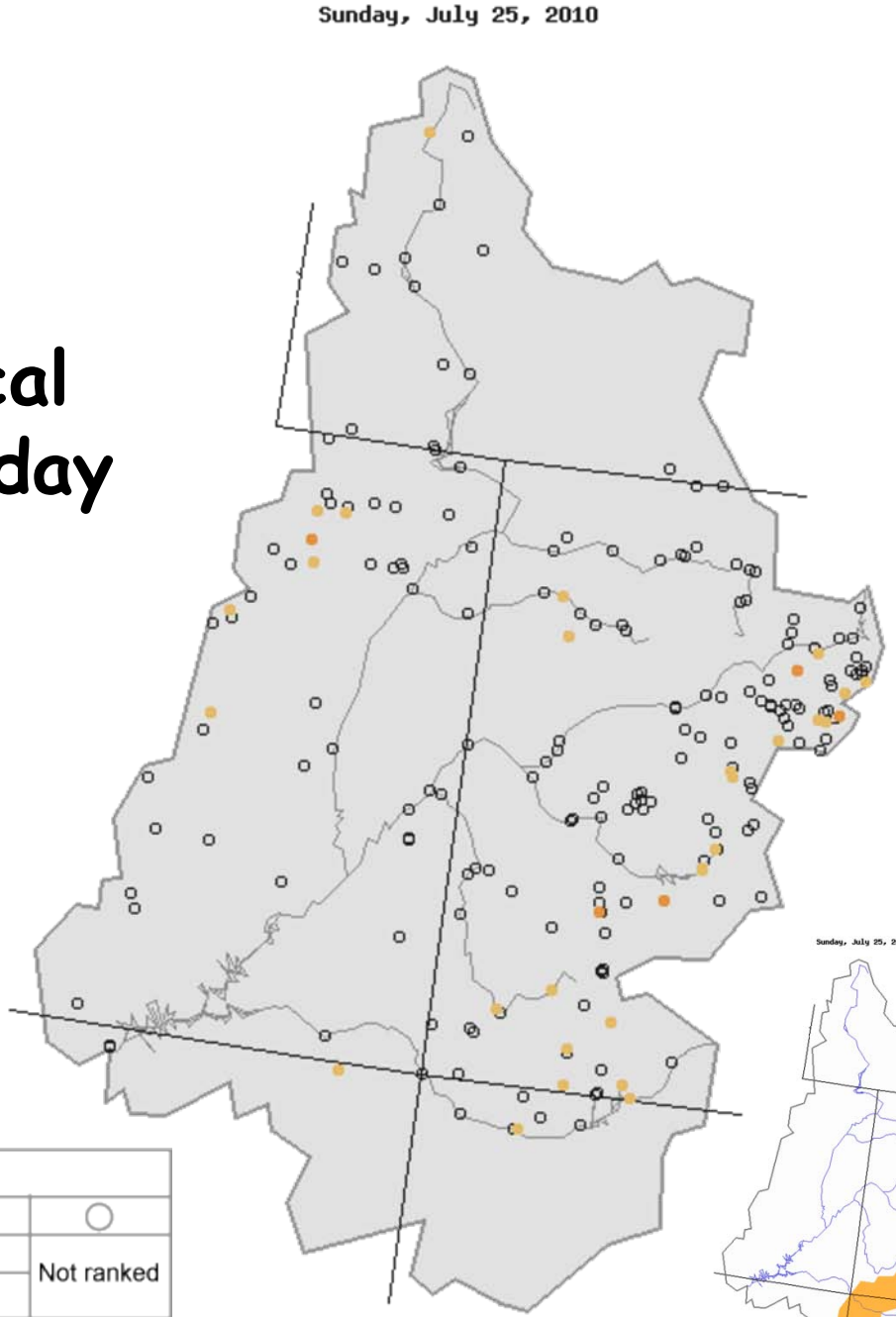
7-day average streamflow compared to historical streamflow for the day of the year (Upper Colorado)



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		

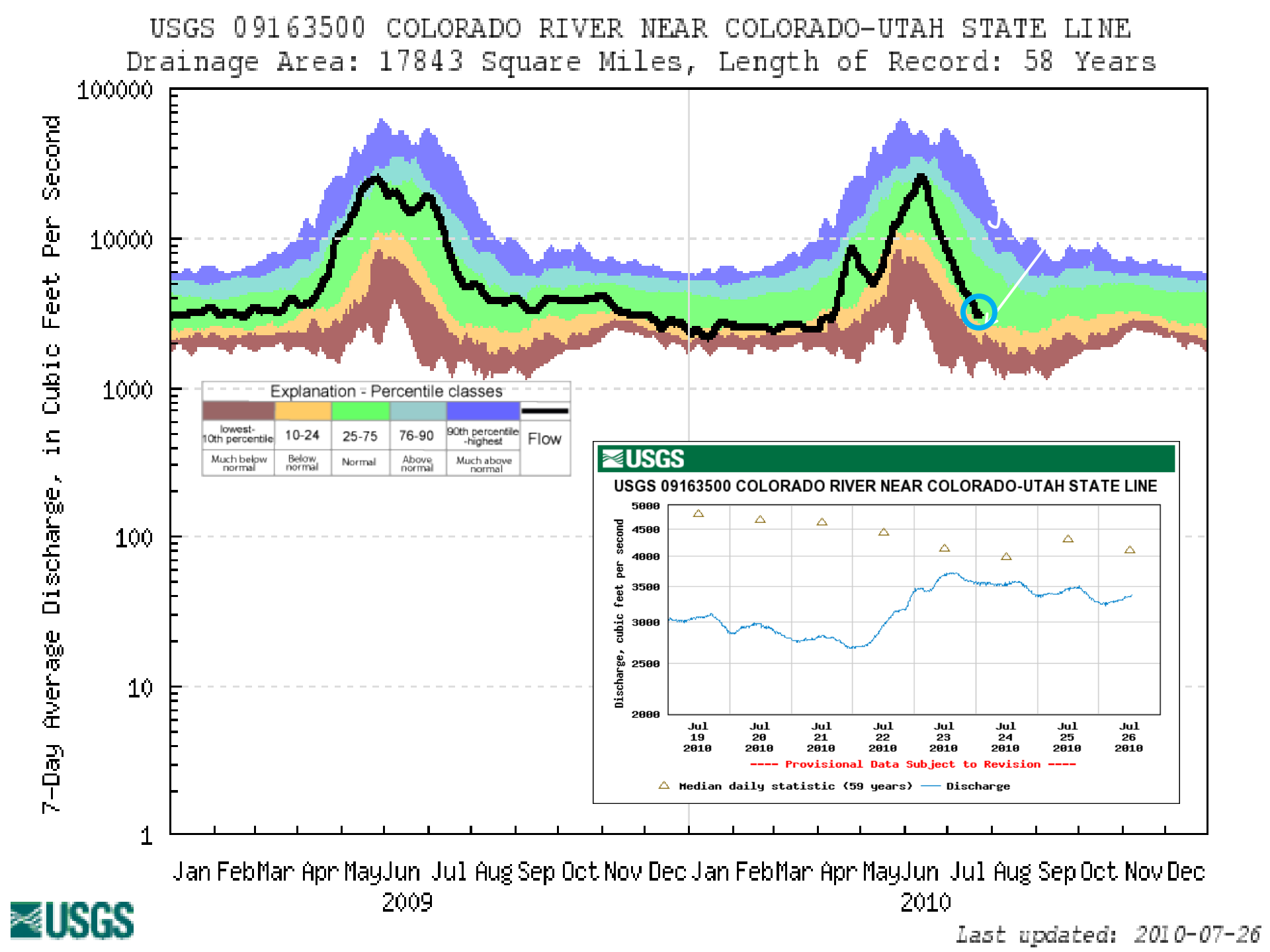
USGS

Below normal 7-day average streamflow compared to historical streamflow for the day of the year (Upper Colorado)



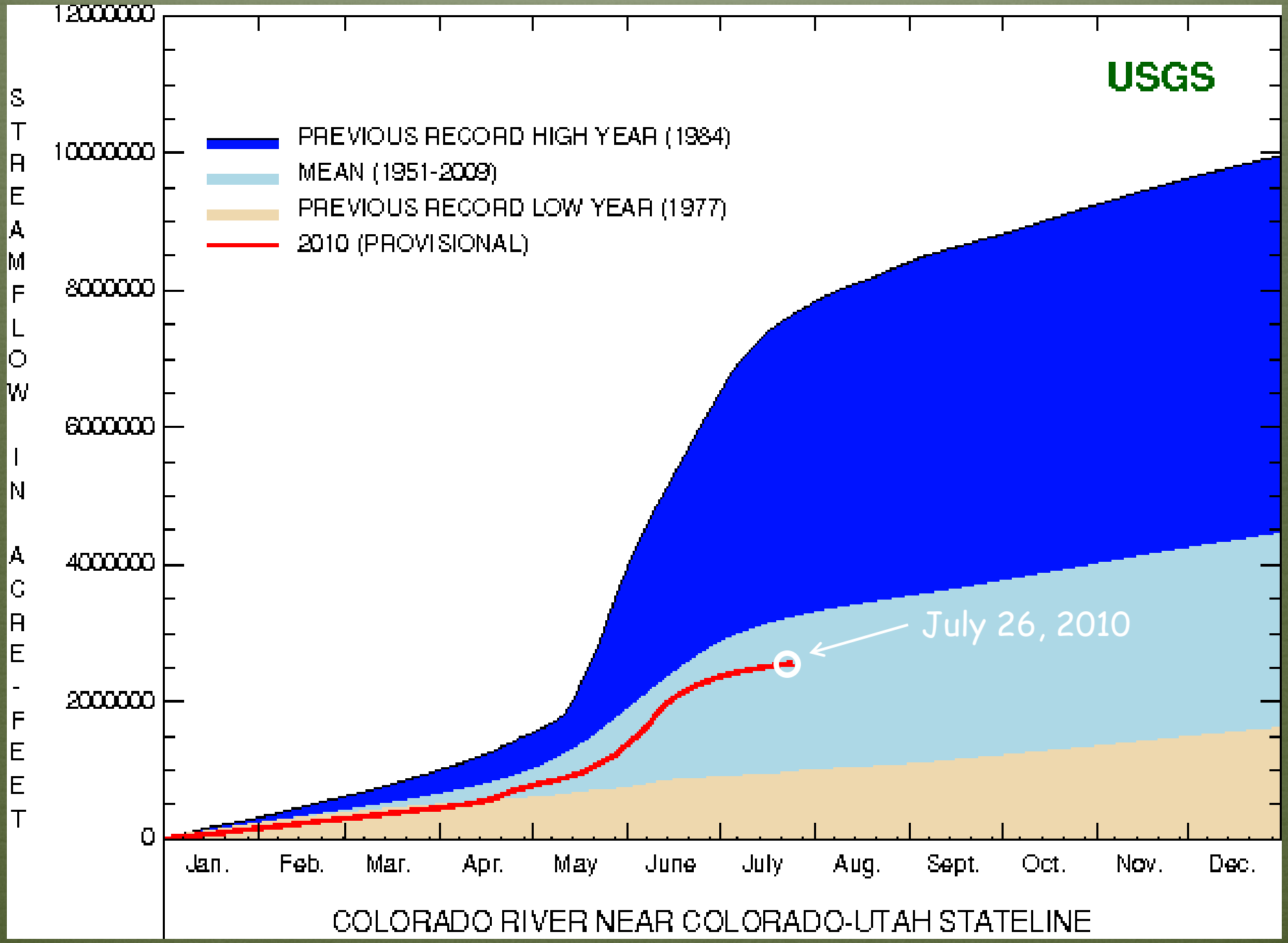
Explanation - Percentile classes				
New low	<=5	6-9	10-24	Not ranked
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

