Winter 2010

Webinar and Weekly Summary
February 15th, 2011

Weekly Climate, Water & Drought Assessment

Today's Agenda

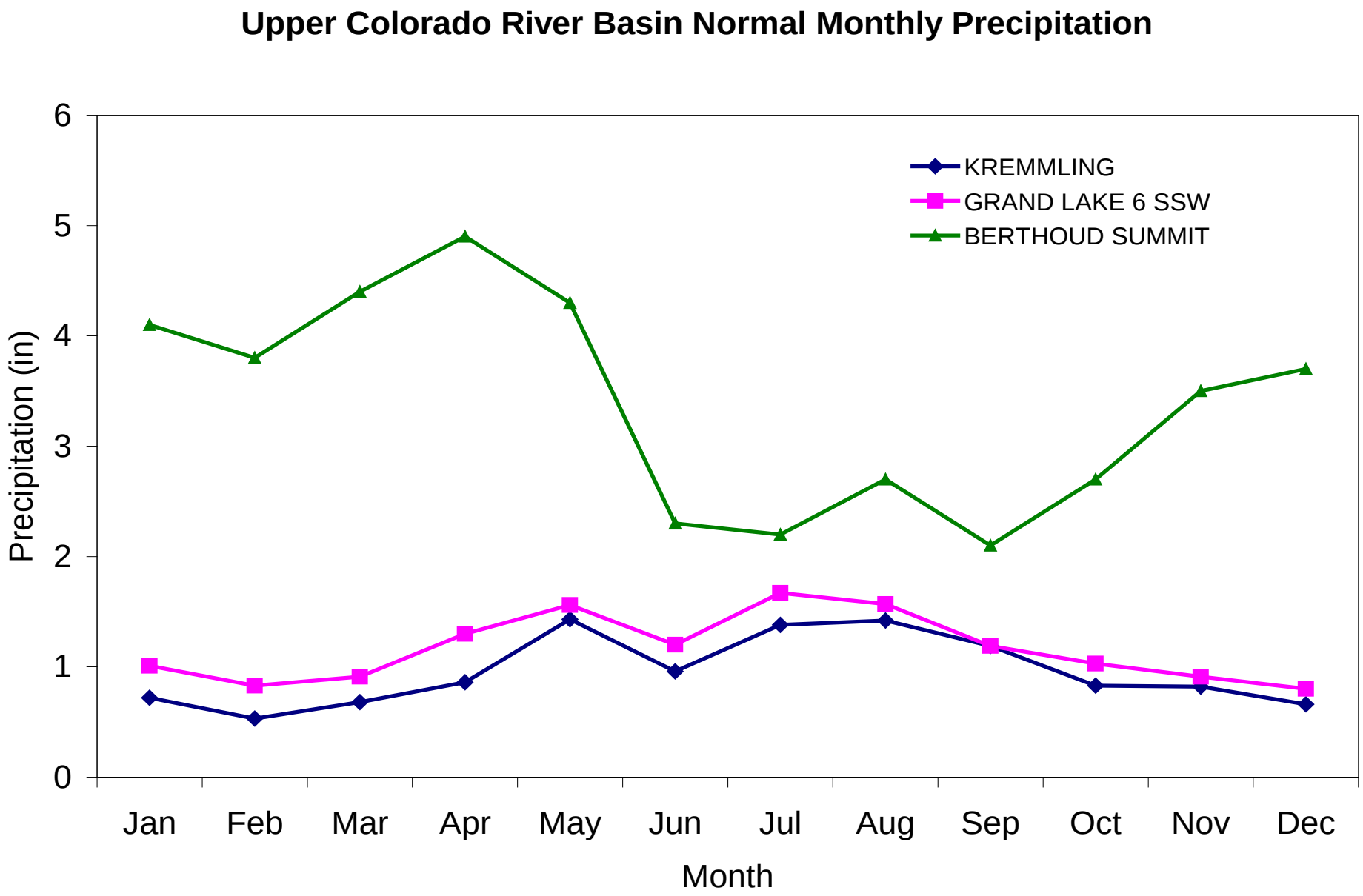
-Assessment of current water conditions

- Precipitation Forecast

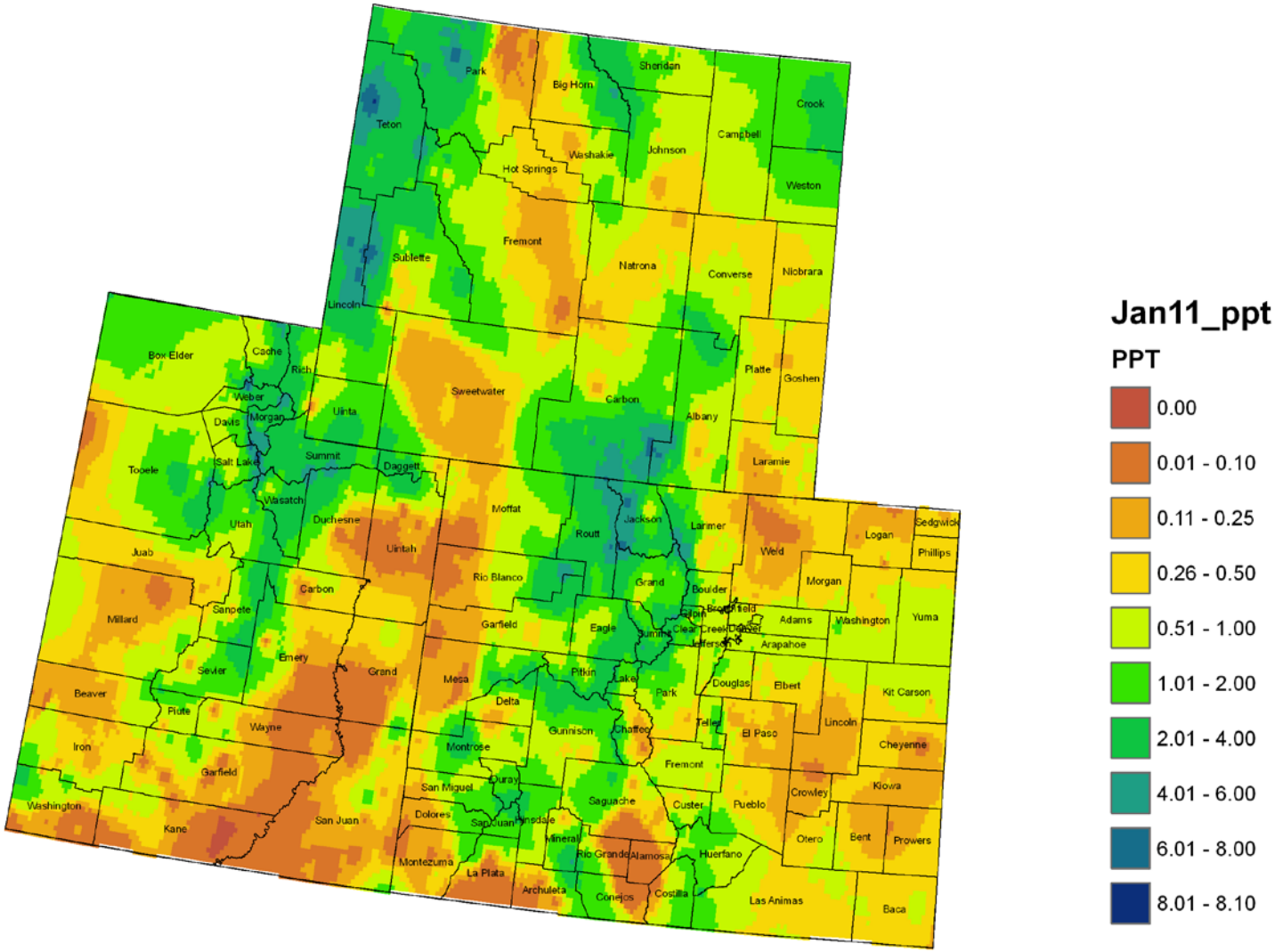
- Recommendations for Drought Monitor

Precipitation/Snowpack Update

Upper Colorado Normal Precipitation



Colorado, Wyoming and Utah Precipitation (in)
January 2011

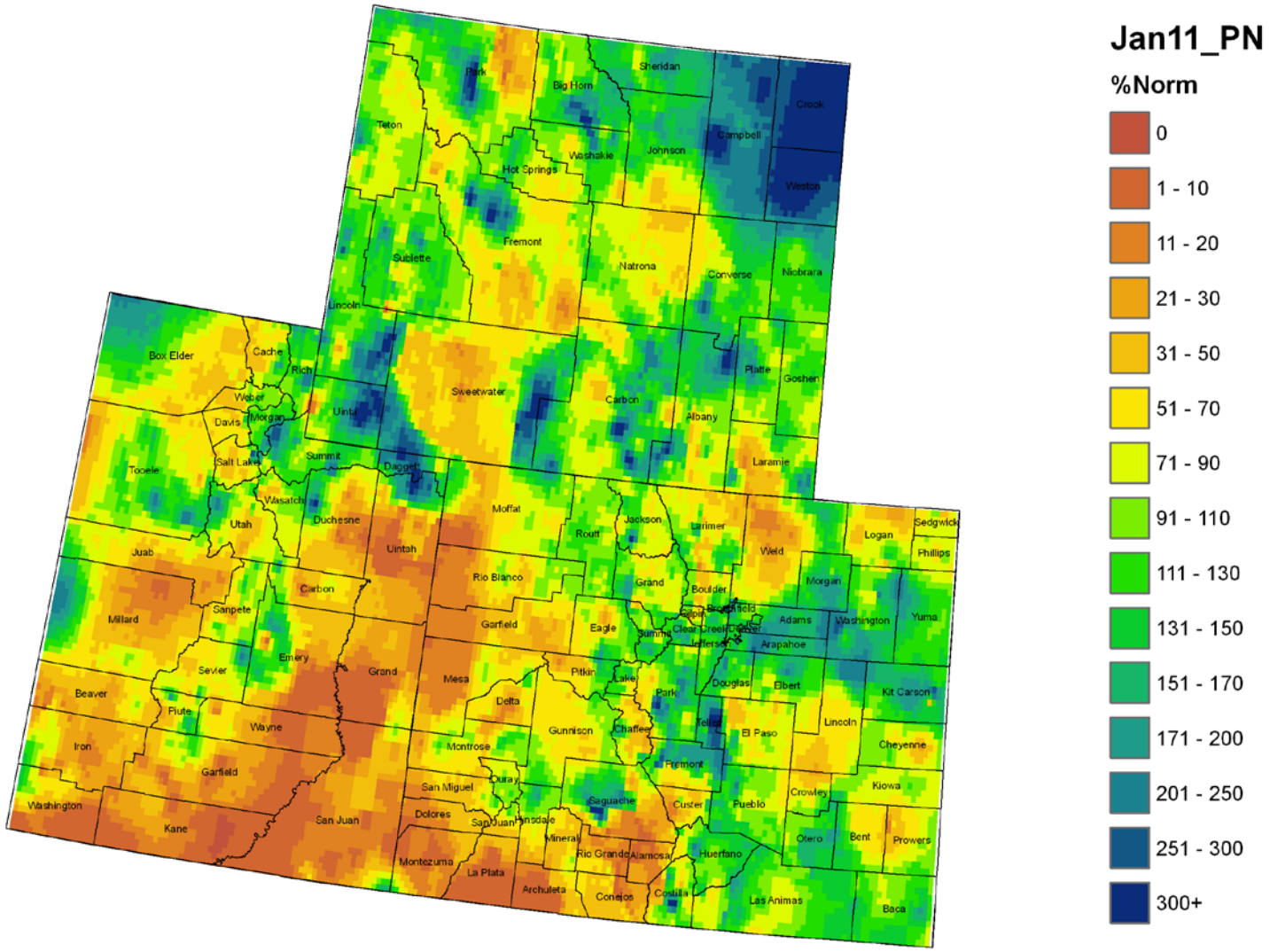


Jan11_ppt

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 - 4.00
- 4.01 - 6.00
- 6.01 - 8.00
- 8.01 - 8.10

