CBRFC
January 2014
Water Supply Webinar

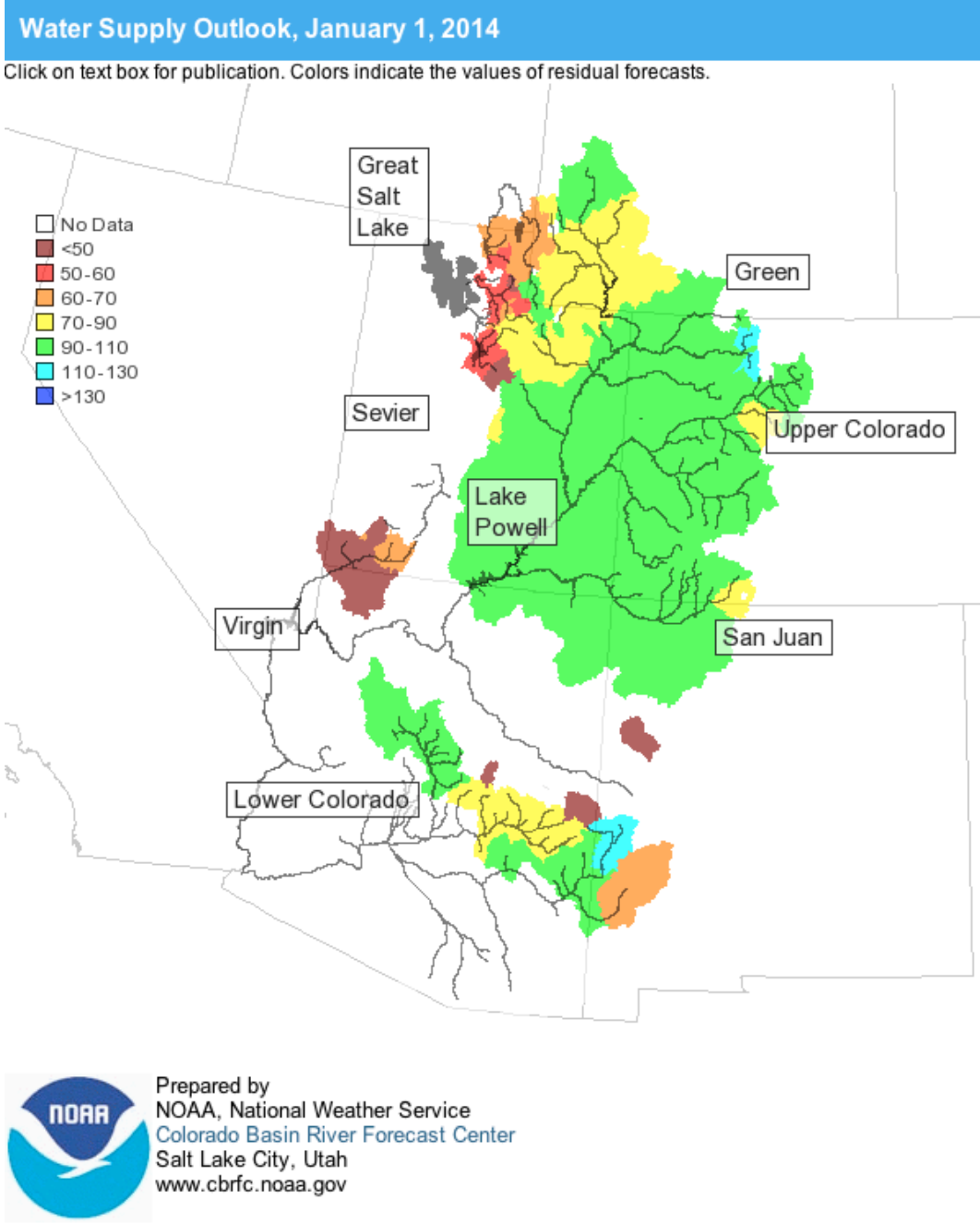
1pm, January 6, 2014

Kevin Werner

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

Outline

- December Weather Review
- Snow States
- Water Supply Forecasts



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

Monthly Precipitation for Octo

(Averaged by Hydrologic Unit)

% Average

> 150%

129 - 150%

110 - 129%

100 - 109%

90 - 99%

70 - 89%

50 - 69%

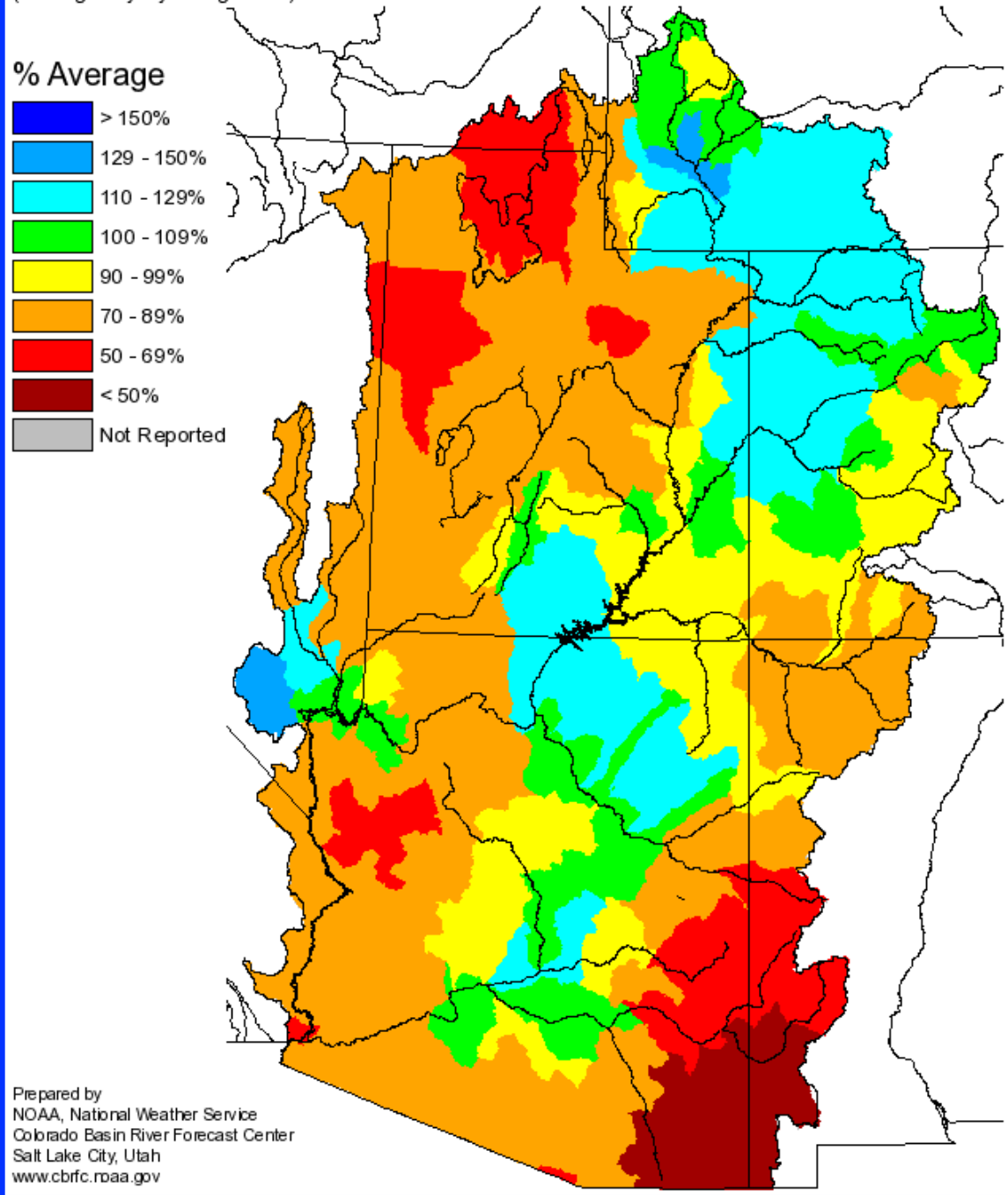
< 50%

Not Reported

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

Seasonal Precipitation, October 2013 - December 2013

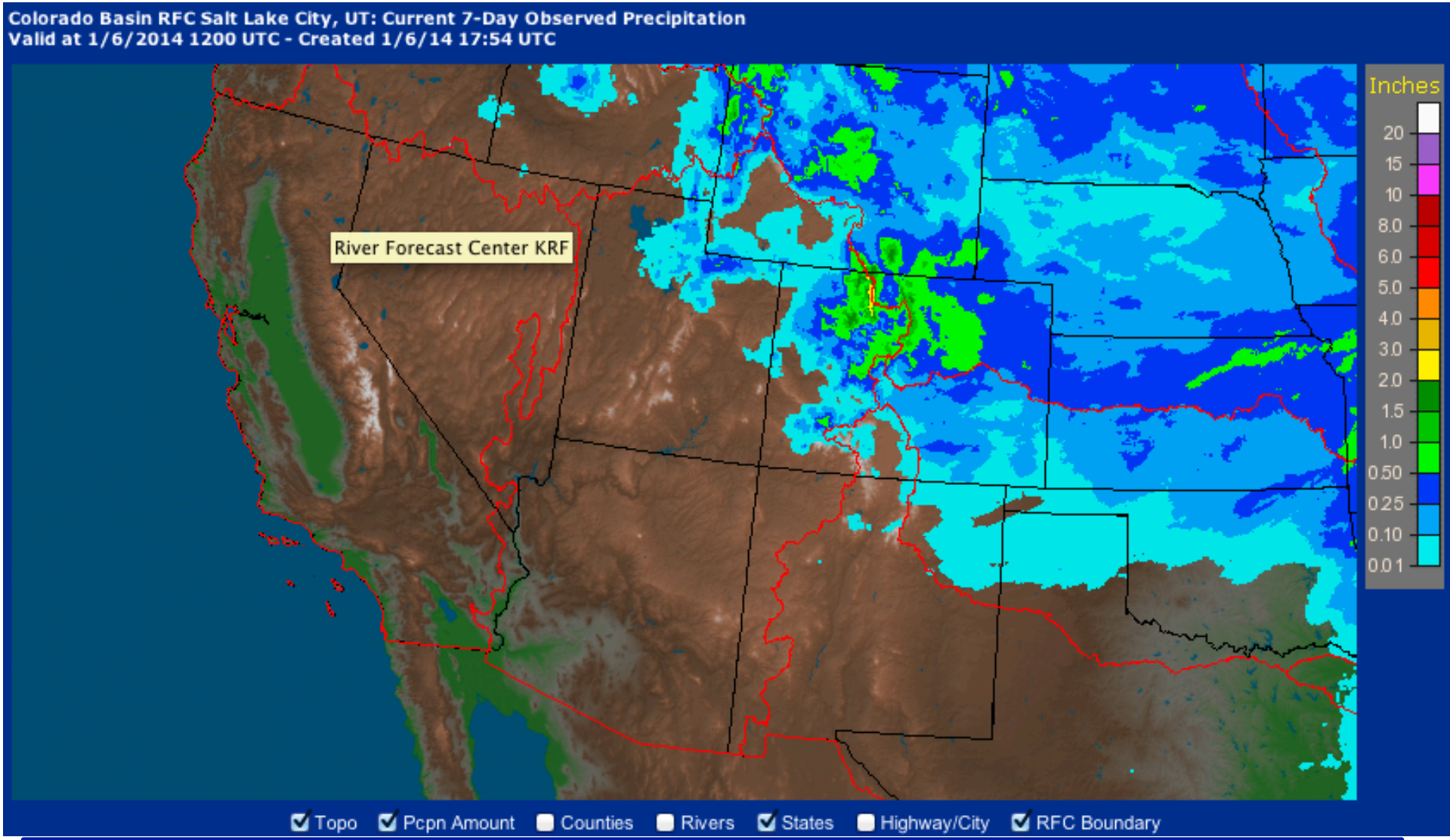
(Averaged by Hydrologic Unit)