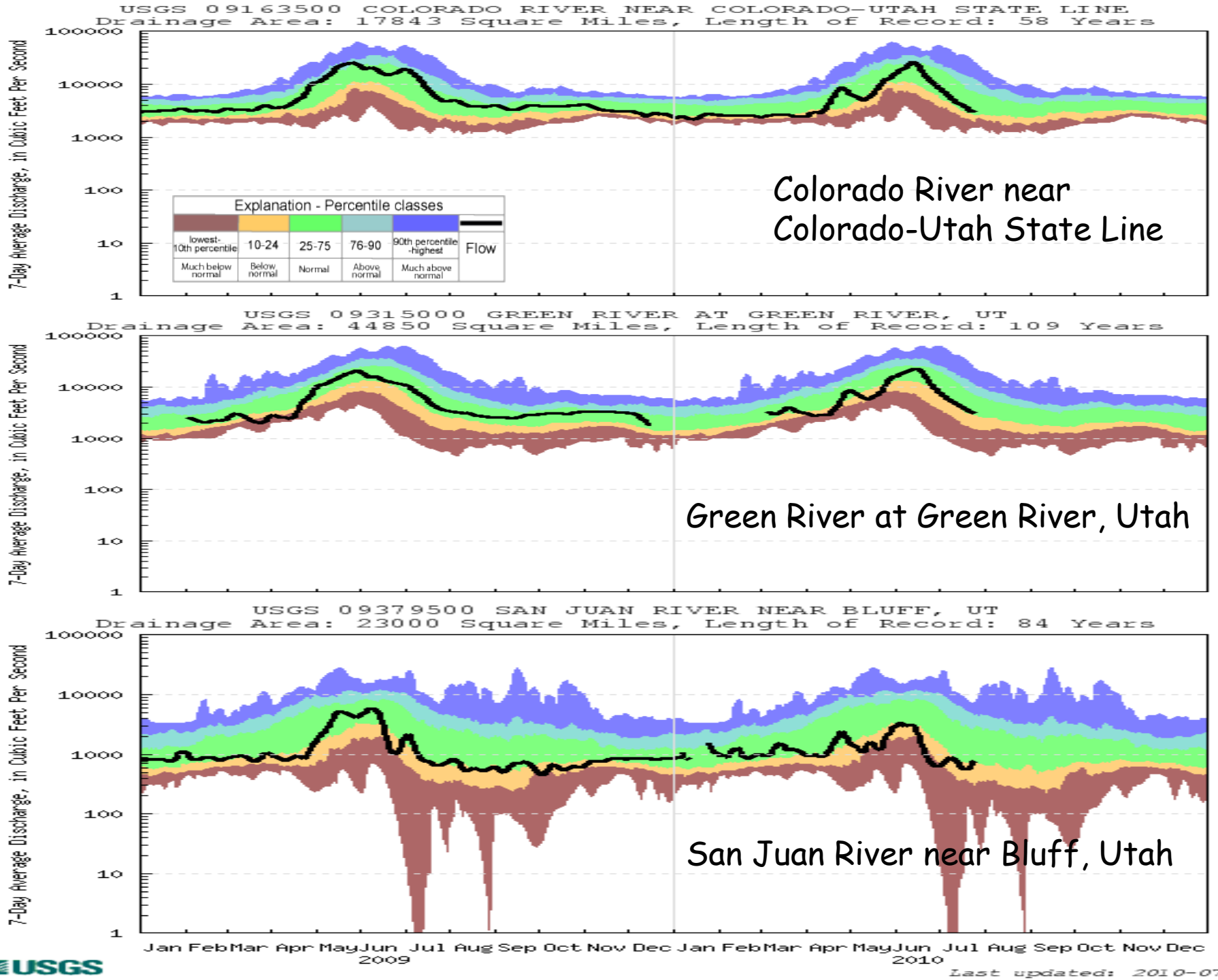
USGS



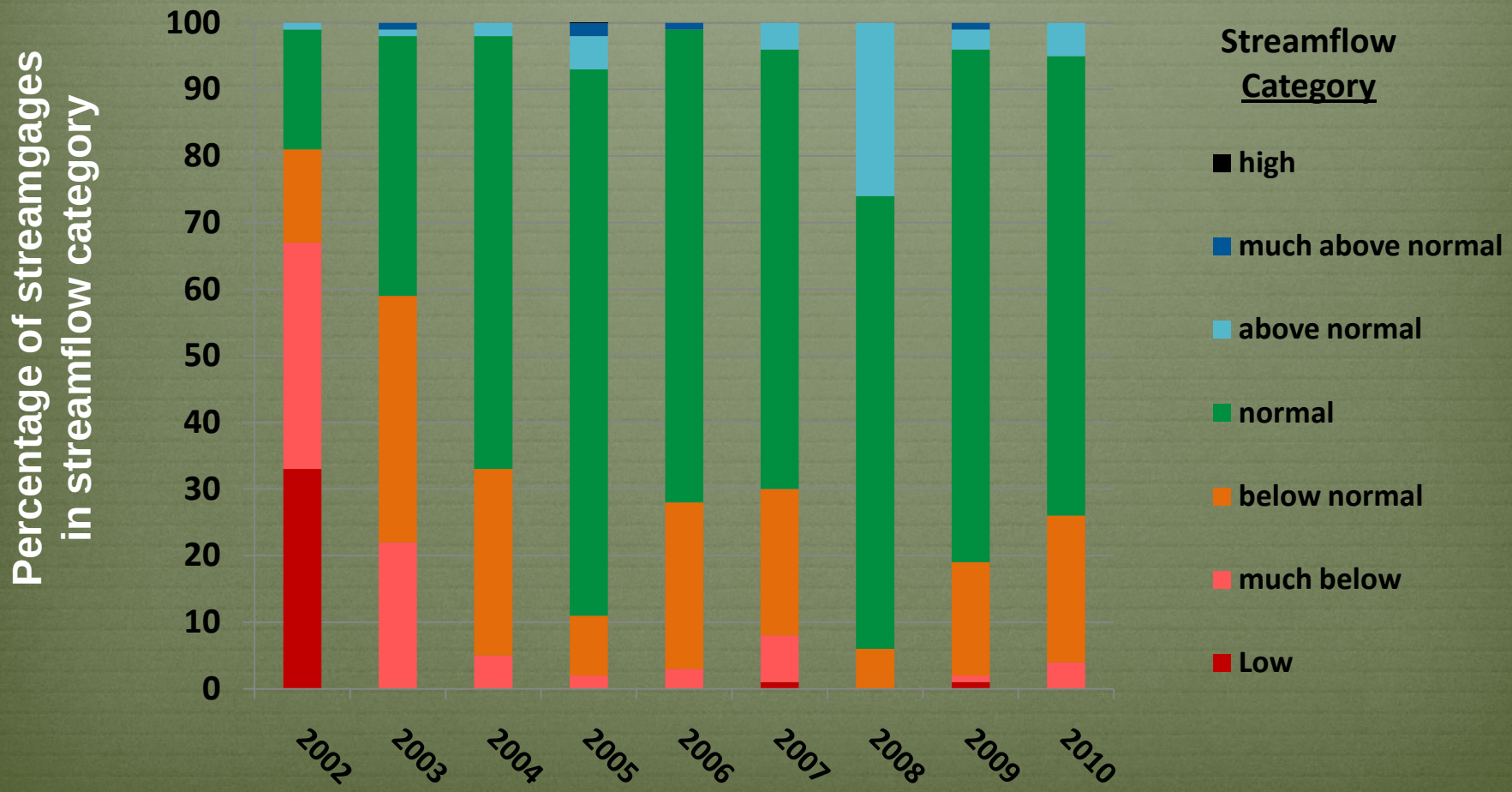
USGS

Last updated: 2010-07-26

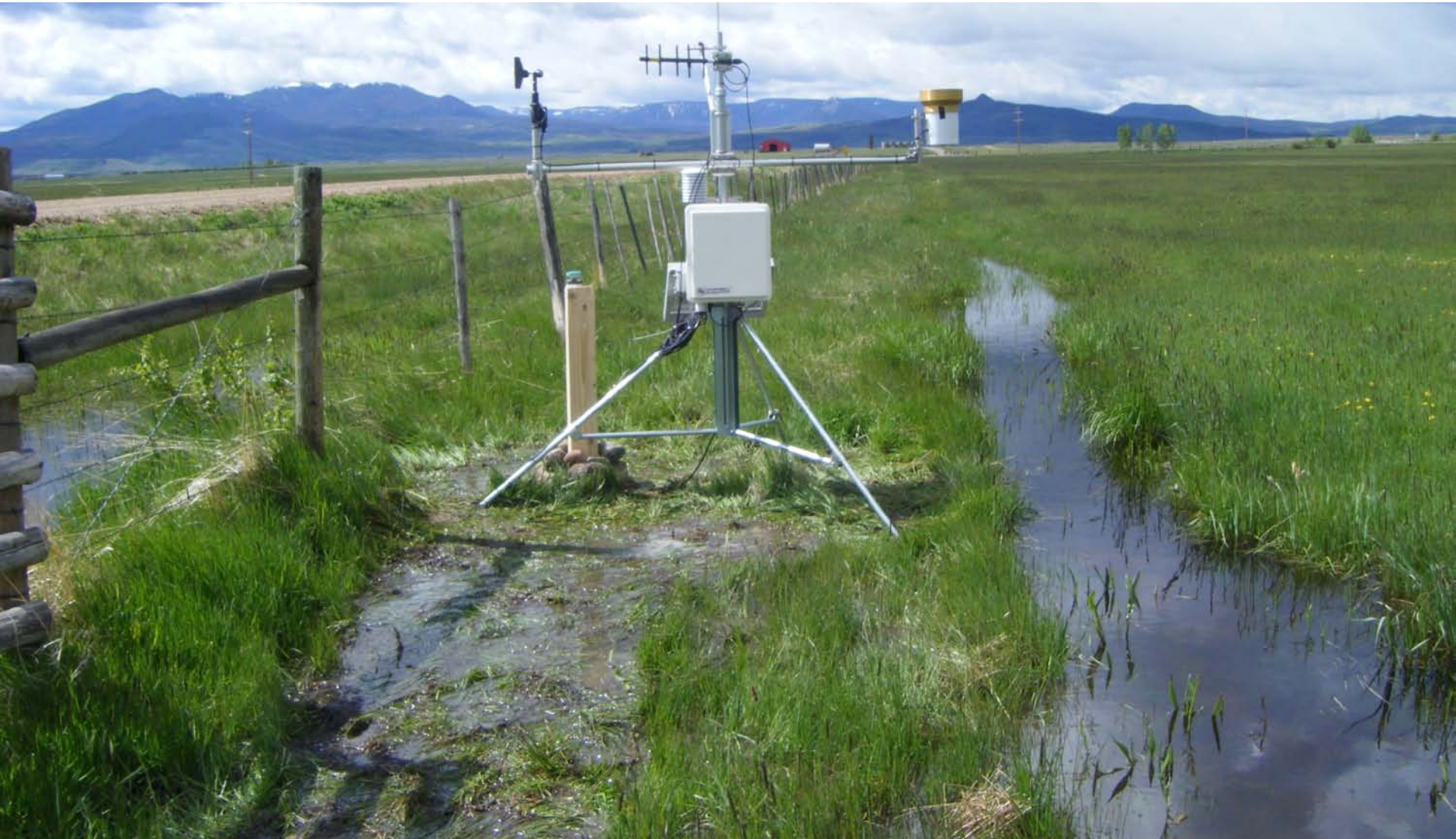

USGS
PREVIOUS RECORD HIGH YEAR (1984)
MEAN (1951-2009)
PREVIOUS RECORD LOW YEAR (1977)
2010 (PROVISIONAL)
STREAMFLOW IN ACRE-FEET
12000000
10000000
8000000
6000000
4000000
2000000
0
Jan.
Feb.
Mar.
Apr.
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
July 26, 2010
COLORADO RIVER NEAR COLORADO-UTAH STATELINE


USGS 09163500 COLORADO RIVER NEAR COLORADO-UTAH STATE LINE
Drainage Area: 17843 Square Miles, Length of Record: 58 Years
7-Day Average Discharge, in Cubic Feet Per Second
100000
10000
1000
100
10
1
Explanation - Percentile classes
lowest-10th percentile
10-24
25-75
76-90
