

CBRFC
April 2013
Water Supply Webinar

April 4, 2013

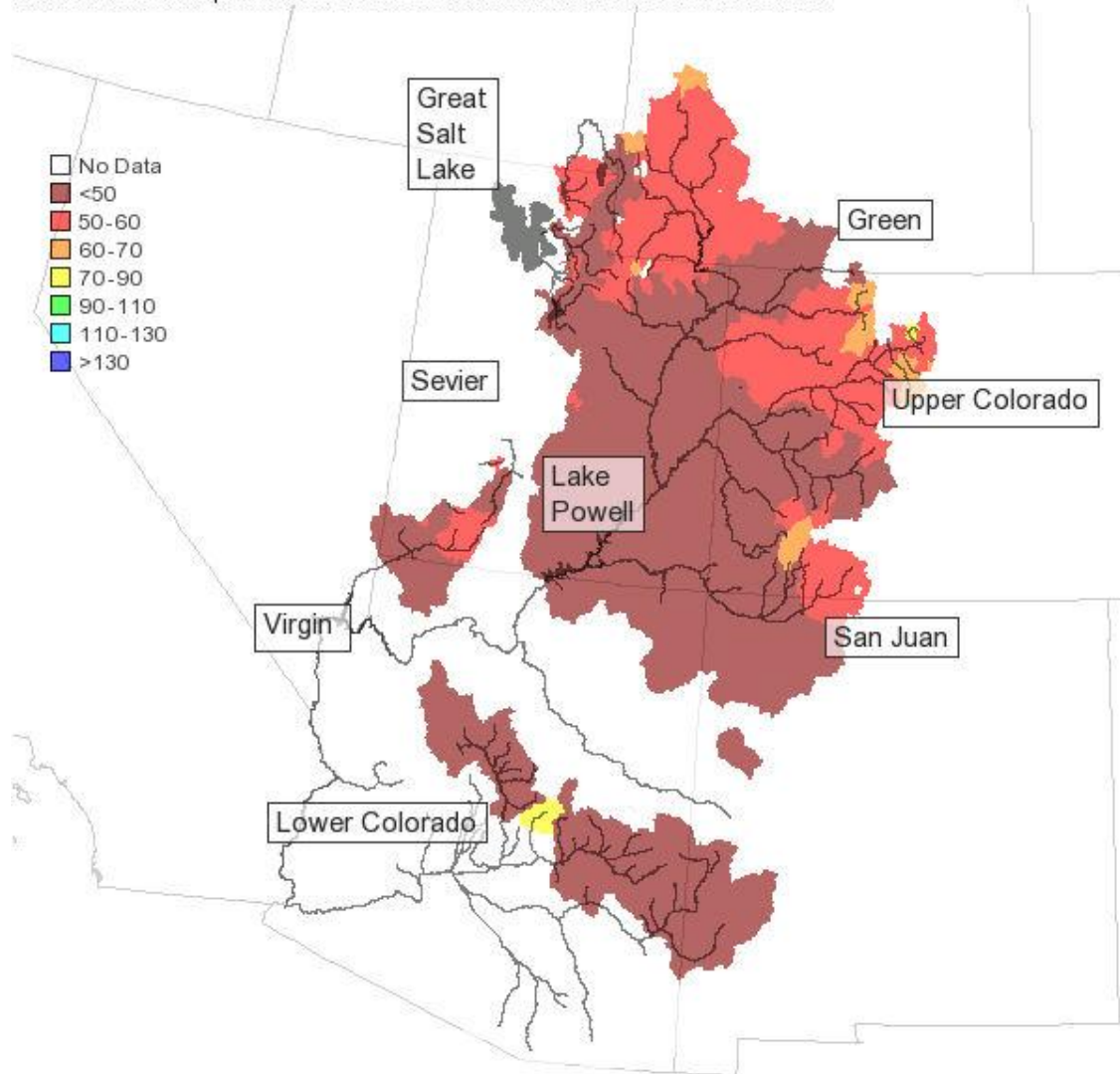
Greg Smith

Outline

- Weather Review
- Current Snow States
- Water Supply Forecasts
- Future Weather

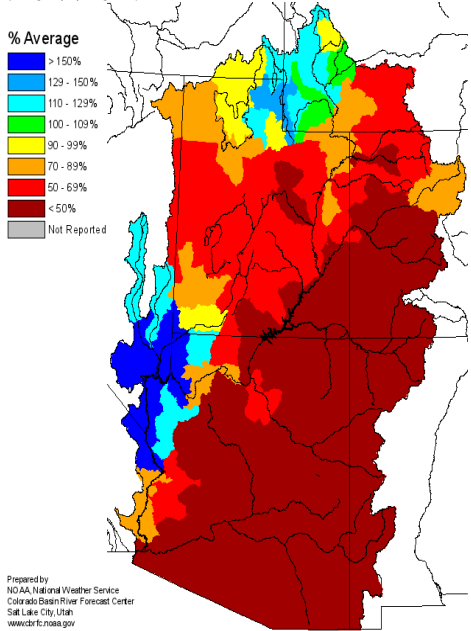
Water Supply Outlook, April 1, 2013

Click on text box for publication. Colors indicate the values of residual forecasts.

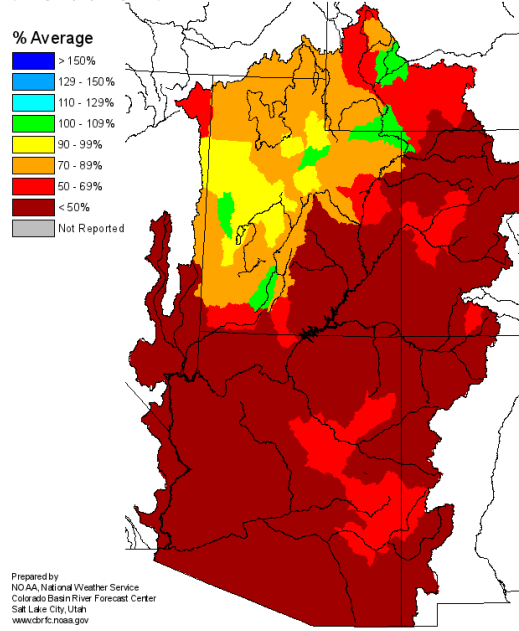


Web Reference: <http://www.cbrfc.noaa.gov/wsup/pub2/map/html/cpub.php>

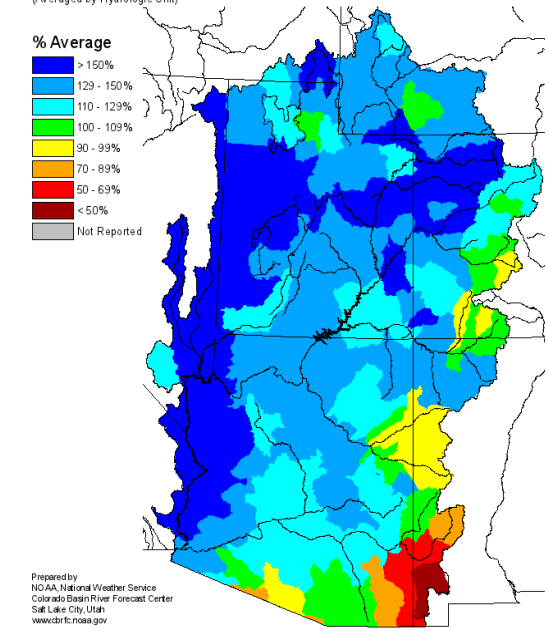
Monthly Precipitation for October 2012
(Averaged by Hydrologic Unit)



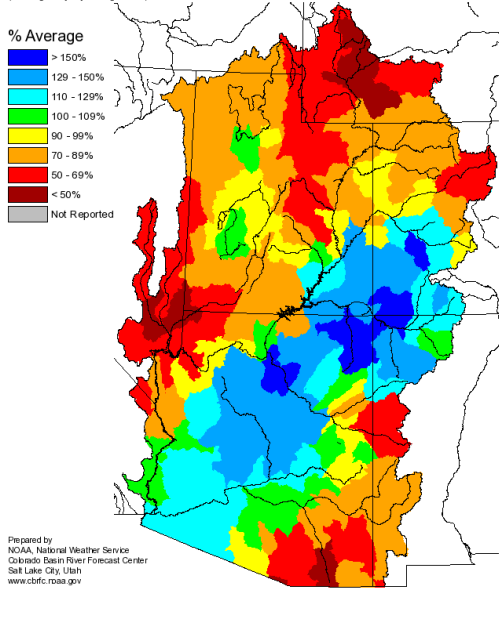
Monthly Precipitation for November 2012
(Averaged by Hydrologic Unit)



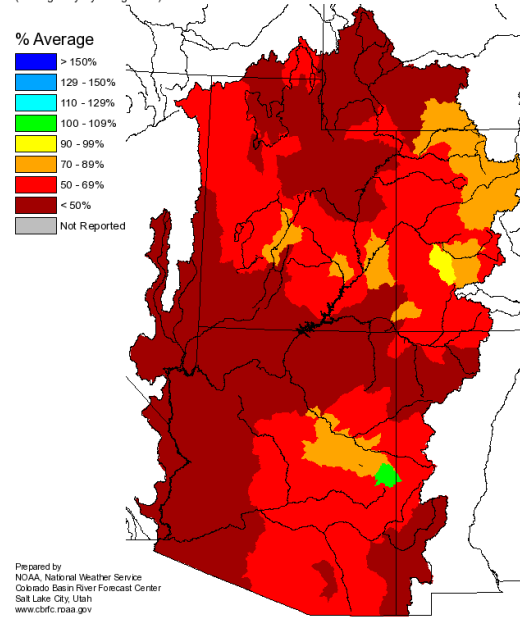
Monthly Precipitation for December 2012
(Averaged by Hydrologic Unit)



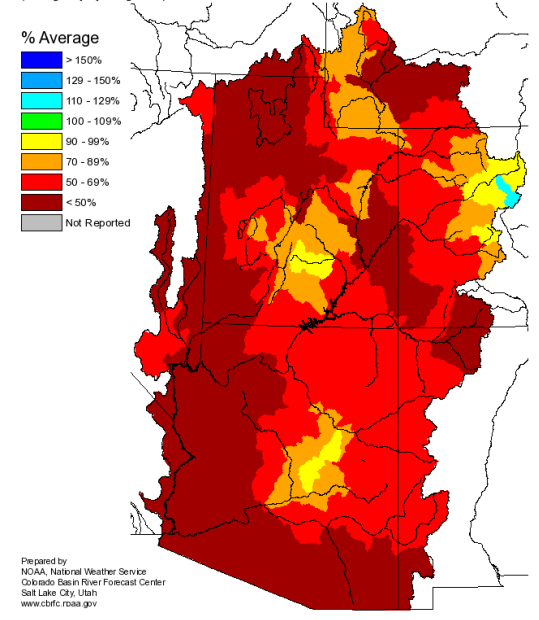
Monthly Precipitation for January 2013
(Averaged by Hydrologic Unit)



Monthly Precipitation for February 2013
(Averaged by Hydrologic Unit)



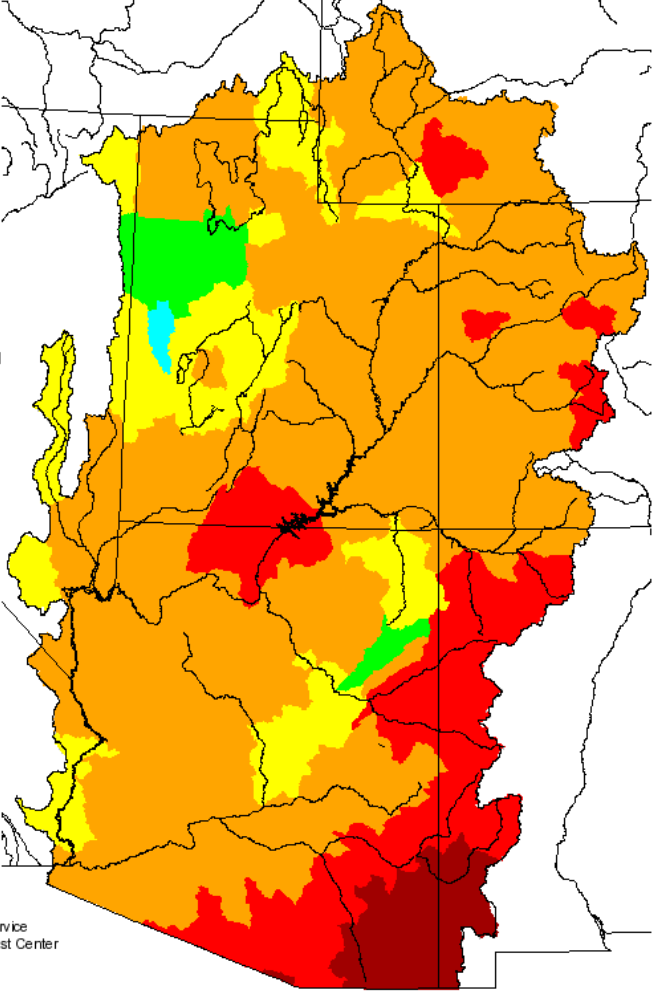
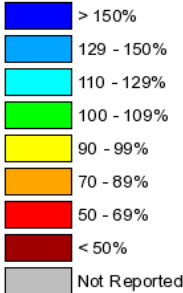
Monthly Precipitation for March 2013
(Averaged by Hydrologic Unit)



Seasonal Precipitation, October 2012 - February 2013

(Averaged by Hydrologic Unit)

% Average

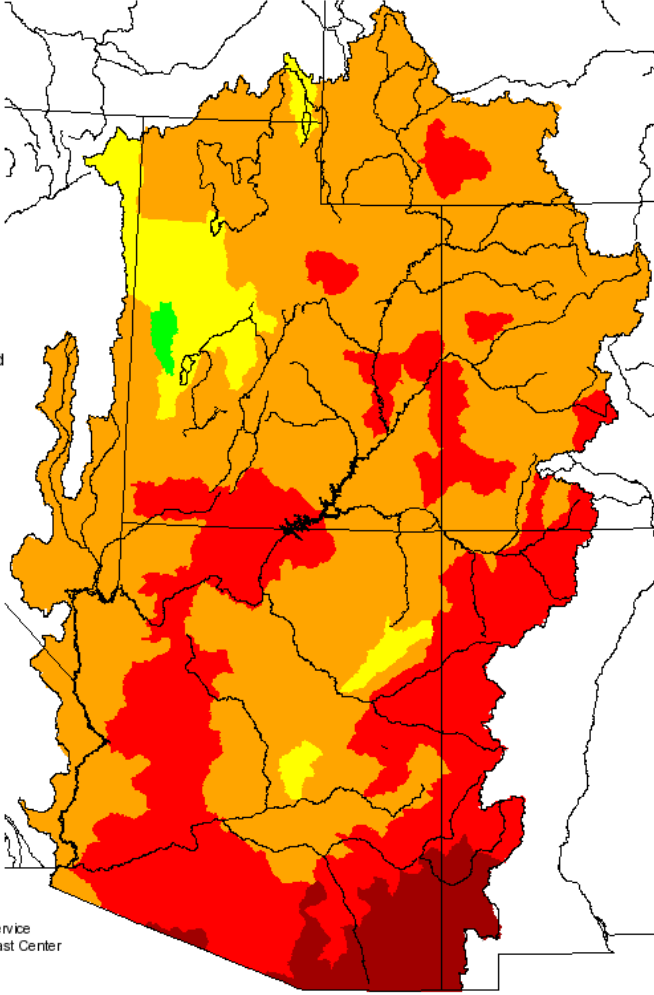
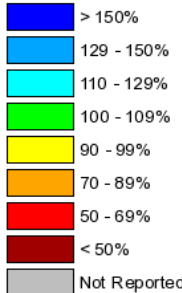


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Salt Lake City, Utah
www.cbrfc.noaa.gov

Seasonal Precipitation, October 2012 - March 2013

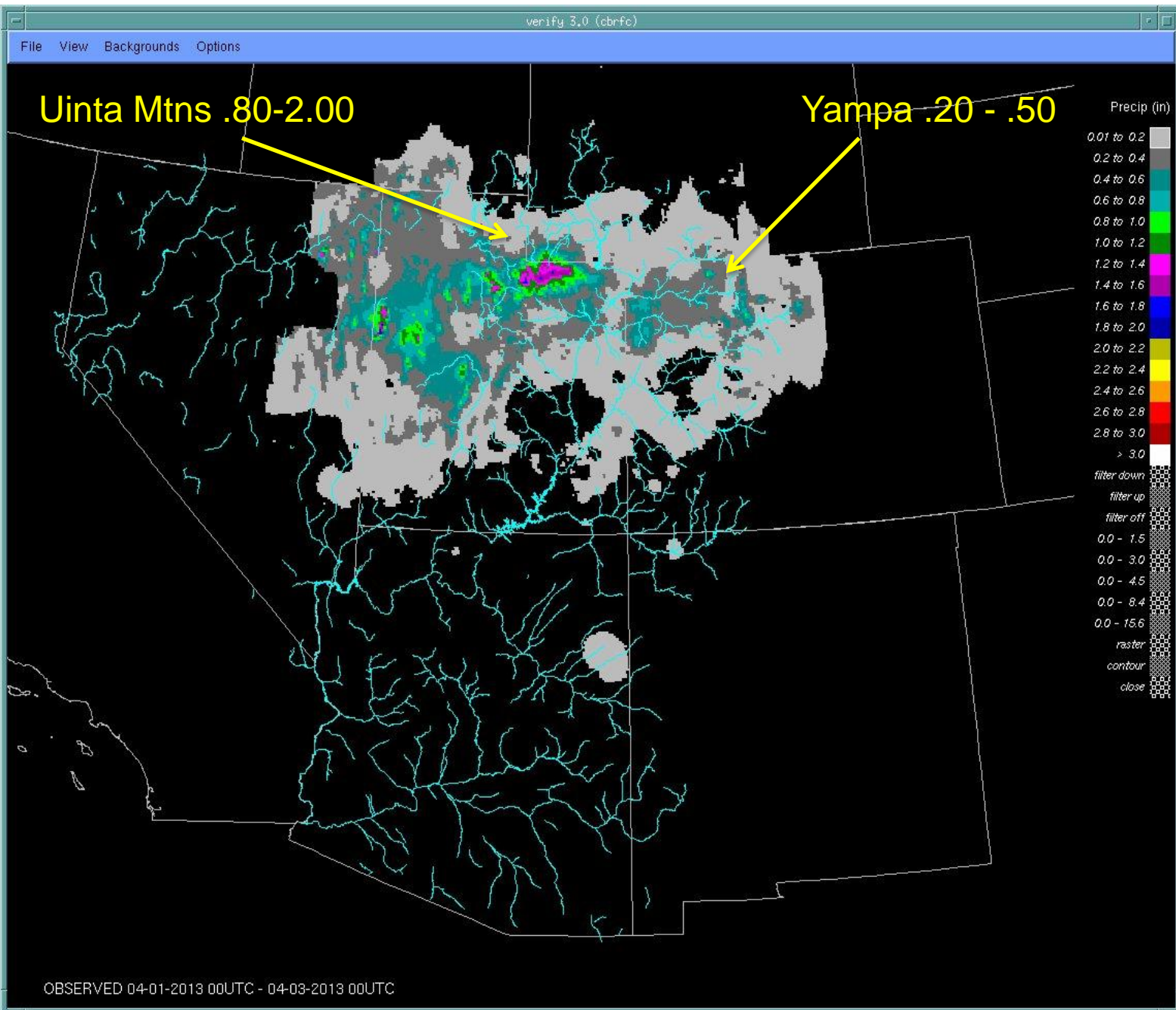
(Averaged by Hydrologic Unit)

% Average



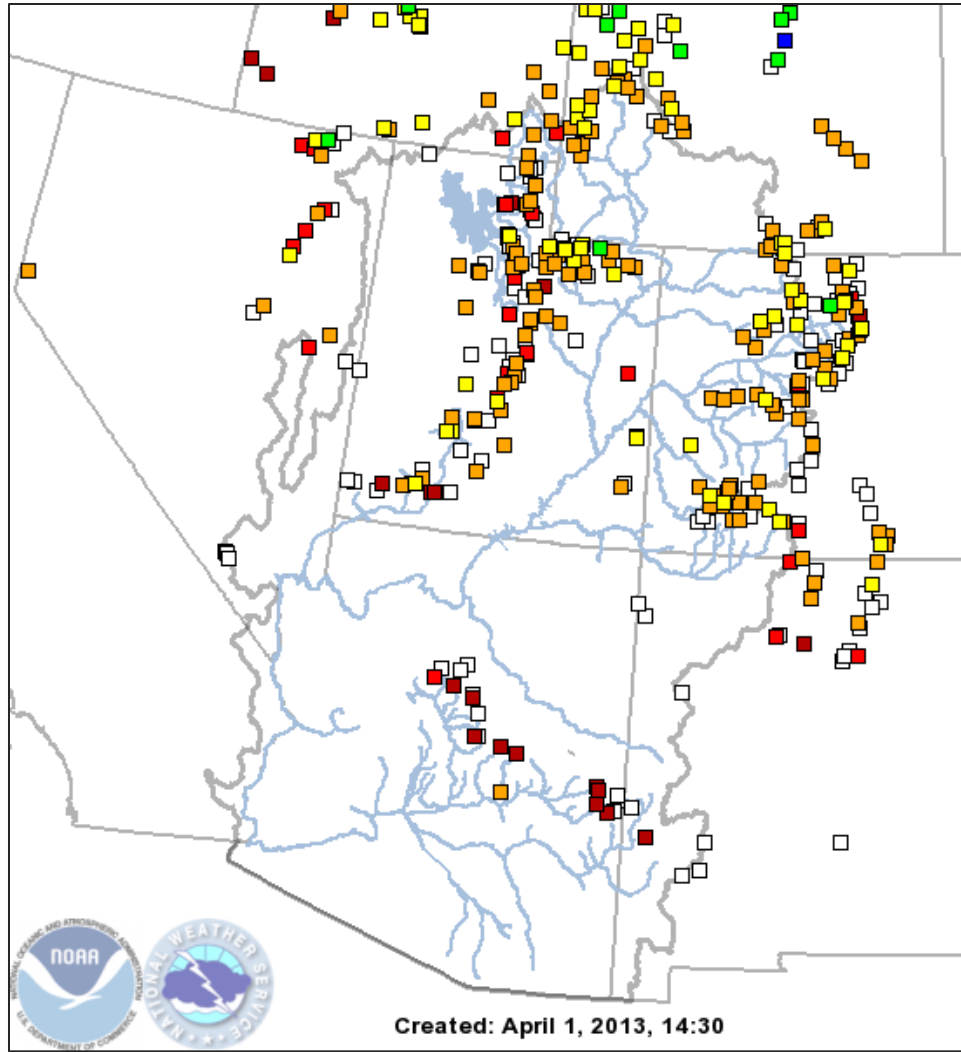
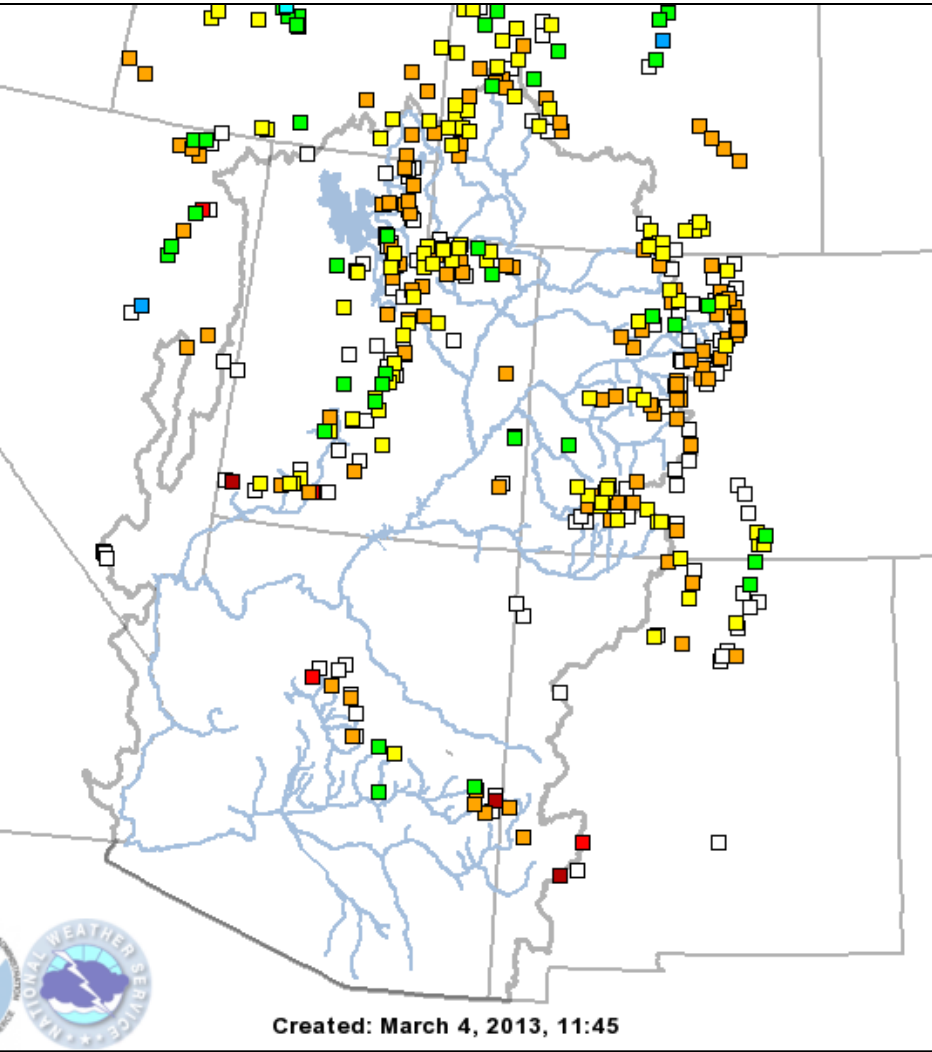
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Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