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

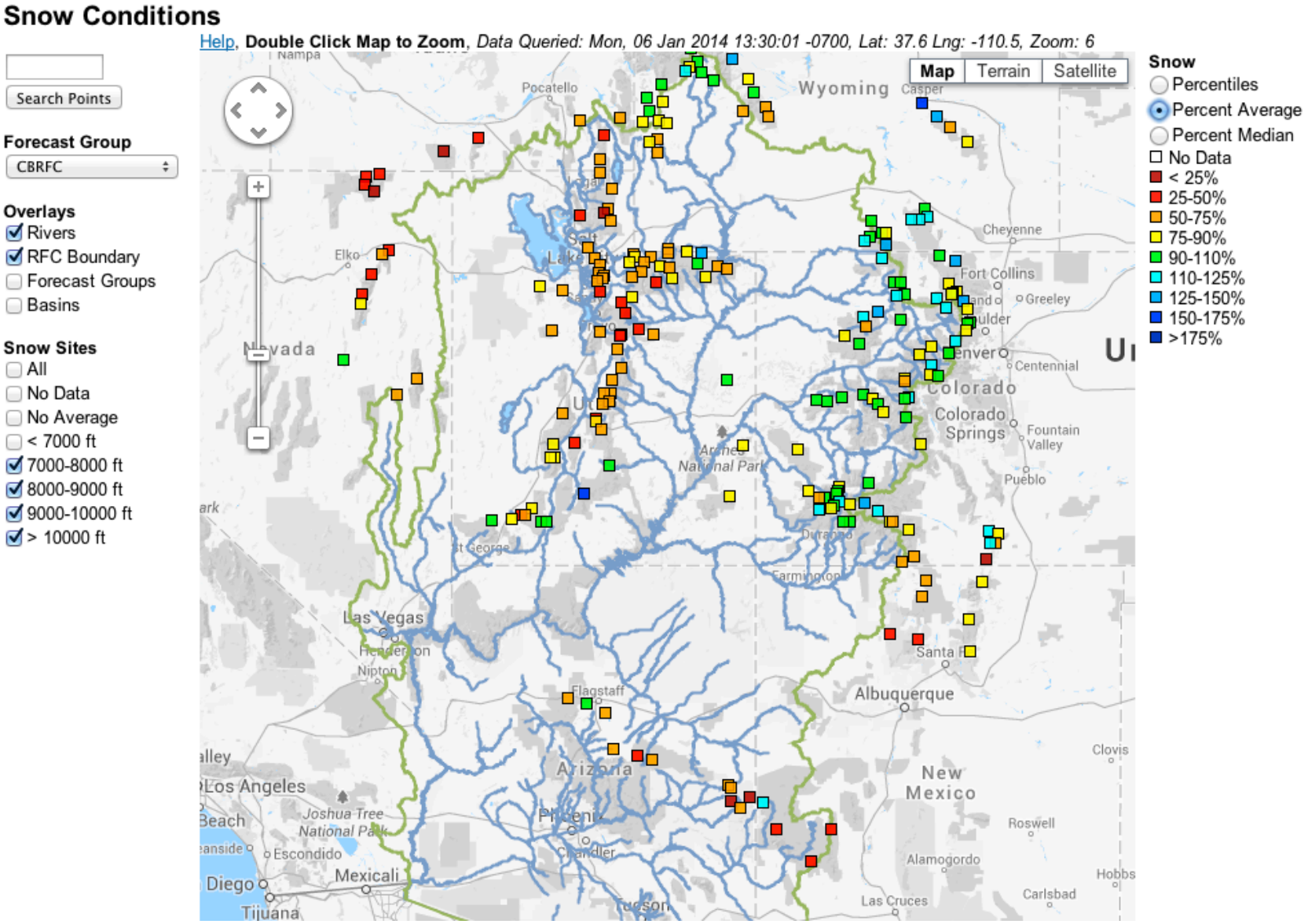
cember 2013

Last Seven Days



Web Reference: water.weather.gov/precip

Snow

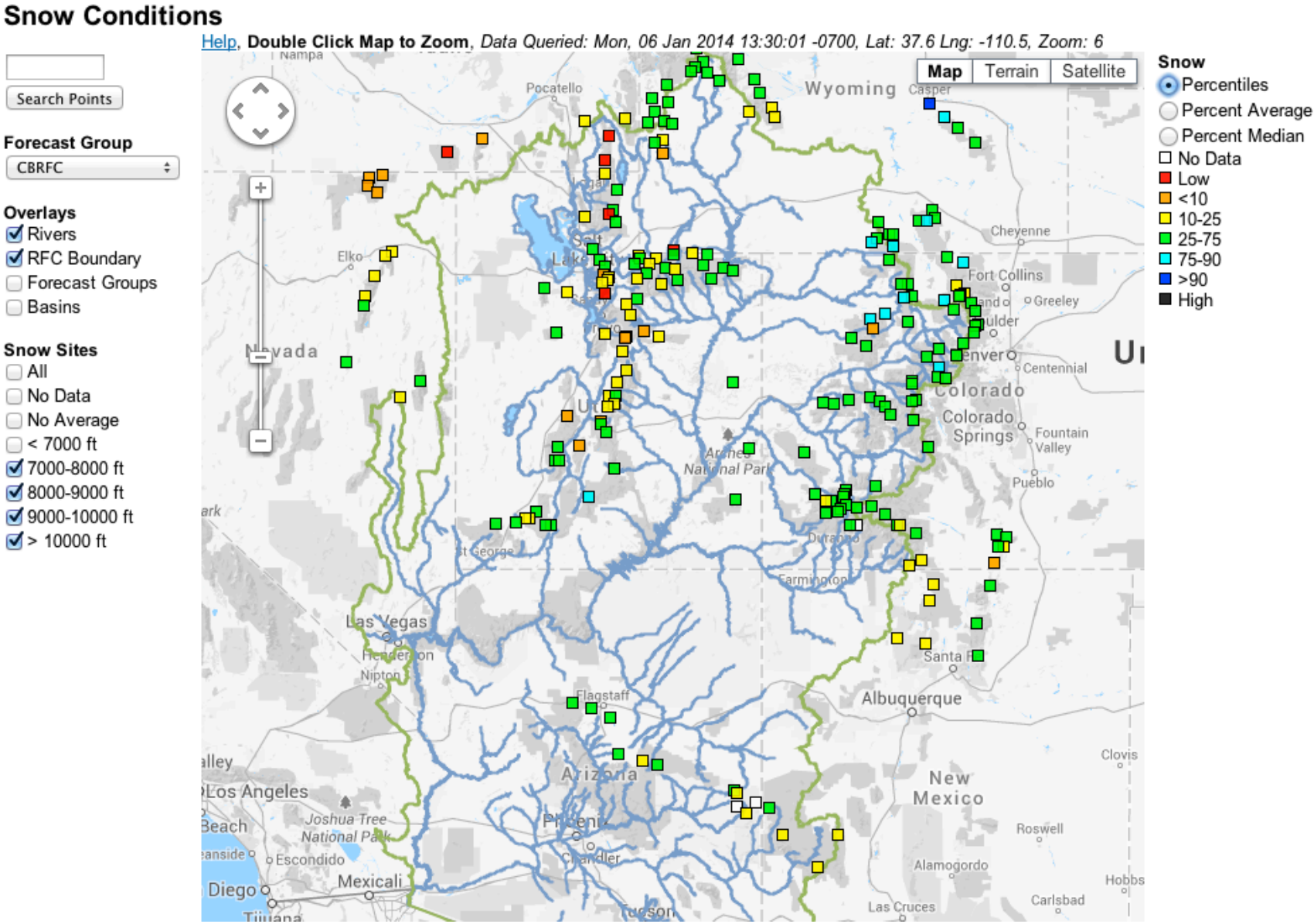


January 5, 2014

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

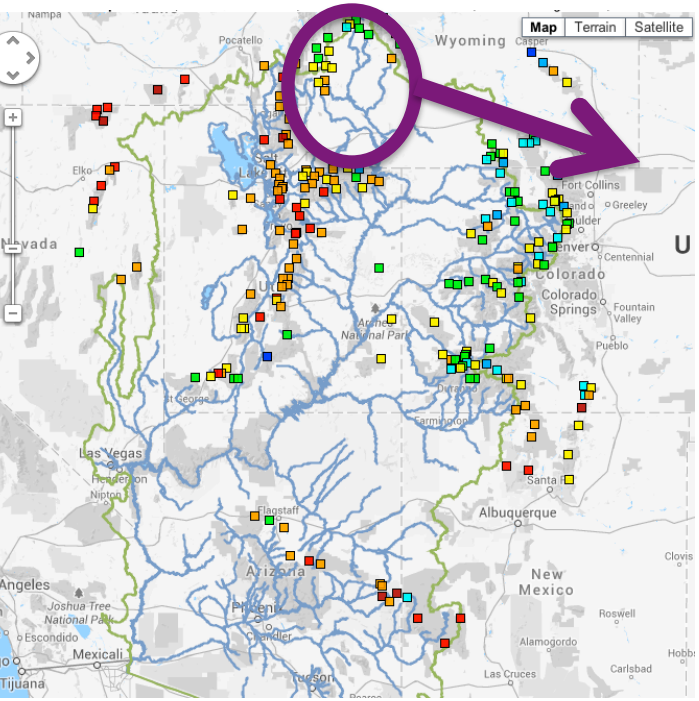
Snow

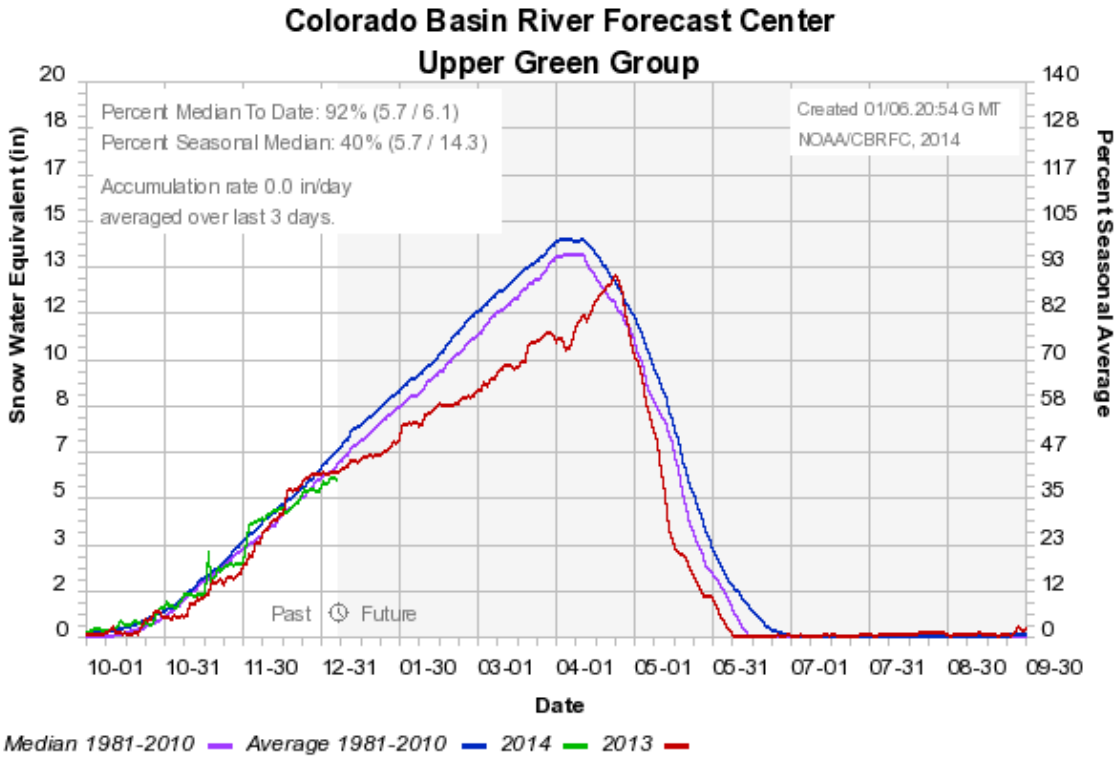
Snow Conditions



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

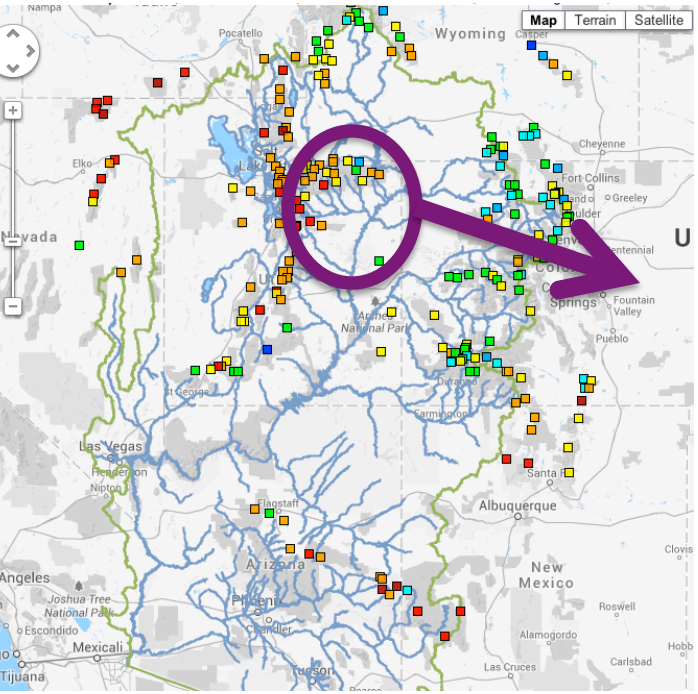
Snow: Upper Green Basin (above Flaming Gorge)

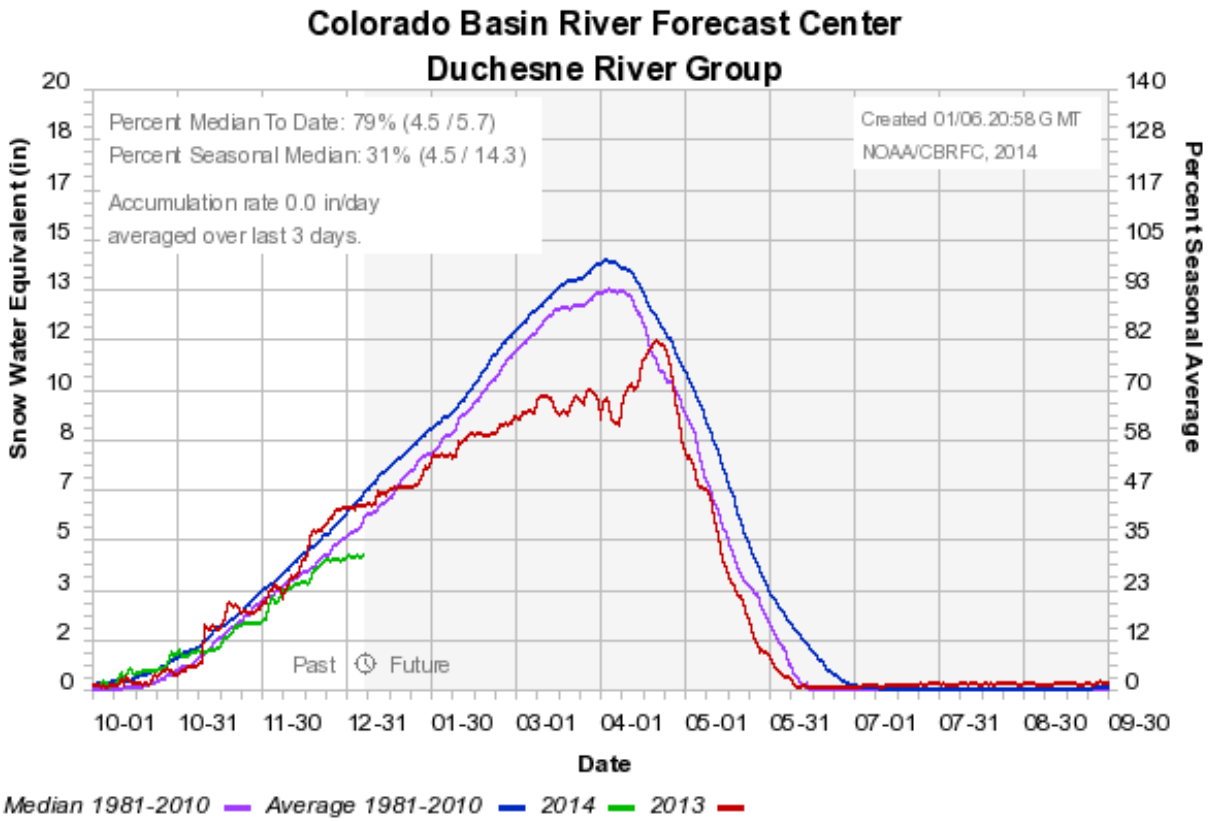




Web Reference: http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open

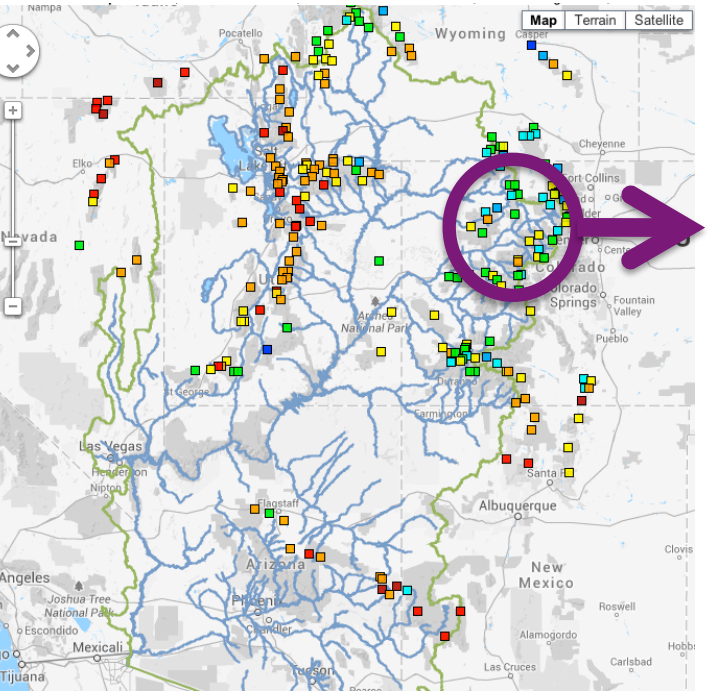
Snow: Duchesne Basin

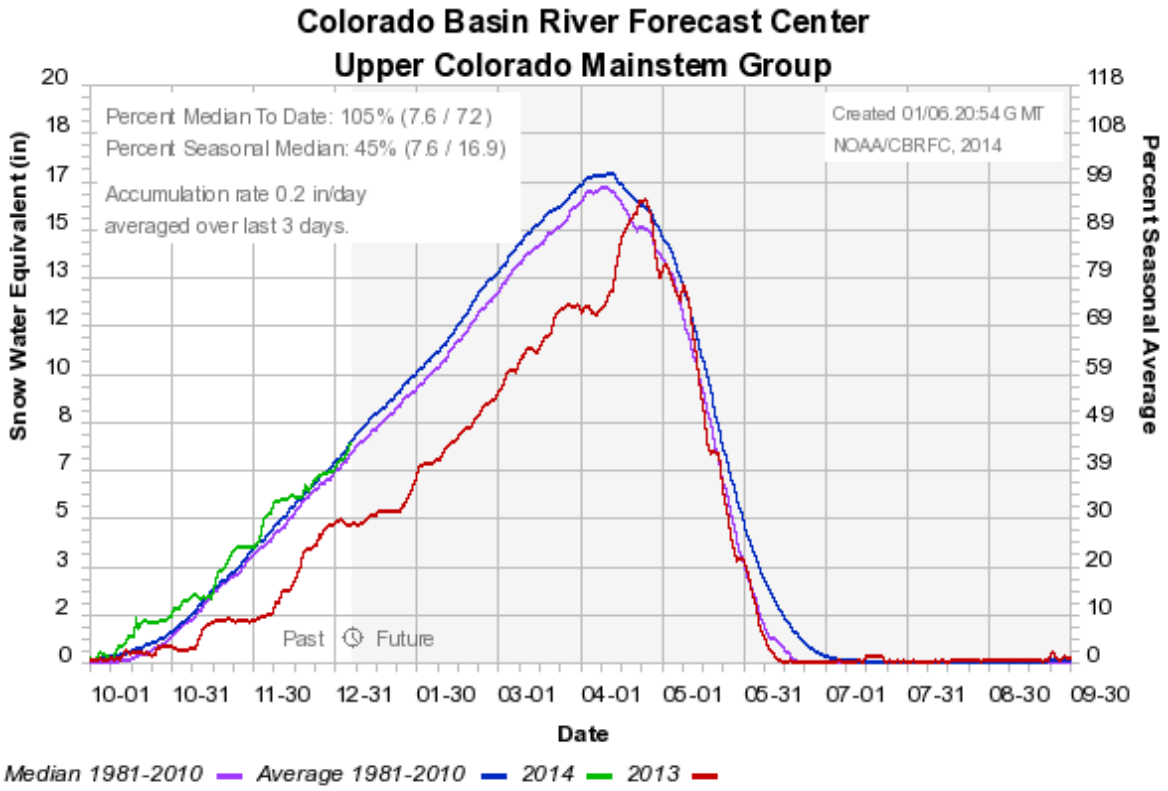




Web Reference: http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open

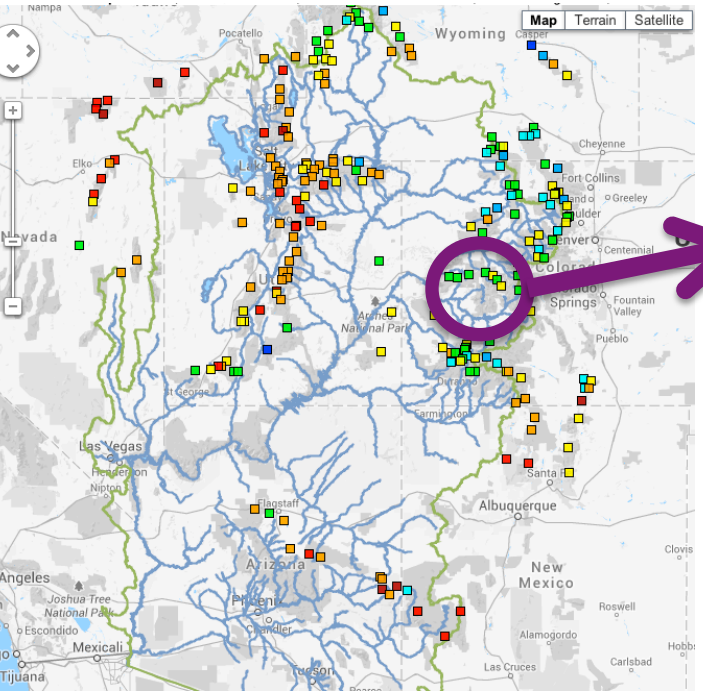
Snow:
Colorado Mainstem (above Cameo)