Colorado, Wyoming and Utah January 2011 Precipitation as Percentage of Normal

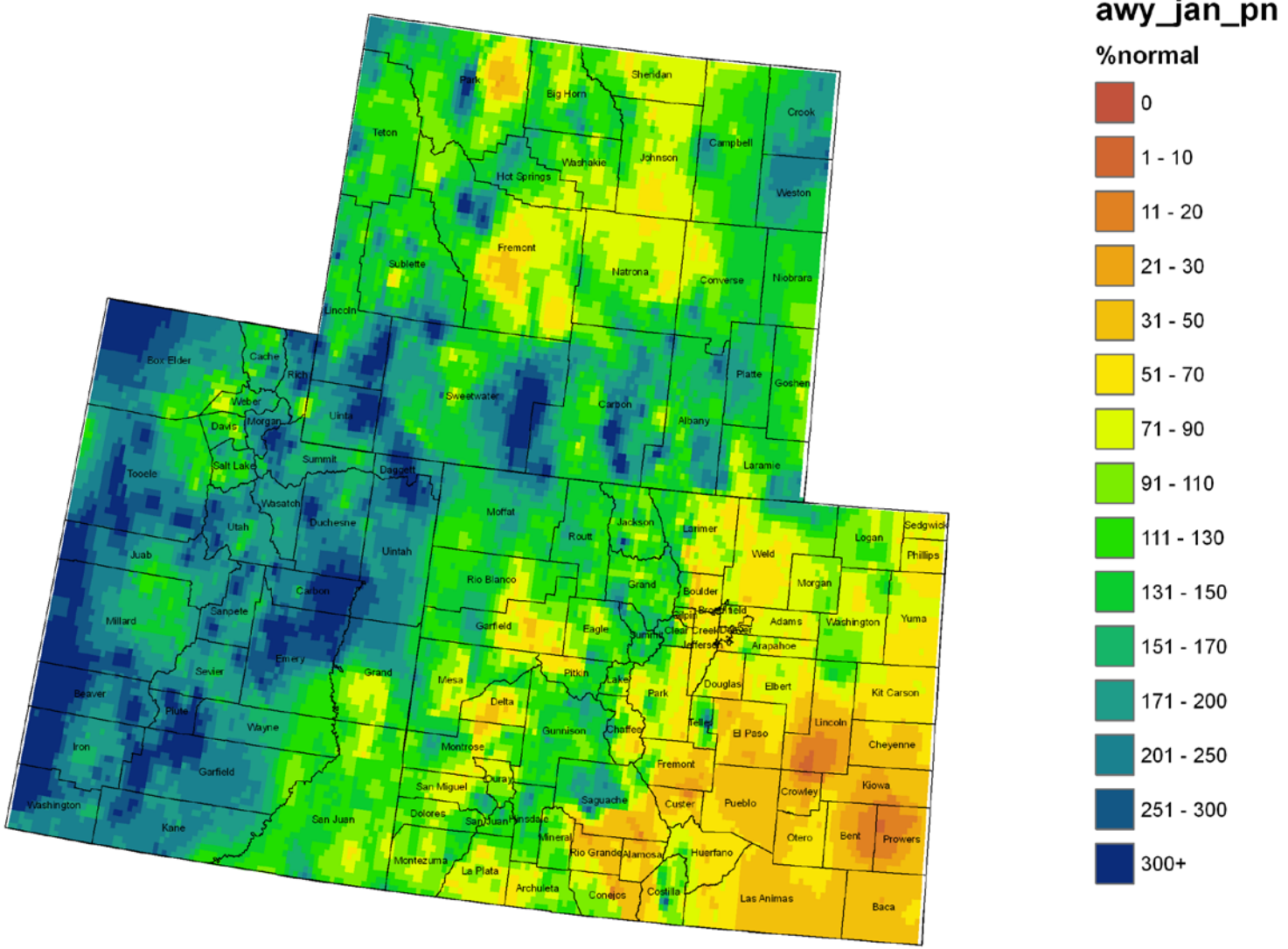


Jan11_PN

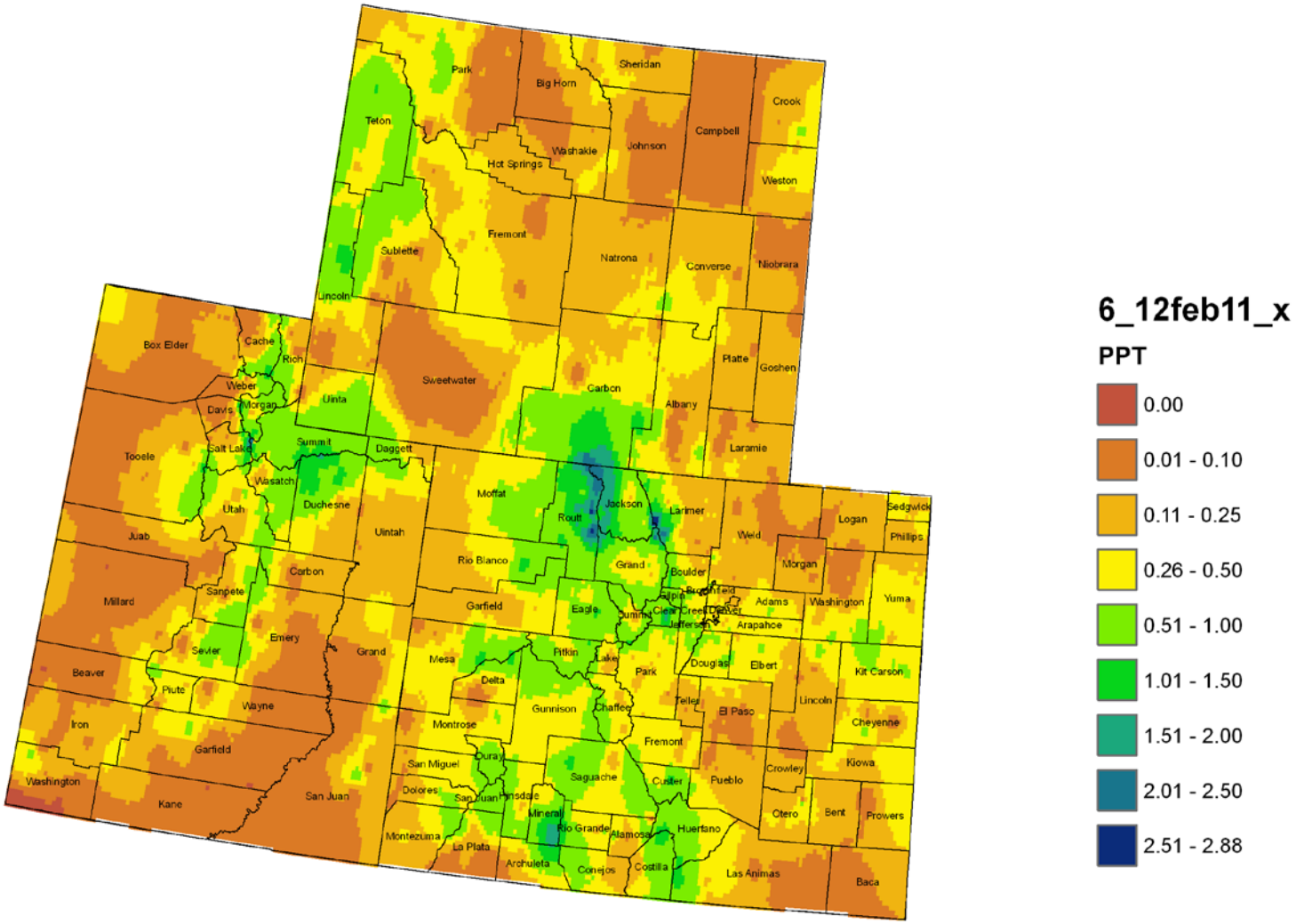
%Norm

- 0
- 1 - 10
- 11 - 20
- 21 - 30
- 31 - 50
- 51 - 70
- 71 - 90
- 91 - 110
- 111 - 130
- 131 - 150
- 151 - 170
- 171 - 200
- 201 - 250
- 251 - 300
- 300+

Colorado, Wyoming and Utah Water Year 2011 Precipitation as Percentage of Average Oct 10 - Jan 11



Colorado, Utah and Wyoming 7 Day Precipitation
6 - 12 February 2011



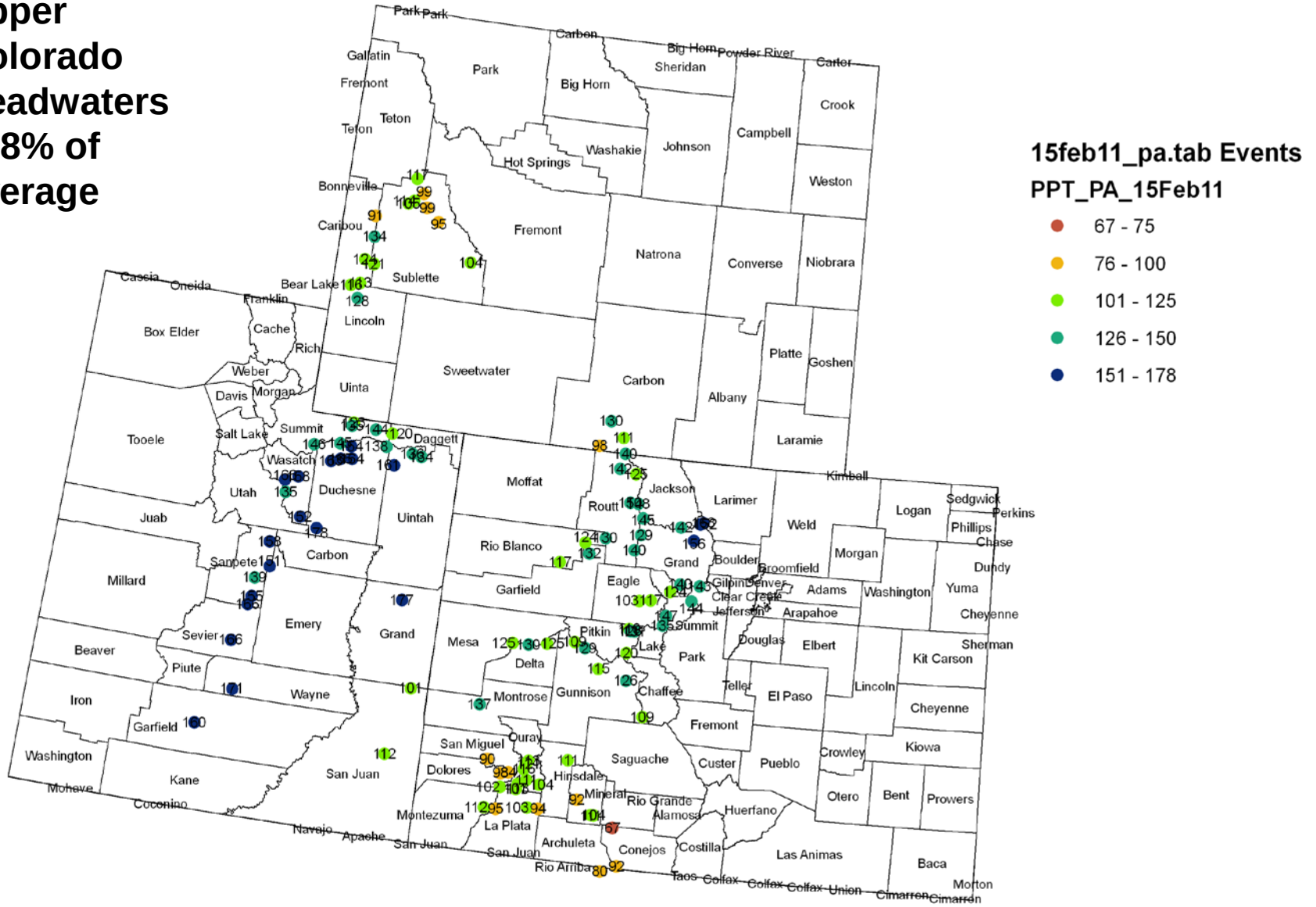
6_12feb11_x

PPT

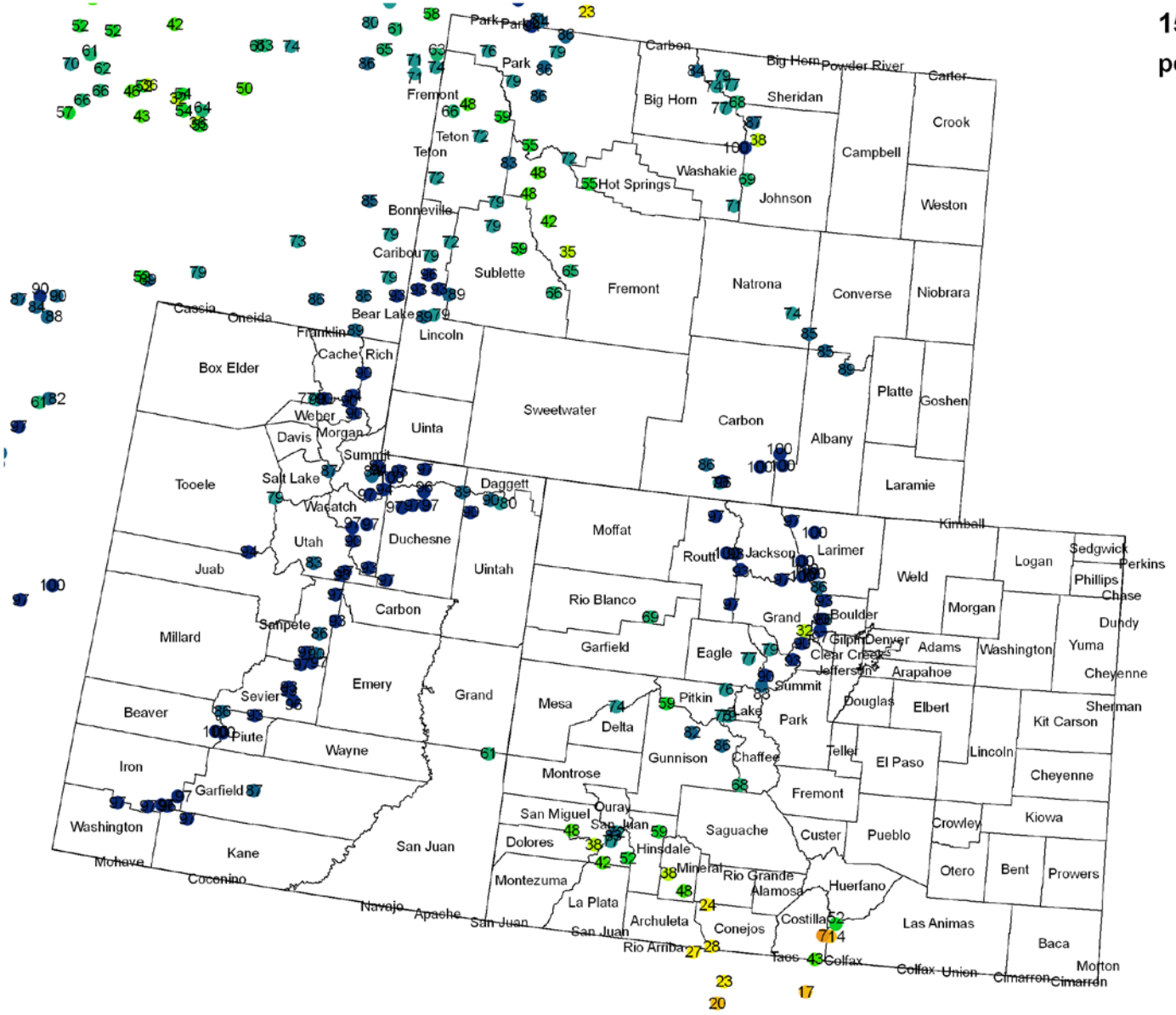
- 0.00
- 0.01 - 0.10
- 0.11 - 0.25
- 0.26 - 0.50
- 0.51 - 1.00
- 1.01 - 1.50
- 1.51 - 2.00
- 2.01 - 2.50
- 2.51 - 2.88

