

CBRFC
March 2012
Water Supply Webinar

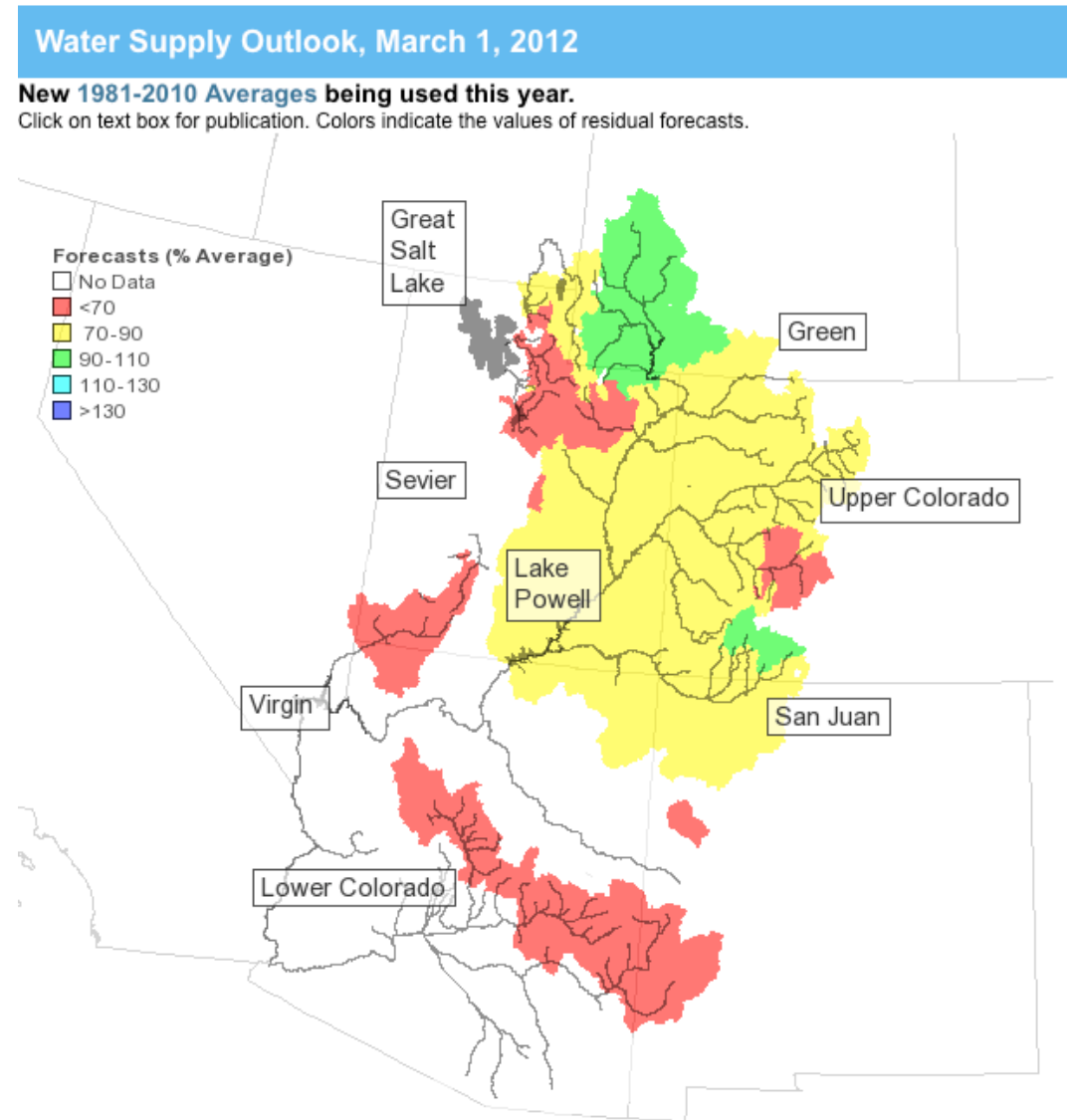
1pm, March 6, 2012

Kevin Werner

These slides: www.cbrfc.noaa.gov/present/present.php

Outline

- New Averages
- Recent Weather
- Snow States
- Future Weather/
Climate
- Water Supply
Forecasts
- Peak Flow
Forecasts



Web Reference: www.cbrfc.noaa.gov/wsup/pub2/map/html/cbrfc.1.2011.html



COLORADO BASIN RIVER FORECAST CENTER

NATIONAL WEATHER SERVICE / NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

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

New Averages for 2012 Water Year

Beginning January 1, 2012, we are using the 1981-2010 period for averages, forecast equations, and model calibration.

Frequently Asked Questions

1. Why Do we update averages every 10 years using the most recent 30 year period for average computation?

Answer: We follow the NOAA and World Meteorological Organization (WMO) convention. NOAA/NCDC developed an explanation of this [here](#)

2. How does the 1981-2010 period compare with the 1971-2000 period and previous 30 year periods?

Answer: Streamflow volumes in the new 30 year period is generally between 5% and 20% lower than in the previous period. The largest decreases are observed in the upper Green River and the Bear River. For the entire upper Colorado above Lake Powell, the difference 11%. The new 30 year period has the lowest average volume of any of the 30 year periods in the instrumental record. More details are available [here](#)

3. How does using the new period effect CBRFC forecasts and data on this webpage?

Answer: Long-lead water supply and peak flow forecasts generally use a combination of current conditions for snowpack and streamflow, a weather prediction, and the climatological distribution of precipitation and temperature. Thus long lead forecasts using the new average period will generally be lower than forecasts that used the previous 30 year period. The amount of the difference depends on the difference between the means and the duration of climatology assumed in the forecast period. For example, January 1 water supply forecasts require a climatological assumption for the months of January through July whereas April 1 water supply forecasts require only April through July. Thus the January 1 forecasts are influenced more greatly by the change in the 30 year period. An example illustrating this effect is available [here](#)

The [snow time series plots](#) on the CBRFC pages are now using the 1981-2010 period of record for calculated statistics including the daily mean, median, maximum, and minimum snow water equivalents. CBRFC requires at least 20 years of record to calculate any of these statistics.

4. How is this change being coordinated with other forecast groups?

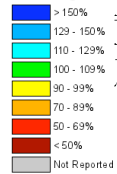
Answer: NOAA/NCDC has published new means for the [meteorological 30 year means](#). The NRCS and other RFCs plan to begin using the 1981-2010 average period in 2013.

5. Where can I get more information?

Answer: CBRFC staff is here to help. Please feel free to [contact us](#).

Monthly Precipitation for October 2011
(Averaged by Hydrologic Unit)

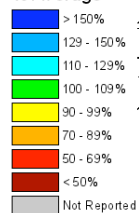
% Average



Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

Monthly Precipitation for January 2012
(Averaged by Hydrologic Unit)

% Average

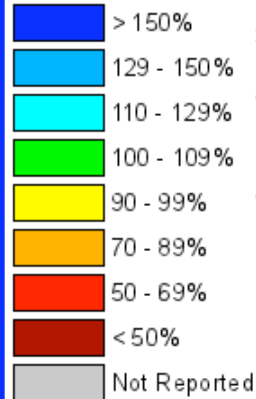


Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

Seasonal Precipitation, October 2011 - February 2012

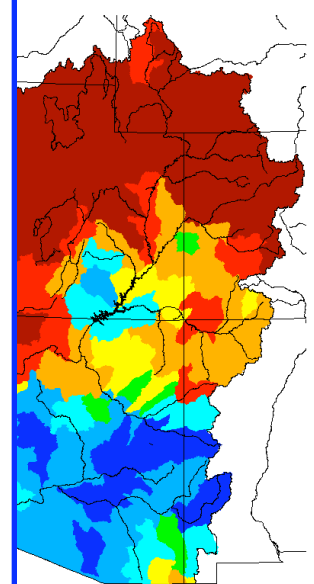
(Averaged by Hydrologic Unit)

% Average



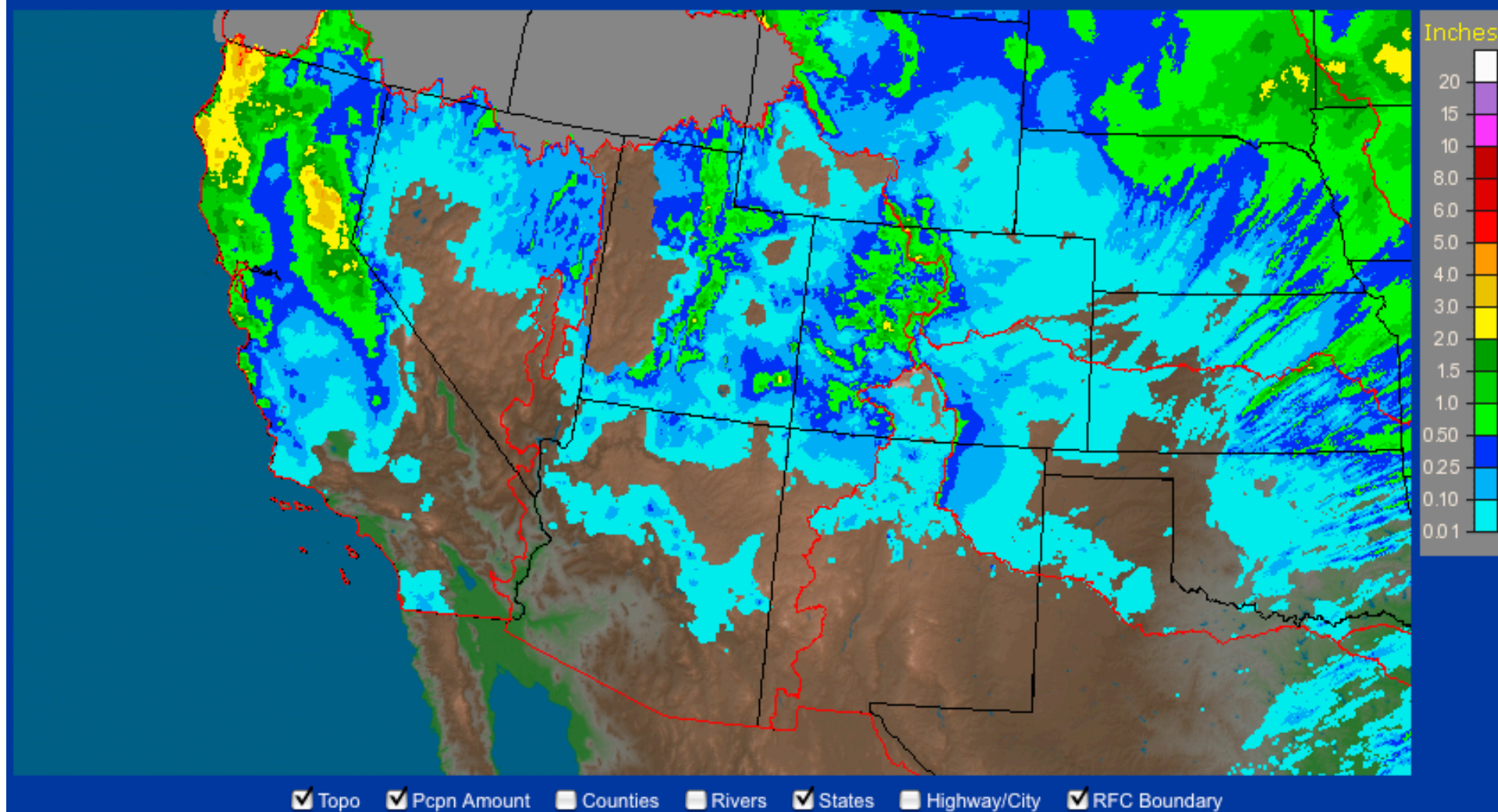
Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

for December 2011



Colorado Basin RFC Salt Lake City, UT: Current 7-Day Observed Precipitation

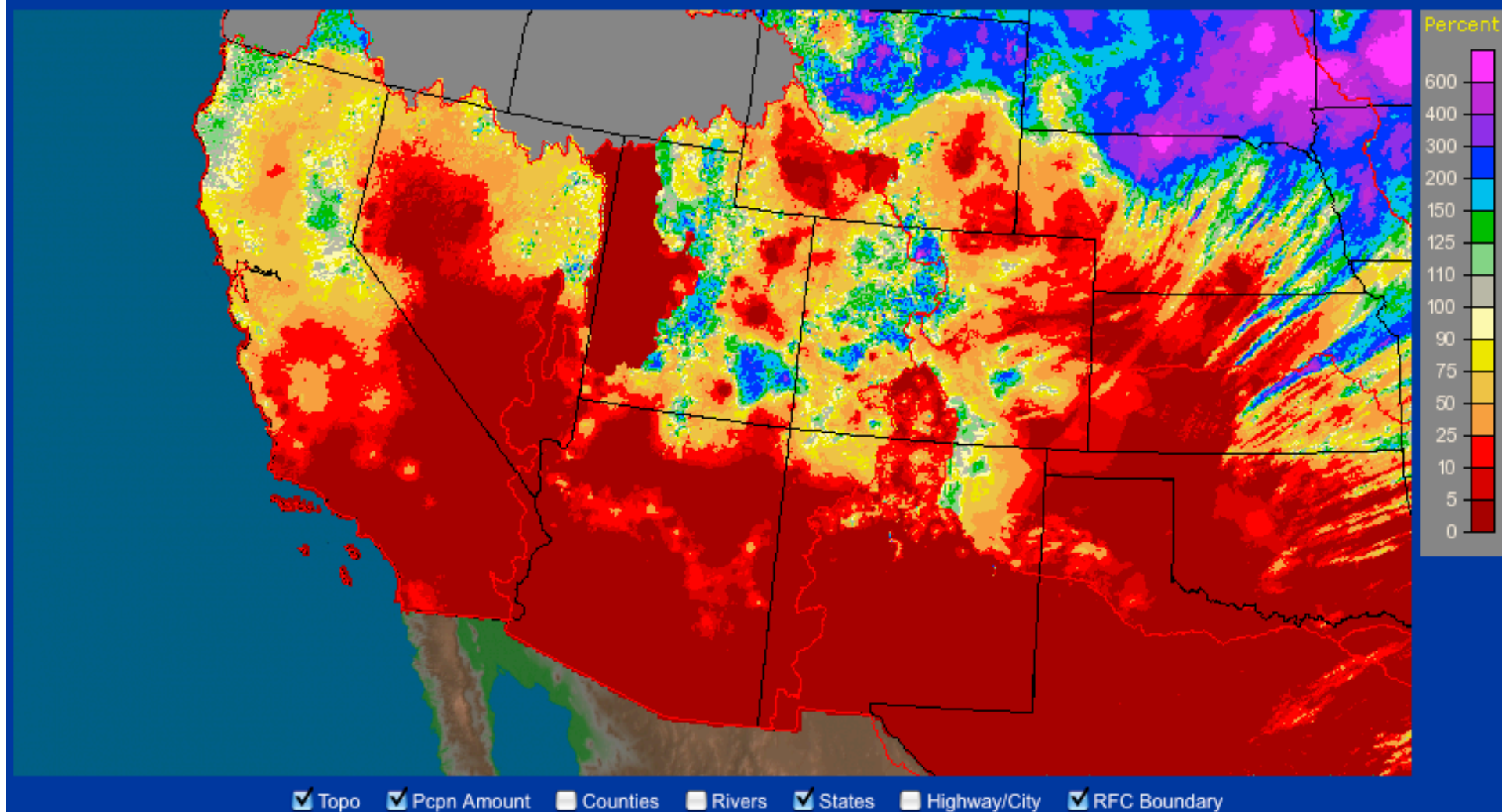
Valid at 3/6/2012 1200 UTC - Created 3/6/12 15:55 UTC



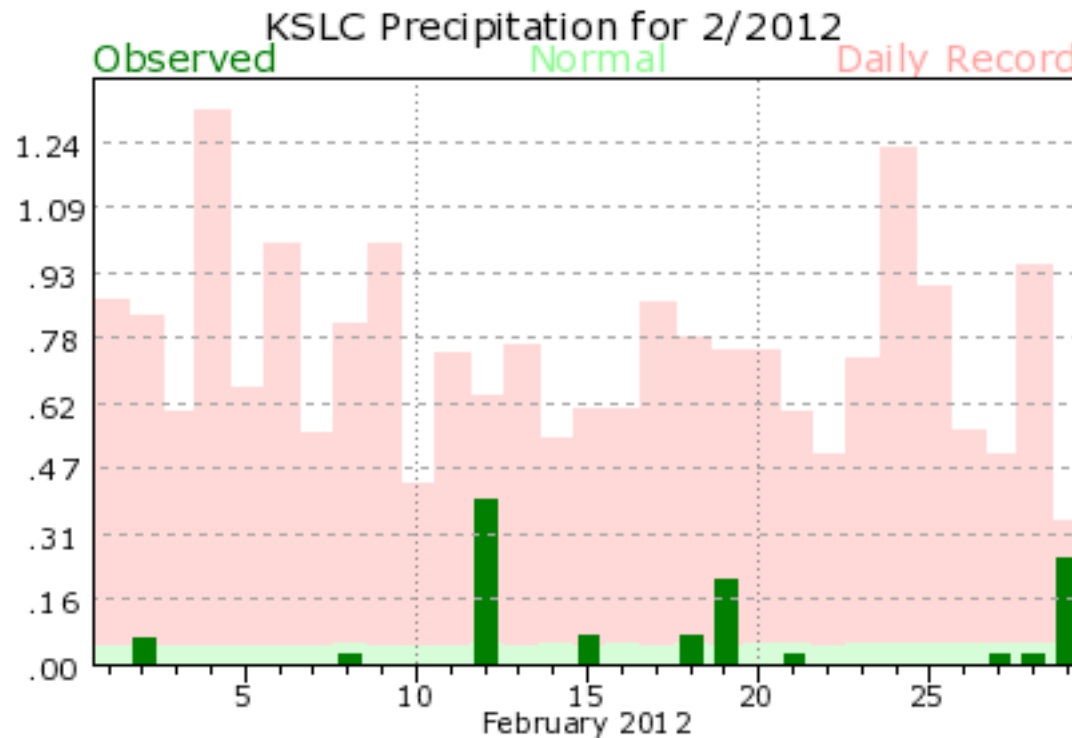
Web Reference: water.weather.gov/precip

Colorado Basin RFC Salt Lake City, UT: Current 7-Day Percent of Normal Precipitation