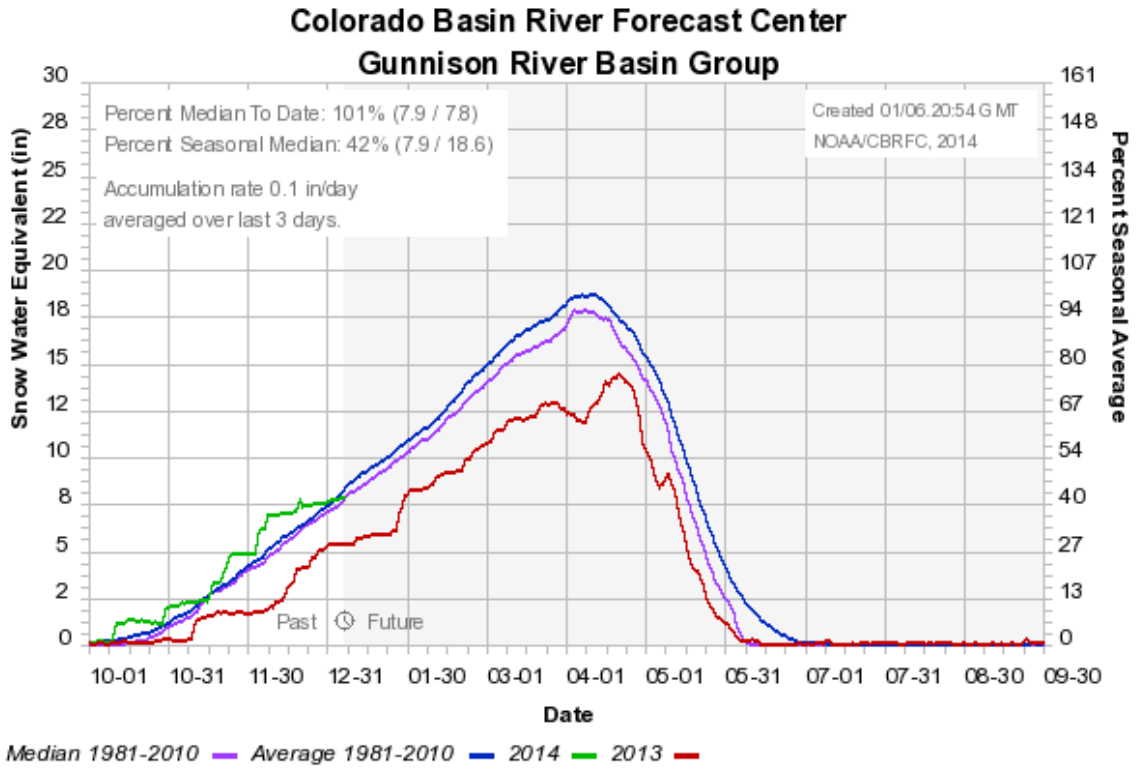




Web Reference: http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open

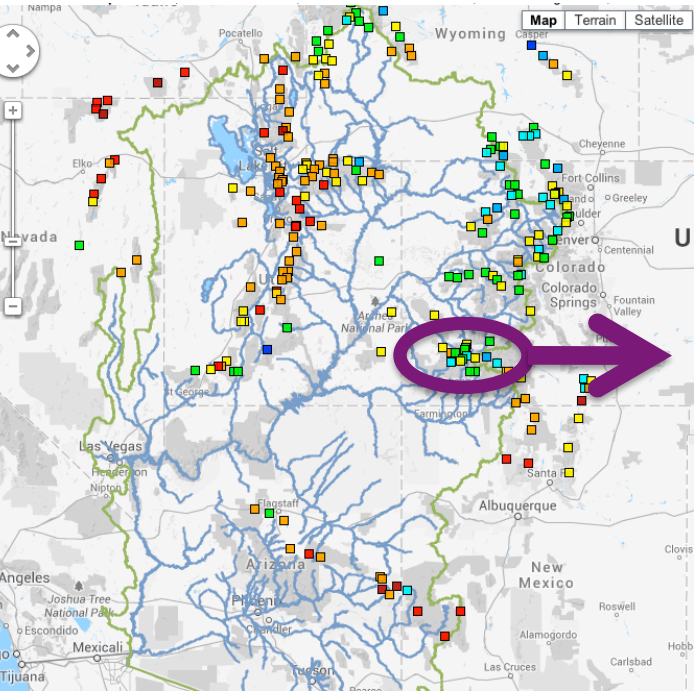
Snow:
Gunnison Basin

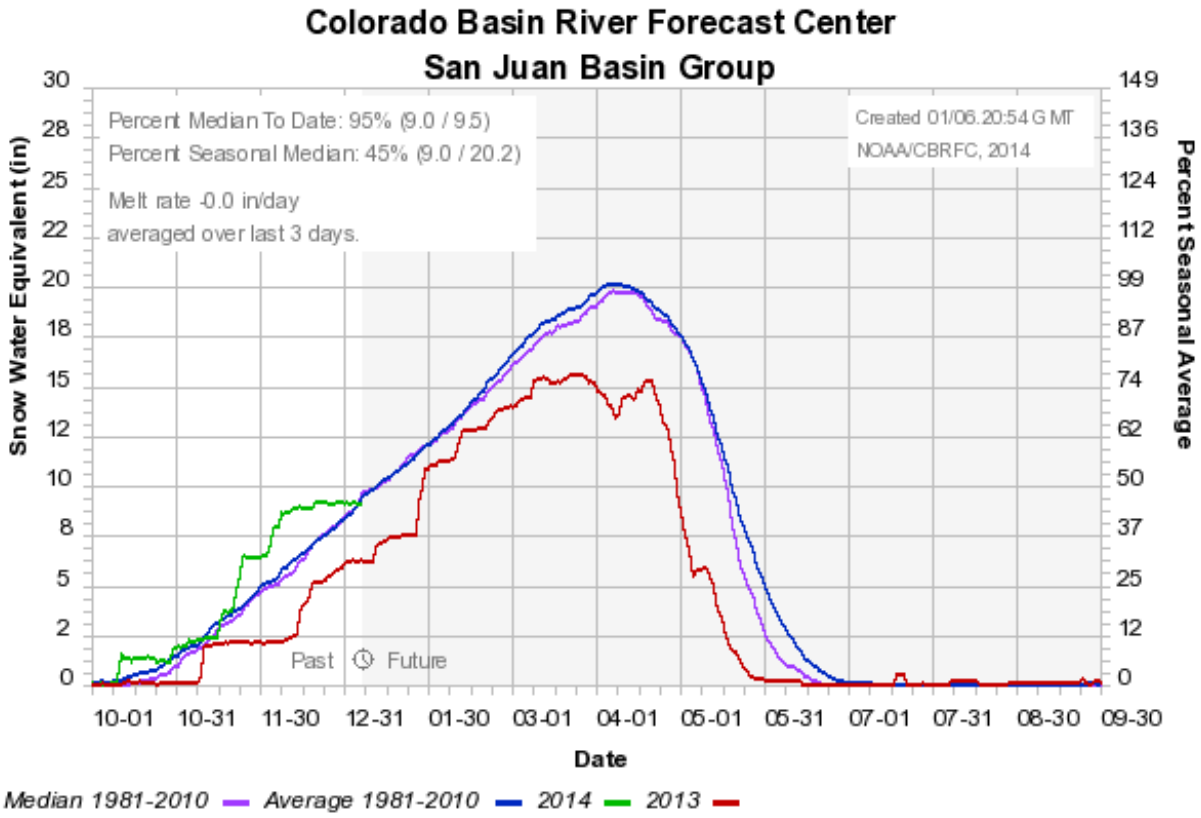




Web Reference: http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open

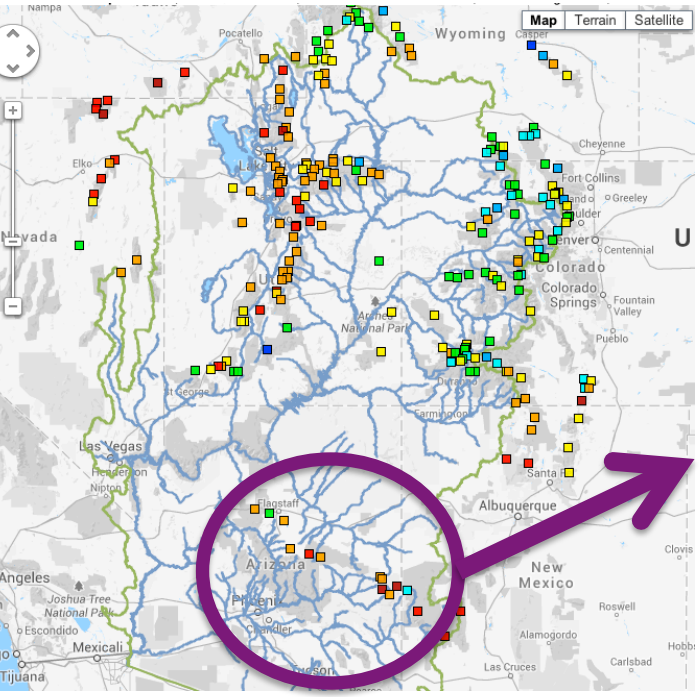
Snow:
San Juan Basin

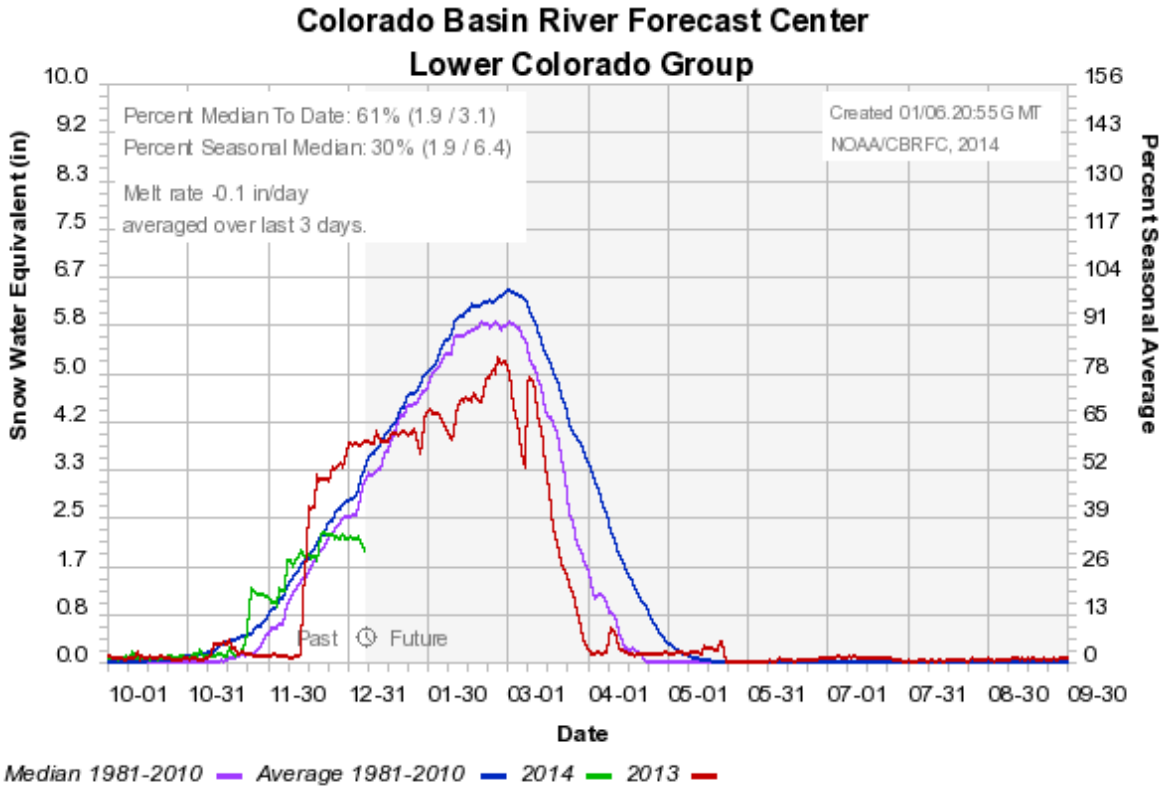




Web Reference: http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open

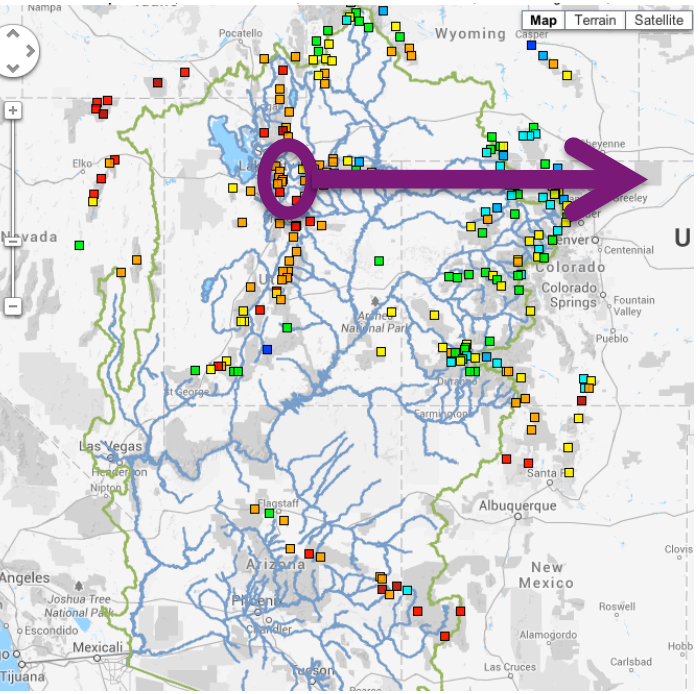
Snow:
Lower Colorado

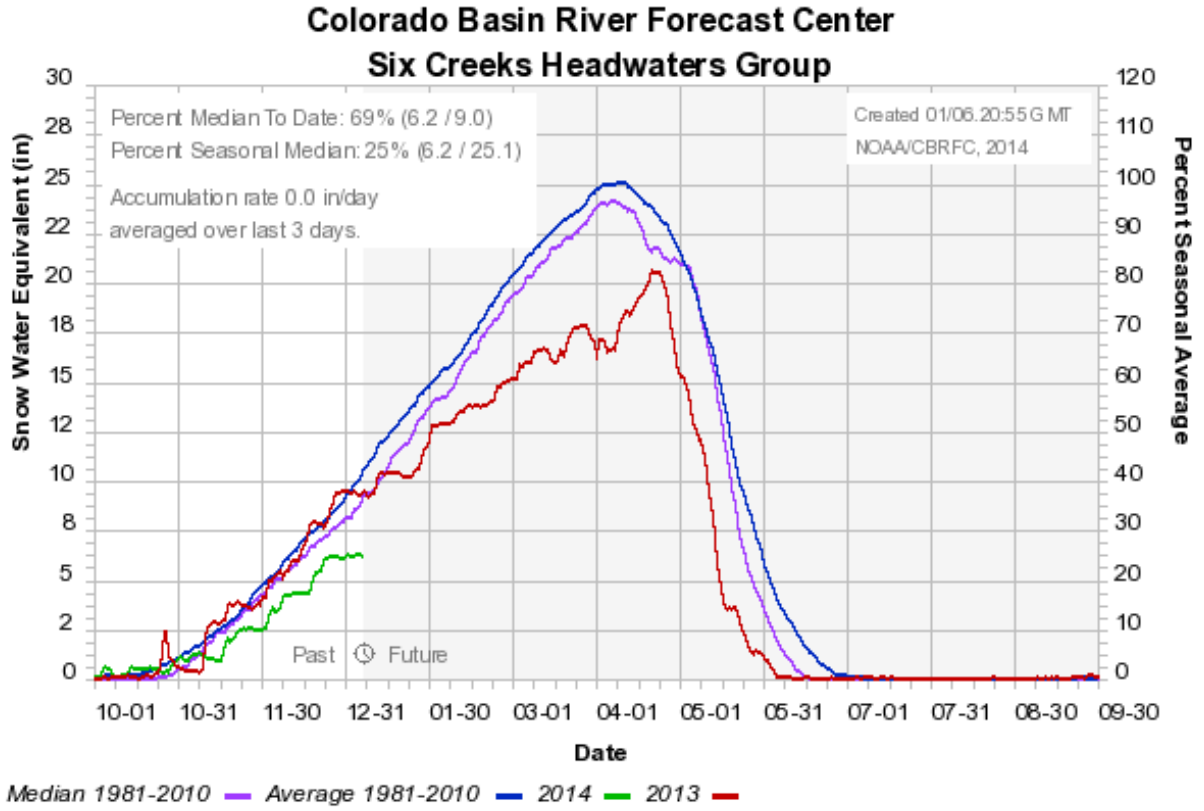




Web Reference: http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open

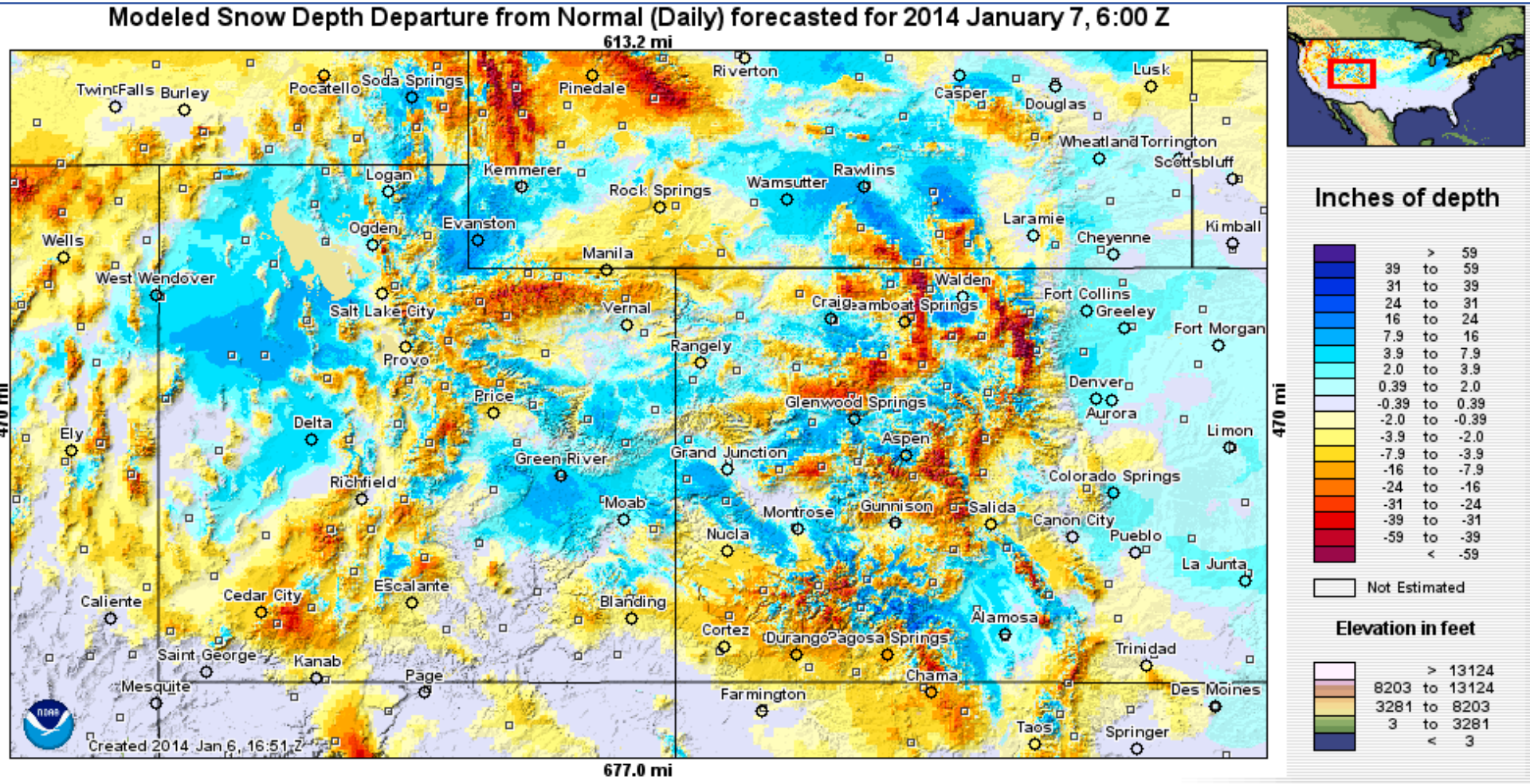
Snow:
Six Creeks in Salt Lake County





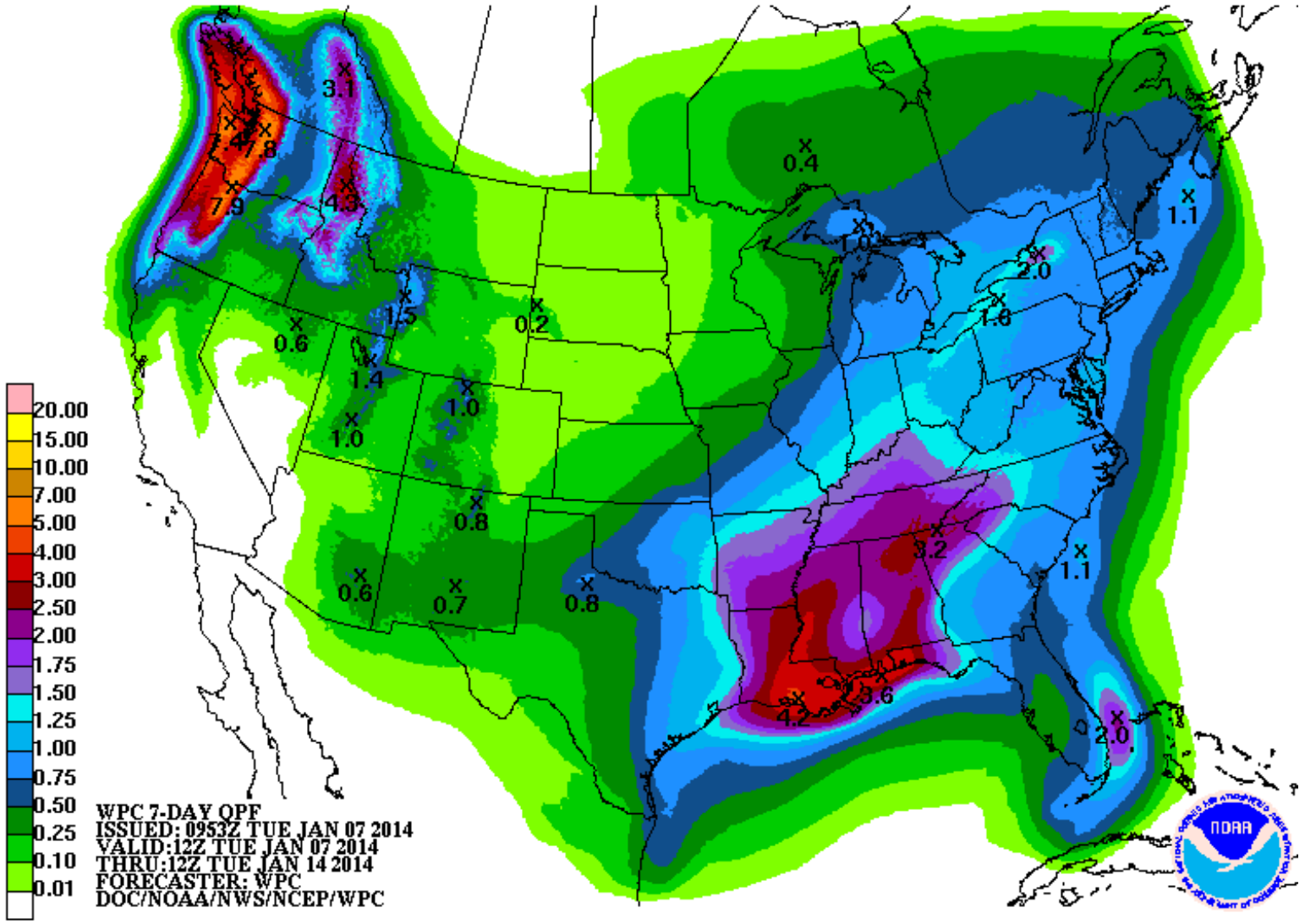
Web Reference: http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open

