

CBRFC Water Supply Webinar

November 8, 2012

CBRFC Staff

(Kevin Werner, Ashley Nielson, Brenda Alcorn, Stacie Bender, Tracy Cox,
Greg Smith, Brent Bernard)

These slides: <http://www.cbrfc.noaa.gov/present/present2012.cgi>

Outline

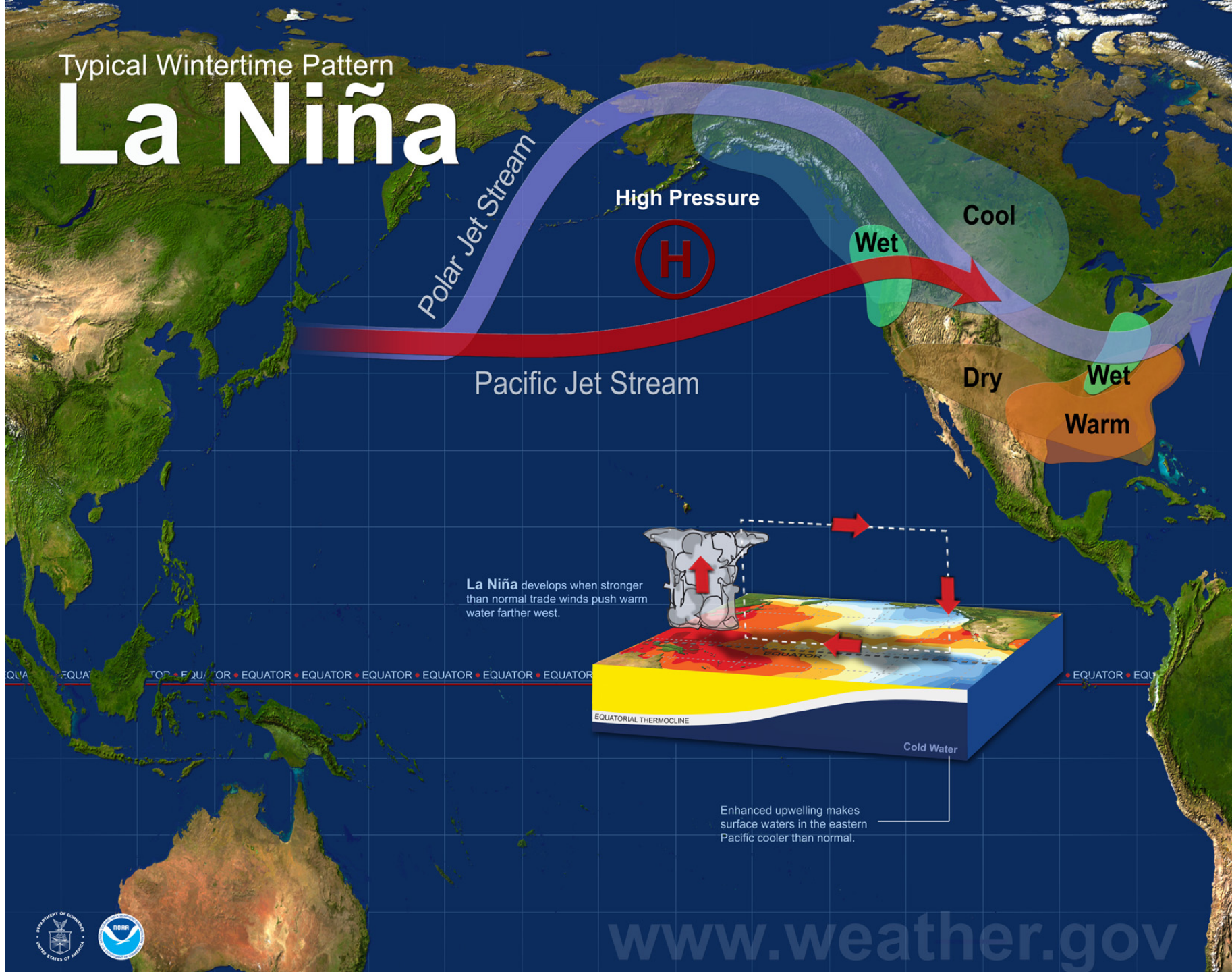
- 2012 Year in review
- 2013 Look ahead
 - Climate forecasts
 - CBRFC update

2012 Year in Review

- Climate forecasts
- Precipitation, Temperature, and Snowfall Review
- Water Supply and Peak Flow Forecast Verification

Typical Wintertime Pattern

La Niña



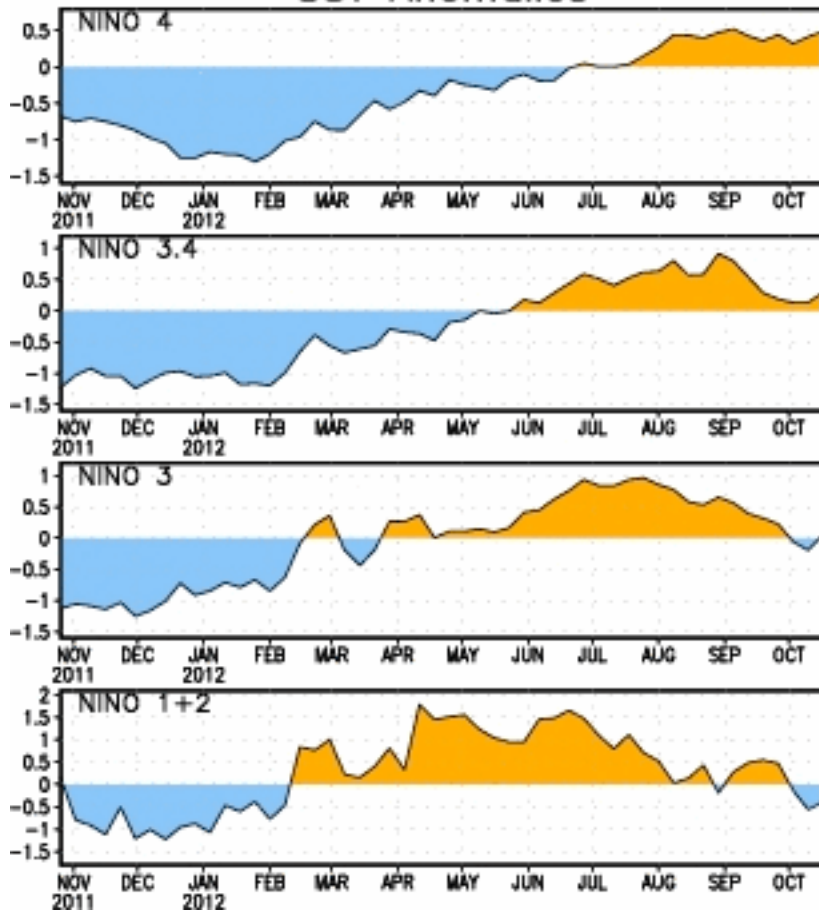
La Niña develops when stronger than normal trade winds push warm water farther west.

Enhanced upwelling makes surface waters in the eastern Pacific cooler than normal.

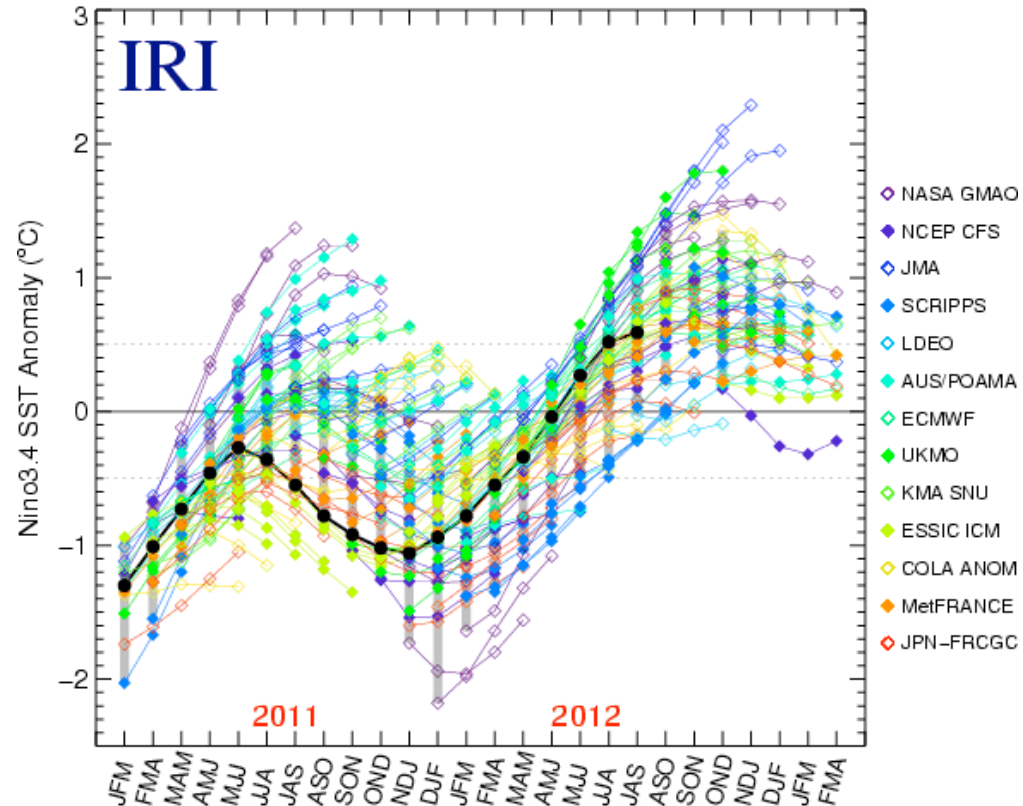


La Nina

SST Anomalies



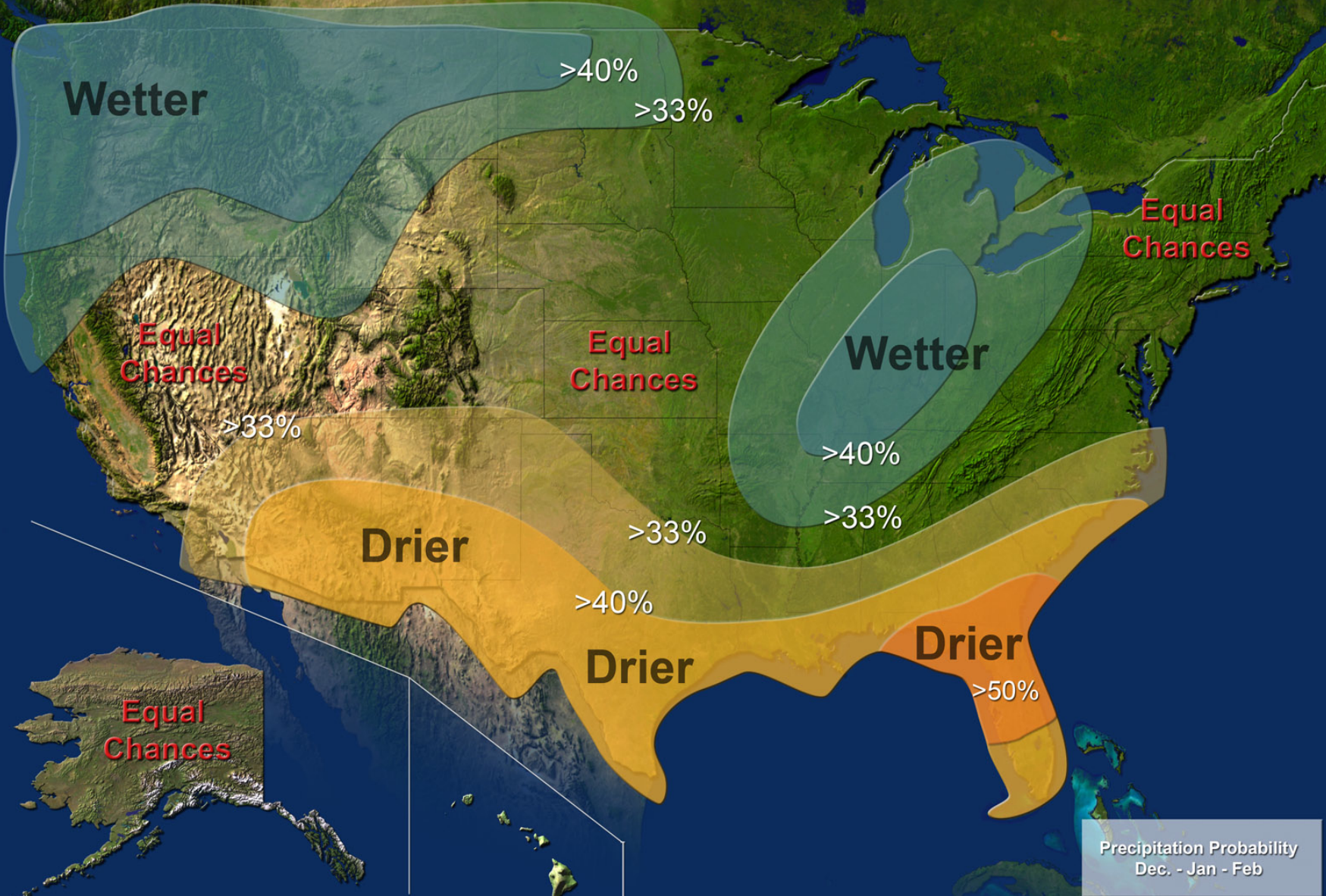
ENSO Predictions for dynamical models, Jan 11 – Oct 12



Sources: cpc.ncep.noaa.gov and iri.columbia.edu/climate/ENSO

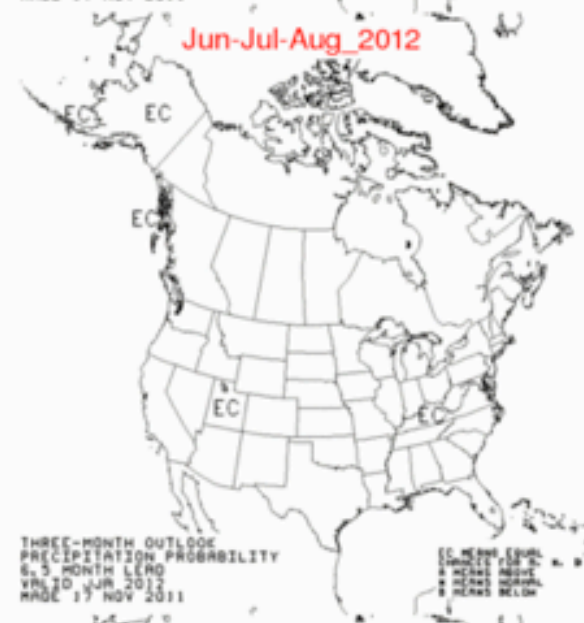
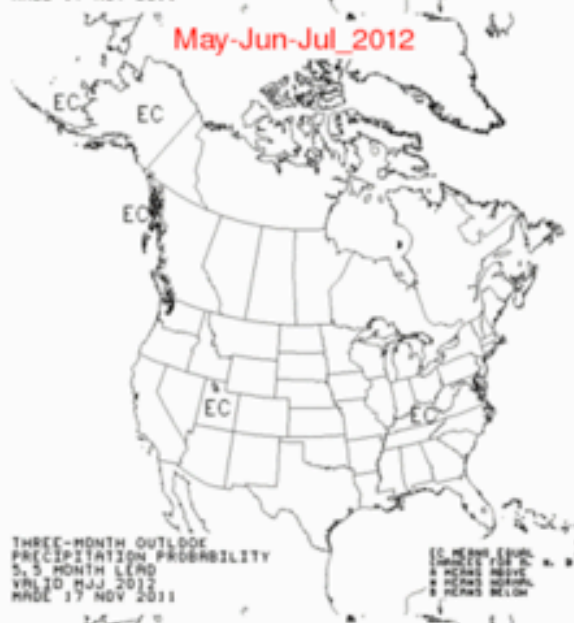
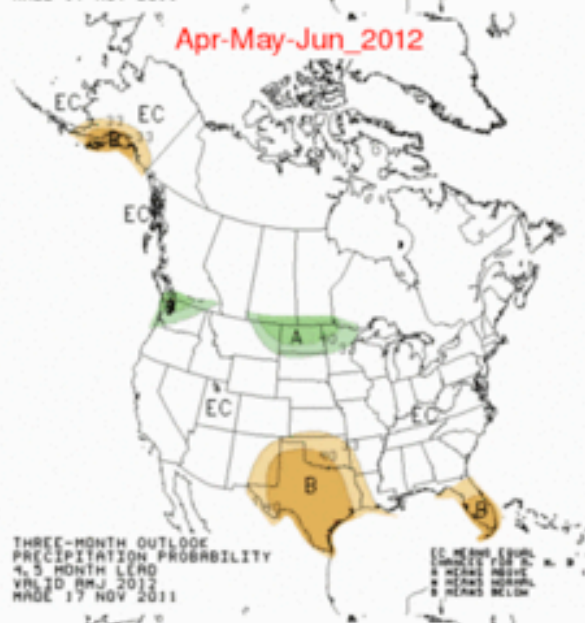
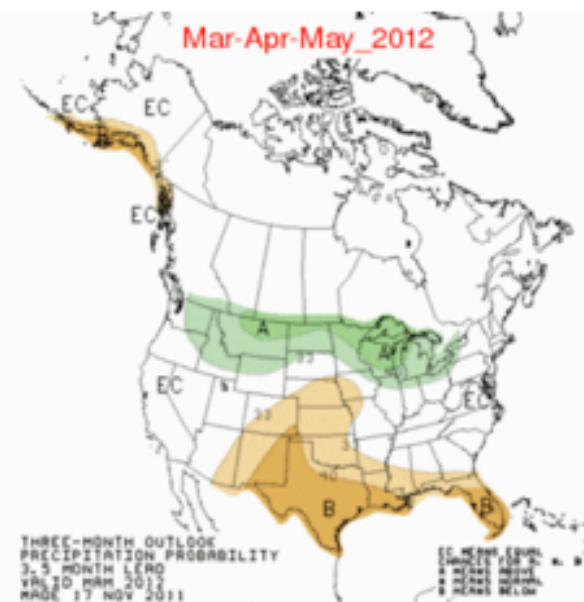
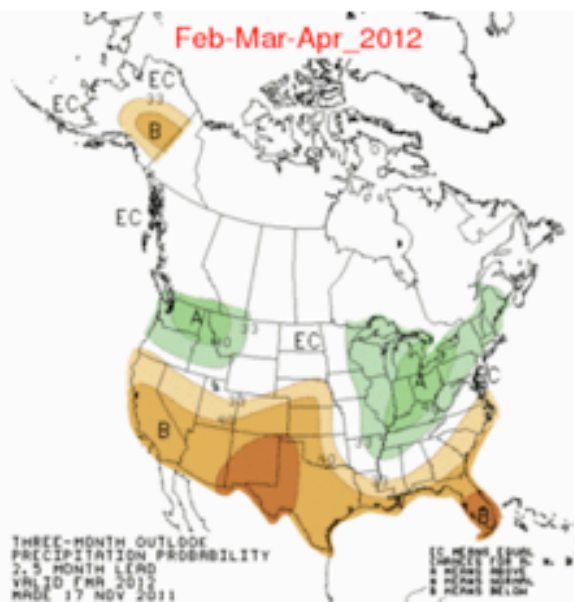
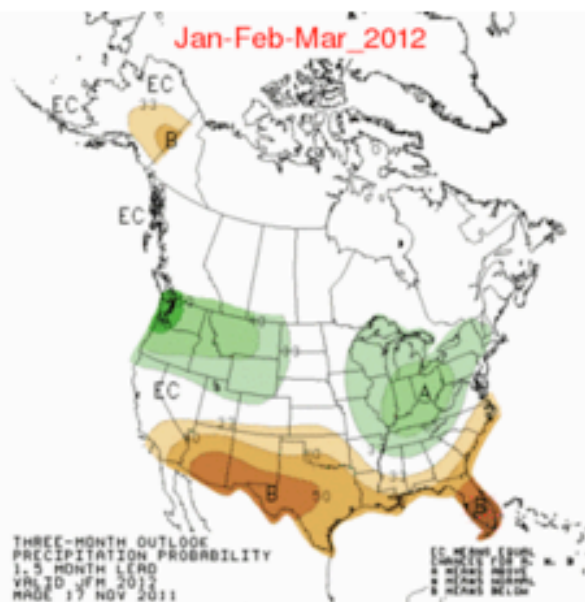
U.S. Winter Outlook