April 1-3 Precipitation in the CBRFC area



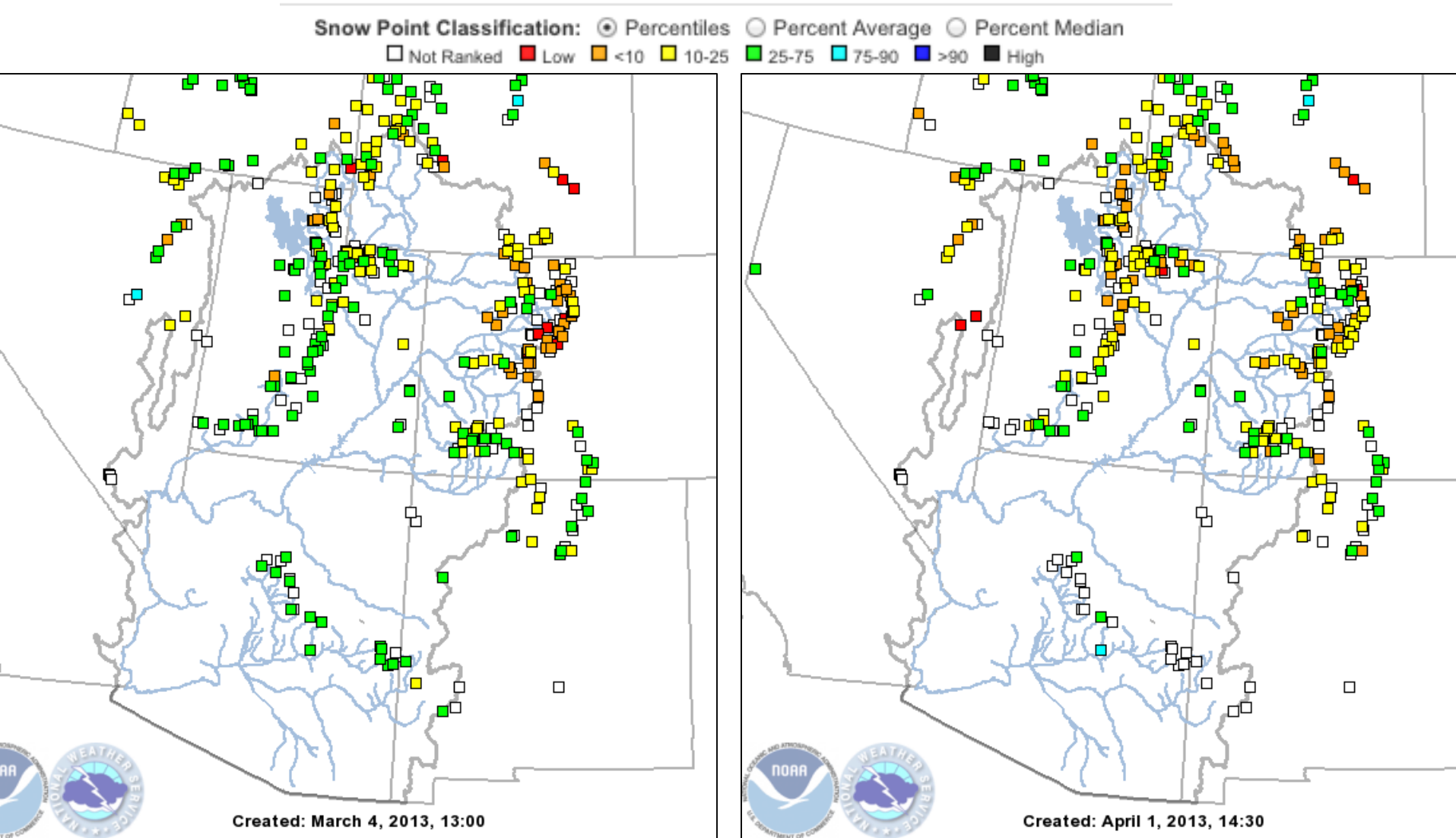
Snow: Fell further behind average due to dry March

Snow Point Classification: ○ Percentiles ⊙ Percent Average ○ Percent Median
□ NA ■ < 25% ■ 25-50% ■ 50-75% ■ 75-90% ■ 90-110% ■ 110-125% ■ 125-150% ■ 150-175% ■ >175%



SNOTEL Ranking:

A little improvement Upper Colorado River headwaters
Many sites ranking in 2nd/3rd/4th (orange) driest in 30+ years of record



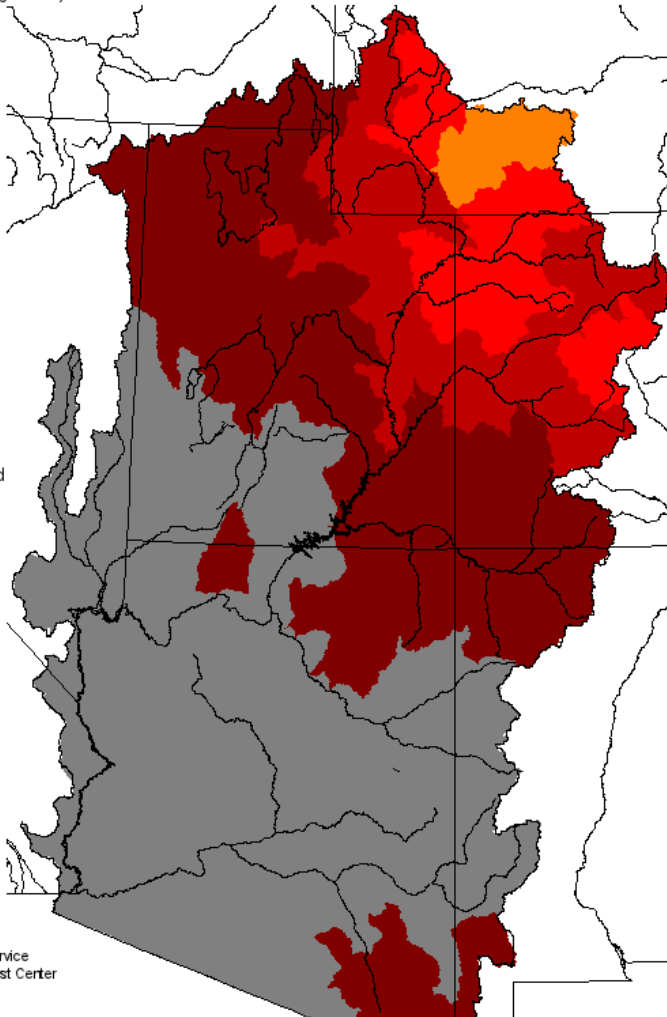
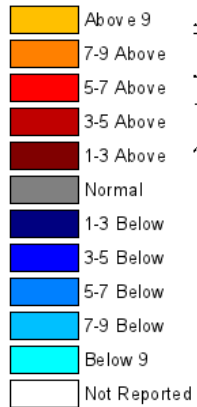
Temperatures:

Significant difference between March 2012 and March 2013

Monthly Max Temp Deviation for March 2012

(Averaged by Hydrologic Unit)

Degrees (F)

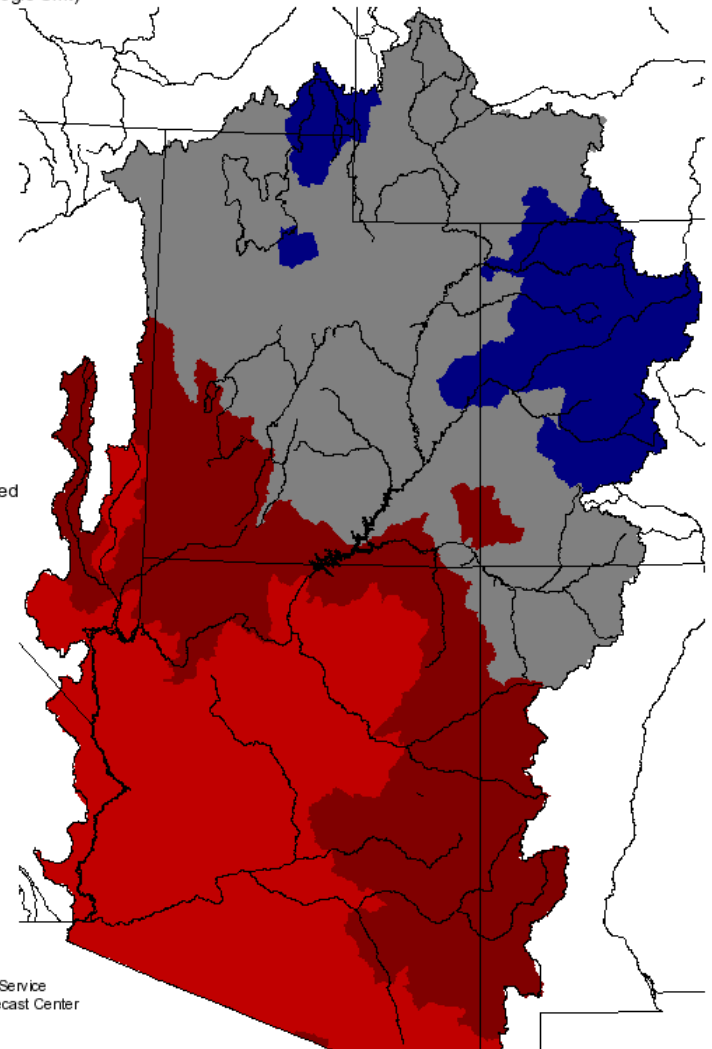
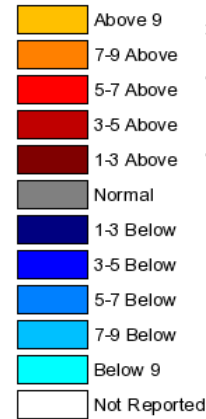


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Monthly Max Temp Deviation for March 2013

(Averaged by Hydrologic Unit)

Degrees (F)

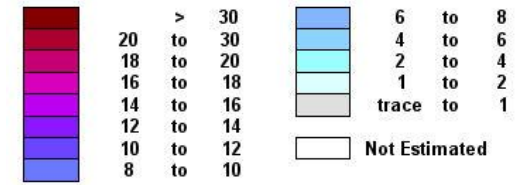


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Snow: Western Colorado

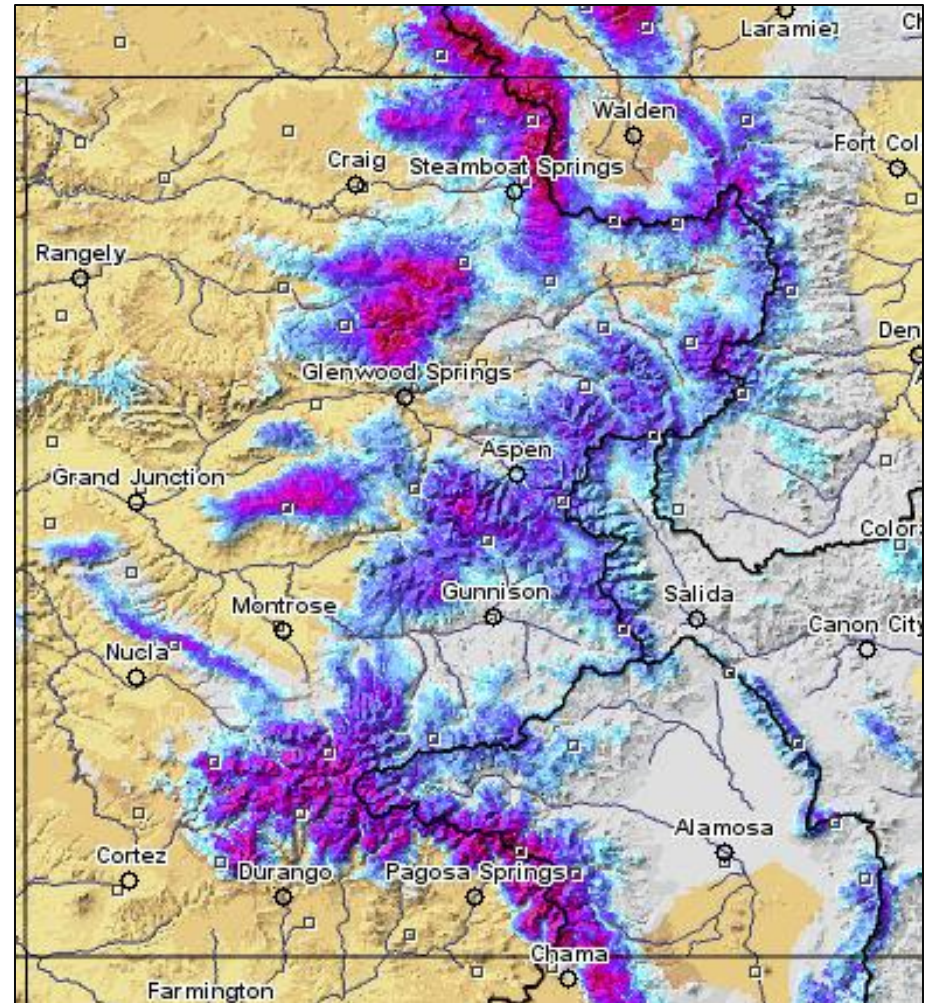
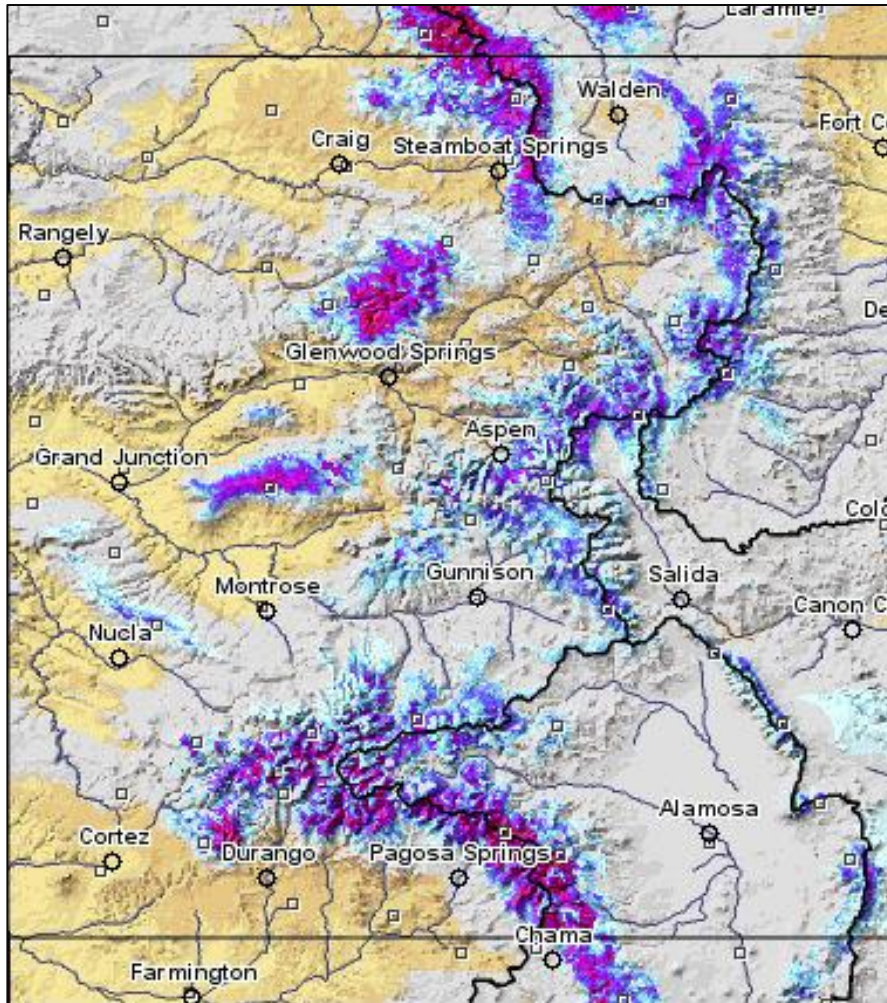
Retained the snowpack longer compared to 2012

Inches of water equivalent



April 3 2012

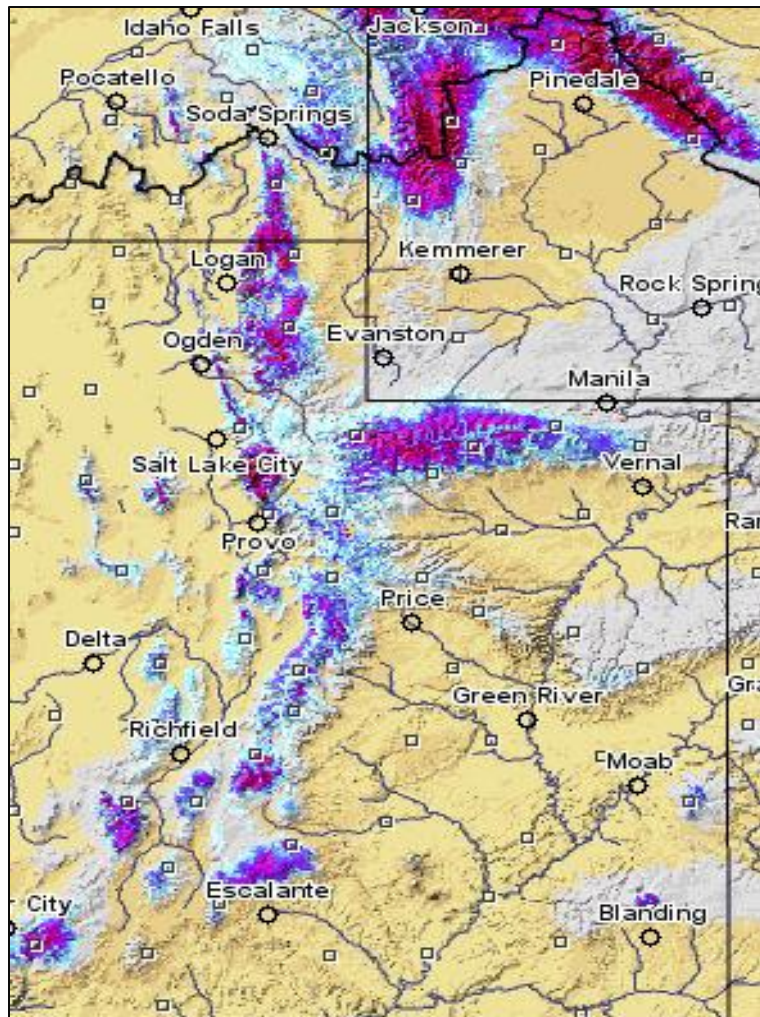
April 3 2013



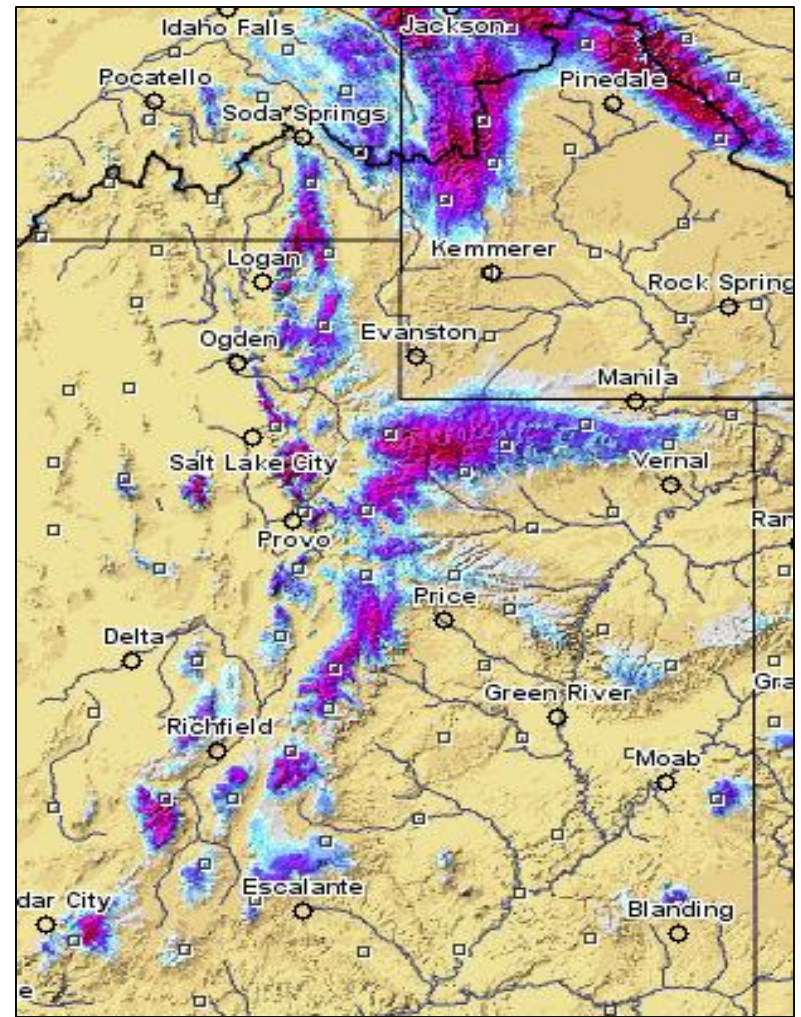
Snow: Upper Green, Great, Virgin Basins

Retained the snowpack longer compared to 2012 – not necessarily in better shape.