Valid at 3/6/2012 1200 UTC - Created 3/6/12 15:58 UTC

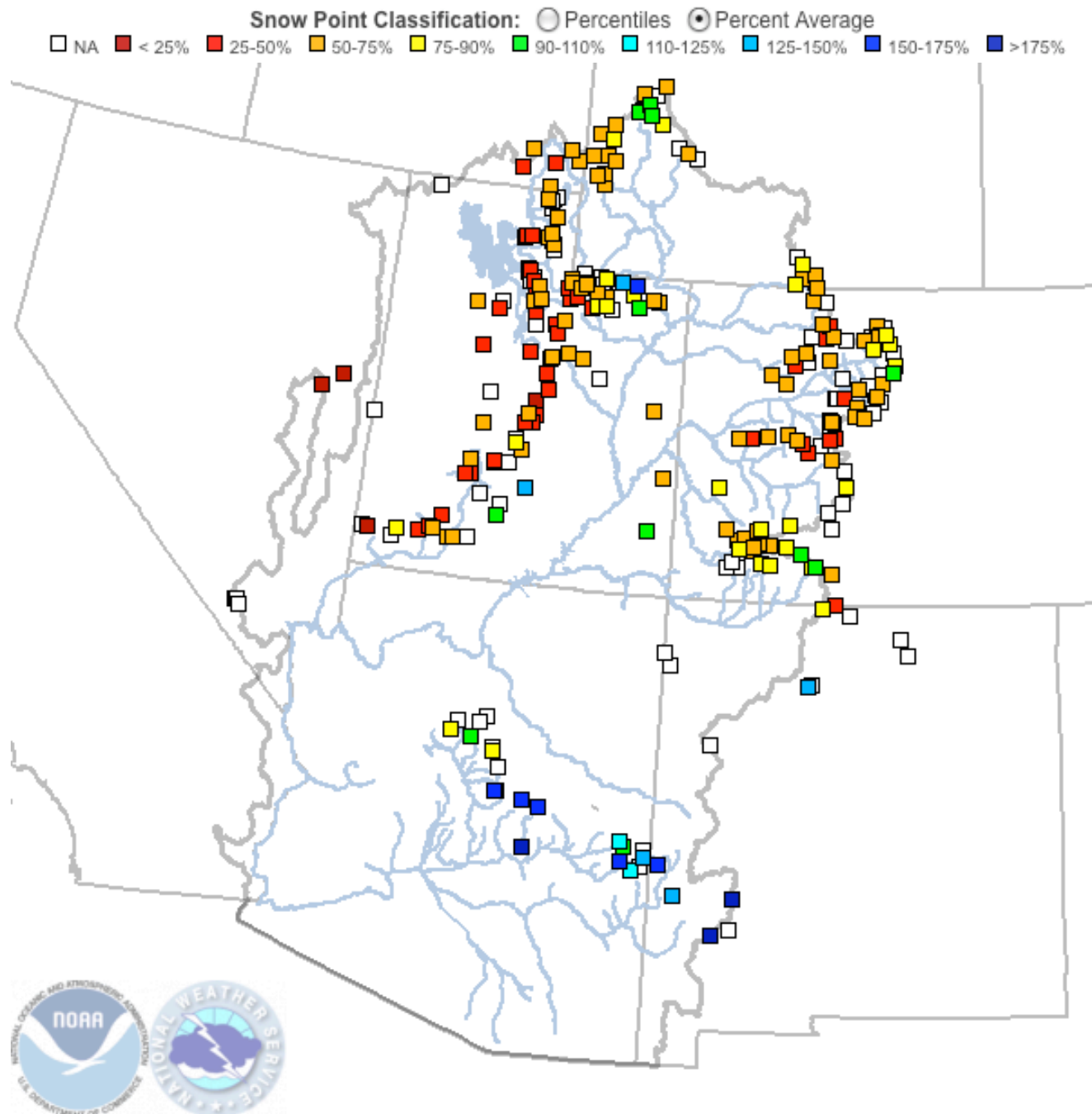


February 2012 Precipitation



Snow

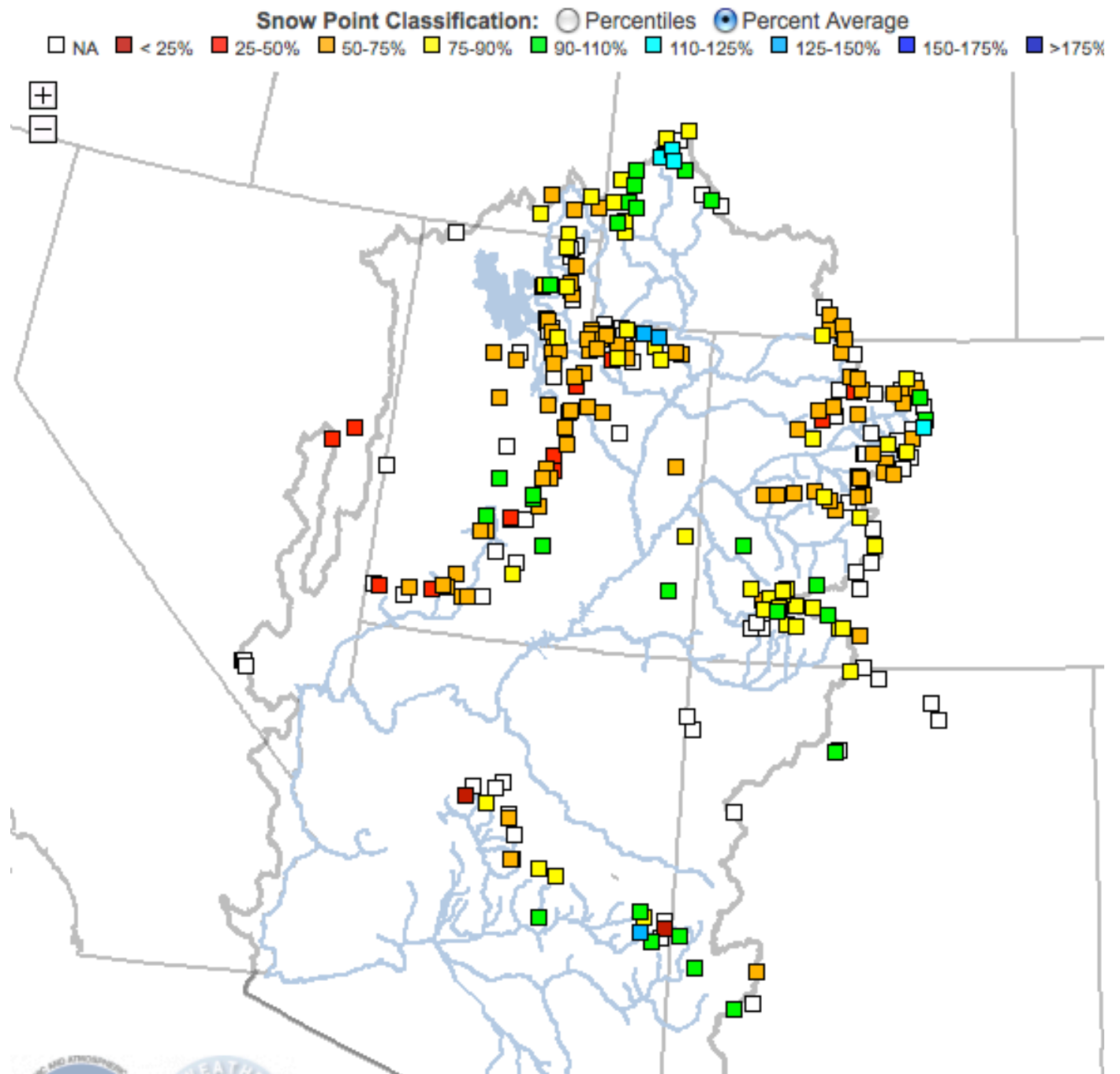
January 5, 2012



Web Reference: <http://www.cbrfc.noaa.gov/gmap/gmapm.php?scon=checked>

Snow

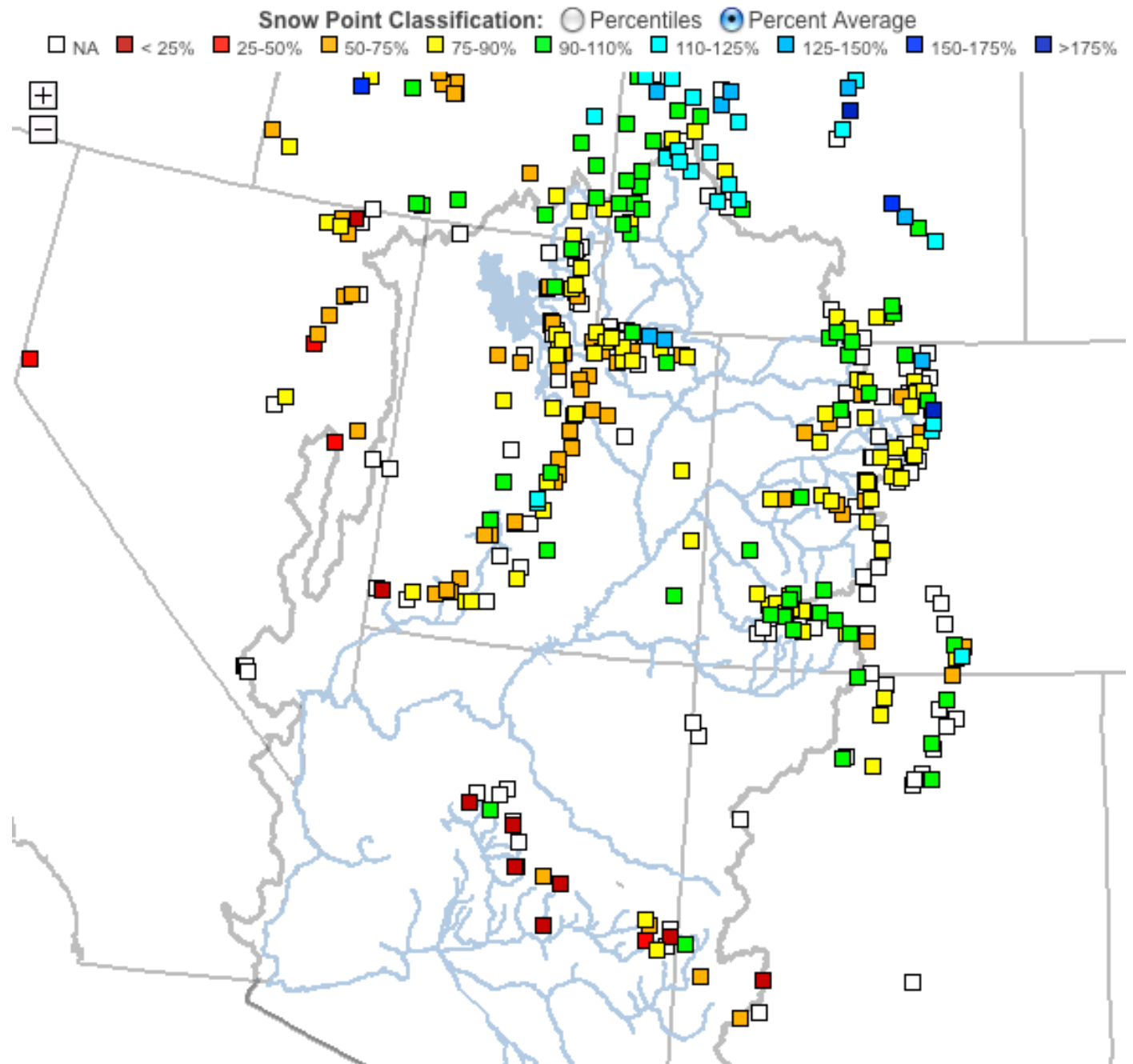
February 6, 2012



Web Reference: <http://www.cbrfc.noaa.gov/gmap/gmapm.php?scon=checked>

Snow

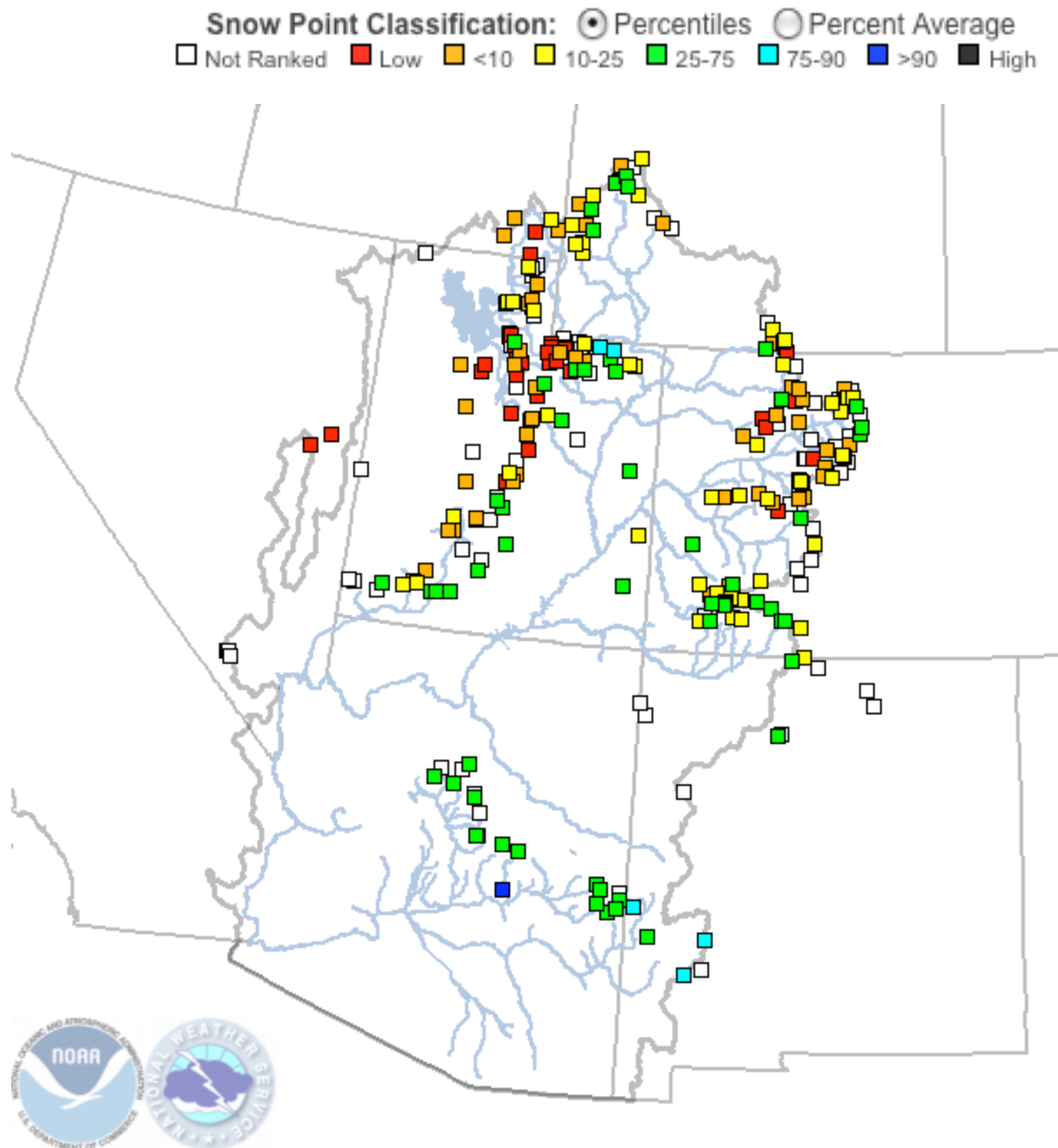
March 6, 2012



Web Reference: <http://www.cbrfc.noaa.gov/gmap/gmapm.php?scon=checked>

Snow

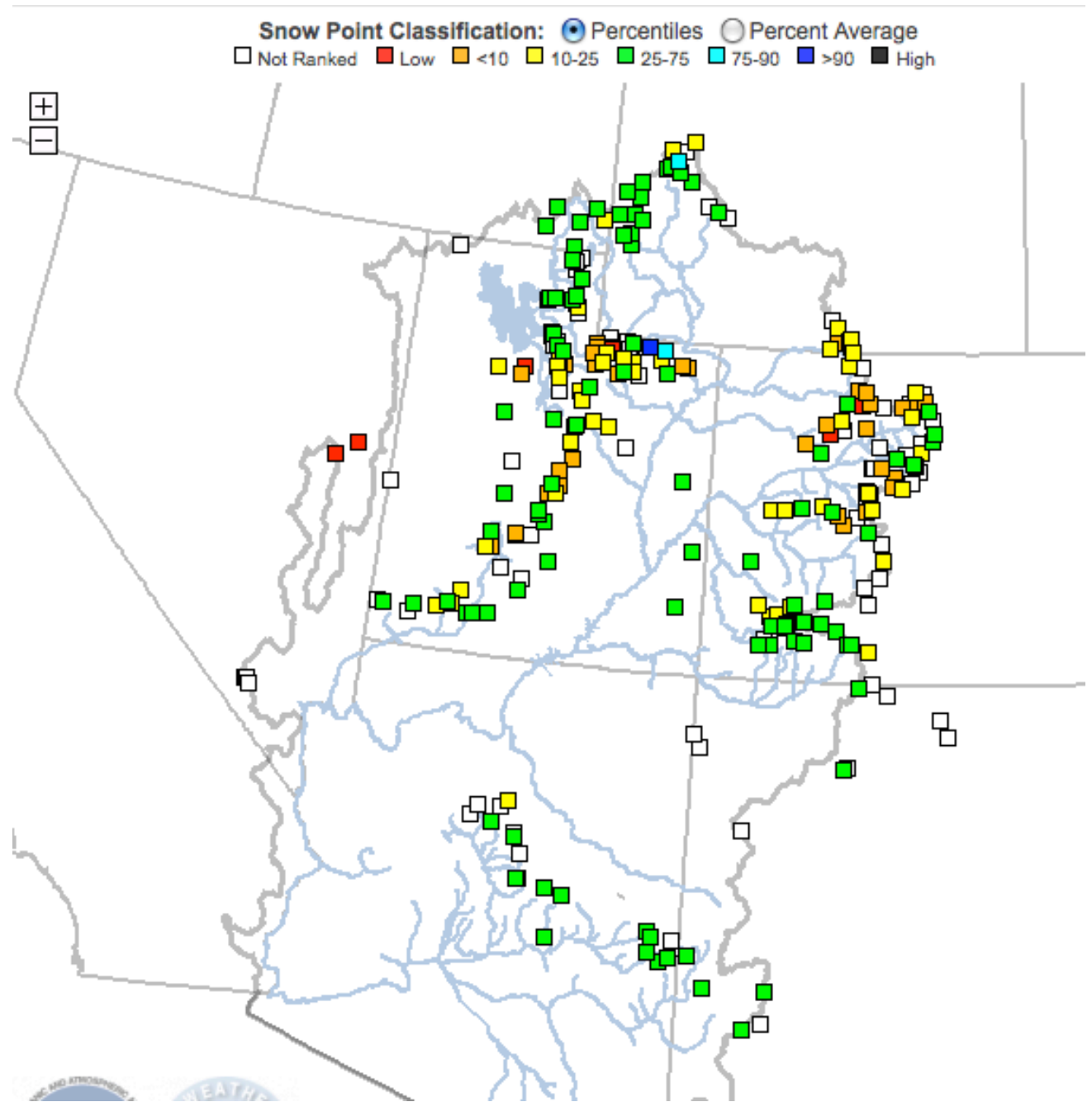
January 5, 2012



Web Reference: <http://www.cbrfc.noaa.gov/gmap/gmapm.php?scon=checked>

Snow

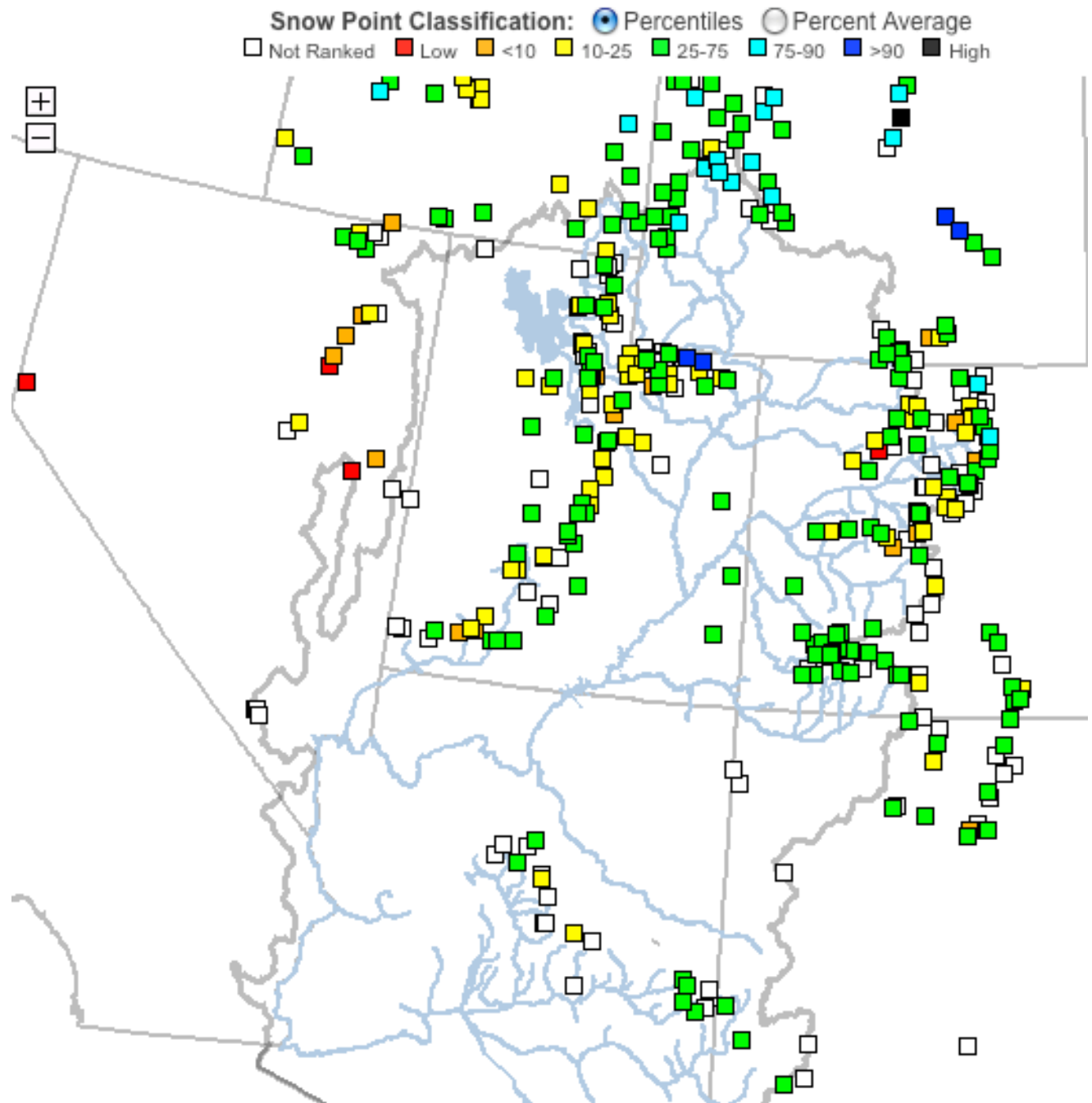
February 6, 2012



Web Reference: <http://www.cbrfc.noaa.gov/gmap/gmapm.php?scon=checked>

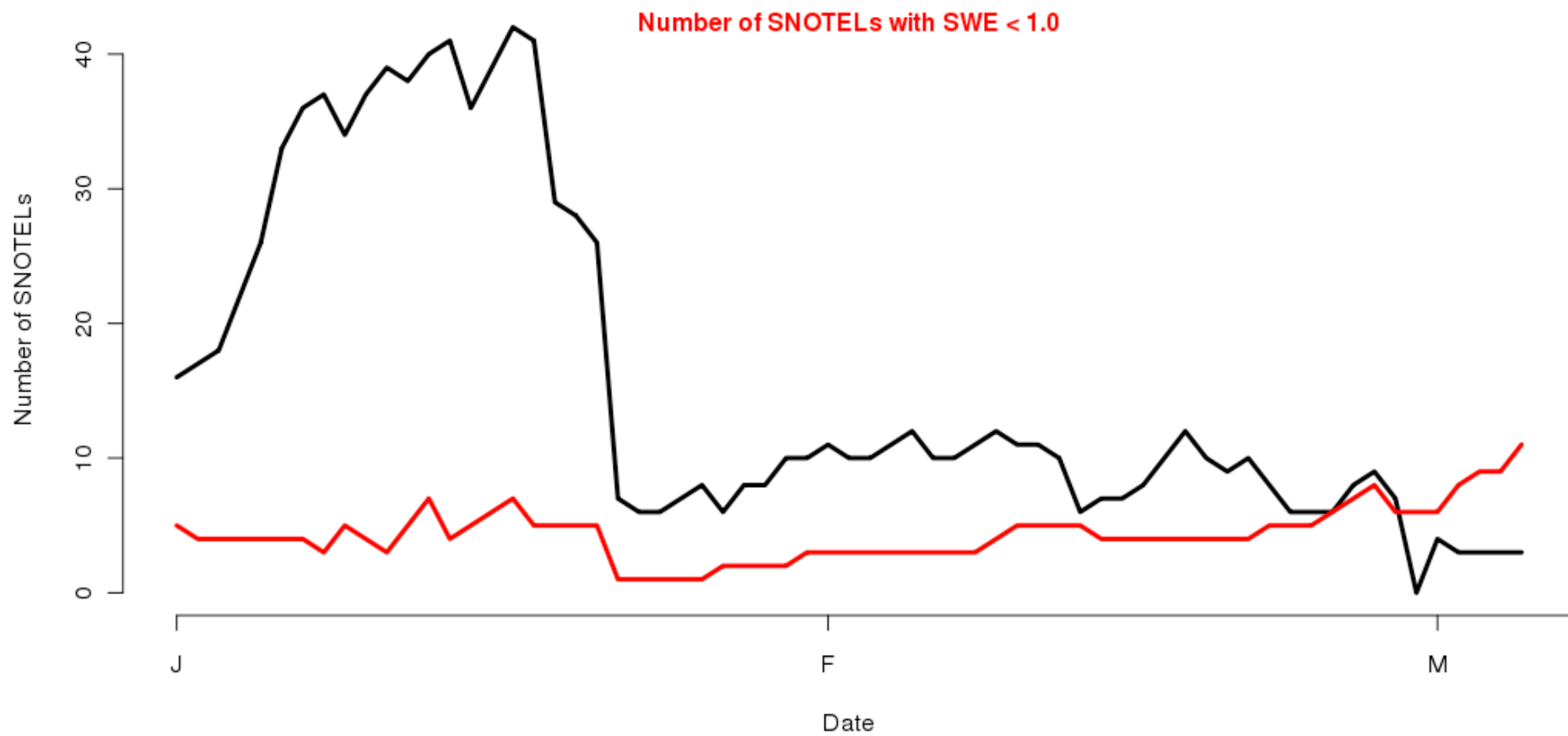
Snow

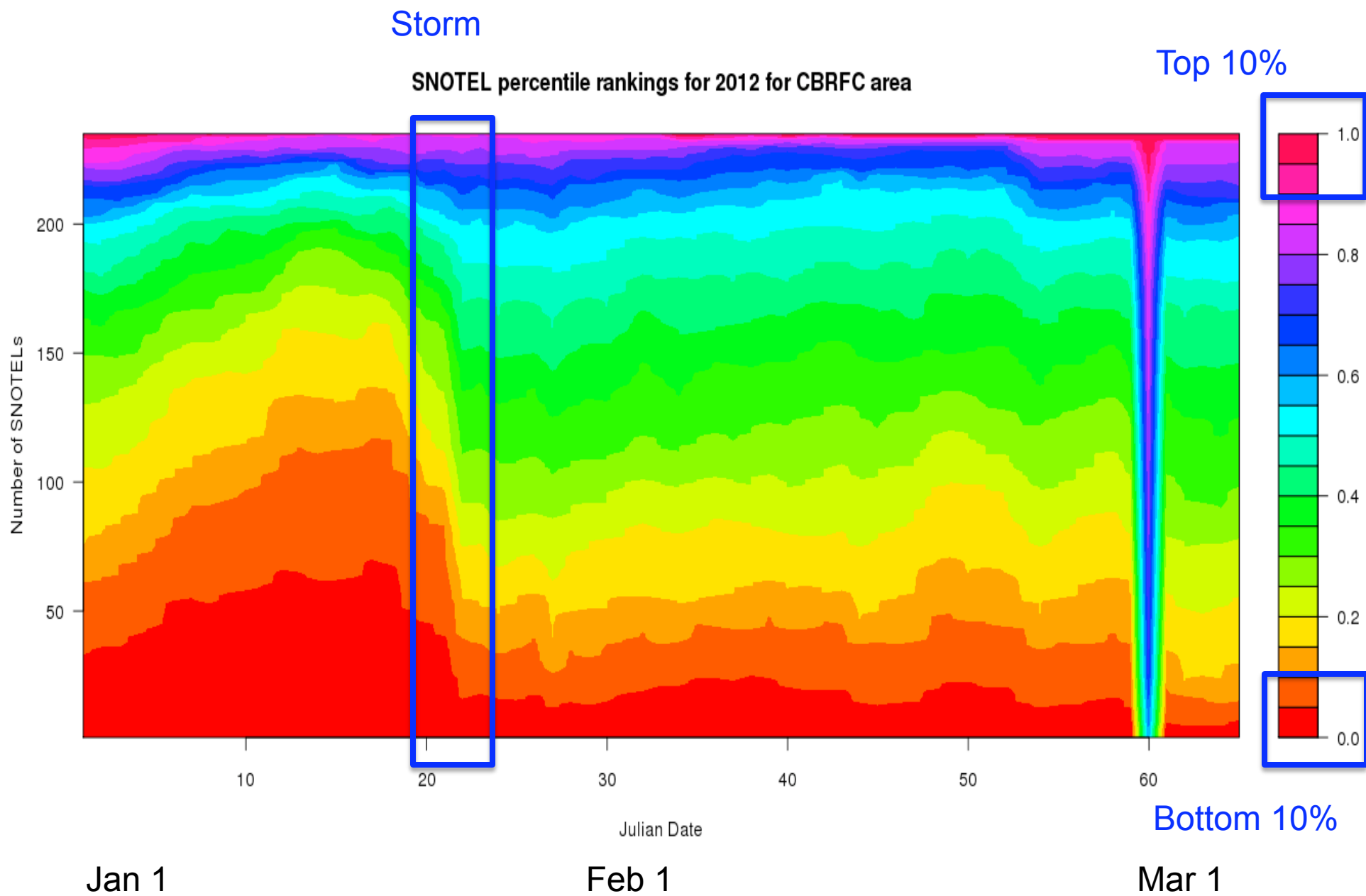
March 5, 2012



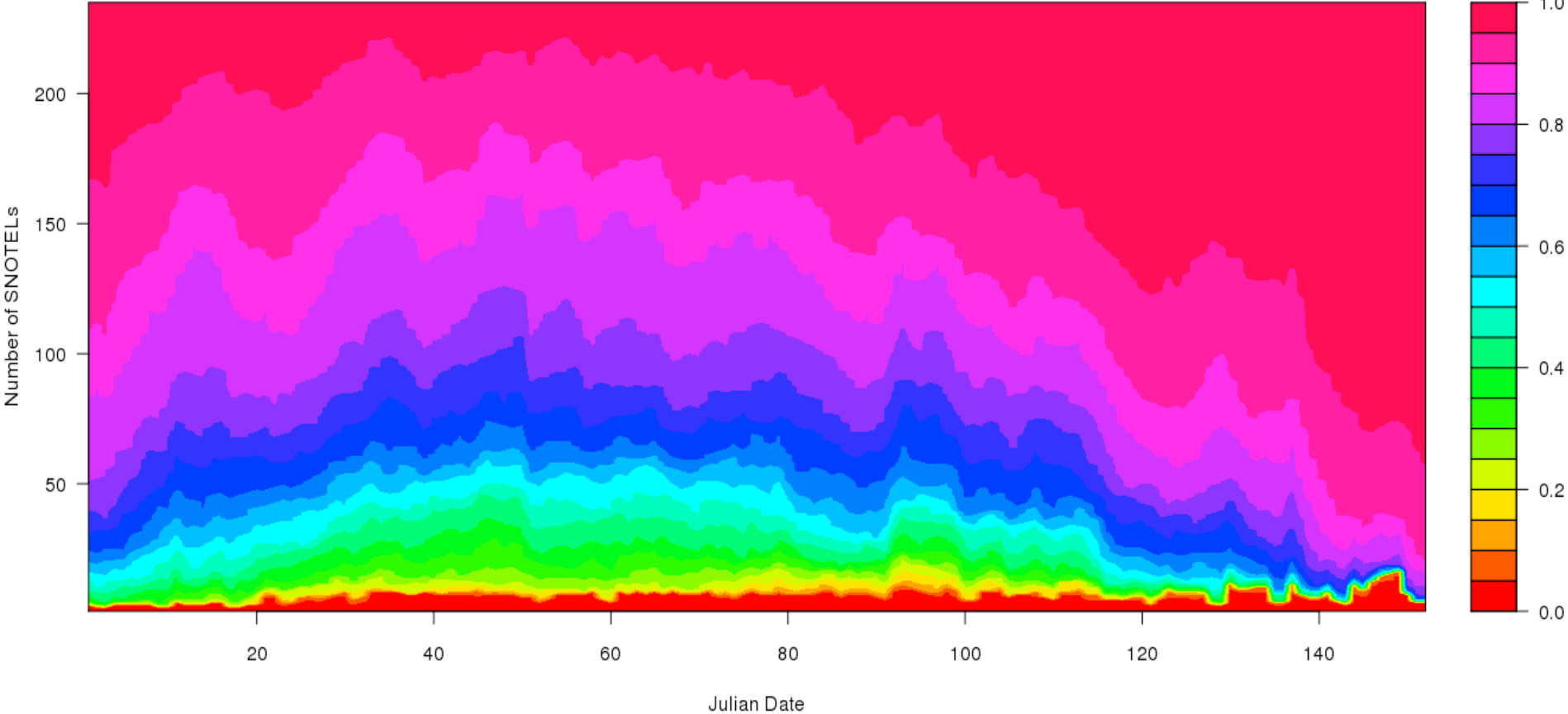
Web Reference: <http://www.cbrfc.noaa.gov/gmap/gmapm.php?scon=checked>