Precipitation

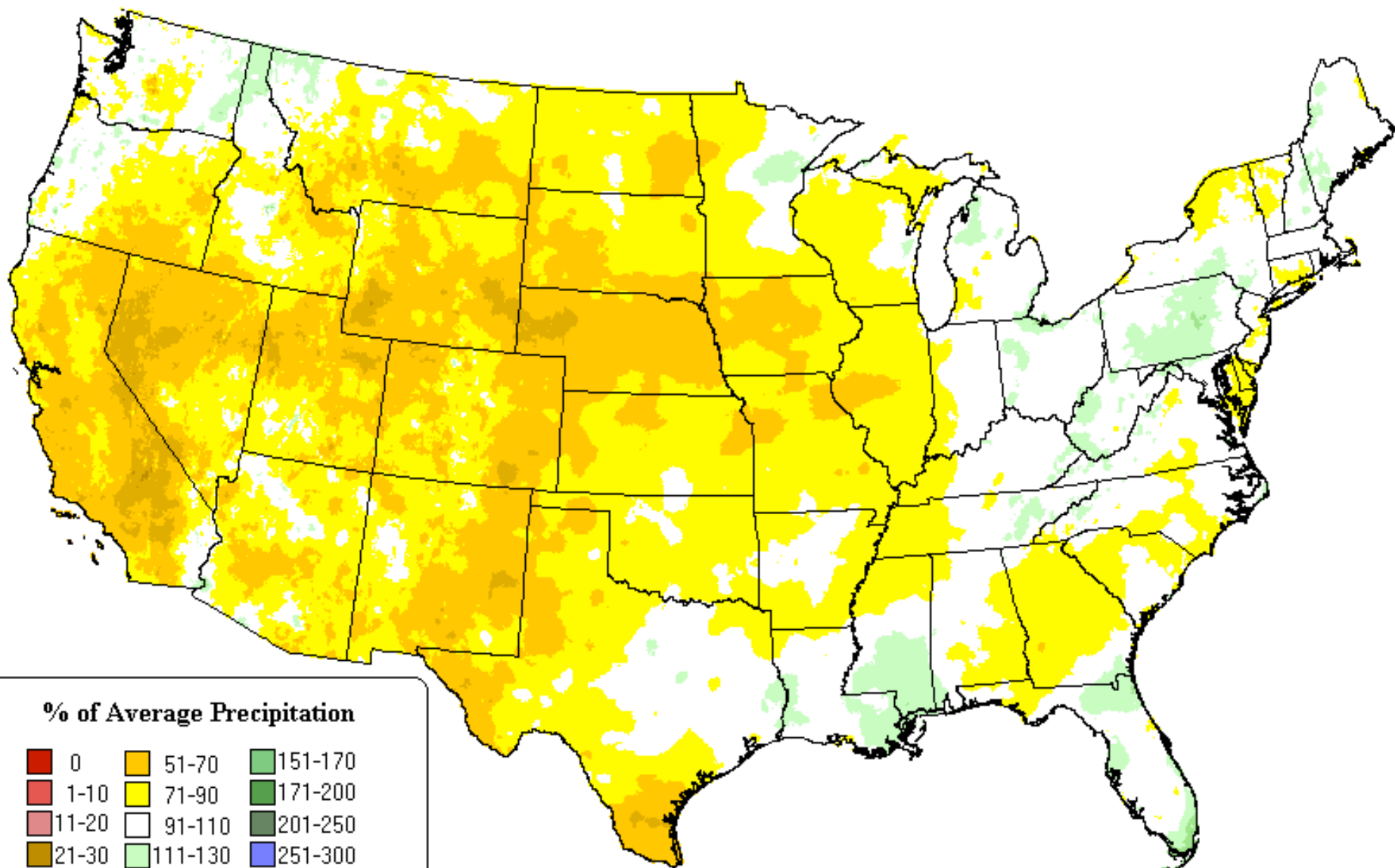


Precipitation Probability
Dec. - Jan - Feb

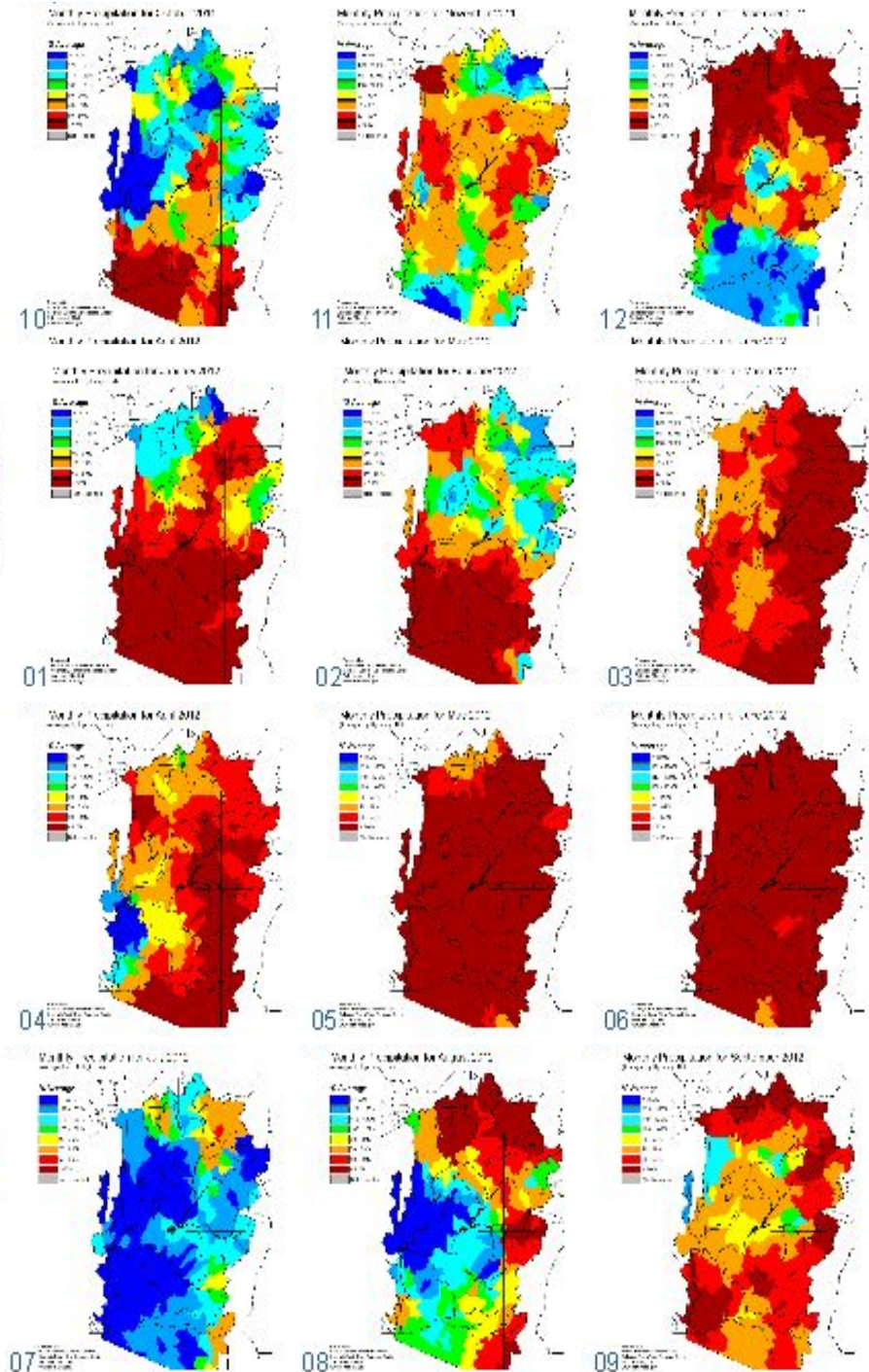
CPC Precipitation Outlooks



12-month Percent of Average Precipitation: Aug 2012

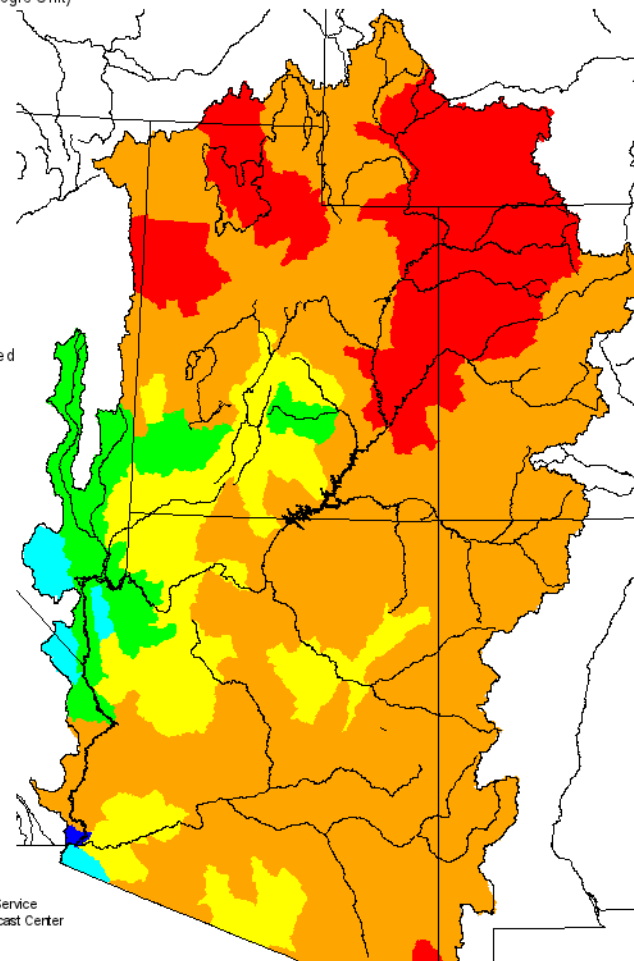
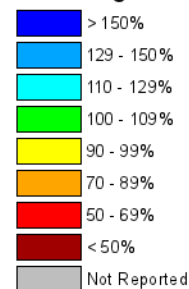


Copyright (c) 2012, PRISM Climate Group, Oregon State University
<http://prism.oregonstate.edu> - Map created Sep 07 2012



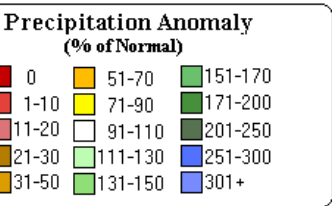
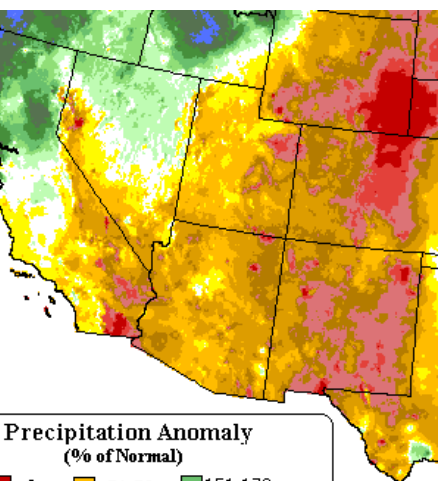
Seasonal Precipitation, October 2011 - September 2012 (Averaged by Hydrologic Unit)

% Average

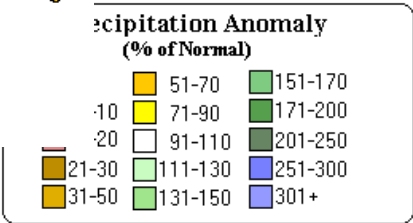
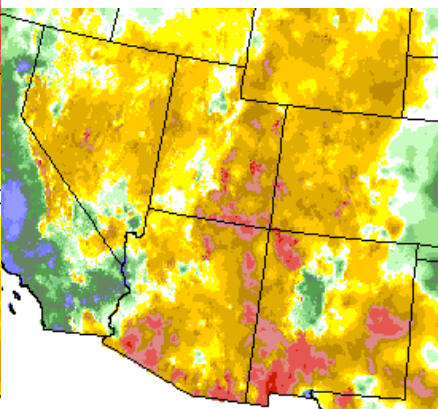


Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

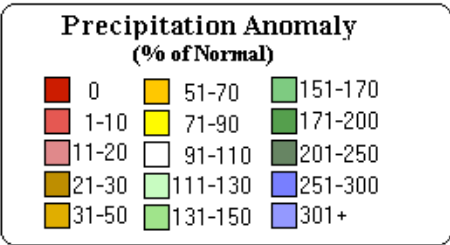
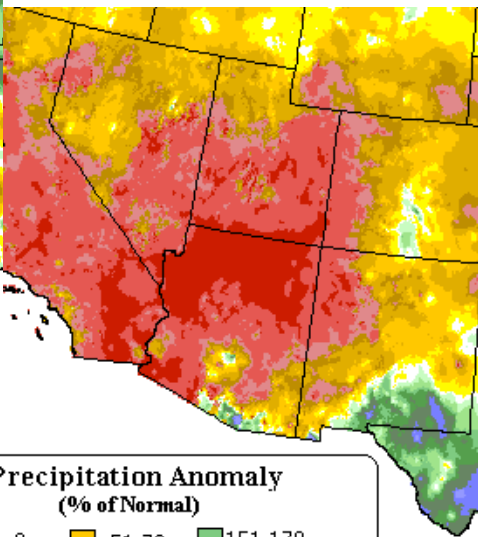
March 2012 Precip anomalies



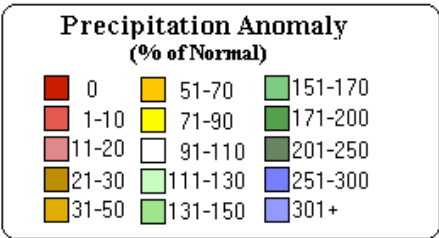
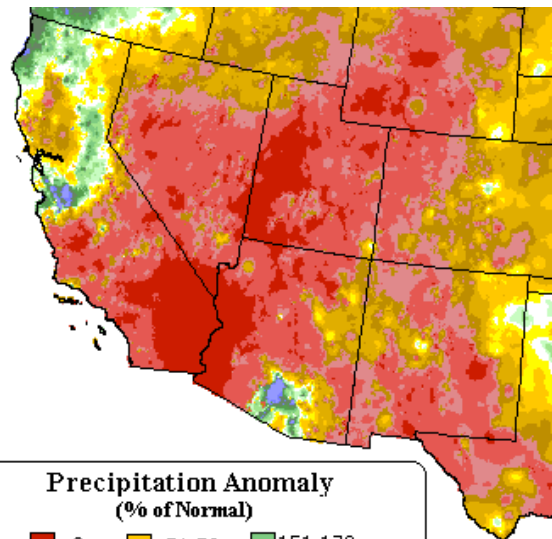
April 2012 Precip anomalies



May 2012 Precip anomalies



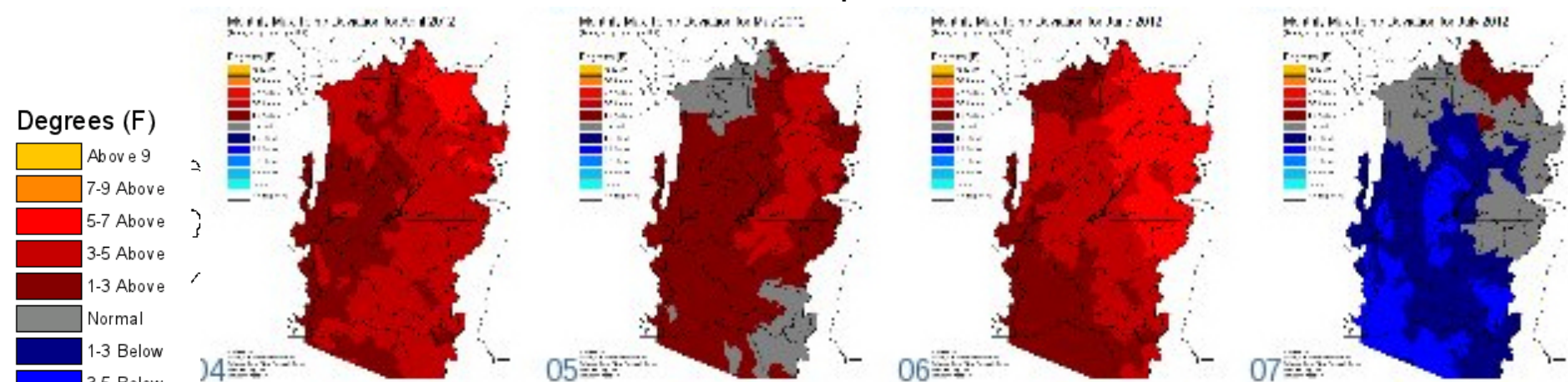
June 2012 Precip anomalies



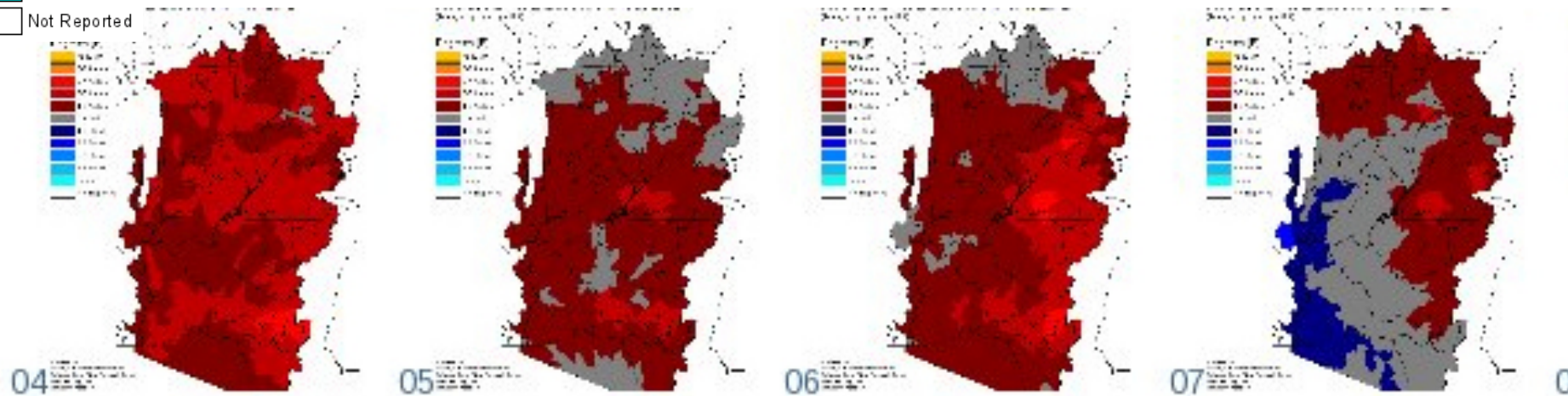
March, April, May, and June were extremely dry. Over many basins, these three months combined were among the driest AMJs on record.
Source: www.prism.oregonstate.edu