90th percentile -highest
Flow
Much below normal
Below normal
Normal
Above normal
Much above normal
Colorado River near Colorado-Utah State Line
USGS 09315000 GREEN RIVER AT GREEN RIVER, UT
Drainage Area: 44850 Square Miles, Length of Record: 109 Years
7-Day Average Discharge, in Cubic Feet Per Second
Green River at Green River, Utah
USGS 09379500 SAN JUAN RIVER NEAR BLUFF, UT
Drainage Area: 23000 Square Miles, Length of Record: 84 Years
7-Day Average Discharge, in Cubic Feet Per Second
San Juan River near Bluff, Utah
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2009
2010
USGS
Last updated: 2010-07-26

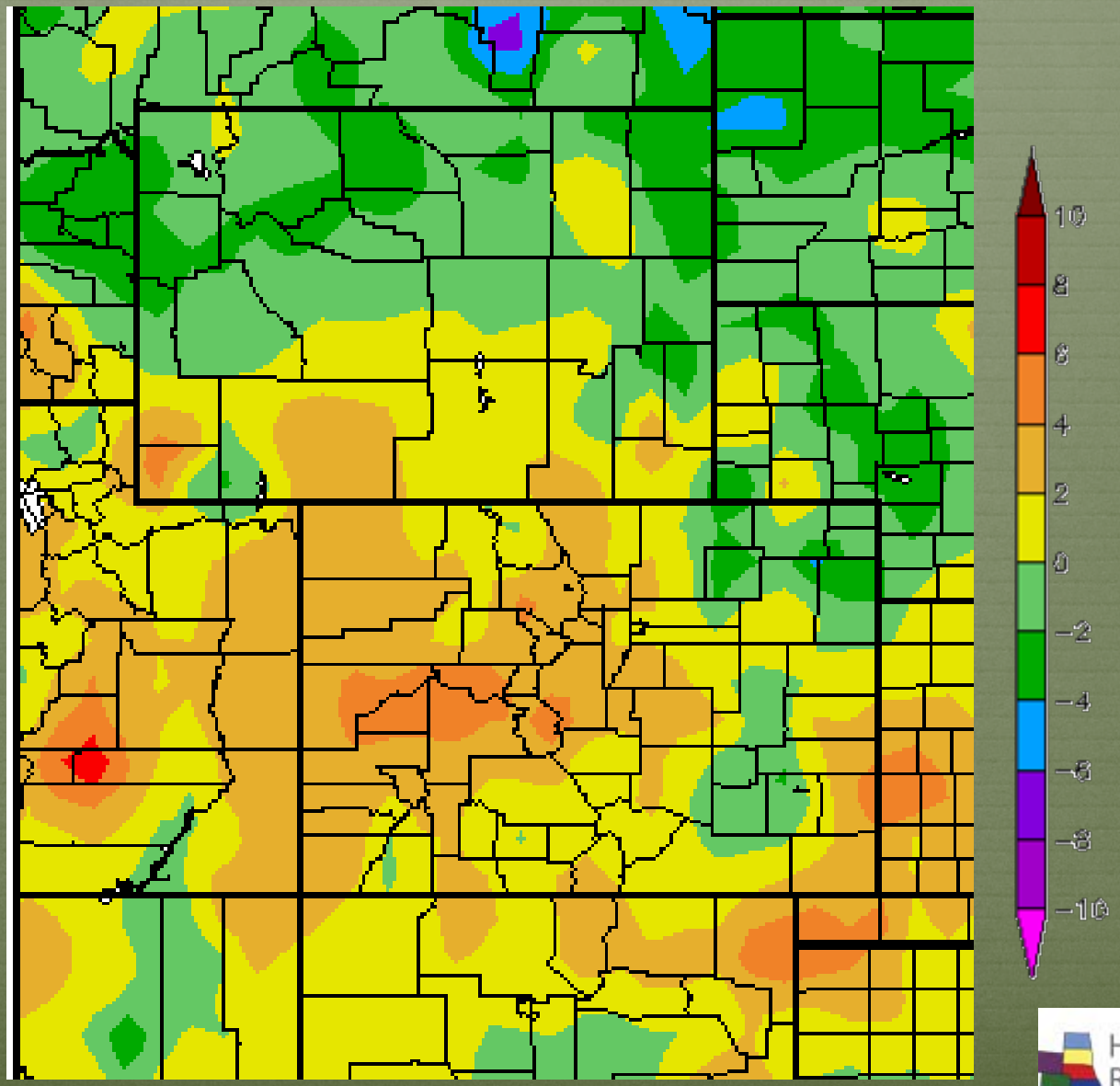
Comparison of Streamflow Conditions for USGS Streamgages Using 7-day Average Streamflow For July 25, 2002-2010