Number of SNOTELs with daily record minimum SWE

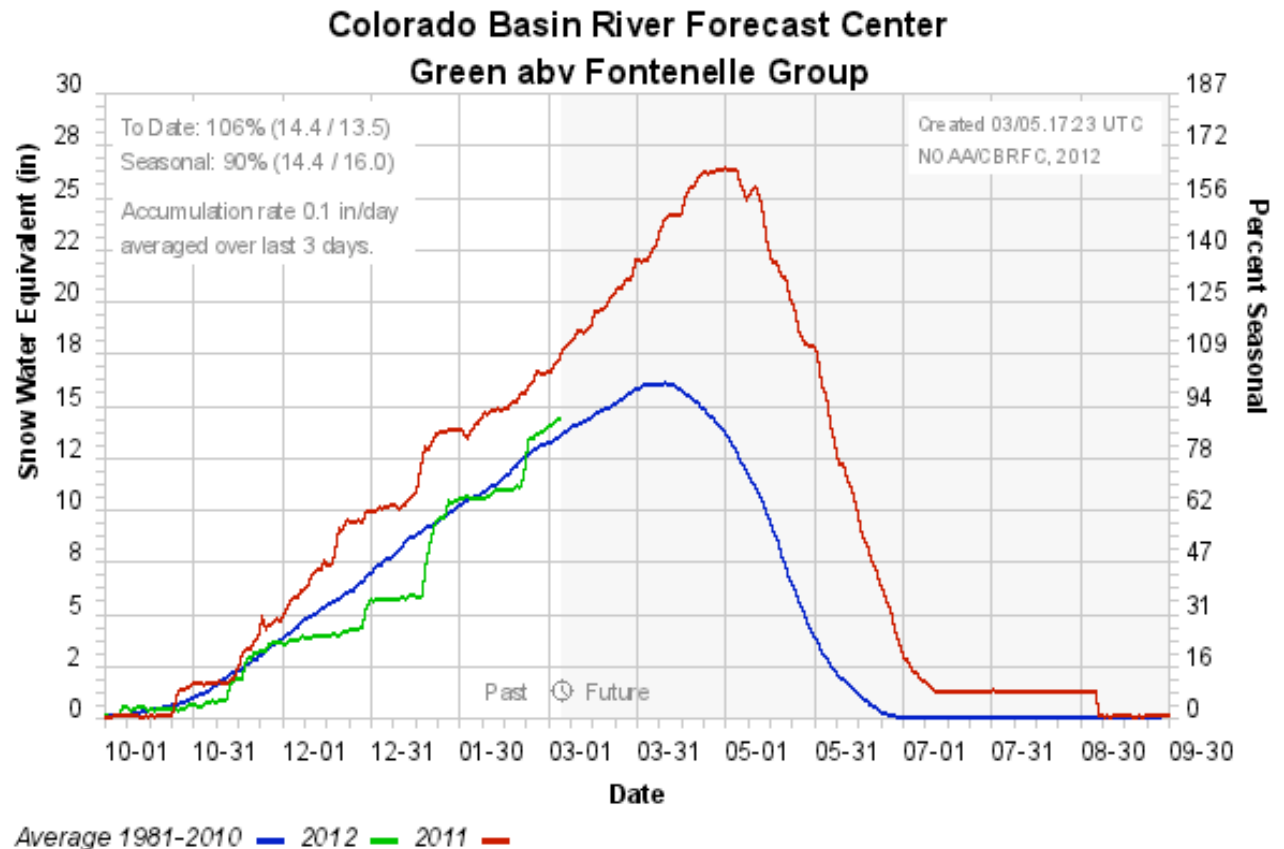
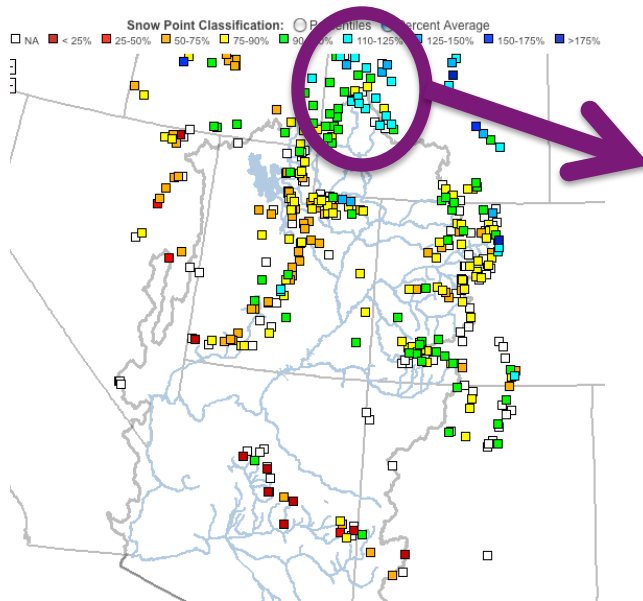




SNOTEL percentile rankings for 2011 for CBRFC area

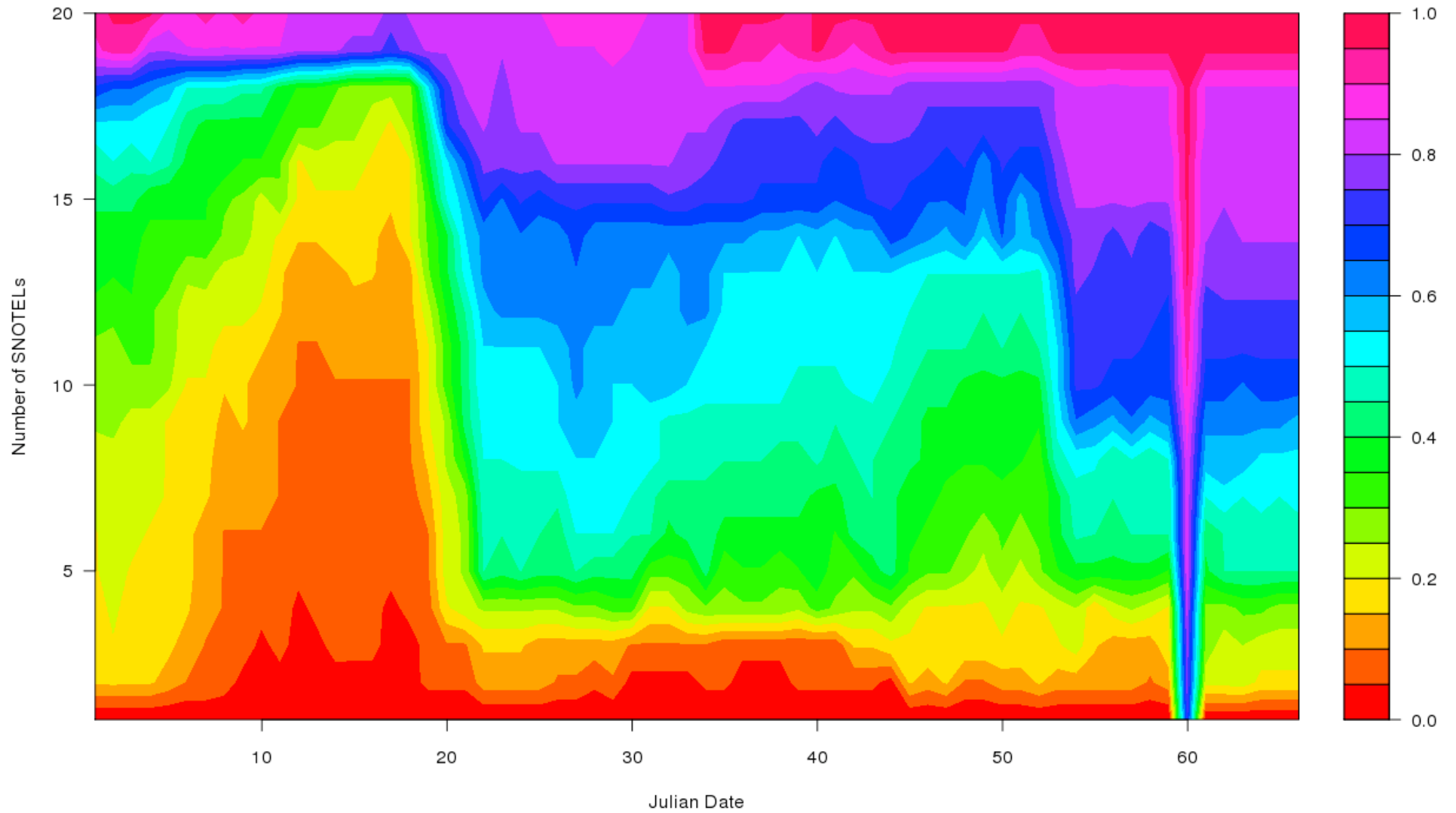


Snow: Upper Green Basin (Fontelle)

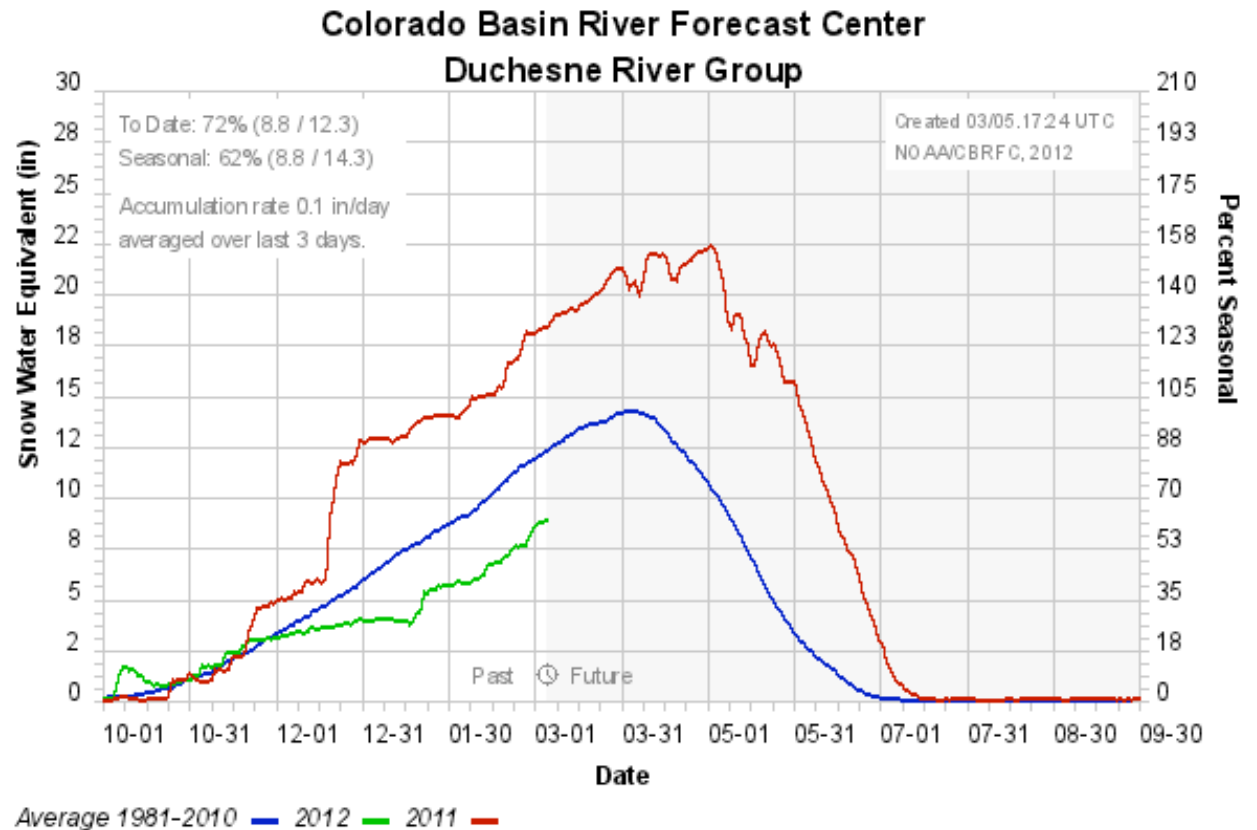
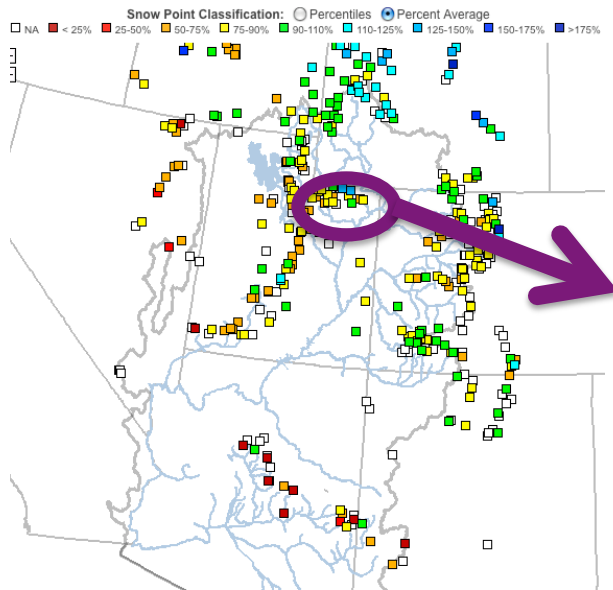


Web Reference: <http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open>

2012 SNOTEL percentile rankings for Upper Green

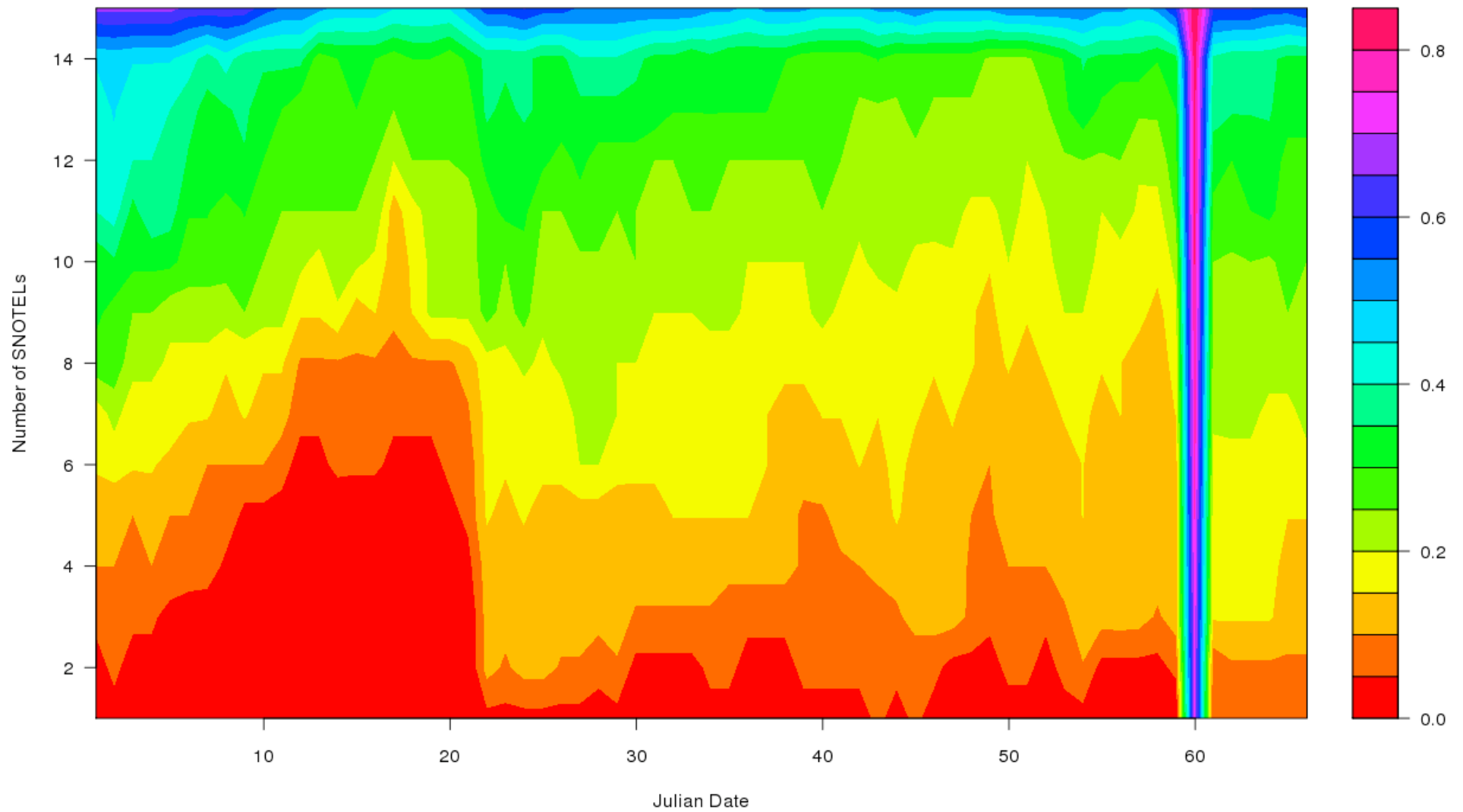


Snow: Duchesne Basin

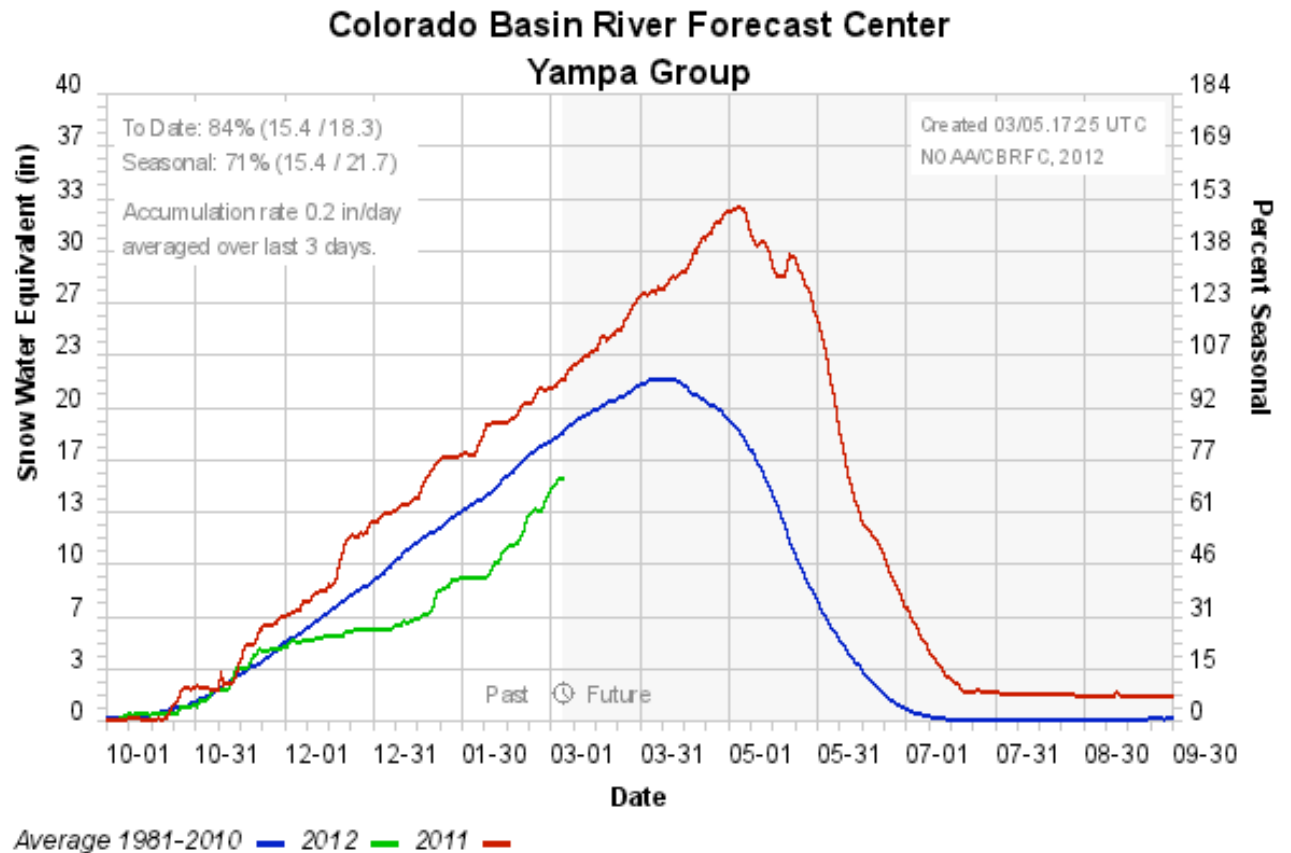
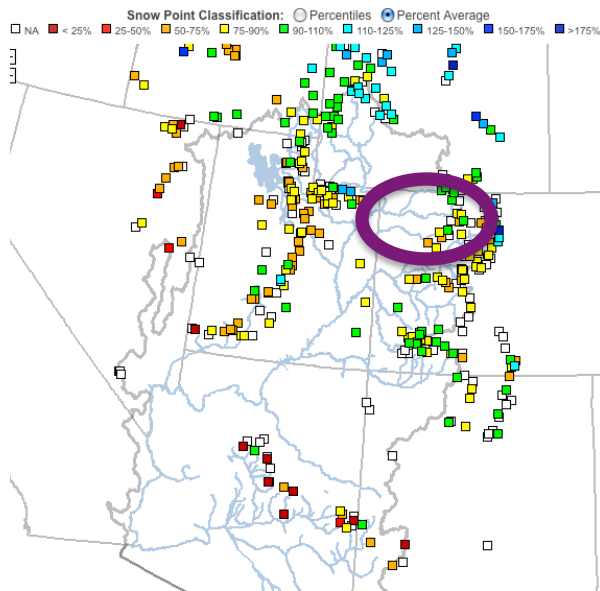