March-July Temperature Departures from Average Maximum/Minimum

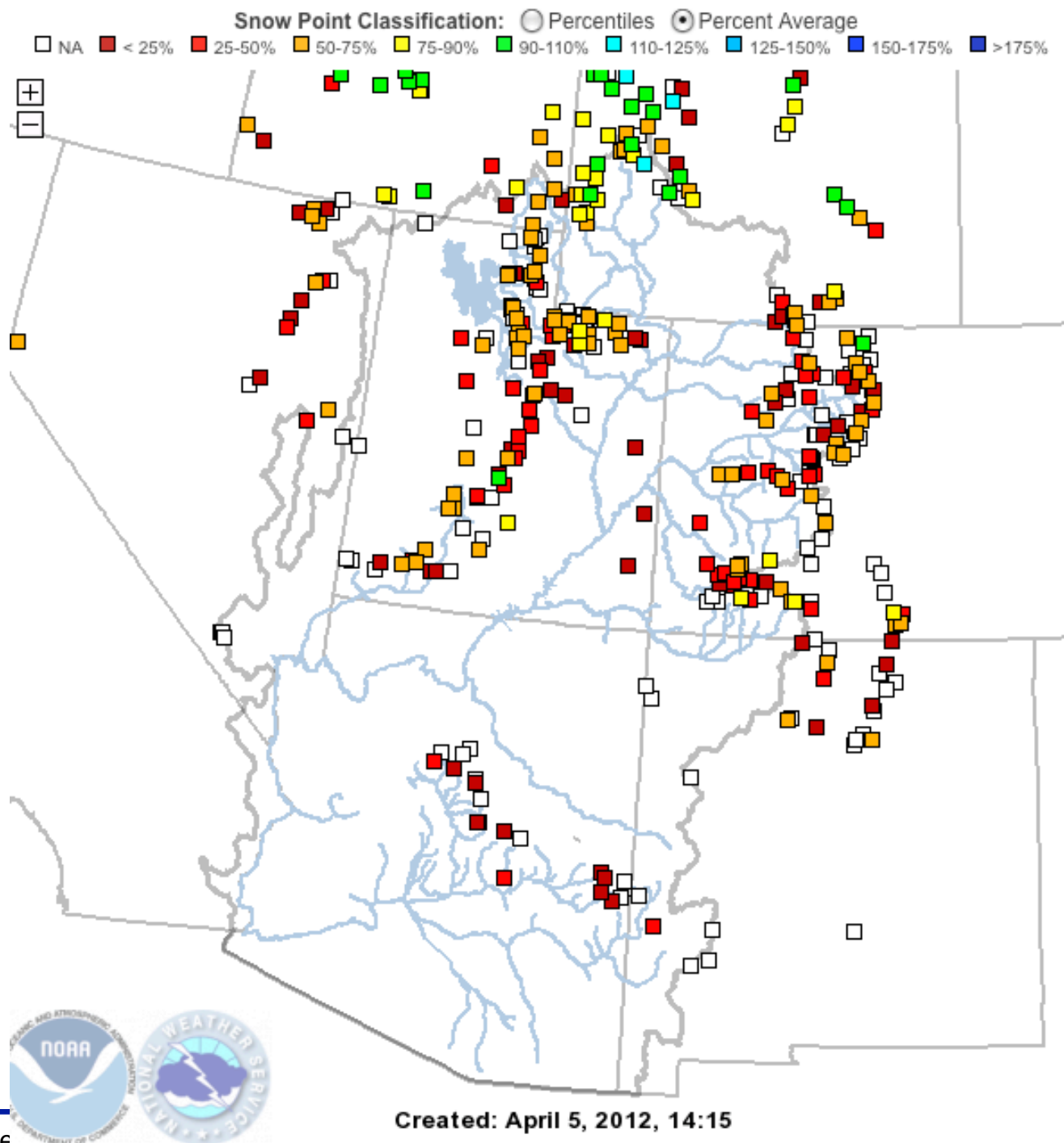
Maximum Departures



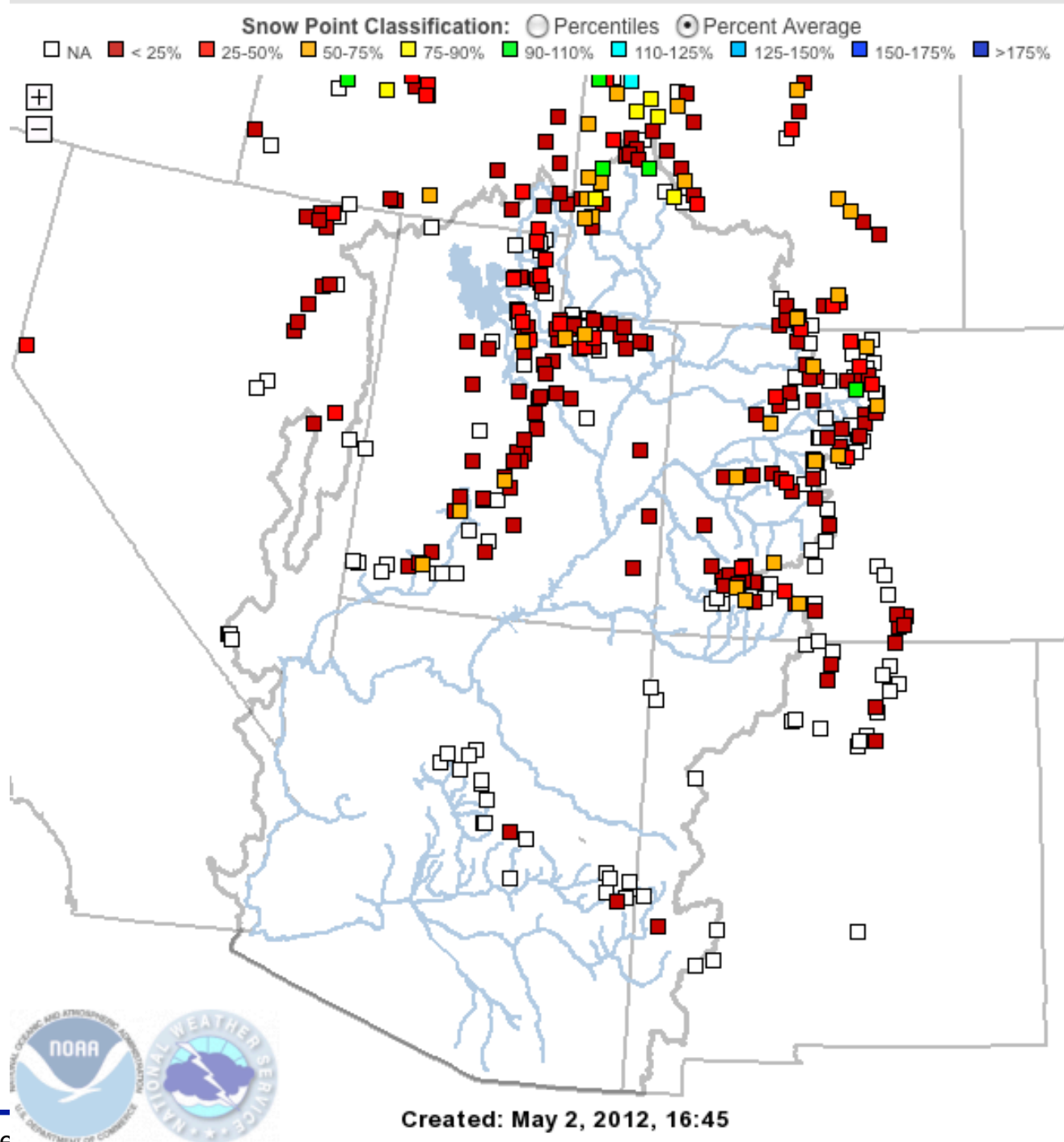
Minimum Departures



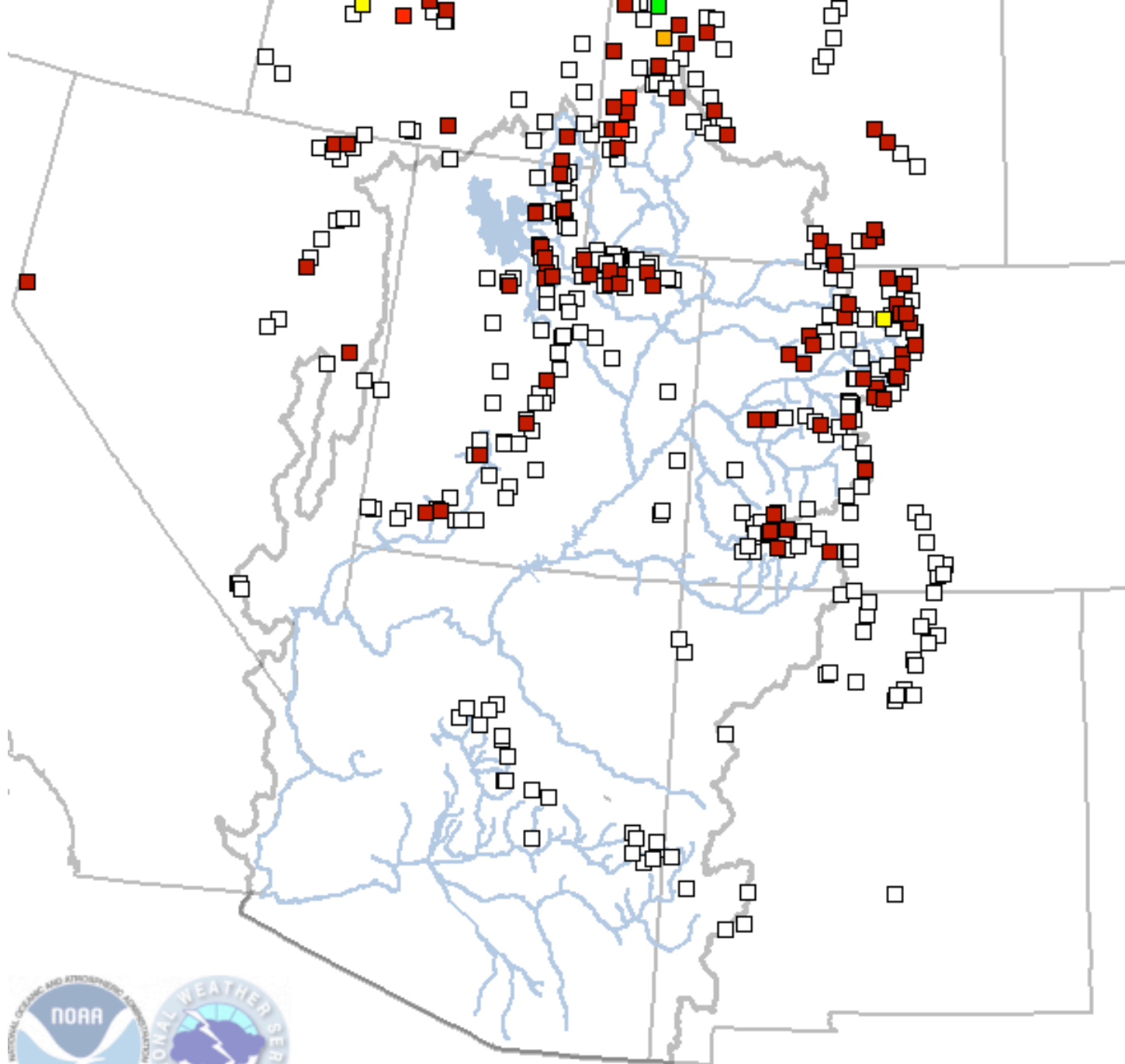
Snow



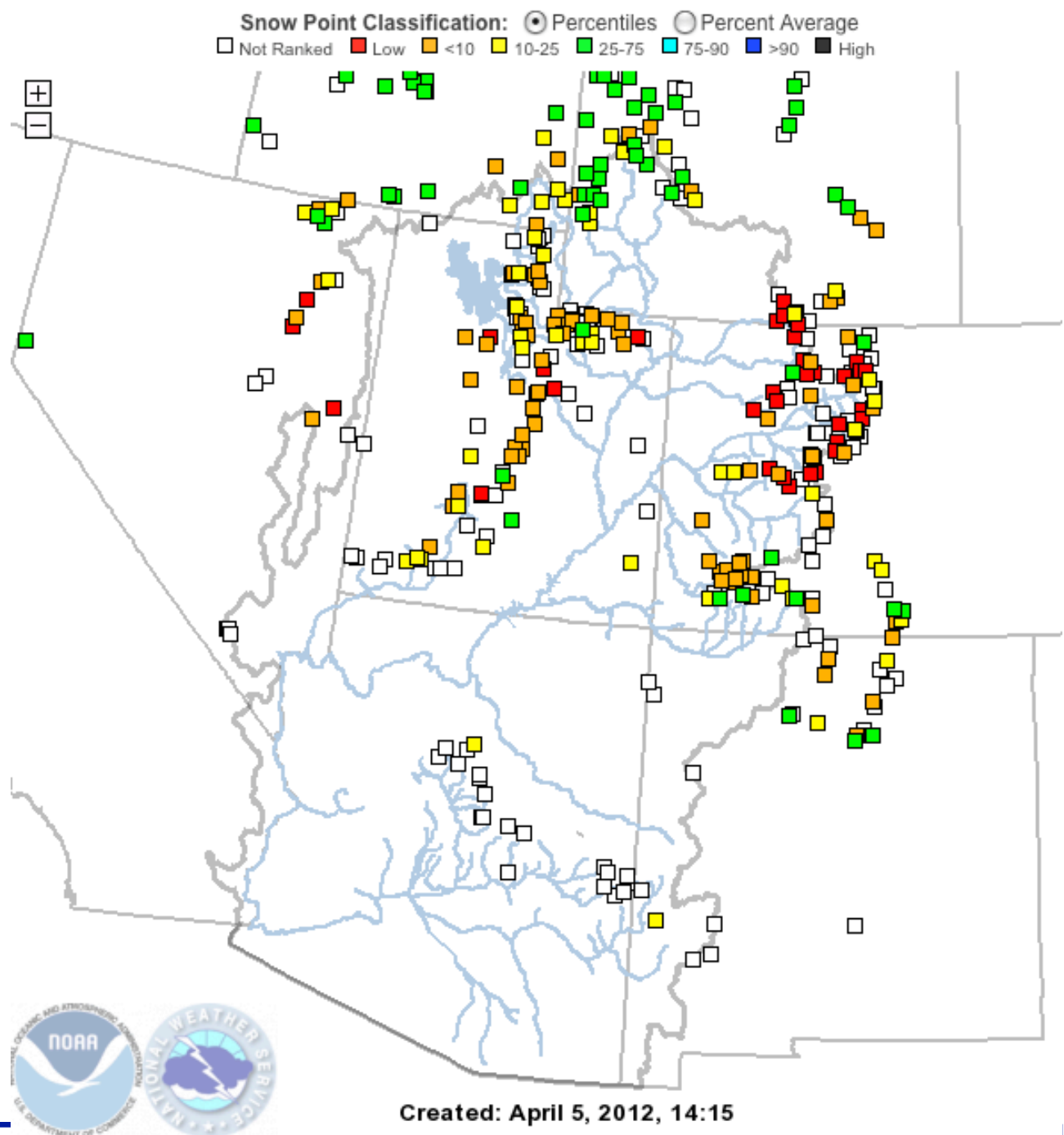
Snow



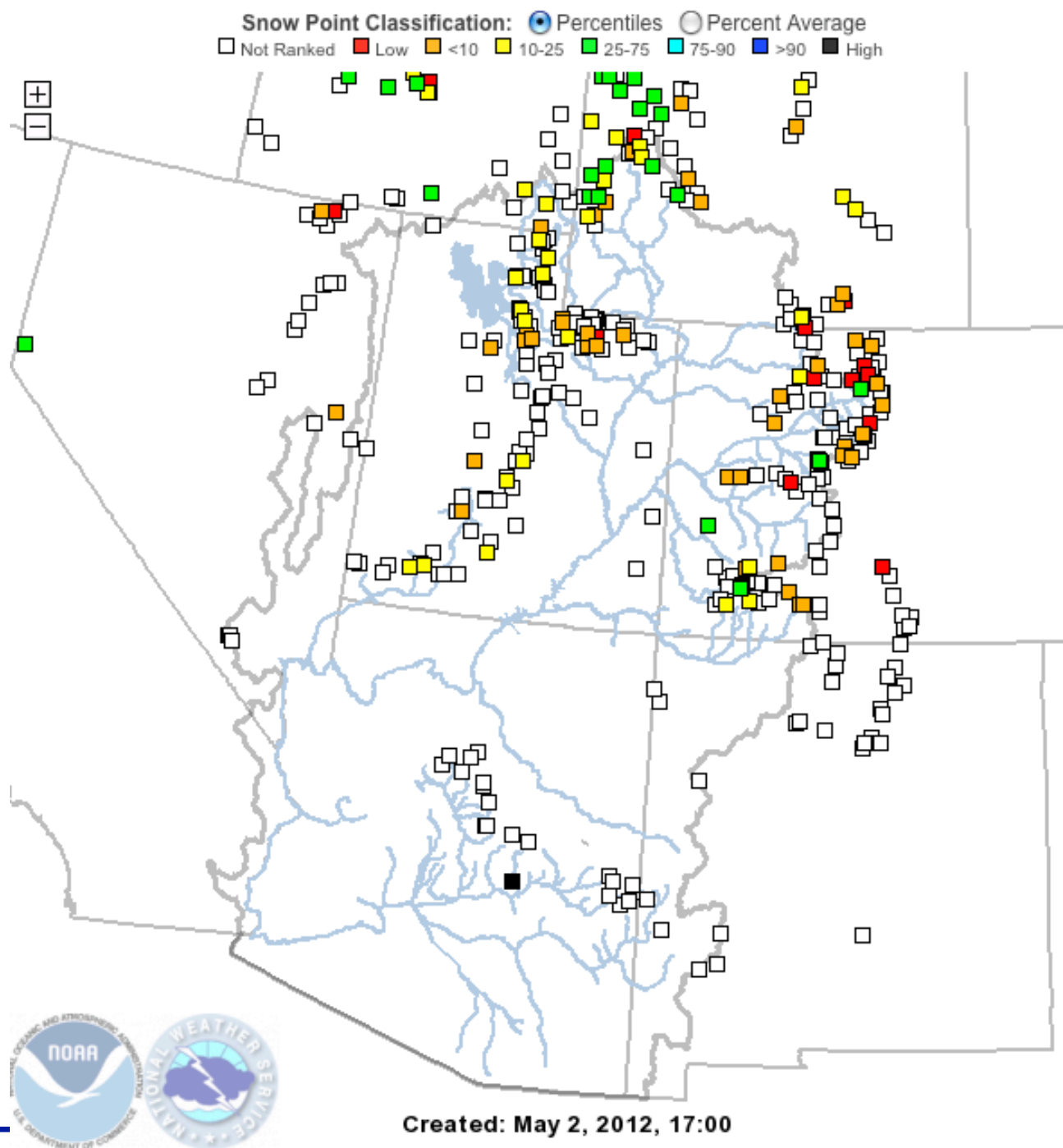
Snow



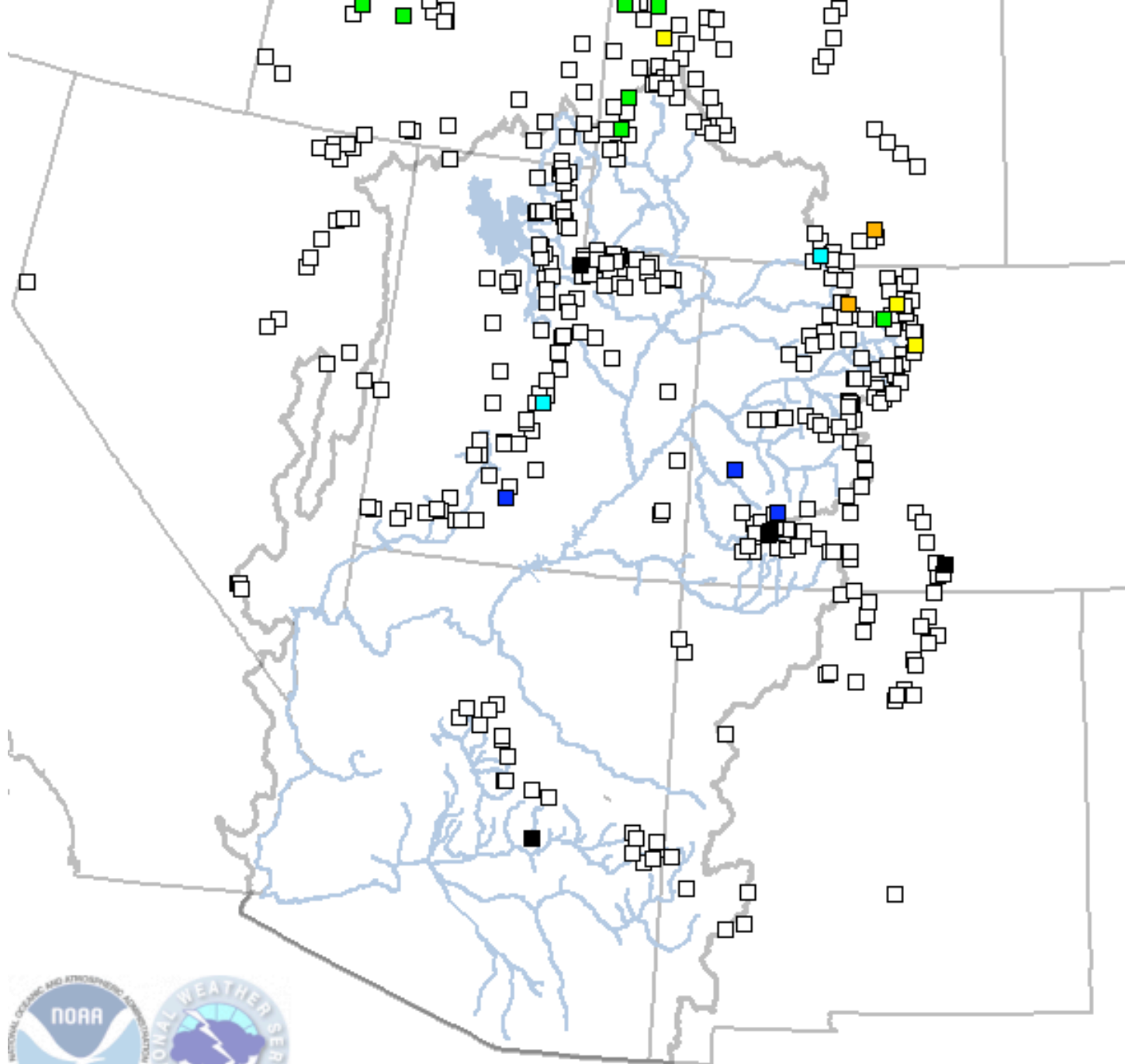
Snow



Snow

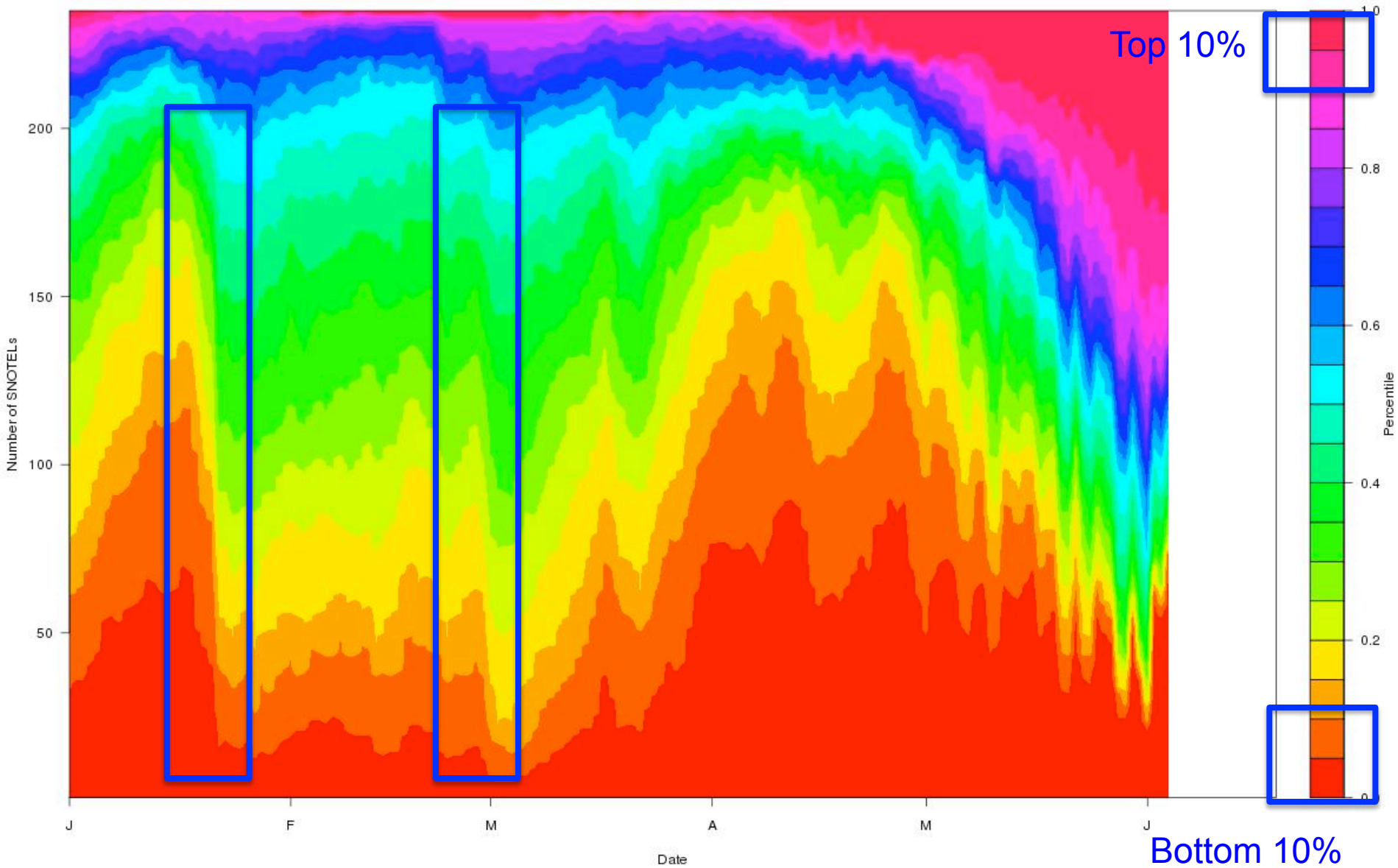


Snow



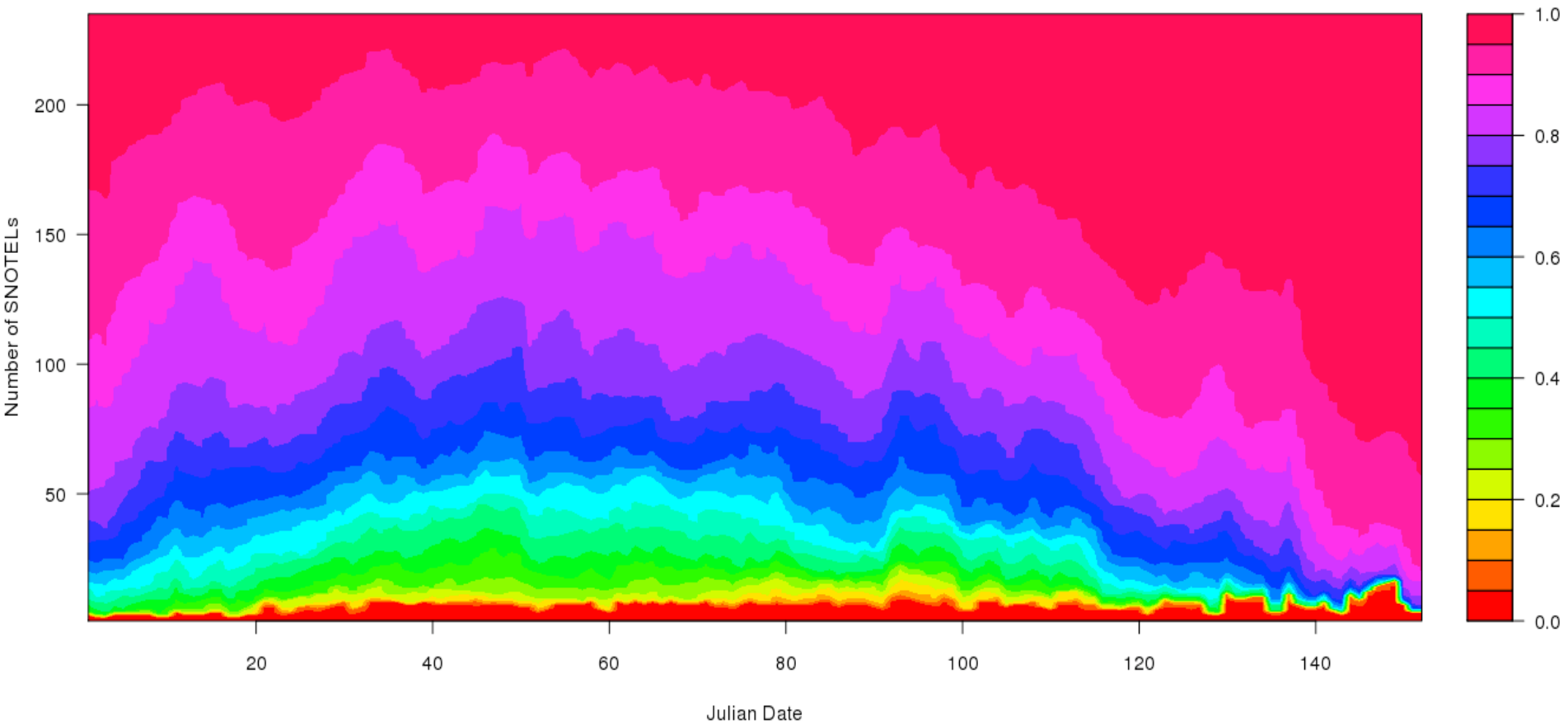