Water Demand

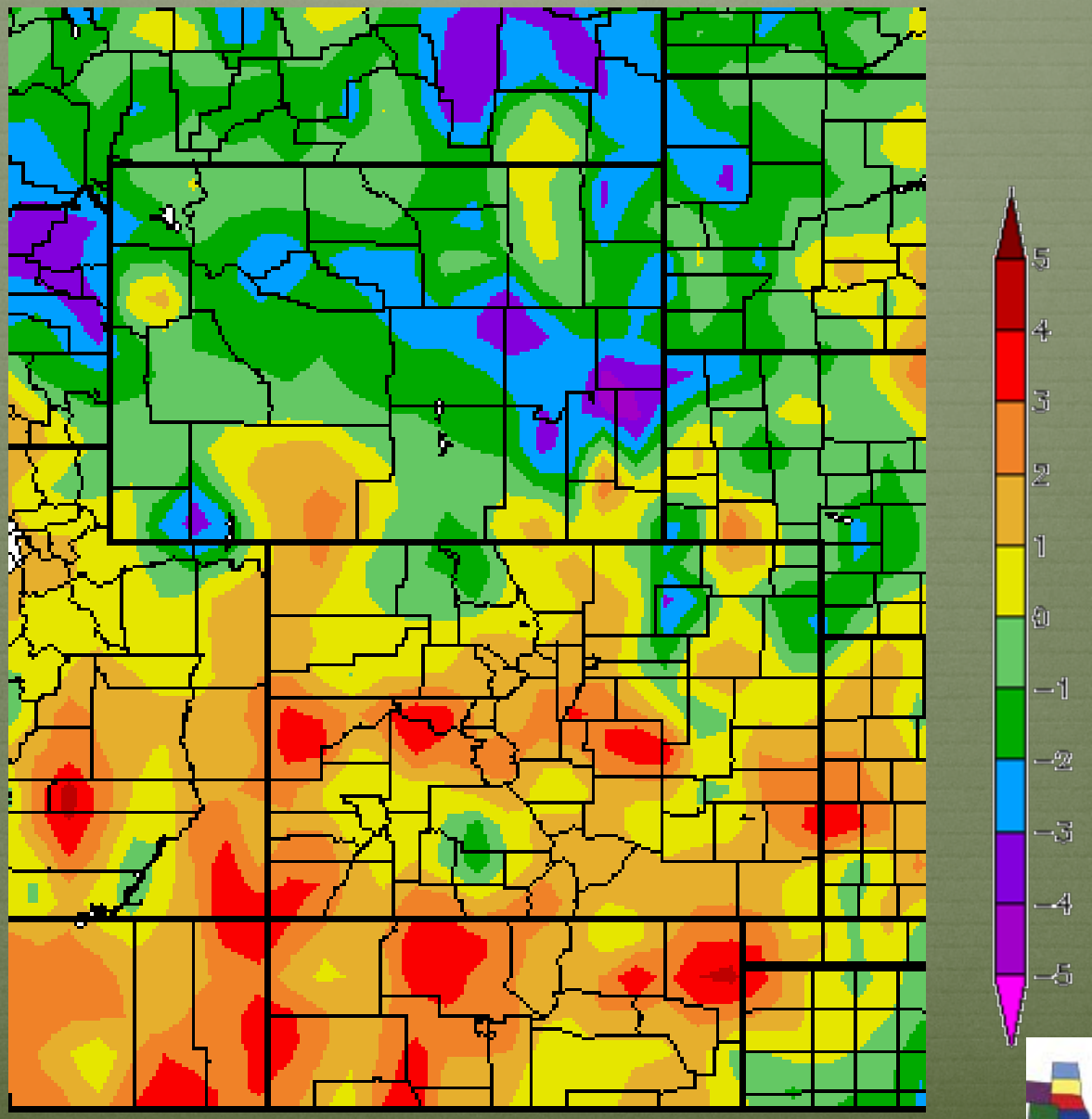


Temperature Departure from Normal
7/20/2010 – 7/26/2010

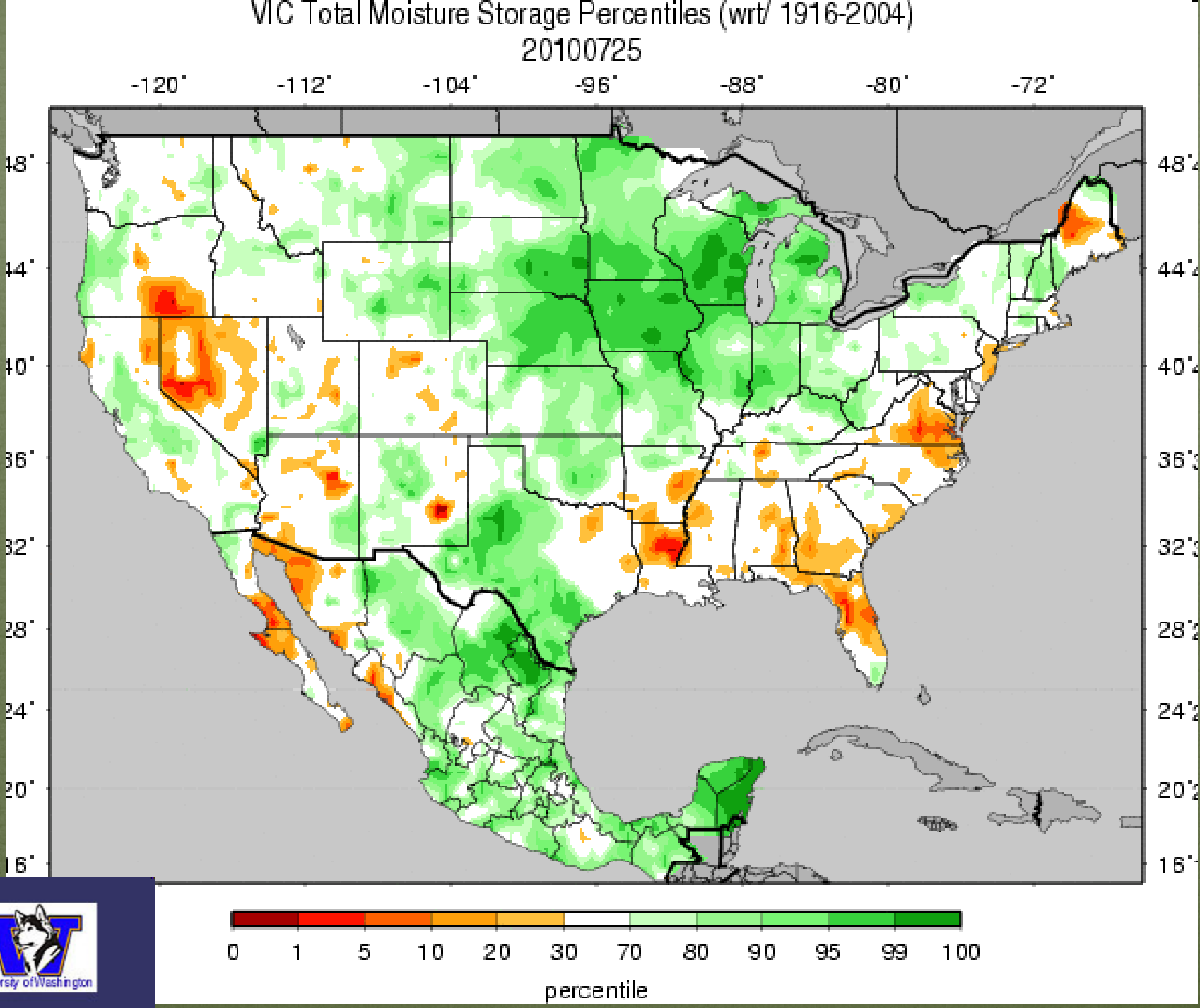


High Plains Regional Climate Center

Temperature Departure from Normal
7/1/2010 – 7/26/2010



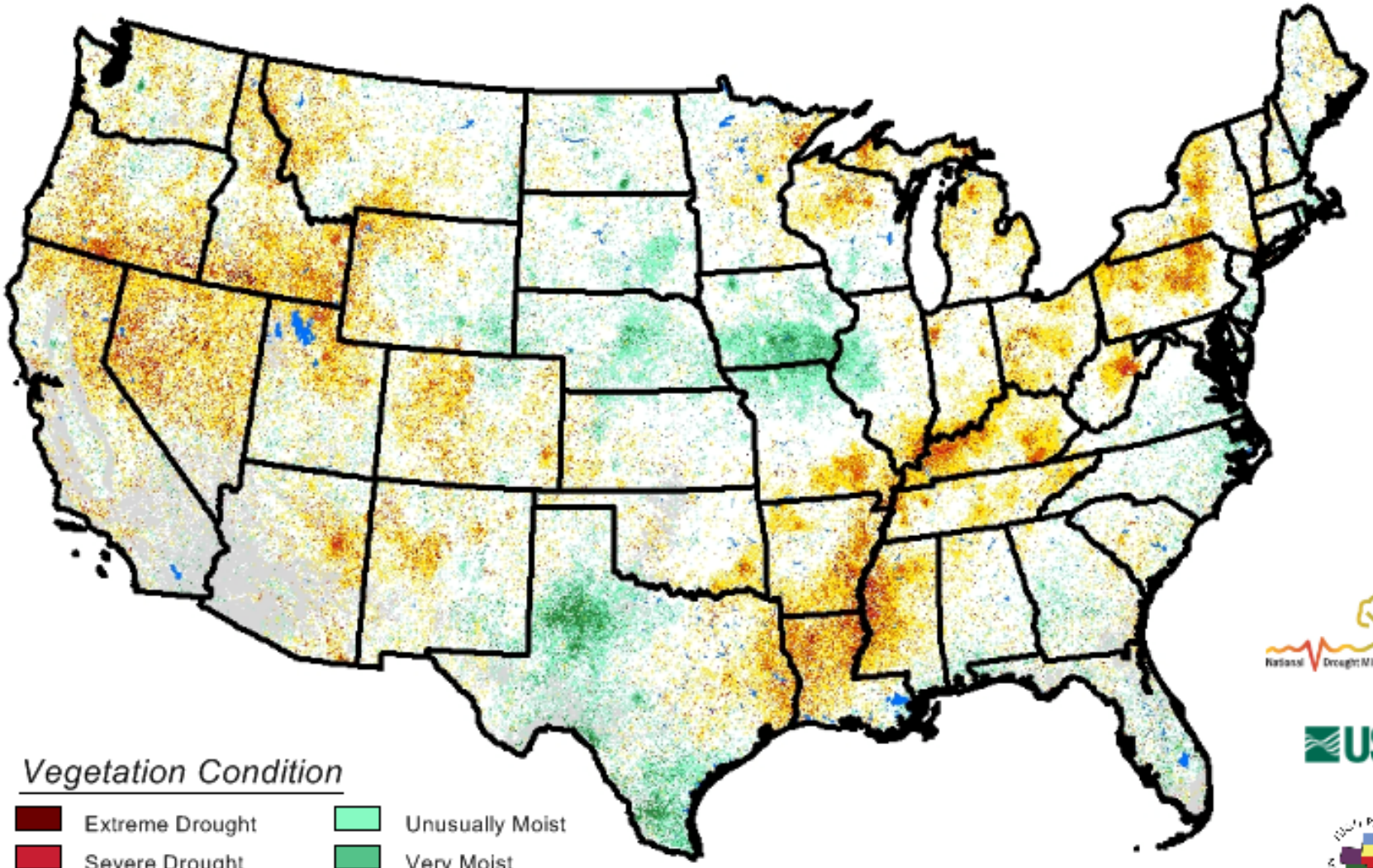
High Plains Regional Climate Center



University of Washington

Vegetation Drought Response Index
Complete

July 12, 2010



Vegetation Condition

- Extreme Drought
- Severe Drought
- Moderate Drought
- Pre-Drought
- Near Normal
- Unusually Moist
- Very Moist
- Extremely Moist
- Out of Season
- Water