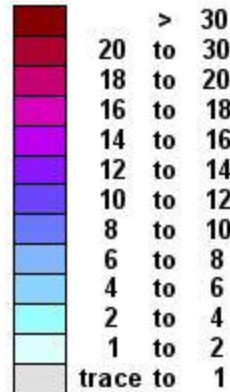
April 3 2012



April 3 2013



Inches of water equivalent

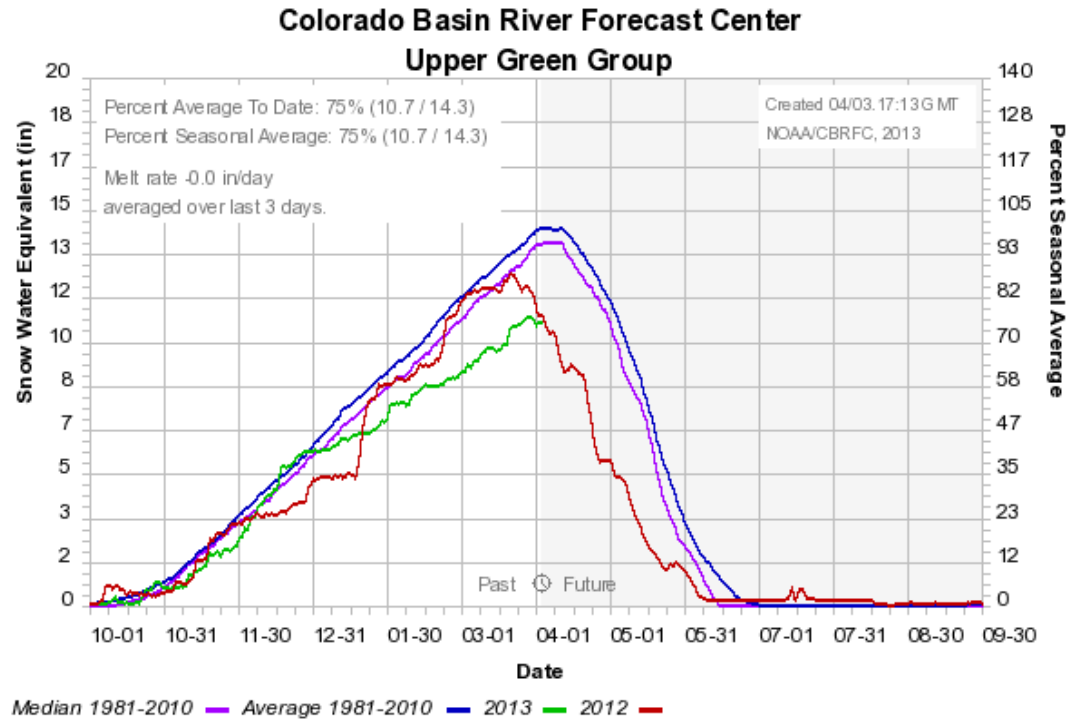
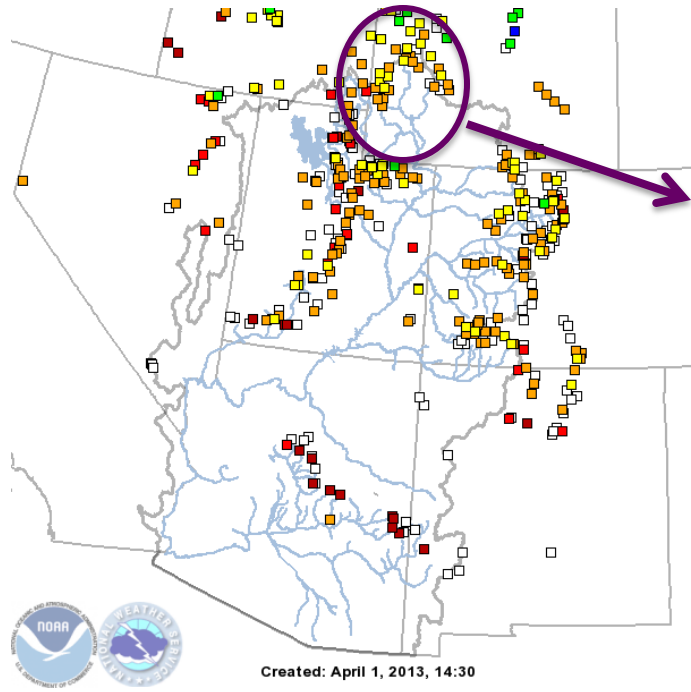


Not Estimated

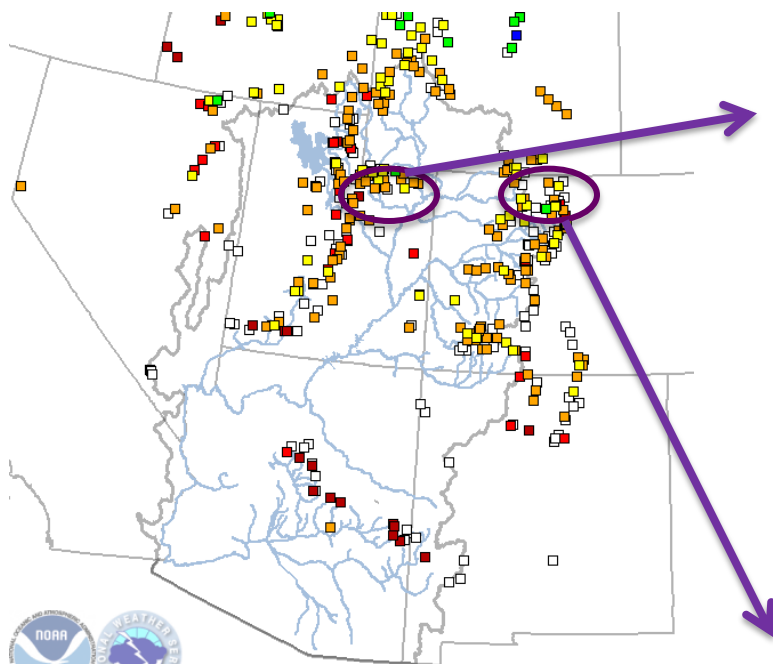
Elevation in feet



Snow: Upper Green Basin (above Flaming Gorge)



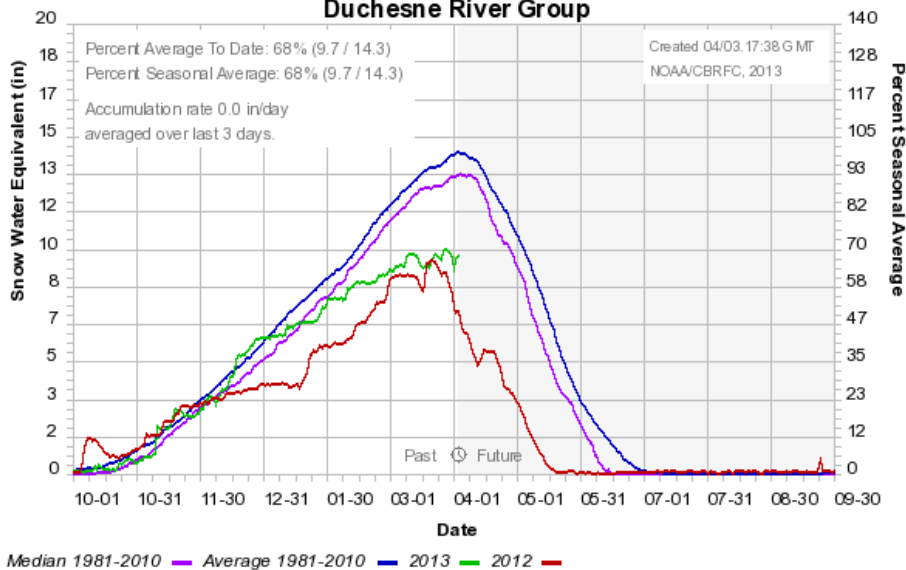
Snow: Duchesne River Basin



Created: April 1, 2013, 14:30

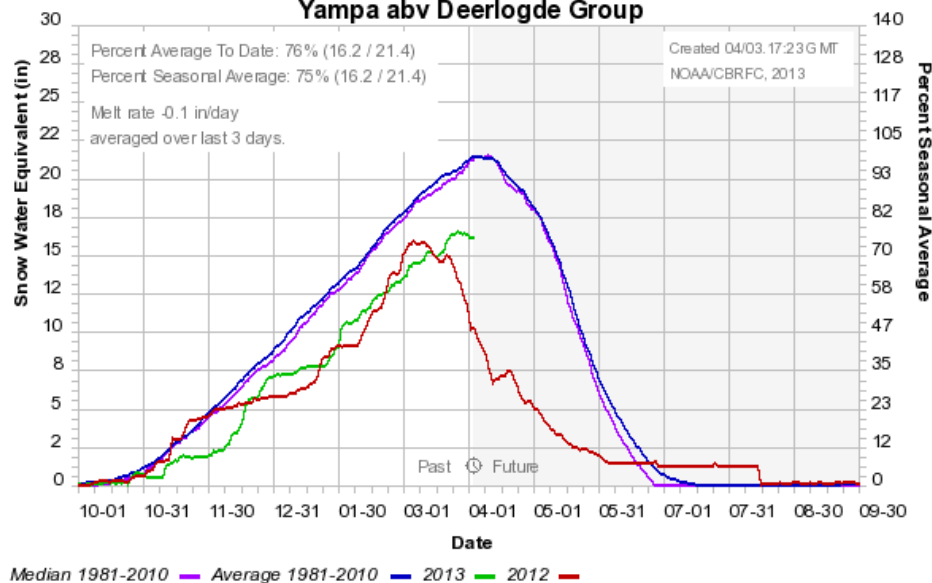
Colorado Basin River Forecast Center

Duchesne River Group



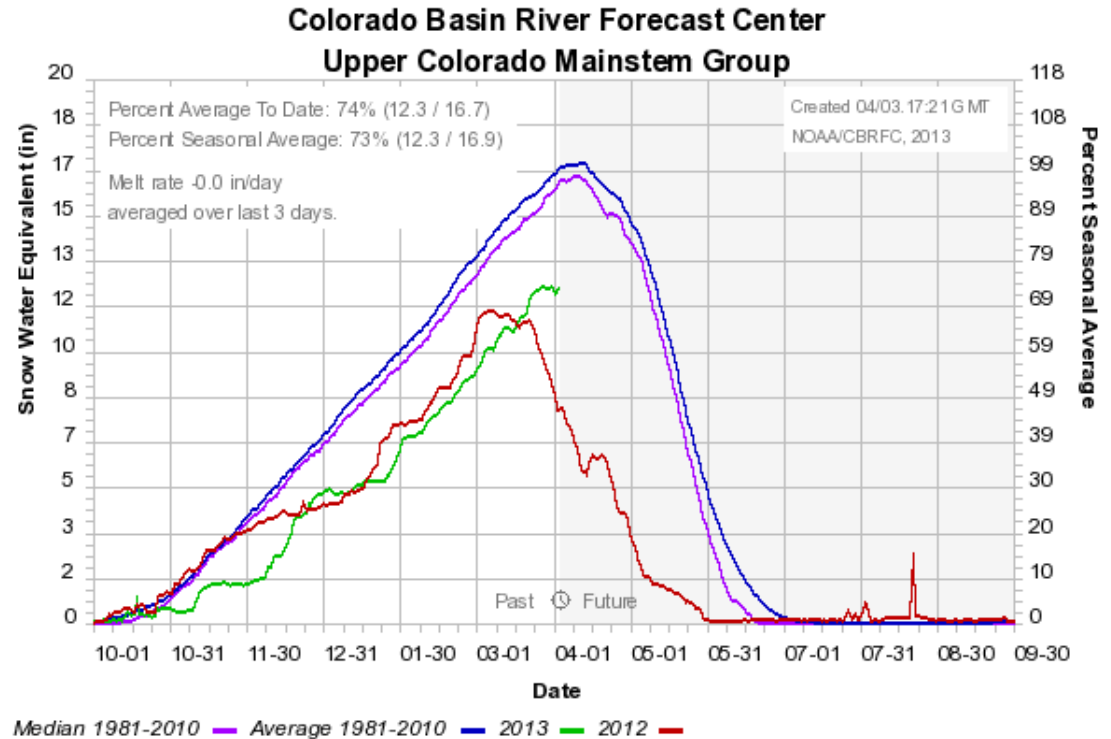
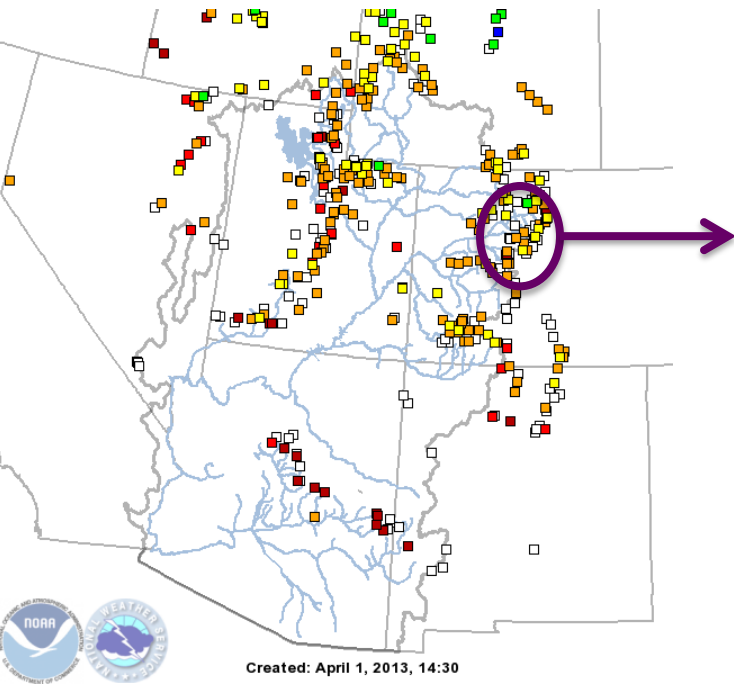
Colorado Basin River Forecast Center

Yampa abv Deerlogde Group

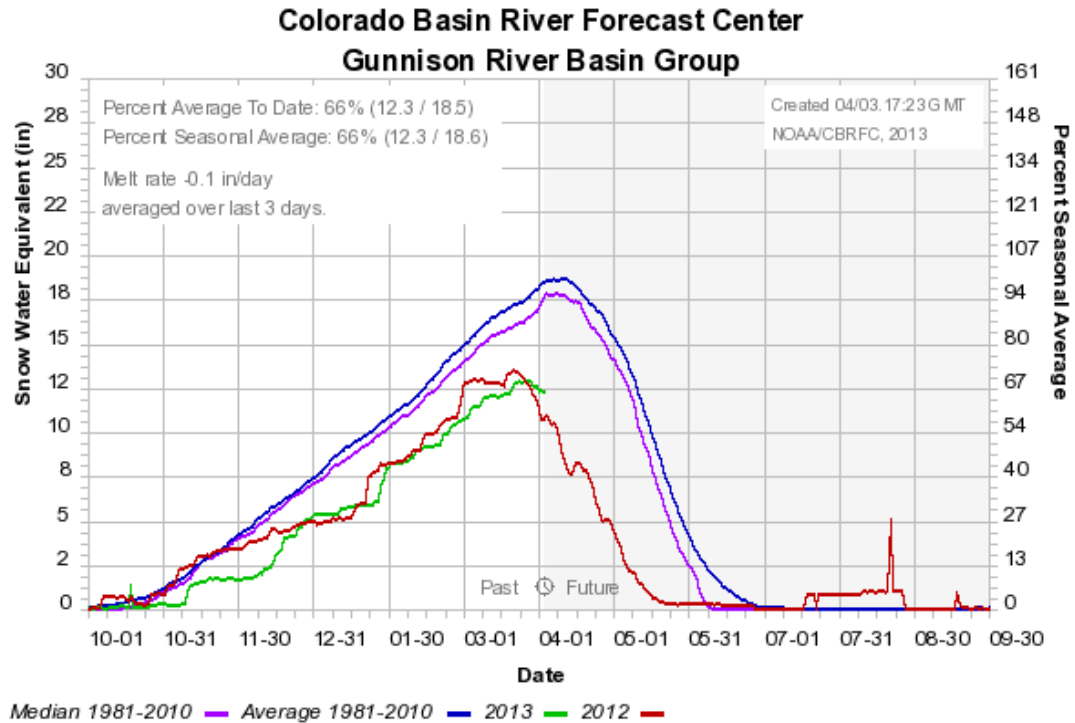
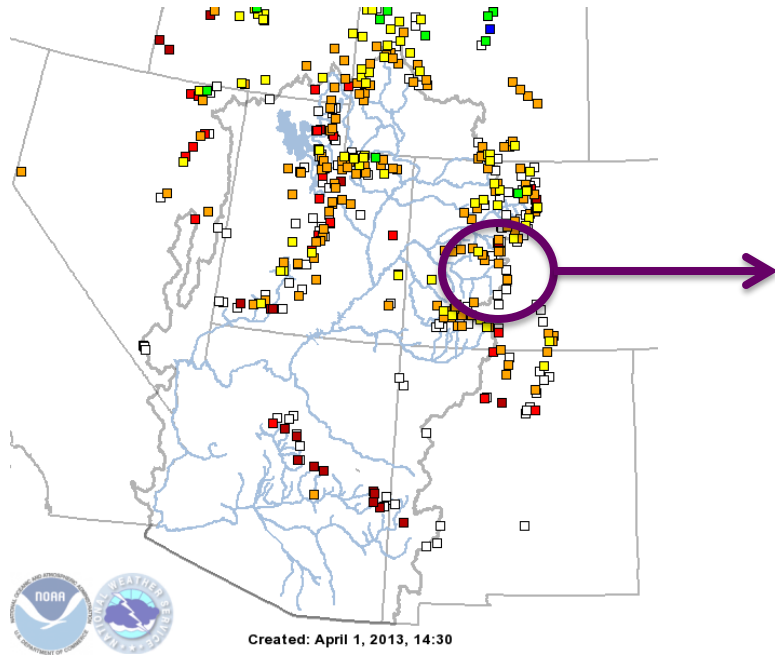


Snow: Yampa River Basin

Snow: Colorado River Mainstem (above Cameo)

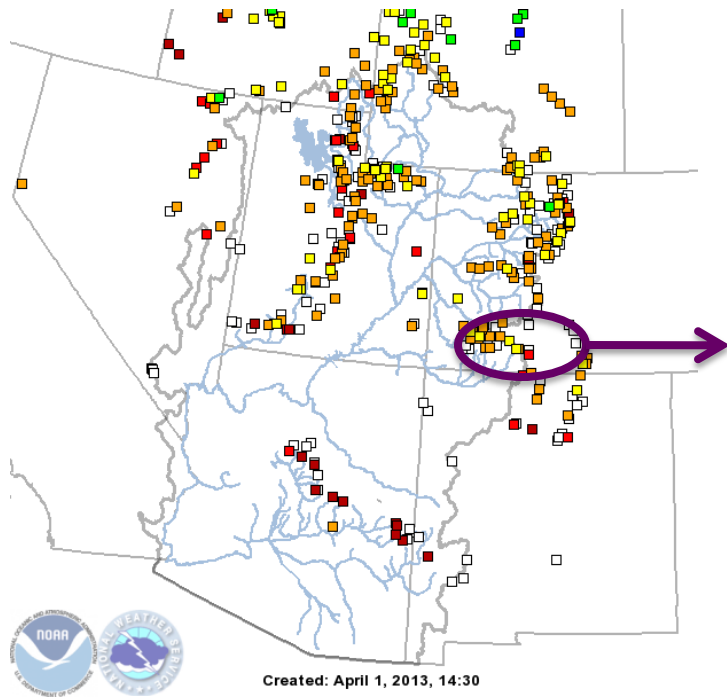


Snow: Gunnison River Basin

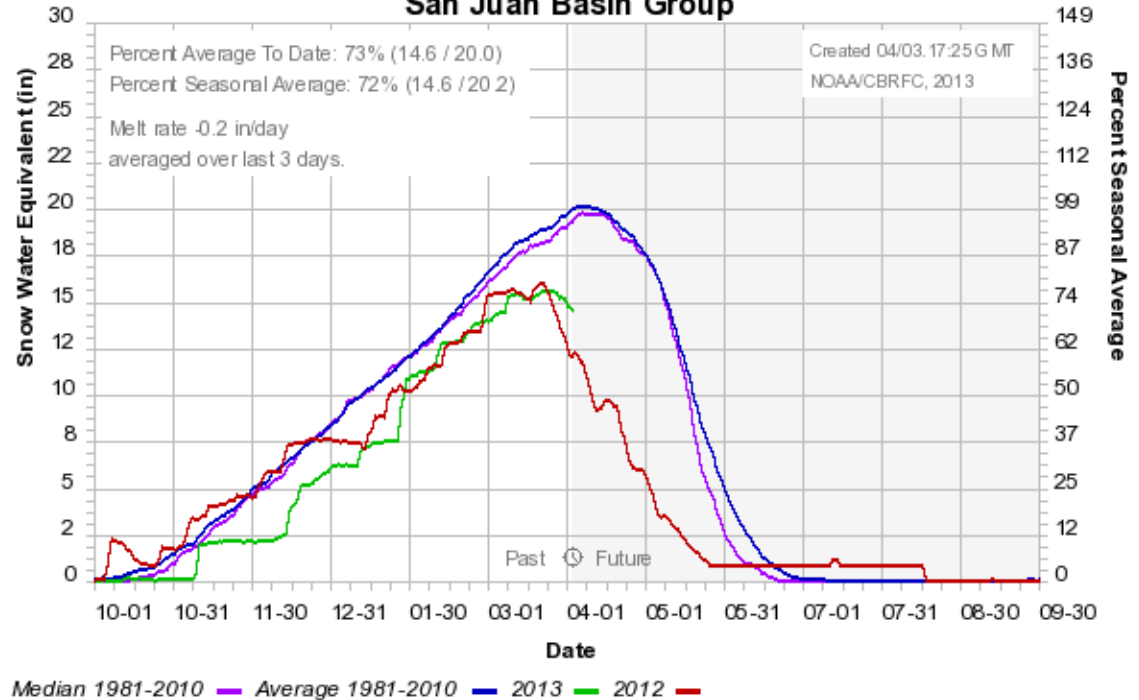


Web Reference: <http://www.cbrfc.noaa.gov/station/sweplot/snowgroup.php>

Snow: San Juan River Basin

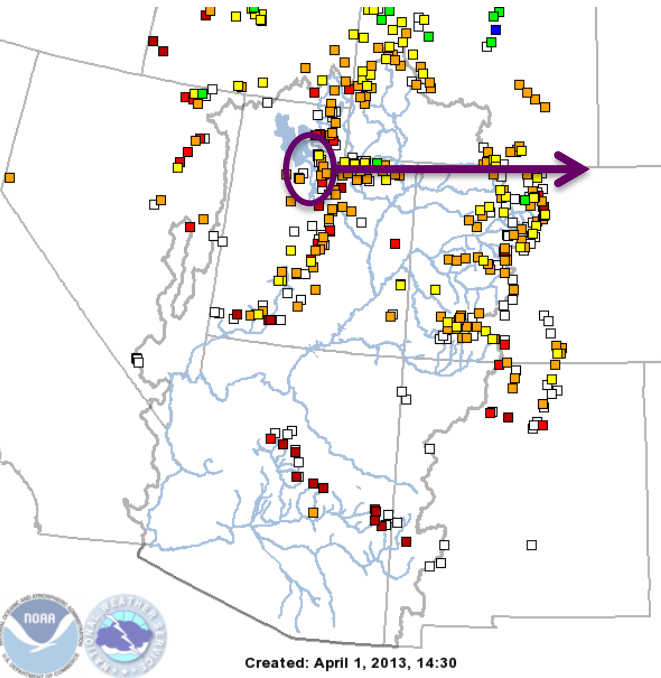
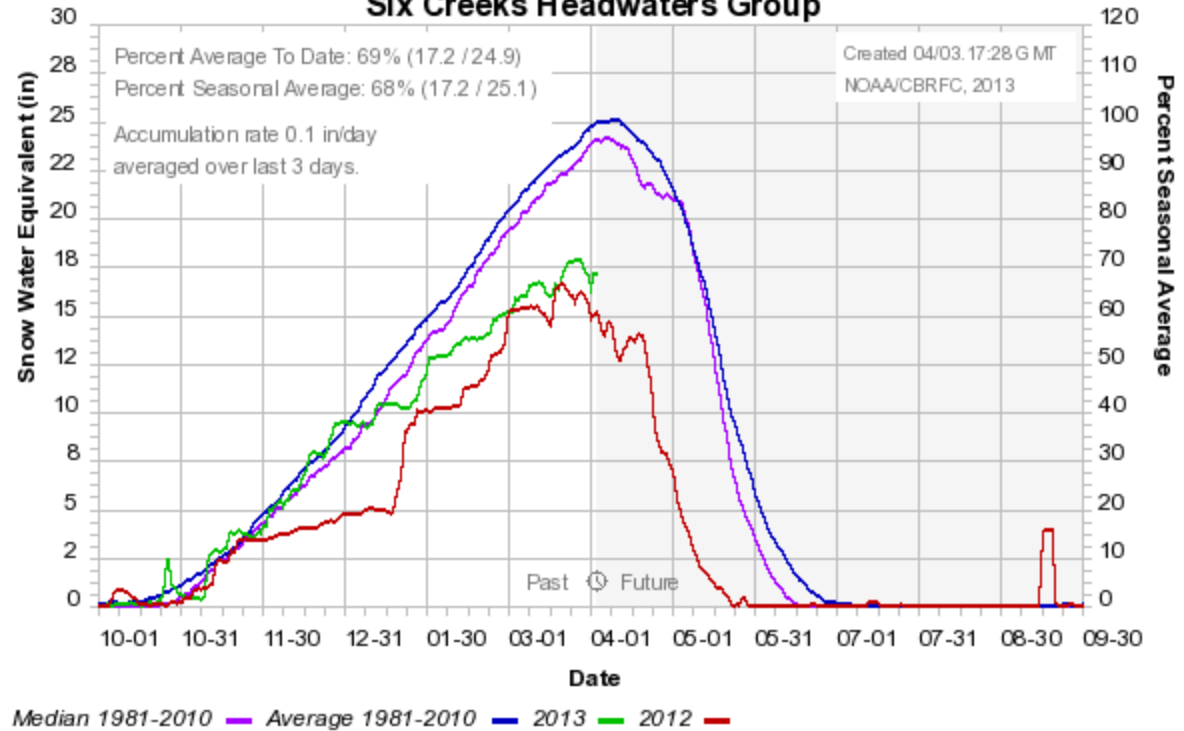