Storms

SNOTEL percentile rankings for 2012 for all

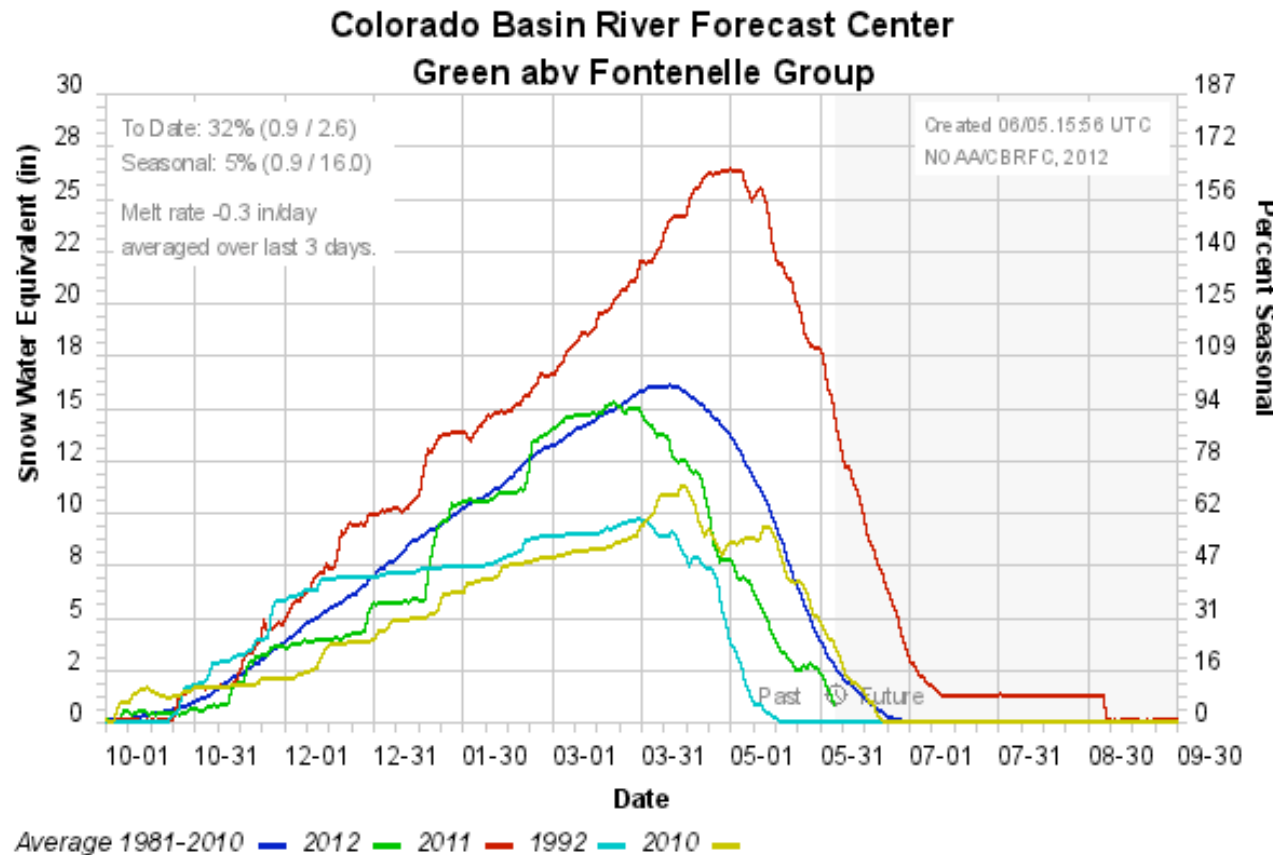
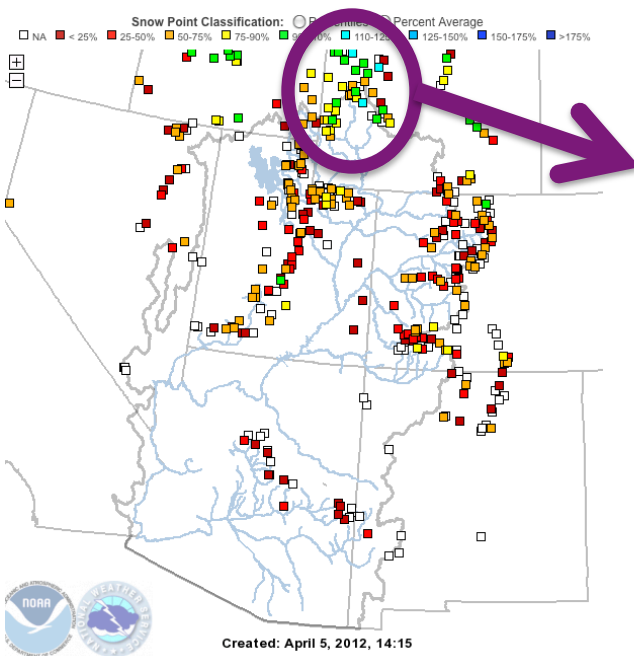


Web Reference: <http://www.cbrfc.noaa.gov/snow/raster/>

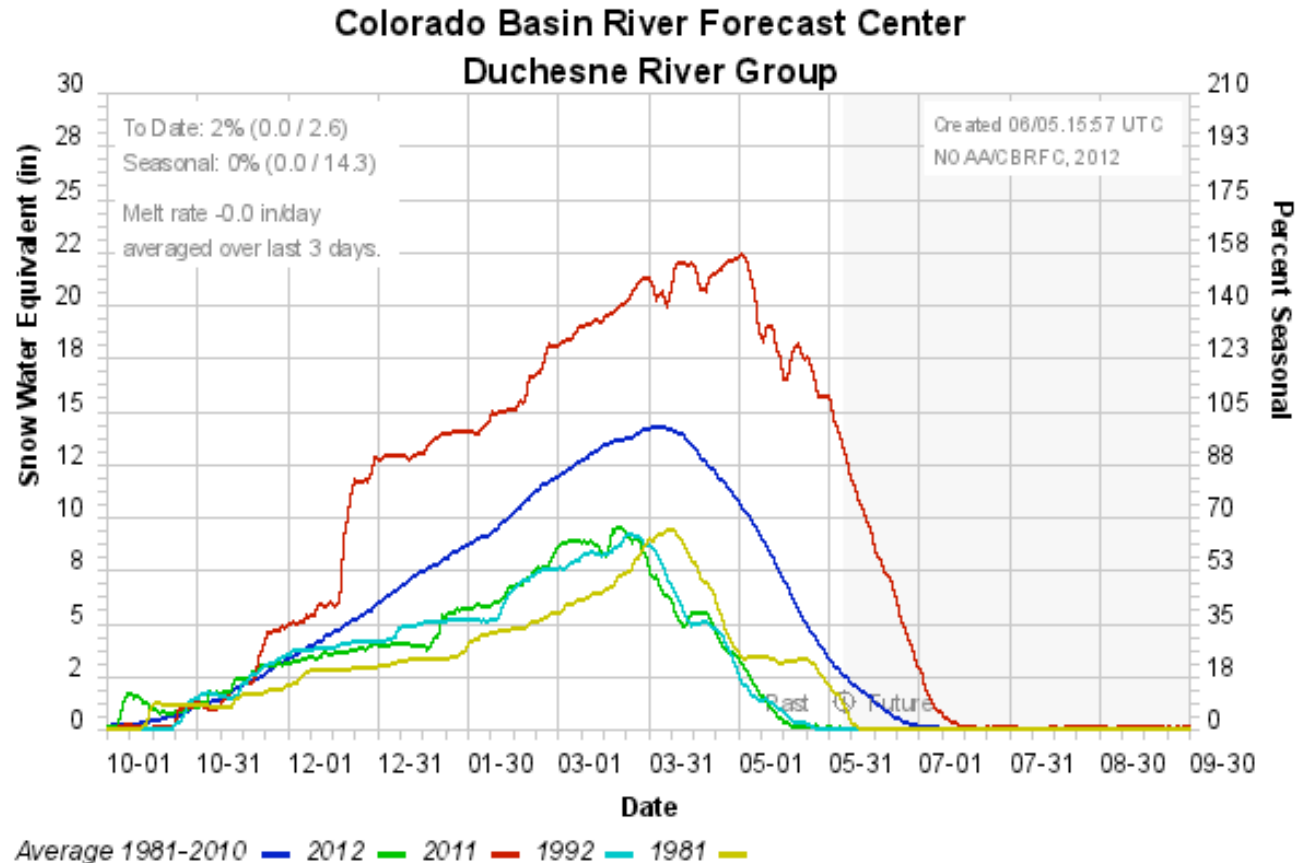
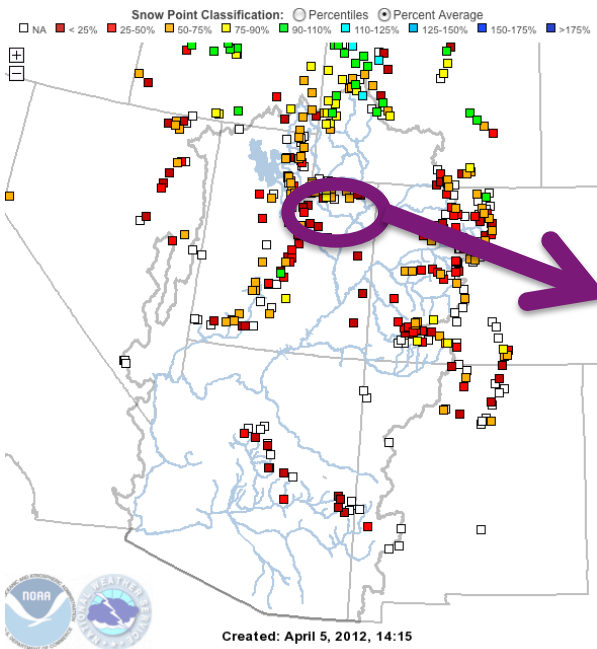
SNOTEL percentile rankings for 2011 for CBRFC area



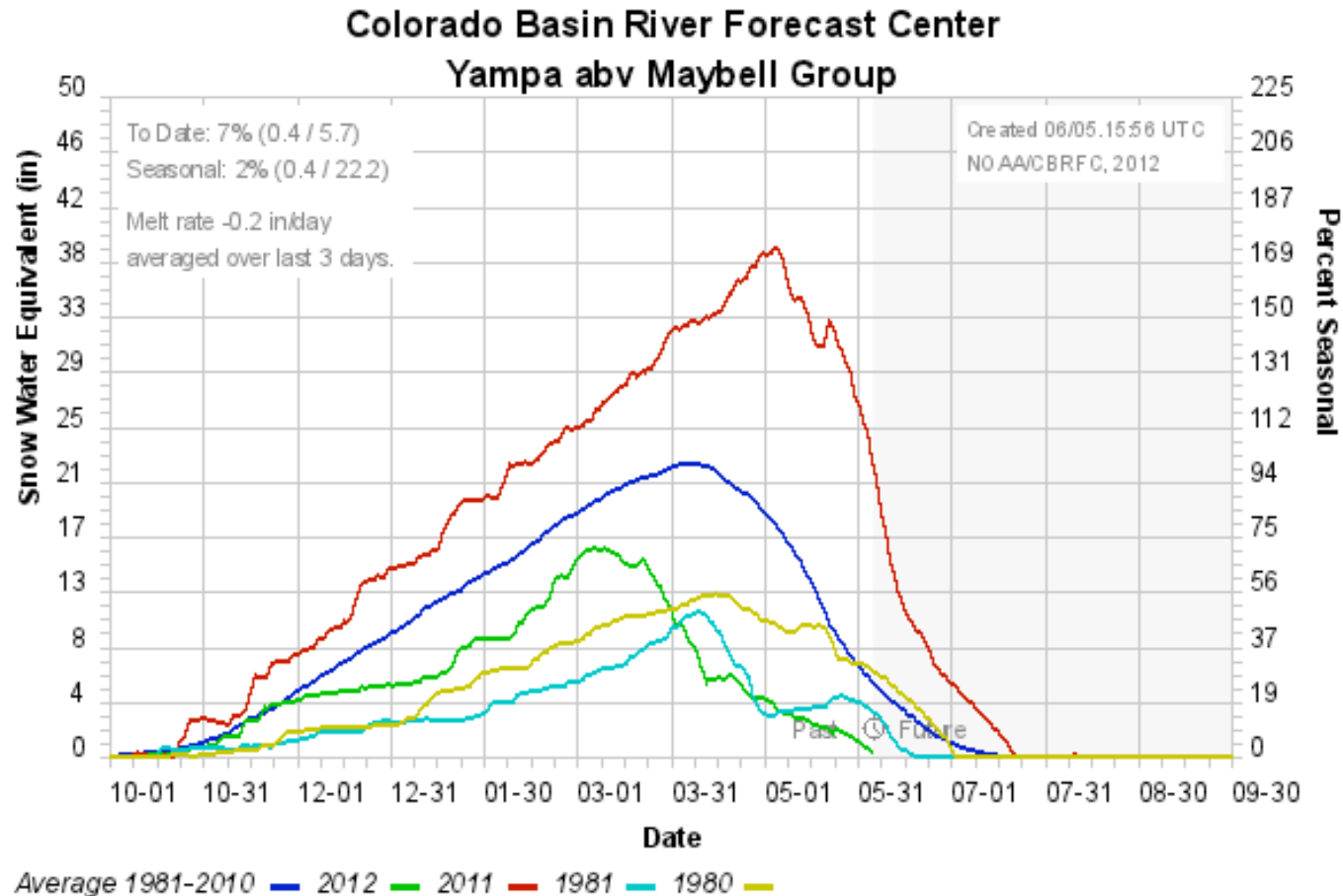
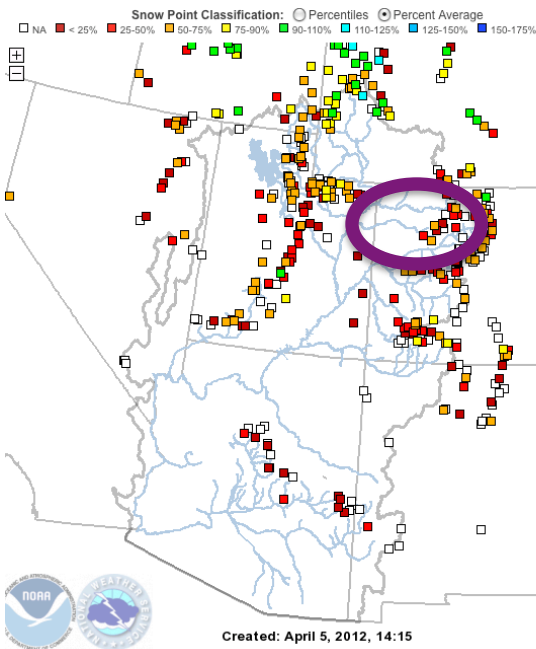
Snow: Upper Green Basin (Fontenelle)