Snotel Water Year Precipitation as Percentage of Average
15 February 2011

Upper Colorado Headwaters 138% of average



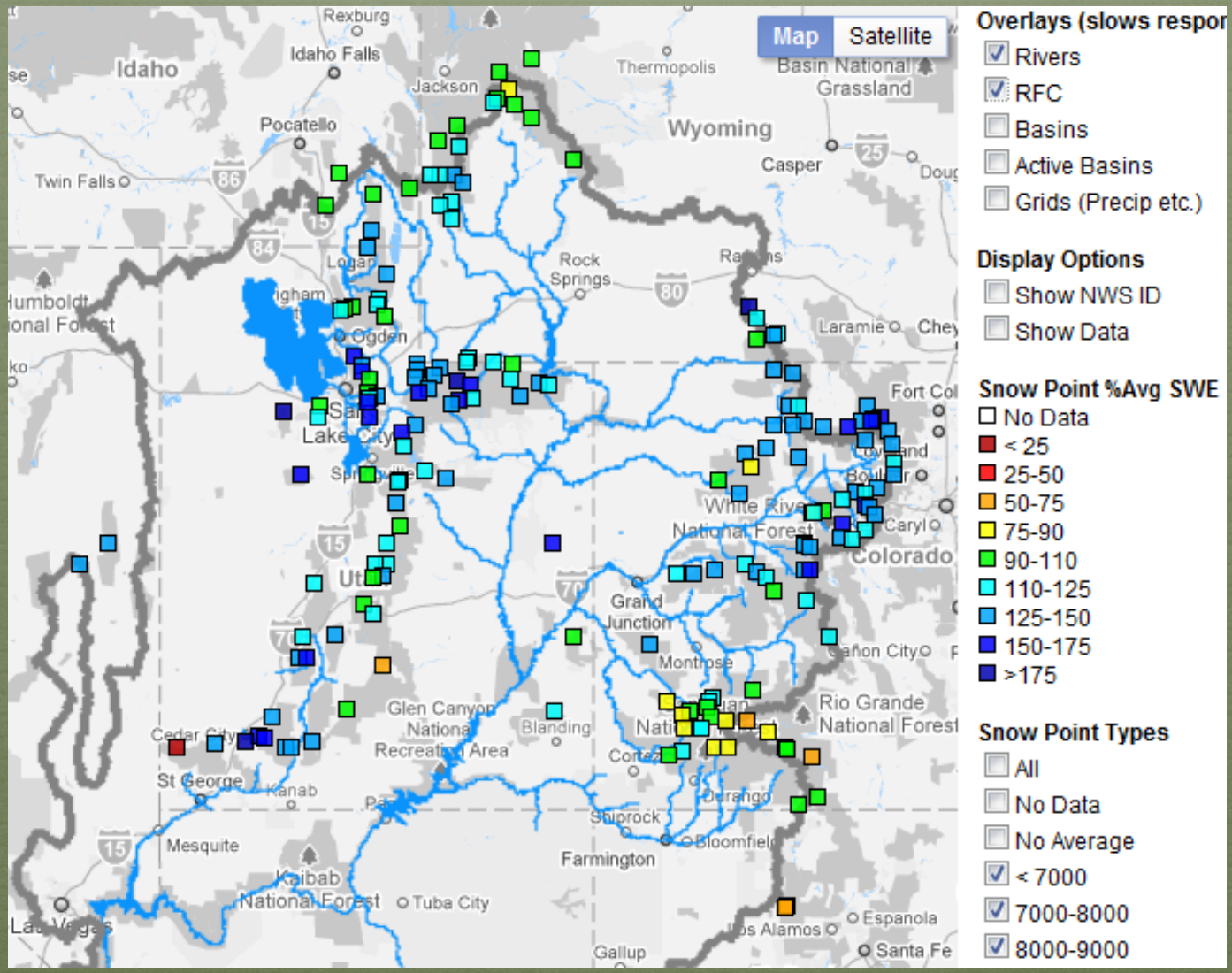
Snotel Water Year Precipitation Percentile Ranking
15 February 2011



15Feb11_ptile.tab Events
pctile

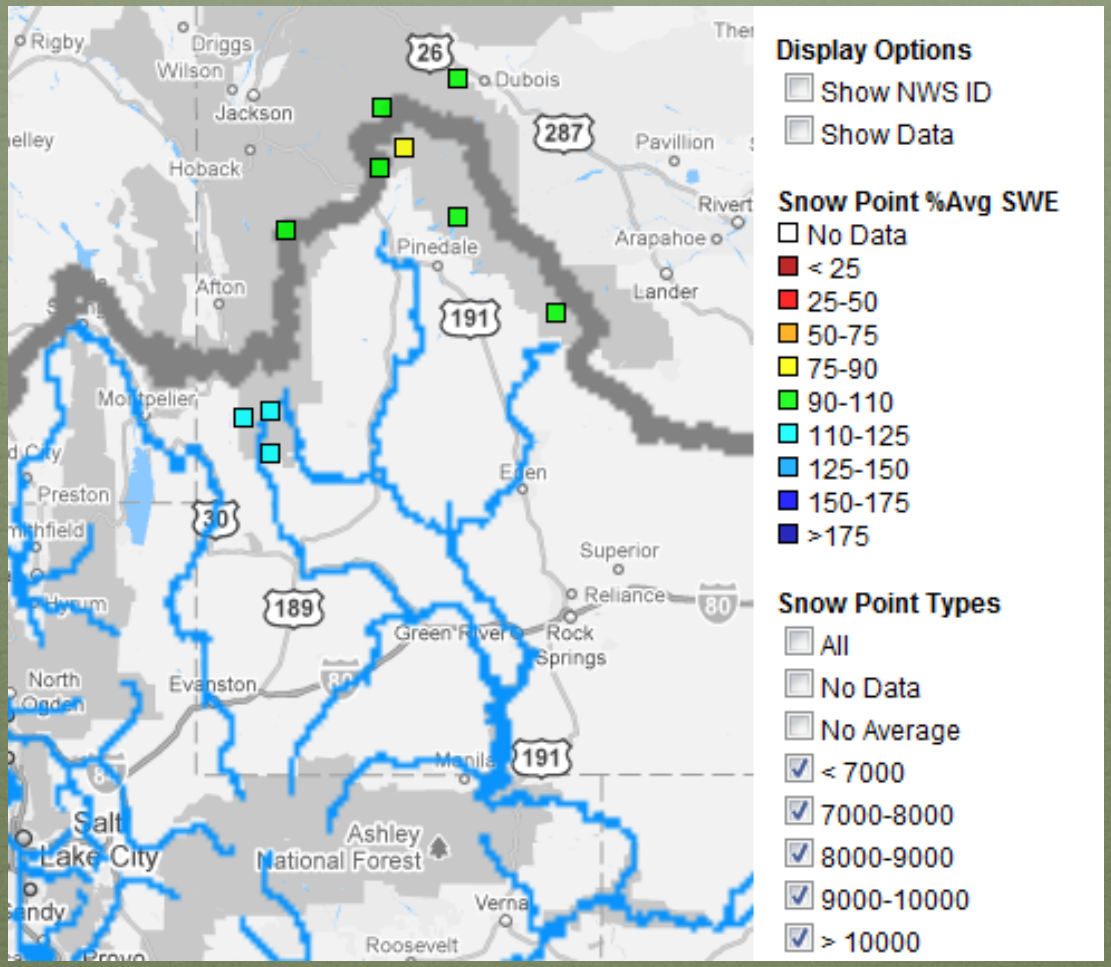
- D4: 0 - 2
- D3: 3 - 5
- D2: 6 - 10
- D1: 11 - 20
- D0: 21 - 30
- Uncategorized: 31 - 40
- Uncategorized: 41 - 50
- Uncategorized: 51 - 60
- Uncategorized: 61 - 70
- Uncategorized: 71 - 80
- Uncategorized: 81 - 90
- Uncategorized: 91 - 100