Colorado Basin River Forecast Center
San Juan Basin Group

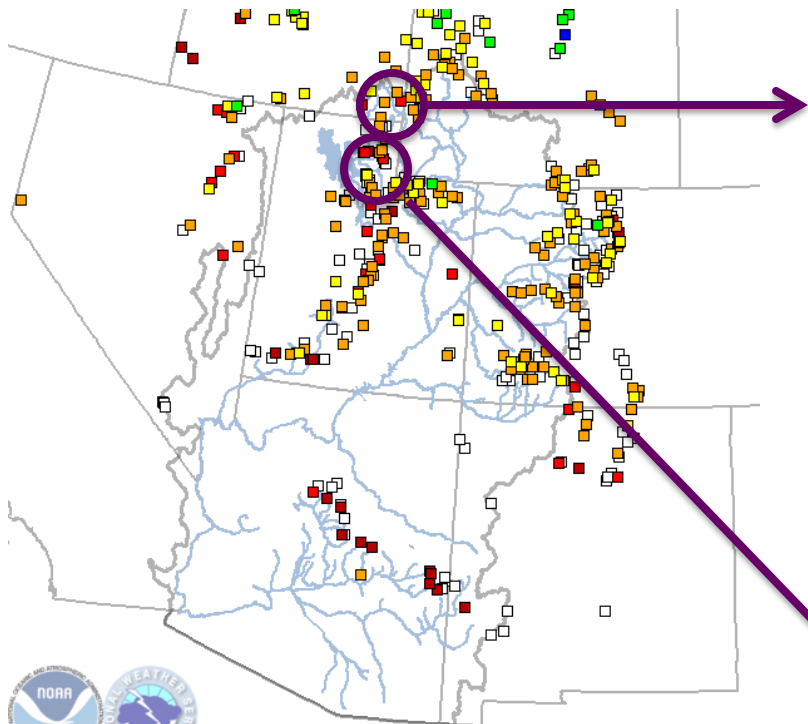


Snow: Six Creeks Basins (Salt Lake County)

Colorado Basin River Forecast Center Six Creeks Headwaters Group

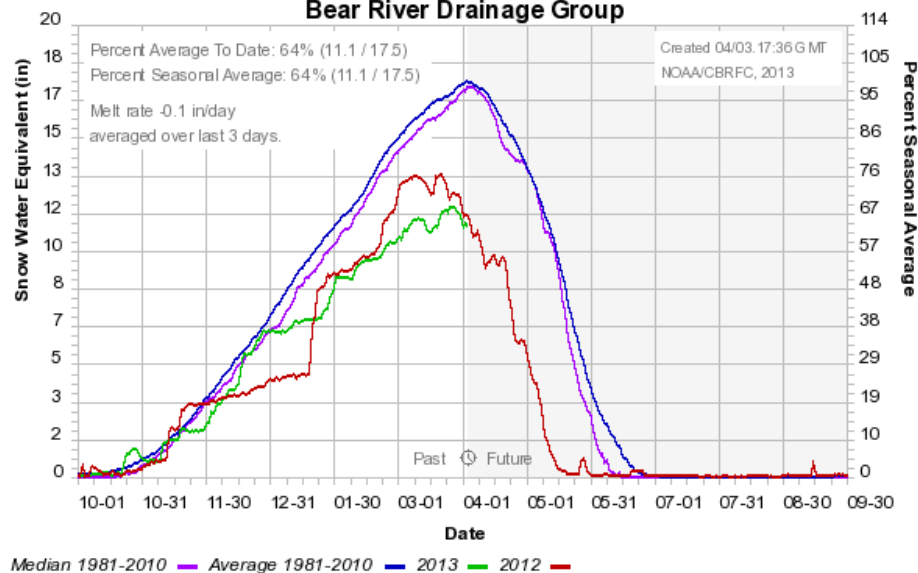


Snow: Bear River Basin

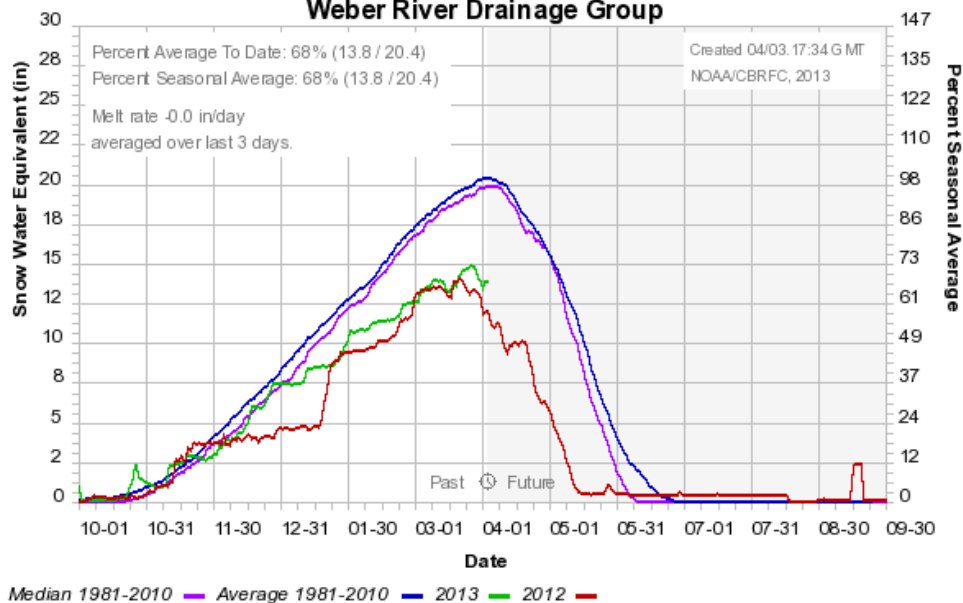


Created: April 1, 2013, 14:30

Colorado Basin River Forecast Center Bear River Drainage Group



Colorado Basin River Forecast Center Weber River Drainage Group

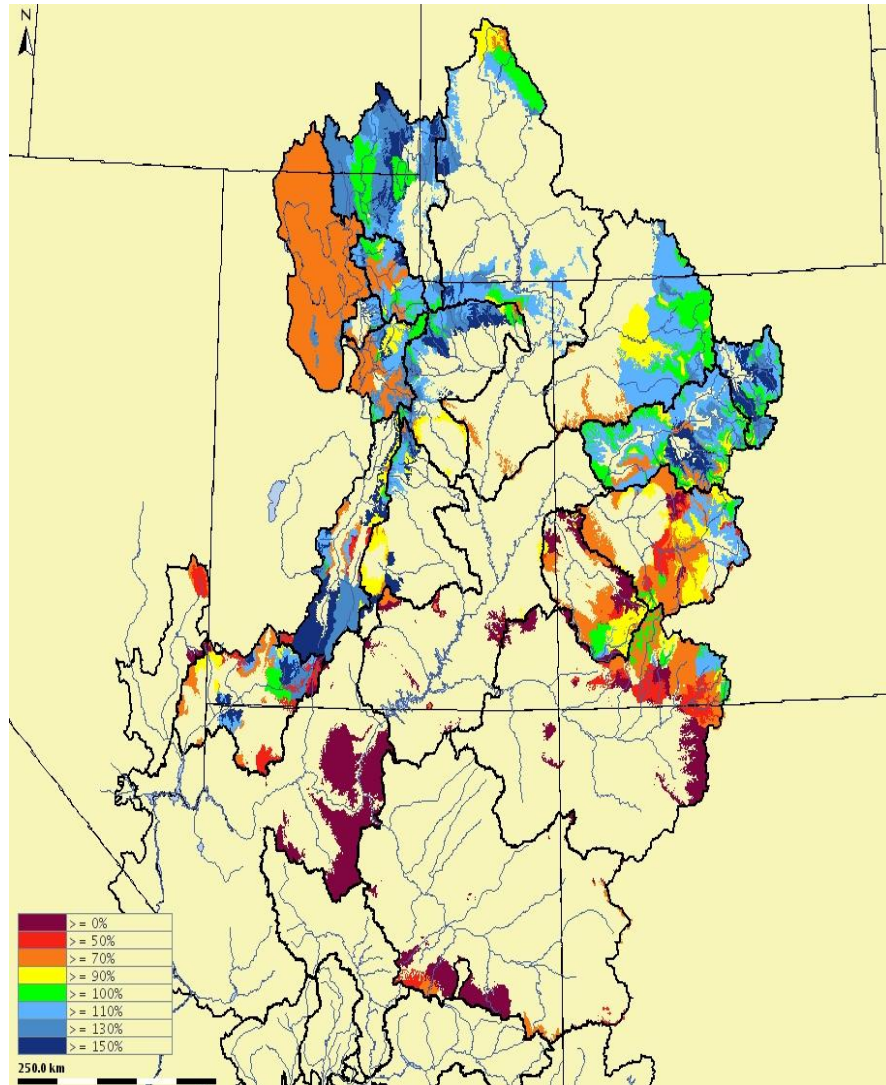


Snow: Weber River Basin

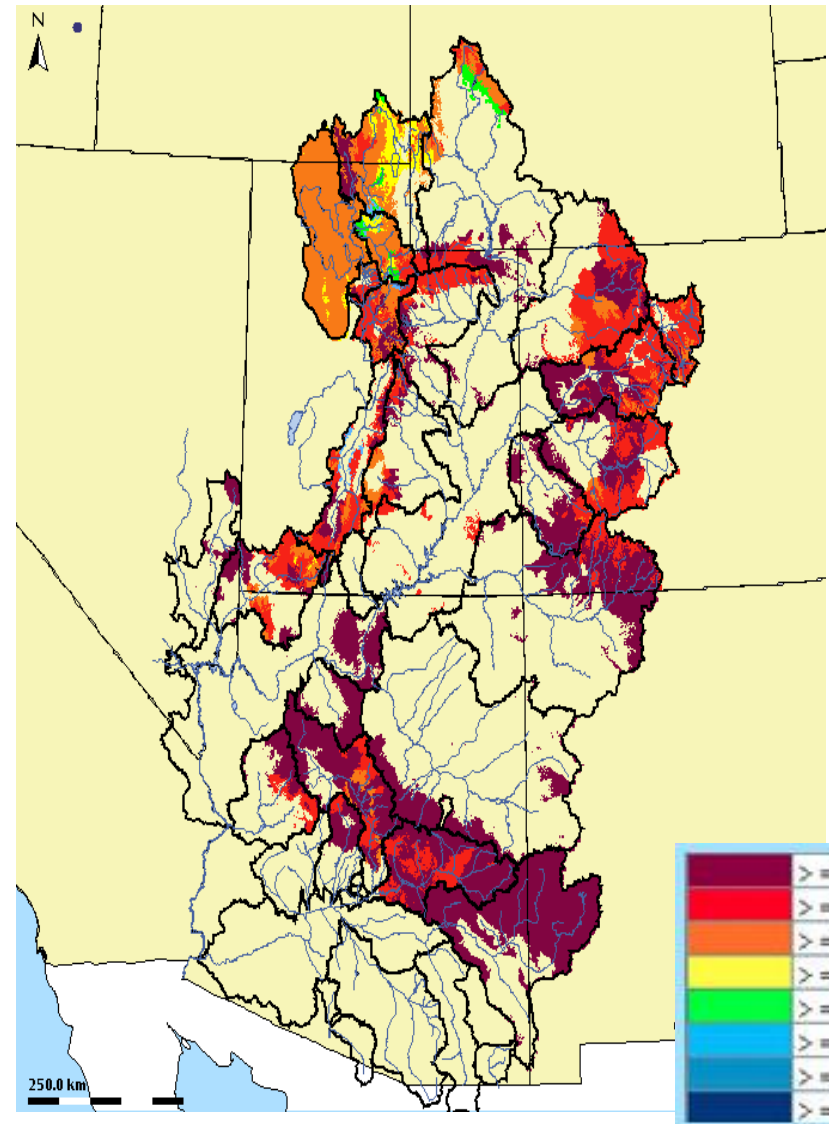


Modeled Soil Moisture

December 2011



December 2012

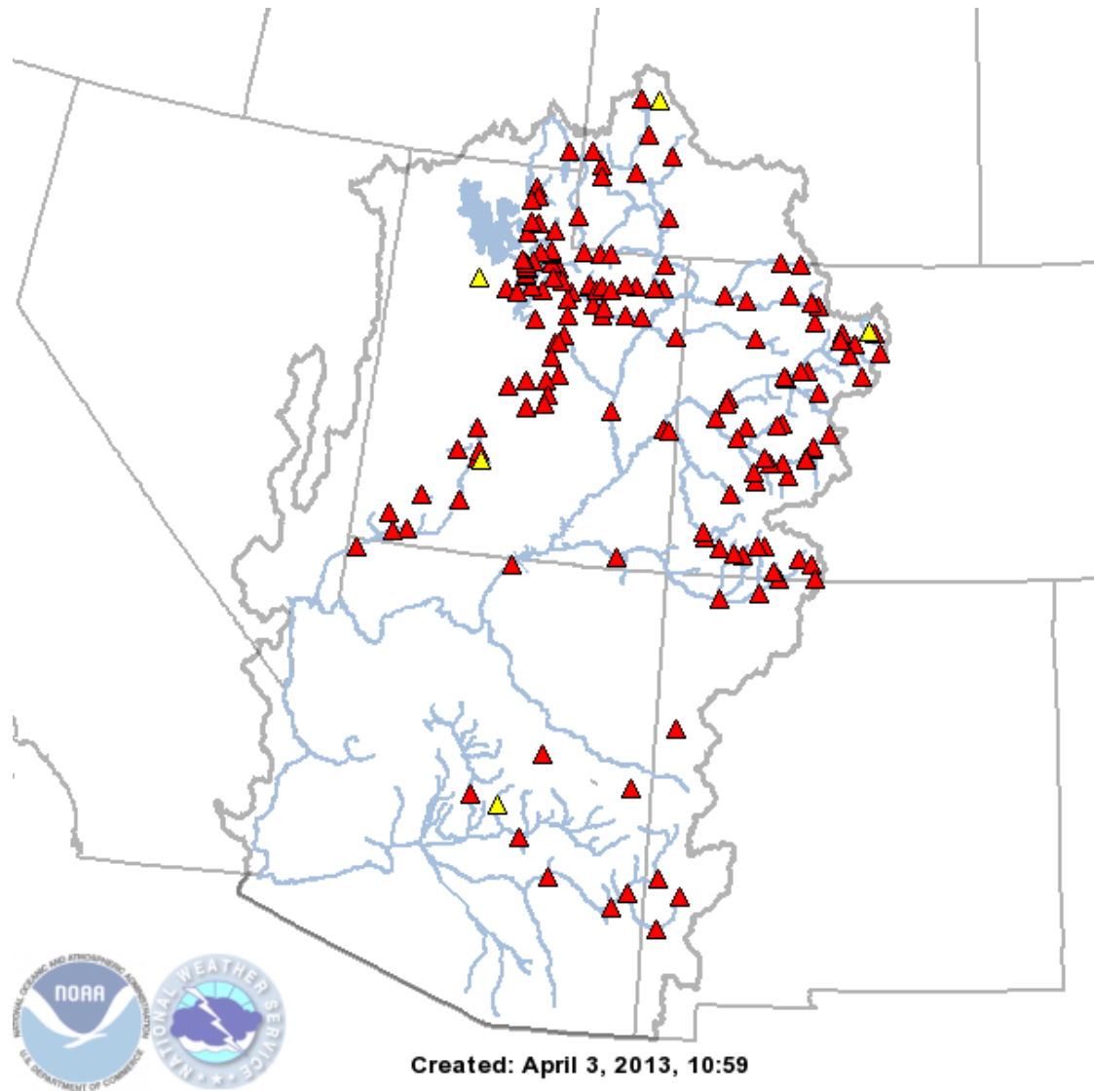


April , 2013

Water Supply Forecasts

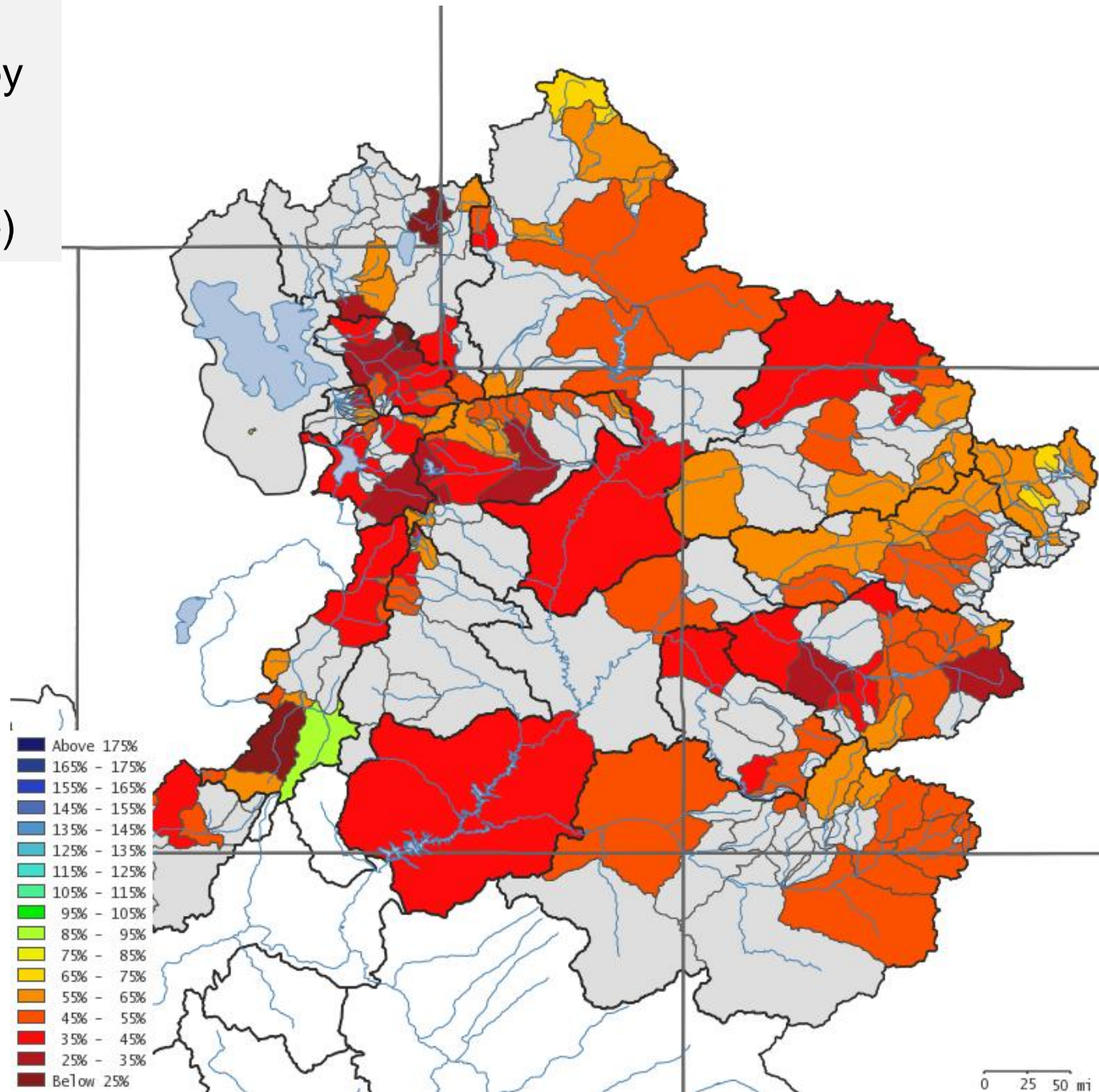
Highlights:

- Much below average/median forecasts everywhere
- Major factors:
 - Dry antecedent soil moisture conditions
 - Dry fall (Oct – Nov)
 - **Dry Feb-Mar**
 - Much Below average snow is widespread
- **Decrease in forecasts since March 1st**



April 1st April-July Volume Forecasts by River Basin

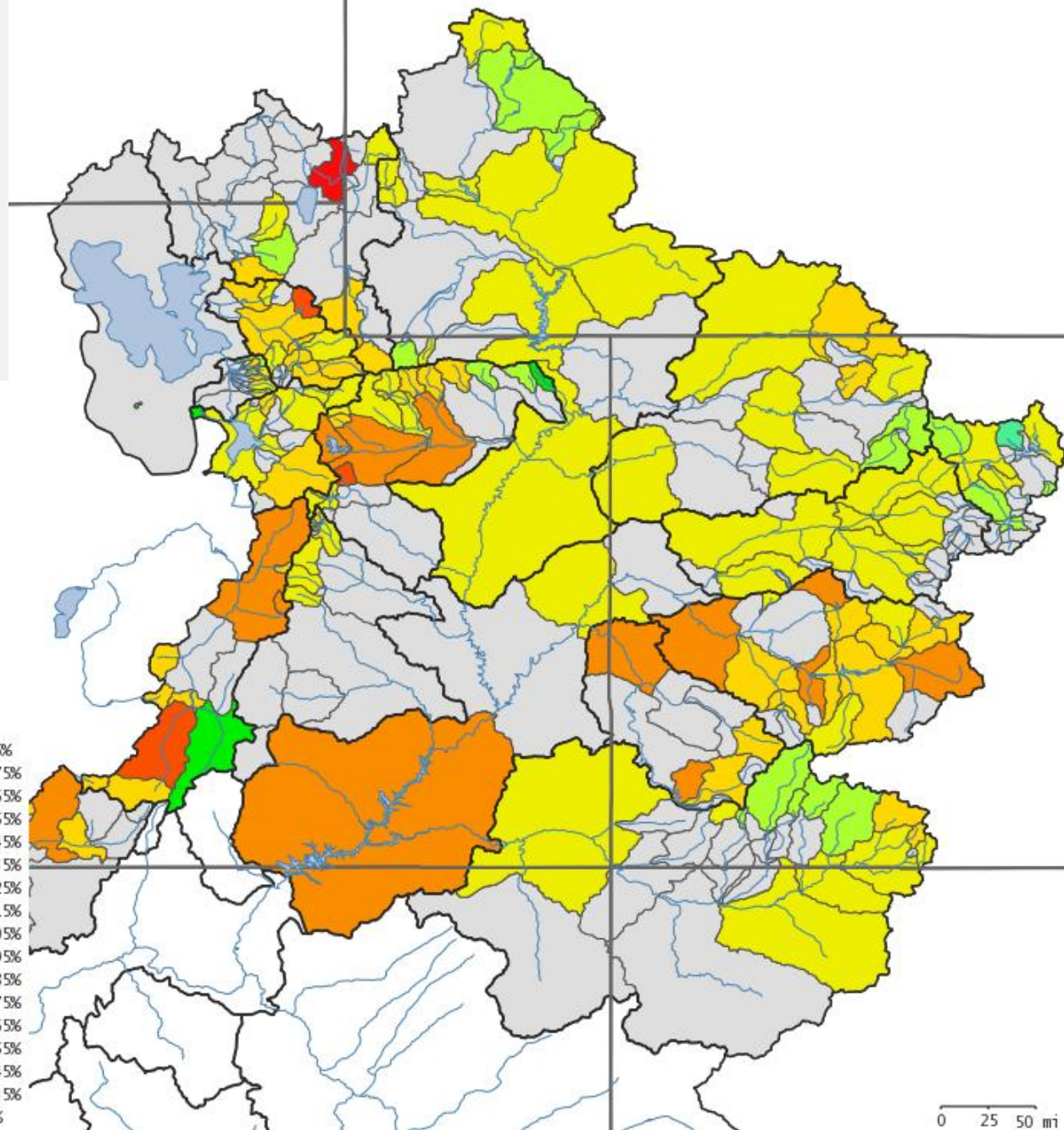
(percent of average)