Snow: Duchesne Basin



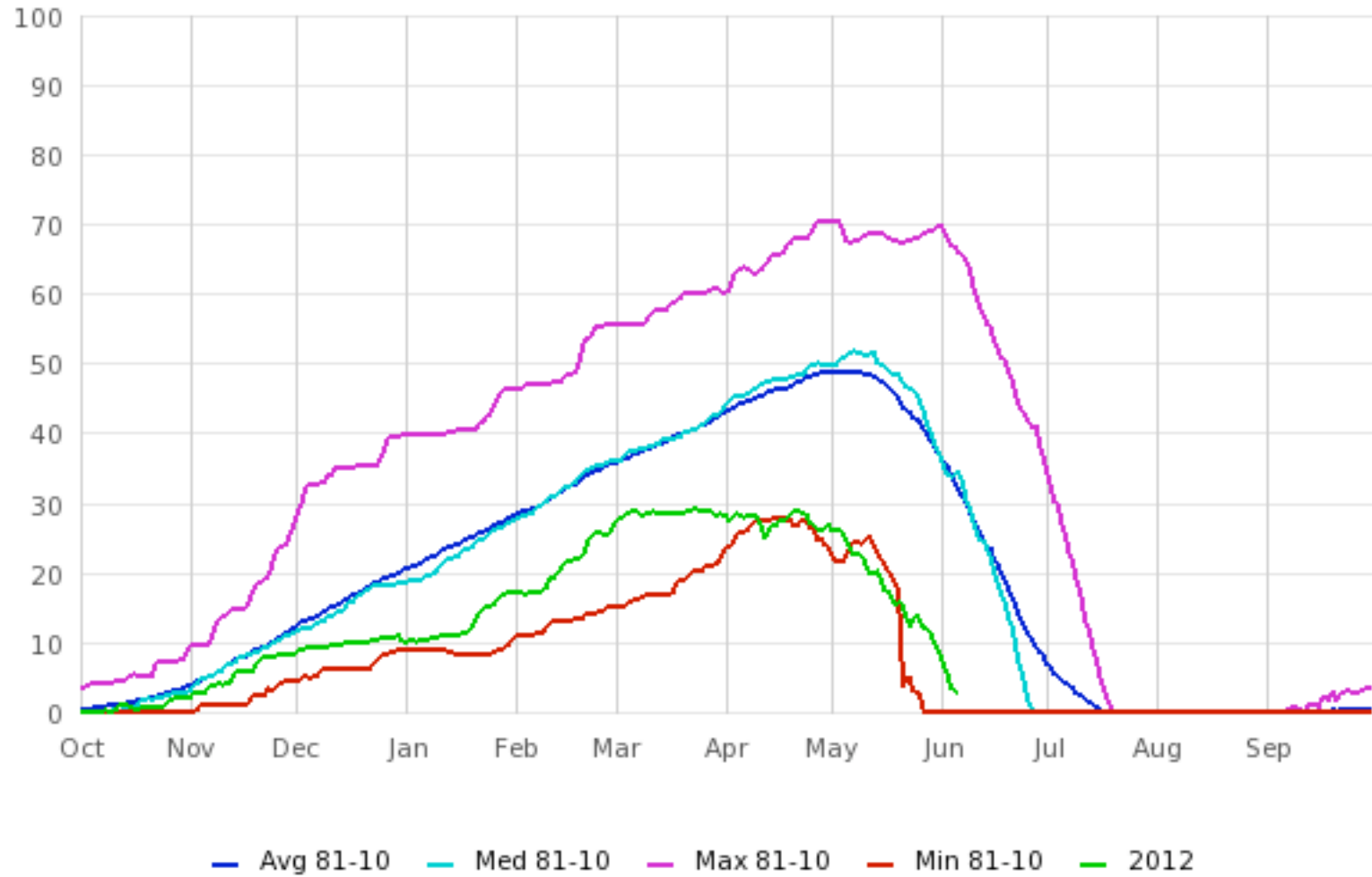
Snow: Yampa Basin



TOWER (towc2)

Inches of Snow Water Equivalent (SWE)

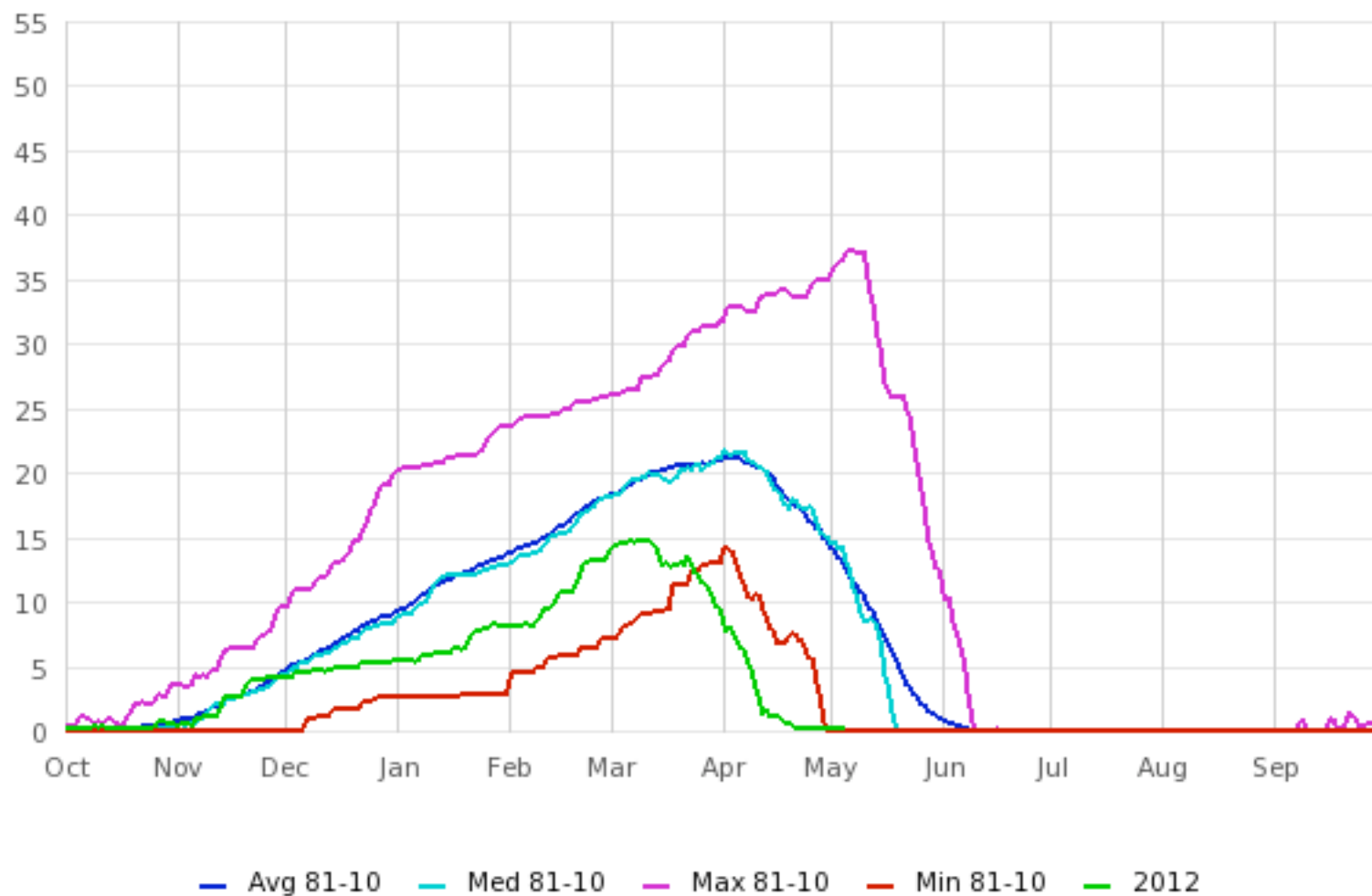
Plot Created June 5, 10:10 MDT by the Colorado Basin River Forecast Center (NWS/NOAA)



DRY LAKE (drlc2)

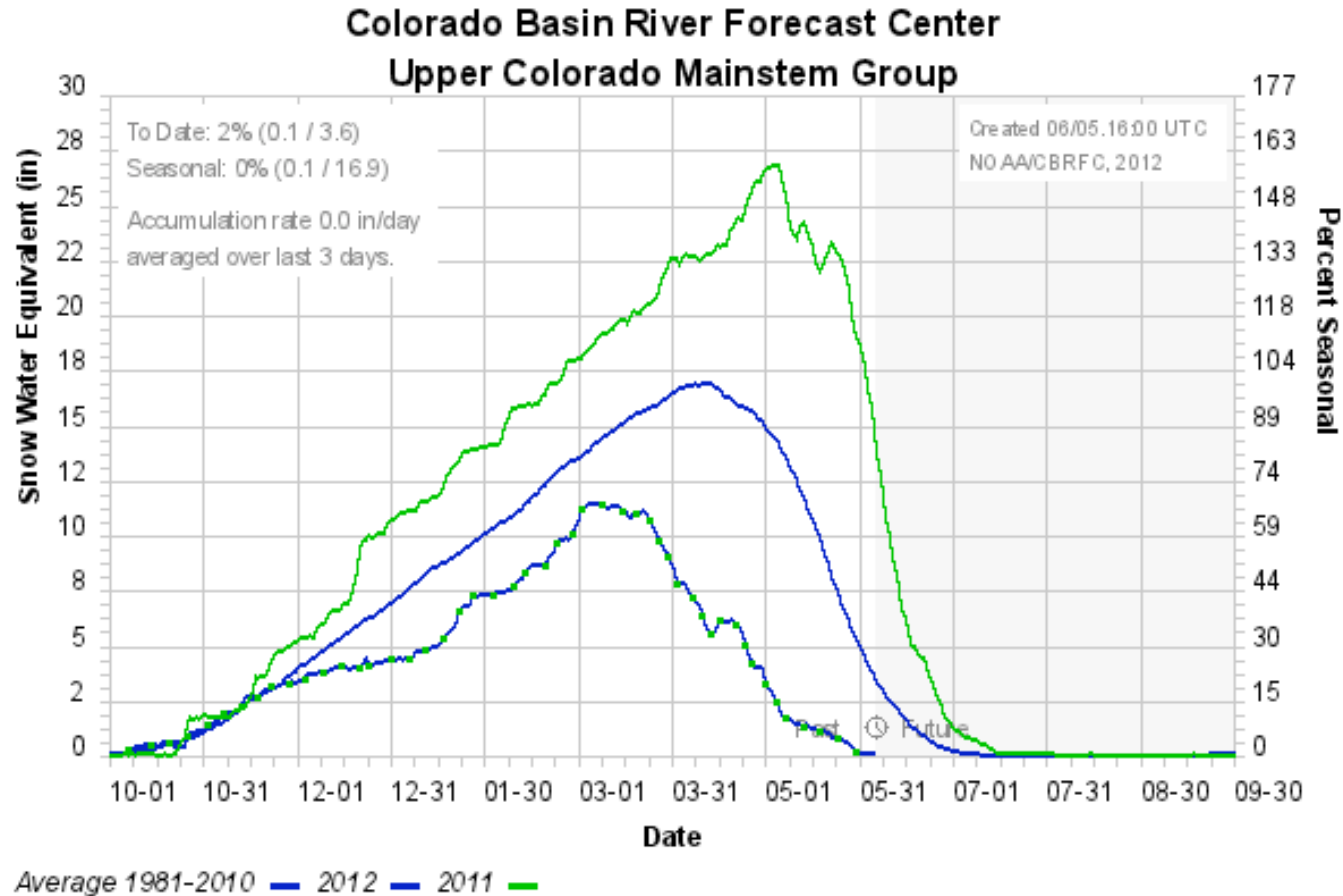
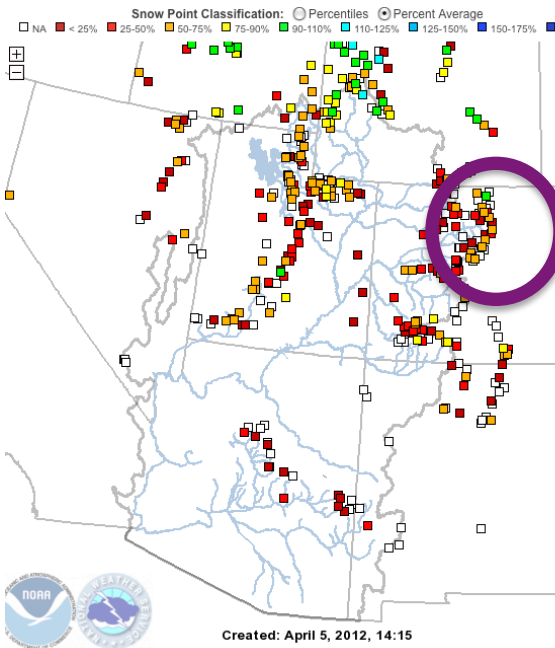
Inches of Snow Water Equivalent (SWE)

Plot Created May 4, 07:57 MDT by the Colorado Basin River Forecast Center (NWS/NOAA)

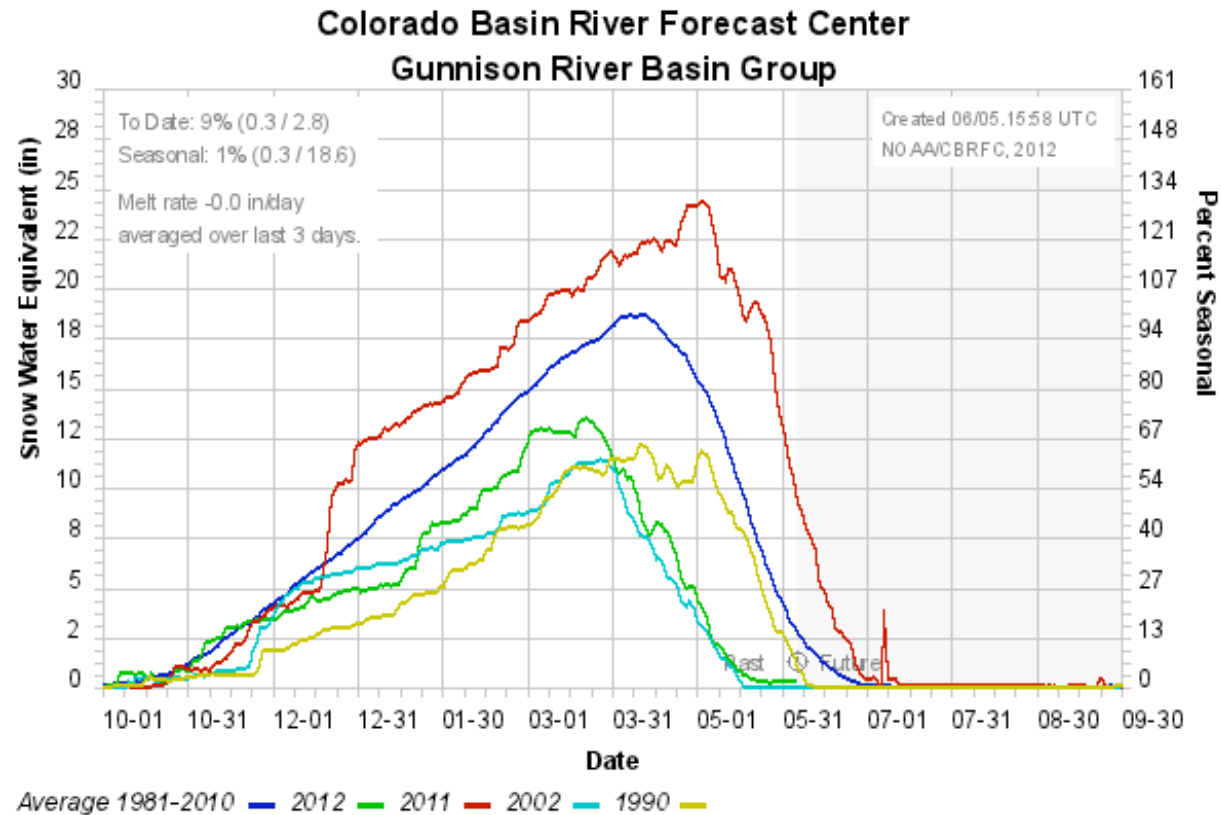
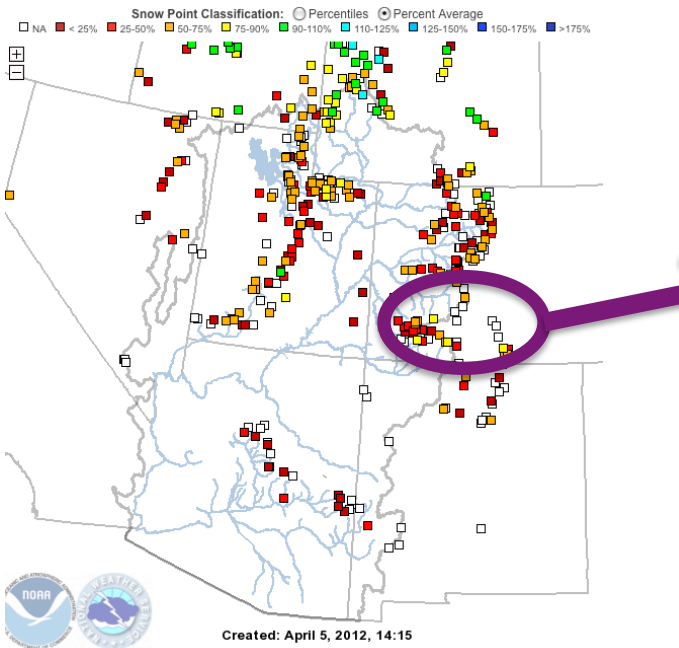


Snow:

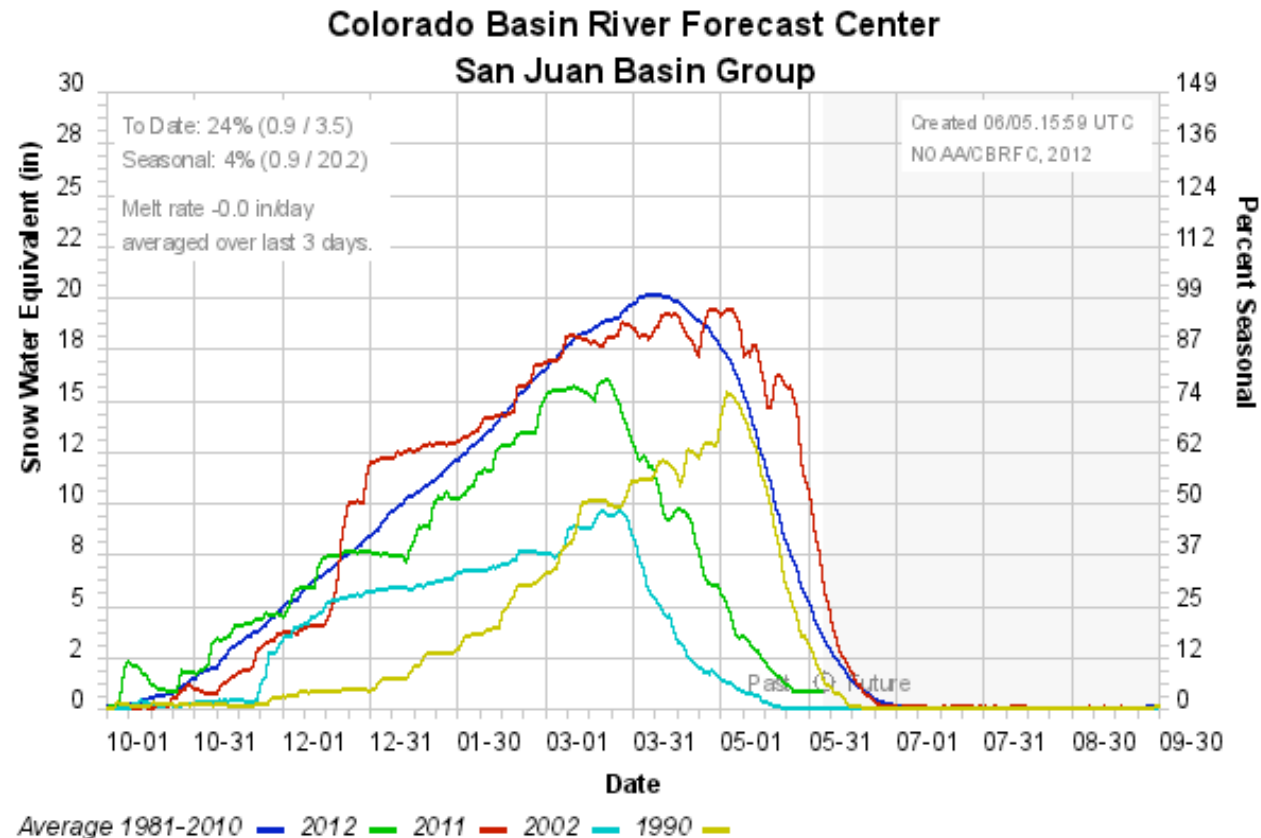
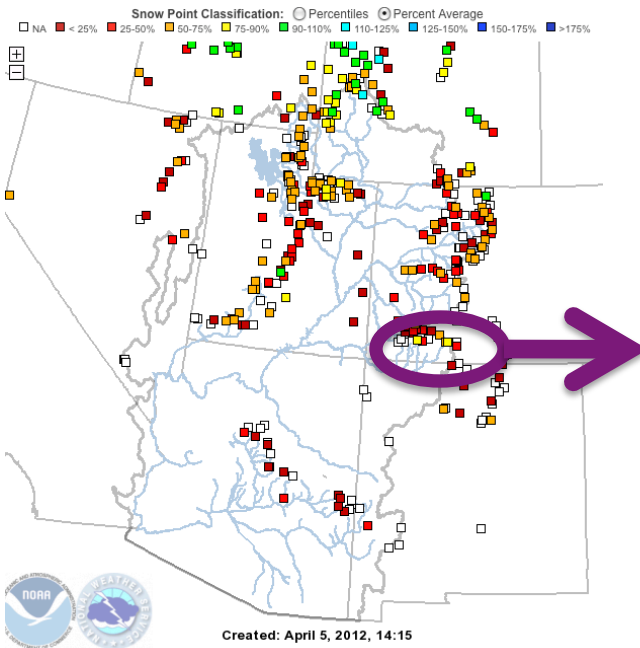
Colorado Mainstem (above Cameo)