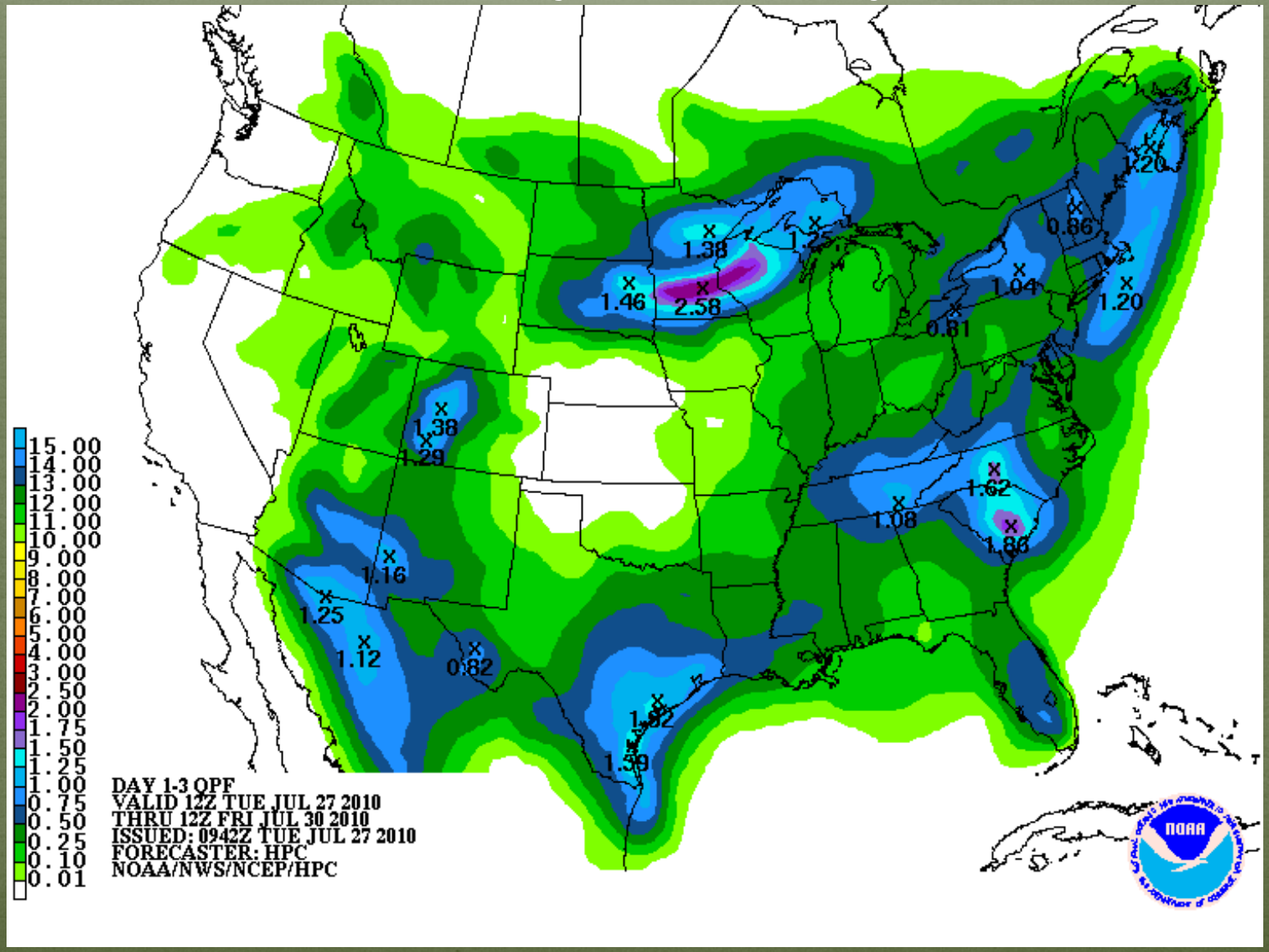
National Drought Mitigation Center

USGS

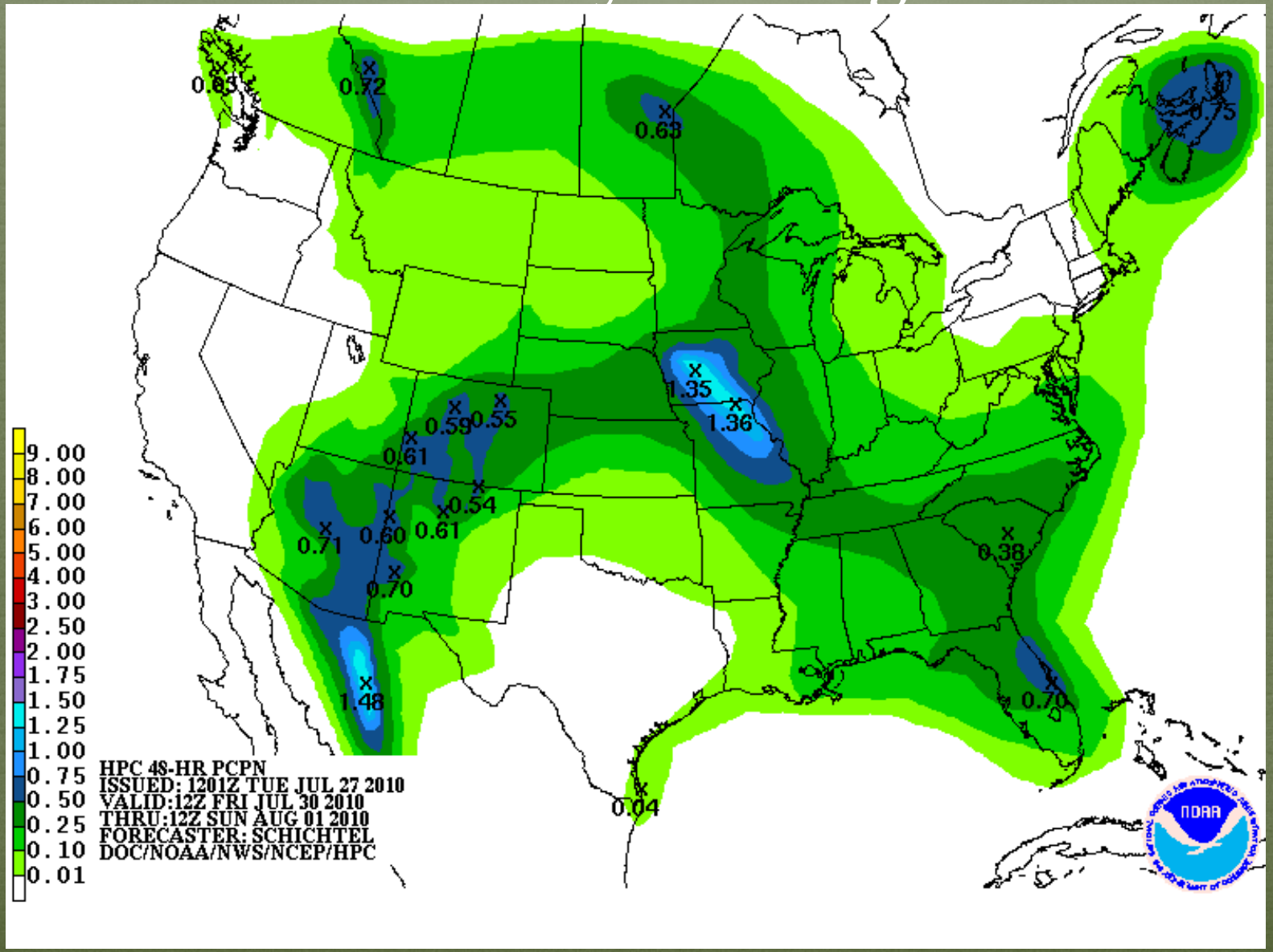
RMA

Precipitation Forecast

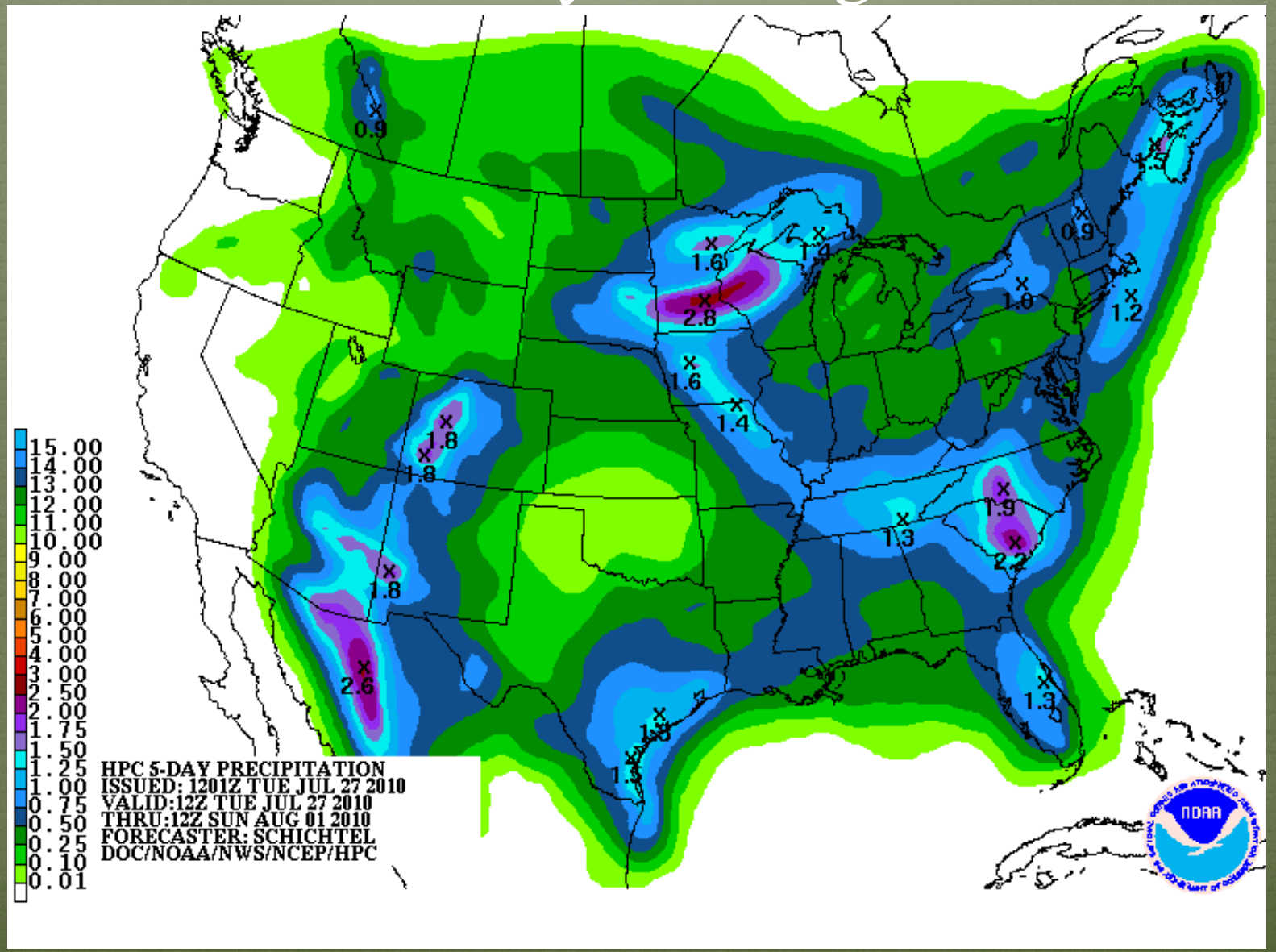
1 - 3 Day Outlook
27 July – 30 July



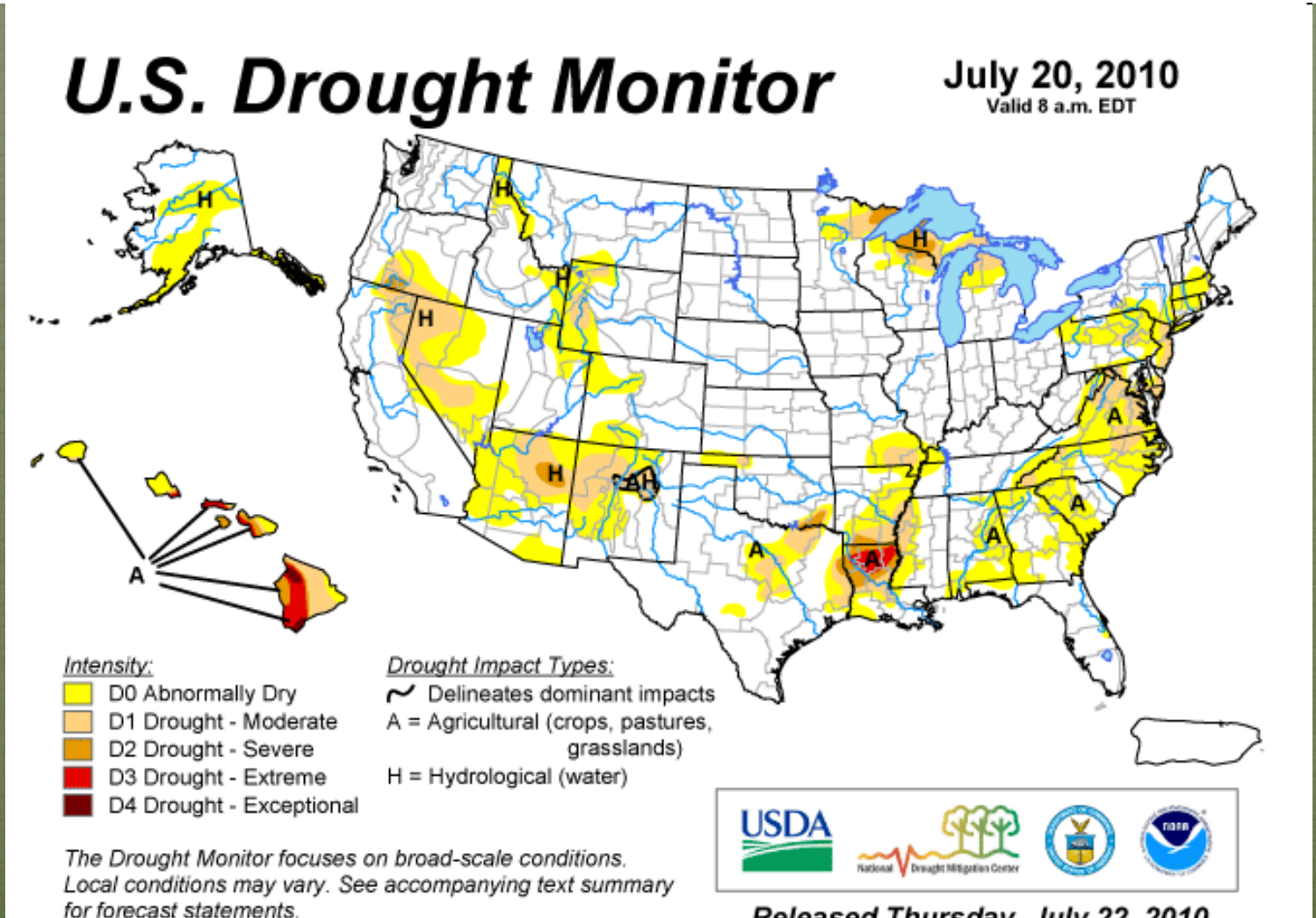
4 - 5 Day Outlook
30 July – 1 Aug

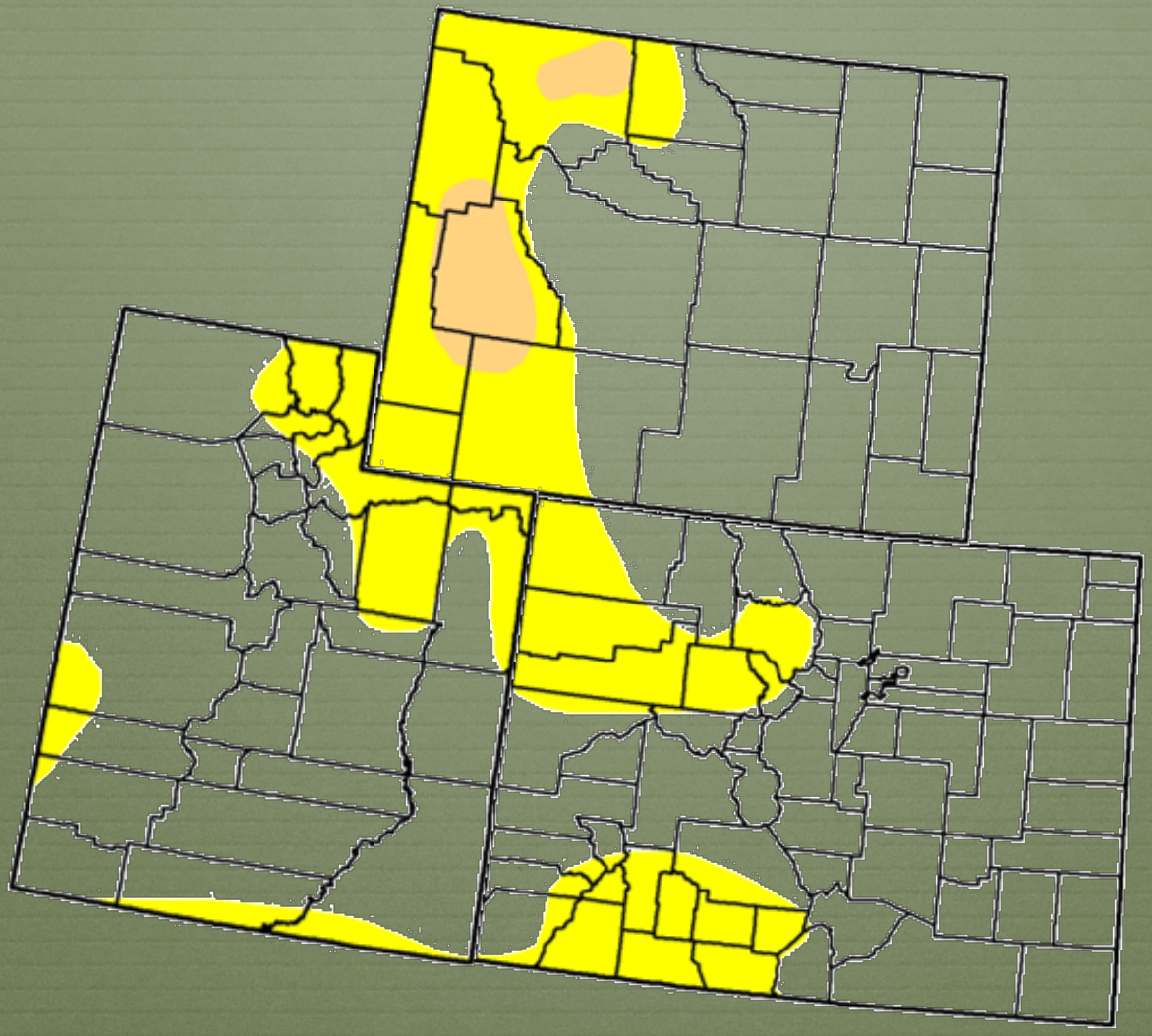


5 Day Outlook
27 July – 1 Aug



Recommendations





INFO

For more information

NIDIS Weekly Climate, Water and Drought Assessment Summary

Upper Colorado River Basin

July 27, 2010