Upper Colorado River Basin Snow

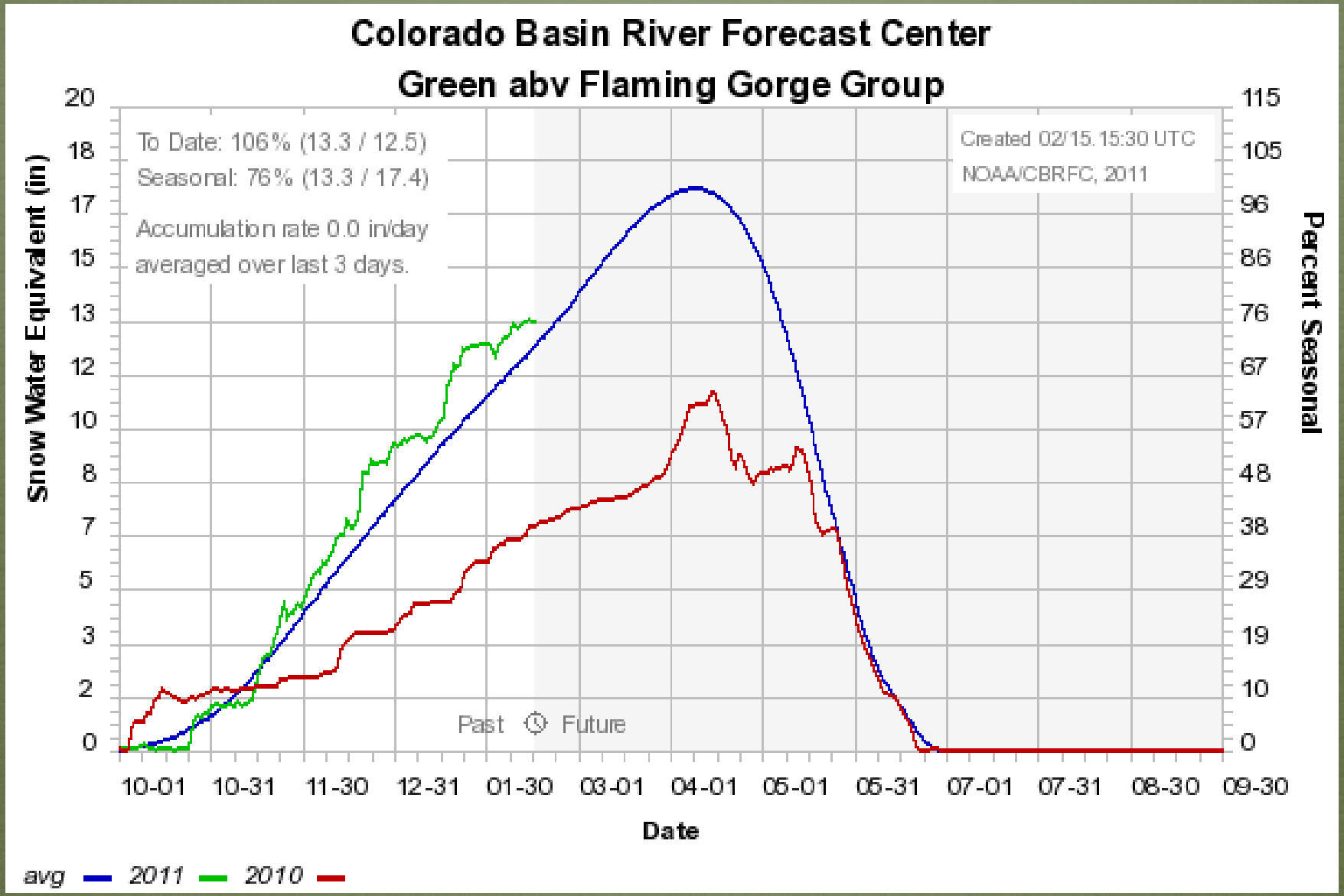


NATIONAL WEATHER SERVICE
Colorado Basin River Forecast Center

Green River Basin above Flaming Gorge

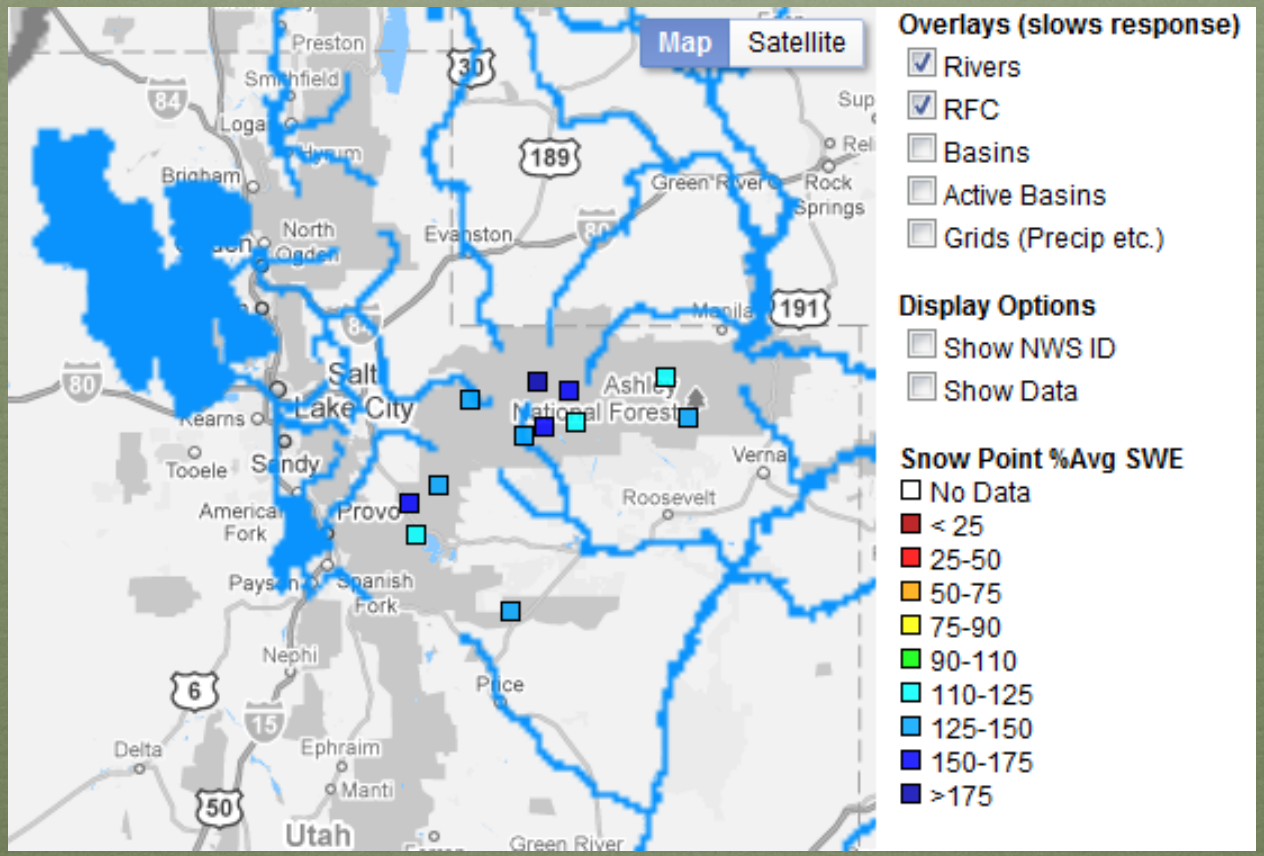


NATIONAL WEATHER SERVICE
Colorado Basin River Forecast Center

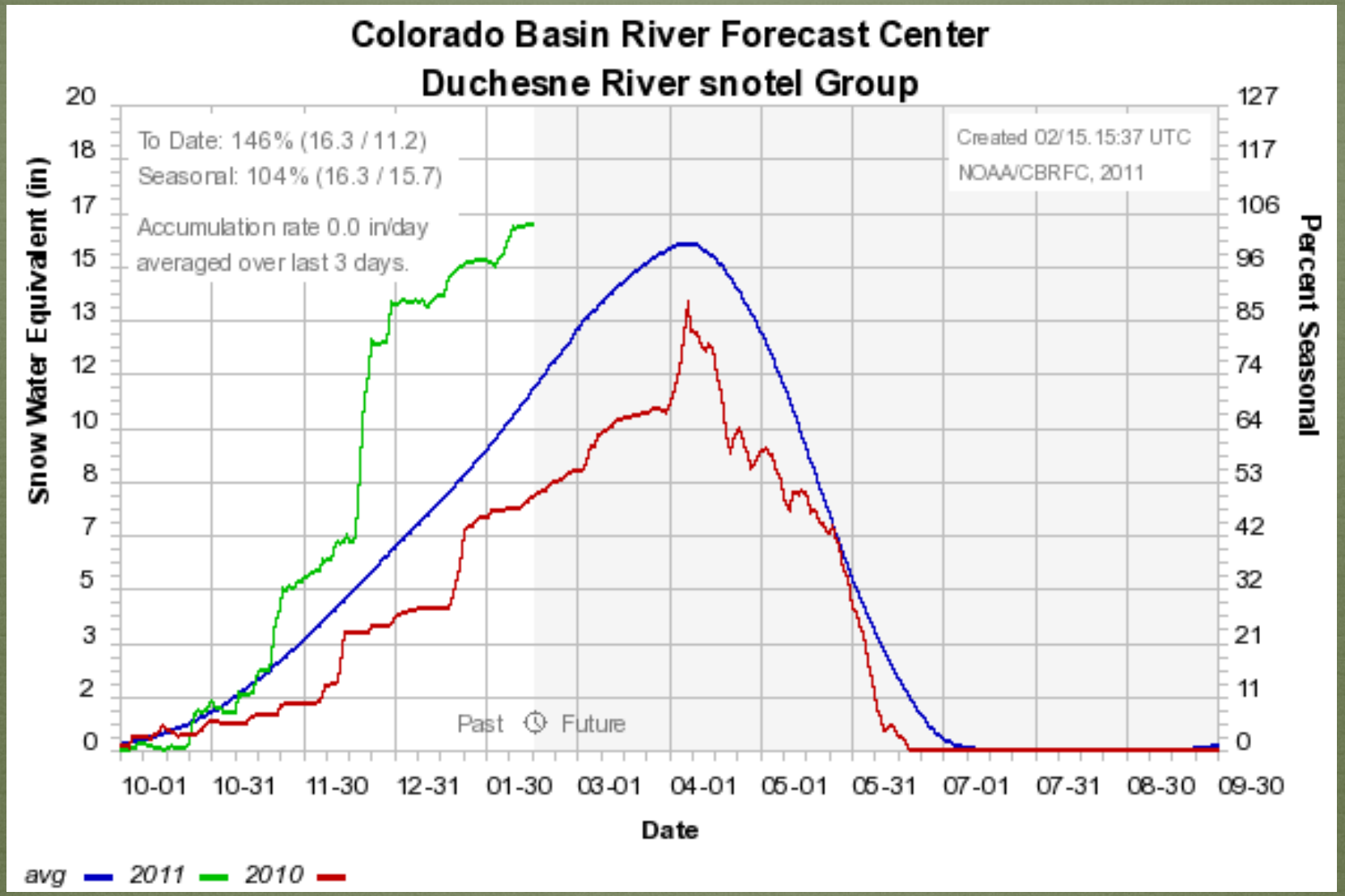


Snowpack % of average to date: 106%
Percent of average peak: 76%

Duchesne River Basin

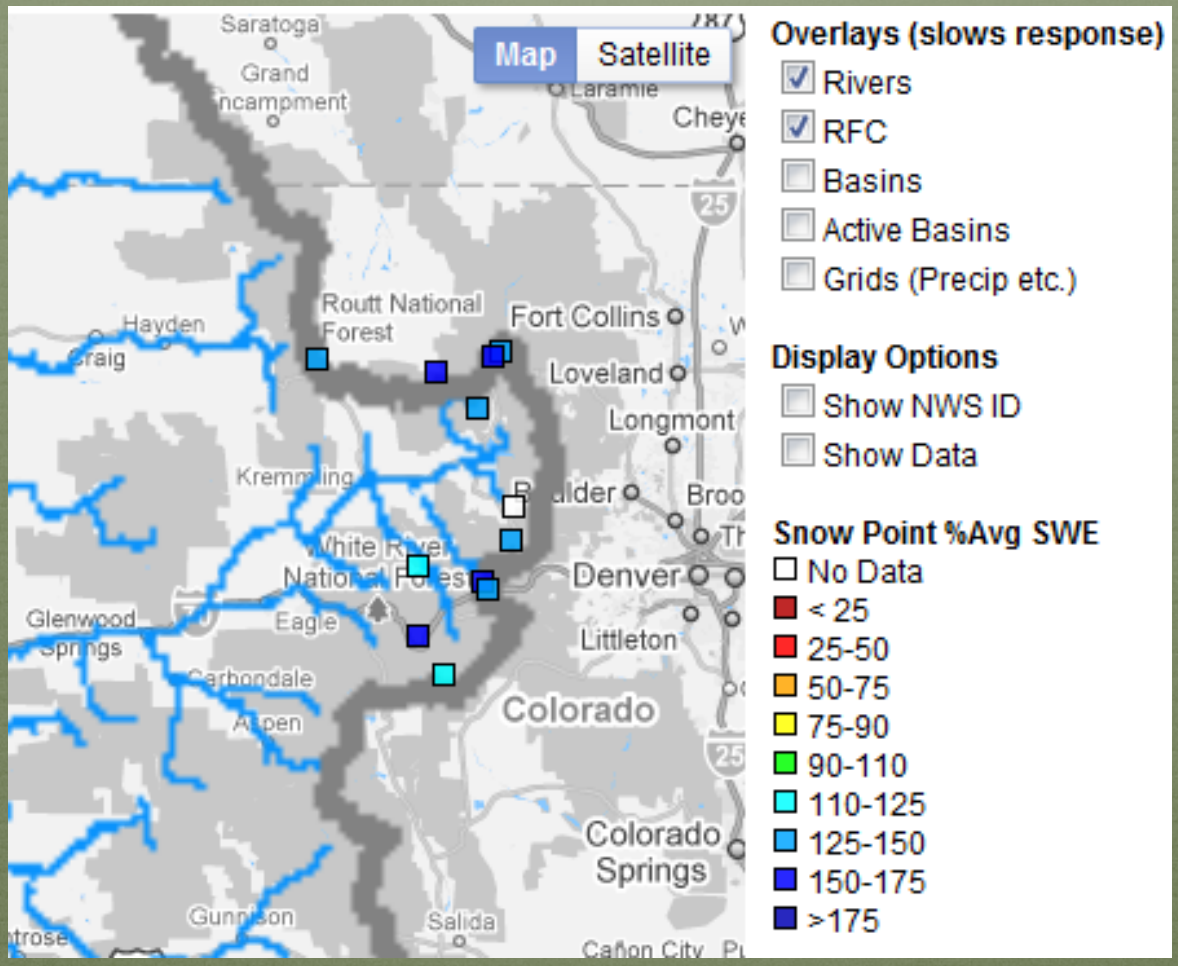


NATIONAL WEATHER SERVICE
Colorado Basin River Forecast Center

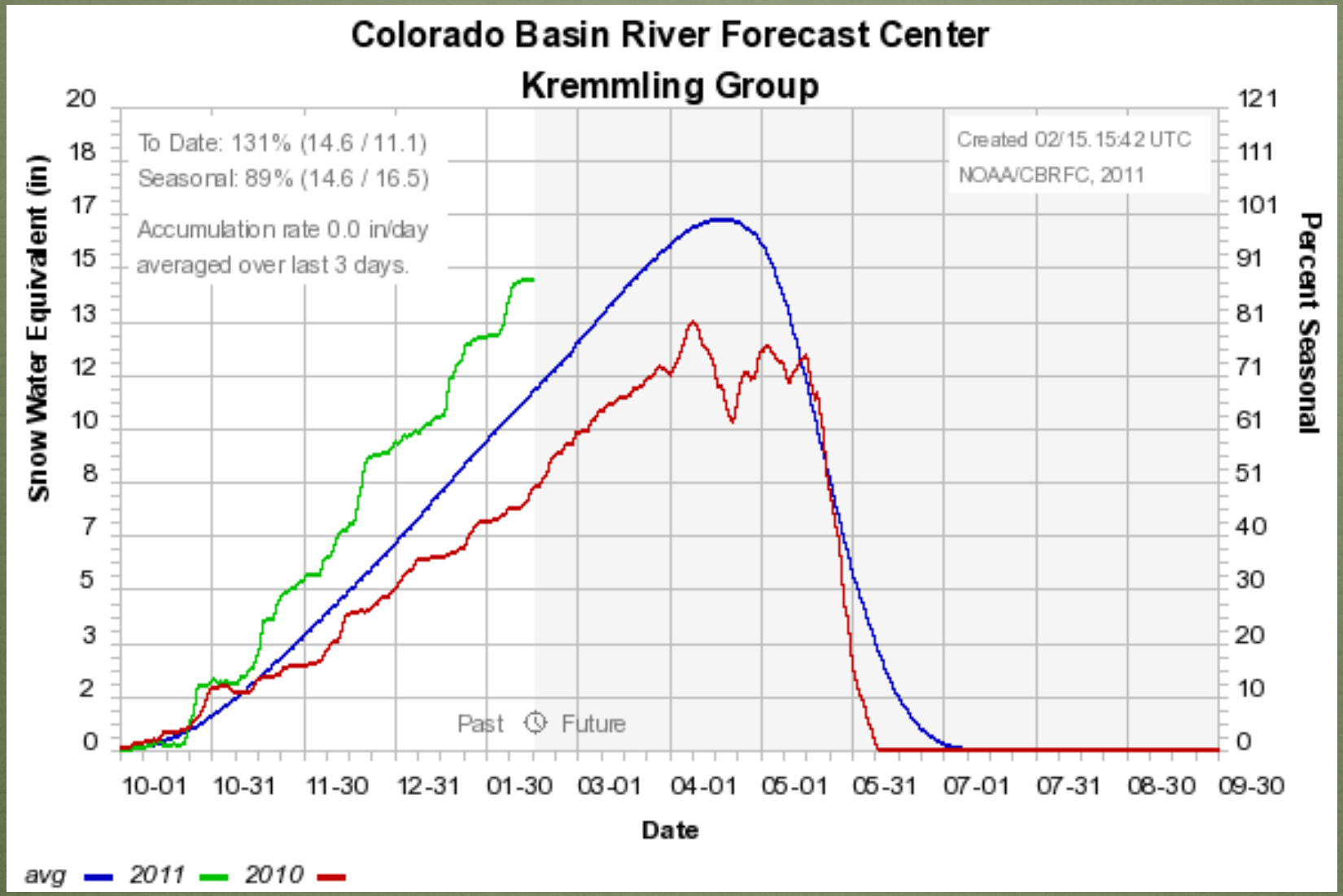


Snowpack % of average to date: 146%
Percent of average peak: 104%

Upper Colorado above Kremmling