Snow: Gunnison Basin

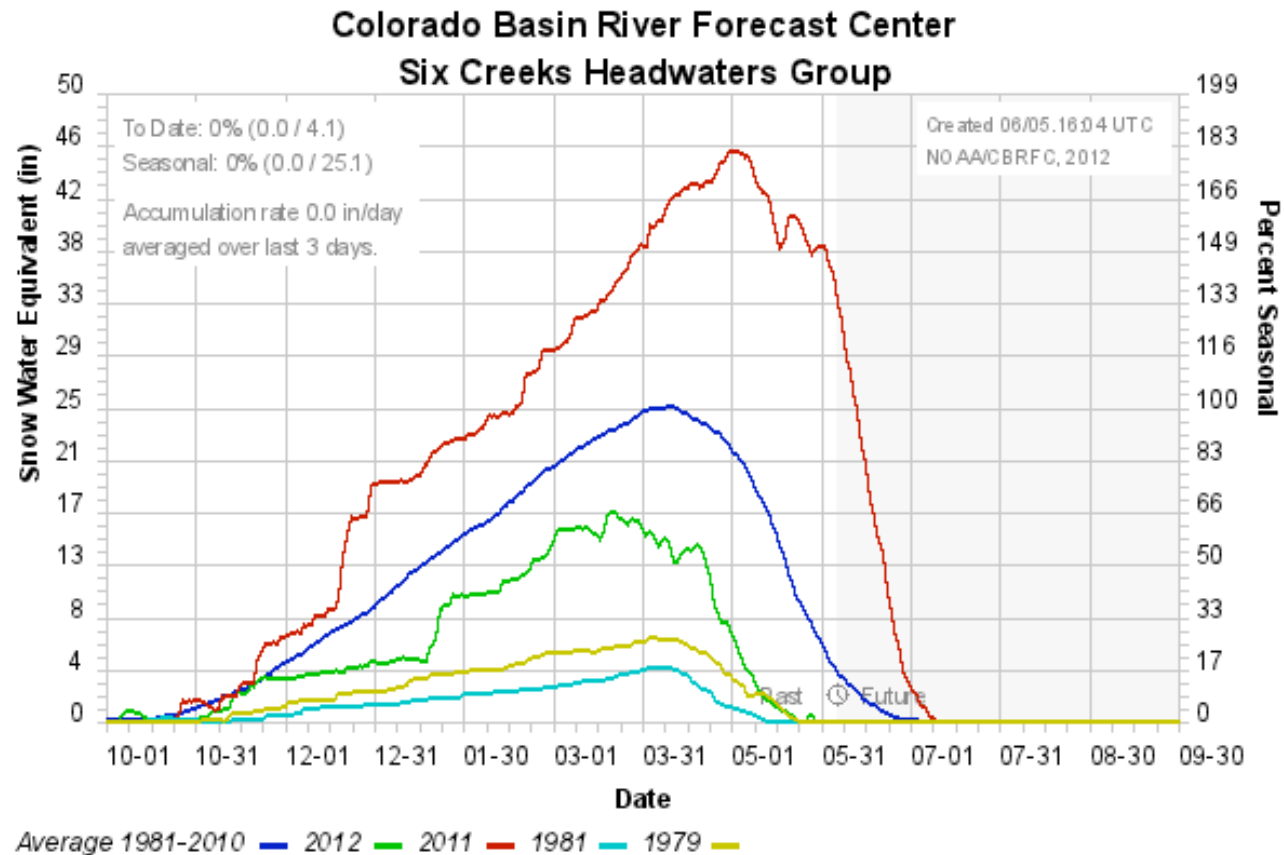
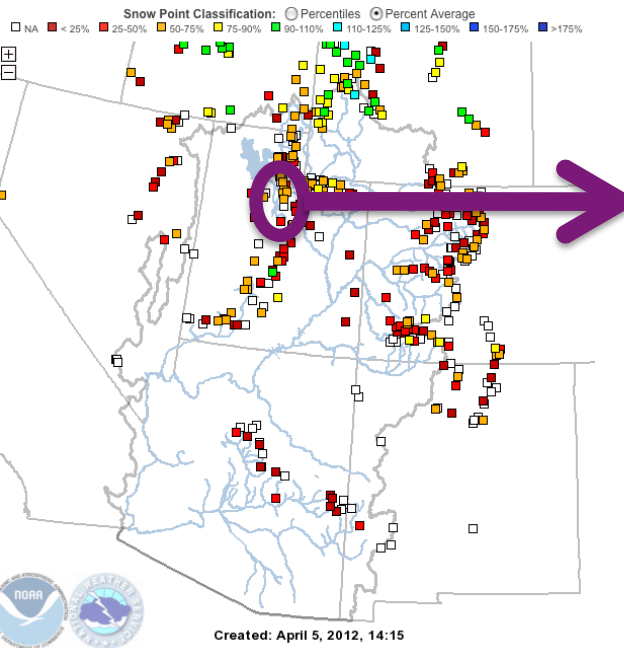


Snow: San Juan Basin

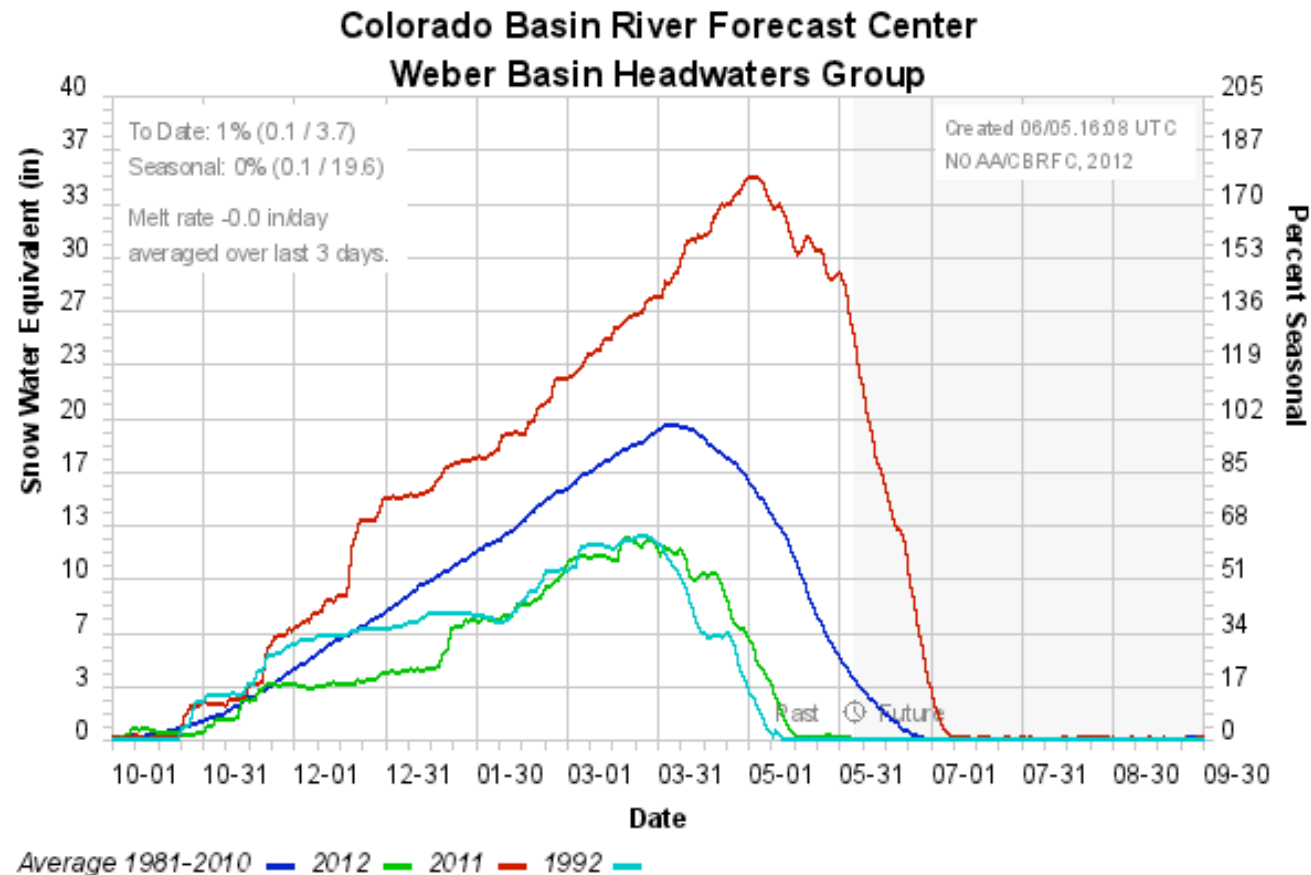
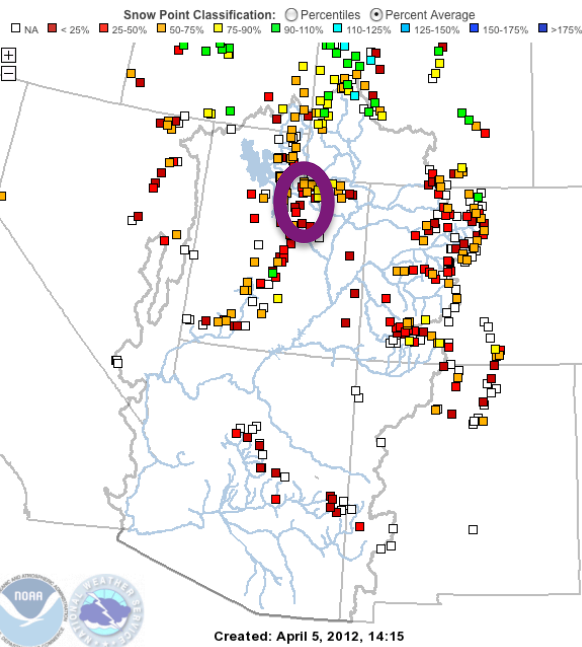


Snow:

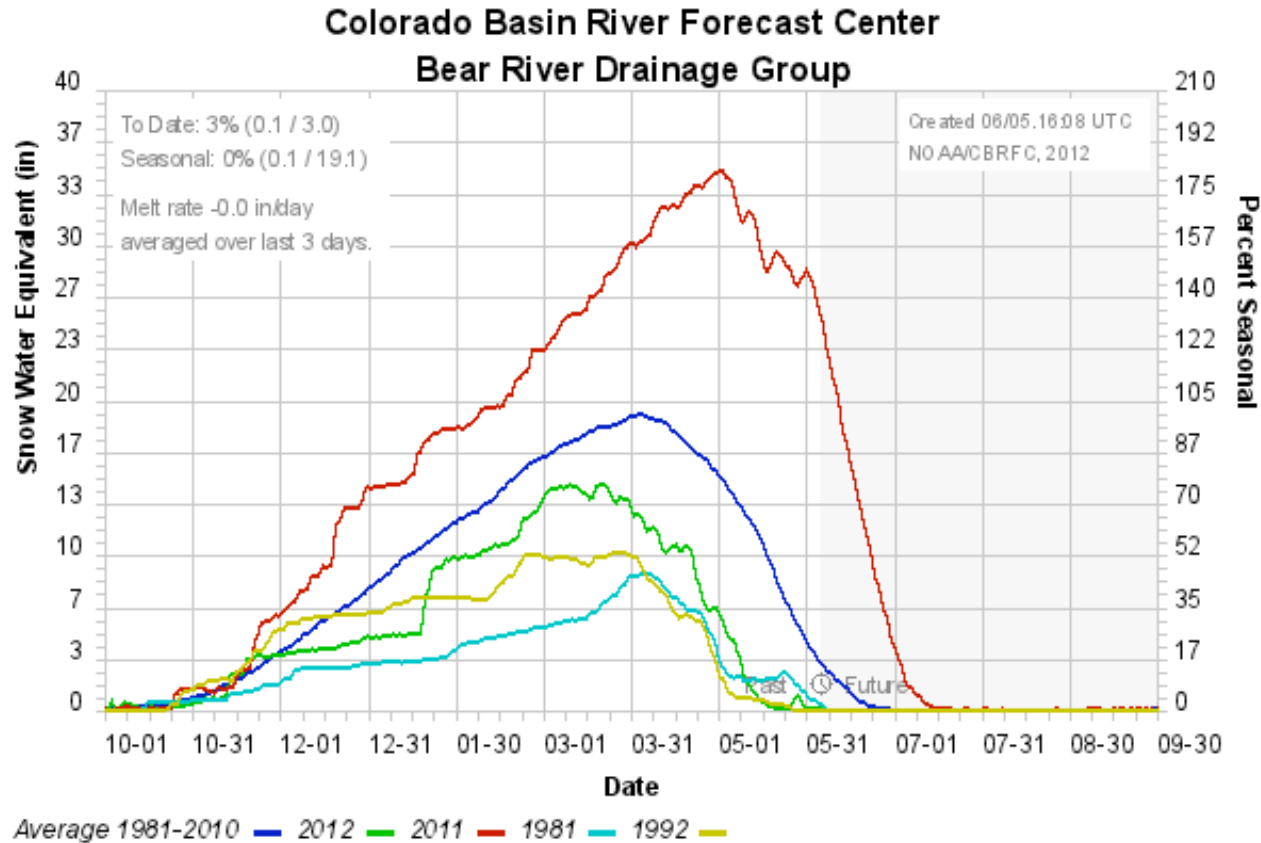
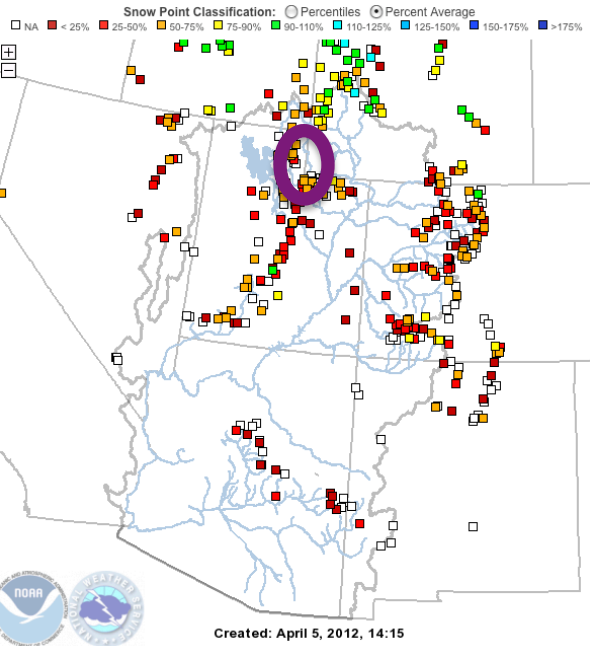
Six Creeks in Salt Lake County



Snow: Weber Basin



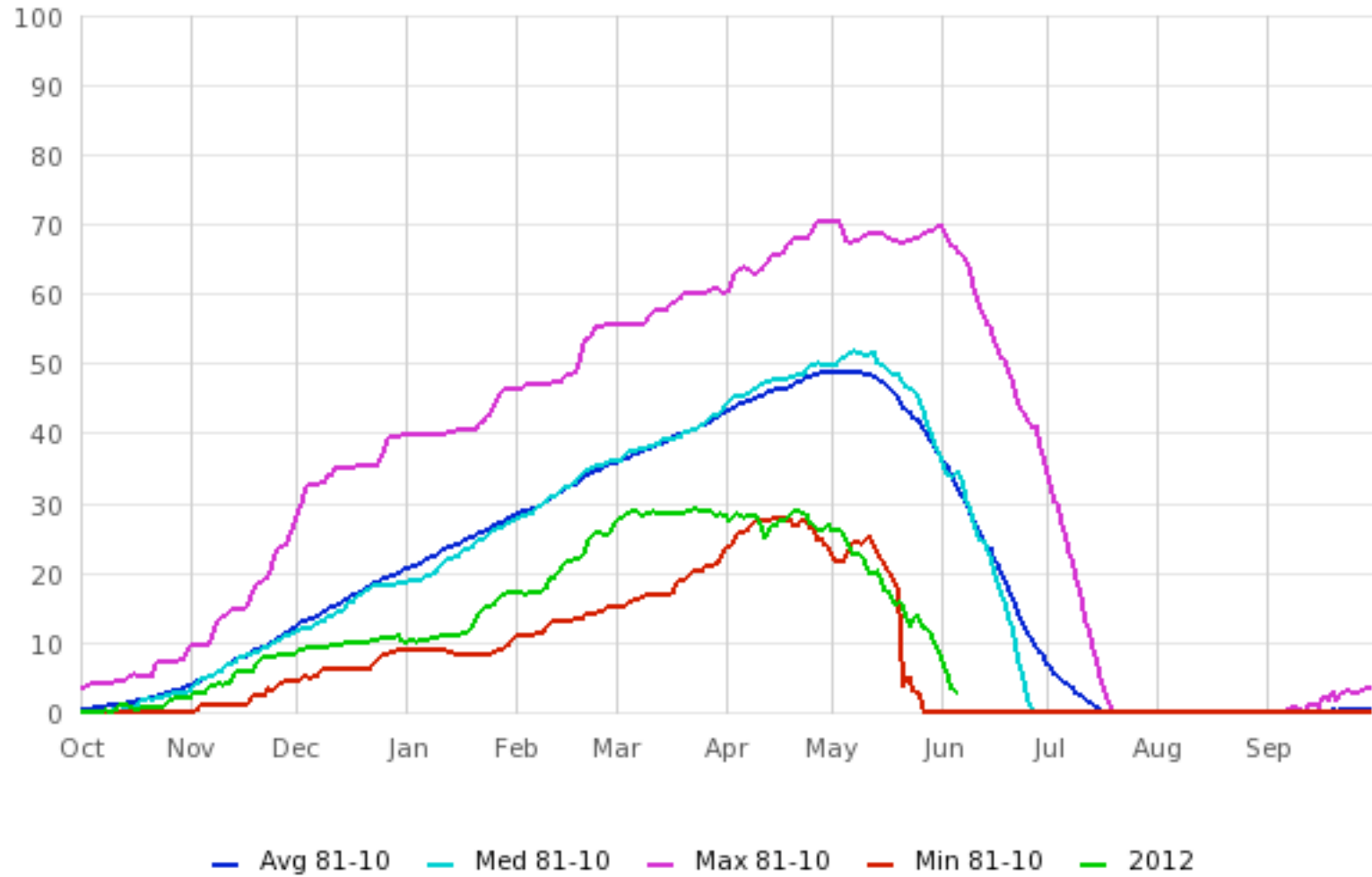
Snow: Bear River Basin



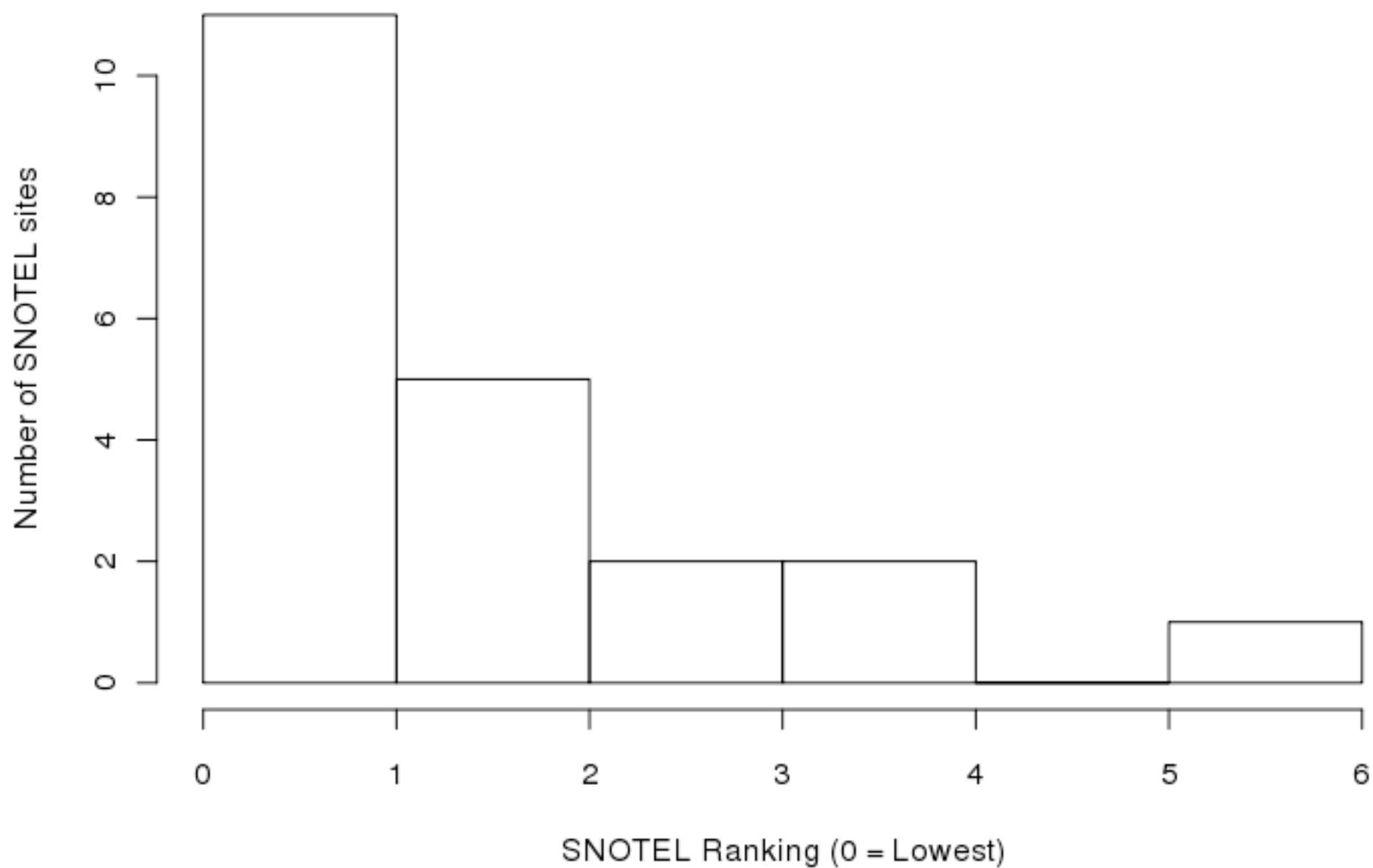
TOWER (towc2)

Inches of Snow Water Equivalent (SWE)