Precipitation and Snowpack

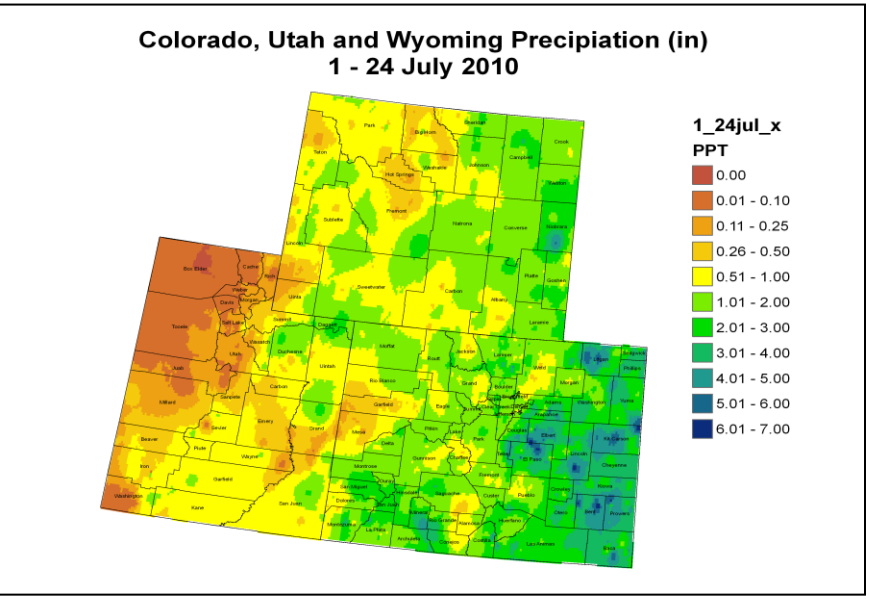


Fig. 1: July 1 – 24 precipitation in inches

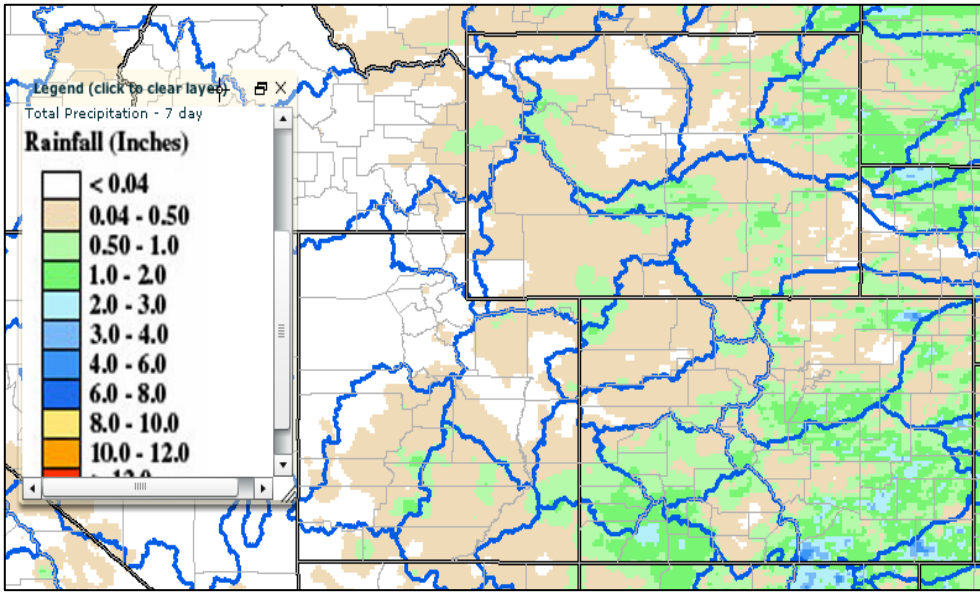


Fig. 2: July 21 – 27 precipitation in inches

For the month of July so far, precipitation has mostly been concentrated over the eastern plains (Fig. 1). Much of the Upper Colorado River Basin (UCRB) has only received about 50% of its normal precipitation for the month. Areas which have seen the best precipitation are in the San Juan basin (around the 4-corners) and in the Yampa-White basin.