March 1st April-July Volume Forecasts

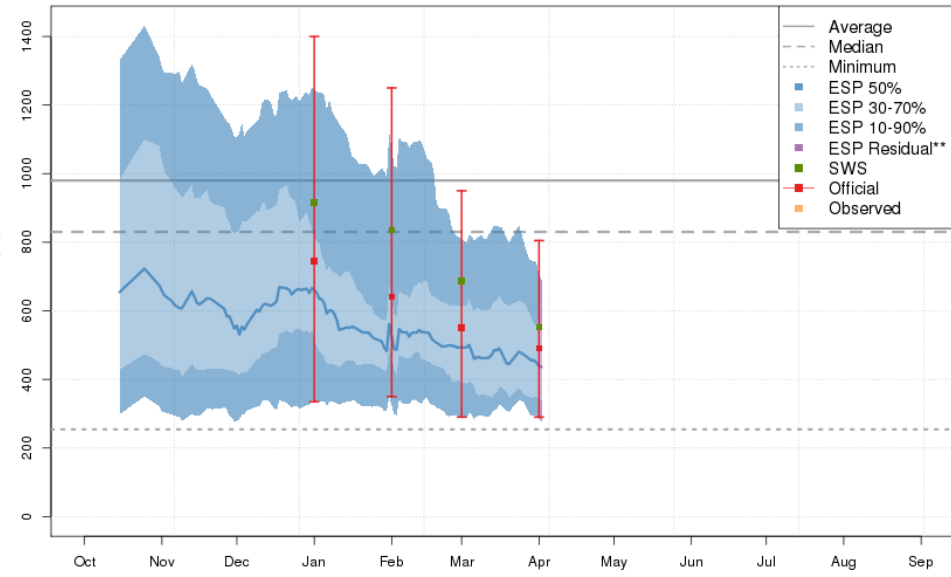
10% Exceedance
Probability

(volumes as a percent of
average)



Forecast Trend: Upper Green Basin

2013 Runoff Forecast
Green - Flaming Gorge Res- Flaming Gorge Dam- At (GRNU1)



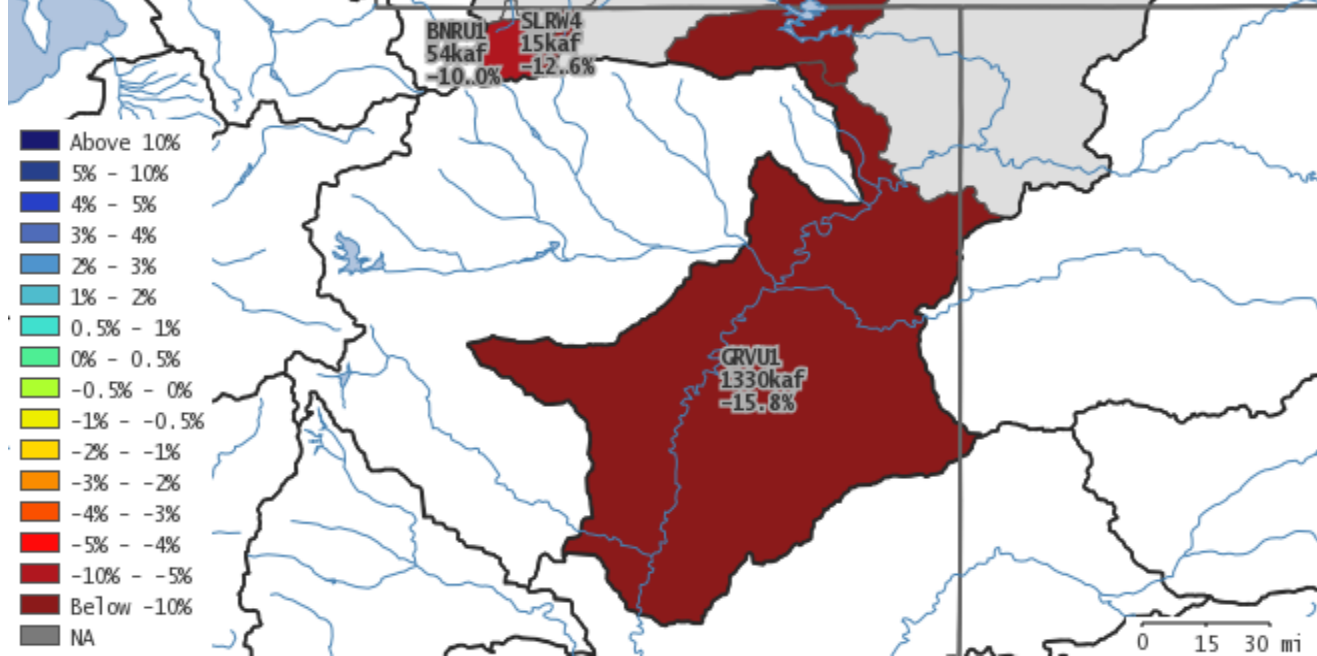
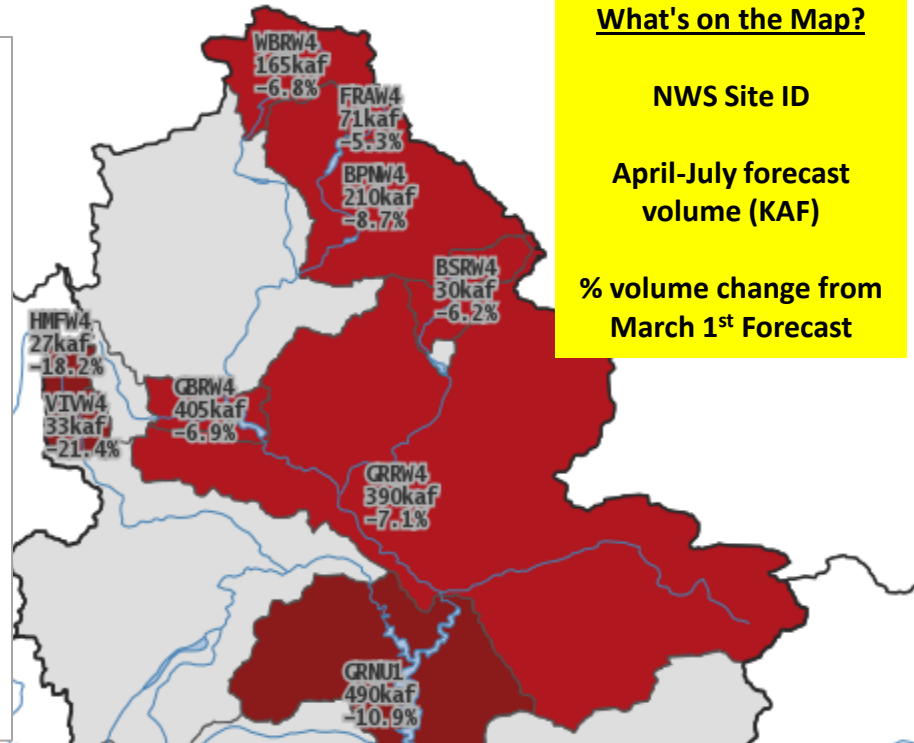
Plot Created 2013-04-02 14:10:22, Latest ESP Run from 2013-04-01, CBRFC / NWS / NOAA
Maximum of 2224.3 in 1986, Minimum of 254.3 in 1977, Average/Median for 1981-2010.

What's on the Map?

NWS Site ID

April-July forecast volume (KAF)

% volume change from March 1st Forecast



Flaming Gorge:

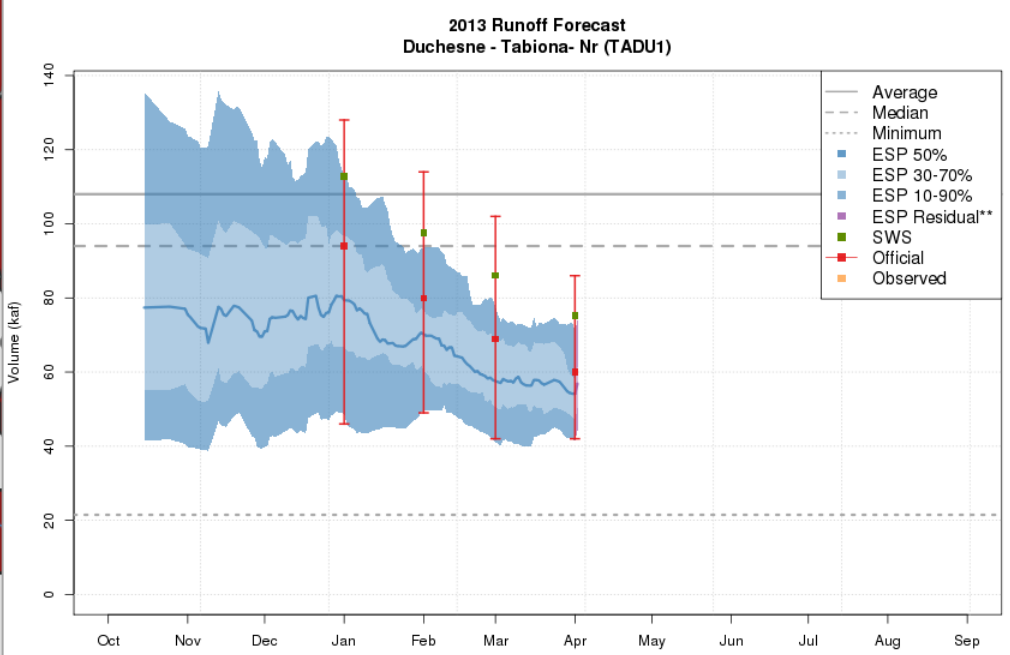
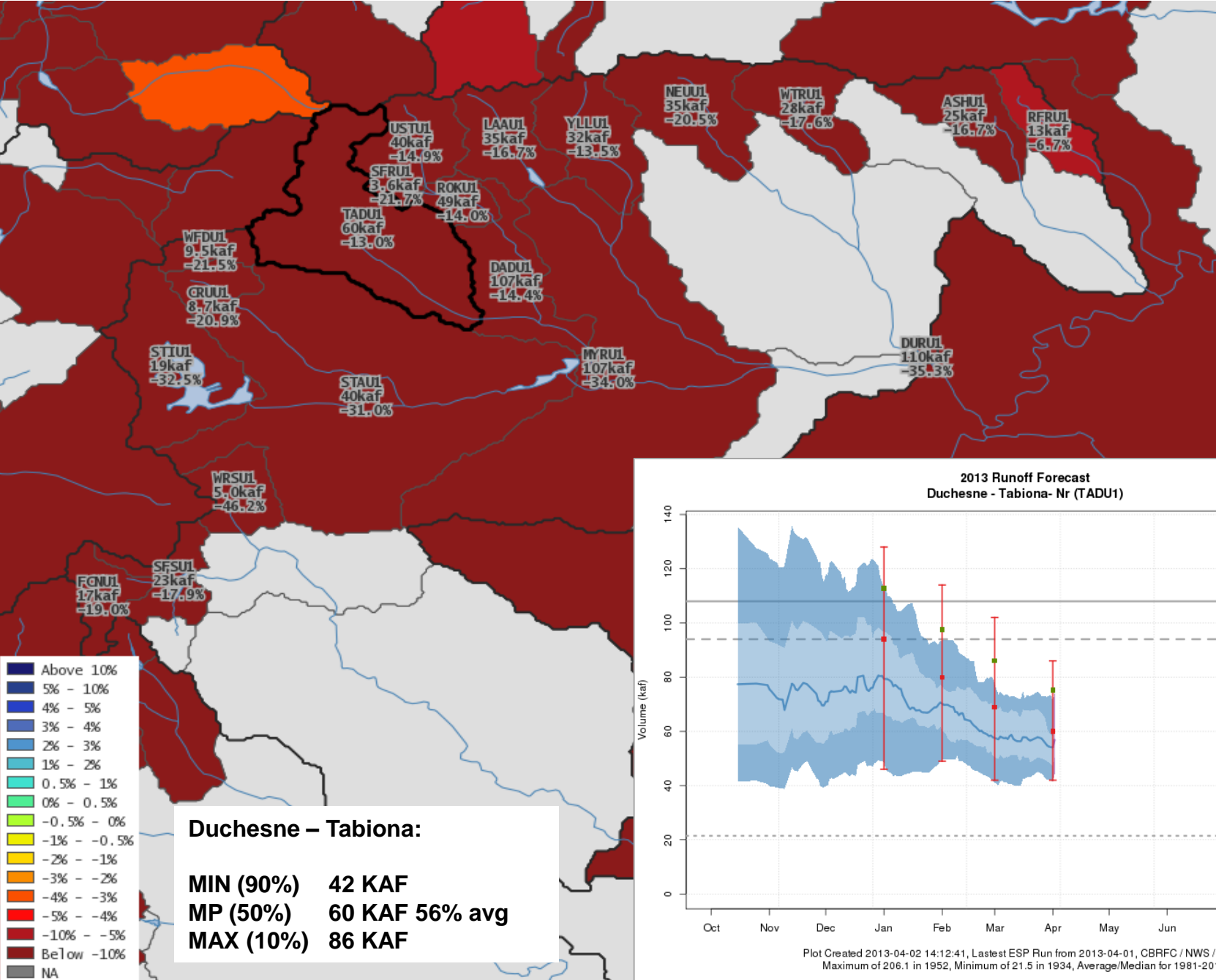
MIN (90%) 290 KAF
MP (50%) 490 KAF 50% avg
MAX (10%) 805 KAF

GRNU1 – Flaming Gorge

(Apr - Mar)/Mar * 100 = Vol Diff %

(490 - 550)/550 * 100 = -10.9%

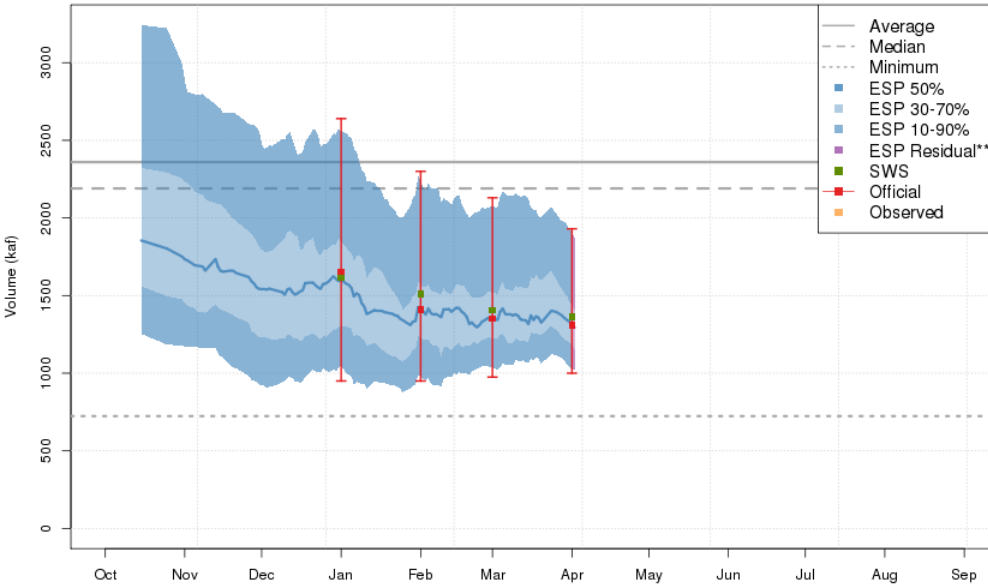
Forecast Trend: Duchesne Basin



Plot Created 2013-04-02 14:12:41, Lastest ESP Run from 2013-04-01, CBRFC / NWS / NOAA
Maximum of 206.1 in 1952, Minimum of 21.5 in 1934, Average/Median for 1981-2010.

Forecast Trend: Colorado Mainstem

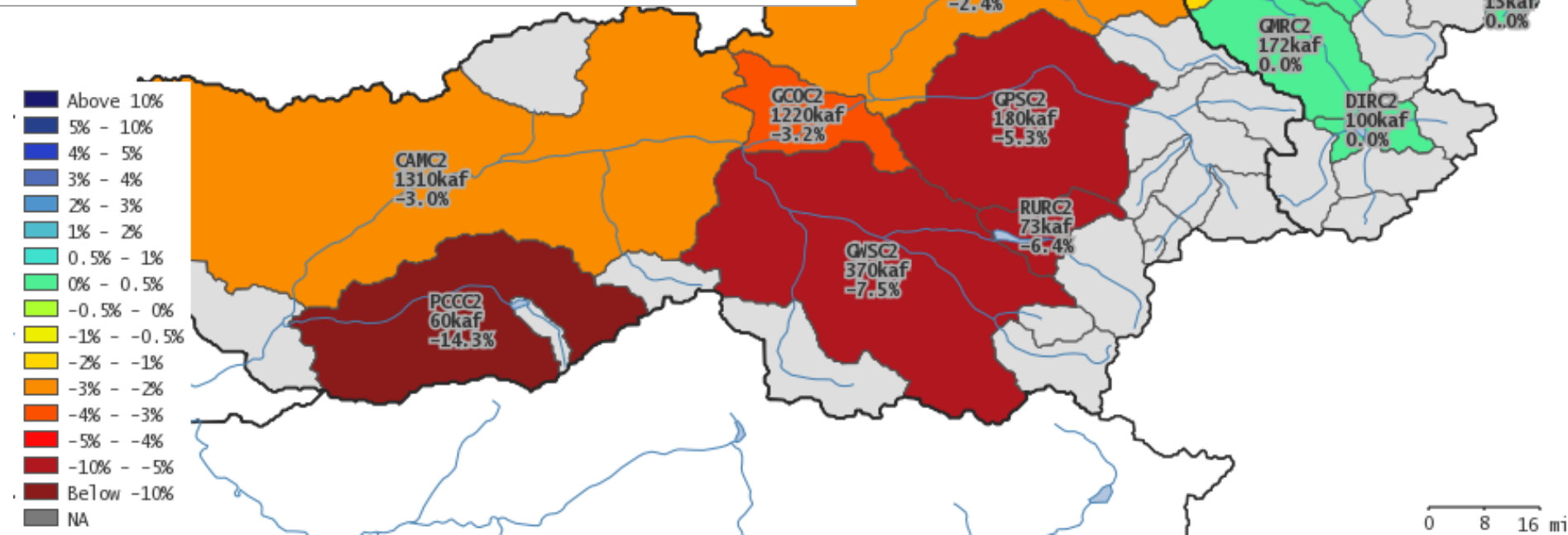
2013 Runoff Forecast
Colorado - Cameo- Nr (CAMC2)



Plot Created 2013-04-02 14:09:06, Lastest ESP Run from 2013-04-01, CBRFC / NWS / NOAA
Maximum of 4503 in 1984, Minimum of 723.6 in 2002, Average/Median for 1981-2010.

Colorado - Cameo:

MIN (90%) 1000 KAF
MP (50%) 1310 KAF 56% avg
MAX (10%) 1930 KAF

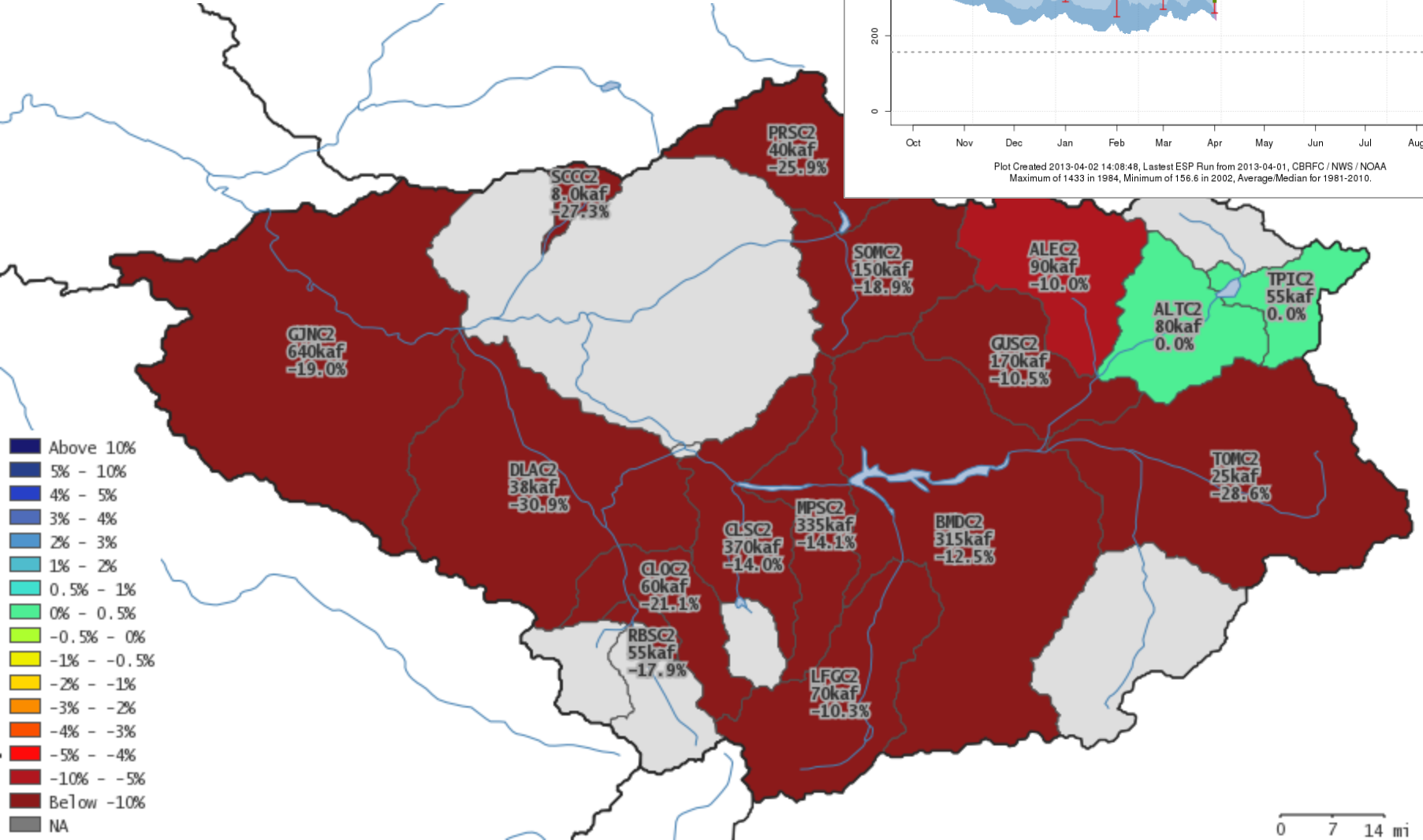
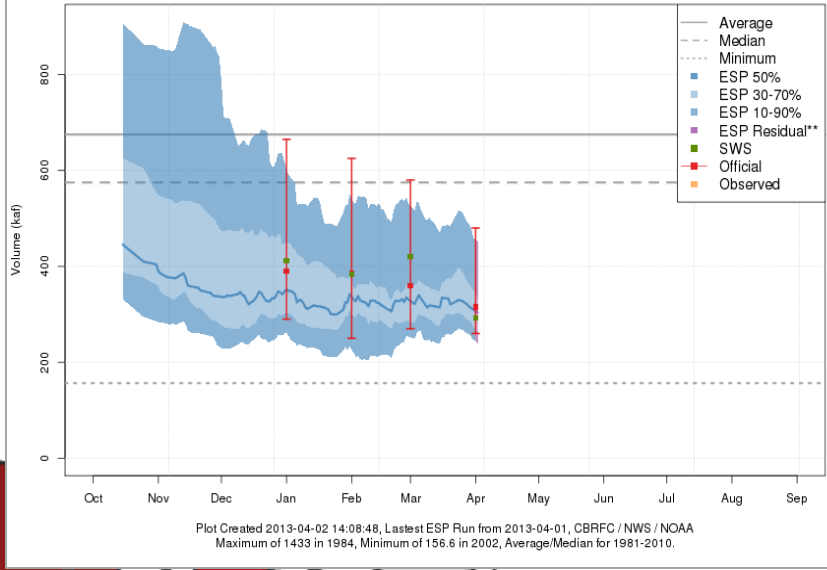