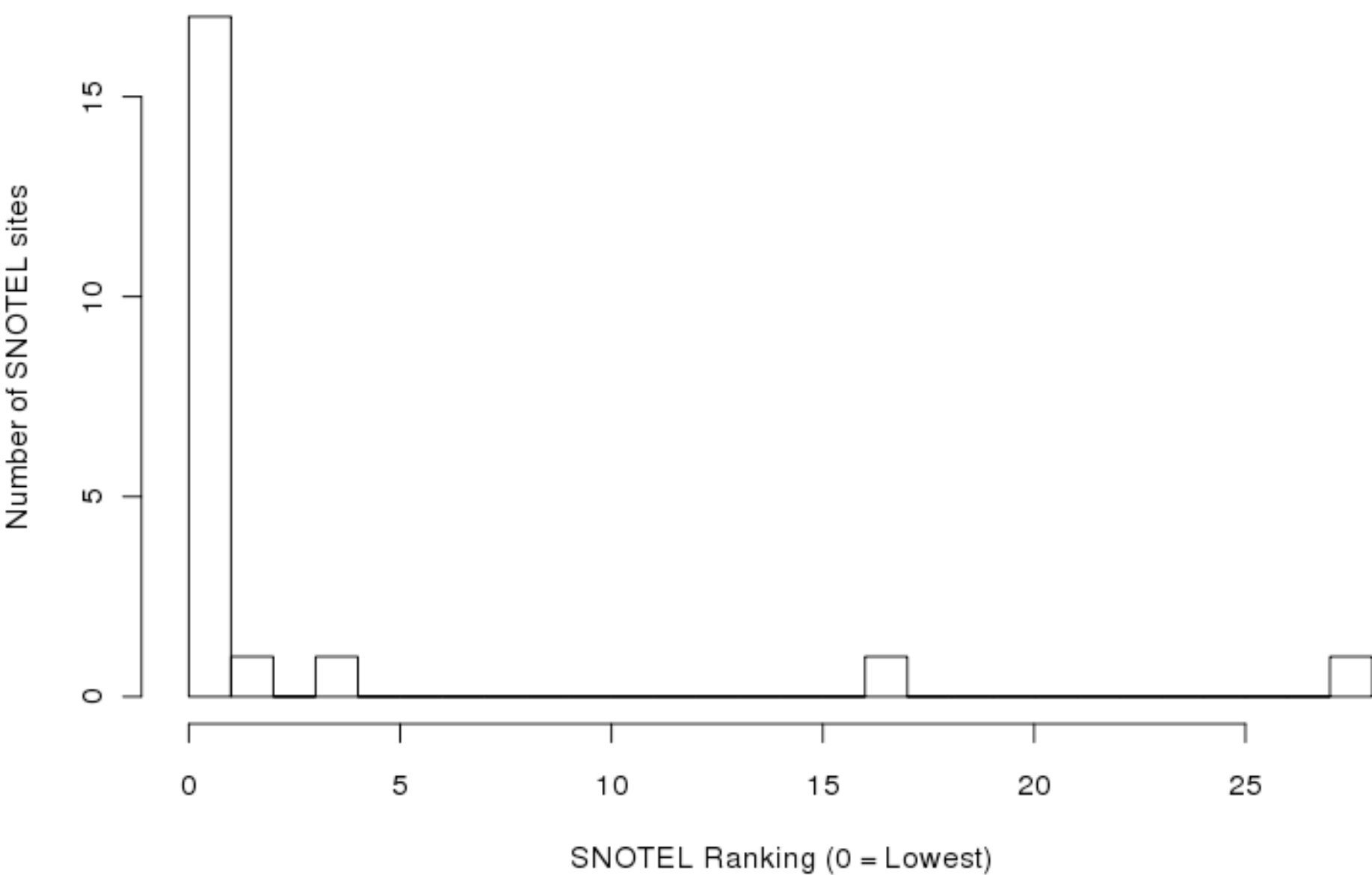
Plot Created June 5, 10:10 MDT by the Colorado Basin River Forecast Center (NWS/NOAA)



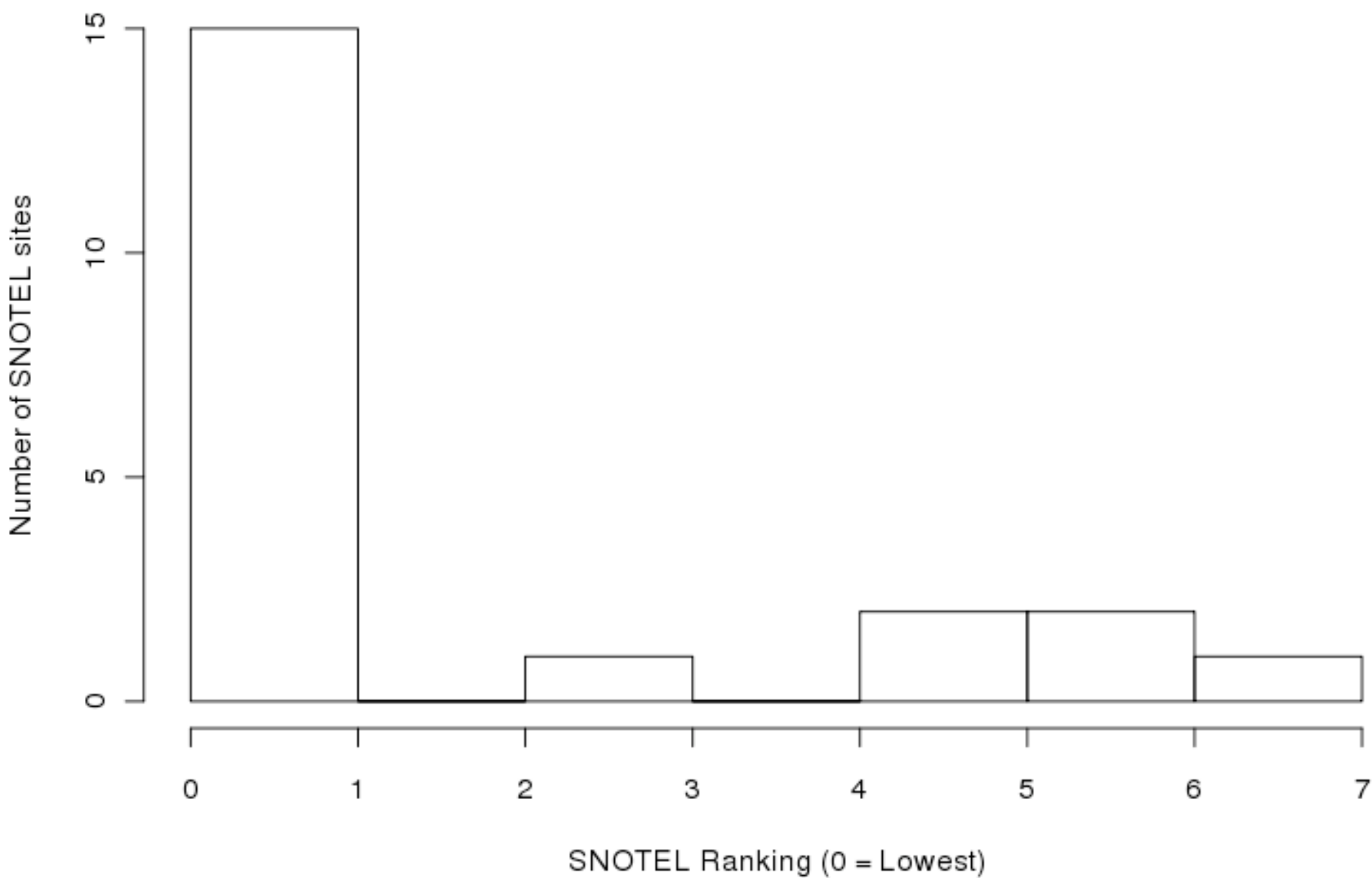
Ranking of 2012's Peak Annual SWE for Upper Colorado



Ranking of 2012's Melt Date for Upper Colorado

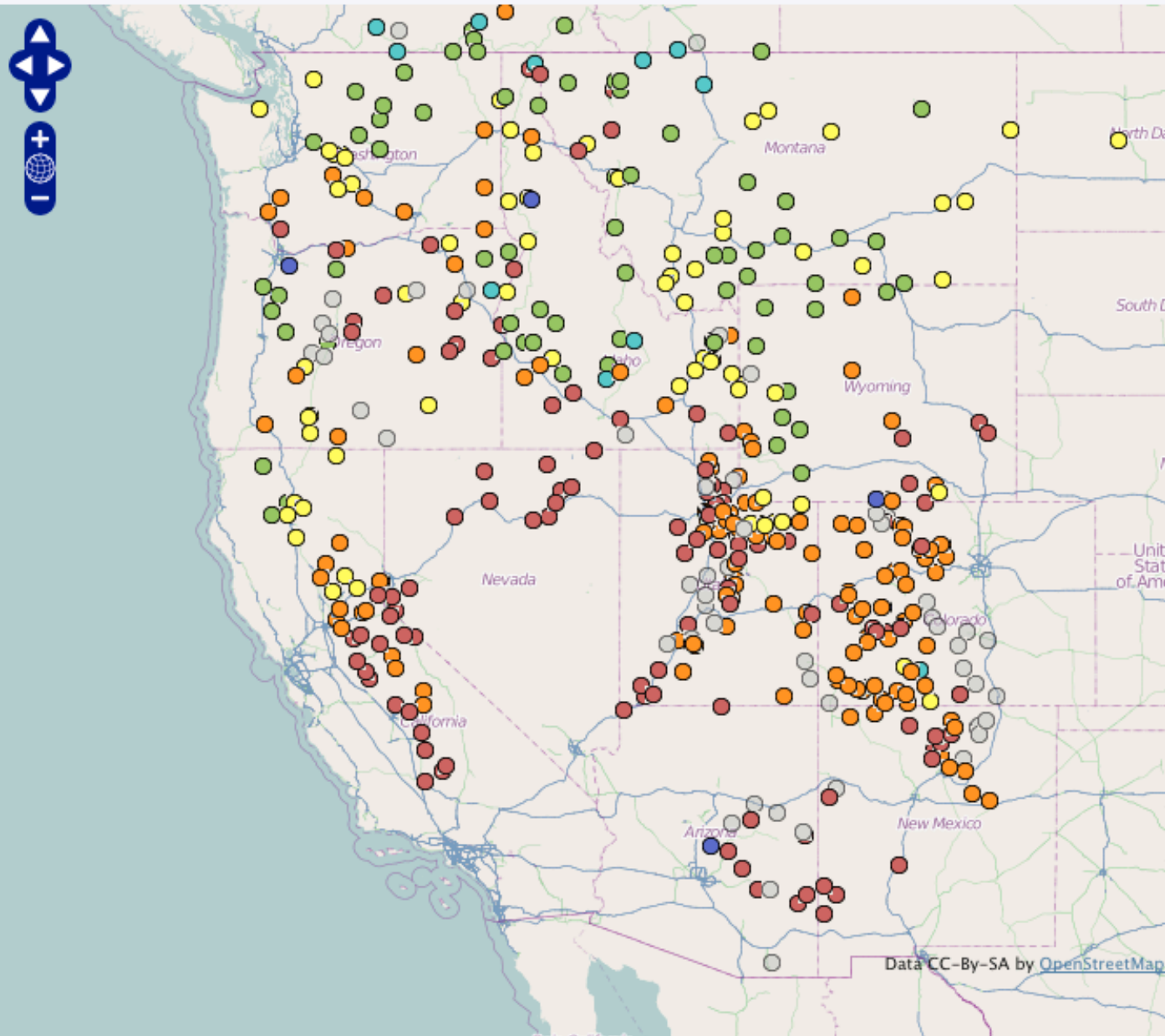


Ranking of 2012's Peak Annual SWE Date for Upper Colorado



2012 Water Supply Forecasts

Western US Water Supply Map from April 2012



[Need Help?](#)

Map Options

Point Data

Forecast Issuance Month: (?)

April 2012

Normalization: (?)

Mean

[Update Map](#)

Legend

- > 150% of mean
- 130% - 150% of mean
- 110% - 130% of mean
- 90% - 110% of mean
- 70% - 90% of mean
- 50% - 70% of mean
- < 50% of mean
- No mean
- No Forecast

Download

[Download data in KML Format](#)

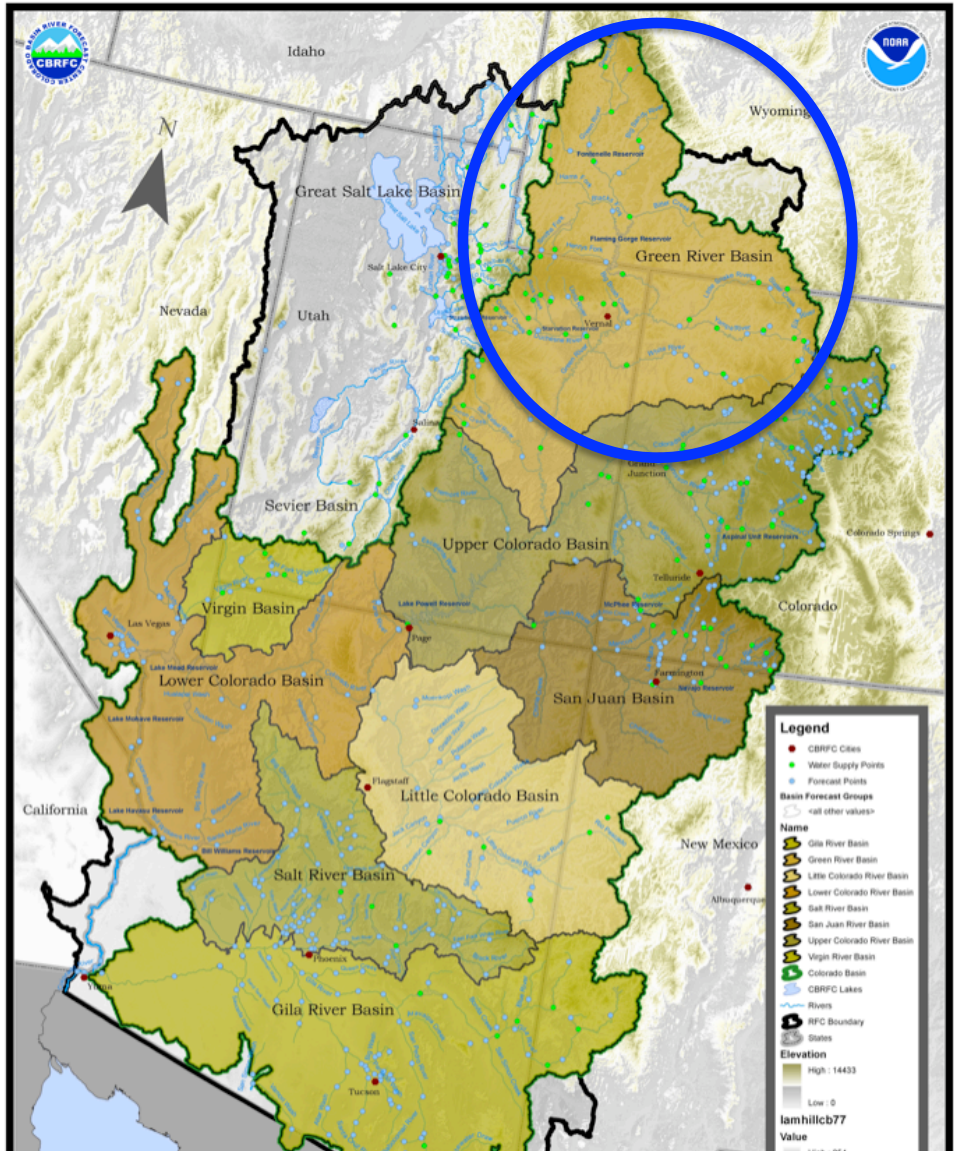
About

Official coordinated NOAA/NRCS forecasts are plotted on the map. Forecasts are issued on the date selected above. The forecast valid period varies depending on the typical timing of runoff.

Data CC-BY-SA by [OpenStreetMap](#)

Green River Basin

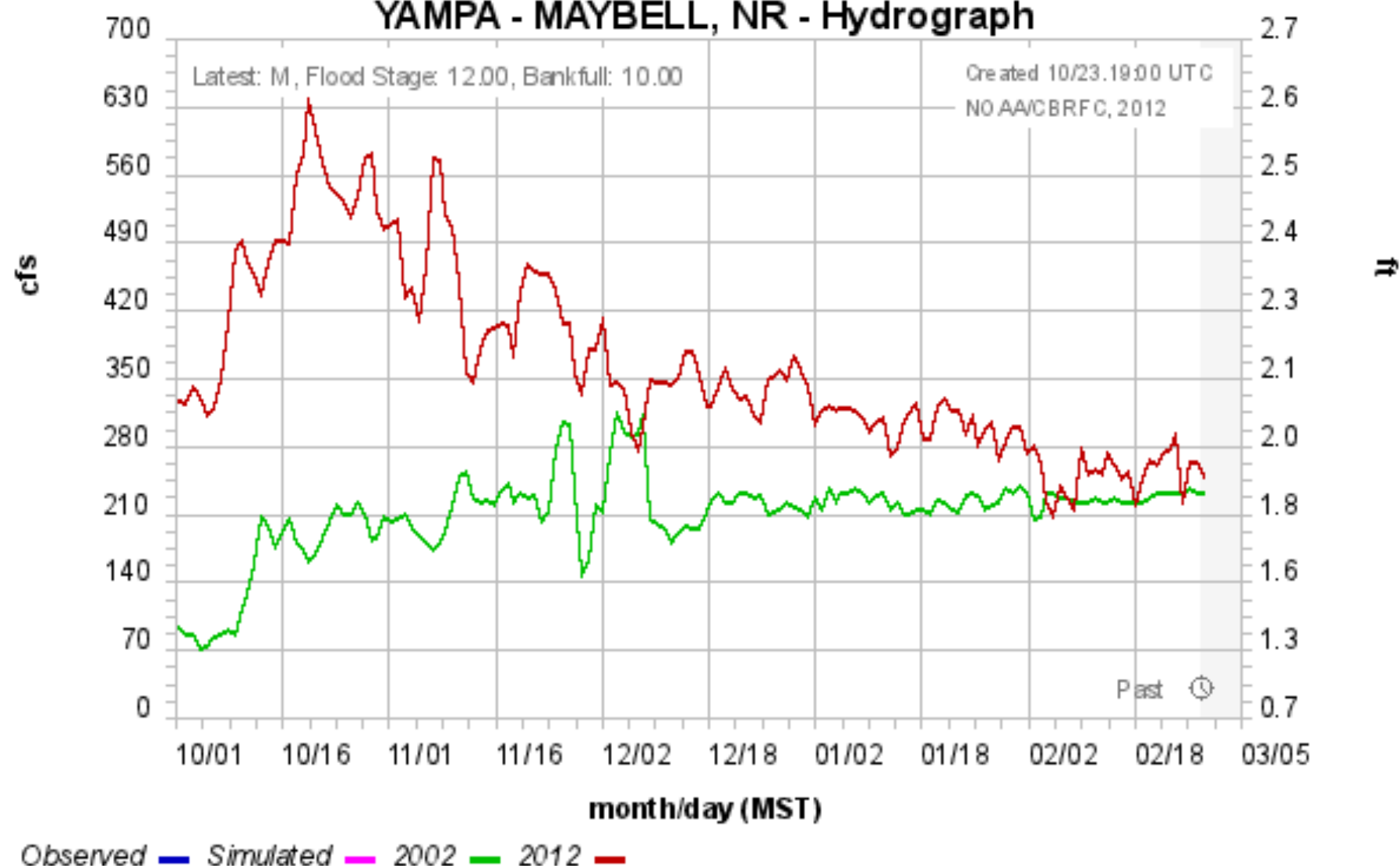
Colorado Basin River Forecast Center, Salt Lake City, Utah



- Dry everywhere
- Extreme dryness in Yampa, Duchesne

Colorado Basin River Forecast Center

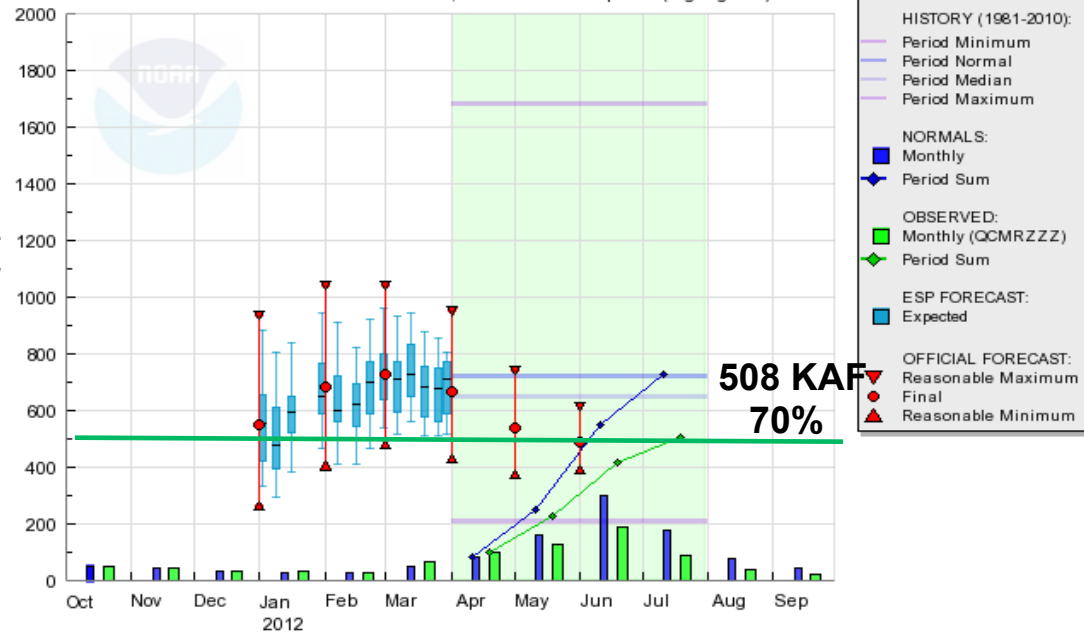
YAMPA - MAYBELL, NR - Hydrograph



FONTENELLE RESERVOIR

GREEN - FONTENELLE RES, FONTENELLE NR (GBRW4)