Most of the precipitation in the San Juan basin for the month fell as a result of monsoonal moisture over the past week (Fig. 2), with some stations recording nearly an inch of rain or more. Also seeing good amounts of precipitation over the past week were the Dolores and Gunnison basins.

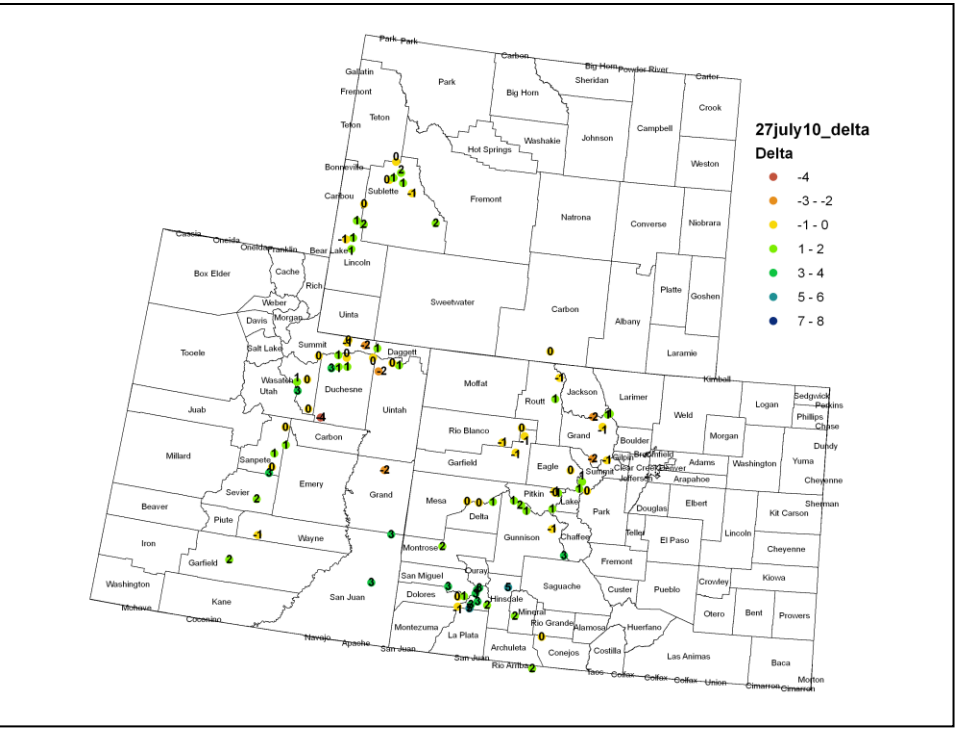


Fig. 3: Snotel WYTD precipitation percent of average change from last week

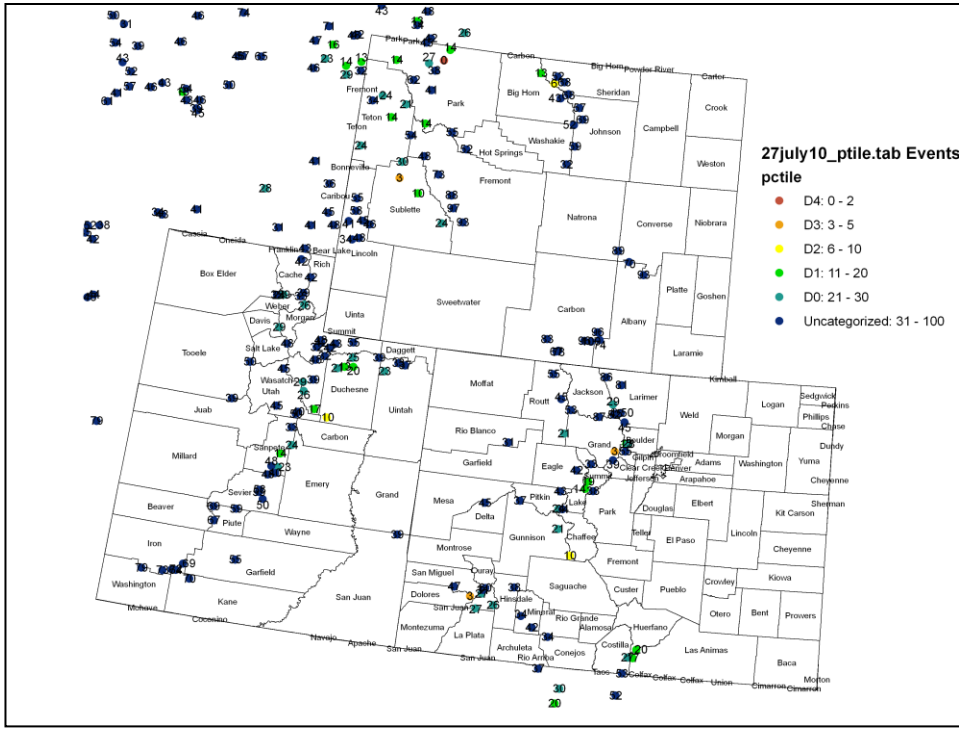


Fig. 4: Snotel WYTD precipitation percentiles (50% is median, 21-30% is Drought Monitor's D0 category).