Web Reference: <http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open>

2012 SNOTEL percentile rankings for Duchesne

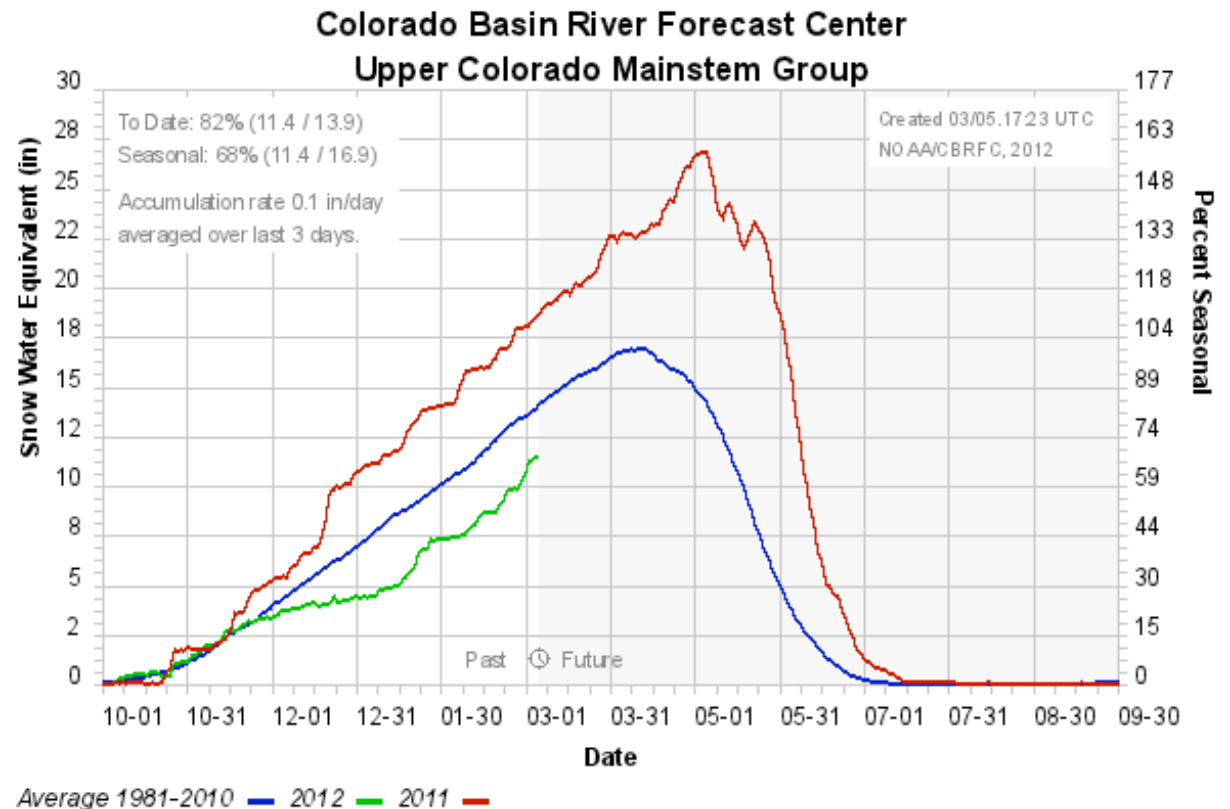
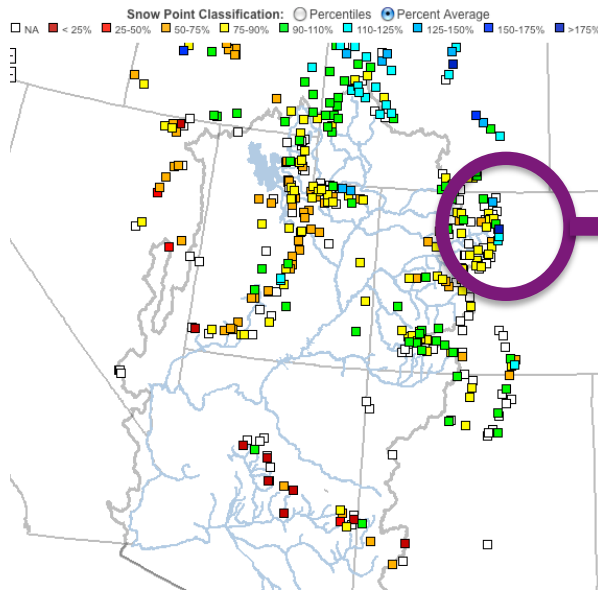


Snow: Yampa+White Basin



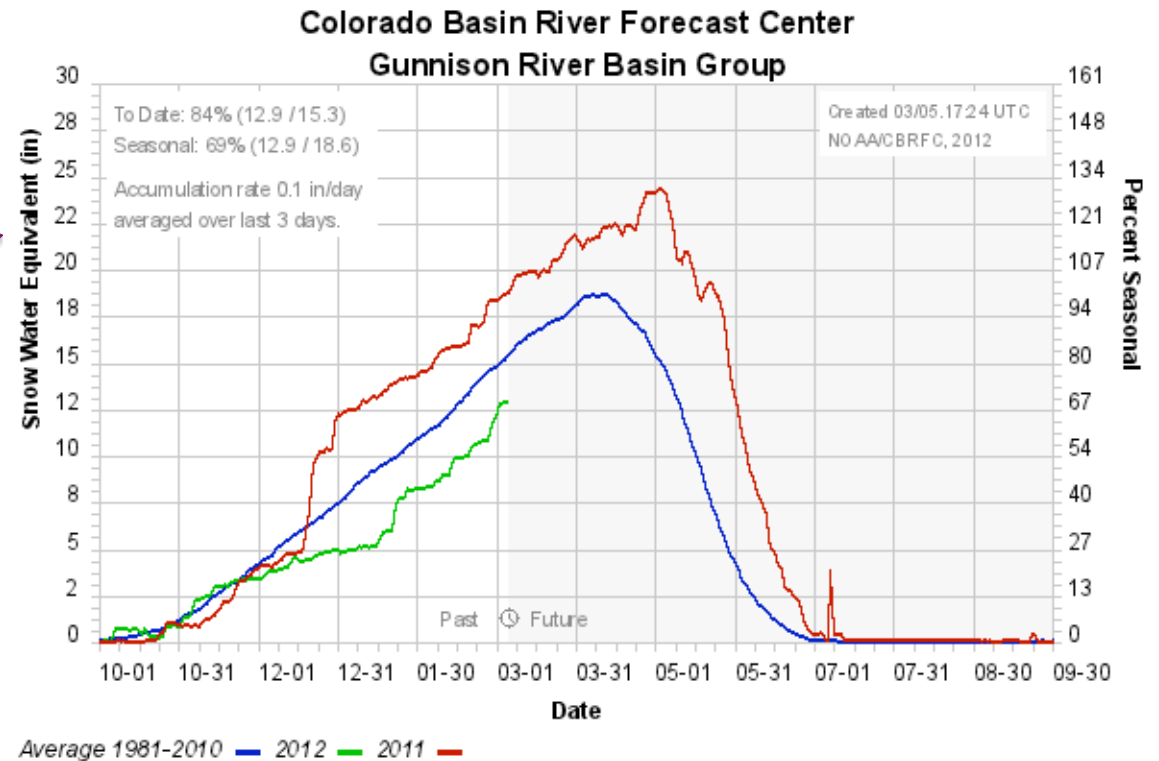
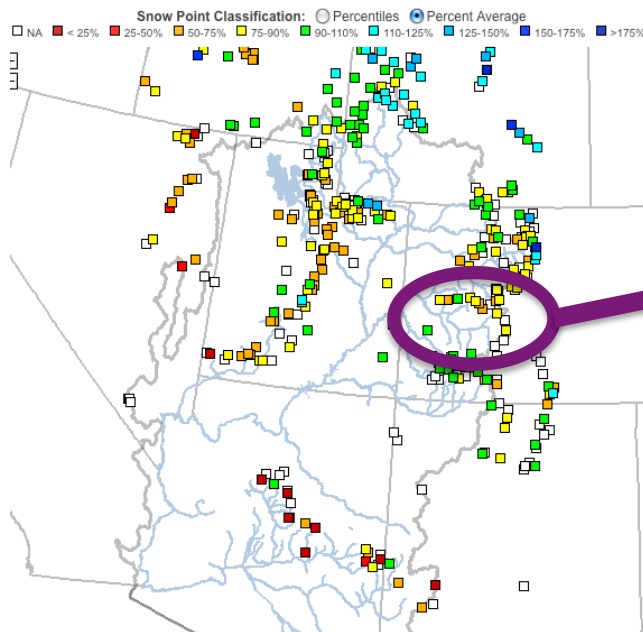
Web Reference: <http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open>

Snow: Colorado Mainstem (above Cameo)



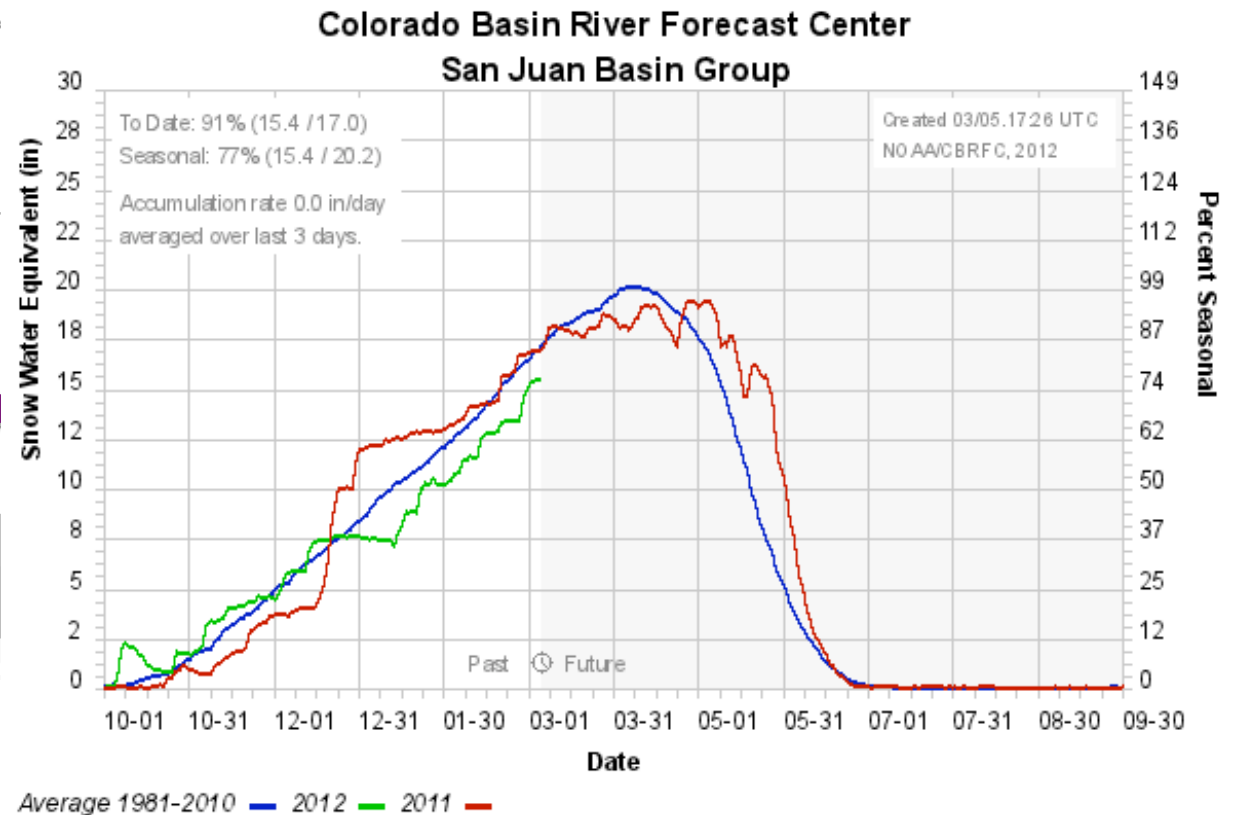
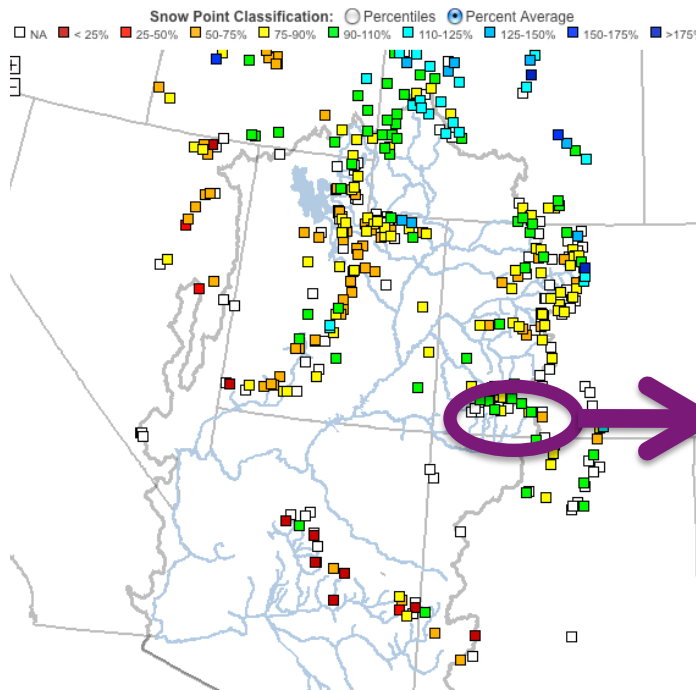
Web Reference: <http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open>

Snow: Gunnison Basin



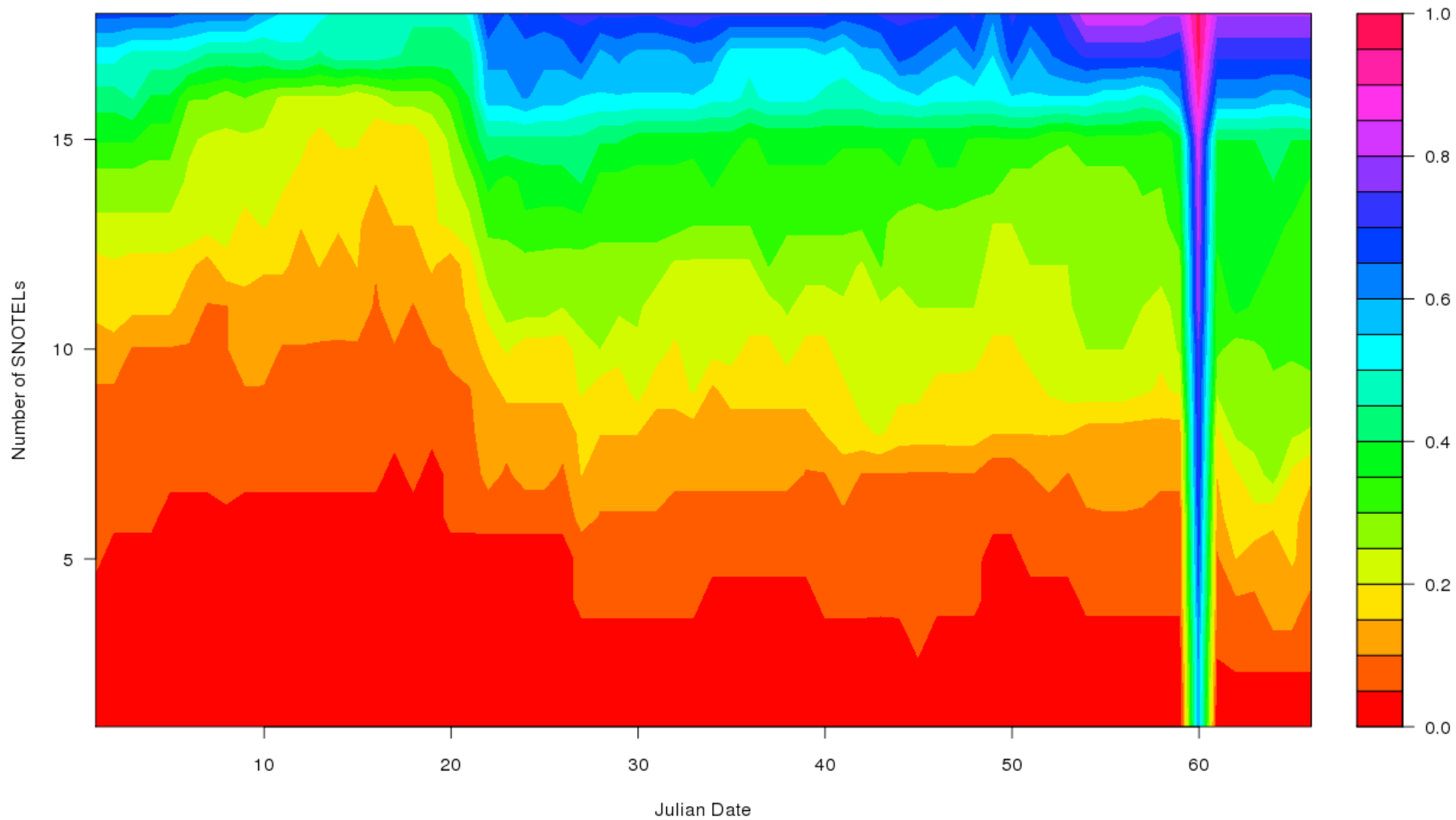
Web Reference: <http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open>

Snow: San Juan Basin

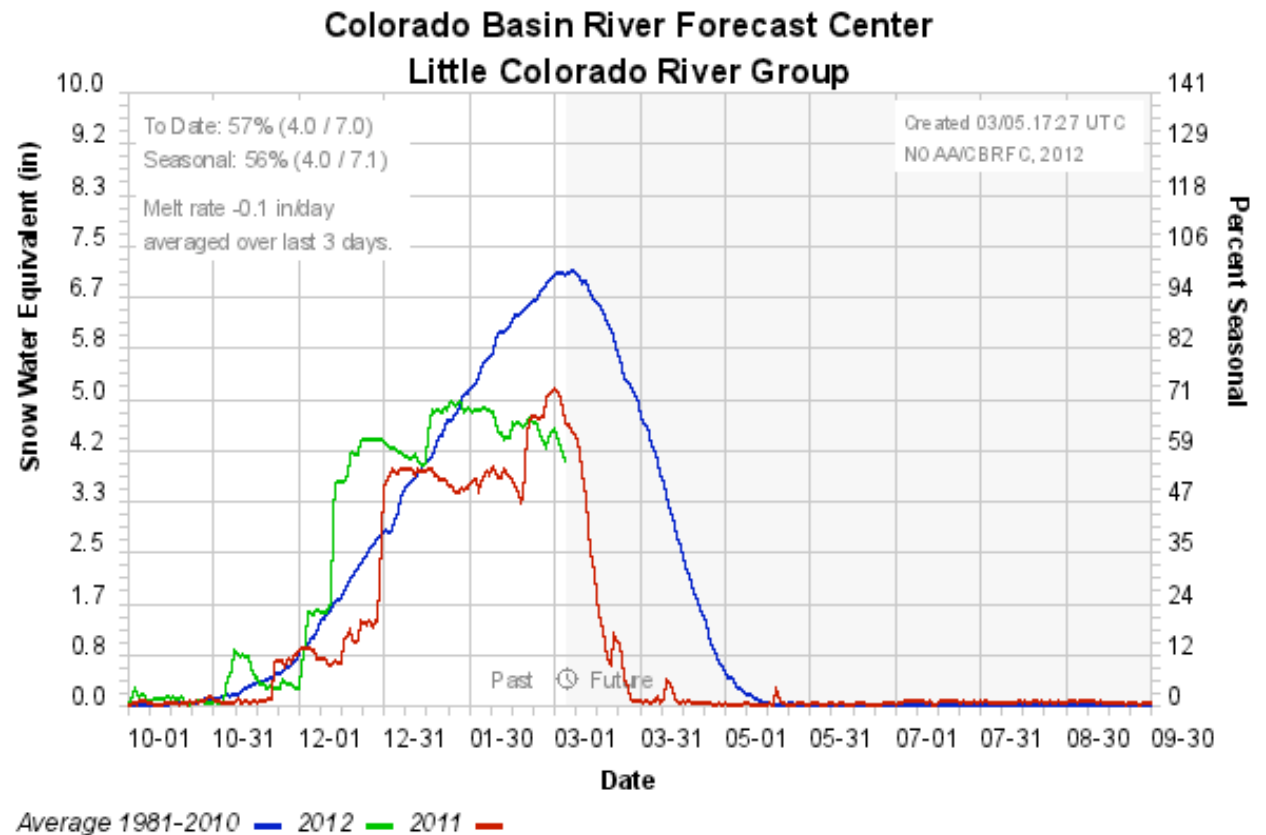
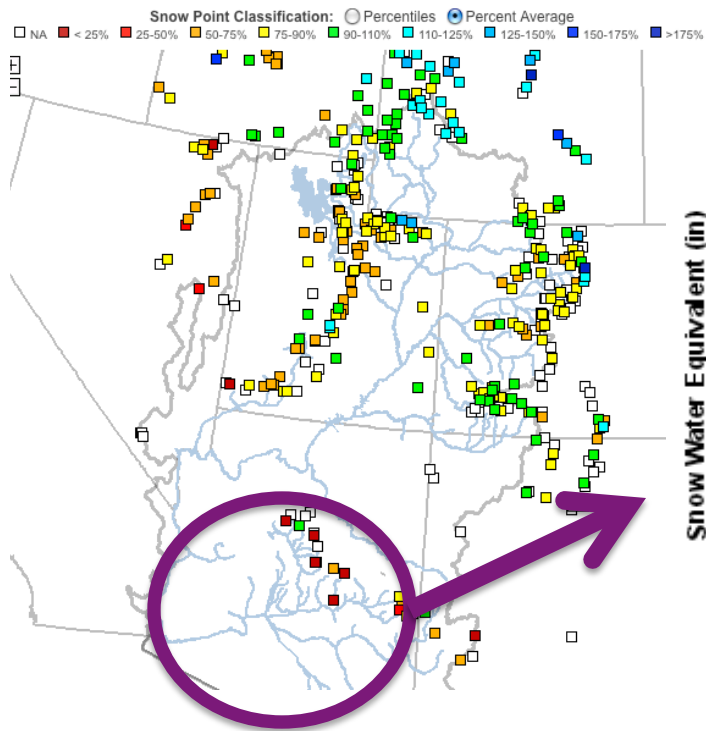


Web Reference: <http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open>

2012 SNOTEL percentile rankings for Lake Powell



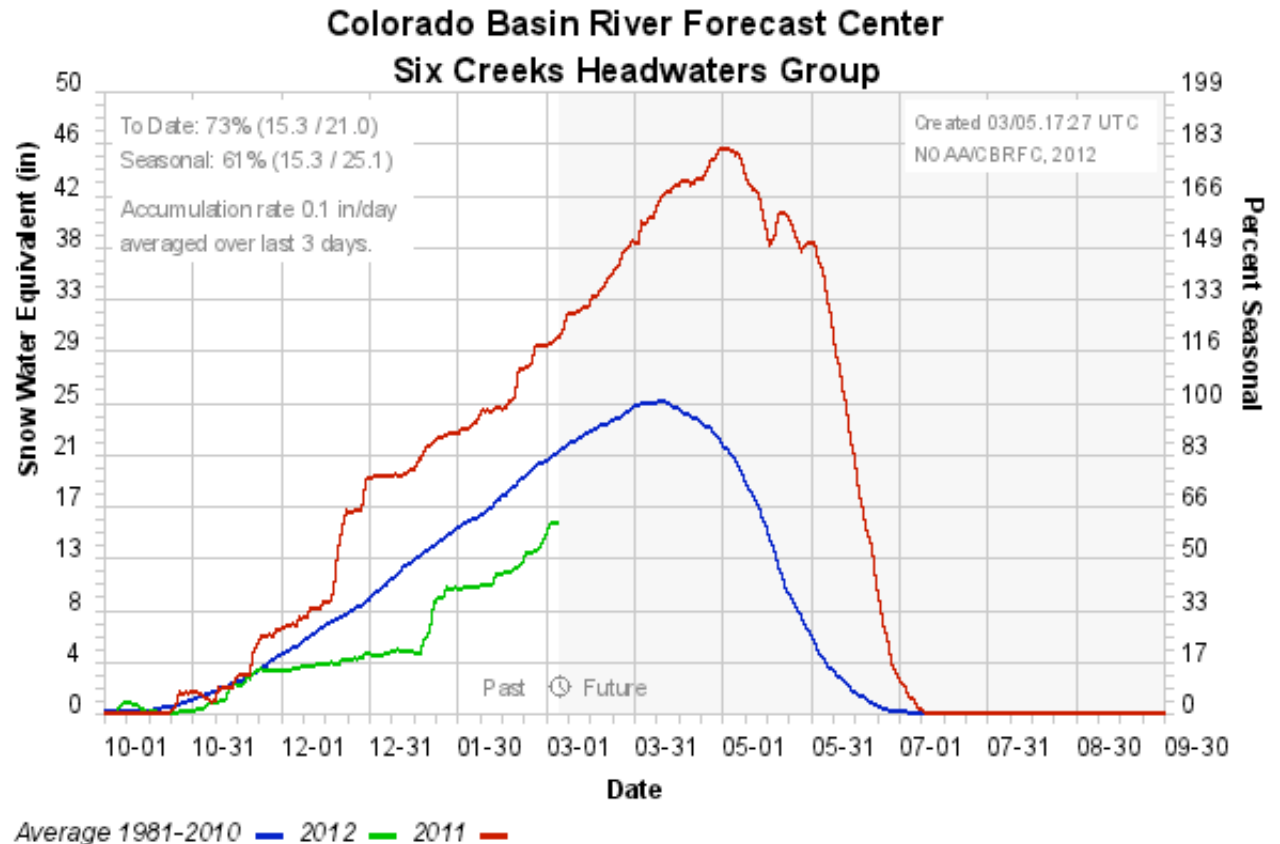
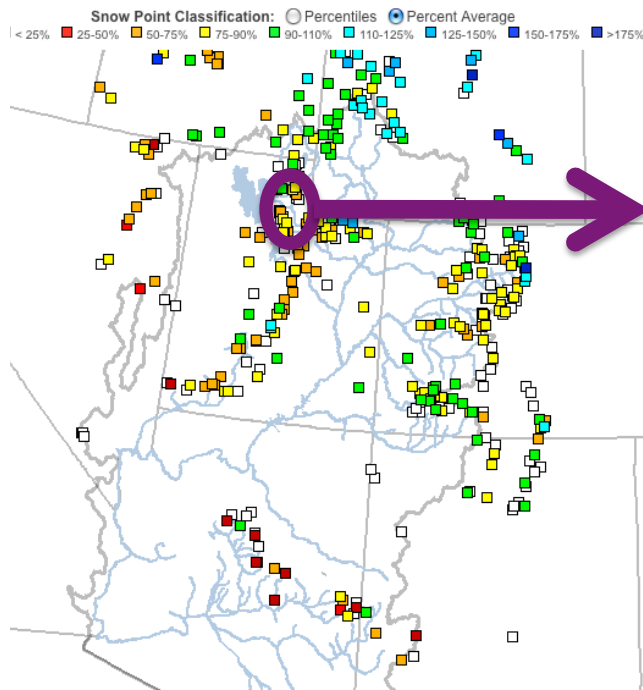
Snow: Lower Colorado