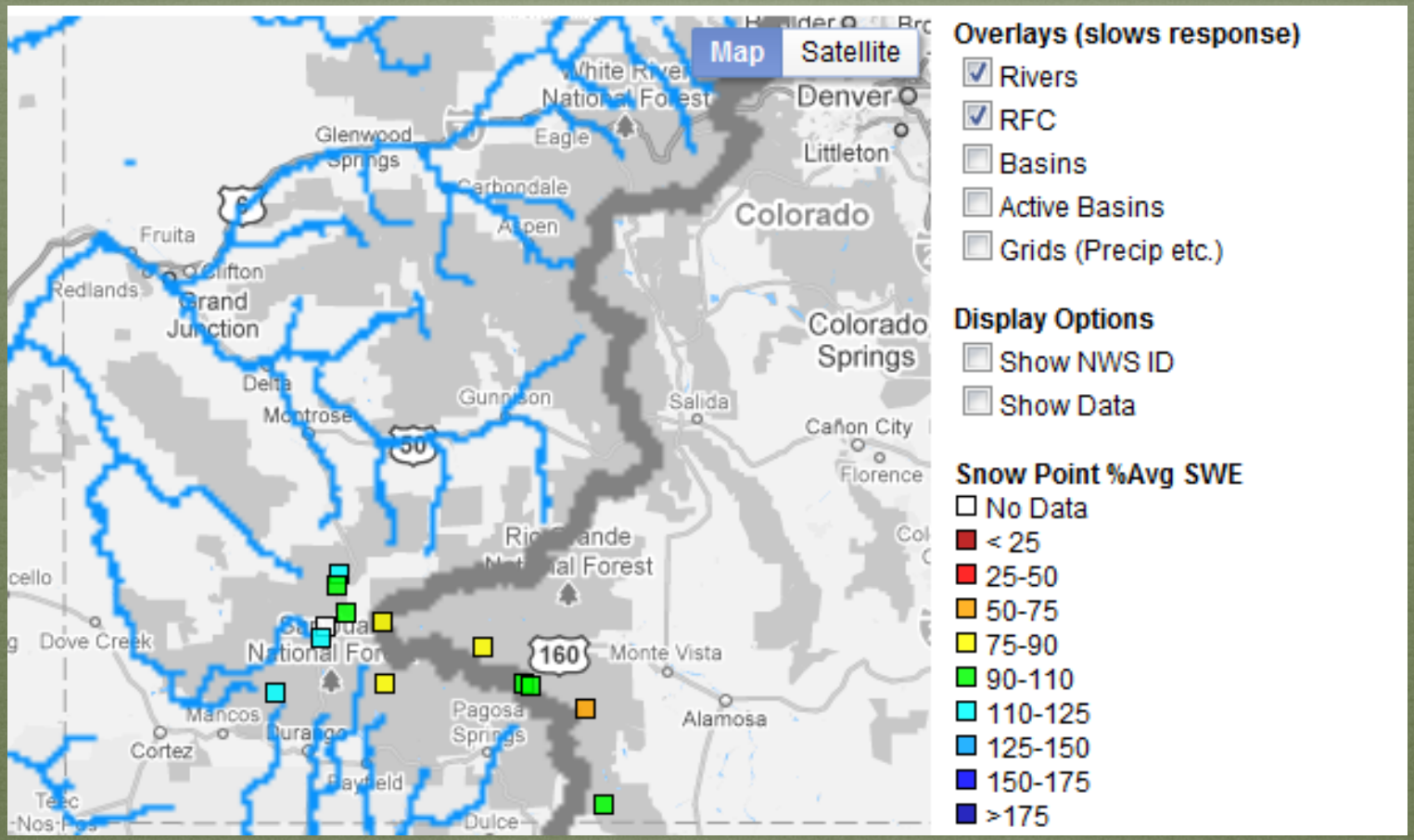


NATIONAL WEATHER SERVICE
Colorado Basin River Forecast Center

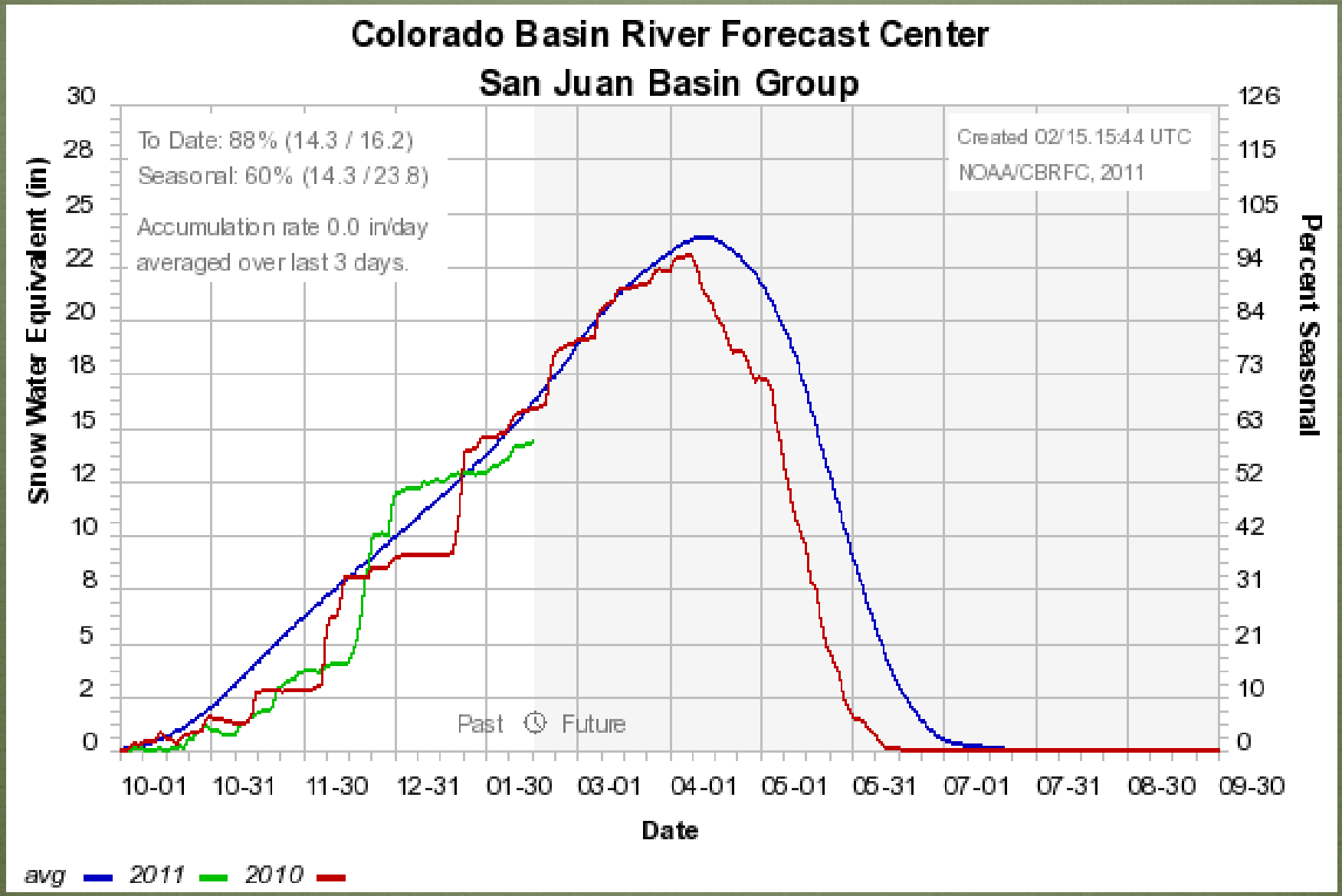


Snowpack % of average to date: 131%
Percent of average peak: 89%

San Juan Basin



NATIONAL WEATHER SERVICE
Colorado Basin River Forecast Center

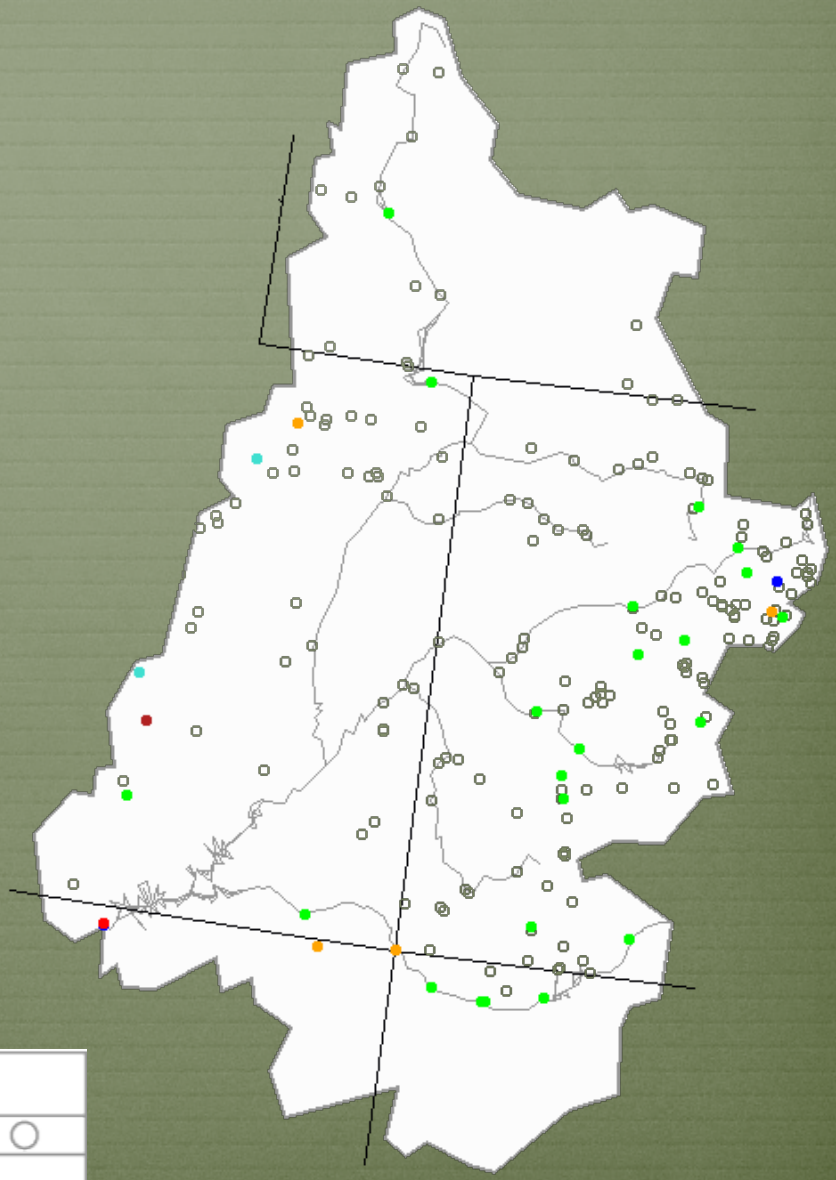


Snowpack % of average to date: 88%
Percent of average peak: 60%

Streamflow Update

Michael Lewis USGS

7-day average discharge compared to historical discharge for the day of the year (February 14th)



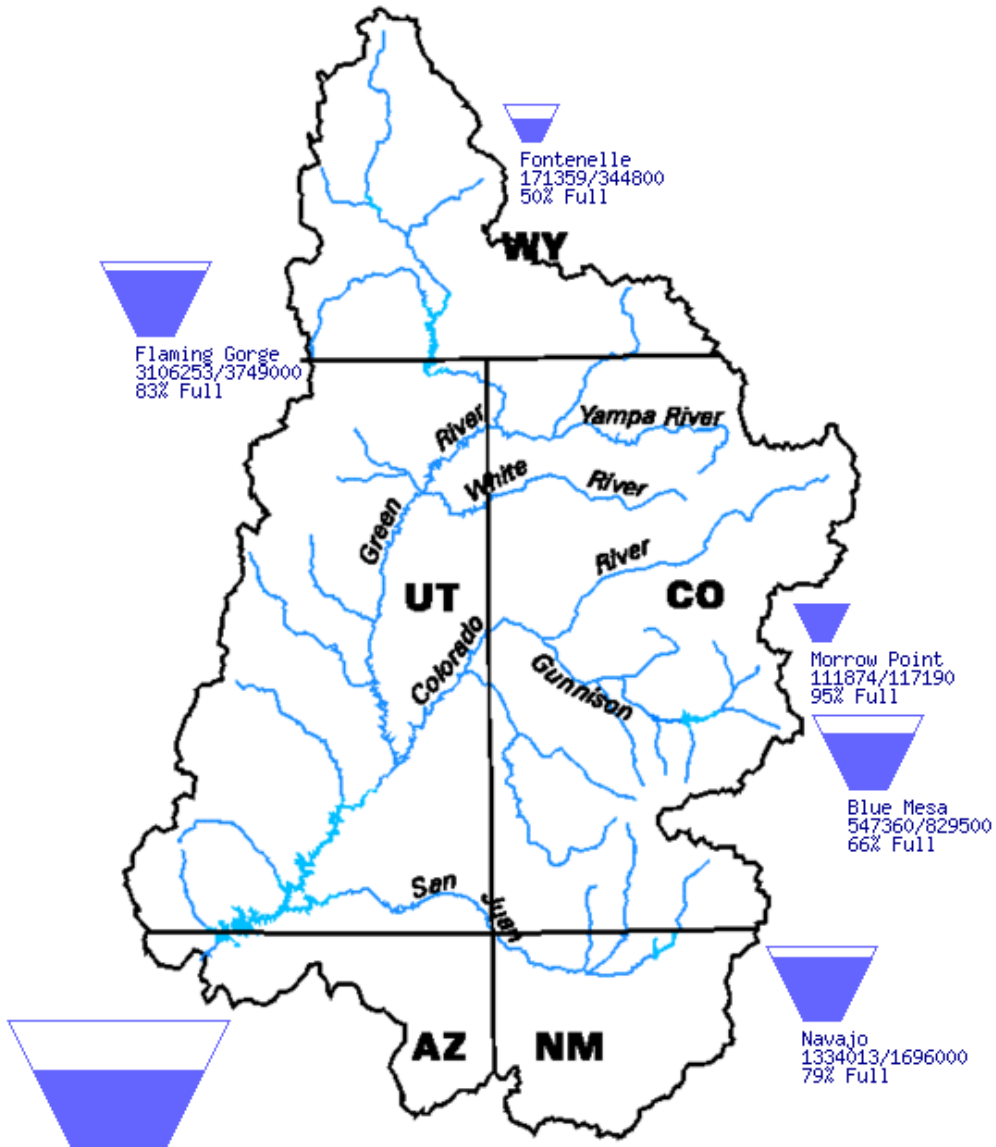
Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