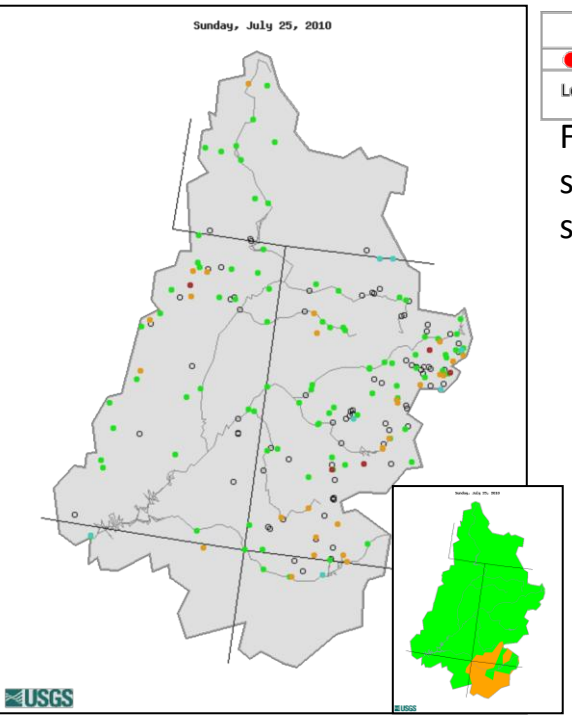
A lot of variability was seen in the Snotel water-year-to-date (WYTD) precipitation percent of average changes from last week (Fig. 3). Most notable were the increases in percent of averages in San Juan County in southwestern Colorado. The rest of the sub-basins in the UCRB experienced varied conditions, with some stations showing an increase and others showing a decrease.

Percentiles over the UCRB suggest that D0 should remain in the Lower Green and Upper Green basins, as well as in the Colorado Headwaters basin, and still in the San Juan basin (Fig. 4). Though conditions have improved in southwest Colorado over the past week, some stations are still showing a fairly large deficit, with low percentile rankings compared to previous years.

Streamflow

The majority of USGS streamgages in the UCRB (74%) are showing near normal (in the 25-75th percentile range) or above normal 7-day average streamflows (Fig. 5). It should be noted that streamflows at many of those stations are in the lower end of the normal range (25-50th percentile). For the 26% of streamgages with below normal streamflow, most of those streamgages are concentrated in southwest Colorado, the upper reaches and tributaries of the Gunnison, the Roaring Fork, the Blue, and the Fraser Rivers in Colorado. In Utah, below normal flows are occurring in the Duchesne River drainage, while in Wyoming, the uppermost reaches of the Green River are experiencing below normal streamflows.

Accumulated runoff for the calendar year on the Colorado River near the CO-UT border is currently 76% of normal (Fig. 6). This deficit will most likely not be made up as the majority of the annual runoff typically occurs by the end of June.



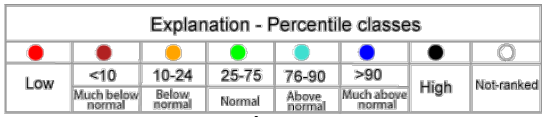


Fig. 5: USGS 7-day average streamflow compared to historical streamflow for July 25th in the UCRB.

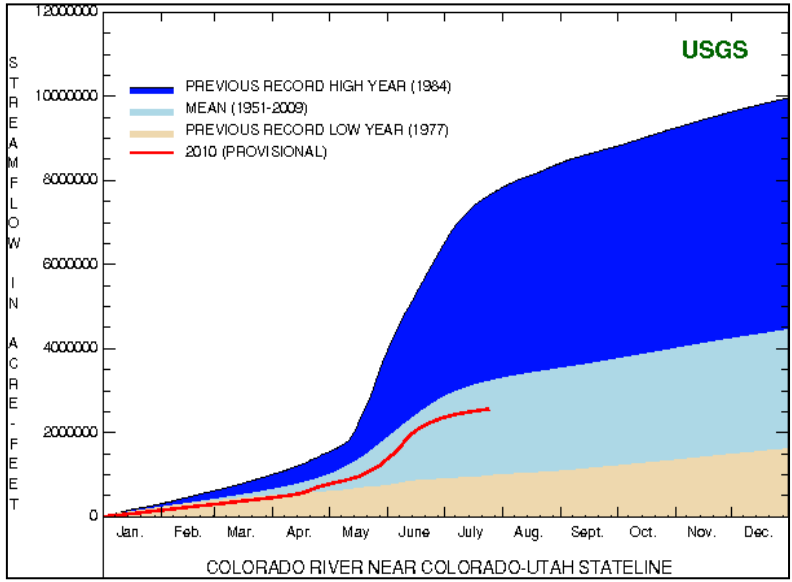


Fig. 6: USGS accumulated runoff for calendar year on the Colorado River near the CO-UT state line, compared to record high, record low, and median.

Water Supply and Demand

Warmer than average temperatures were seen across most of the UCRB last week. Typically the warmest time of year, demand could be at its highest now, though monsoonal moisture and regular afternoon thunderstorms could have slightly lowered evapotranspiration rates from their summer peaks. Soil moisture remains in fairly good condition over the plains. Over the past week, the Blue Mesa Reservoir in the Gunnison basin and Lake Dillon in the Colorado basin have stayed fairly steady, with Dillon still near capacity. Lake Granby decreased slightly, and McPhee Reservoir is still steadily decreasing, though releases from the reservoir have leveled off.

Flaming Gorge Reservoir, on the border of Wyoming and Utah, has stayed fairly level over the past two weeks after seeing increases at the beginning of the month. Lake Powell, which saw peak inflows in late June, has continued decreasing over the past two weeks. As of July 21, Lake Powell was at 64.7% of total capacity, which is below the desired historic levels and very similar to levels at this time last year.

Precipitation Forecast

High pressure will continue to stay over the central US for the next week, and very little change is expected as the monsoon pattern continues, leading to favorable conditions for convective precipitation scattered across the UCRB. Most of the area should see fair amounts of moisture over the next 4 – 5 days, with the largest amounts concentrated over western Colorado.

Drought and Water Discussion

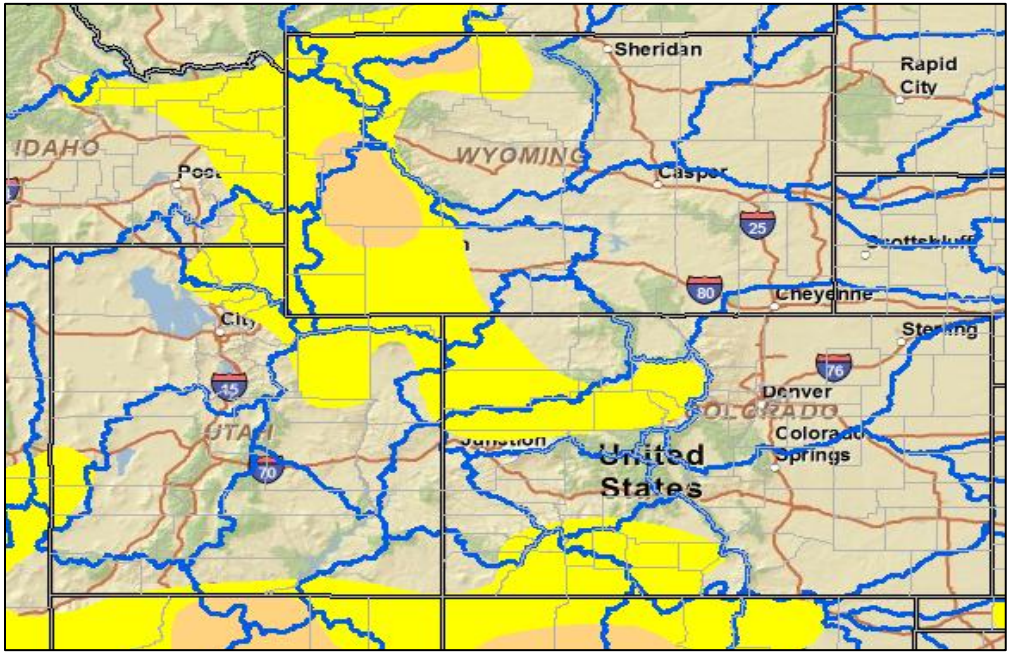


Fig. 7: July 20 release of U.S. Drought Monitor for the UCRB

Drought – Exceptional	0 to 2 (D4)
Drought – Extreme	2 to 5 (D3)
Drought – Severe	5 to 10 (D2)
Drought – Moderate	10 to 20 (D1)
Abnormally Dry	20 to 30 (D0)

Drought categories and their associated percentiles

No local experts gave any suggestions during the webinar/conference call this morning for this week's map in the UCRB (Fig. 7). The US Drought Monitor author has already made slight changes in Draft 1 in southwestern Colorado, where D0 was scaled back in Montezuma, La Plata, and Mineral counties, and completely removed from San Miguel, Dolores, Ouray, Hinsdale, and San Juan counties. This region received a fair amount of moisture due to the start of the monsoon last week, though the area is still struggling from low streamflows and longer term deficits seen in the Standardized Precipitation Index (SPI). If the monsoon pattern persists, this area could see a fairly quick recovery, but it is not clear that removal of the D0 is fully justified yet. No preliminary changes have been made to any other areas in the UCRB.