Web Reference: <http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open>

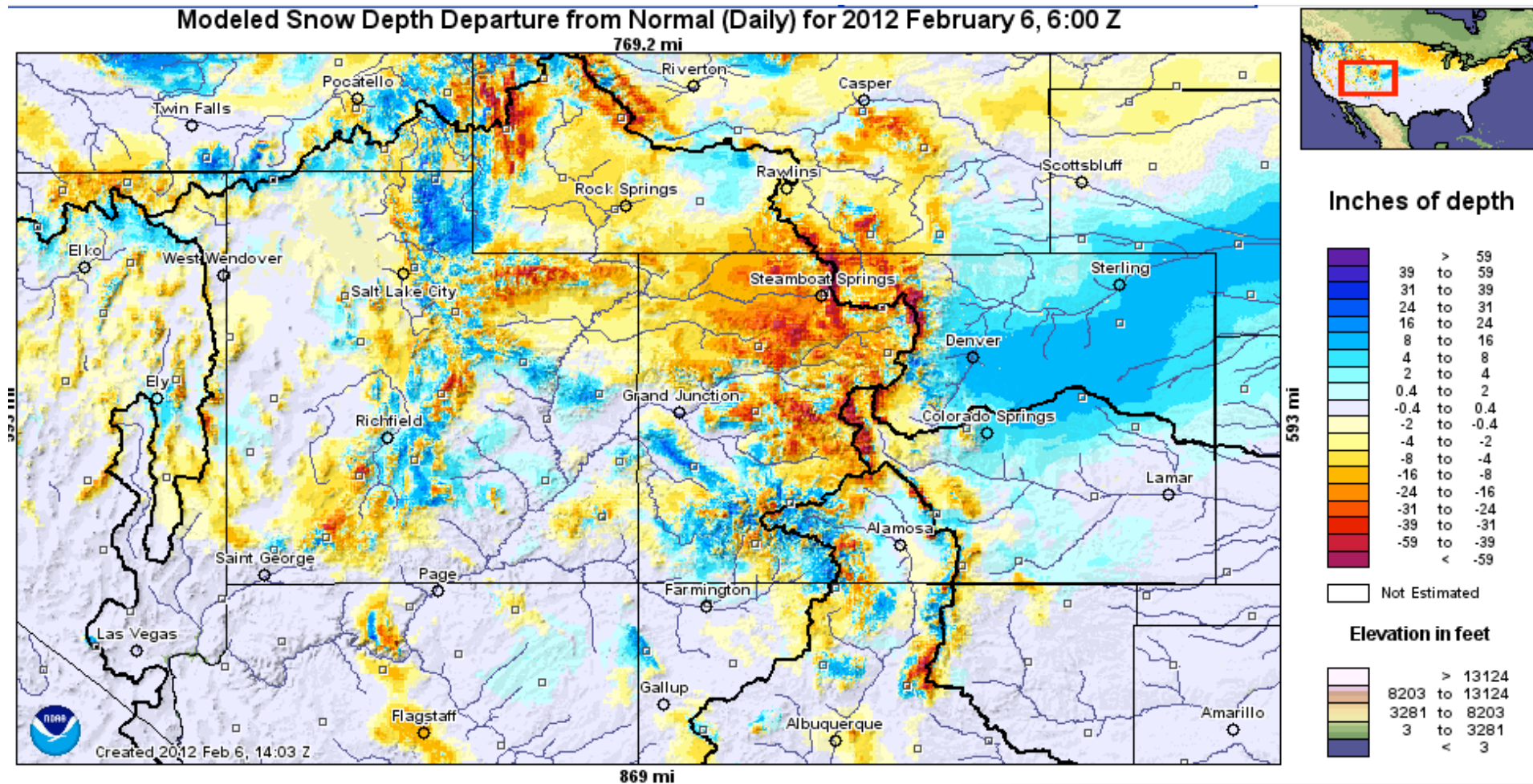
Snow:

Six Creeks in Salt Lake County



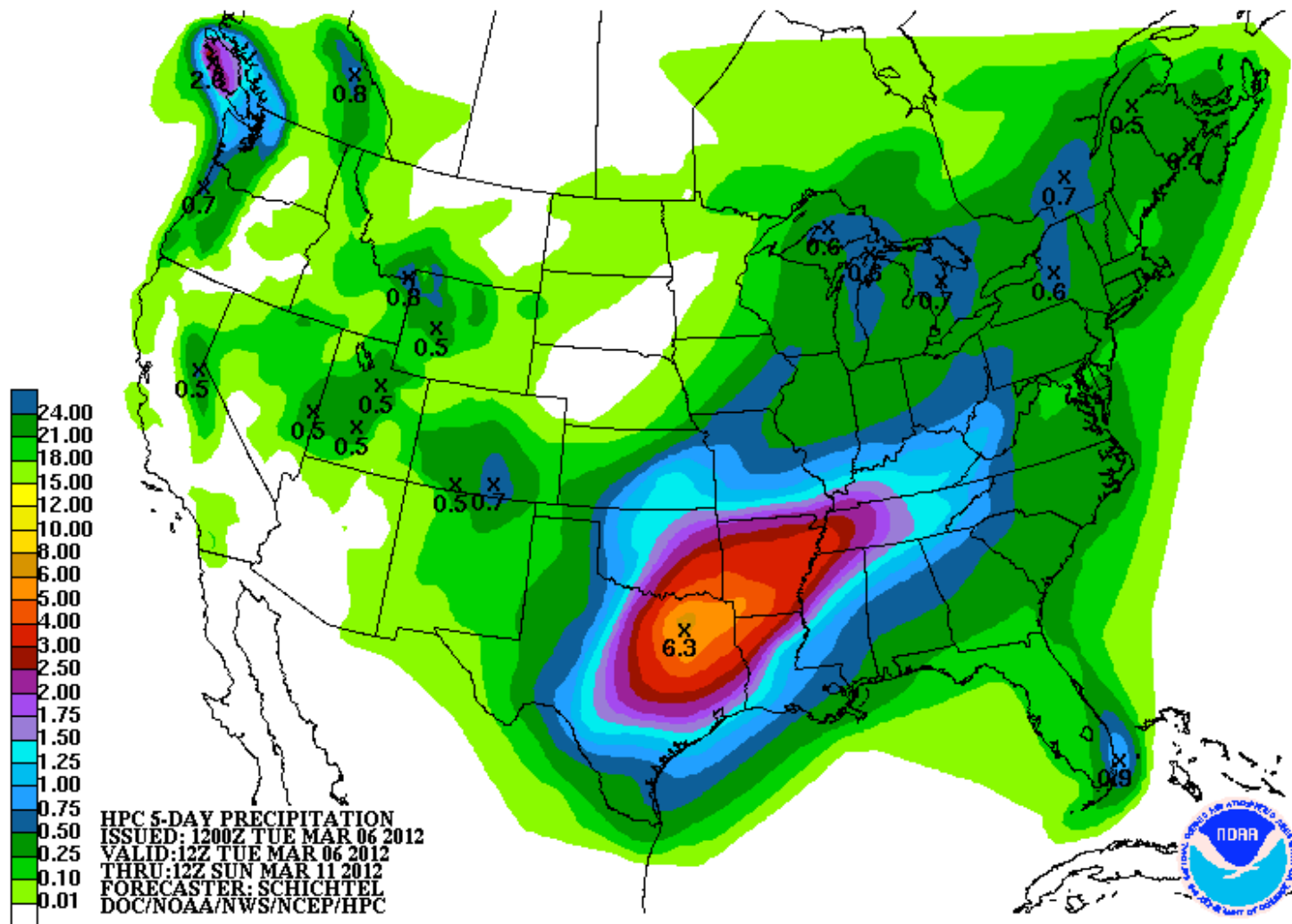
Web Reference: <http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open>

Snow Maps



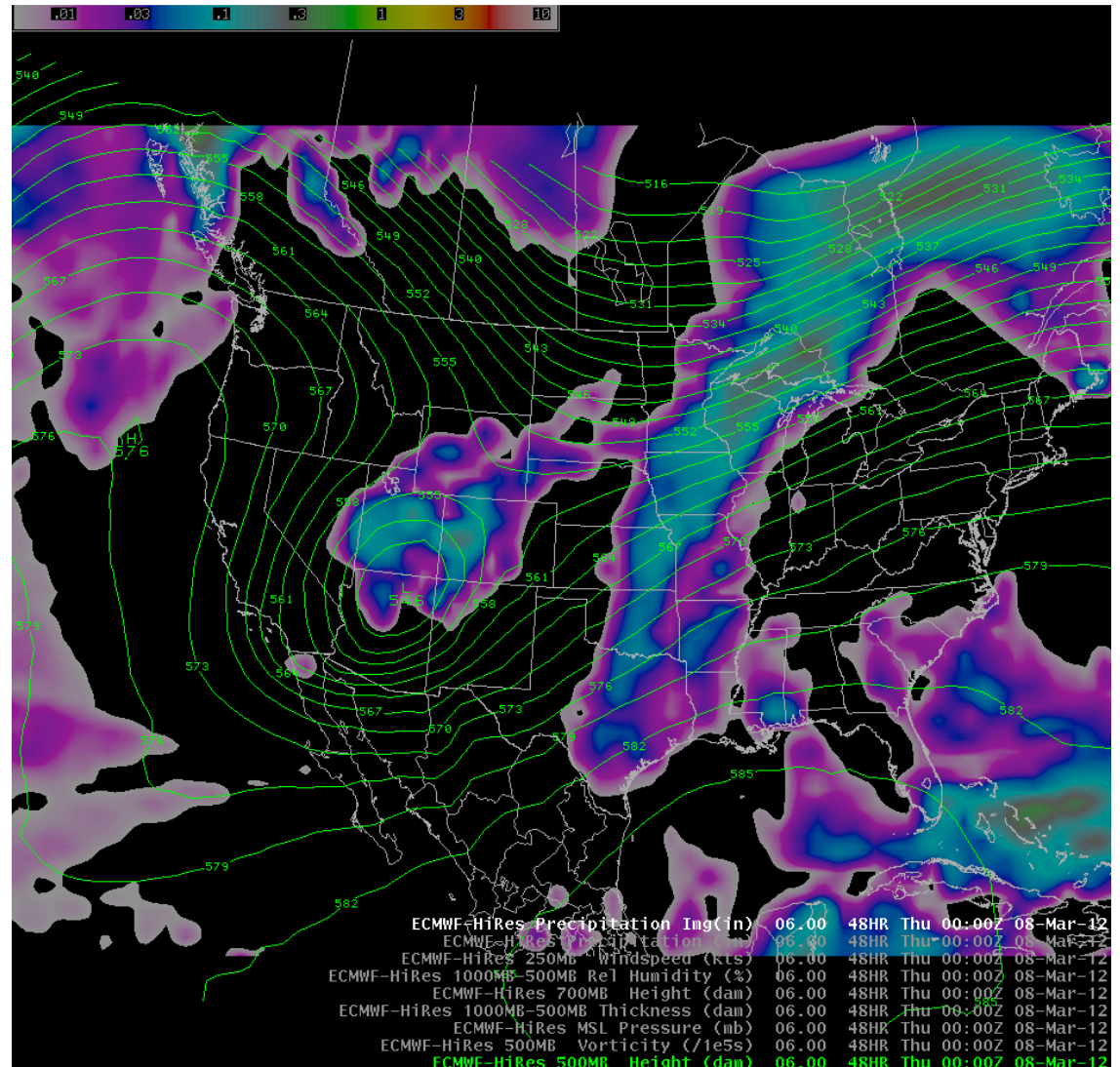
Web Reference: <http://www.nohrsc.nws.gov>

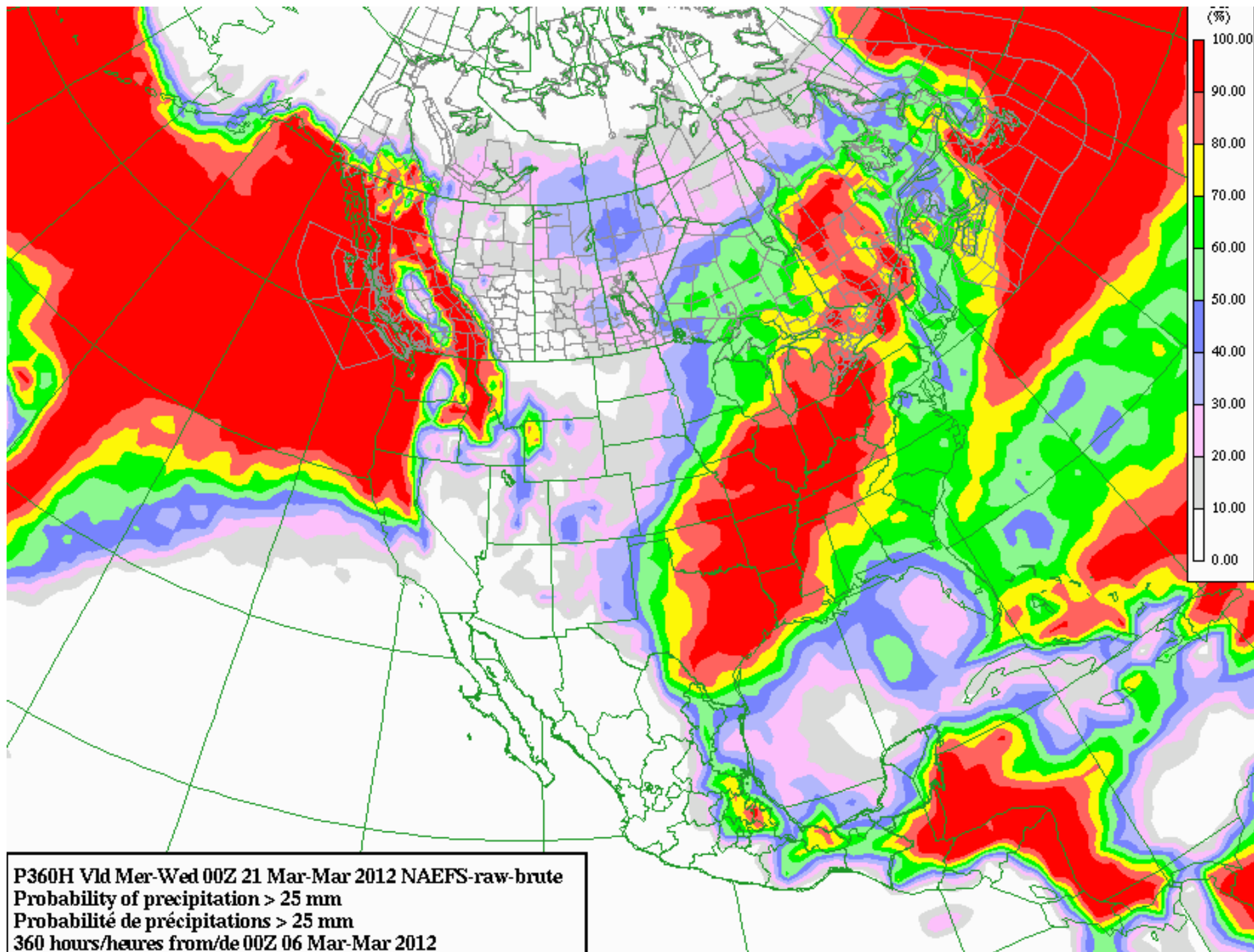
Forecast Precipitation

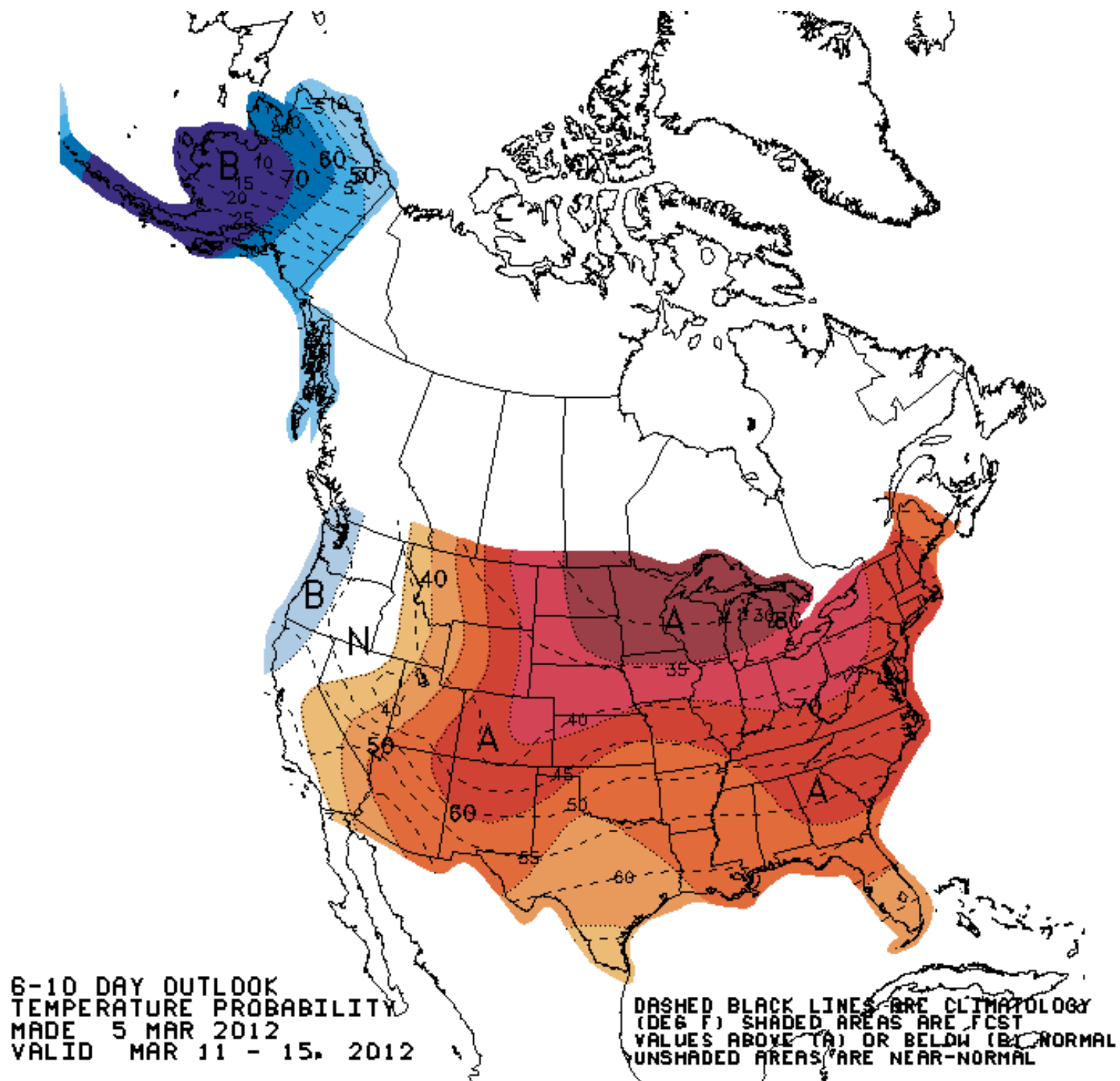


Weather Forecast

- **Below average precipitation** will prevail over CRB in spite of **active storm track** pattern continuing for western United States.
- Storm #1 (right) impacting CRB now through Thursday. Split flow with potential for localized precipitation amounts around 1".
- Storm #2 middle of next week but most energy/moisture north of CRB.
- Third storm possible in 11-16 day period
- Overall **warmer than normal temperatures** creates potential for early melt in March



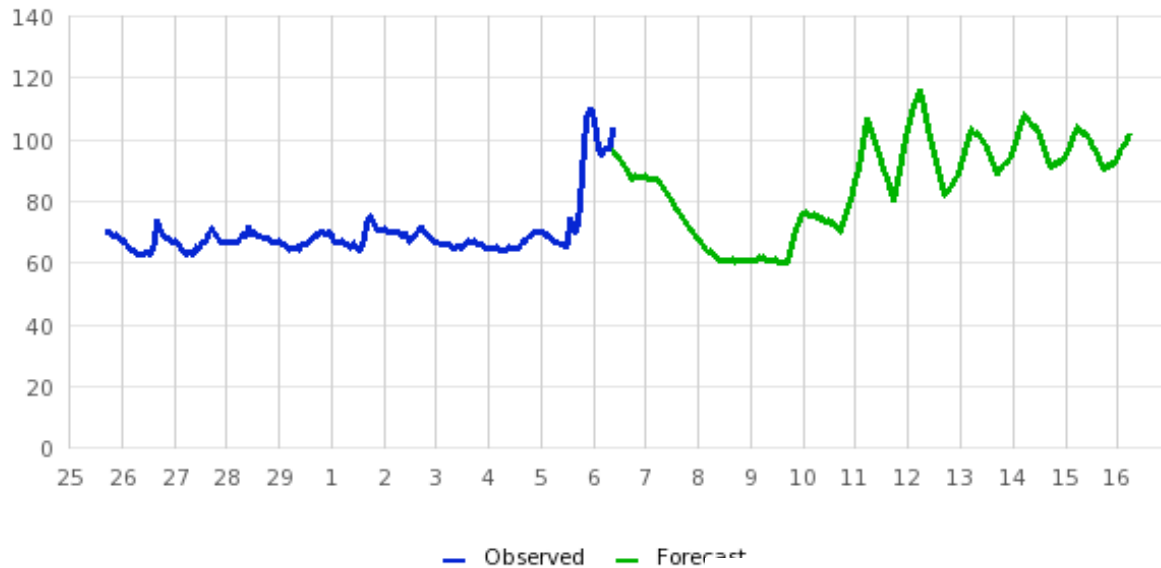




LITTLE BEAR - PARADISE (przu1)

Flow (cfs) for past 10 Days, Forecast run 2012-03-06 16:00 GMT

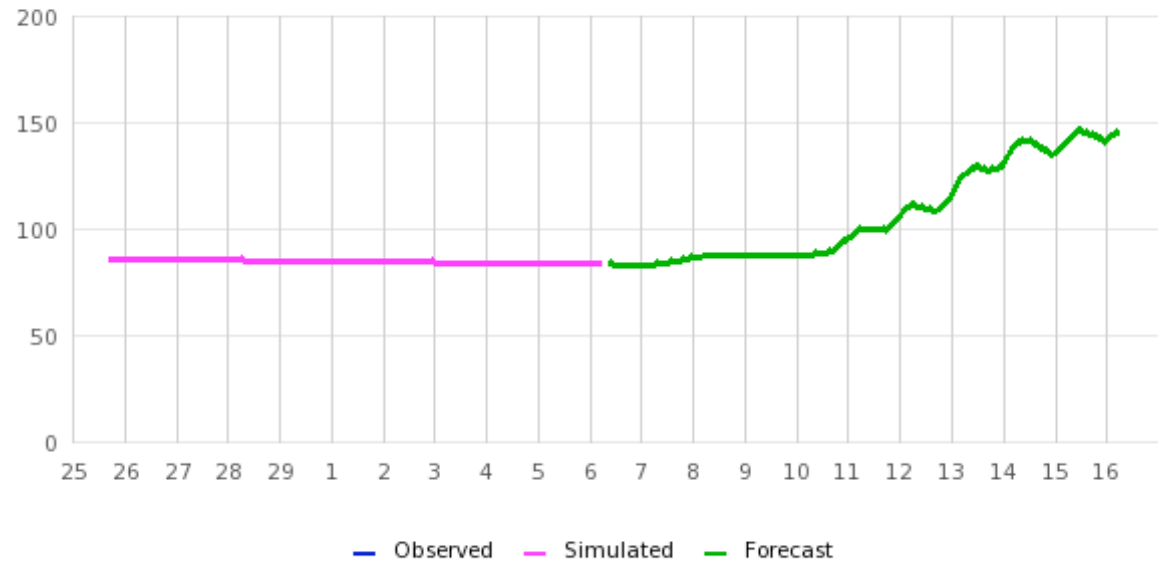
Plot Created March 6, 09:38 MST by the Colorado Basin River Forecast Center (NWS/NOAA)



PLATEAU CK - CAMEO, NR (pccc2)