USGS

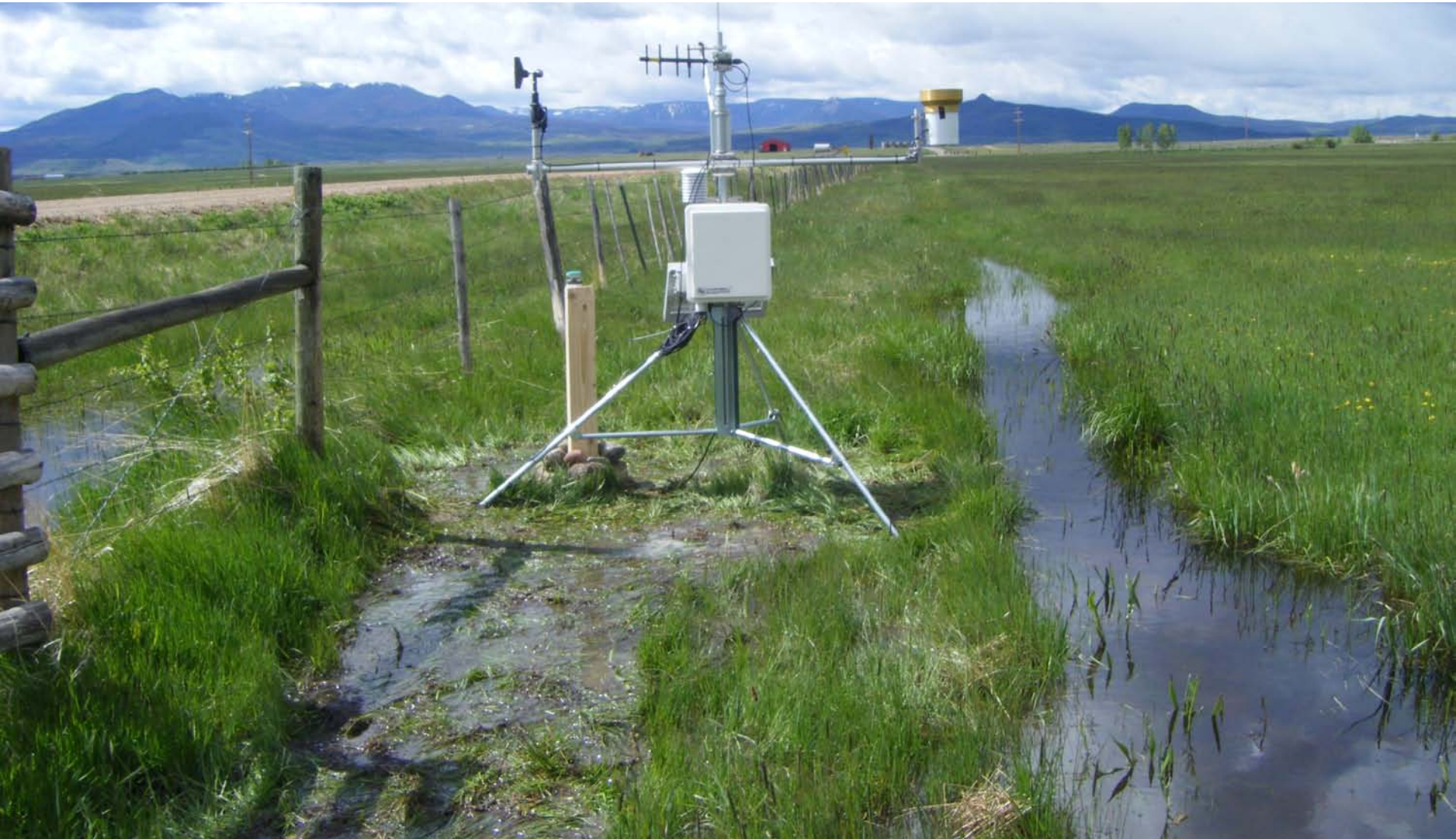
Reservoir Update

Data Current as of:
02/13/2011

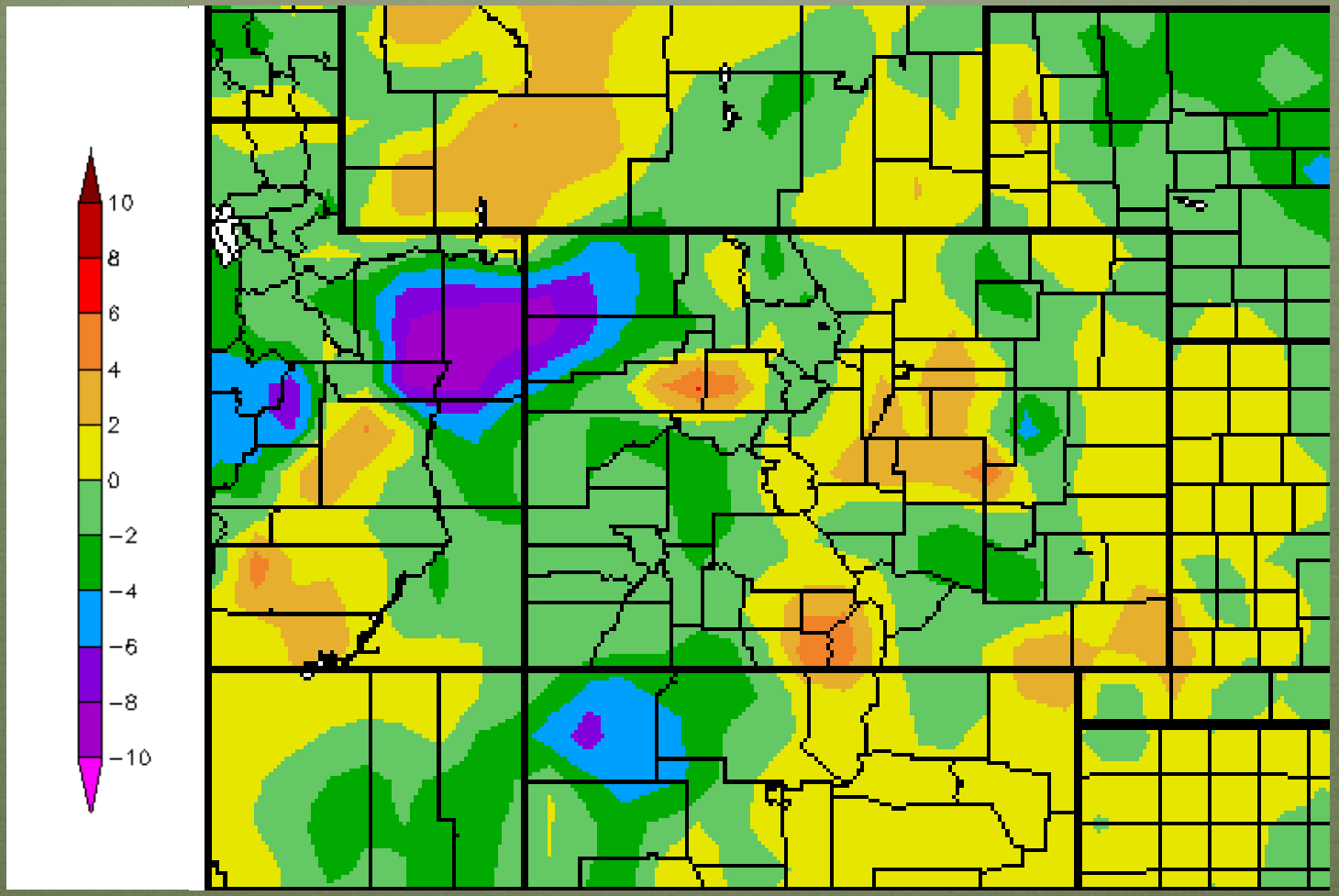
Upper Colorado River Drainage Basin



Water Demand

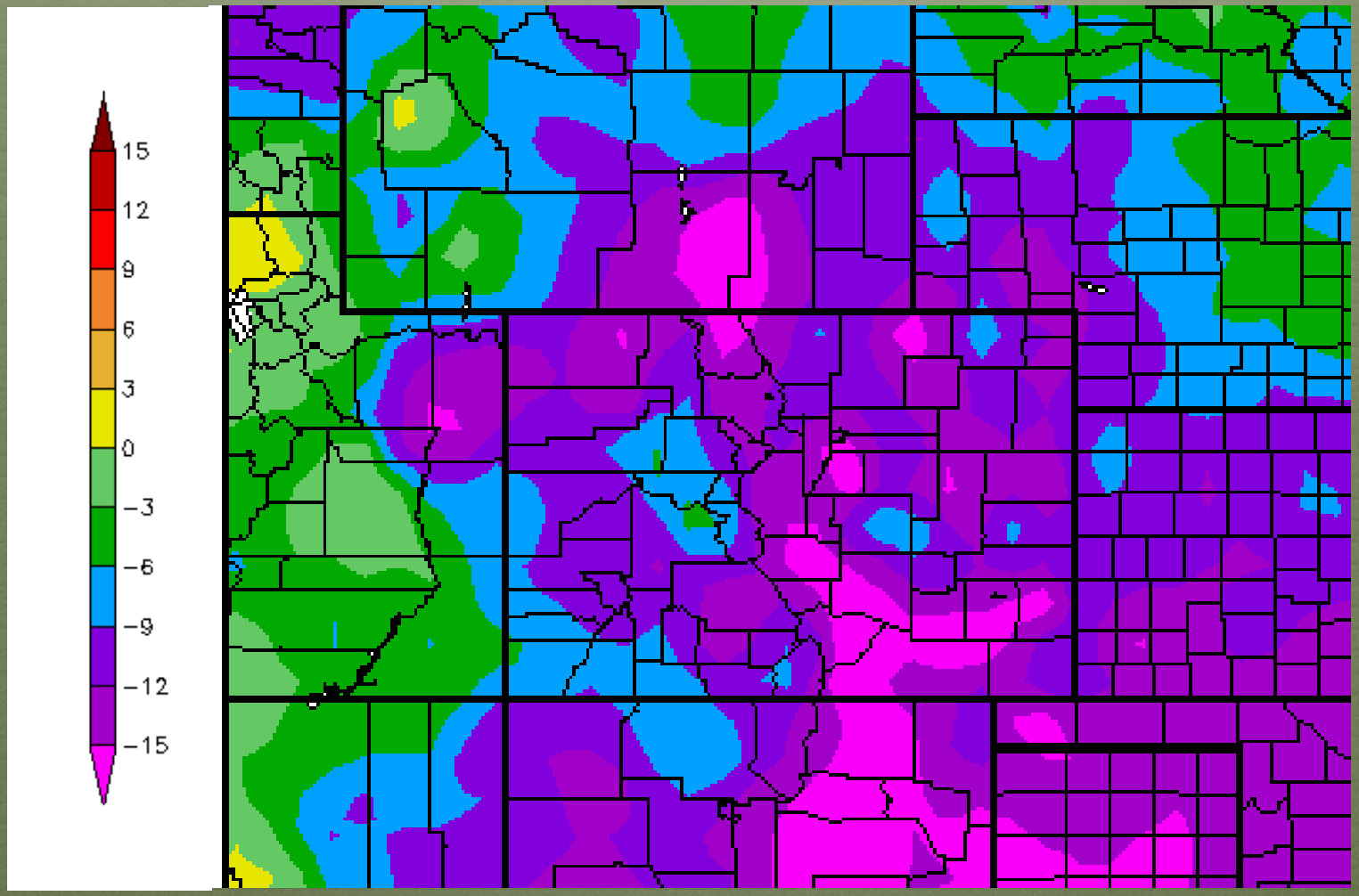


Temperature Departure from Normal
01/01/2011 – 01/31/2011



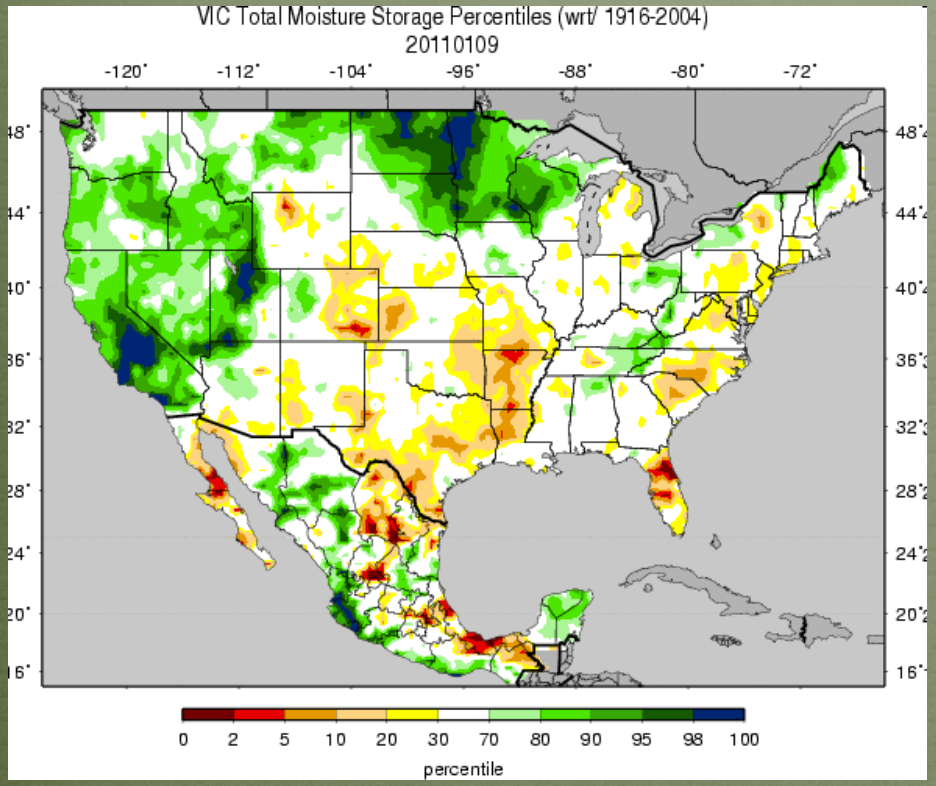
High Plains Regional Climate Center

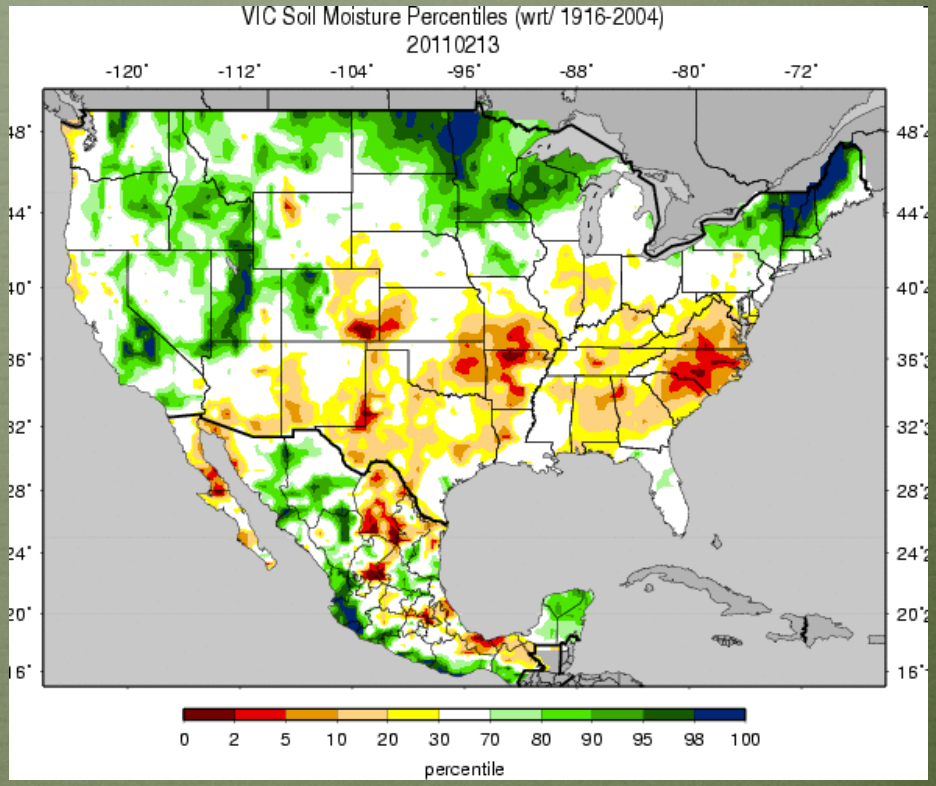
Temperature Departure from Normal
02/01/2011 – 02/14/2011



High Plains Regional Climate Center

Soil Moisture Change from Jan 9th, 2011





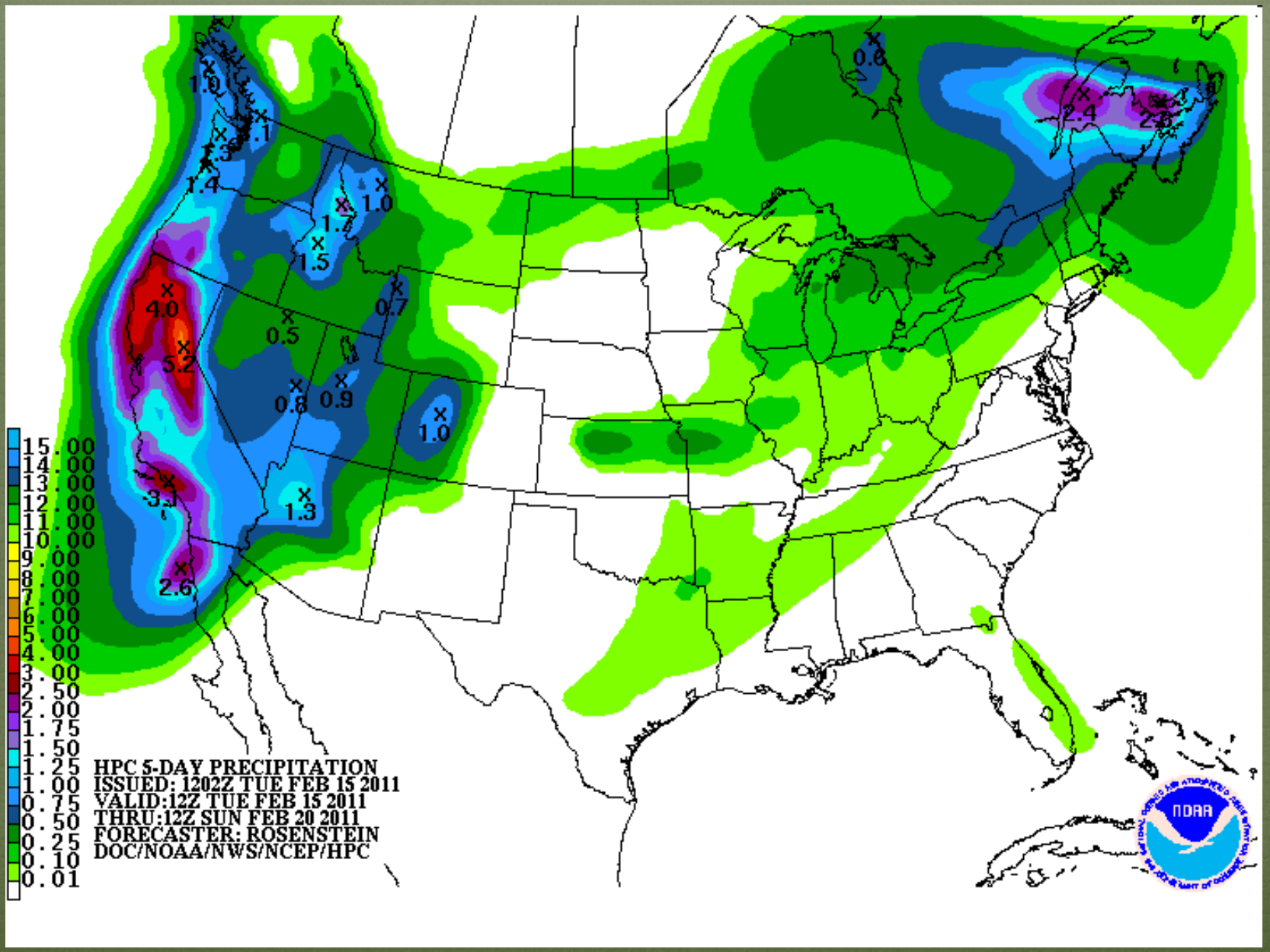
9 January 2011

13 February 2011

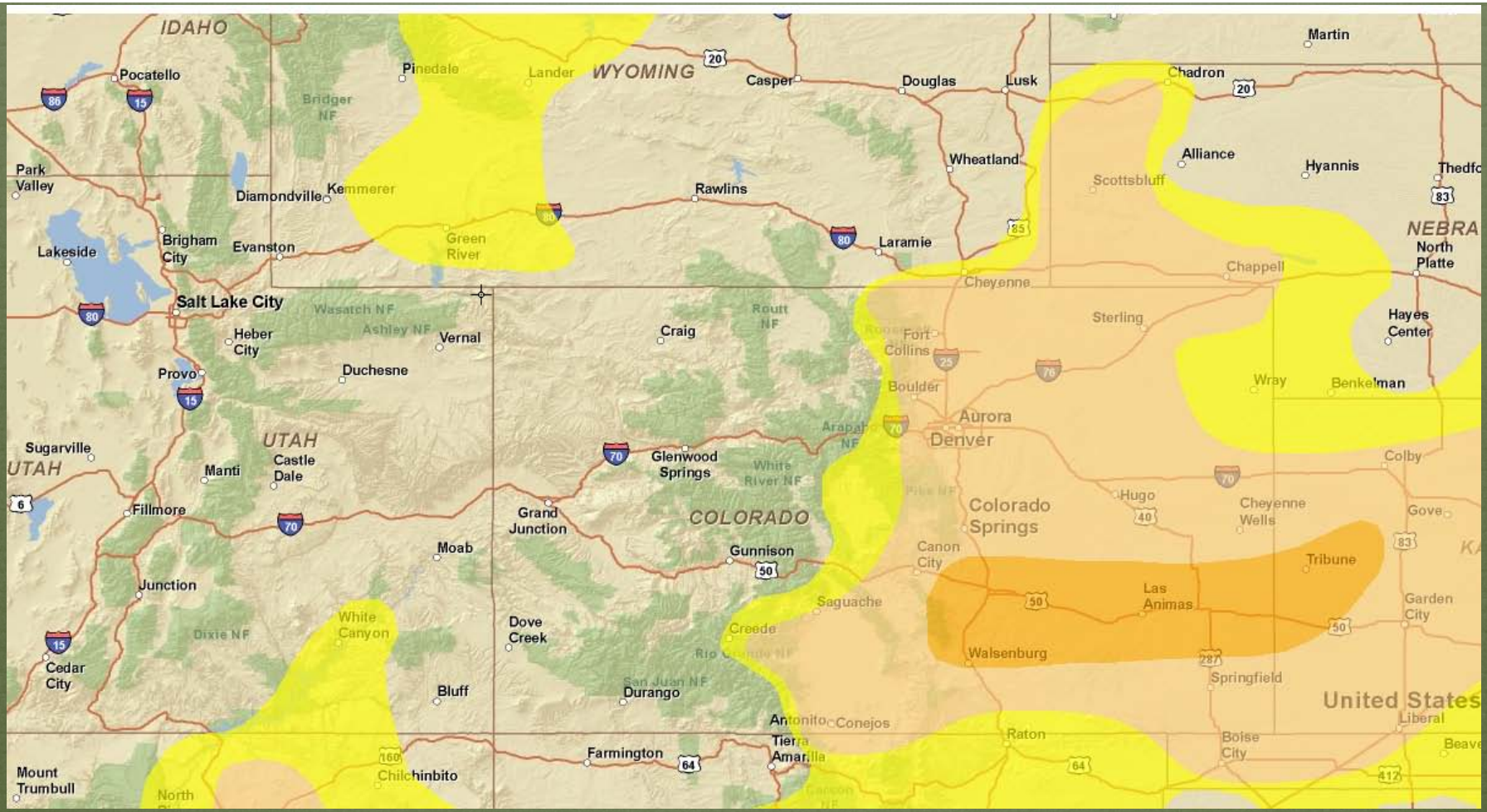
University of Washington

Precipitation Forecast

5 Day QPF 15-20 Feb 2011



Recommendations



INFO

For more information

NIDIS Weekly Climate, Water and Drought Assessment Summary Upper Colorado River Basin February 15, 2011

Precipitation and Snowpack

Figure 1 shows January precipitation as a percentage of average. Overall, the Green River basin in SW Wyoming and NE Utah received the highest percentage of average in January, ranging from 71 to greater than 