Forecast Trend: Gunnison Basin

Gunnison – Blue Mesa:

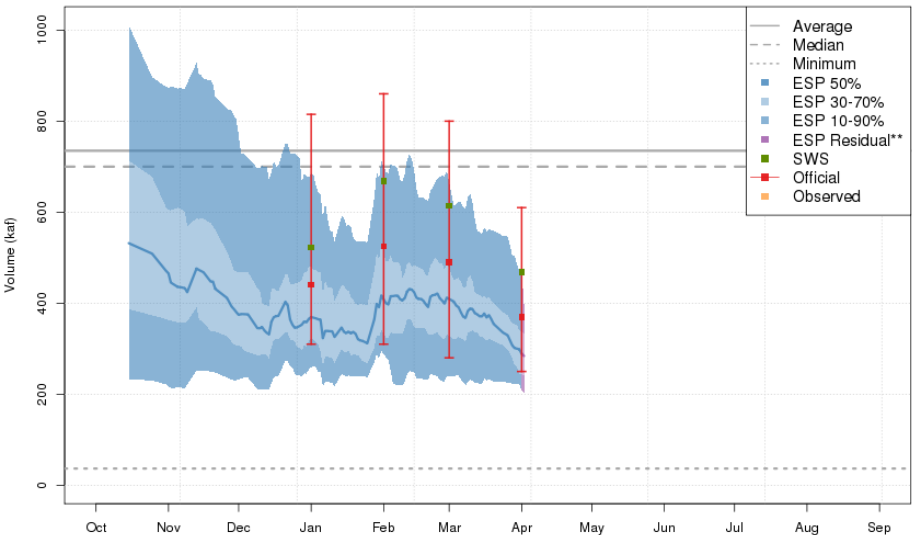
MIN (90%) 260 KAF
MP (50%) 315 KAF 47% avg
MAX (10%) 480 KAF

2013 Runoff Forecast
Gunnison - Blue Mesa Res (BMDc2)



0 7 14 mi

2013 Runoff Forecast
San Juan - Navajo Res- Archuleta- Nr (NVRN5)

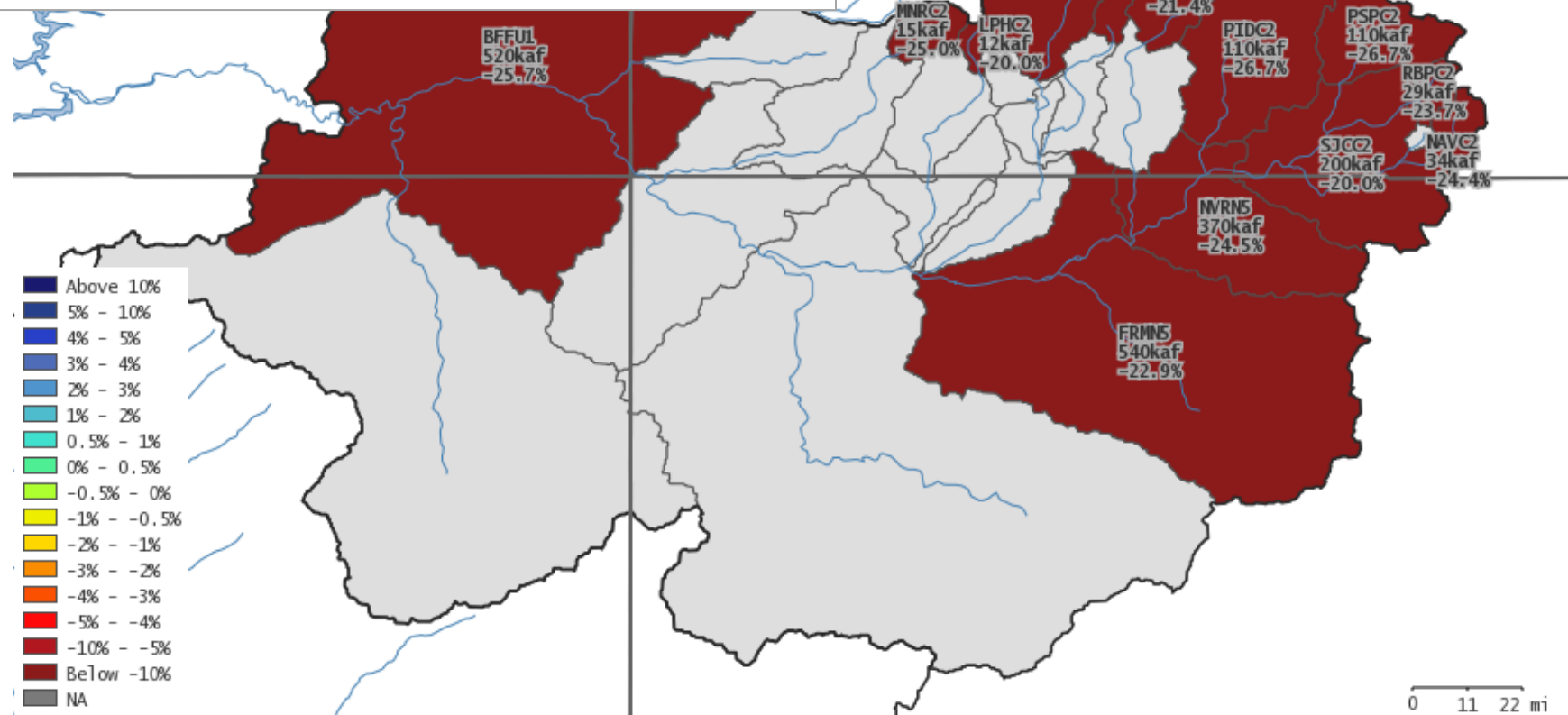


Plot Created 2013-04-02 14:11:41, Lastest ESP Run from 2013-04-01, CBRFC / NWS / NOAA
Maximum of 1776.8 in 1979, Minimum of 36.7 in 2002, Average/Median for 1981-2010.

Forecast Trend: San Juan Basin

Navajo Reservoir:

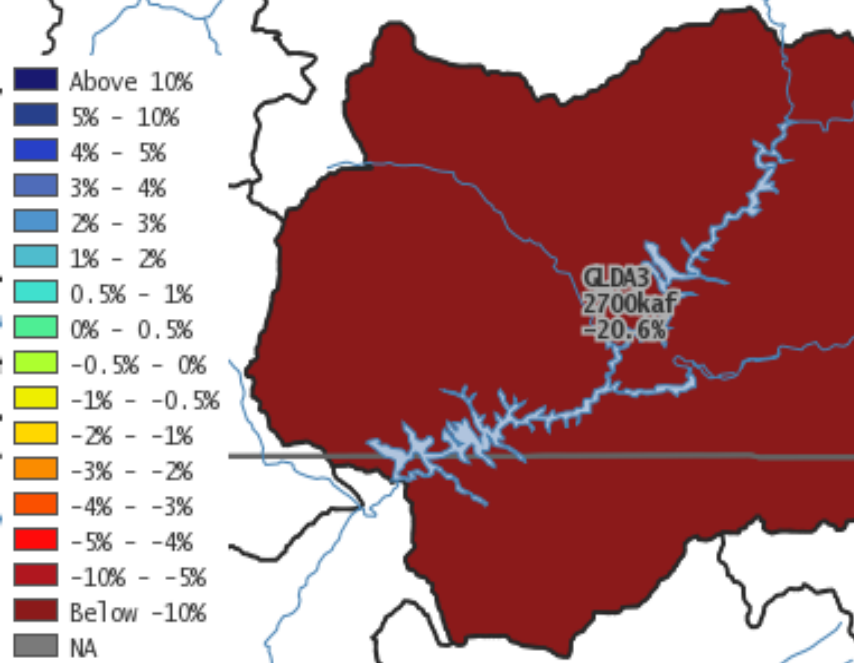
MIN (90%) 250 KAF
MP (50%) 370 KAF 50% avg
MAX (10%) 610 KAF



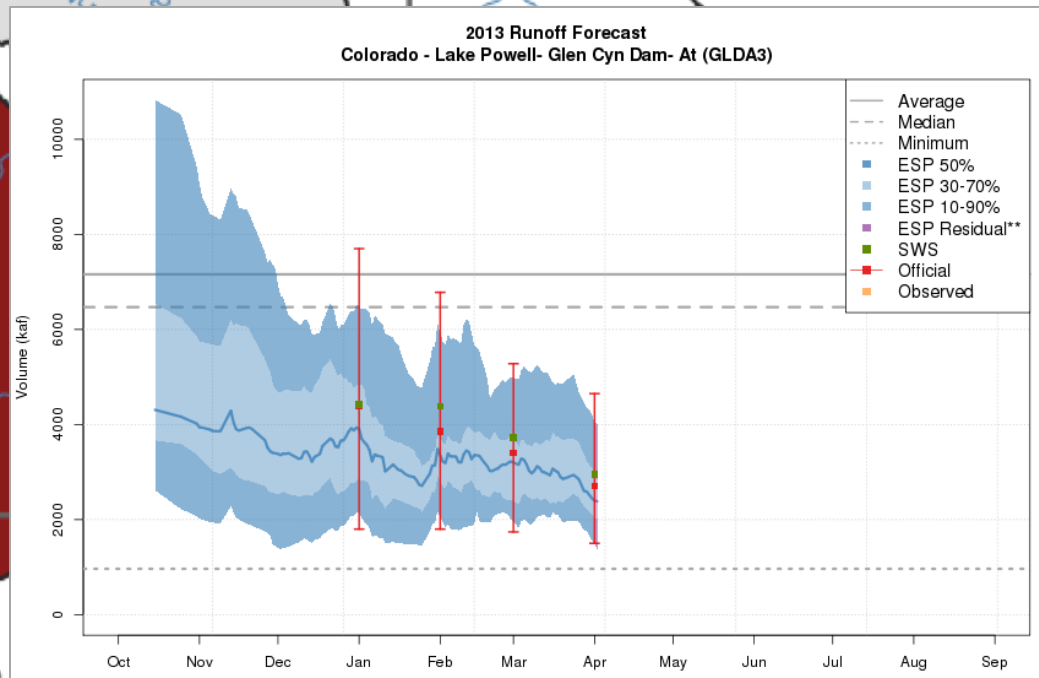
Forecast Trend: Lake Powell

Lake Powell:

MIN (90%) 1500 KAF
MP (50%) 2700 KAF 38% avg
MAX (10%) 4650 KAF



- Above 10%
- 5% - 10%
- 4% - 5%
- 3% - 4%
- 2% - 3%
- 1% - 2%
- 0.5% - 1%
- 0% - 0.5%
- -0.5% - 0%
- -1% - -0.5%
- -2% - -1%
- -3% - -2%
- -4% - -3%
- -5% - -4%
- -10% - -5%
- Below -10%
- NA

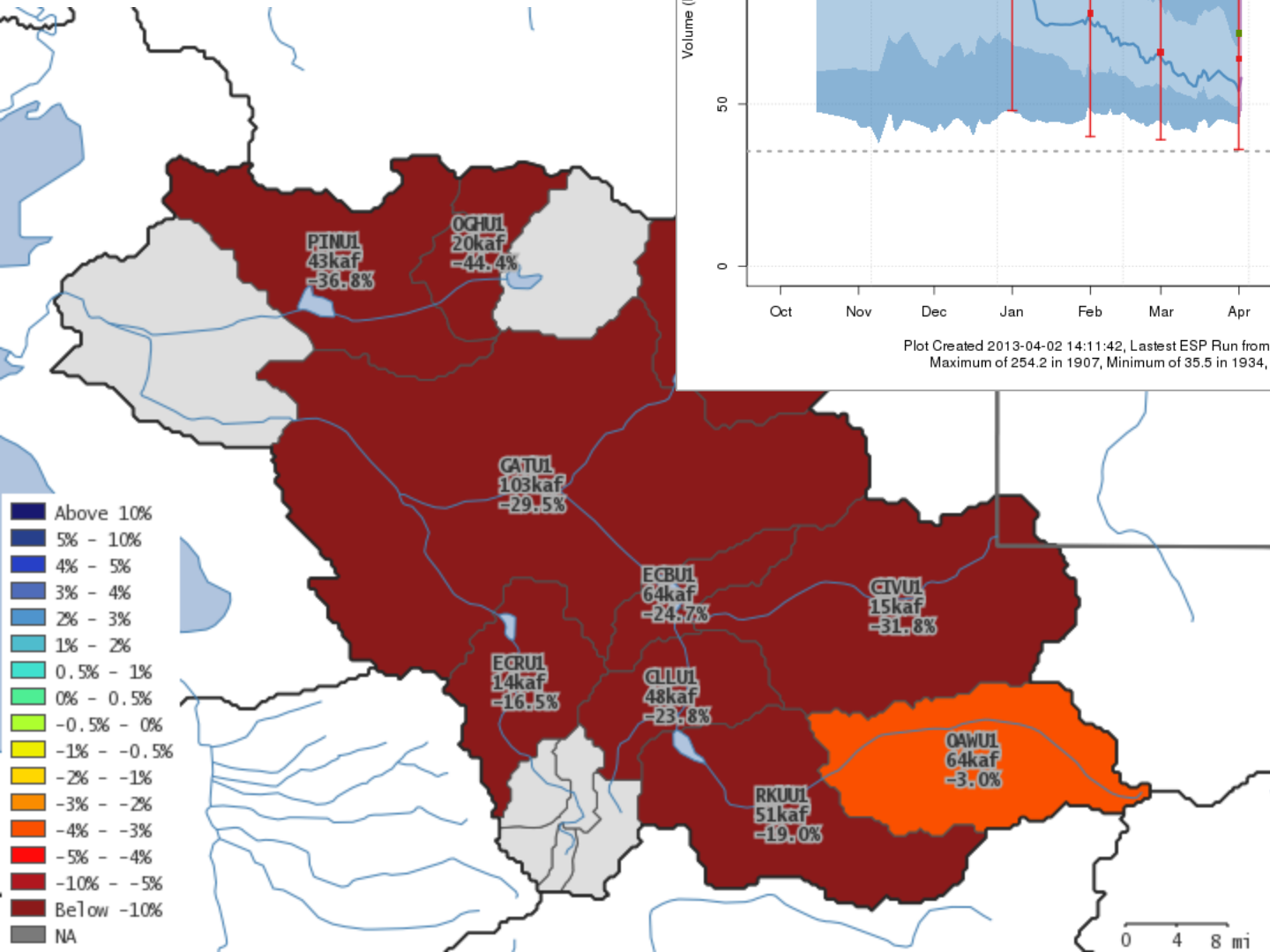


Plot Created 2013-04-02 14:10:10, Latest ESP Run from 2013-04-01, CBRFC / NWS / NOAA
Maximum of 15316.1 in 1984, Minimum of 964 in 2002, Average/Median for 1981-2010.

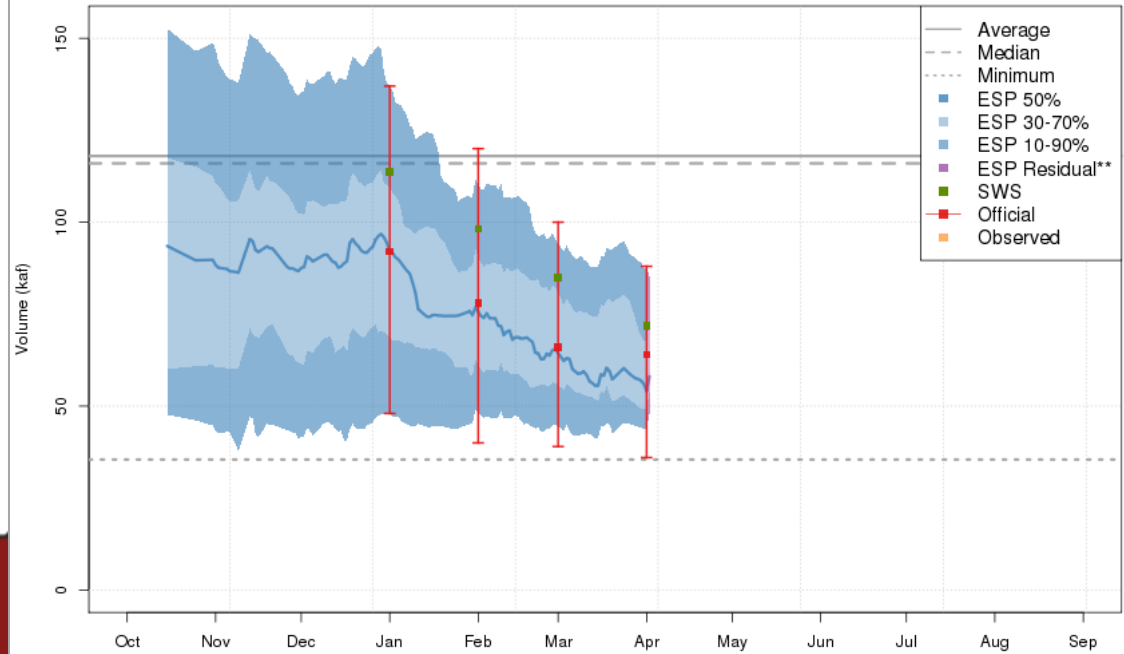
Forecast Trend: Weber Basin

Weber - Oakley:

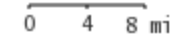
MIN (90%) 36 KAF
MP (50%) 64 KAF 54% avg
MAX (10%) 88 KAF



2013 Runoff Forecast
Weber - Oakley- Nr (OAWU1)



Plot Created 2013-04-02 14:11:42, Lastest ESP Run from 2013-04-01, CBRFC / NWS / NOAA
Maximum of 254.2 in 1907, Minimum of 35.5 in 1934, Average/Median for 1981-2010.

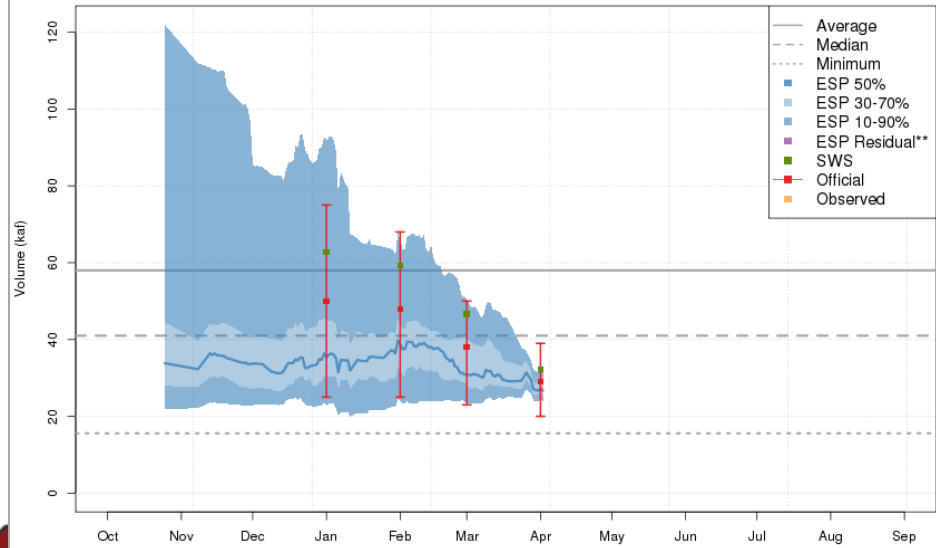


Forecast Trend: Virgin River Basin

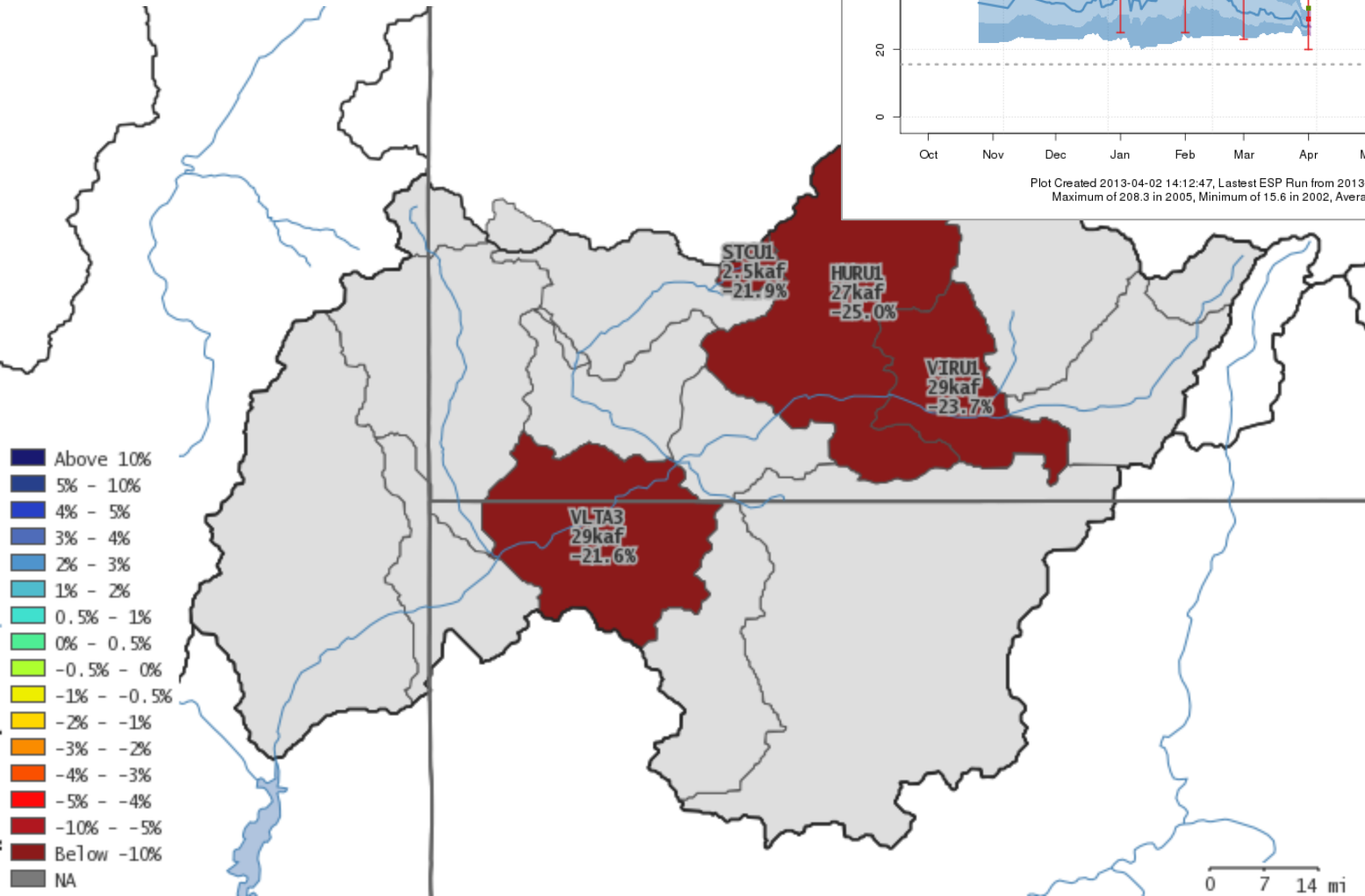
Virgin - Virgin:

MIN (90%) 20 KAF
MP (50%) 29 KAF 50% avg
MAX (10%) 39 KAF

2013 Runoff Forecast
Virgin - Virgin (VIRU1)

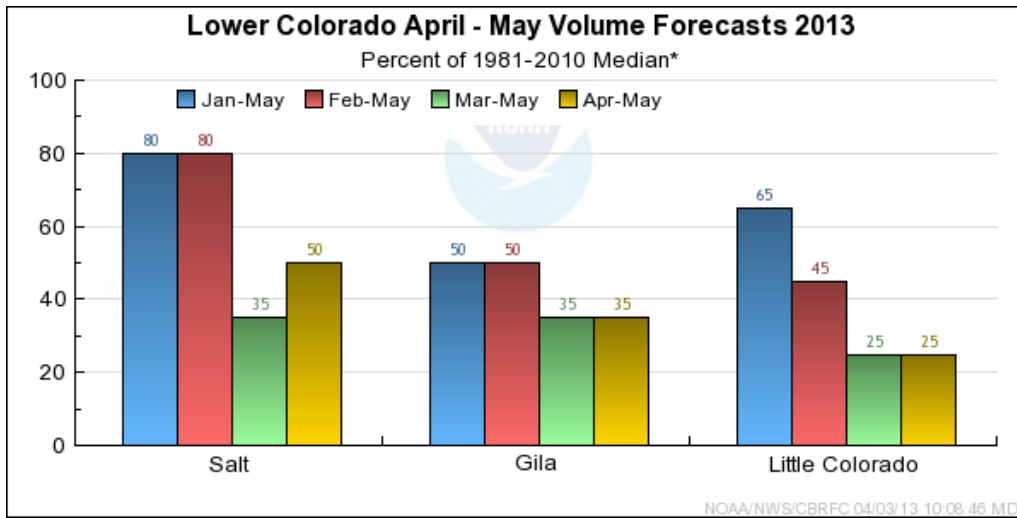


Plot Created 2013-04-02 14:12:47, Lastest ESP Run from 2013-04-01, CBRFC / NWS / NOAA
Maximum of 208.3 in 2005, Minimum of 15.6 in 2002, Average/Median for 1981-2010.