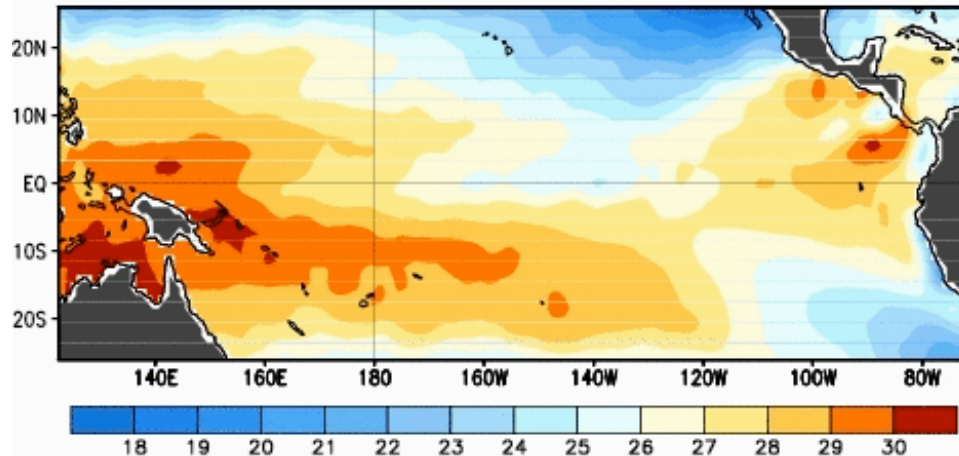
Flow (cfs) for past 10 Days, Forecast run 2012-03-06 16:00 GMT

Plot Created March 6, 09:39 MST by the Colorado Basin River Forecast Center (NWS/NOAA)

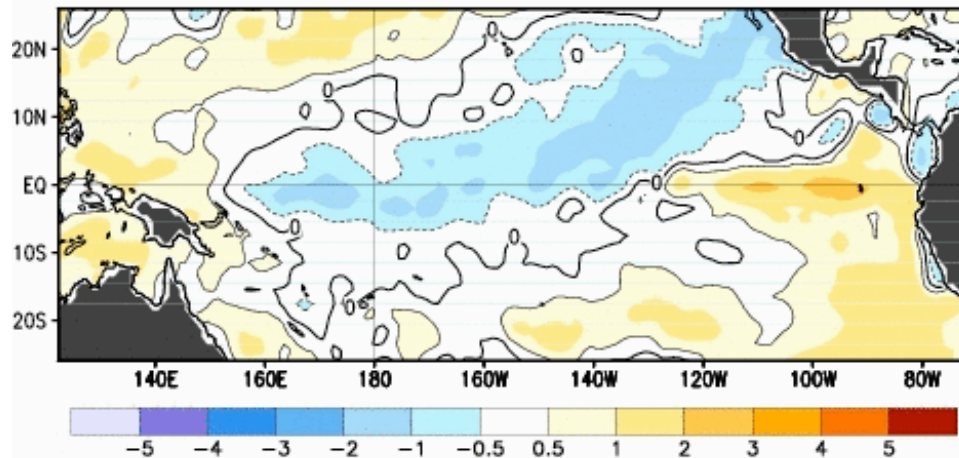


La Nina Update

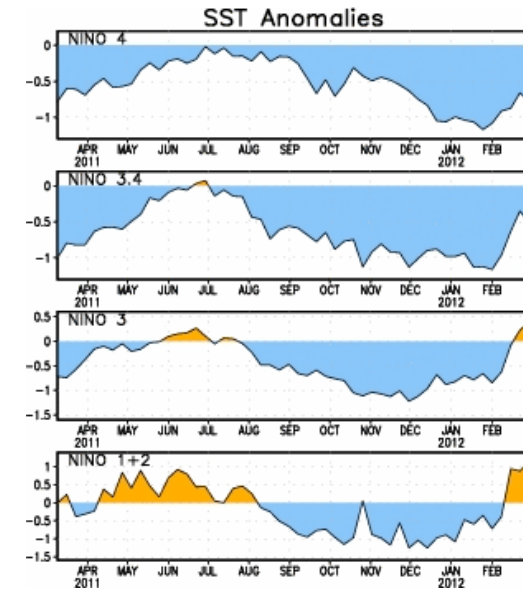
Observed Sea Surface Temperature (°C)



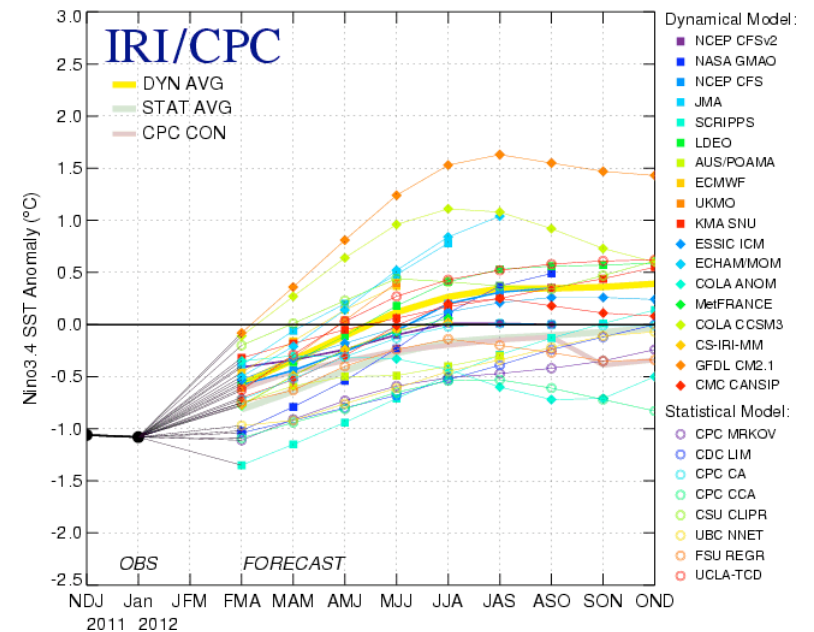
Observed Sea Surface Temperature Anomalies (°C)



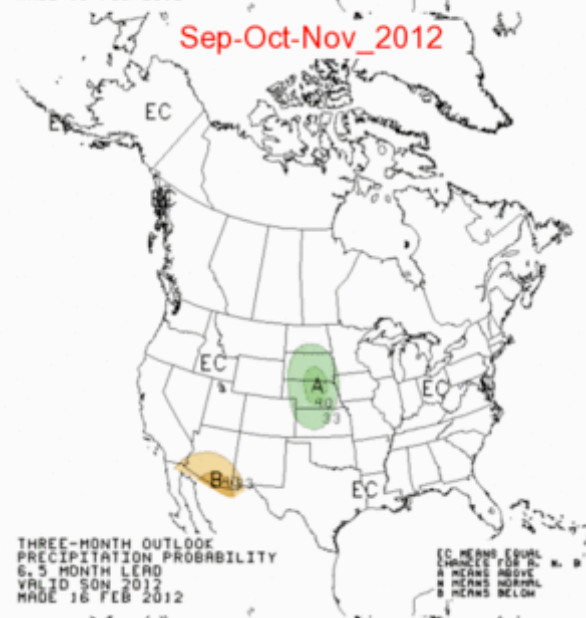
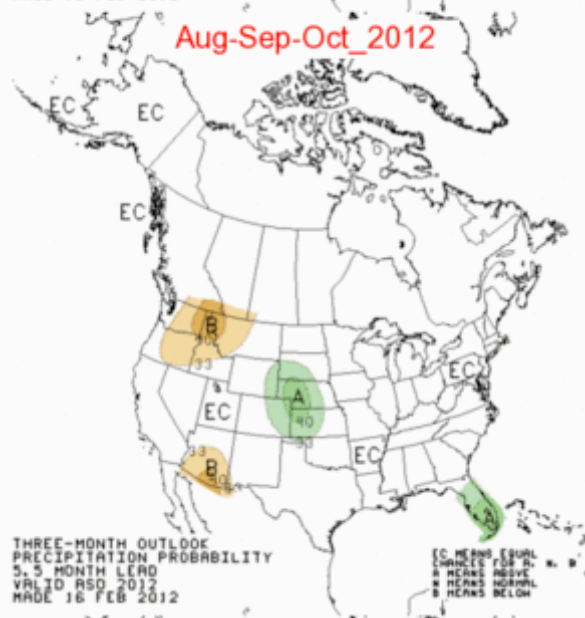
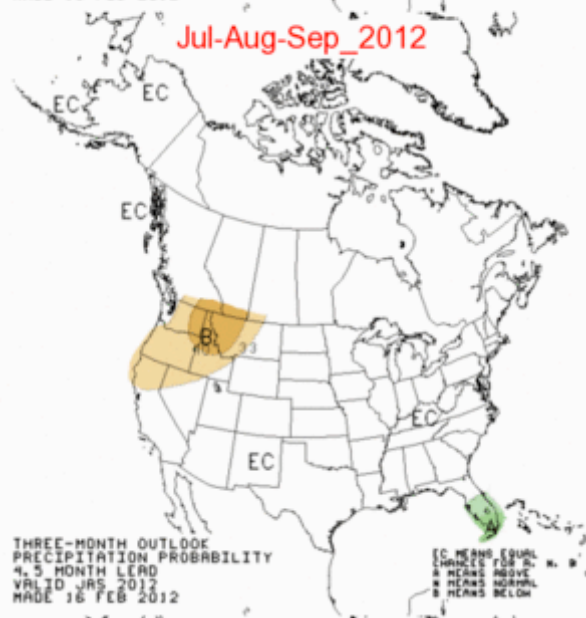
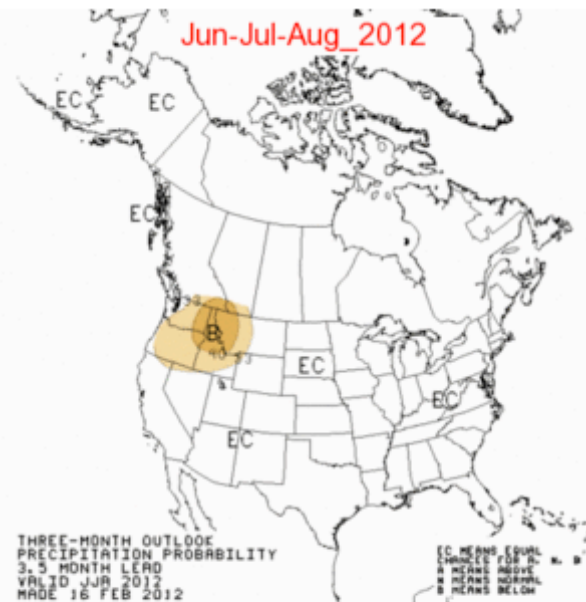
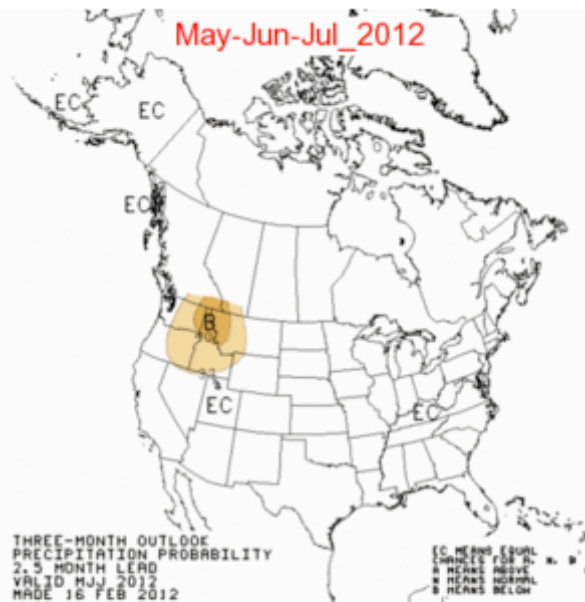
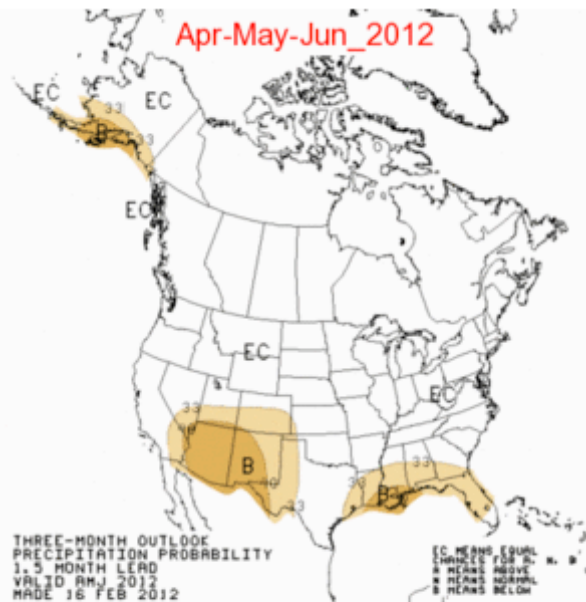
7-day Average Centered on 29 February 2012



Mid-Feb 2012 Plume of Model ENSO Predictions

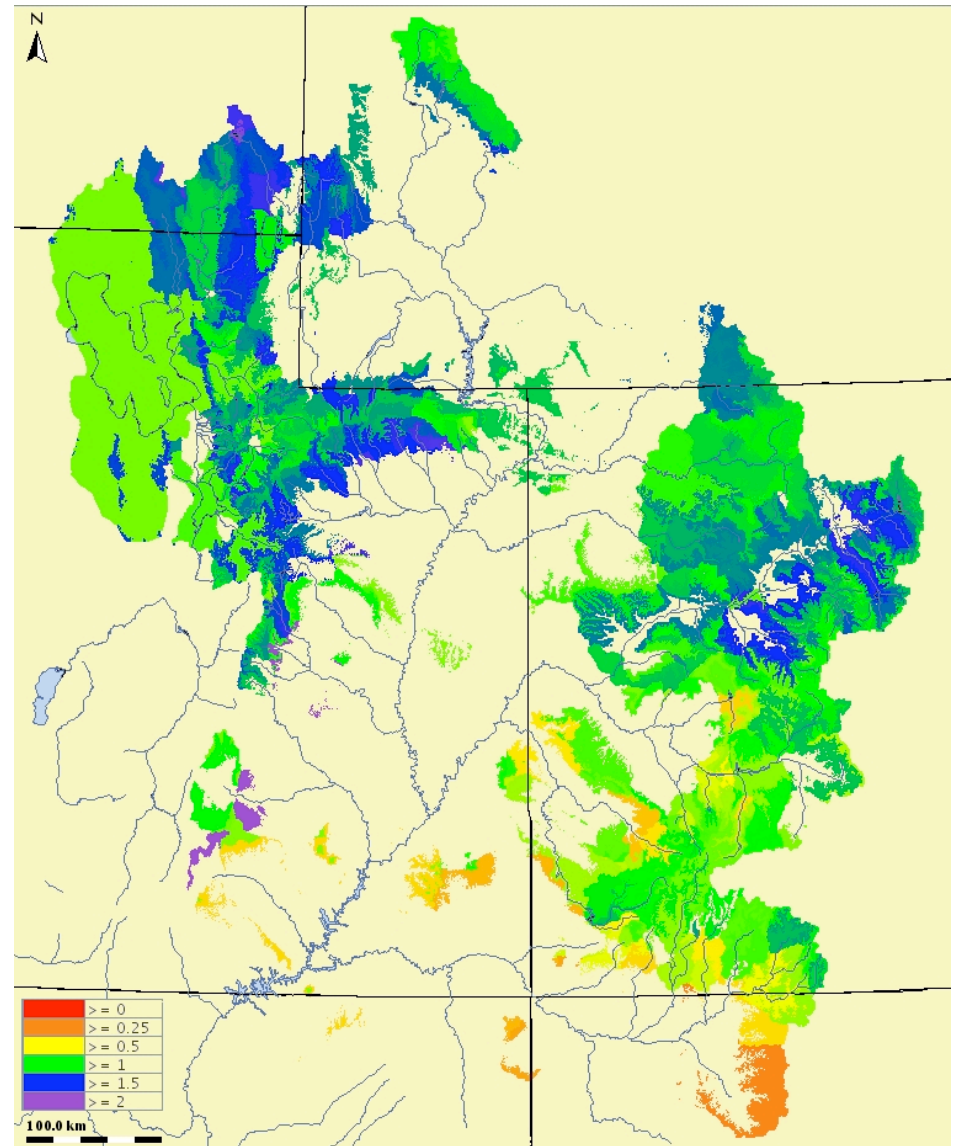
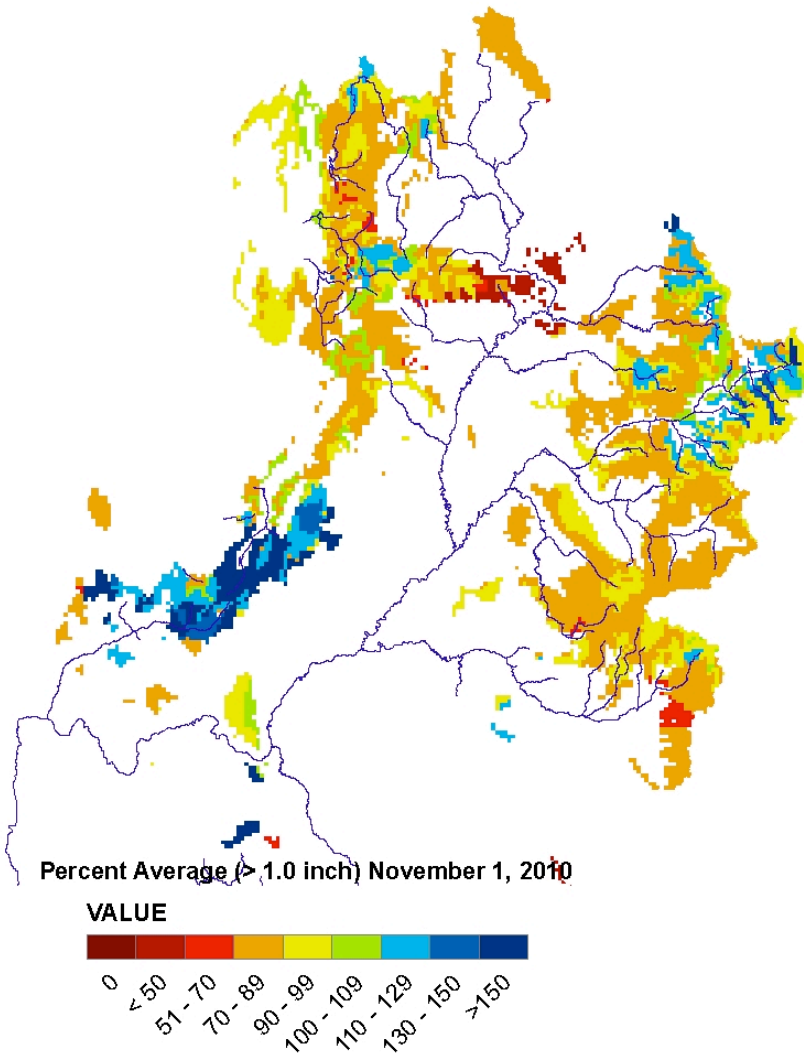


Web Reference: <http://www.cpc.noaa.gov> and iri.columbia.edu/climate/ENSO



Soil Moisture

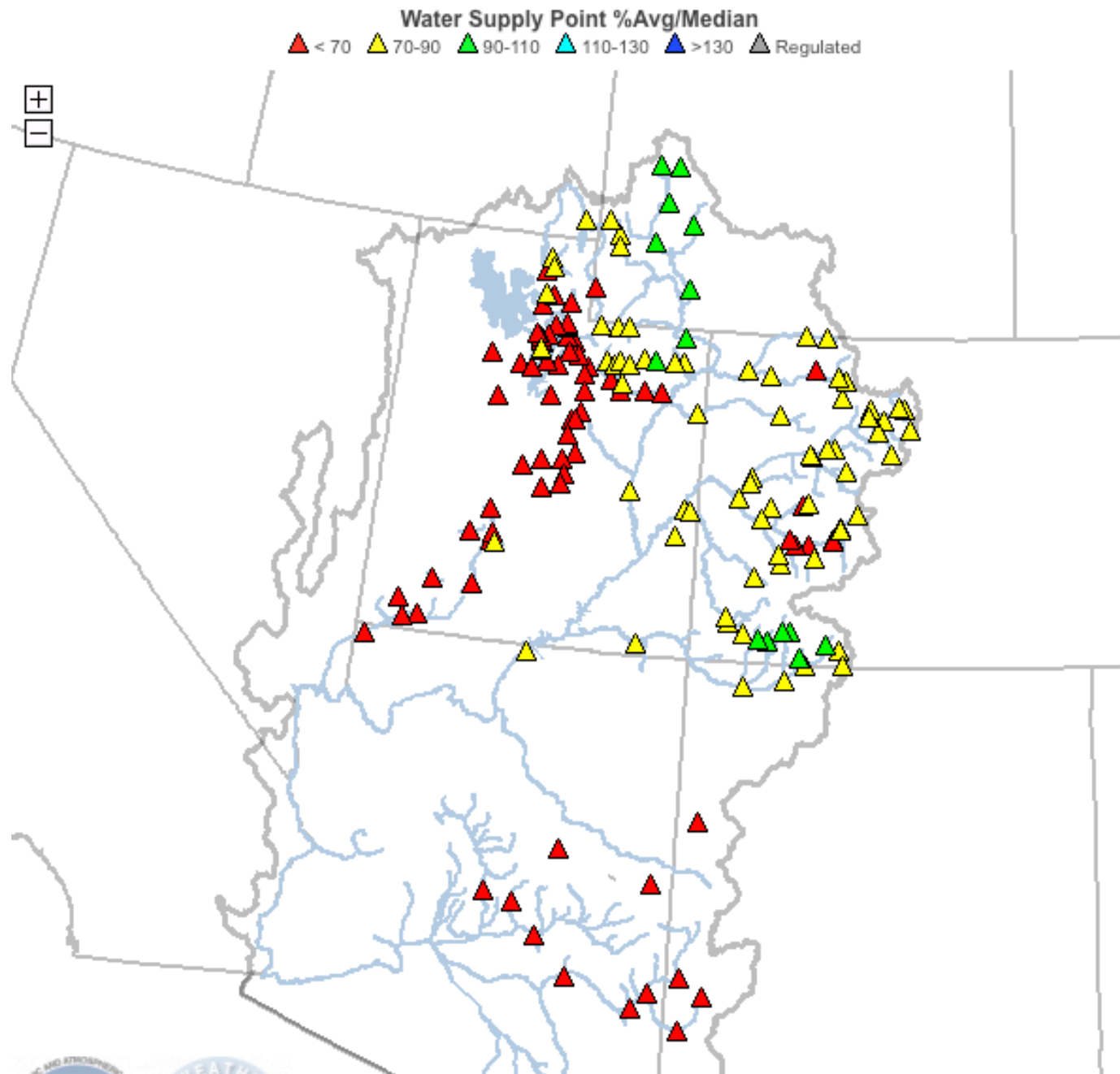
*Upper Colorado
NWSRFS Modeled Lower Zone Soil Moisture*

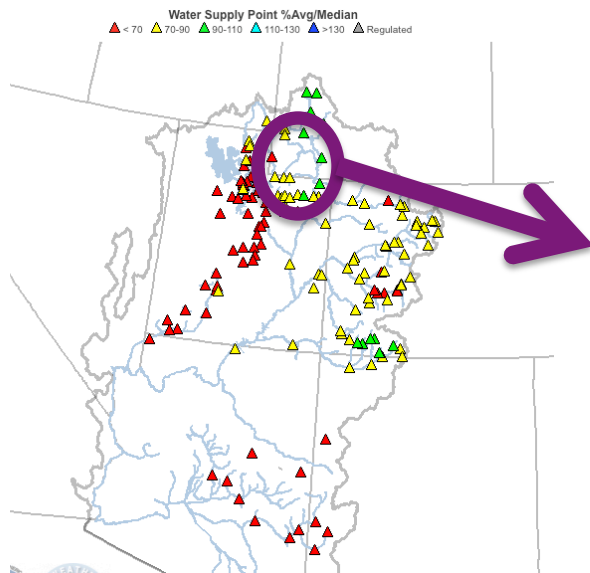


March 2012 Water Supply Forecasts

Highlights:

- Only minor changes from February forecasts that reflect snow accumulation patterns:
- Increases to near normal in Upper Green
- Slight increases, still below normal, in Dolores, San Juan
- Status quo in upper Colorado
- Slight decreases in Great Basin





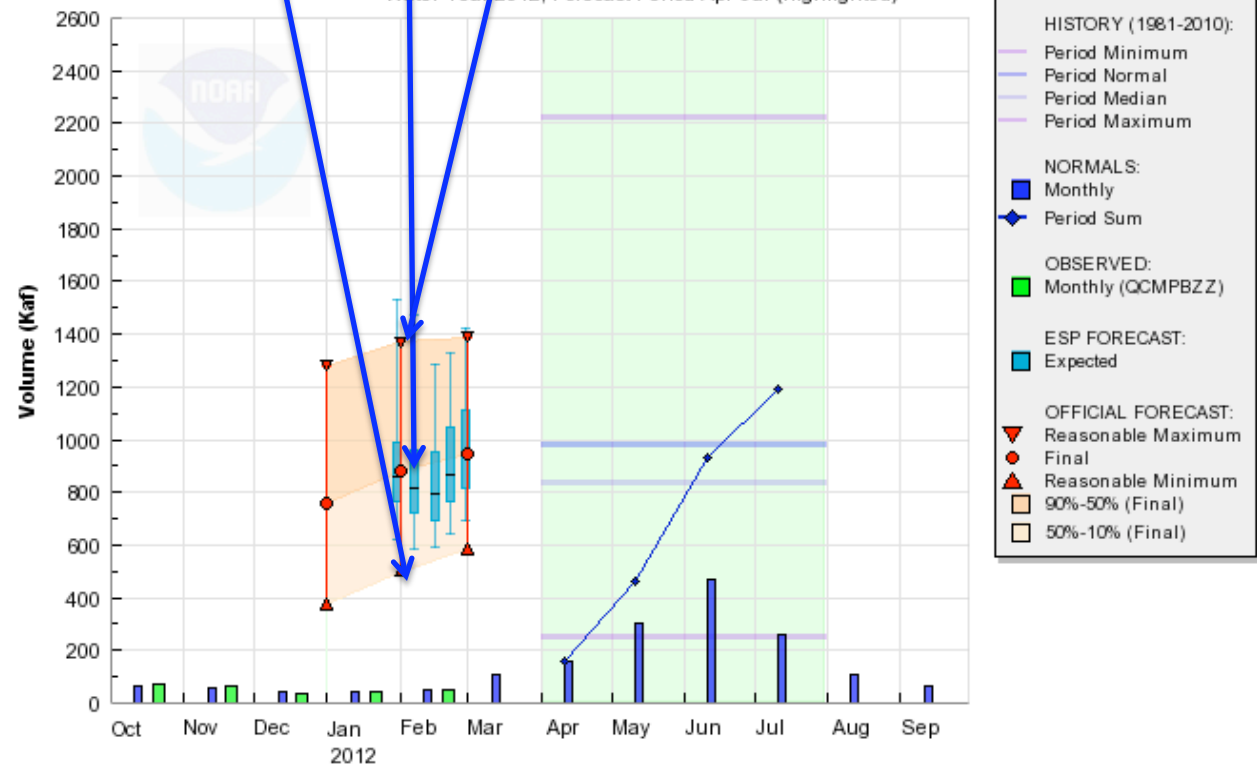
Seasonal Water Supply Forecast ?