Snow Maps



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

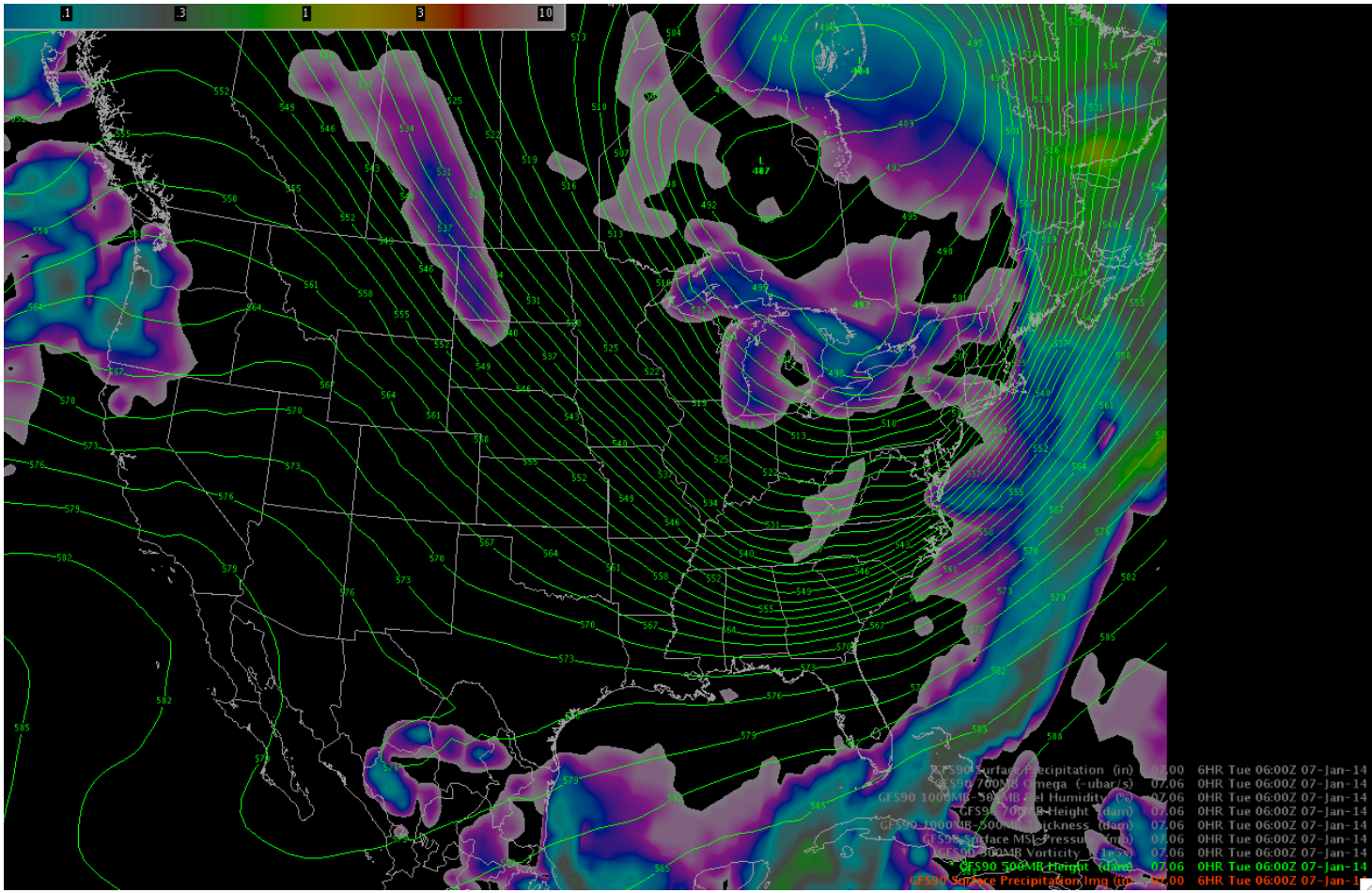
Forecast Precipitation



Web Reference: www.hpc.noaa.gov

Forecast Precipitation

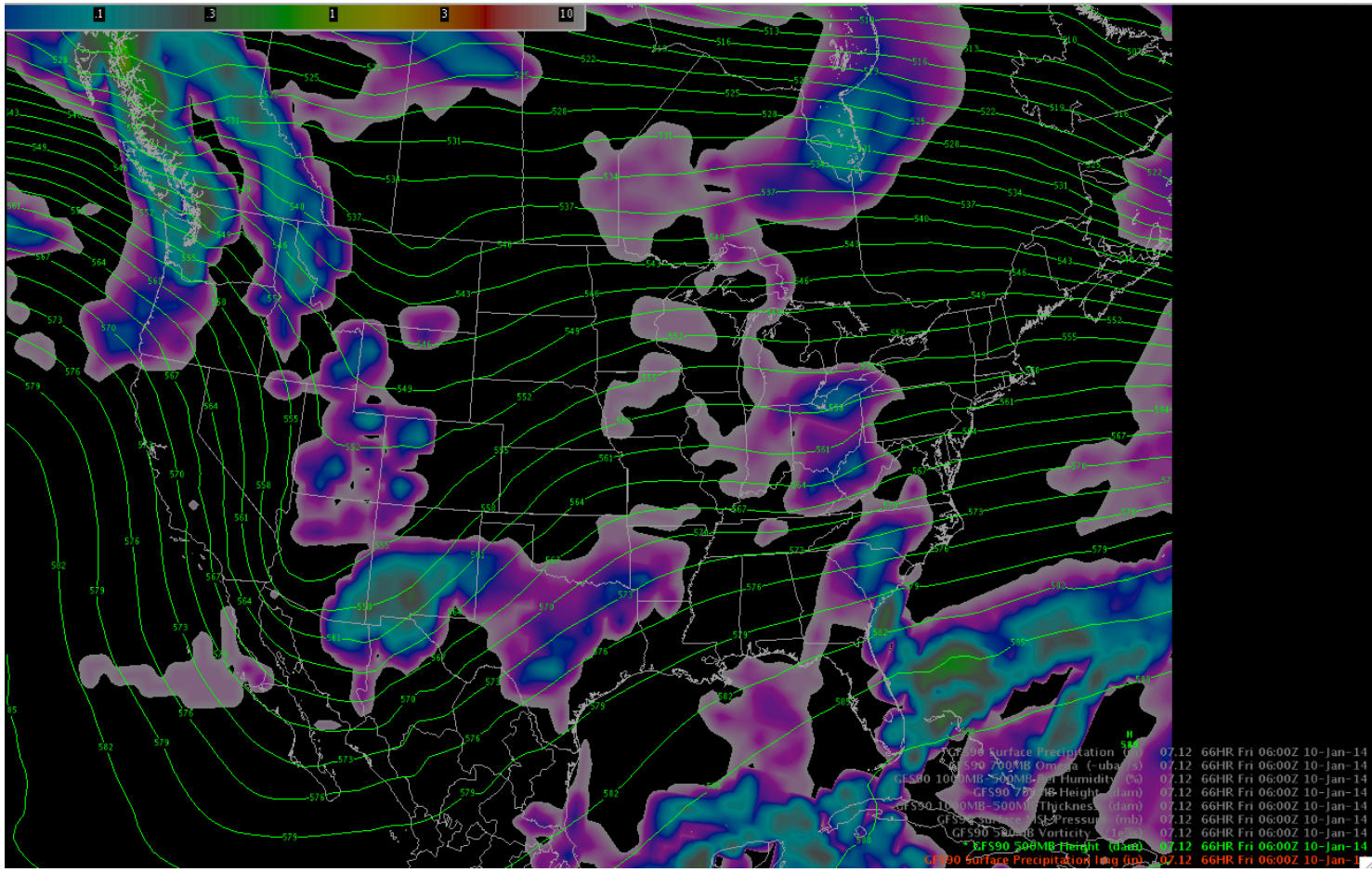
•Atmospheric ridging for western USA and “Polar Vortex” episode continues for Eastern USA for next couple days



Web Reference: www.hpc.noaa.gov

Forecast Precipitation

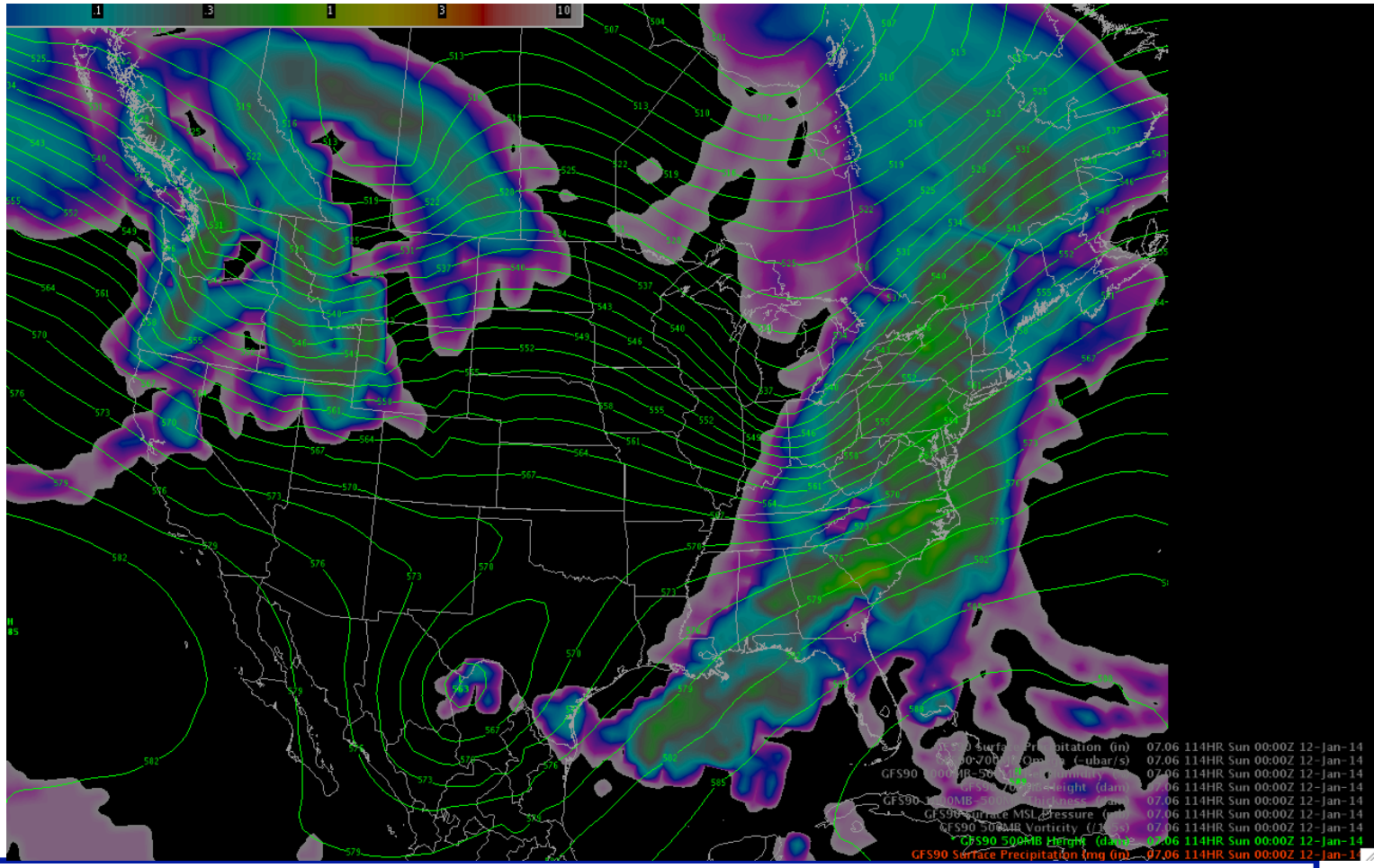
•Series of smallish storms move through basin beginning Thursday evening and lasting through Sunday. Storm impacts will be greatest in the Pacific Northwest. Maximum accumulations will be around 1.5” SWE.



Web Reference: www.hpc.noaa.gov

Forecast Precipitation

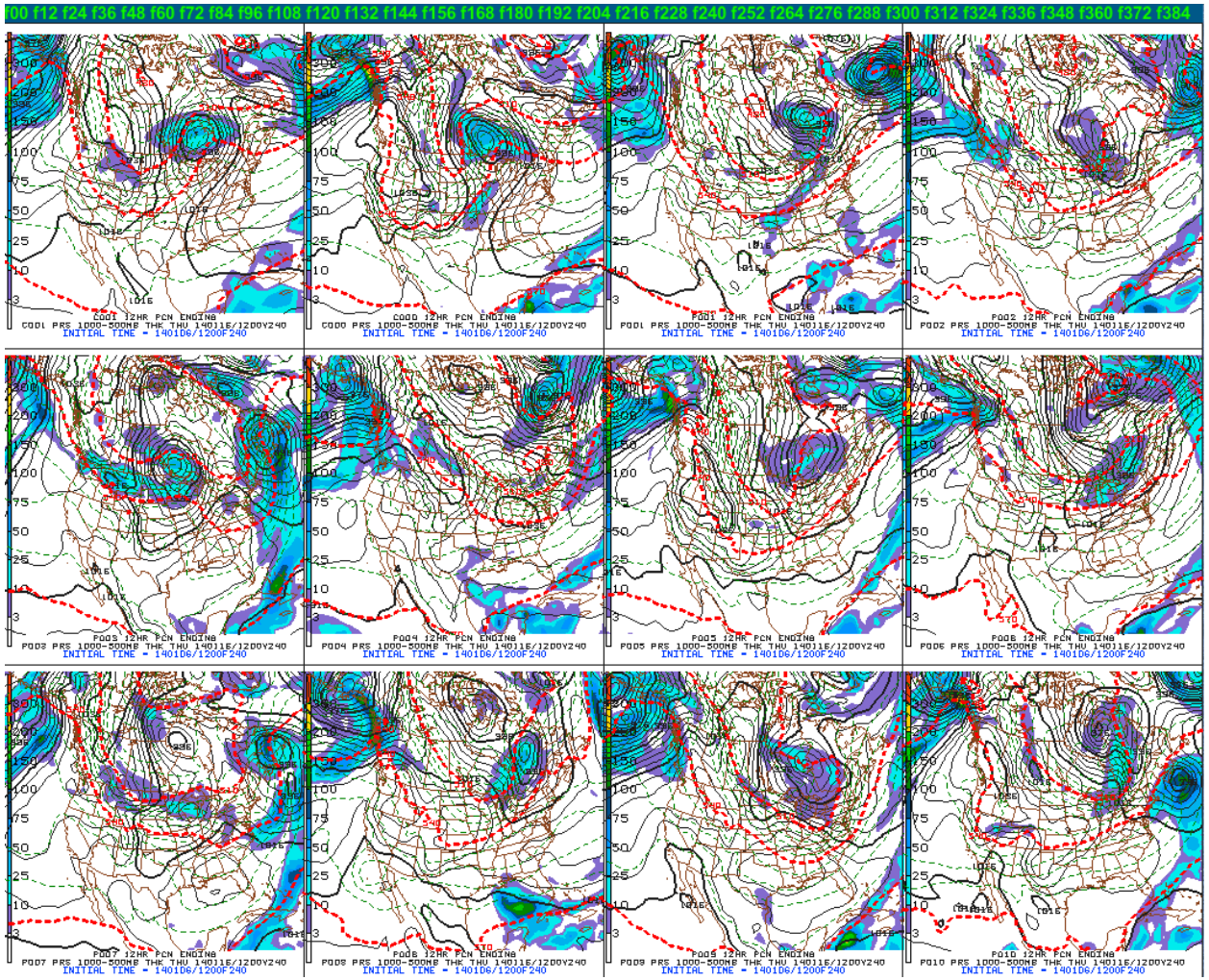
•Series of smallish storms move through basin beginning Thursday evening and lasting through Sunday. Storm impacts will be greatest in the Pacific Northwest. Maximum accumulations will be around 1.5” SWE.



Web Reference: www.hpc.noaa.gov

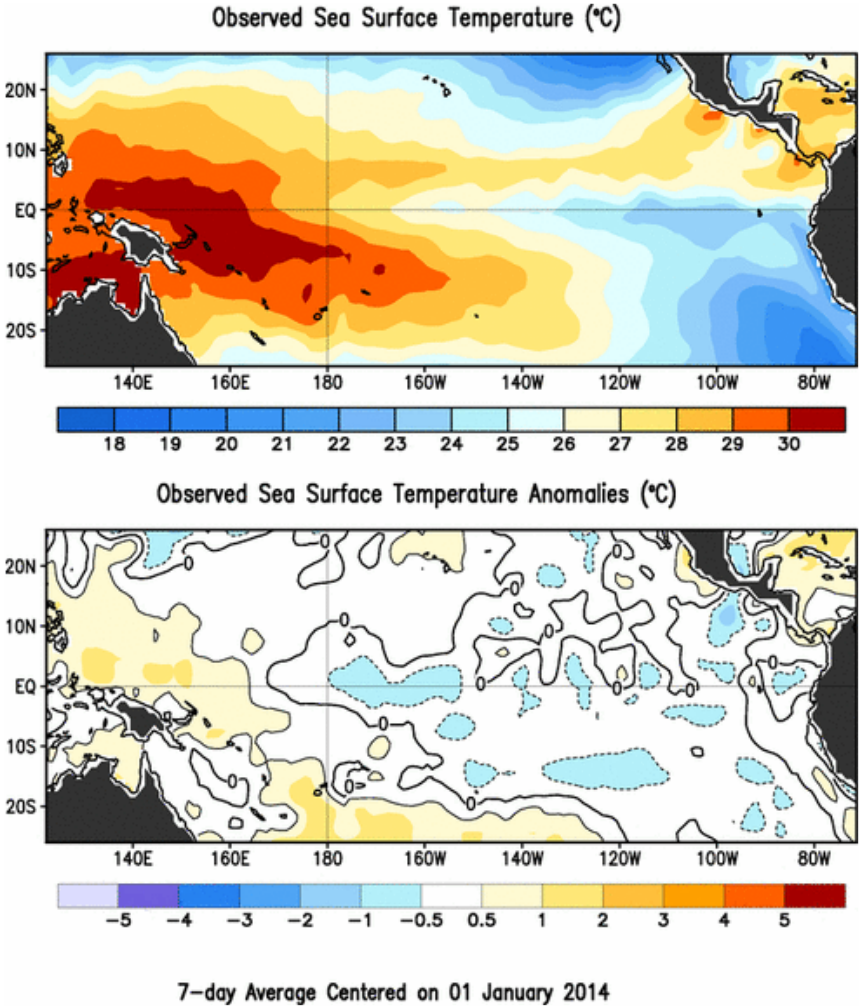
Forecast Precipitation

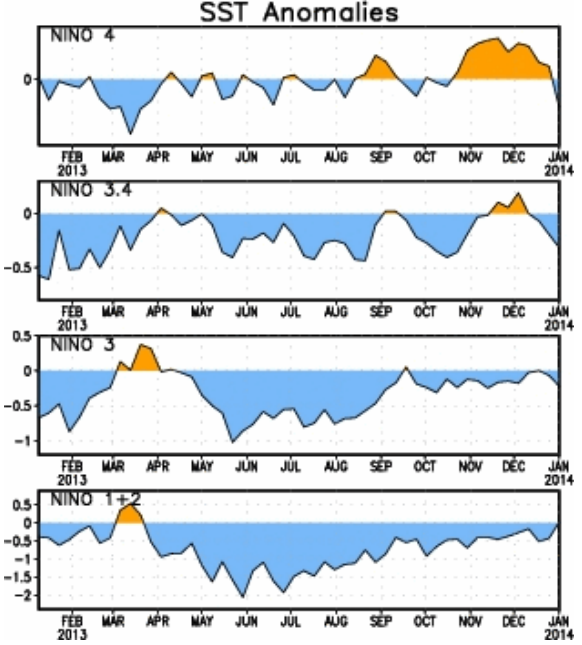
•Atmospheric ridging returns next week bringing dry conditions across the basin.