300 percent of normal. The northern and central mountains of Colorado received near to above average precipitation, but the San Juan and Sangre de Cristo mountains received below to near average precipitation, ranging from 51 – 110 percent of normal. The northern plains of Colorado received beneficial moisture that ranged from 90 - 200 percent of normal and the southern plains in the Arkansas basin ranged from 71- 130 percent of normal.

Over the past week (Figure 2), the Northern mountains of Colorado received the most precipitation which ranged from 0.50 – 2.88". The Wasatch and Uinta mountains in Utah and the Central mountains of Colorado received 0.50 – 1.50". The San Juan's received 0.50 – 2" and Sangre de Cristo's in Colorado received 0.50 – 1.50" of much needed moisture over the past week. Areas of the Republican river basin on Colorado's eastern plains also received beneficial moisture ranging from 0.25 – 1".

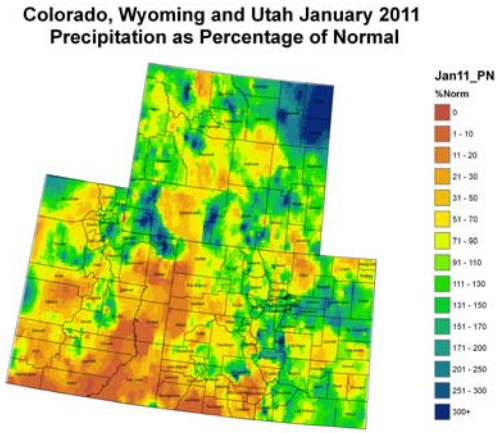


Figure 1: January 2011 Precipitation as Percentage of Average

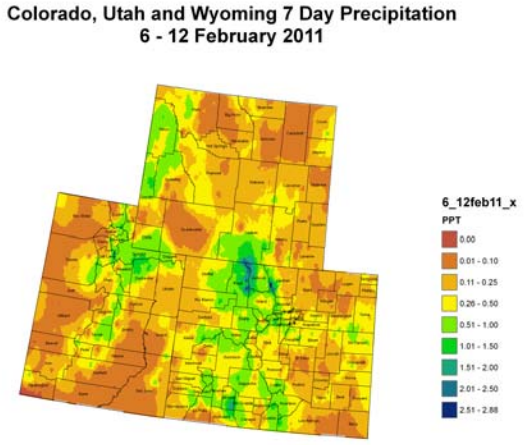


Figure 2: 7 day Precipitation (in) (6-12 February 2011).