Forecast Period: Apr-Jul



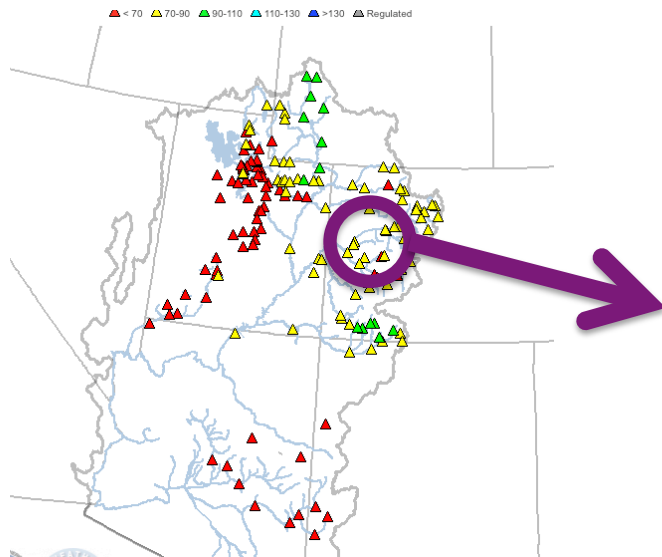
GREEN - FLAMING GORGE RES, FLAMING GORGE DAM, AT (GRN114)

Water Year 2012, Forecast Period Apr-Jul (highlighted)



CBRFC/NWS/NOAA 03/05/12 17:55:19 UTC

Web Reference: www.cbrfc.noaa.gov/gmap/gmapm.php?wcon=checked



Seasonal Water Supply Forecast ?

Forecast Period: Apr-Jul

1760 kaf

50% Exceedence (Official Forecast)

80%

of Historical Median

75%

of Historical Mean

1250 kaf

90% Exceedence

2510 kaf

10% Exceedence

61st of 79

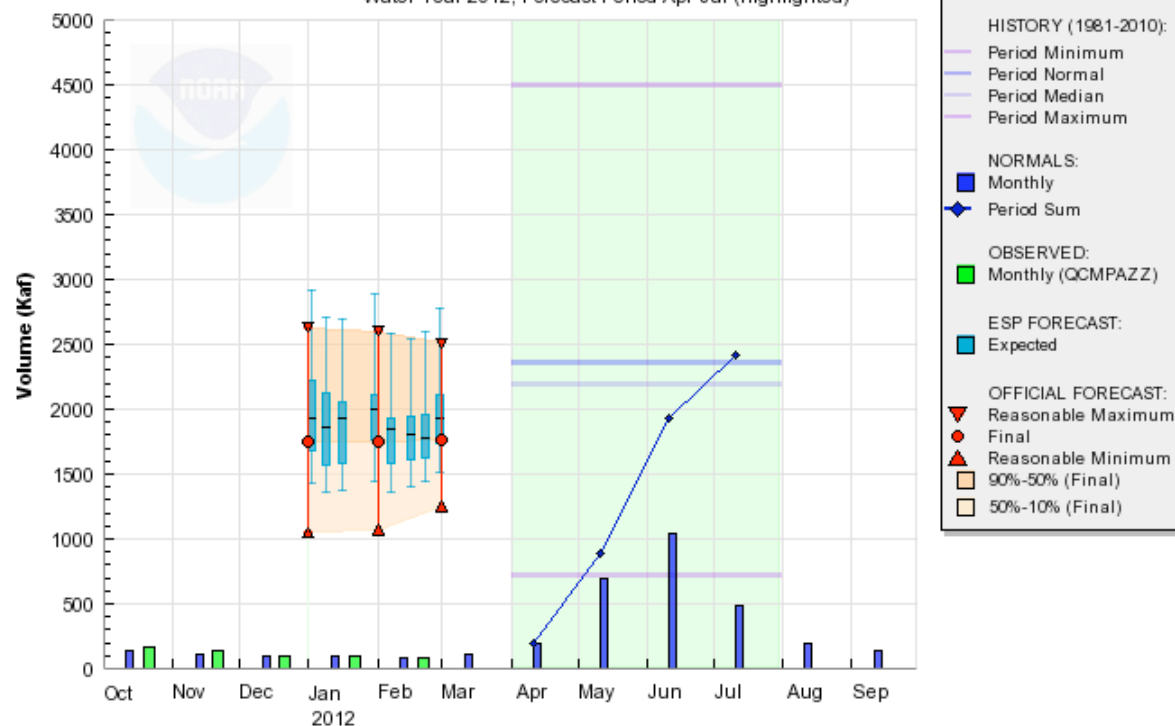
Official Historical Flows

Forecast Issued: Mar 1 2012

[View Water Supply Forecast Plot](#)

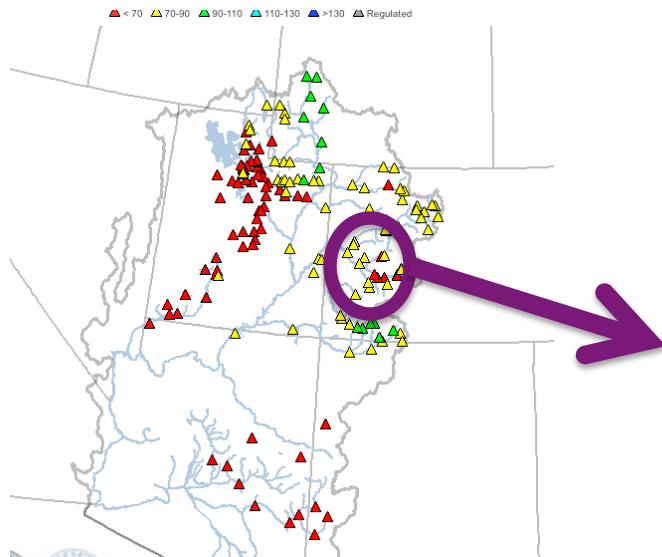
COLORADO - CAMEO, NR (CAMC2)

Water Year 2012, Forecast Period Apr-Jul (highlighted)



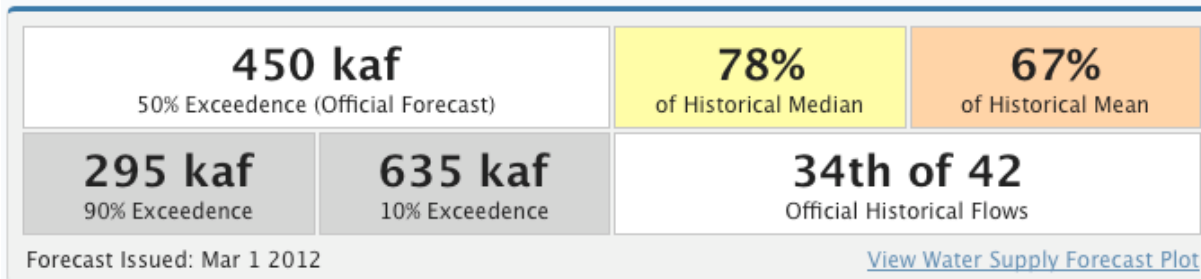
CBRFC/NWS/NOAA 03/05/12 17:58:50 UTC

Web Reference: www.cbrfc.noaa.gov/gmap/gmapm.php?wcon=checked



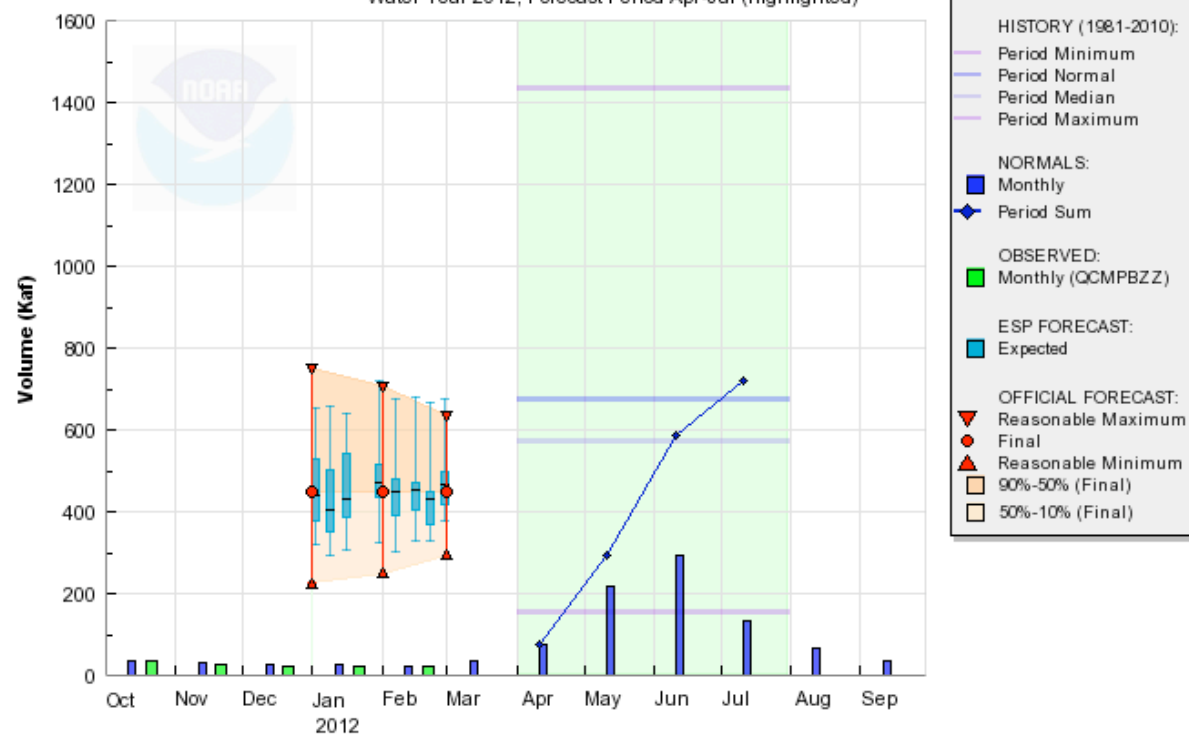
Seasonal Water Supply Forecast ?

Forecast Period: Apr-Jul



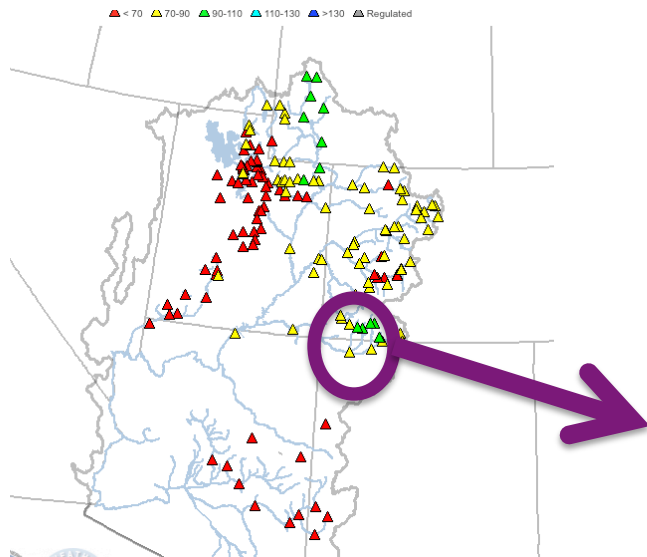
GUNNISON - BLUE MESA RES (BMDc2)

Water Year 2012, Forecast Period Apr-Jul (highlighted)



CBRFC/NWS/NOAA 03/05/12 17:59:37 UTC

Web Reference: www.cbrfc.noaa.gov/gmap/gmapm.php?wcon=checked



Seasonal Water Supply Forecast ?

Forecast Period: Apr-Jul

650 kaf

50% Exceedence (Official Forecast)

93%

of Historical Median

88%

of Historical Mean

405 kaf

90% Exceedence

895 kaf

10% Exceedence

37th of 65

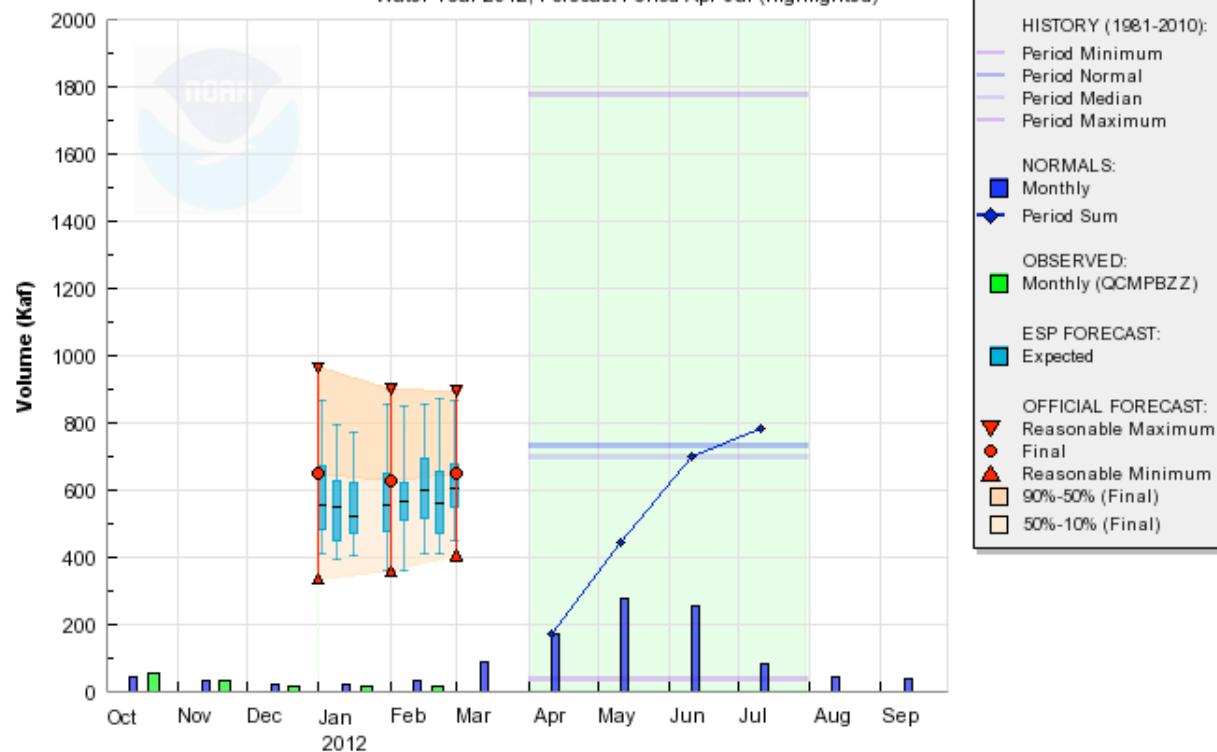
Official Historical Flows

Forecast Issued: Mar 1 2012

[View Water Supply Forecast Plot](#)

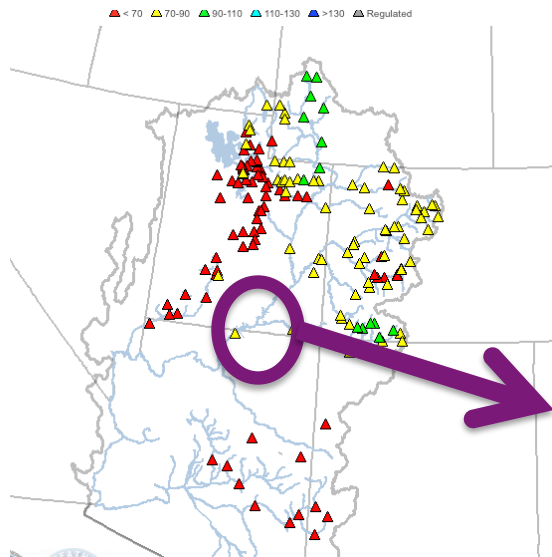
SAN JUAN - NAVAJO RES, ARCHULETA, NR (NVRN5)

Water Year 2012, Forecast Period Apr-Jul (highlighted)



CBRFC/NWS/NOAA 03/05/12 18:01:04 UTC

Web Reference: www.cbrfc.noaa.gov/gmap/gmapm.php?wcon=checked



Seasonal Water Supply Forecast ?

Forecast Period: Apr-Jul

5300 kaf

50% Exceedence (Official Forecast)

82%

of Historical Median

74%

of Historical Mean

3200 kaf

90% Exceedence

8200 kaf

10% Exceedence

78th of 103

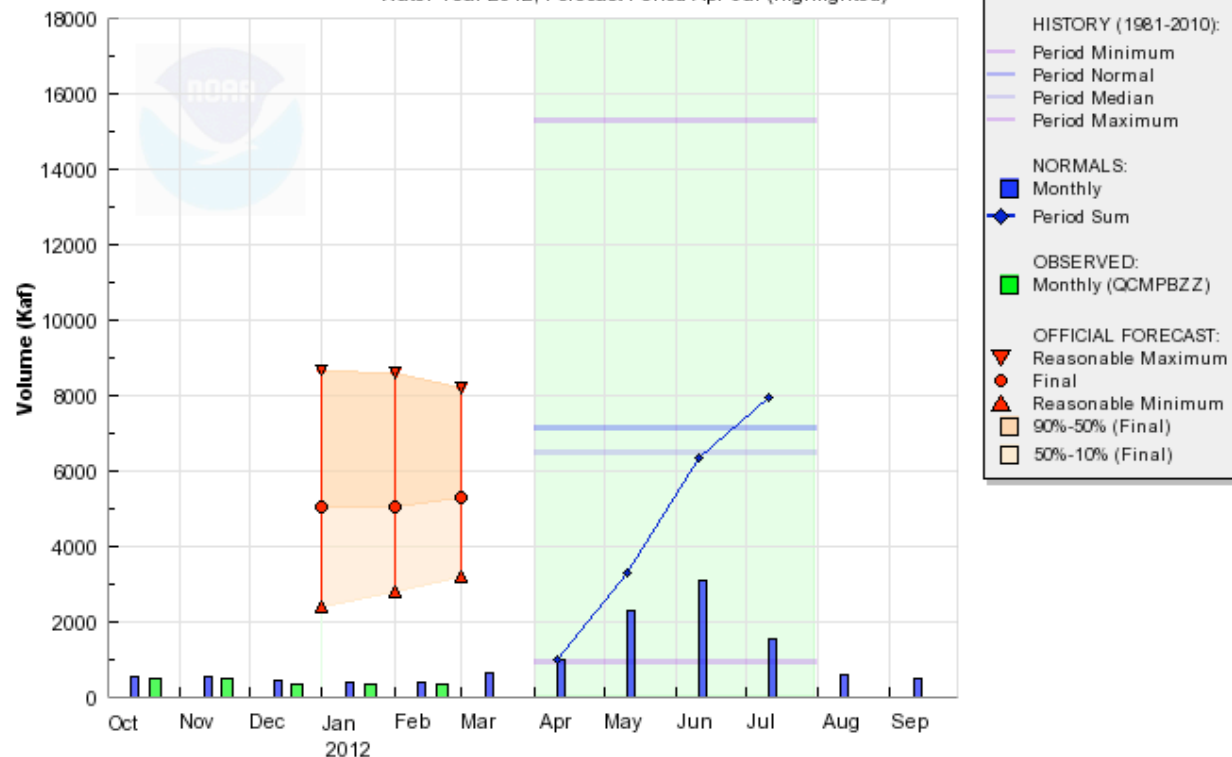
Official Historical Flows

Forecast Issued: Mar 1 2012

[View Water Supply Forecast Plot](#)

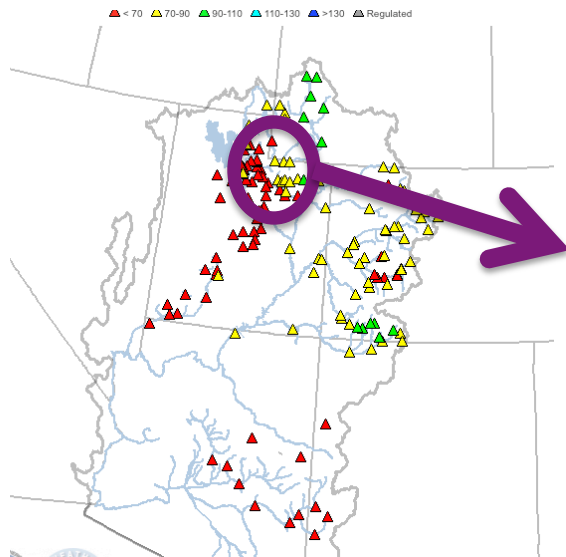
COLORADO - LAKE POWELL, GLEN CYN DAM, AT (GLDA3)

Water Year 2012, Forecast Period Apr-Jul (highlighted)



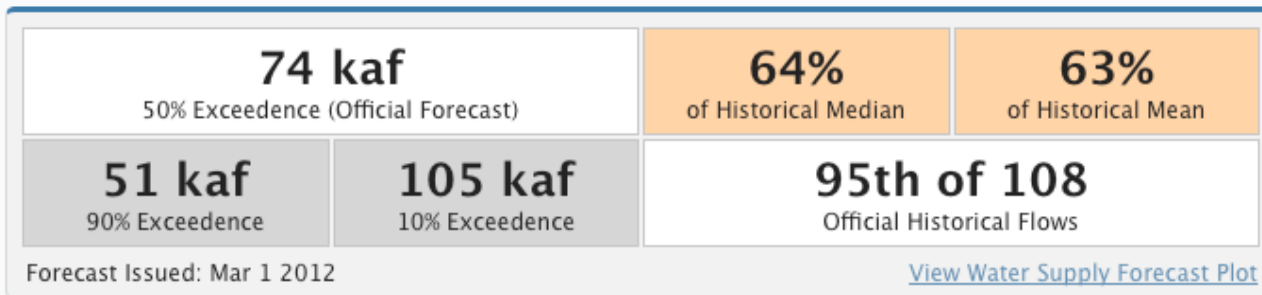
CBRFC/NWS/NOAA 03/05/12 18:02:32 UTC

Web Reference: www.cbrfc.noaa.gov/gmap/gmapm.php?wcon=checked



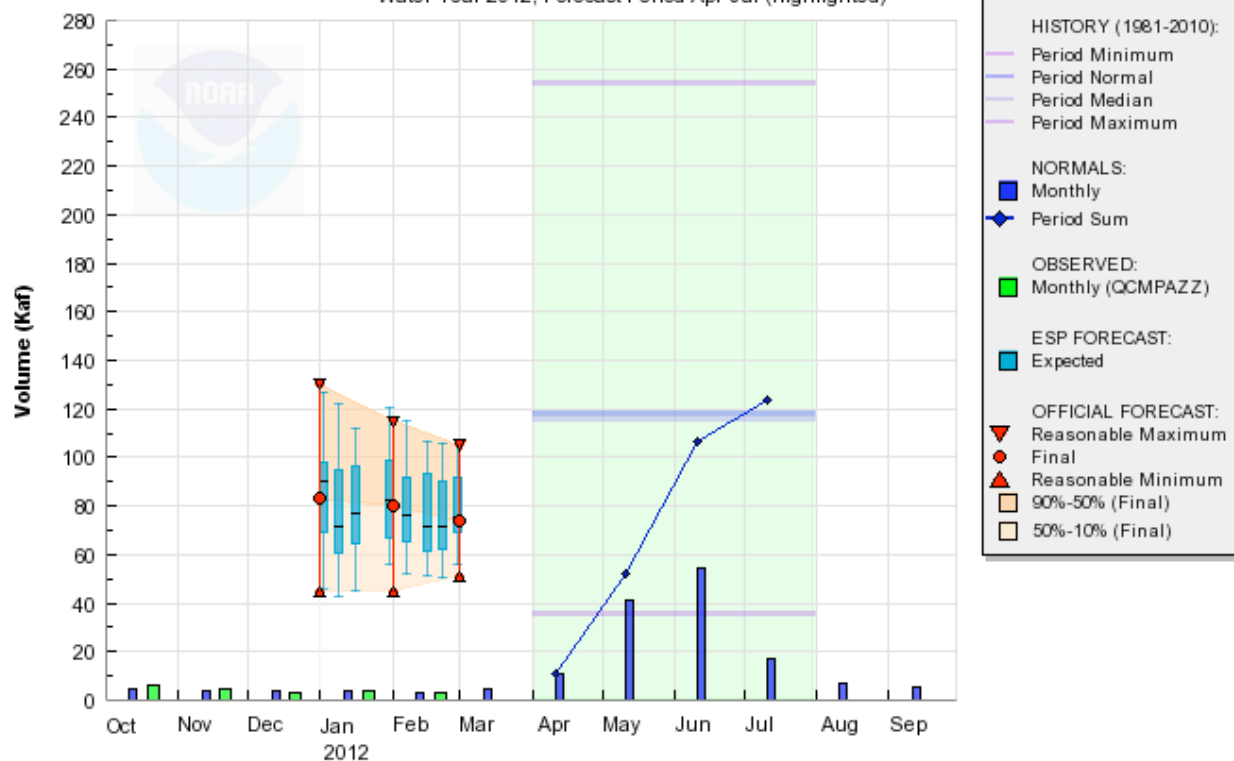
Seasonal Water Supply Forecast ?