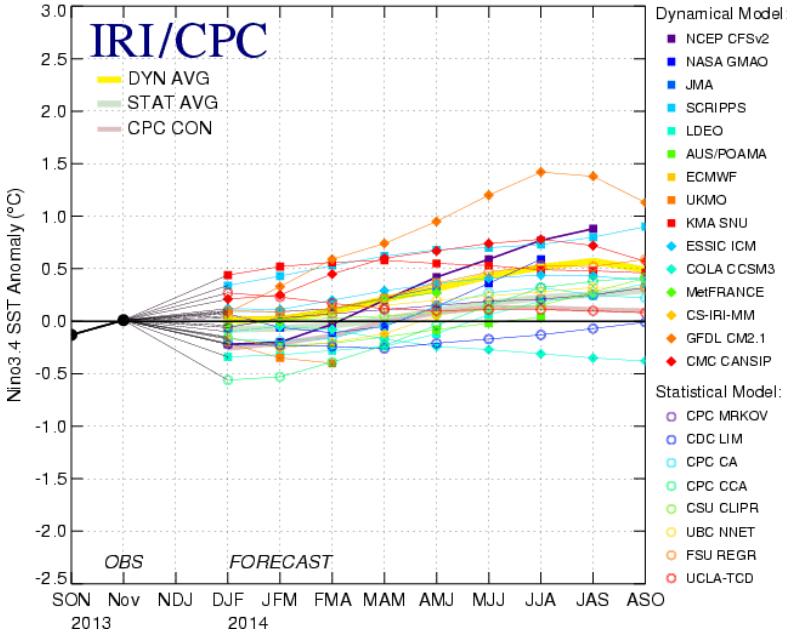
Web Reference: www.hpc.noaa.gov

ESNO Update

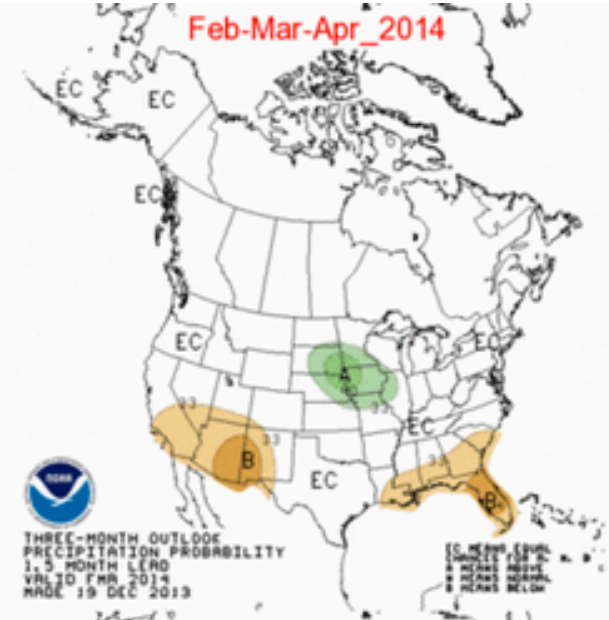


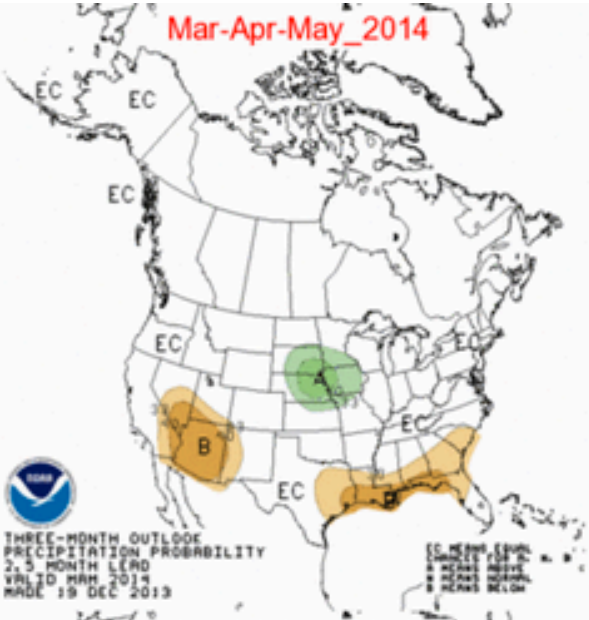


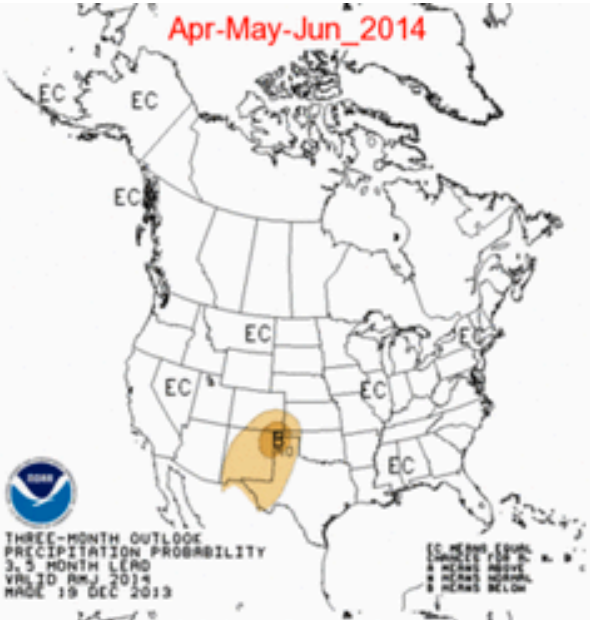
Mid-Dec 2013 Plume of Model ENSO Predictions

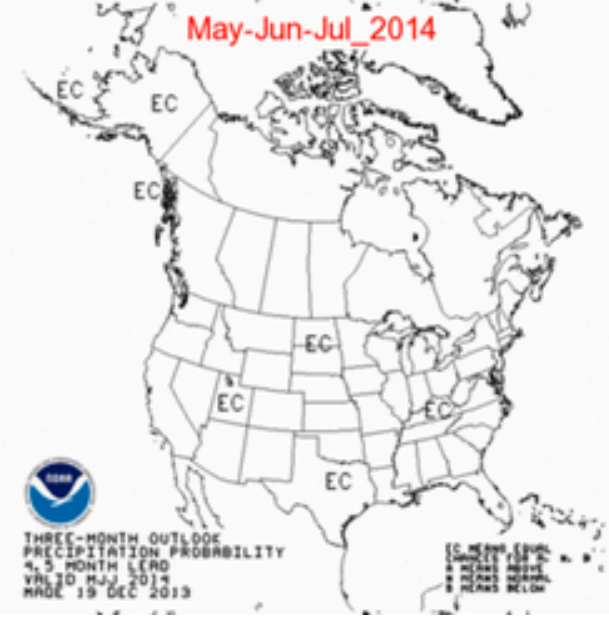


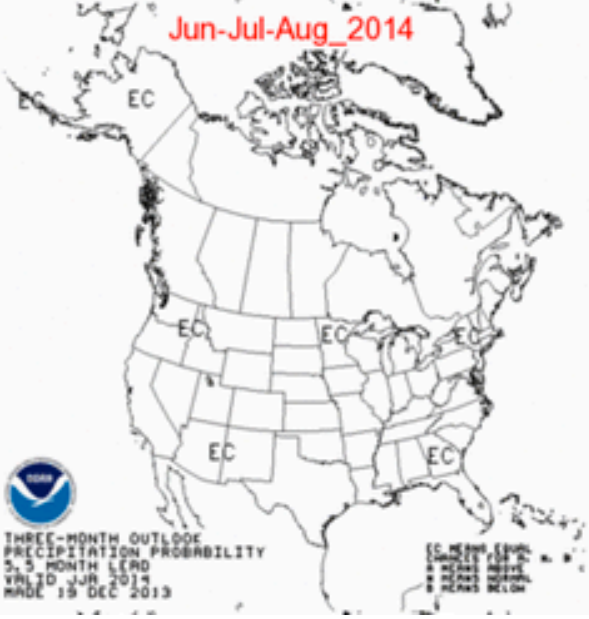
Web Reference: http://www.cpc.noaa.gov and iri.columbia.edu/climate/ENSO

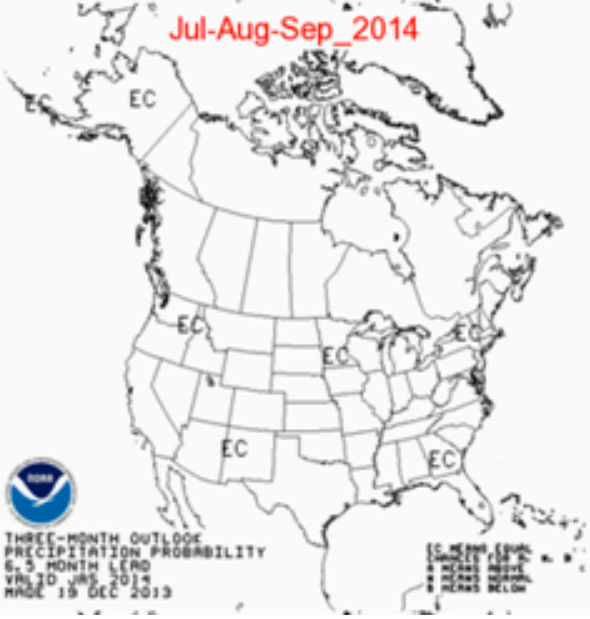






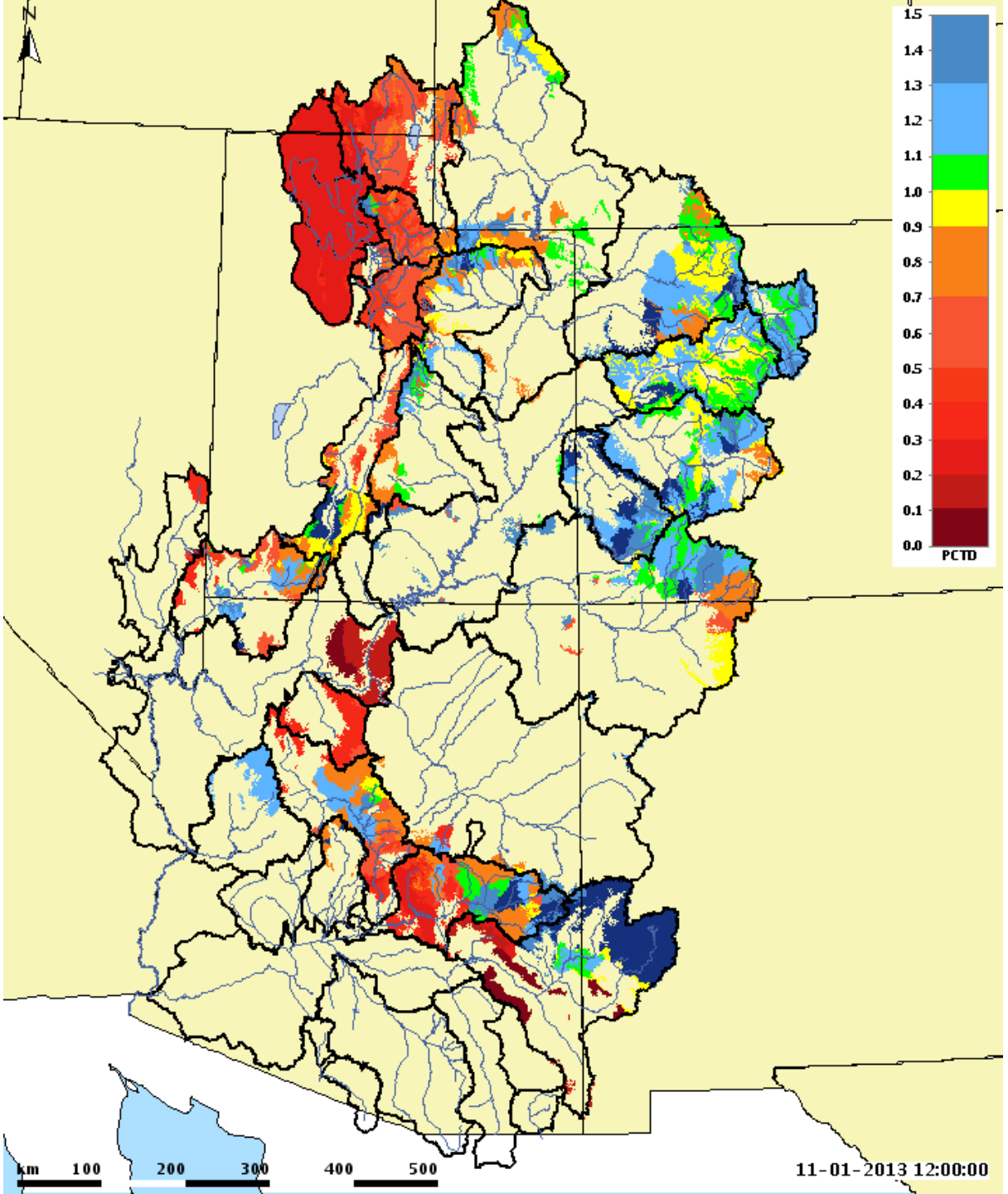




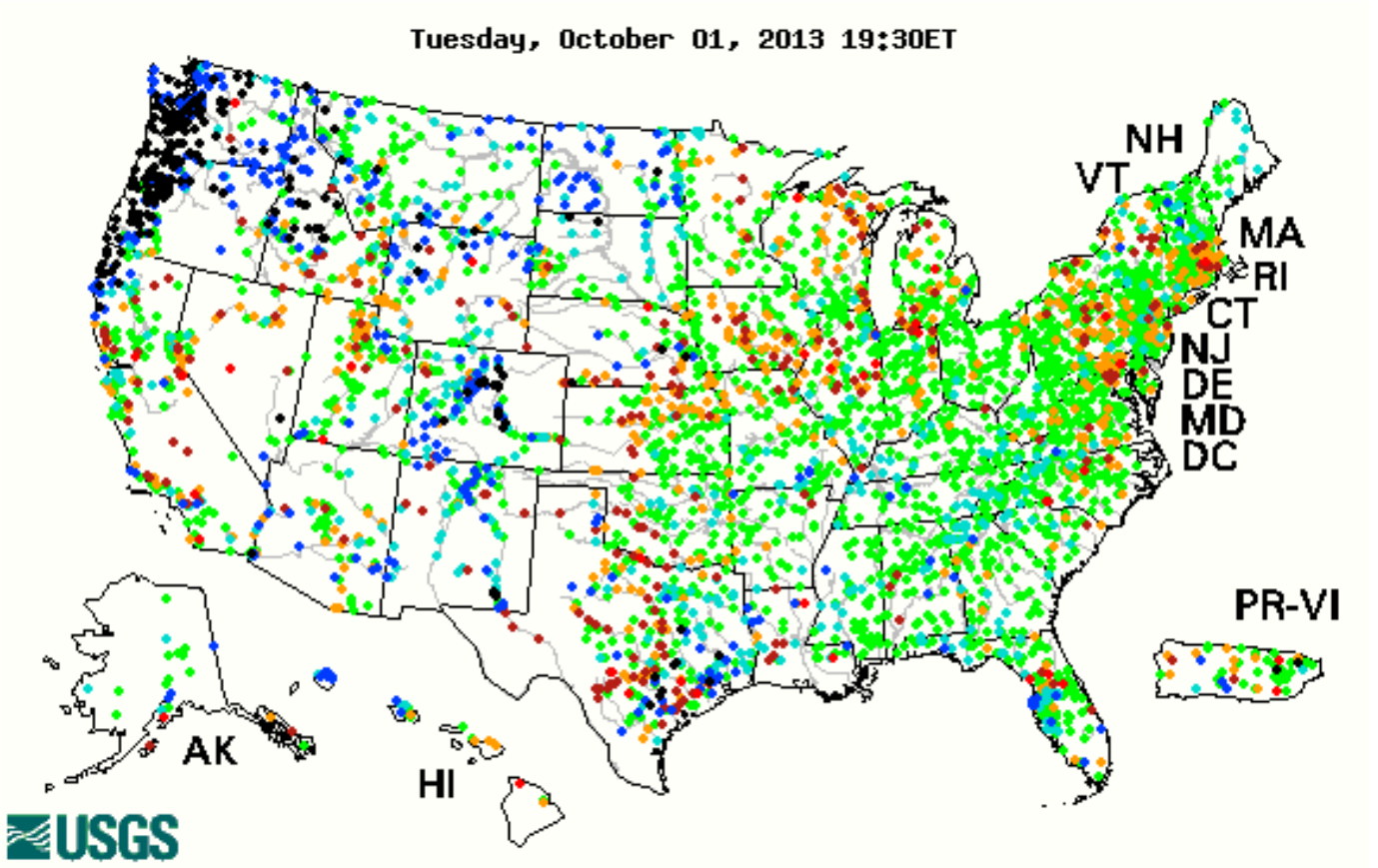


Web Reference: http://www.cpc.noaa.gov

Soil Moisture



Antecedent Streamflow



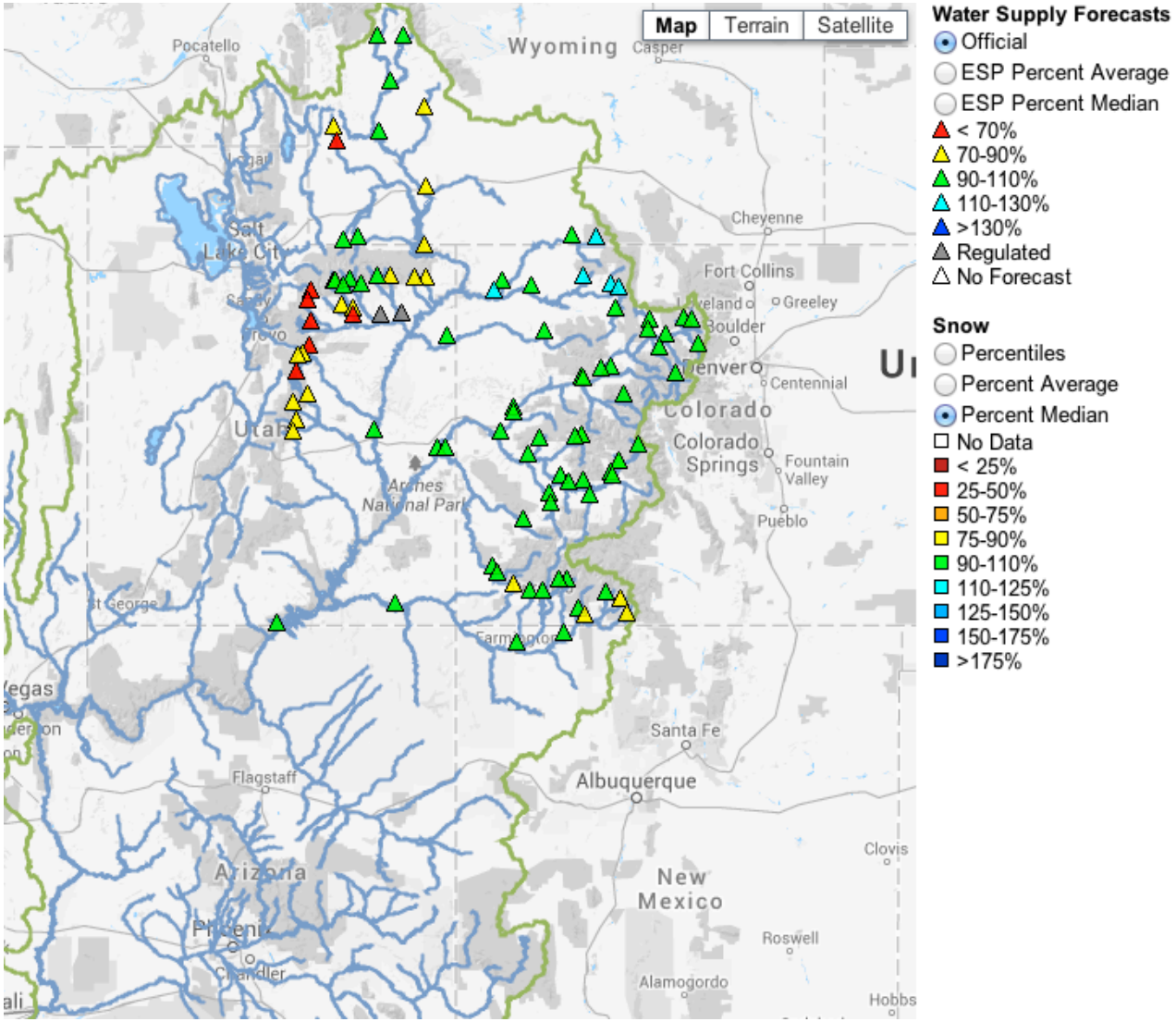
Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