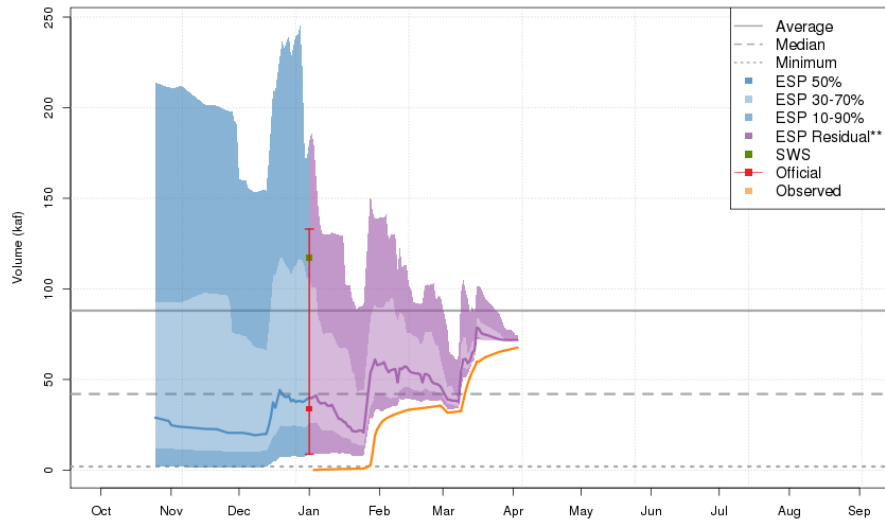


- Above 10%
- 5% - 10%
- 4% - 5%
- 3% - 4%
- 2% - 3%
- 1% - 2%
- 0.5% - 1%
- 0% - 0.5%
- 0.5% - 0%
- 1% - -0.5%
- 2% - -1%
- 3% - -2%
- 4% - -3%
- 5% - -4%
- 10% - -5%
- Below -10%
- NA

0 7 14 mi

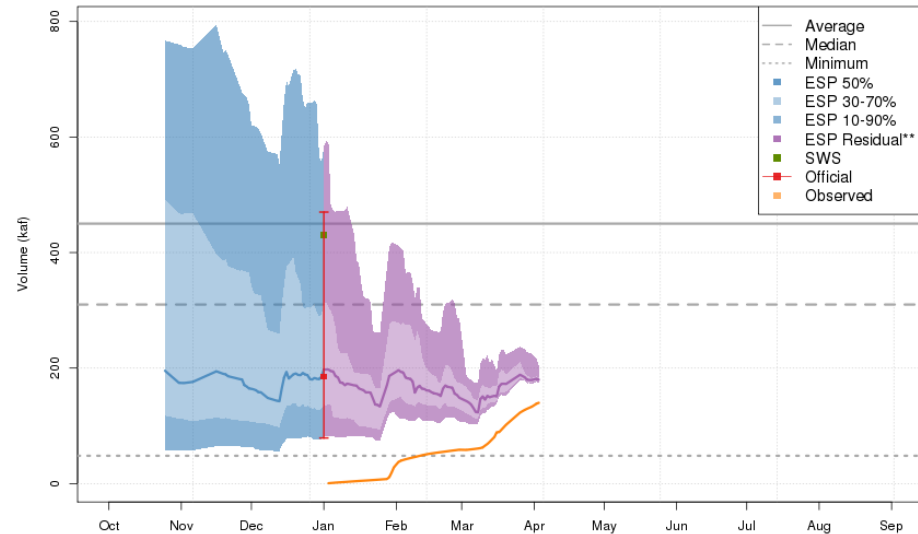


2013 Runoff Forecast
Tonto Ck - Roosevelt- Nr- Gun Ck- Abv (TNRA3)



Plot Created 2013-04-04 08:53:19, Lastest ESP Run from 2013-01-01, CBREC / NWS / NOAA
Maximum of 423.7 in 1993, Minimum of 2 in 2002, Average/Median for 1981-2010.
**Residual forecasts include observed

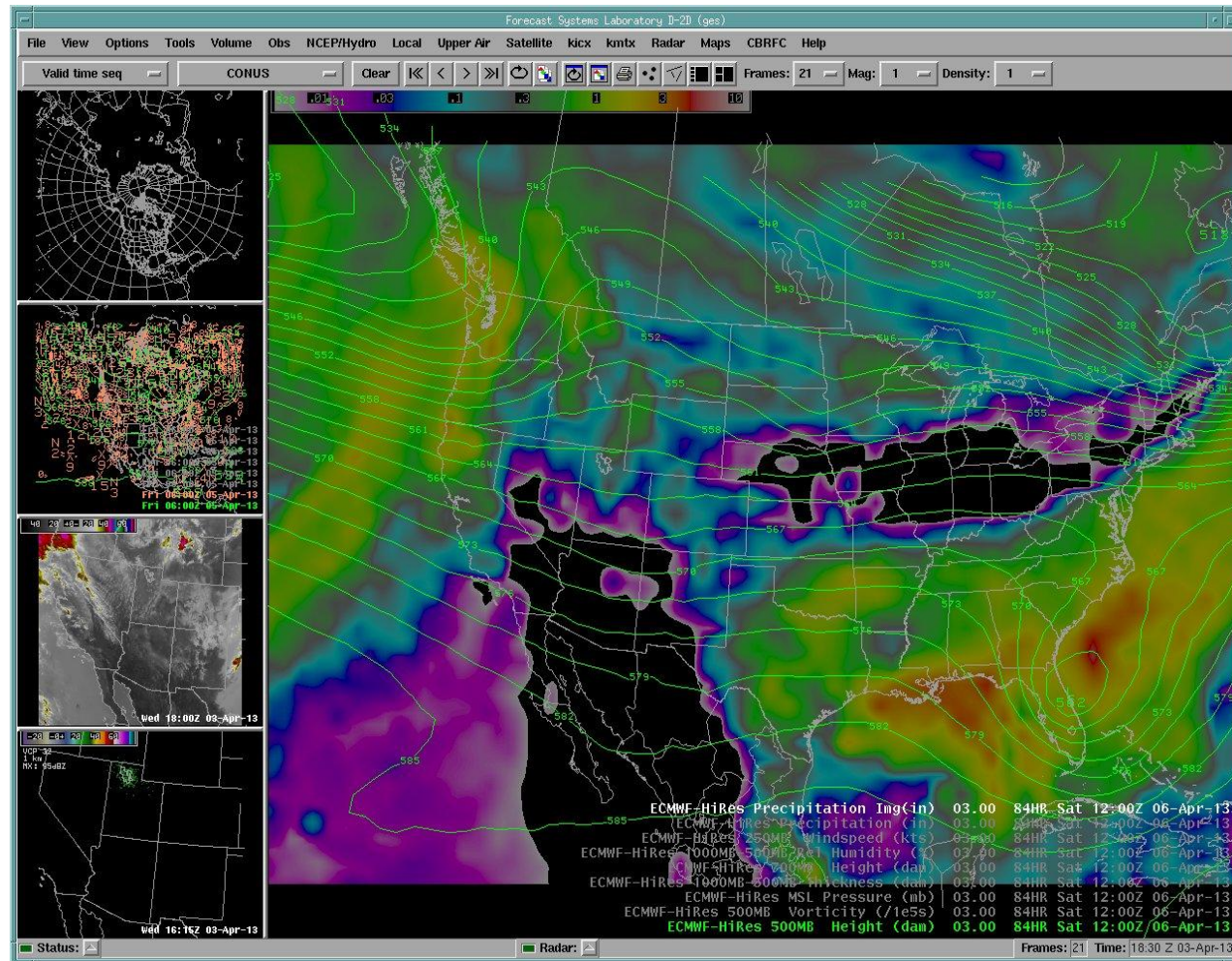
2013 Runoff Forecast
Salt - Roosevelt- Nr (SLRA3)



Plot Created 2013-04-04 08:53:09, Lastest ESP Run from 2013-01-01, CBREC / NWS / NOAA
Maximum of 2120.2 in 1916, Minimum of 48.2 in 2002, Average/Median for 1981-2010.
**Residual forecasts include observed

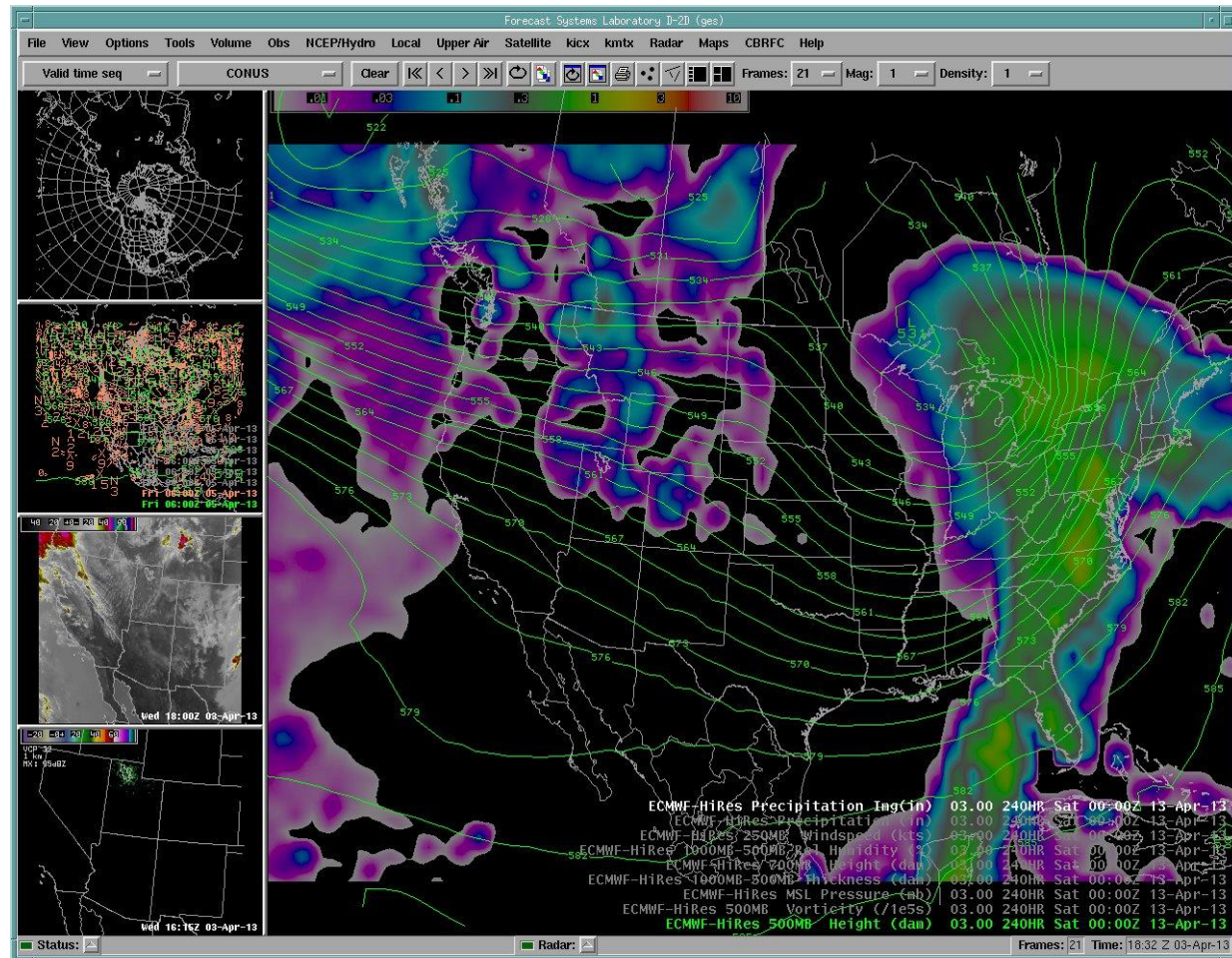
Upcoming Weather – Short Term

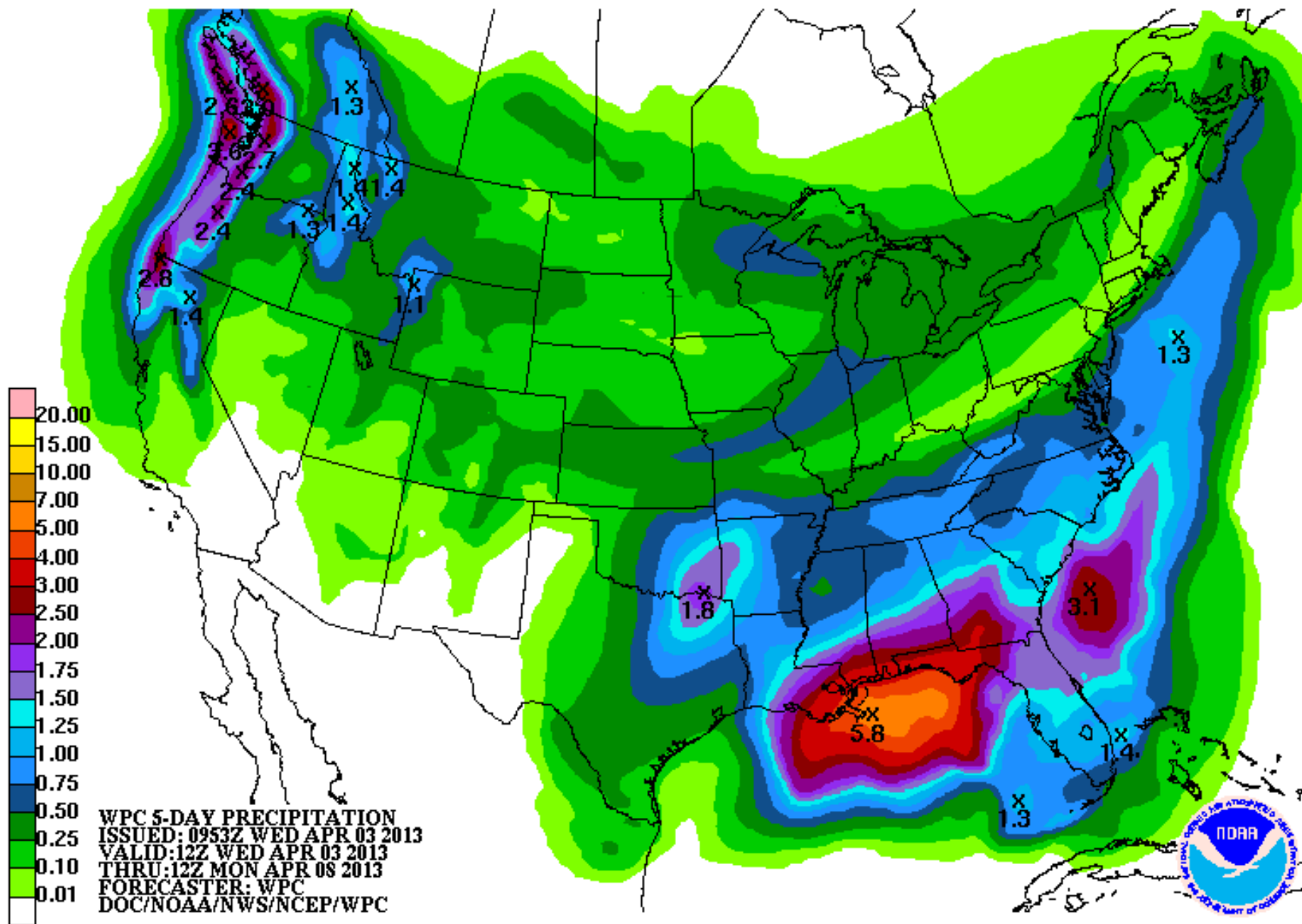
- Overall the pattern remains progressive with quick moving weather systems.
- Transitory ridge of high pressure with above average temperatures through today.
- Becoming unsettled this weekend, showery with a cooling trend into next week.



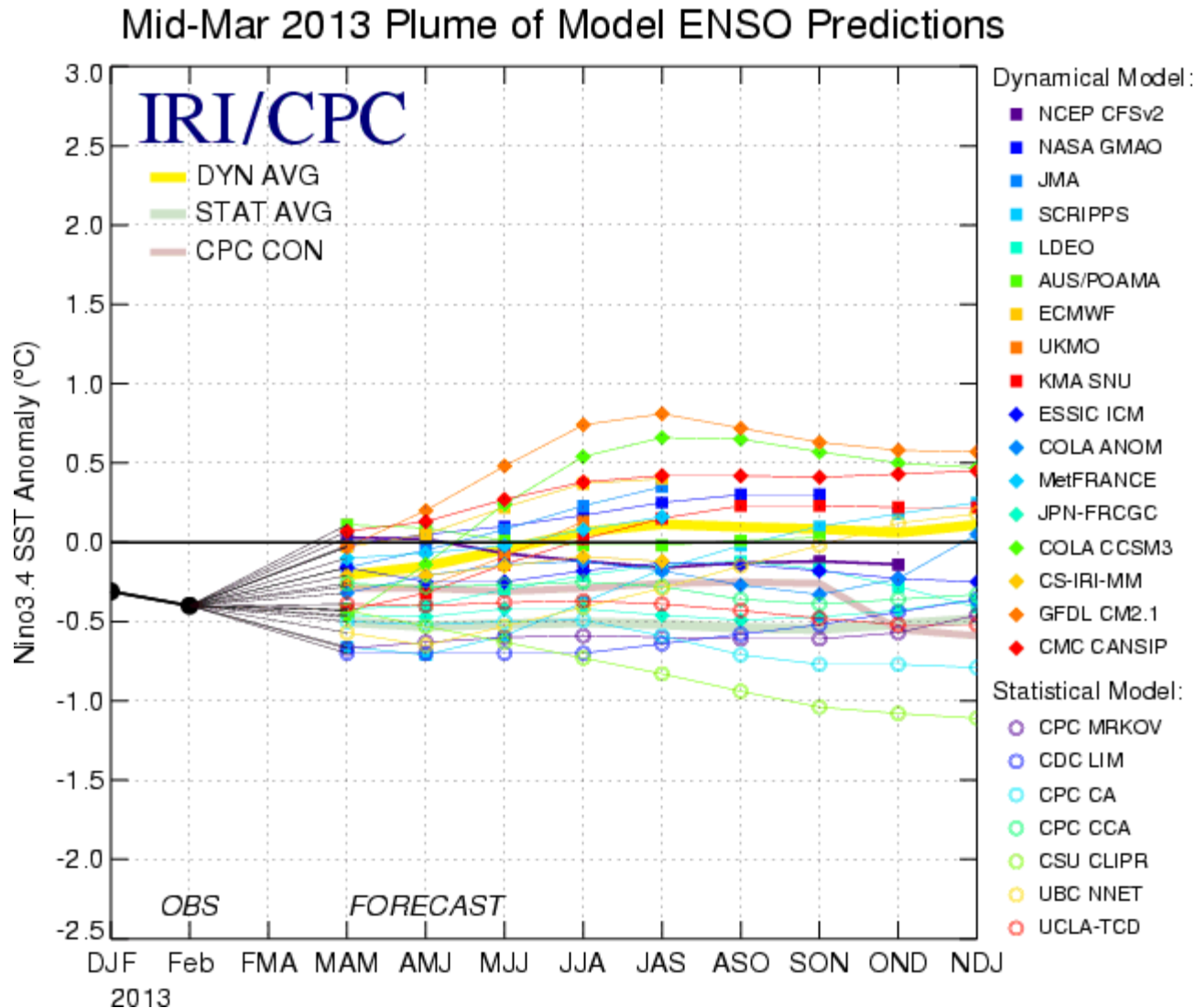
Upcoming Weather – Extended

- Models continue to suggest a moist westerly flow that will bring periods of unsettled weather.
- No particularly strong storms.
- Temperatures to remain below normal into mid April.