Forecast Period: Apr-Jul



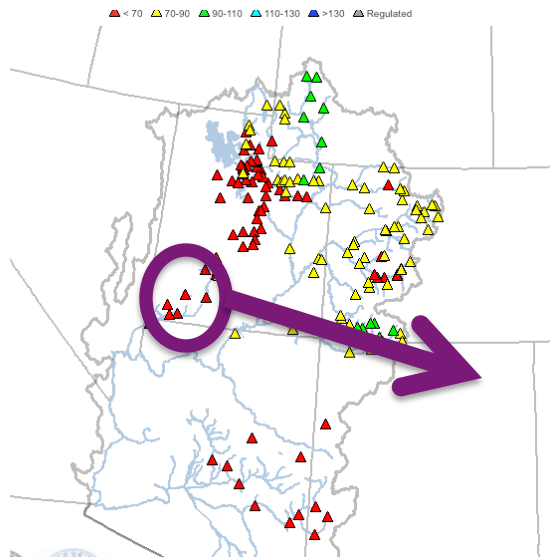
WEBER - OAKLEY, NR (OAWU1)

Water Year 2012, Forecast Period Apr-Jul (highlighted)



CBRFC/NWS/NOAA 03/05/12 18:02:59 UTC

Web Reference: www.cbrfc.noaa.gov/gmap/gmapm.php?wcon=checked



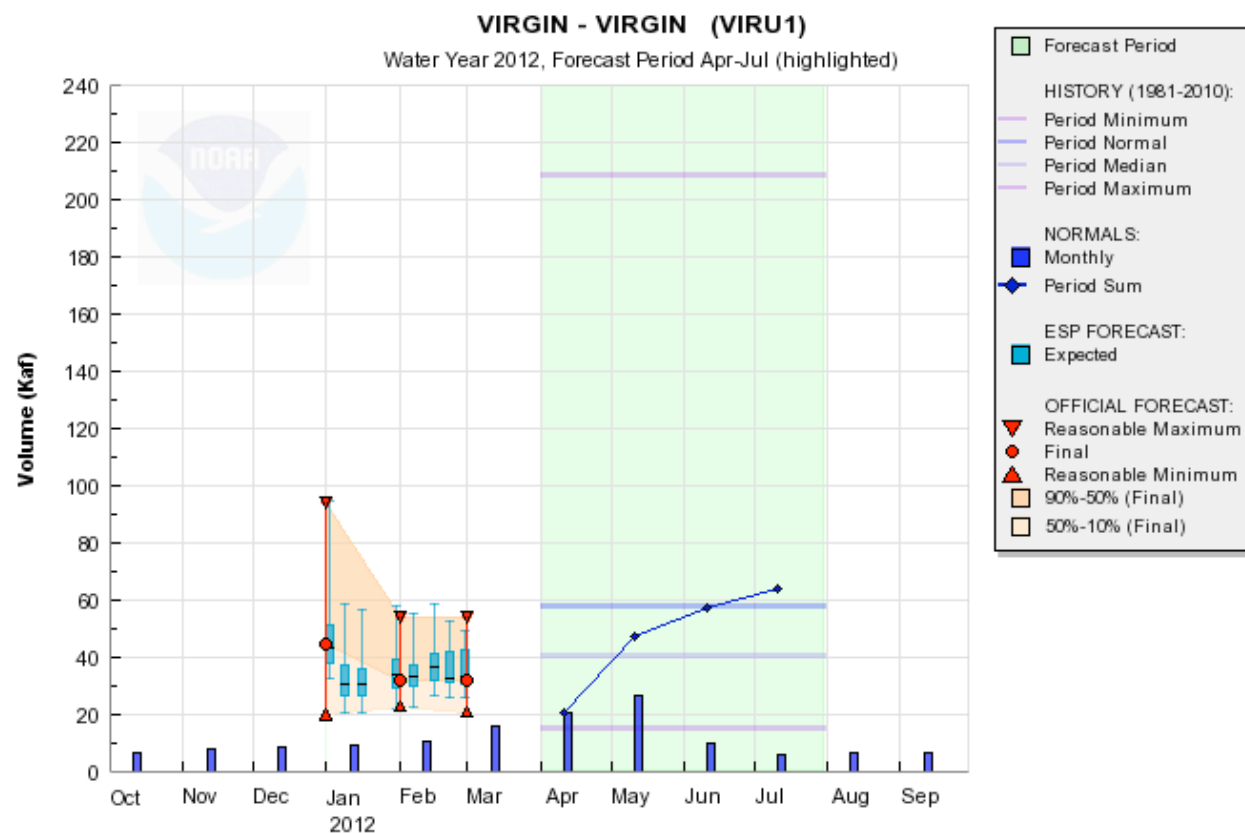
Seasonal Water Supply Forecast ?

Forecast Period: Apr-Jul

32 kaf 50% Exceedence (Official Forecast)		78% of Historical Median	55% of Historical Mean
21 kaf 90% Exceedence	54 kaf 10% Exceedence	78th of 103 Official Historical Flows	

Forecast Issued: Mar 1 2012

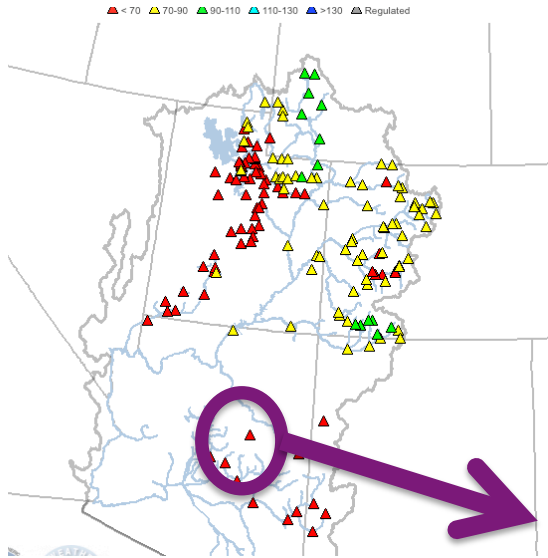
[View Water Supply Forecast Plot](#)



No data before 2011-10-01

CBRFC/NWS/NOAA 03/05/12 18:03:56 UTC

Web Reference: www.cbrfc.noaa.gov/gmap/gmapm.php?wcon=checked



Seasonal Water Supply Forecast ?

Forecast Period: Mar–May

100 kaf

50% Exceedence (Official Forecast)

49%

of Historical Median

0%

of Historical Mean

46 kaf

90% Exceedence

186 kaf

10% Exceedence

77th of 99

Official Historical Flows

Forecast Issued: Mar 1 2012

[View Water Supply Forecast Plot](#)

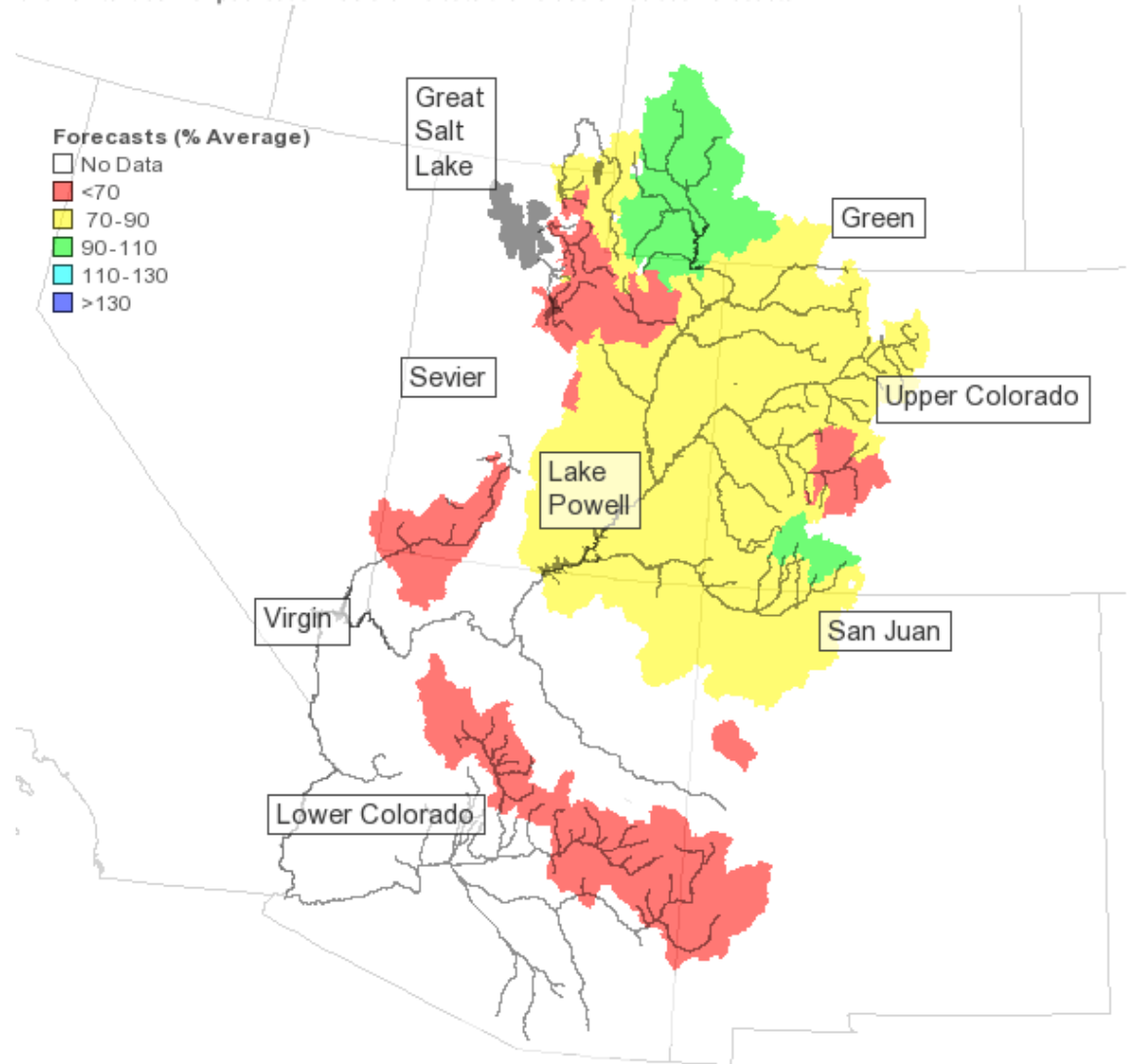
Web Reference: www.cbrfc.noaa.gov/gmap/gmapm.php?wcon=checked

Online Publication

Water Supply Outlook, March 1, 2012

New 1981-2010 Averages being used this year.

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



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

Note: This publication is currently undergoing major revisions and parts of it may be discontinued during or after WY2011. If this change could impact your operations or you have input for the revisions, please contact us at cbrfc.webmasters@noaa.gov

Upper Colorado Water Supply Outlook, January 1, 2011

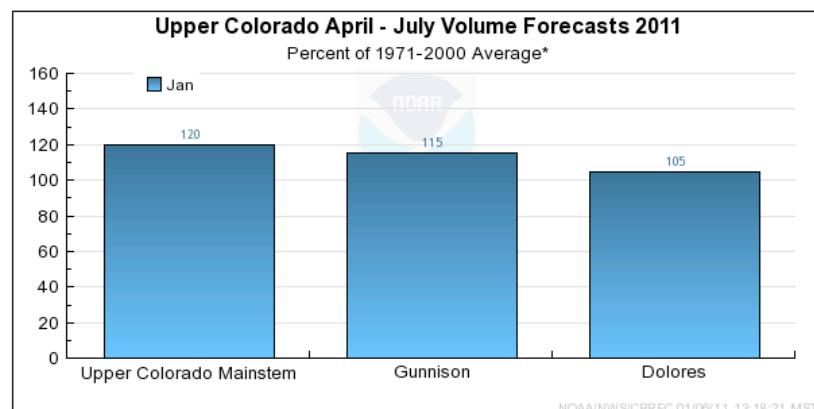


Prepared by Brenda Alcorn, Tracy Cox
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

Contents

- Upper Colorado Summary
- 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 Monthly Inflow Forecasts
- Reservoir Contents
- Monthly Streamflows
- Precipitation Maps
- Definitions
- Additional Information
- Questions or Comments

Upper Colorado Summary



*Median of forecasts within each basin.

Upper Colorado Mainstem Specific Site Forecasts (kaf)

Click site name for graph.

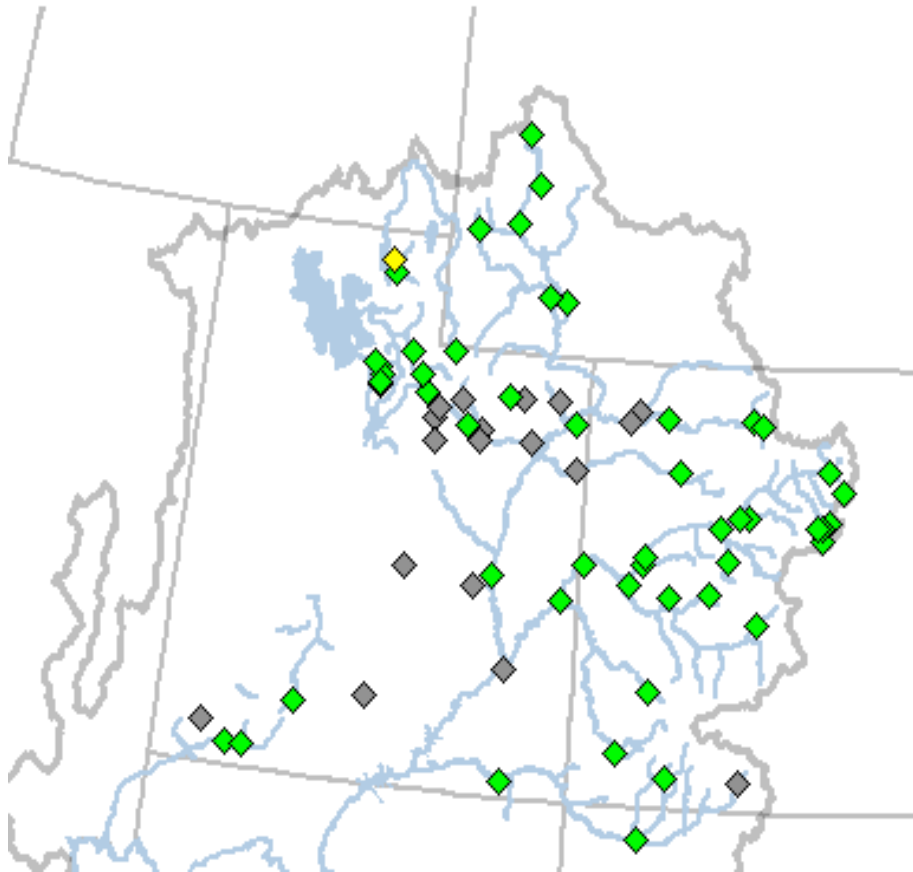
	Forecast Period	90% Exceedance Volume	50% Exceedance Volume	Percent Average	10% Exceedance Volume
Colorado					
Lake Granby, Granby, Nr	April-July	200	280	124	370
Willow Ck					
Willow Ck Res, Granby, Nr	April-July	44	70	137	102
Fraser					
Winter Park	April-July	15	23	115	29
Williams Fork					
Williams Fork Res, Parshall, Nr	April-July	76	110	116	150
Muddy Ck					
Wolford Mtn Res, Blo	April-July	46	76	127	114
Blue					
Dillon Res	April-July	134	200	120	280
Green Mtn Res	April-July	225	335	120	465
Colorado					
Kremmling, Nr	April-July	725	1070	123	1450
Eagle					
Gypsum, Blo	April-July	250	380	113	535
Colorado					
Dotsero, Nr	April-July	1140	1720	119	2410
Frying Pan					
Ruedi Res, Basalt, Nr	April-July	112	160	113	215
Roaring Fork					
Glenwood Springs	April-July	570	840	118	1160
Colorado					
Glenwood Springs, Blo	April-July	1700	2560	119	3600
Cameo, Nr	April-July	1980	2910	120	4020
Plateau Ck					
Cameo, Nr	April-July	100	160	139	250
Colorado					
Cisco, Nr	April-July	3640	5620	121	8020
Mill Ck					
Moab, Nr, Sheley Tun, At	April-July	2.9	6	120	10.8
Colorado					
Lake Powell, Glen Cyn Dam, At	April-July	5860	9500	120	14000

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

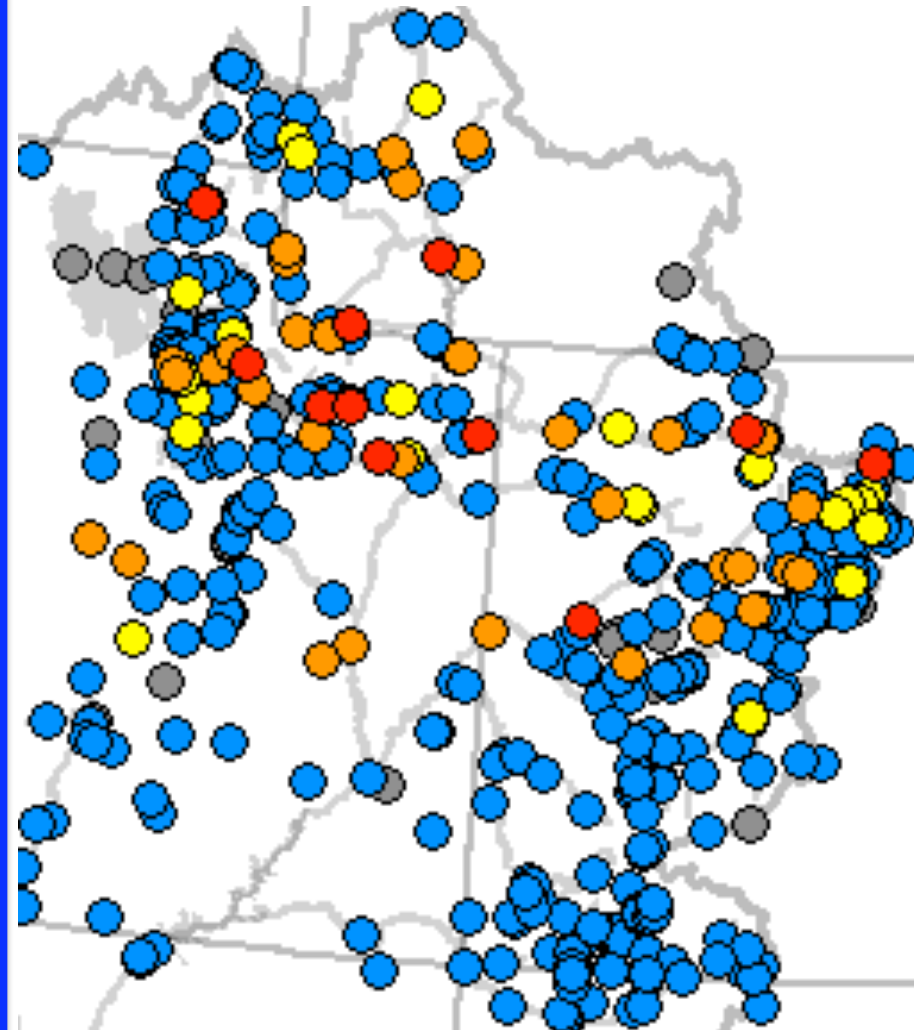
Peak Flow Forecasts

Long Lead Peak Flow Forecasts

◇ No Forecast ◇ No Flood Stage ◇ <10 ◇ >10 ◇ >25 ◇ >50



Daily Forecasts

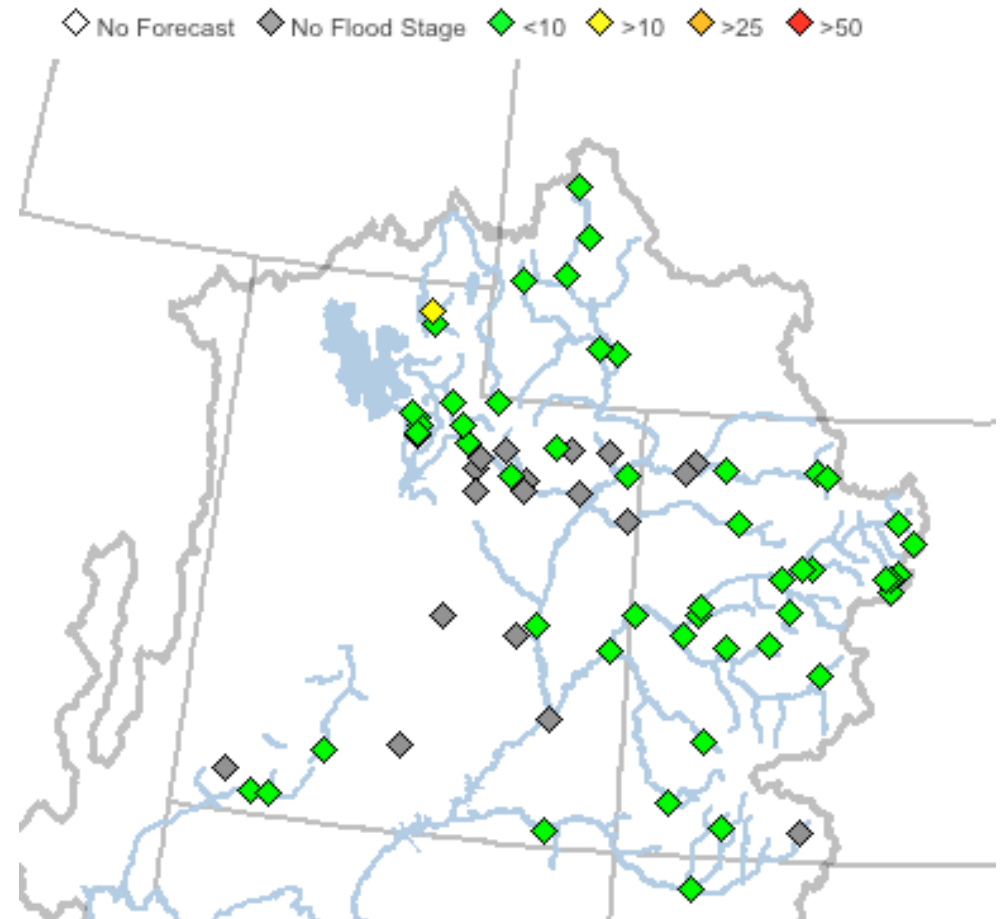


Spring Weather Really Matters

- Runoff characteristics are largely determined by the day-to-day spring weather.
 - While large snow pack years increase chances for flooding, it is not an inevitability
 - Small snow pack years (like last year) can flood with the right sequence of spring temperatures

Peak Flow Forecast Synopsis

- All 50% forecasts (much) below flood stages
- Only one point (Logan R) with a 10% chance of flooding
- Upper Green has somewhat higher chances of river flows near bankful reflecting near average snow pack in that drainage



CBRFC News

- Basin Focal Points (Available to discuss forecasts: 801.524.5130)
 - Upper Colorado: Brenda Alcorn / John Lhotak
 - Green: Ashley Nielson
 - San Juan / Gunnison: Greg Smith
 - Great Basin: Brent Bernard
 - Sevier / Virgin: Stacie Bender
 - Lower Colorado (below Lake Powell): Tracy Cox
- Misc:
 - New CBRFC webpage (www.cbrfc.noaa.gov) - “How to use the webpage” webinar recording available
 - Lake Powell forecast page development
 - Future webinar dates announced:
 - April 6 at 10am MT
 - May 4 at 1pm MT
 - June 6 at 1pm MT
 - Weekly ESP model guidance
 - mail product updates via govdelivery
 - Blog

More Resources

- www.cbrfc.noaa.gov
- Wateroutlook.nwrfc.noaa.gov
- Tentative February webinar: 10am Mar 7

Feedback, Questions, Concerns always welcome....



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