Web Reference: www.waterwatch.usgs.gov

January 1, 2014
Water Supply Forecasts

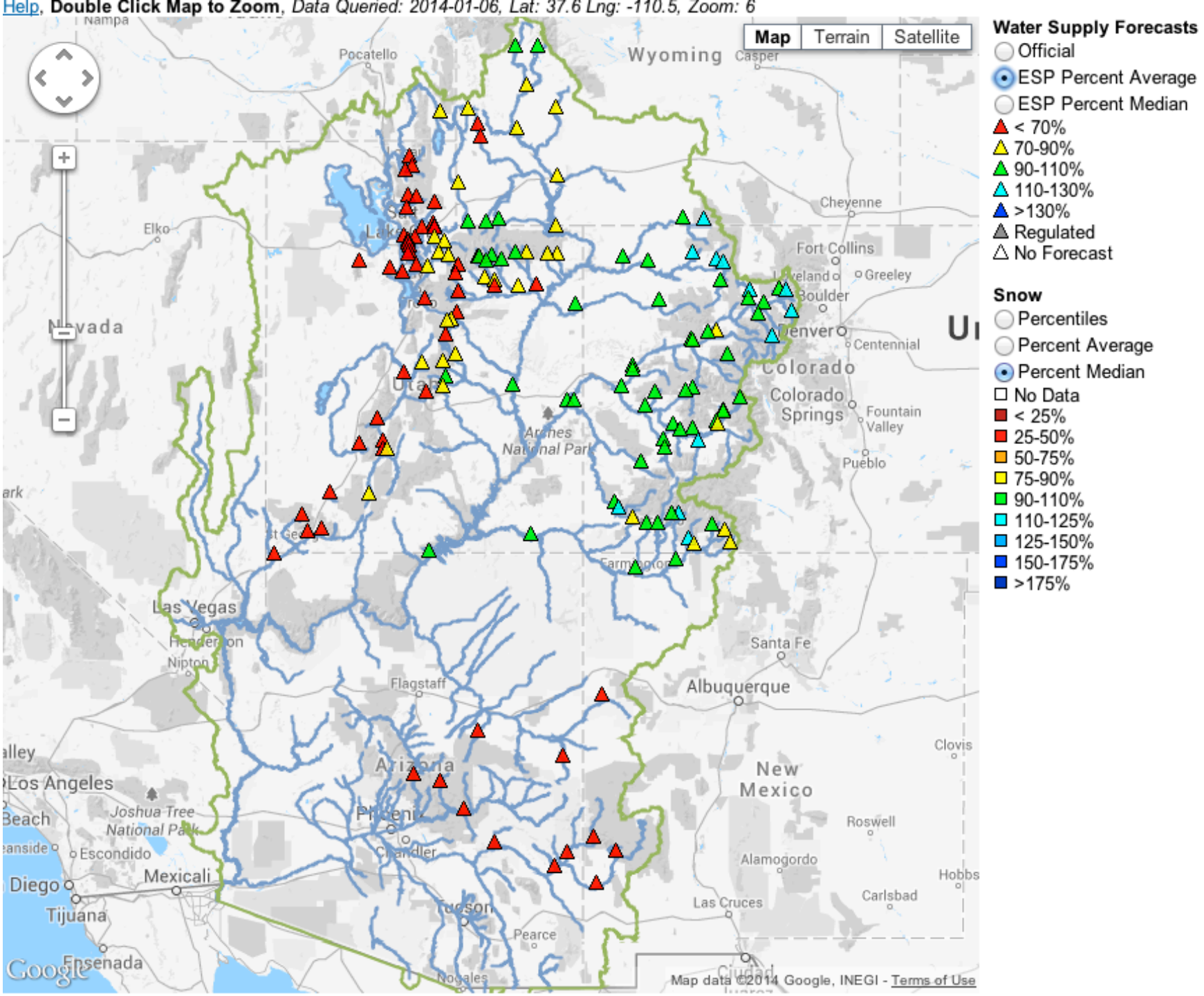
Highlights:

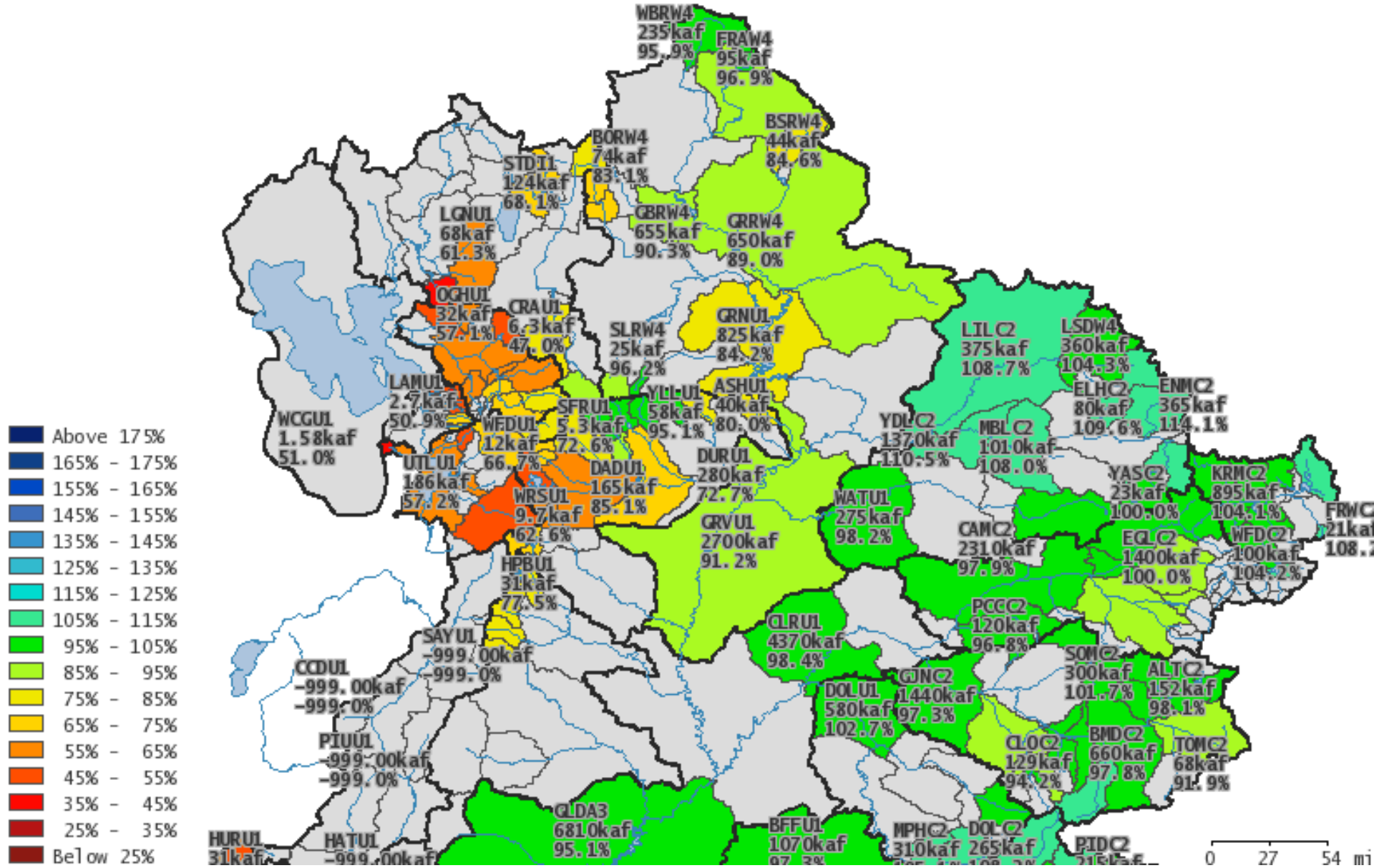
- Near average over most of the Upper Colorado
- Generally below average in Great basin and western Green
- Below average in lower basin
- Major factors:
  - Early season storms
  - Antecedent conditions



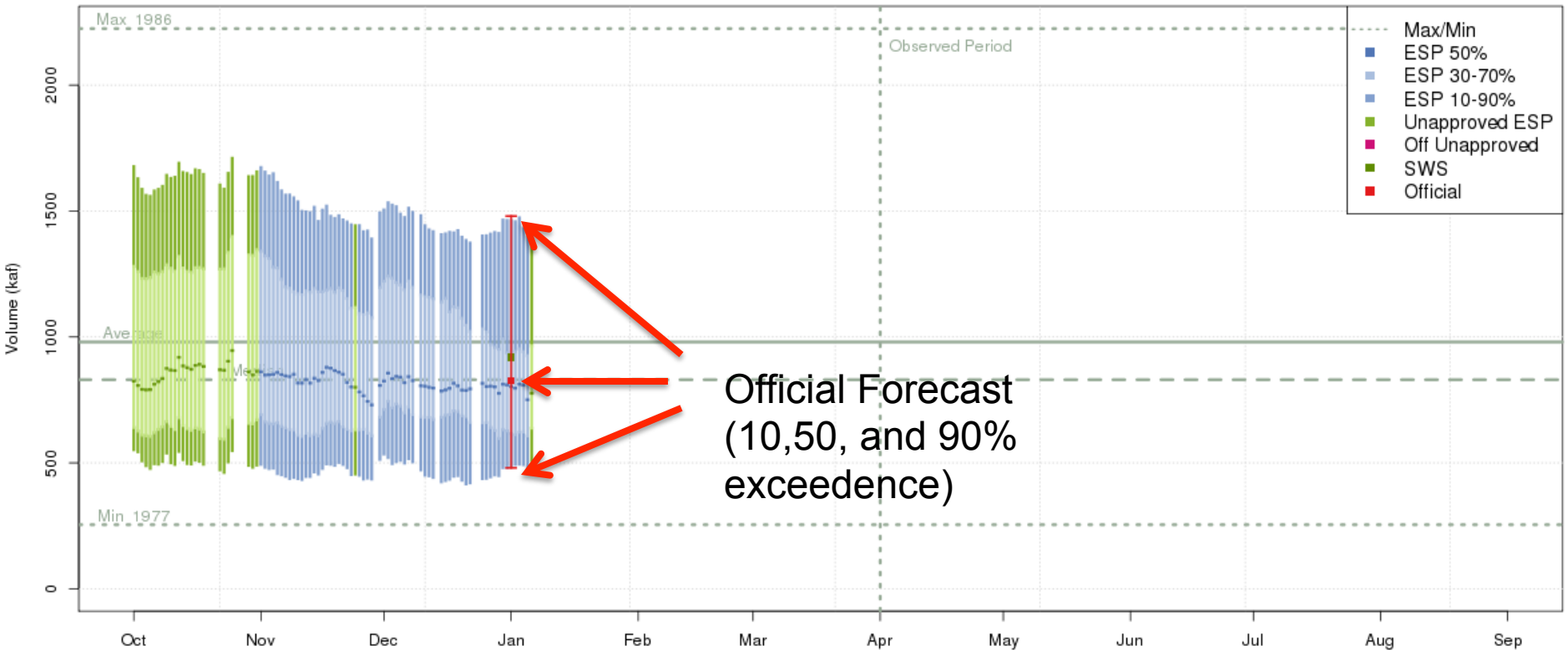
Web Reference: www.cbrfc.noaa.gov/gmap/gmapm.php?wcon=checked

New! Daily ESP Map

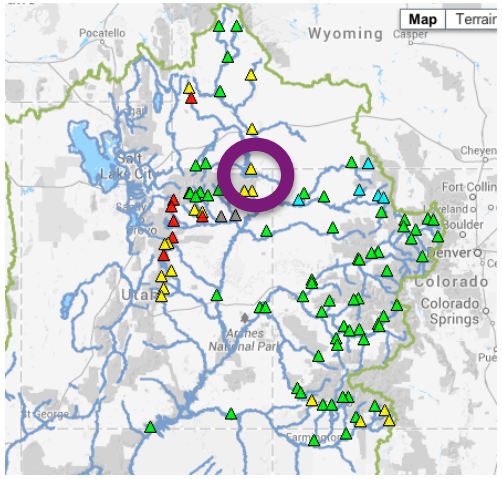



Above 175%
165% - 175%
155% - 165%
145% - 155%
135% - 145%
125% - 135%
115% - 125%
105% - 115%
95% - 105%
85% - 95%
75% - 85%
65% - 75%
55% - 65%
45% - 55%
35% - 45%
25% - 35%
Below 25%
WBRW4 235kaf 95.9%
FRAW4 95kaf 96.9%
BSRW4 44kaf 84.6%
BORW4 74kaf 83.1%
STDI1 124kaf 68.1%
LQNU1 68kaf 61.3%
GBRW4 655kaf 90.3%
GRRW4 650kaf 89.0%
OGHU1 32kaf 57.1%
CRAU1 6.3kaf 47.0%
SLRW4 25kaf 96.2%
GRNU1 825kaf 84.2%
LAMU1 2.7kaf 50.9%
YLLU1 58kaf 95.1%
ASHU1 40kaf 80.0%
WCGU1 1.58kaf 51.0%
SFRU1 5.3kaf 72.6%
WFDU1 12kaf 66.7%
DURU1 280kaf 72.7%
UTLU1 186kaf 57.2%
DADU1 165kaf 85.1%
WRSU1 9.7kaf 62.6%
GRVU1 2700kaf 91.2%
HPBU1 31kaf 77.5%
SAYU1 -999.00kaf -999.0%
CCDU1 -999.00kaf -999.0%
PIUU1 -999.00kaf -999.0%
HURU1 31kaf
HATU1 -999.00kaf
CLDA3 6810kaf 95.1%
BFFU1 1070kaf
LILC2 375kaf 108.7%
LSDW4 360kaf 104.3%
ELHC2 80kaf 109.6%
ENMC2 365kaf 114.1%
YDLC2 1370kaf 110.5%
MBLC2 1010kaf 108.0%
YASC2 23kaf 100.0%
KRMC2 895kaf 104.1%
WATU1 275kaf 98.2%
CAMC2 2310kaf 97.9%
EGLC2 1400kaf 100.0%
WFDC2 100kaf 104.2%
PCCC2 120kaf 96.8%
CLRU1 4370kaf 98.4%
SOMC2 300kaf 101.7%
ALTC2 152kaf 98.1%
GJNC2 1440kaf 97.3%
DOLU1 580kaf 102.7%
BMDC2 660kaf 97.8%
TOMC2 68kaf 91.9%
CLOC2 129kaf 94.2%
MPHC2 310kaf
DOLC2 265kaf
PIDC2
0 27 54 mi

2014 Runoff Forecast Apr-Jul (Includes 5 Day Precip Forecast)
Green - Flaming Gorge Res- Flaming Gorge Dam- At (GRNU1)

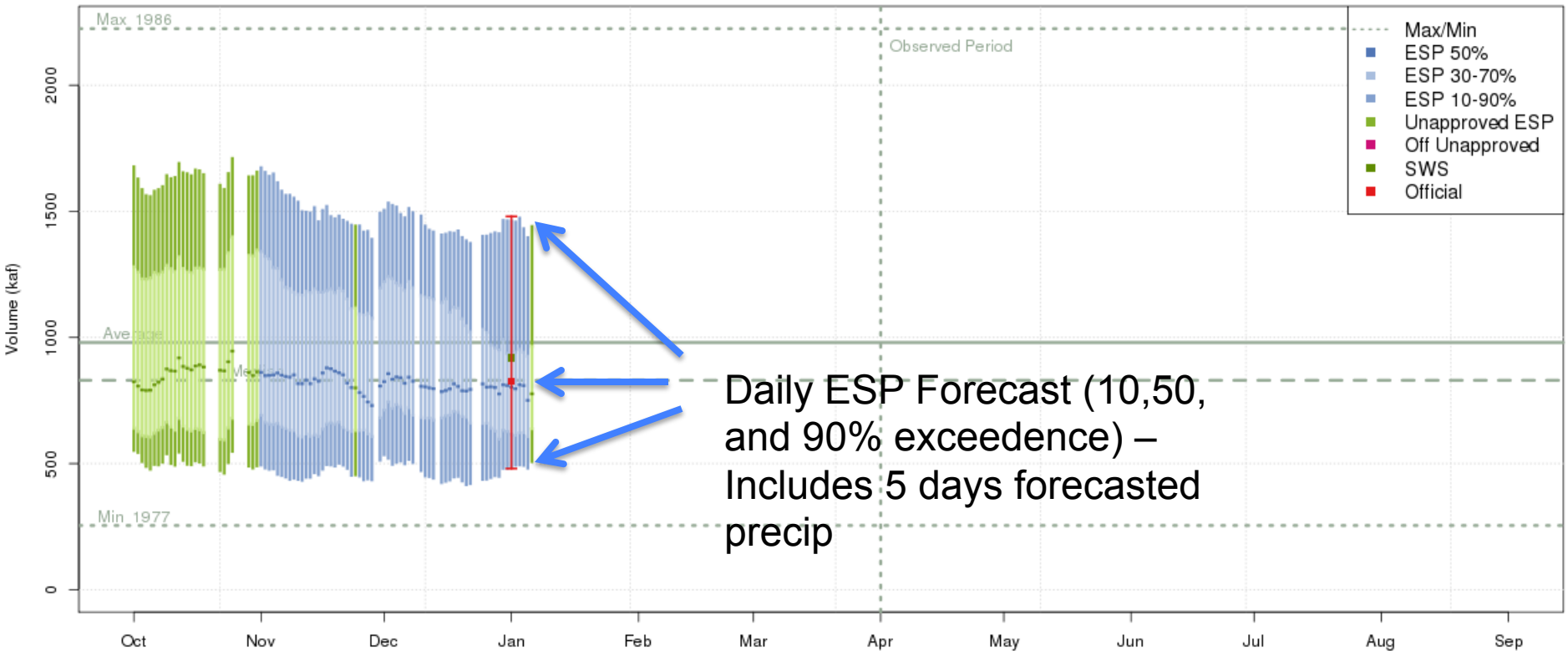


Official Forecast (10,50, and 90% exceedence)

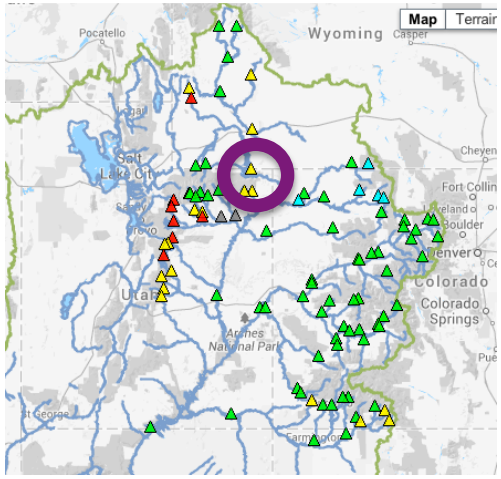


Plot Created 2014-01-06 12:39:57, Lastest ESP Run from 2014-01-06, CBRFC / NWS / NOAA
Maximum of 2224.3 in 1986, Minimum of 254.3 in 1977, Average/Median for 1981-2010.
ESP forecasts in the Observed Period include observed values.