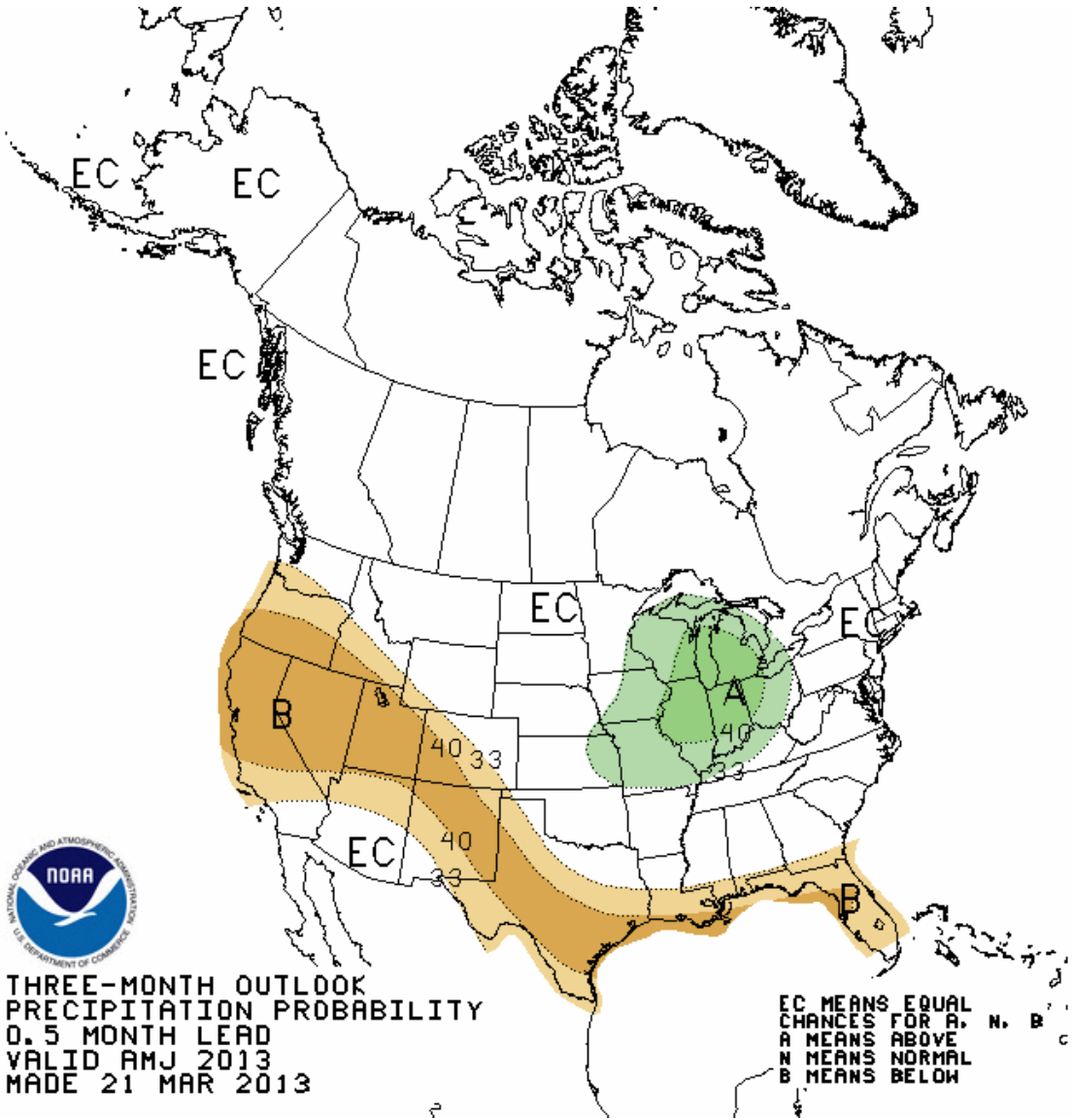




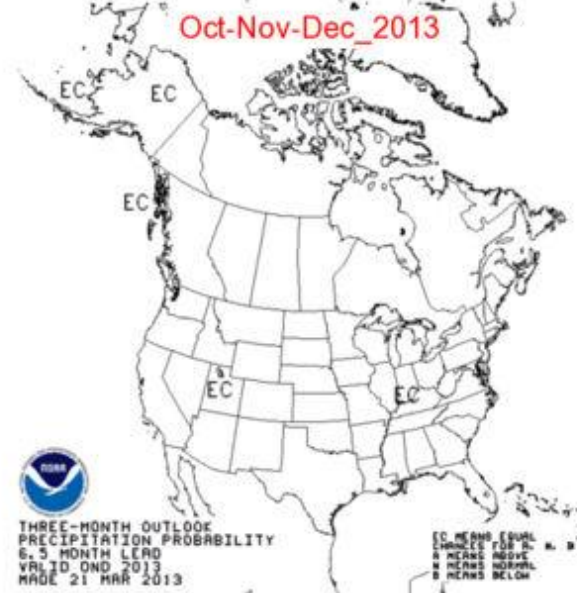
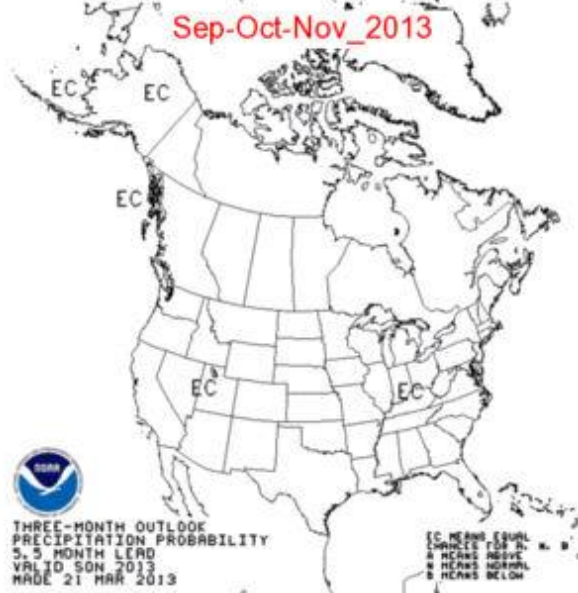
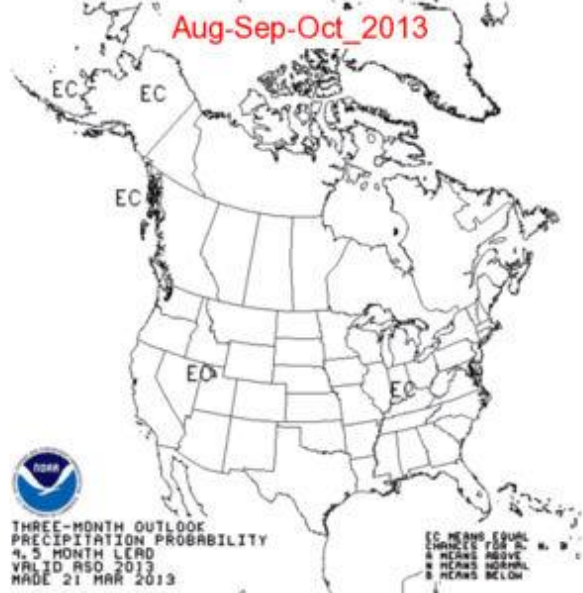
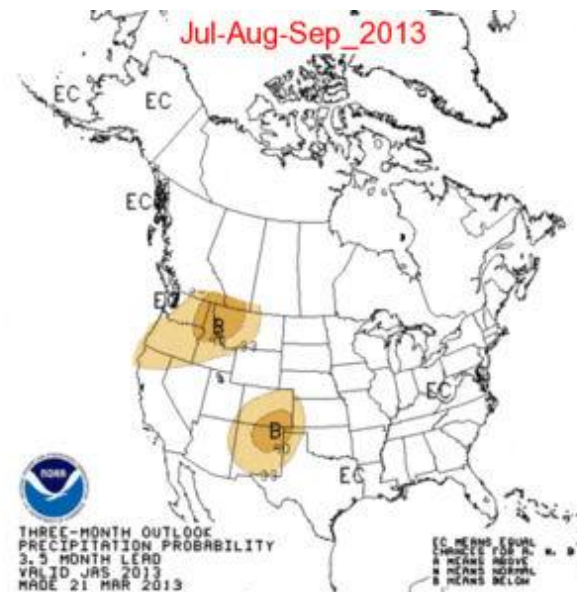
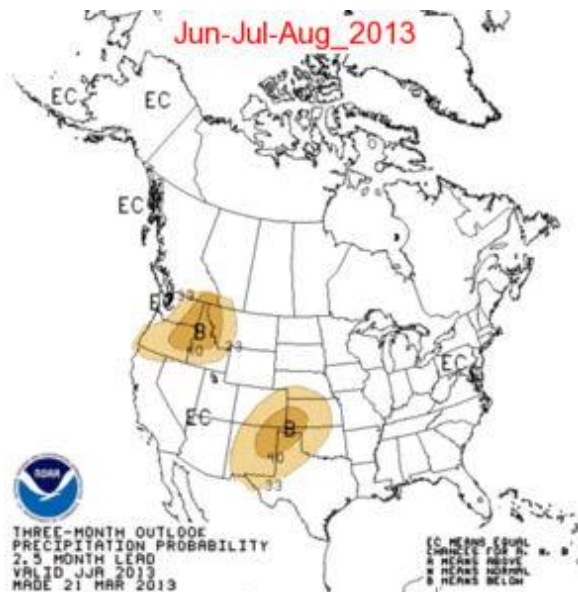
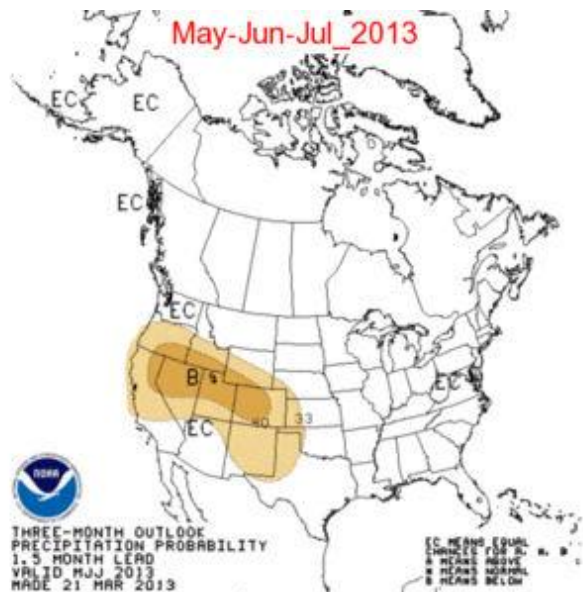
ENSO Update: Neutral Conditions through summer



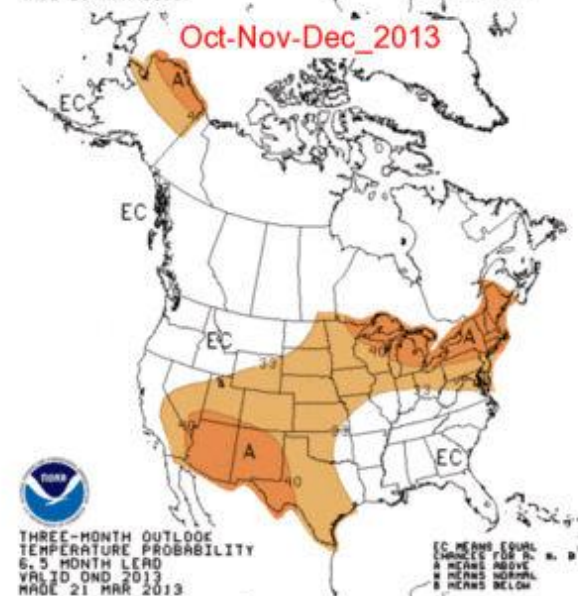
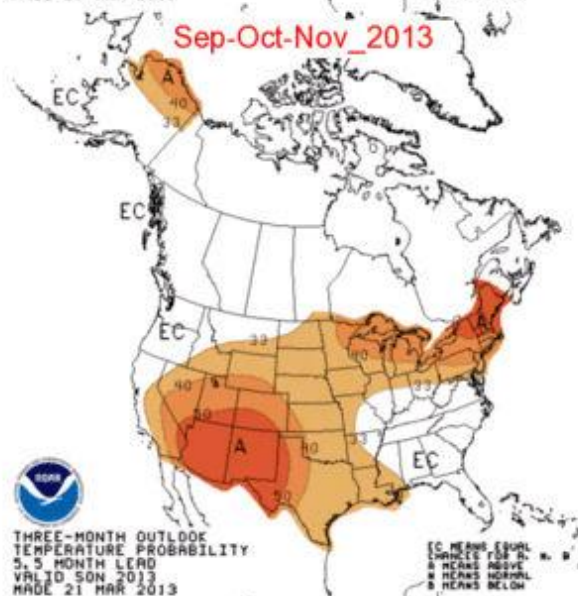
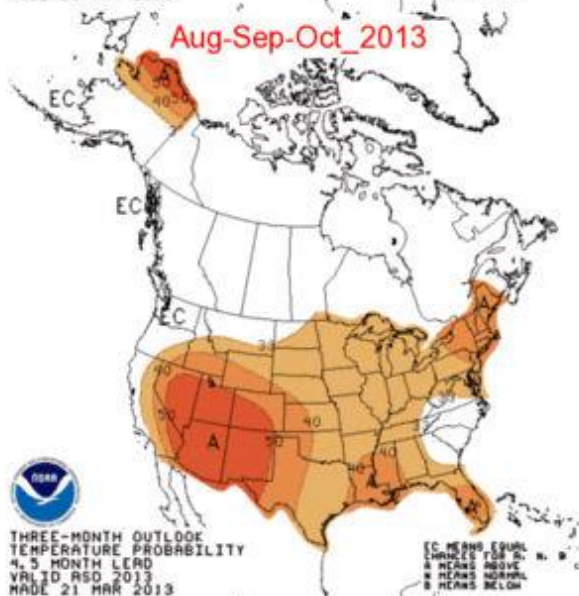
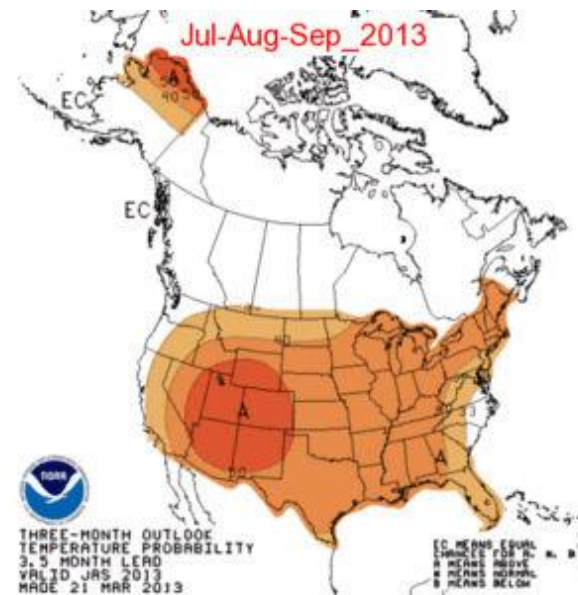
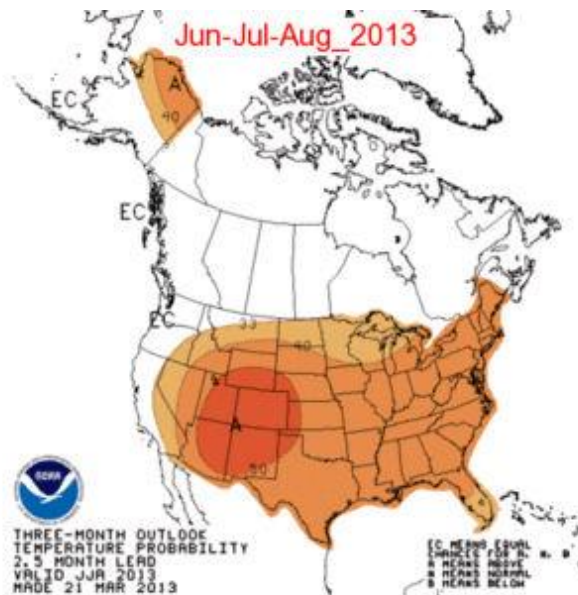
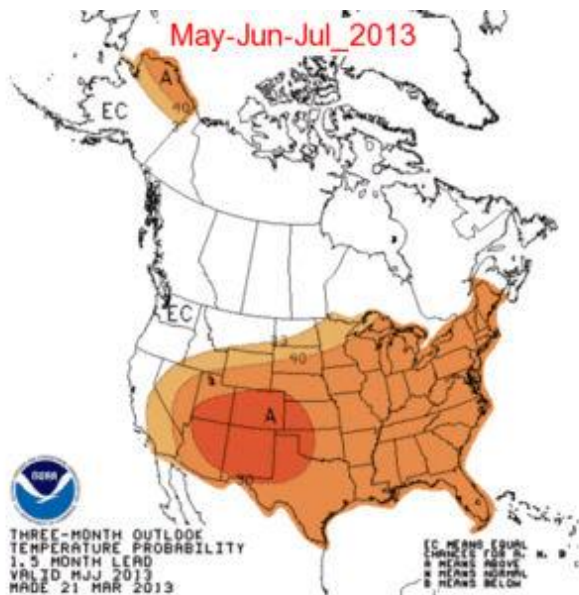
Seasonal Outlook: April – June 2013



Climate Prediction Center – Long Range Precipitation Outlook



Climate Prediction Center – Long Range Precipitation Outlook



Water Supply - Online



Click on WATER SUPPLY

Select feature of interest

Select area of interest

Forecast points are clickable

News: [Water Supply Forecast Publications for March](#)

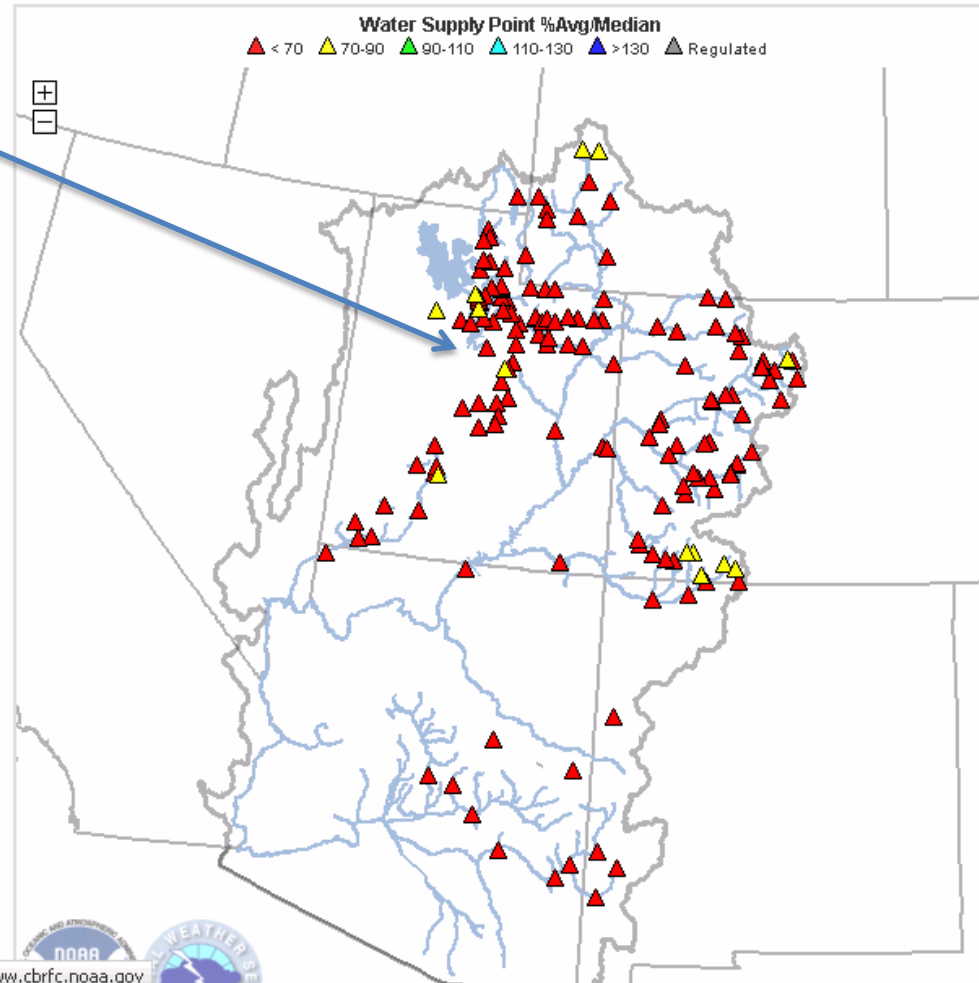
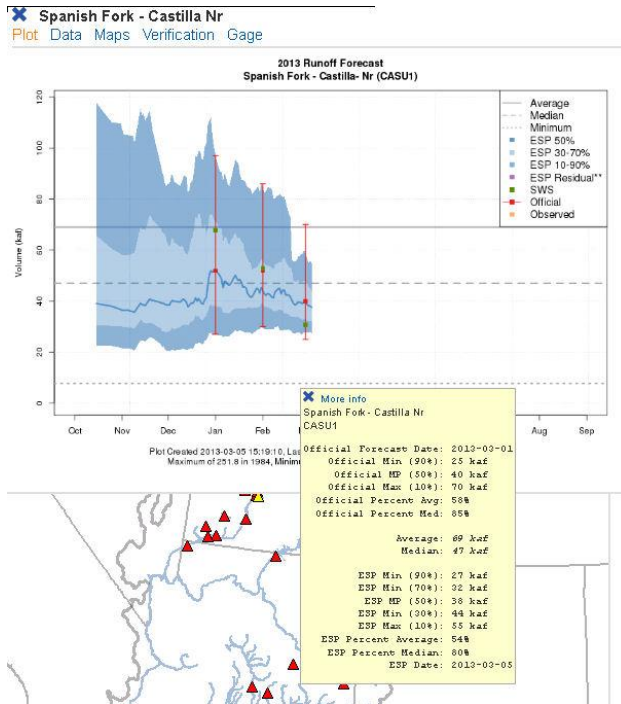
[RIVERS](#) [SNOW](#) [WATER SUPPLY](#) [RESERVOIRS](#) [WEATHER](#)

[Forecast Map](#) [Forecast List](#) [Discussion](#) [Publication](#) [Archive](#) [Daily ESP](#)

Areas: [CBRFC](#) [Upper Colorado](#) [Green](#) [San Juan](#) [Great](#) [Sevier](#) [Virgin](#) [Lower Colorado](#)

SEARCH POINTS

****Changes:** Click Point for Name then Choose Option for Details, Click Map to Zoom. Hover has been removed for touch screen compatibility.



Contents

- Water Supply Forecast Discussion
- Upper Colorado Mainstem Basin Conditions
- Gunnison Basin Conditions
- Dolores Basin Conditions
- Upper Colorado Mainstem Specific Site Forecasts
- Gunnison Specific Site Forecasts
- Dolores Specific Site Forecasts
- Reservoir Contents
- Precipitation Maps
- Definitions
- Additional Information
- Questions or Comments

Water Supply Forecast Discussion

CLICK HERE For a narrative describing last months weather conditions, current hydrologic conditions, a

Upper Colorado Summary

February 1, 2013 Water Supply Forecast Discussion

The CBRFC geographic forecast area includes the Upper Colorado River Basin, Lower Colorado River Basin, and Eastern Great Basin.

Seasonal Water Supply Forecasts:

Quick Summary: Some Improvement in the San Juan, Uncompahgre and Salt Rivers Elsewhere Forecasts Generally Lower

Below average spring and summer April-July streamflow volumes are forecast throughout the Upper Colorado River Basin and Great Basin. Near median to below median February-May volumes are expected in the Lower Colorado River Basin.

The highest runoff volumes relative to average are expected in the Great Basin of northern Utah and Green River Basin of southeast Utah. Lowest volumes relative to average are forecast for the Blue, Eagle and Roaring Fork Rivers. In the Lower Colorado River Basin highest volumes relative to median are expected in the Verde Basin with lowest volumes in the Gila Basin

Water Supply Discussion

Weather Synopsis:

The weather pattern during January was dominated by a mostly dry northwest flow over the CBRFC area. There was a brief but significant event that took place towards the end of January. A moist, warm southwest flow became established for a few days over the Southern portions of the CBRFC including most of Arizona, New Mexico and portions of Southern Colorado. This event brought several inches of precipitation to these areas and resulted in a large increase in snow over the San Juan mountains and a significant rain event over Arizona.

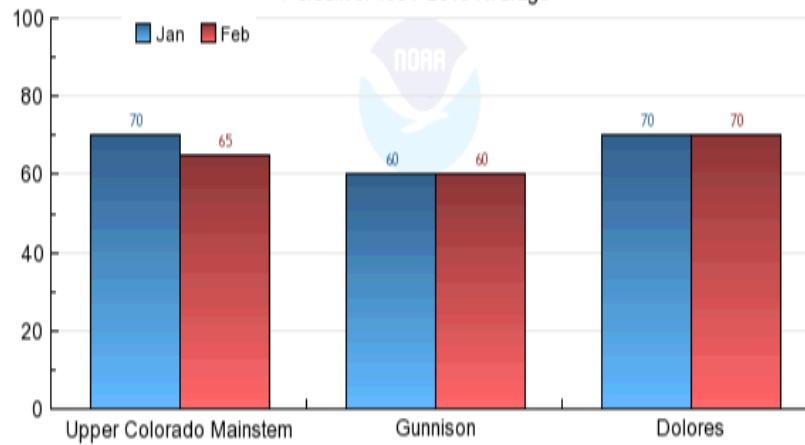
Snowpack:

Snow conditions in early February deteriorated over the northern Great Basin and upper Green Basin, with some improvement over the San Juan basin and southern portions of the Gunnison basin. In general, as of February 1st, most SNOTEL sites in the CBRFC area are at or below average.

Snow in the the Roaring Fork, Blue, and Eagle River Basins continue to record some of the lowest values for their respective periods of record (red sites on the map below). Several other sites are in the bottom 10 percent of record (orange on the map). Most SNOTEL sites in this area have periods of record around 30 to 35 years so they rank near the 2nd or 3rd lowest for this time of year.

Upper Colorado April - July Volume Forecasts 2013

Percent of 1981-2010 Average*



NOAA/NWS/CBRFC/02/05/13 12:17:53

*Median of forecasts within each basin.

Web Reference: www.cbrfc.noaa.gov Select **WATER SUPPLY (publication & discussion)**

CBRFC News

- Basin Focal Points (Available to discuss forecasts: 801.524.5130 or email)
 - Upper Colorado: Brenda Alcorn (brenda.alcorn@noaa.gov)
 - Green: Ashley Nielson (ashley.nielson@noaa.gov)
 - San Juan / Gunnison: Greg Smith (greg.smith@noaa.gov)
 - Dolores: John Lhotak (john.lhotak@noaa.gov)
 - Great Basin: Brent Bernard (brent.bernard@noaa.gov)
 - Sevier / Virgin: Stacie Bender (stacie.bender@noaa.gov)
 - Lower Colorado (below Lake Powell): Tracy Cox (tracy.cox@noaa.gov)
- Misc:
 - Sign up for next webinars – April 18 Peak Flows / May 6 Water Supply – 11 am MDT
 - www.cbrfc.noaa.gov/news/wswebinar2013.html
 - New water supply email notification list – are you on it ??
 - Send a request to greg.smith@noaa.gov
 - Stakeholder forum this summer at the CBRFC

Feedback, Questions, Concerns always welcome....



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