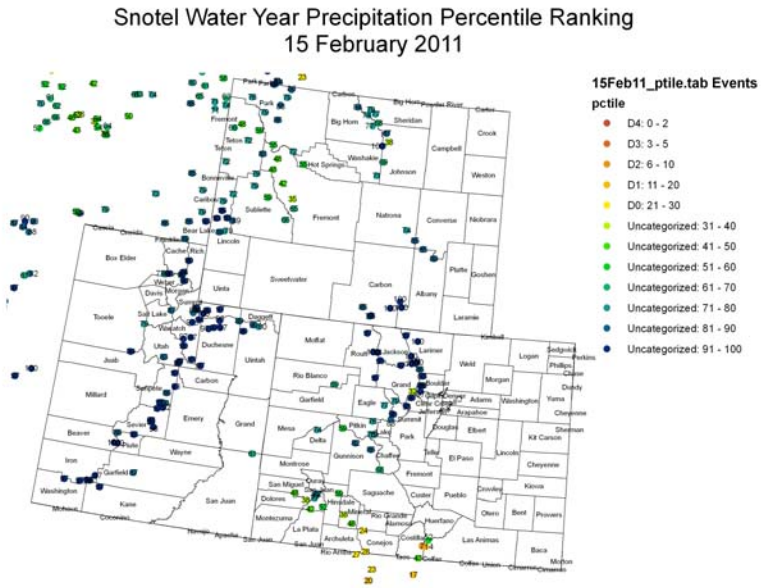


Figure 3: Snotel Water Year Precipitation Percentile Ranking.

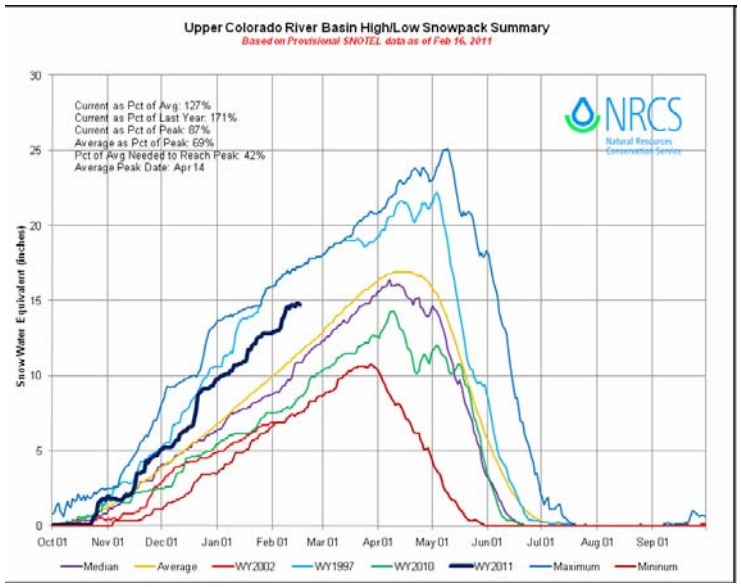


Figure 4: Upper Colorado Mainstem Group Snow Water Equivalent Plot (Green = 2011, Red – 2010, Blue = Average)

SnoTel water year precipitation percentile rankings (Figure 3) are favorable over the majority of the UCRB. The Sangre de Cristo mountains showed improvement at some stations from last week due to the recent precipitation (Figure 2) but a few stations are still reporting percentile rankings less than 14. The San Juan and Rio Grande stations have remained steady over the past week.

Figure 4 shows the snow water equivalent (SWE) evolution plot for the Colorado mainstem station grouping. This group of stations is showing SWE to date of 127% (down 4% from last week) of average and 87% of the average peak SWE for the season.

Streamflow

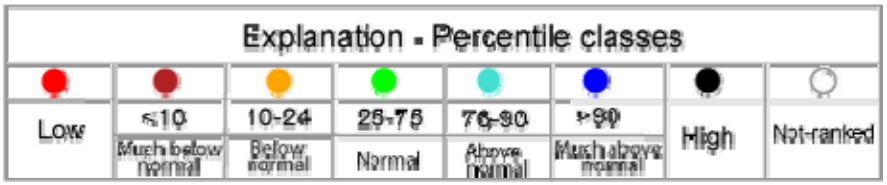
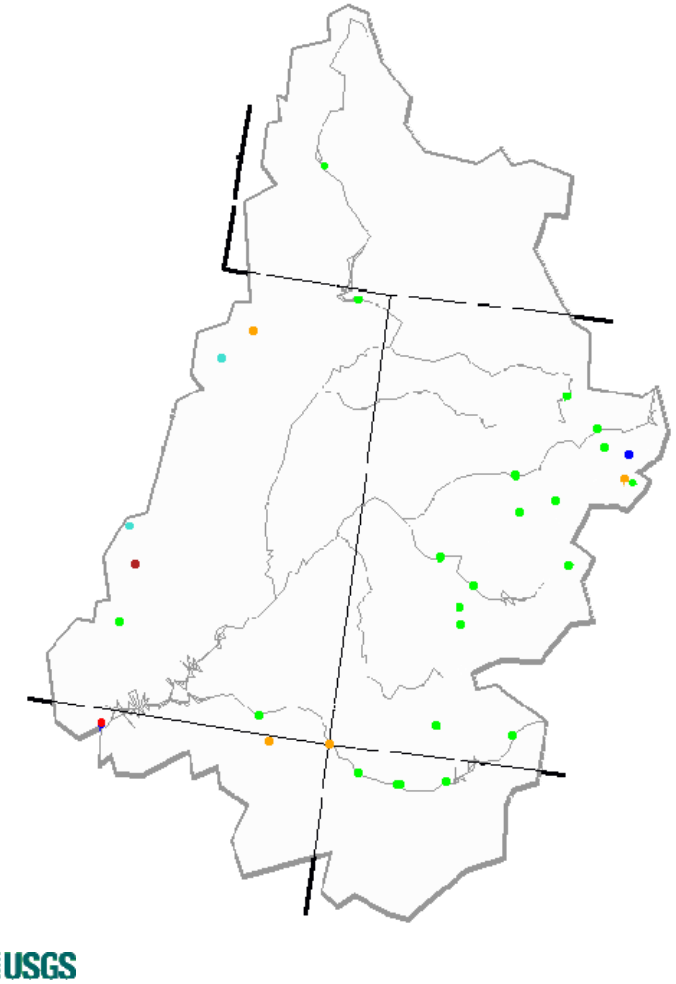


Figure 5: 7-day average discharge compared to historical discharge for February 15th.



Seven day average discharge conditions across the UCRB are showing good percentile rankings (Figure 5) for those gages reporting at this time. Note many gages are not reporting due to ice.

Water Supply and Demand

Temperatures:

Over the past week (Figure 6), the entire UCRB region has seen normal to much below normal temperatures. The Yampa and White drainages of Colorado were the coldest ranging 6-15 degrees below normal.

Figure 9 shows the VIC soil moisture model, which from last week has degraded conditions in the Arkansas basin and SE corner of Colorado, but improved them in the mountains of Colorado and Utah.

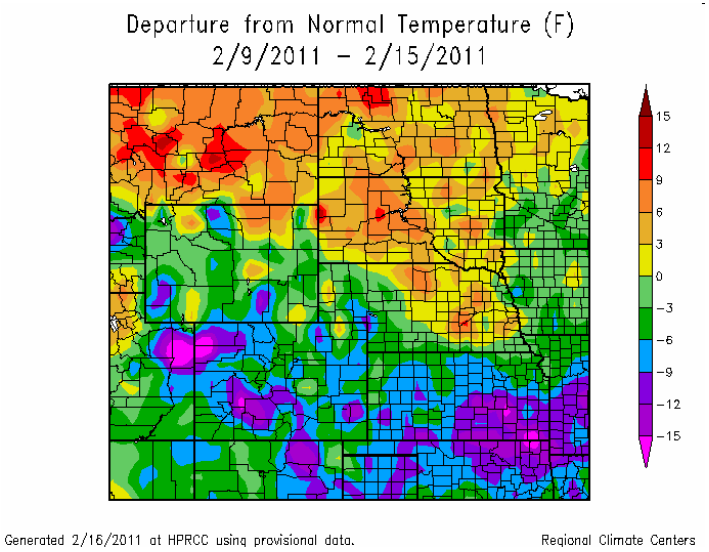


Figure 6: Temperature departure from normal 2/9 – 2/15.

Reservoirs:

Most reservoirs in the UCRB are in good condition. Figure 8 shows the USBR tea cup diagram for the major USBR UCRB reservoirs.

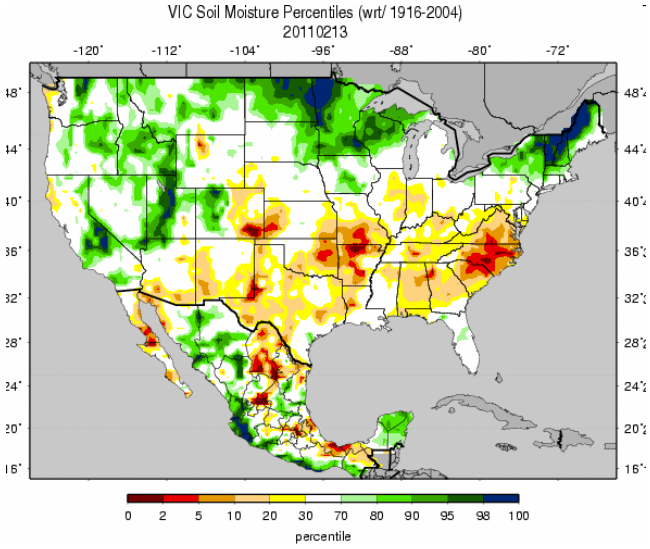


Figure 7: VIC soil moisture model for 13 February 2011.

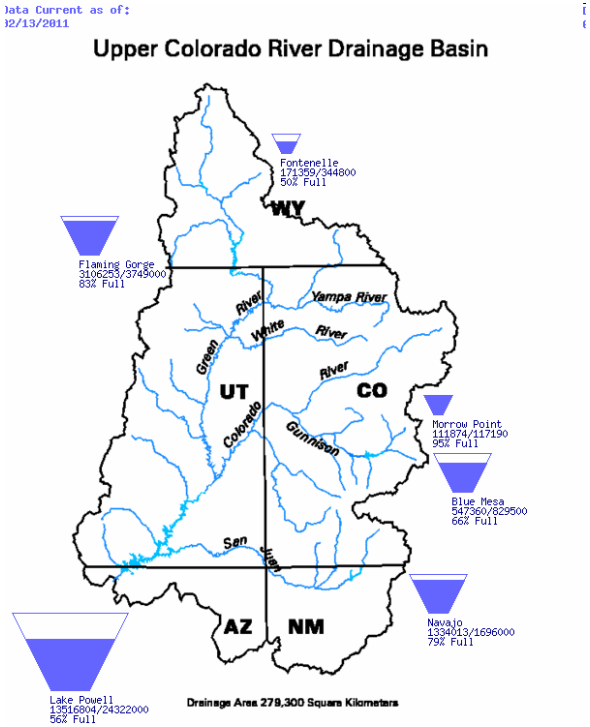


Figure 8: UCRB tea cup diagram.

Precipitation Forecast

Two storm systems will drop into the area over the next 5 days bringing moisture mainly to higher elevations of Utah and Colorado. The 5 day quantitative precipitation forecast shown in figure 9 shows precipitation amounts of up to 1.1” in Colorado’s northern and central mountains and the Wasatch mountains in Utah and up to a half inch in the Green river basin in Wyoming. The San Juan mountains in Colorado also look to gain moisture as well as the four corners region which has recently been dry. This product indicates that up to a 0.10” may fall on the eastern plains of Colorado where drought is in place and any moisture is welcome.

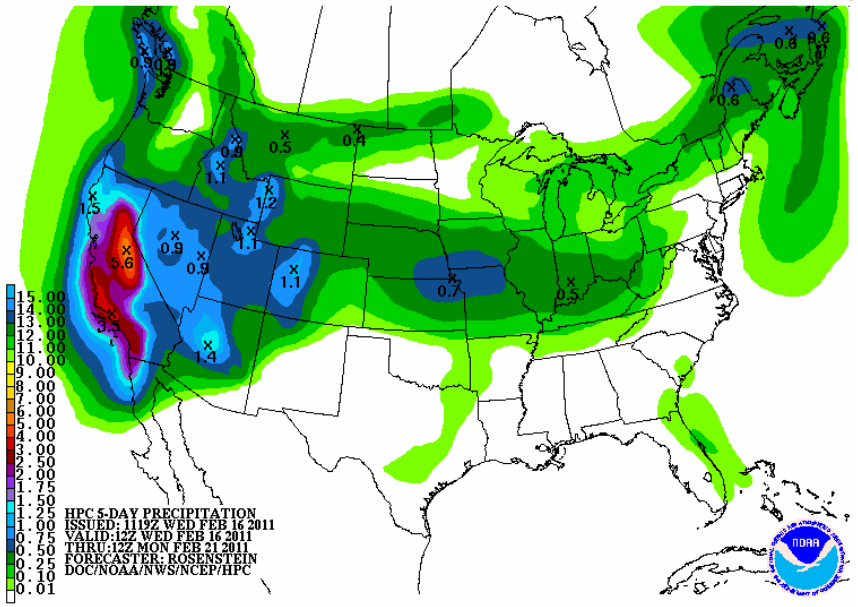


Figure 9: 5 day quantitative precipitation forecast, valid 16-21 February 2011.

Recommendations

This past week has brought much needed moisture to the San Juans and Sangre de Cristo’s and continued to bring moisture to the high country of Colorado and Utah.

Minor adjustments were made to the D2 area near the Wet Mountain Valley during the webinar discussion with the drought monitor author. The line was adjusted to the east to reflect the recent moisture in that area.

You can register here for our weekly webinar series:

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