2014 Runoff Forecast Apr-Jul (Includes 5 Day Precip Forecast)
Green - Flaming Gorge Res- Flaming Gorge Dam- At (GRNU1)

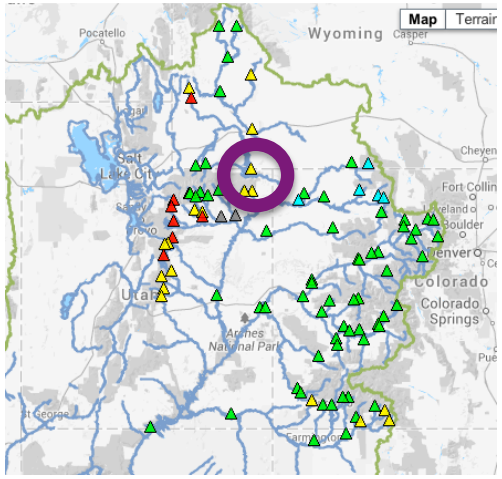


Daily ESP Forecast (10,50, and 90% exceedence) – Includes 5 days forecasted precip



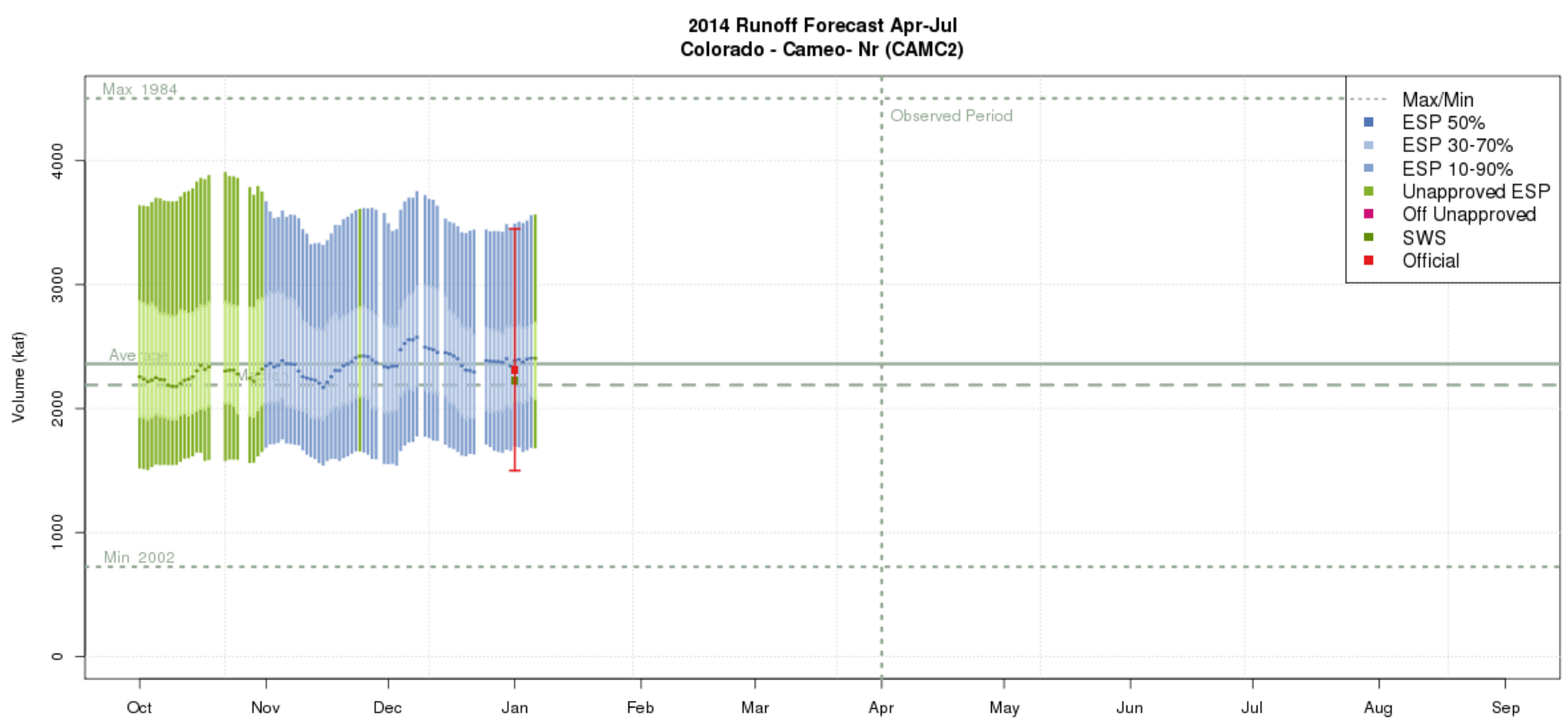
Plot Created 2014-01-06 12:39:57, Lastest ESP Run from 2014-01-06, CBRFC / NWS / NOAA
Maximum of 2224.3 in 1986, Minimum of 254.3 in 1977, Average/Median for 1981-2010.
ESP forecasts in the Observed Period include observed values.

2014 Runoff Forecast Apr-Jul (Includes 5 Day Precip Forecast)
Green - Flaming Gorge Res- Flaming Gorge Dam- At (GRNU1)

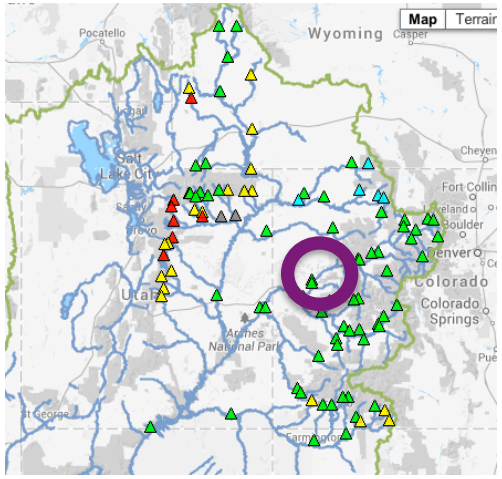


Plot Created 2014-01-06 12:39:57, Lastest ESP Run from 2014-01-06, CBRFC / NWS / NOAA
Maximum of 2224.3 in 1986, Minimum of 254.3 in 1977, Average/Median for 1981-2010.
ESP forecasts in the Observed Period include observed values.

January 1 Forecast:
10% - 1480 KAF
50% - 825 KAF (84% Average)
90% - 480 KAF

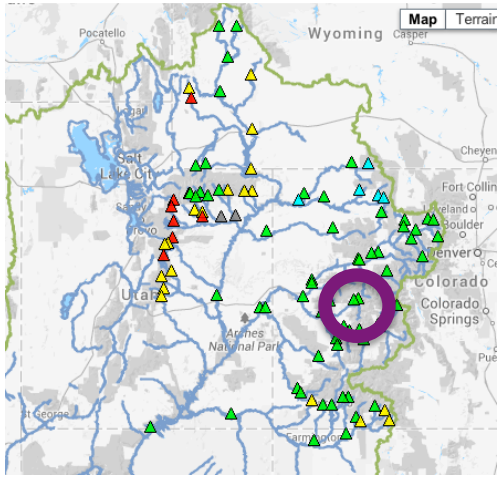


Plot Created 2014-01-06 12:29:09, Lastest ESP Run from 2014-01-06, CBRFC / NWS / NOAA
Maximum of 4503 in 1984, Minimum of 723.6 in 2002, Average/Median for 1981-2010.
ESP forecasts in the Observed Period include observed values.



January 1 Forecast:
10% - 3450 KAF
50% - 2310 KAF (98% Average)
90% - 1500 KAF

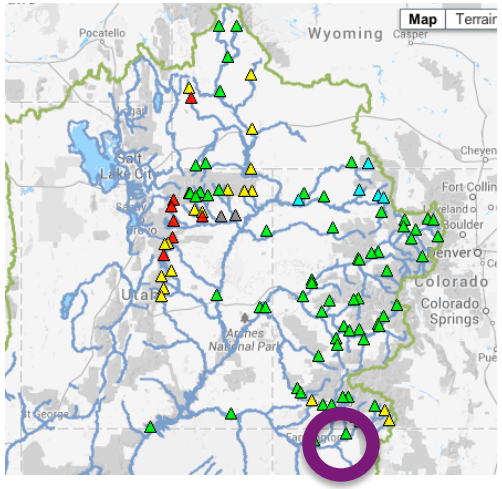
Plot Created 2014-01-06 12:28:06, Lastest ESP Run from 2014-01-06, CBRFC / NWS / NOAA
Maximum of 1433 in 1984, Minimum of 156.6 in 2002, Average/Median for 1981-2010.
ESP forecasts in the Observed Period include observed values.



January 1 Forecast:
10% - 950 KAF
50% - 660 KAF (98% Average)
90% - 400 KAF

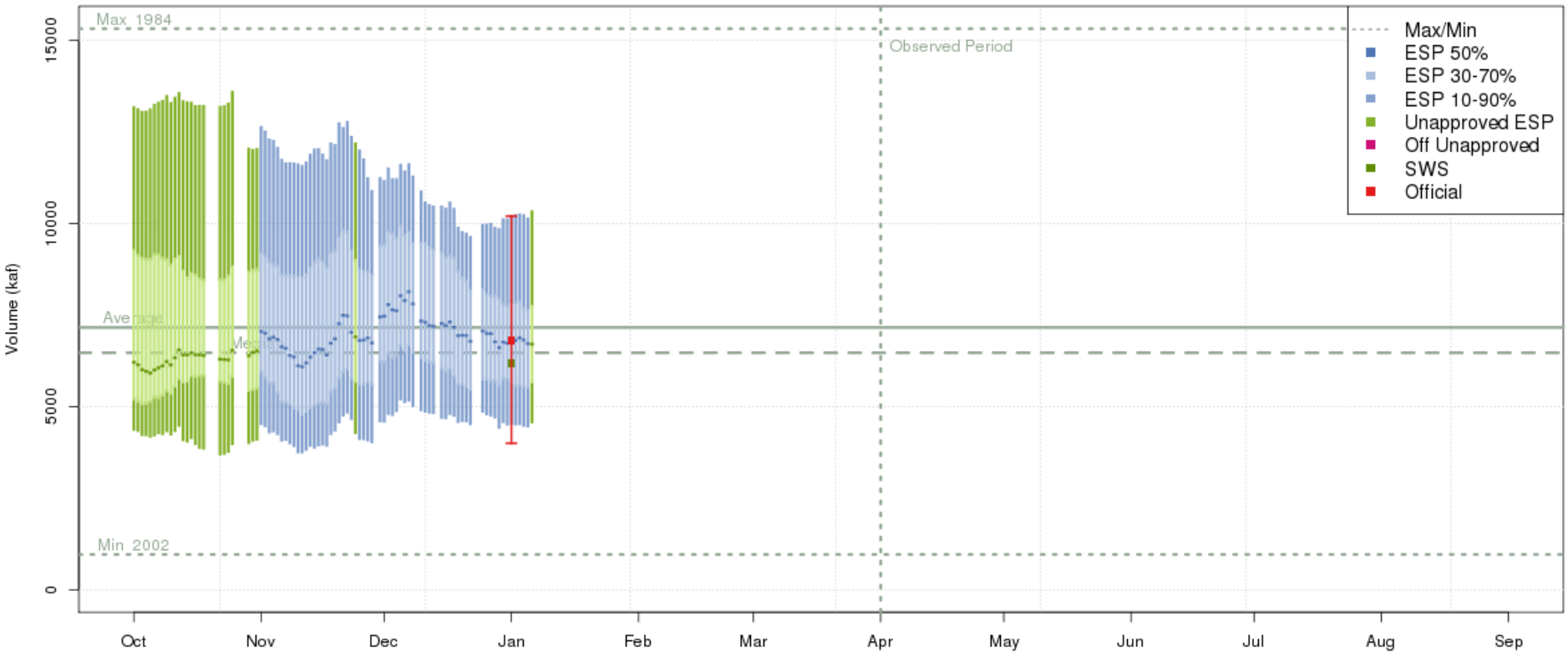
2014 Runoff Forecast Apr-Jul (Includes 5 Day Precip Forecast)
San Juan - Navajo Res- Archuleta- Nr (NVRN5)

Plot Created 2014-01-06 12:48:10, Lastest ESP Run from 2014-01-06, CBRFC / NWS / NOAA
Maximum of 1776.8 in 1979, Minimum of 36.7 in 2002, Average/Median for 1981-2010.
ESP forecasts in the Observed Period include observed values.

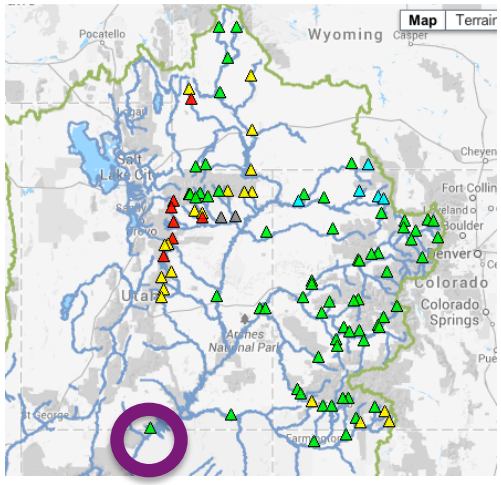


January 1 Forecast:
10% - 990 KAF
50% - 690 KAF (94% Average)
90% - 480 KAF

2014 Runoff Forecast Apr-Jul (Includes 5 Day Precip Forecast)
Colorado - Lake Powell- Glen Cyn Dam- At (GLDA3)

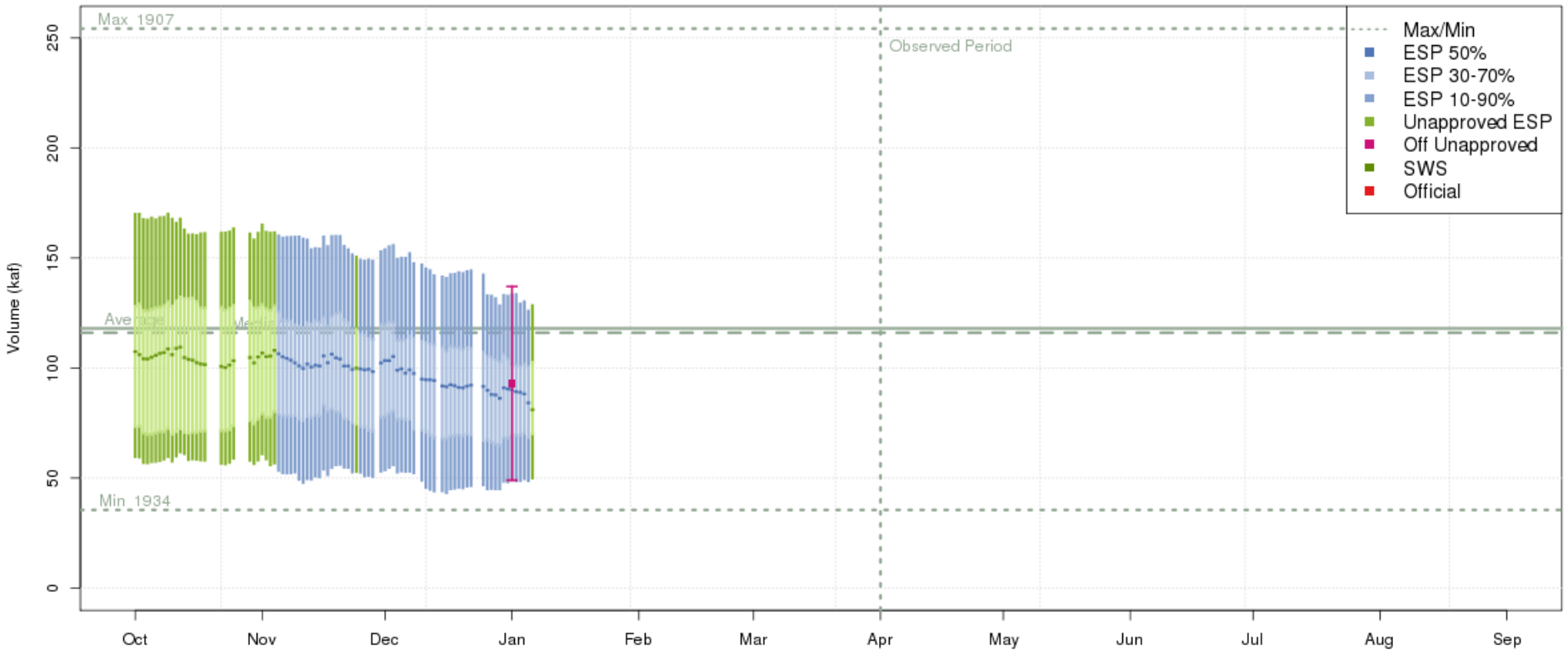


Plot Created 2014-01-06 12:39:00, Lastest ESP Run from 2014-01-06, CBRFC / NWS / NOAA
Maximum of 15316.1 in 1984, Minimum of 964 in 2002, Average/Median for 1981-2010.
ESP forecasts in the Observed Period include observed values.

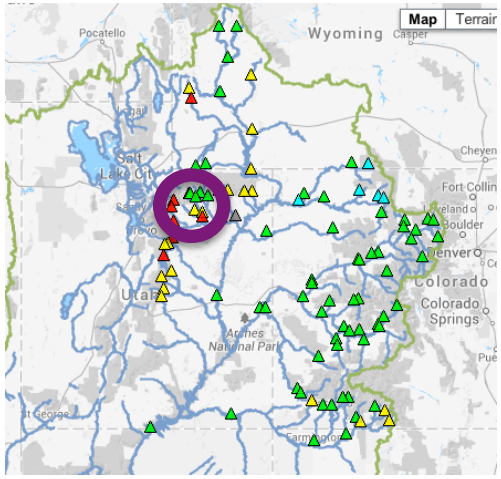


January 1 Forecast:
10% - 10.2 MAF
50% - 6.81 MAF (95% Average)
90% - 4.0 MAF

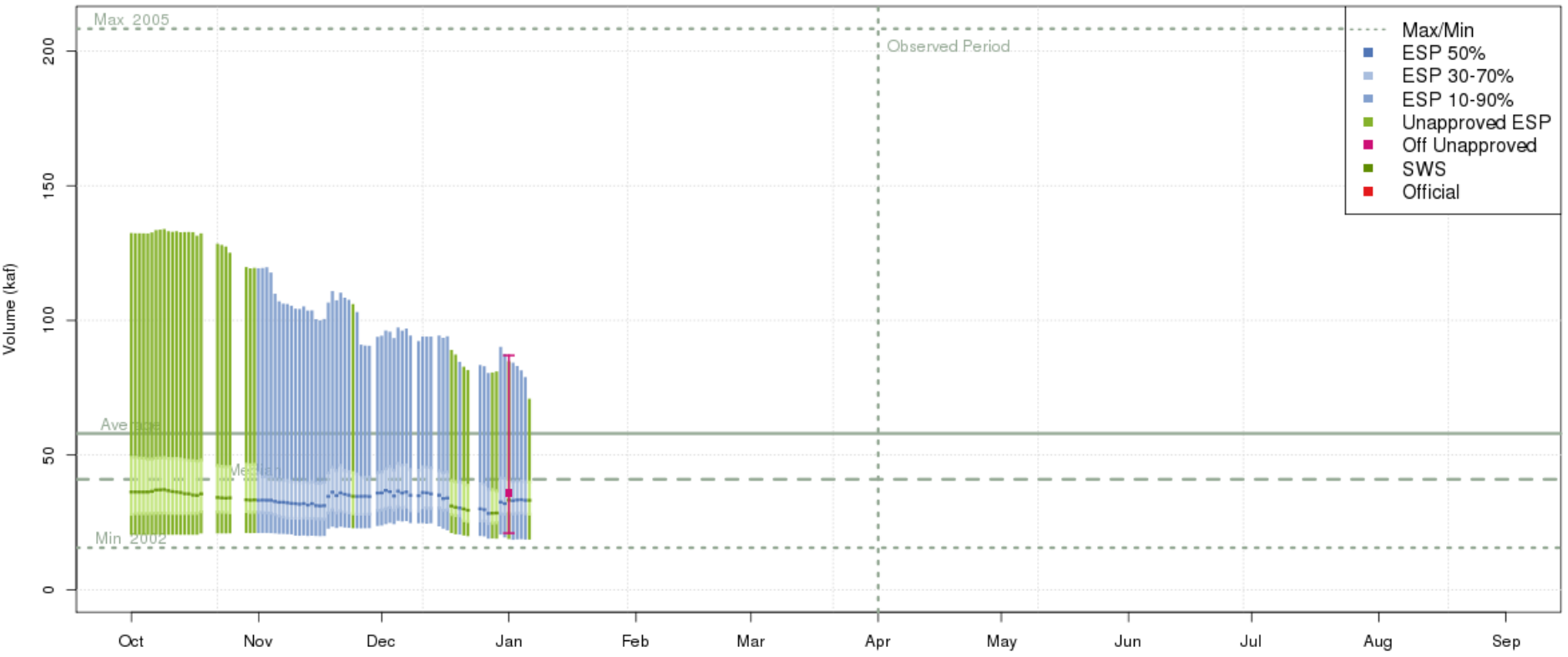
2014 Runoff Forecast Apr-Jul (Includes 5 Day Precip Forecast)
Weber - Oakley- Nr (OAWU1)



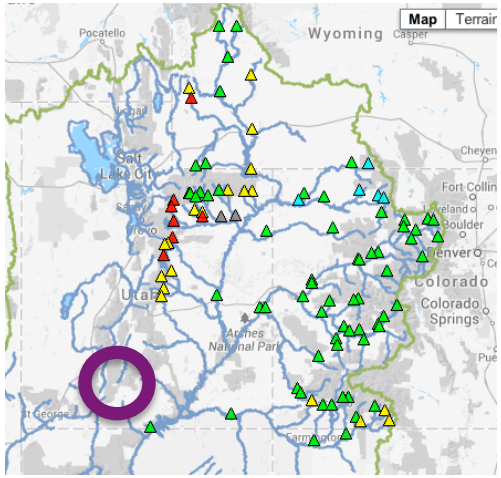
Plot Created 2014-01-06 12:48:25, Lastest ESP Run from 2014-01-06, CBRFC / NWS / NOAA
Maximum of 254.2 in 1907, Minimum of 35.5 in 1934, Average/Median for 1981-2010.
ESP forecasts in the Observed Period include observed values.



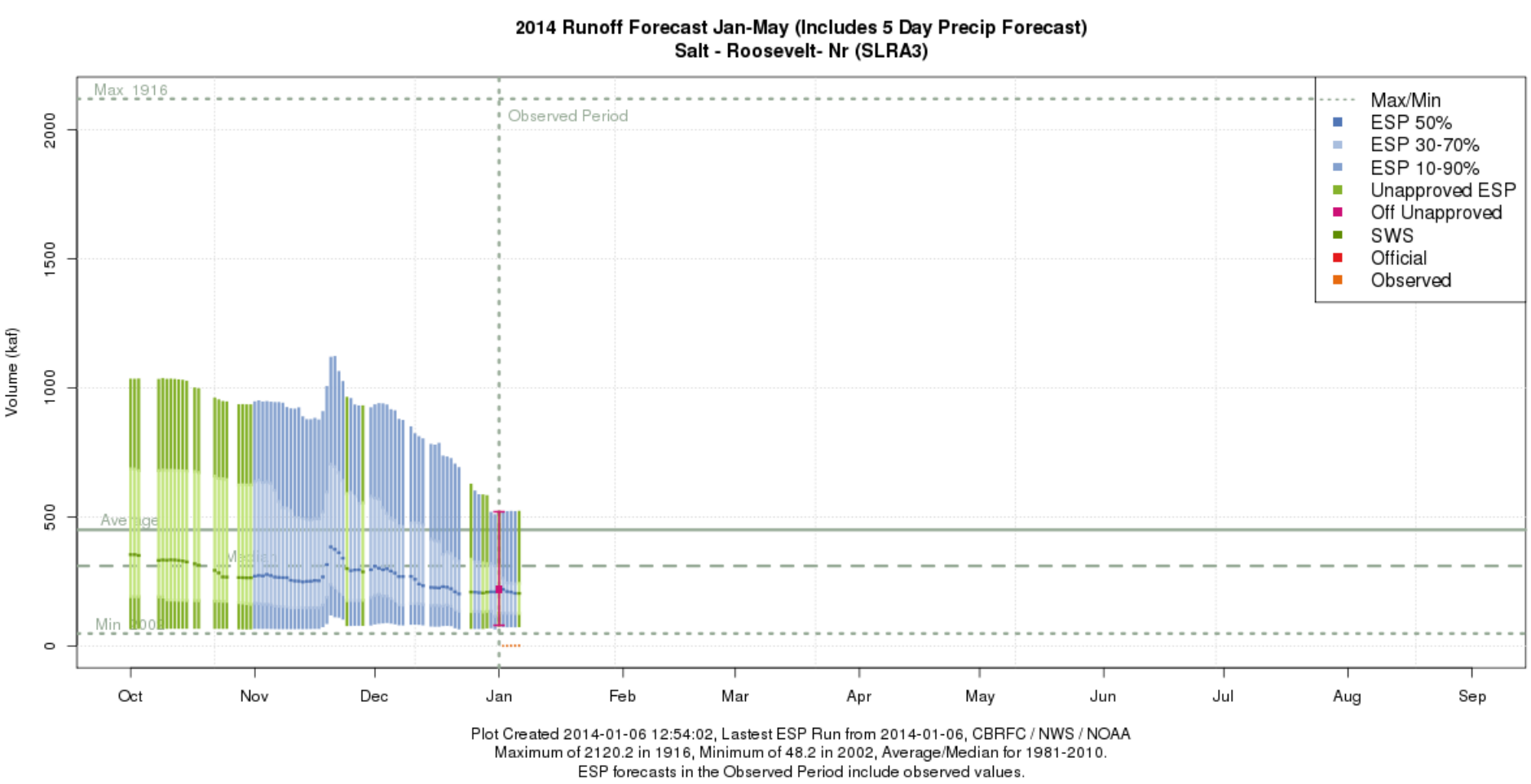
January 1 Forecast:
10% - 137 KAF
50% - 93 KAF (79% Average)
90% - 49 KAF



Plot Created 2014-01-06 12:58:27, Lastest ESP Run from 2014-01-06, CBRFC / NWS / NOAA
Maximum of 208.3 in 2005, Minimum of 15.6 in 2002, Average/Median for 1981-2010.
ESP forecasts in the Observed Period include observed values.

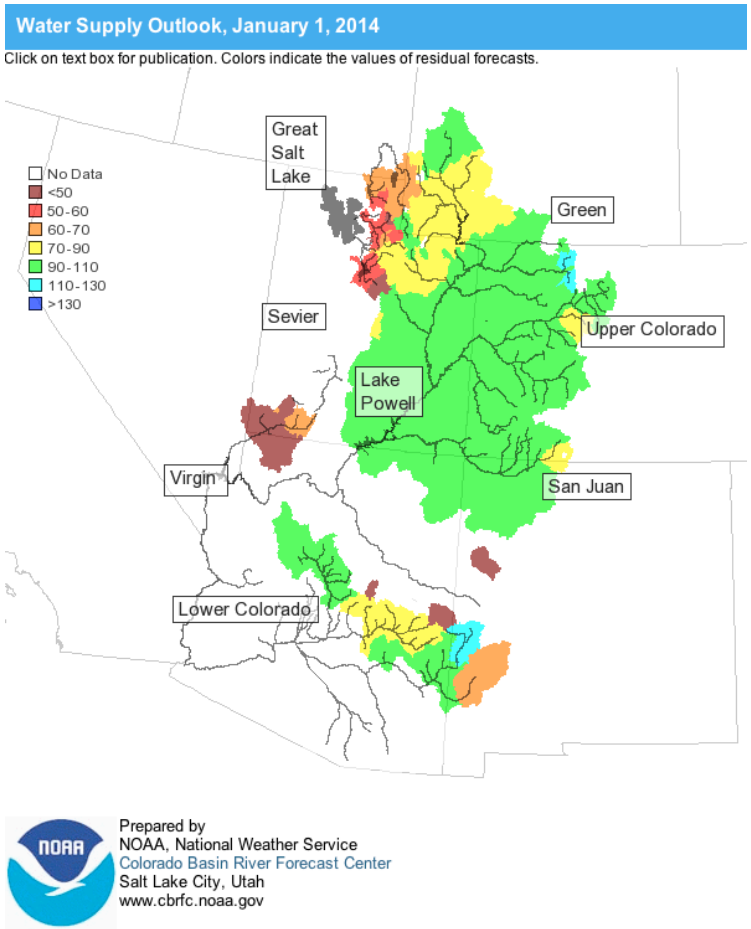


January 1 Forecast:
10% - 87 KAF
50% - 36 KAF (62% Average)
90% - 21 KAF



January 1 Forecast:
10% - 520 KAF
50% - 220 KAF (49% Average)
90% - 80 KAF

Online Publication



January 1, 2014 Water Supply Forecast Discussion

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

Seasonal Water Supply Forecasts:

Quick Summary:
Above average modeled soil moisture conditions and a near average snowpack has resulted in most water supply forecasts in the 90 to 110 percent of average range over much of the upper Colorado River Basin including the Upper Green, the Yampa, Colorado, Gunnison, and San Juan basins. Meanwhile, some of the early season storms that brought the near average snowpack to the Upper Colorado have bypassed areas to the west including the Great and Duchesne Basins. In addition to less than average snow pack, some of these areas had below average soil moisture going into the water year. Water supply runoff volumes forecasts are generally less than 80% of average with several sites forecast for less than 50% of average.

In the Lower Colorado River Basin above median January-May volumes are forecast for the upper Gila with near or below median forecasts in the Verde and Salt River Basin.

****Insert April-July runoff map******

Click here for specific site water supply forecasts

Water Supply Discussion

Weather Synopsis:

A very active southwest monsoon pattern was in effect during late summer and early fall of 2013. September was a very wet month with much above average precipitation area wide. This generated favorable soil moisture conditions over much of the Colorado River Basin, and parts of a the Salt and Gila River Basins entering the winter season.

A series of cold early season storms moved through the CBRFC region in November and December. The primary path of the storms was over the southwestern U.S. with the bulk of the precipitation missing the Great Basin. Near average snowpack resulted in much of the Upper Colorado River Basin (except the Duchesne) while much below average snowpack was common across the Great Basin at the start of the new year.

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

Upper Colorado Water Supply Outlook, January 1, 2014

Note: This publication is scheduled for revision. If you have feedback on content, format, or publication freque

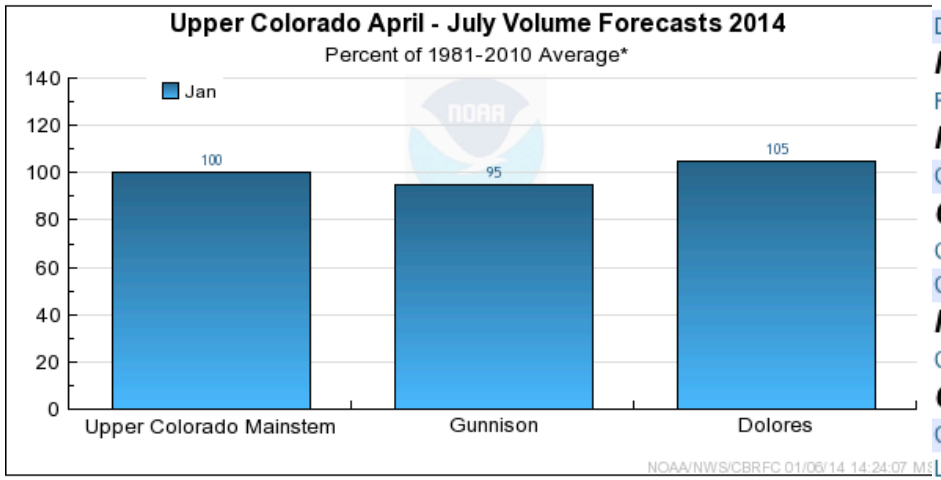
Prepared by Brenda Alcorn, Greg Smith
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

Contents

Water Supply Forecast Discussion

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

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	160	***235***	**107**	325
Willow Ck					
Willow Ck Res, Granby, Nr	April-July	26	***48***	**102**	82
Fraser					
Winter Park	April-July	14	***21***	**108**	28
Williams Fork					
Williams Fork Res, Parshall, Nr	April-July	68	***100***	**104**	137
Muddy Ck					
Wolford Mountain Reservoir	April-July	25	***55***	**102**	80
Blue					
Dillon Res	April-July	120	***173***	**106**	235
Green Mtn Res	April-July	200	***280***	**102**	400
Colorado					
Kremmling, Nr	April-July	590	***895***	**104**	1300
Eagle					
Gypsum, Blo	April-July	185	***300***	**90**	460
Colorado					
Dotsero, Nr	April-July	900	***1400***	**100**	2050
Frying Pan					
Ruedi Res, Basalt, Nr	April-July	85	***125***	**90**	185
Roaring Fork					
Glenwood Springs	April-July	450	***650***	**94**	900
Colorado					
Glenwood Springs, Blo	April-July	1380	***2070***	**98**	3050
Cameo, Nr	April-July	1500	***2310***	**98**	3450
Plateau Ck					
Cameo, Nr	April-July	65	***120***	**97**	210
Colorado					
Cisco, Nr	April-July	2900	***4370***	**98**	6600
Lake Powell, Glen Cyn Dam, At	April-July	4000	***6810***	**95**	10200

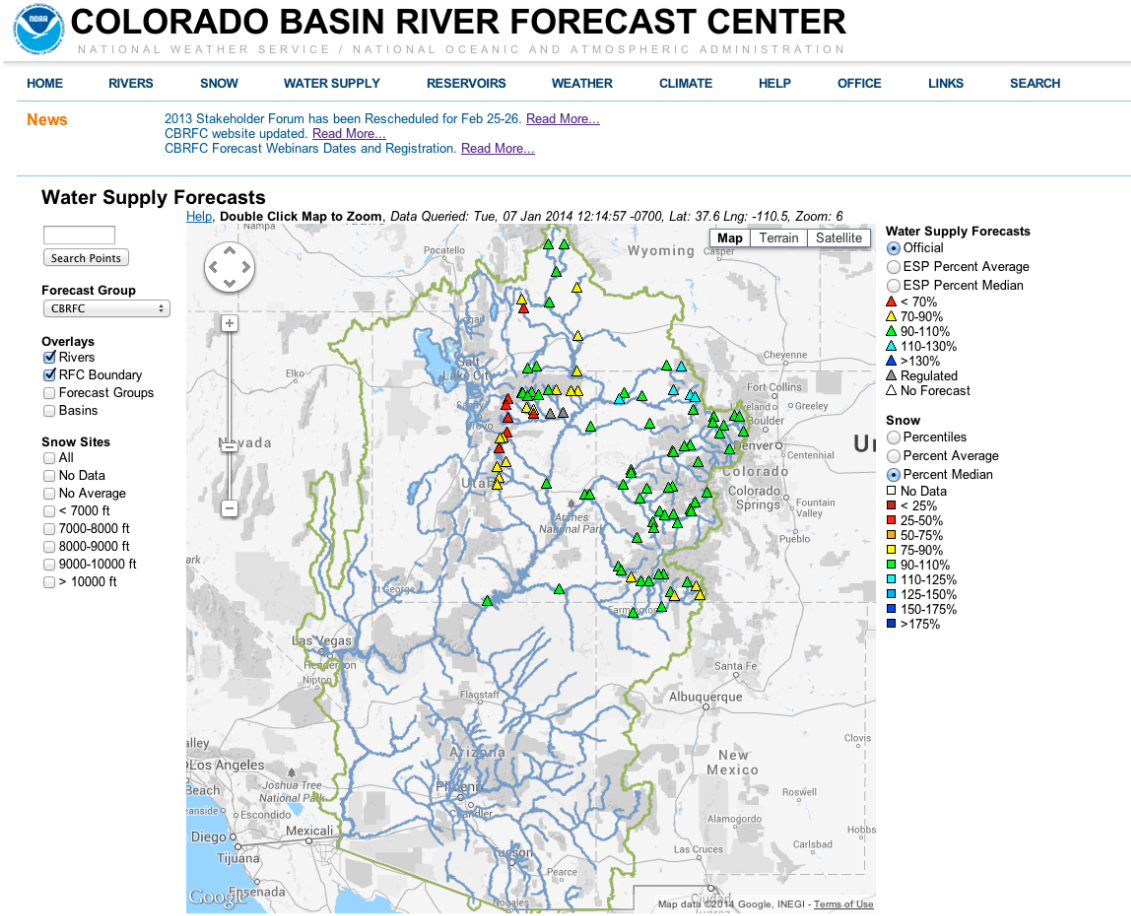
Web Reference: www.cbrfc.noaa.gov/wsup/pub2/map/html/cpub.php

What's New at CBRFC

- Basin focal points / forecasters:
  - Brenda Alcorn (Upper Colorado)
  - Ashley Nielson (Green + Yampa / White)
  - Greg Smith (San Juan + Gunnison + Dolores)
  - Paul Miller (Great Basin)
  - Tracy Cox (Lower Colorado)
- Other key staff members:
  - Michelle Stokes (Hydrologist In Charge)
  - Kevin Werner (Service Coordination Hydrologist) – on detail Nov-Apr
  - John Lhotak (Development and Operations Hydrologist)
  - Craig Peterson (Calibrations, Operations lead, etc)
  - Cass Goodman (IT Support, web development, etc)
  - Stacie Bender (Hydrologist)
  - Brent Bernard (Hydrologist)

Webpage update

- Goals:
  - Improve performance
  - Search feature
  - Information accessibility
- Going live soon
- Comments welcome



http://www.cbrfc.noaa.gov/gmap/gmapbeta.php

2014 Forecast Webinar Schedule

January 7 at 1pm MT
February 6 at 1pm MT
March 6 at 1pm MT
April 7 at 1pm MT
May 6 at 1pm MT
June 5 at 1pm MT

Registration available:
www.cbrfc.noaa.gov/news/wswebinar2014.html

-

2014 Fourth Annual Colorado Basin River Forecast Center Stakeholder Forum

Dates: February 25-26 2014

Location: Colorado Basin River Forecast Center, 2242 West North Temple, Salt Lake City, UT 84116

Theme: Forecast Products, Delivery, Interpretation, and Application

Goals:

(1) Open discussion between CBRFC personnel and stakeholders regarding CBRFC products and services, with an emphasis on recently released products and their interpretation.

(2) Critical discussion on Colorado River and Great Basins products and their interpretation, practical application of these products, and delivery of these products through the CBRFC website and other methods.

(3) Opportunities for improvement of and collaboration over CBRFC products and services.

Registration:

Registration is free. To register, please contact Valerie Offutt at Valerie.Offutt@noaa.gov at 801.524.5130. You may also contact Greg Smith at Greg.Smith@noaa.gov or Paul Miller at Paul.Miller@noaa.gov with questions or comments.

Background:

CBRFC's annual stakeholder forum is important to the CBRFC and its stakeholders for determining forecast and development priorities. The forum emphasizes interaction between participants and CBRFC decision-makers such that participants develop an in-depth understanding of the CBRFC's forecast process and its development activities while also providing a forum for participants to share their experiences, priorities, and questions with CBRFC staff and management. Past forums have helped guide CBRFC projects and product development paths as well as other activities in the NWS and NOAA. Reports and presentations from the forum will be made available online.

Please feel free to pass along any additional comments or suggestions with your answers as well. Please send your responses to Greg Smith at Greg.Smith@noaa.gov.

Agenda:

Draft agenda now available here. Please check back periodically for updates!

Email List

- Migrated to Google Groups
- Subscribed everyone who was subscribed last year
- You can add or change your email subscription by contacting us (kevin.werner@noaa.gov) or on your own here:
  - https://groups.google.com/forum/#!forum/cbrfc-email-list
- Blog style entries?

More Resources

- www.cbrfc.noaa.gov

- February webinar: 1pm Feb 6

Feedback, Questions, Concerns always welcome….

Kevin Werner

CBRFC Service Coordination Hydrologist
Phone: 801.524.5130
Email: kevin.werner@noaa.gov