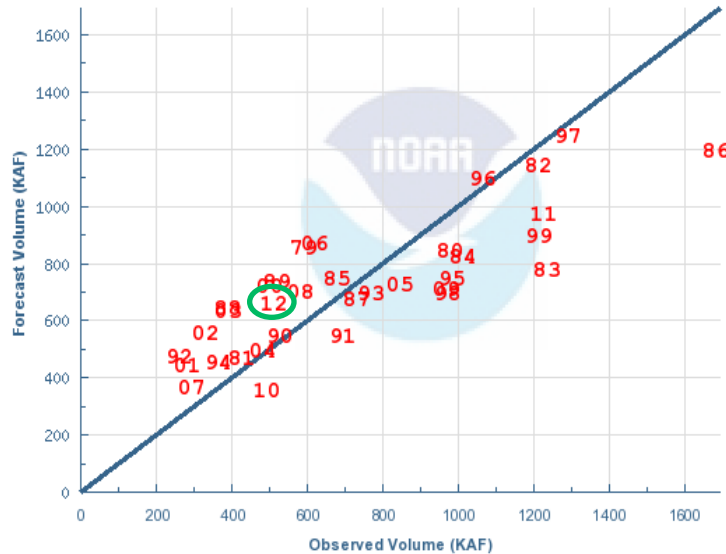
Water Year 2012, Forecast Period Apr-Jul (highlighted)



CBRFC/NWS/NOAA 10/17/12 22:17:12 UTC

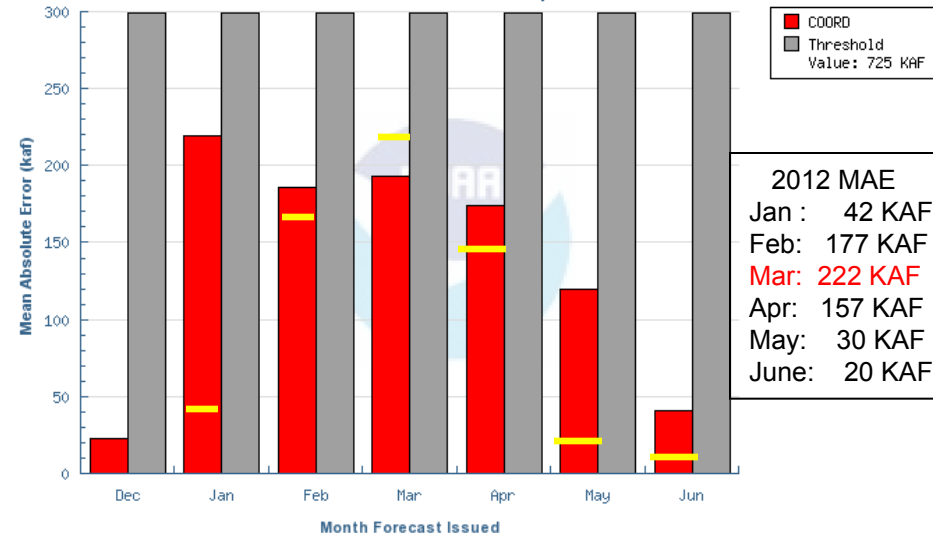
Streamflow - GREEN - FONTENELLE RES, FONTENELLE NR (GBRW4)

Forecast Period: Apr - Jul (Apr Forecast Streamflow)



Mean Absolute Error - GREEN - FONTENELLE RES, FONTENELLE NR (GBRW4)

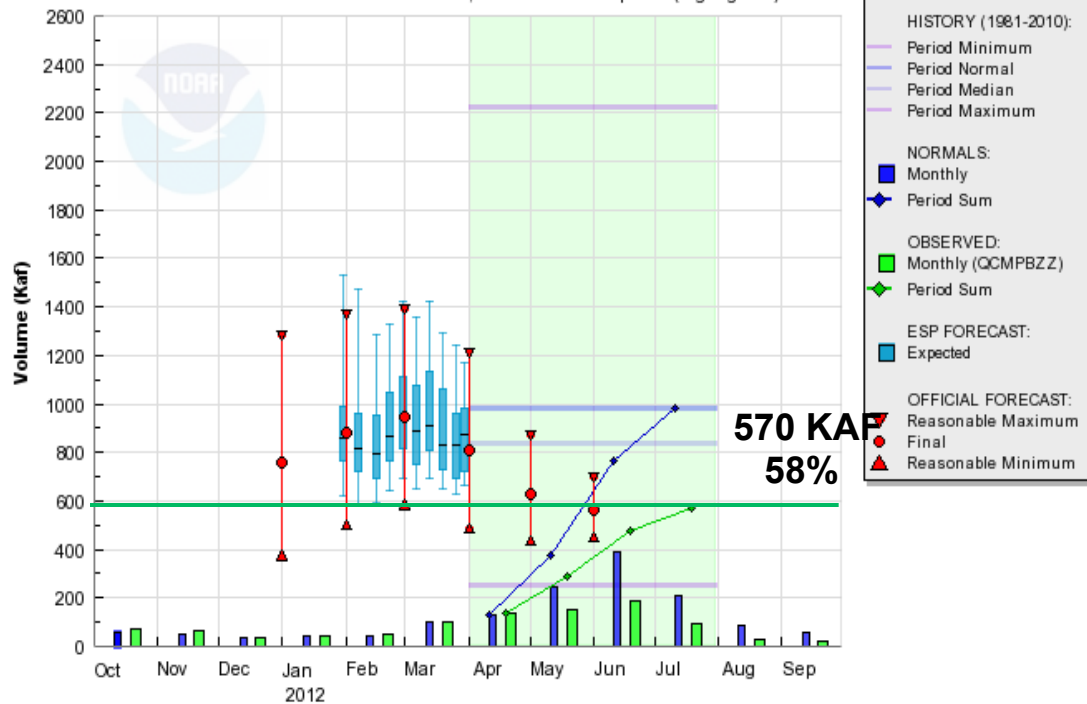
Forecast Period: Apr - Jul



GREEN - FLAMING GORGE RES, FLAMING GORGE DAM, AT (GRNU1)

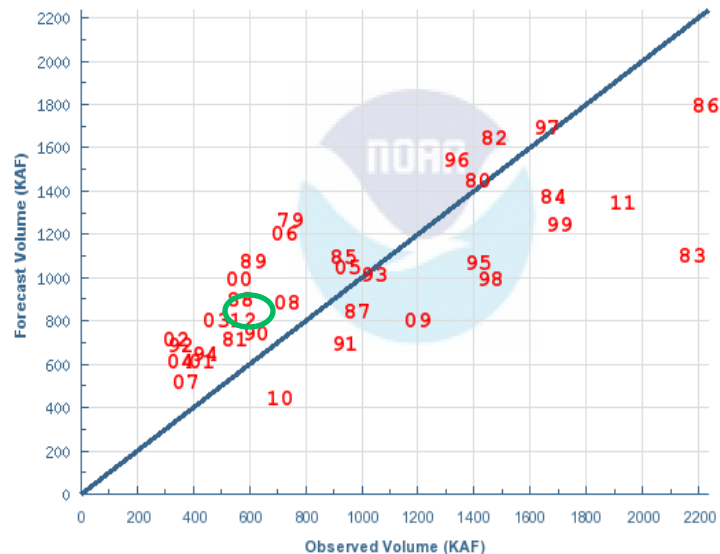
Water Year 2012, Forecast Period Apr-Jul (highlighted)

FLAMING GORGE



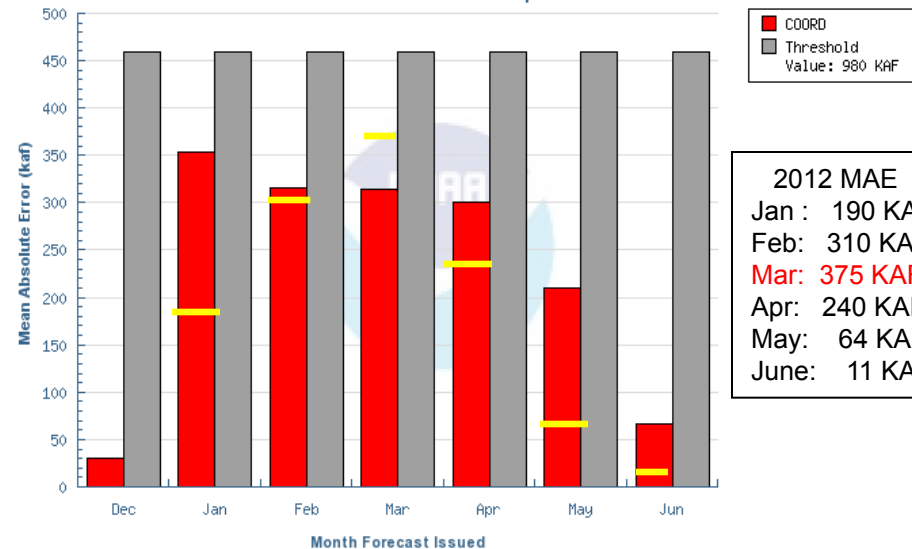
Streamflow - GREEN - FLAMING GORGE RES, FLAMING GORGE DAM, AT (GRNU1)

Forecast Period: Apr - Jul (Apr Forecast Streamflow)



Mean Absolute Error - GREEN - FLAMING GORGE RES, FLAMING GORGE DAM, AT (GRNU1)

Forecast Period: Apr - Jul



2012 MAE

Jan : 190 KAF

Feb: 310 KAF

Mar: 375 KAF

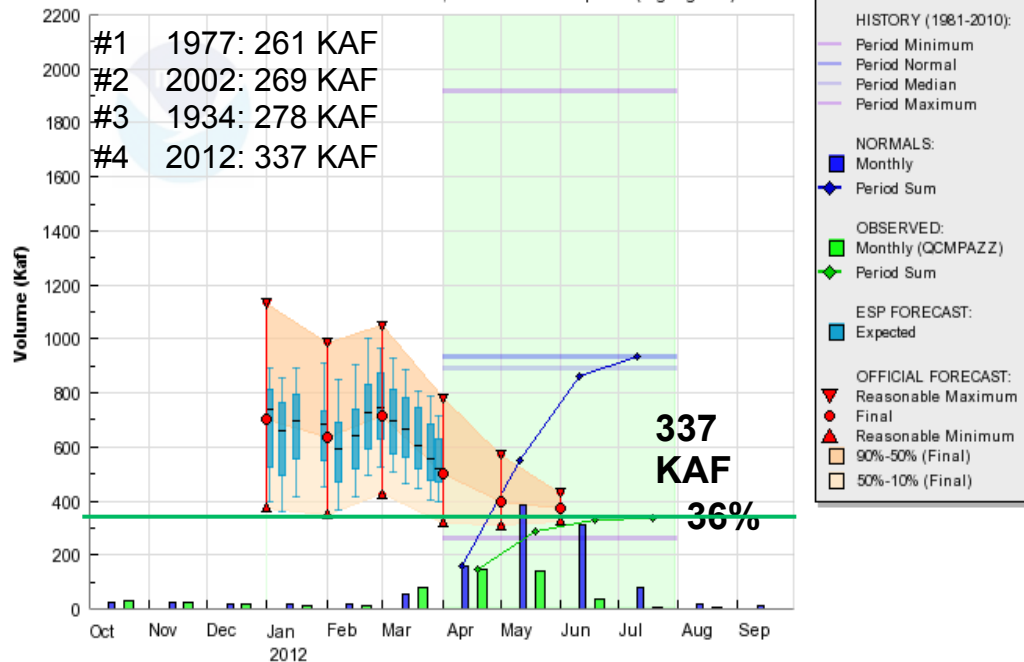
Apr: 240 KAF

May: 64 KAF

June: 11 KAF

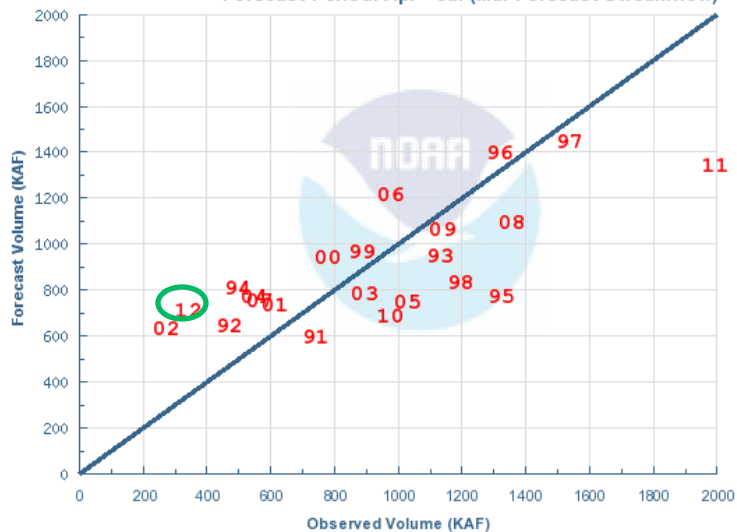
Yampa nr Maybell

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

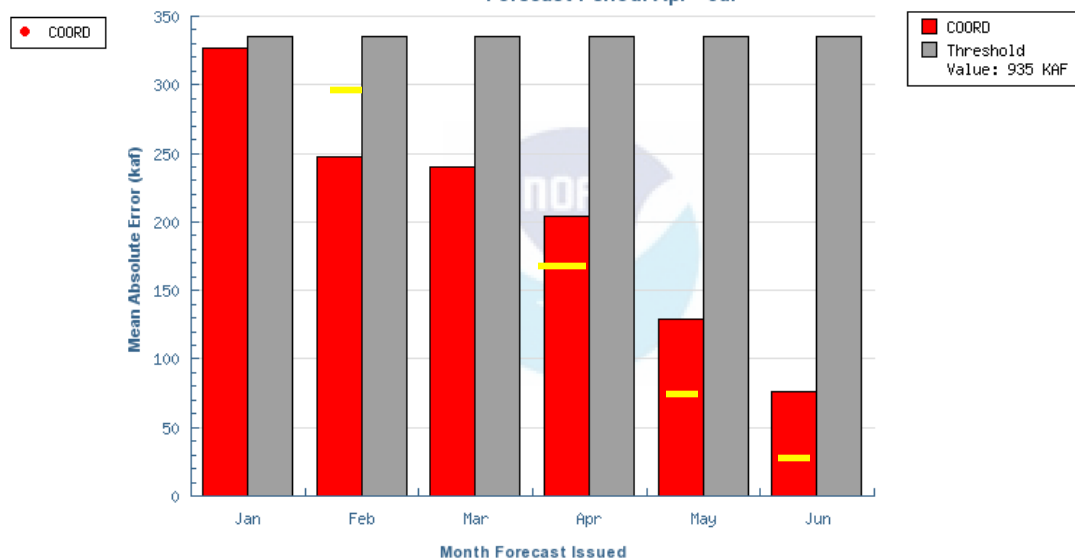


CBRFC/NWS/NOAA 10/16/12 23:00:20 UTC

Streamflow - YAMPA - MAYBELL, NR (MBLC2)
Forecast Period: Apr - Jul (Mar Forecast Streamflow)



Mean Absolute Error - YAMPA - MAYBELL, NR (MBLC2)
Forecast Period: Apr - Jul



2011 Green River Basin Records

LOCATION	NEW RECORD	OLD RECORD	% DIFF	OLD RECORD YEAR
East Fork of Smiths Fork	64	57	12%	1983
Blacks Fork nr Robertson	202	125	62%	1975
Yampa abv Stagecoach	69	56	23%	1997
Yampa at Steamboat Springs	507	506	0%	1984
Elk nr Milner	742	552	34%	1917
Elk Head nr Hayden	171	119	44%	1997
Yampa at Maybell	1988	1921	3%	1984
Little Snake nr Slater	353	281	26%	1984
Little Snake at Dixon	775	754	3%	1984
Little Snake at Lily	881	790	12%	1984
White River nr Meeker	521	519	0%	1984
West Fork Duchesne	44	38	16%	1986
Duchesne nr Tabiona	217	189	15%	1952
Upper Stillwater-Rock Creek	153	136	13%	1986
Rock Creek	186	158	18%	1986
Strawberry nr Solider Springs	158	137	15%	1986
Lake Fork- Moon Lake	127	112	13%	2005
Yellowstone nr Altonah	125	114	10%	2005
Duchesne-Myton	824	766	8%	1952
Duchesne-Randlett	1011	942	7%	1983
Green River-Green River, UT	6490	5856*	11%	1983

RED=Single Month Volume > April-July
Average

*POR after regulation

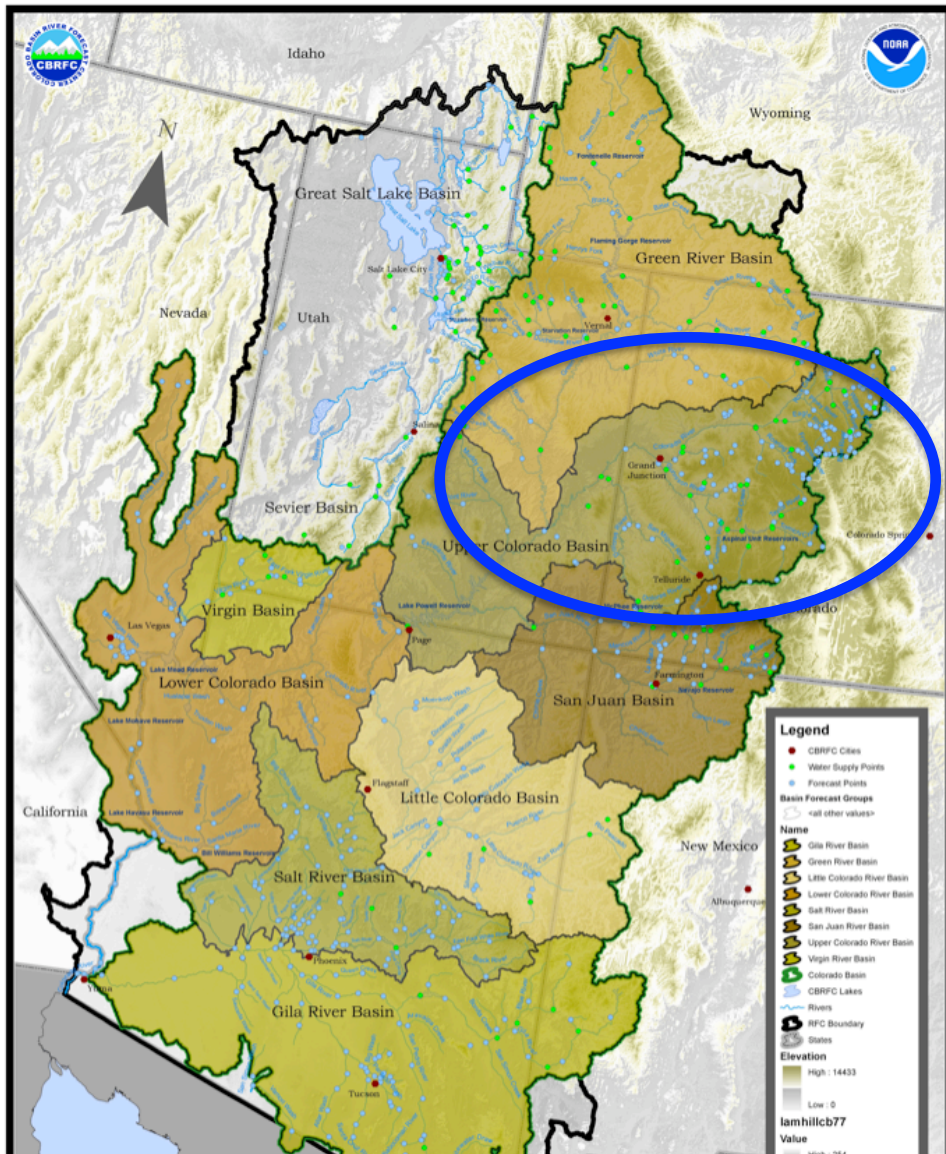
White/Yampa=10 /10
Duchesne=10/16

	April-July Volume (KAF)		Historical		
	Volume (KAF)	% Average	2012 L-H	Min (KAF)	Min Year
Yampa abv Stagecoach	3.52	15%	2/23	1.46	2002
Yampa at Steamboat Springs	105	40%	4/105	82	2002
Elk near Milner	173	54%	3/43	135	2002
Elkhead Creek abv Long Gulch	20.3	28%	2/17	14.8	2002
Yampa at Maybell	337	36%	4/96	261	1977
Little Snake nr Slater	73	47%	4/65	51	1977
Little Snake nr Savery	90	26%	1/23	90	2012
Little Snake nr Lily	111	32%	4/90	59	1934
White near Meeker	111	39%	4/108	81	1977
White near Watson	98	35%	4/84	72	1977

All April-July Volumes are in bottom five of historical records!

Upper Colorado Mainstem Basin

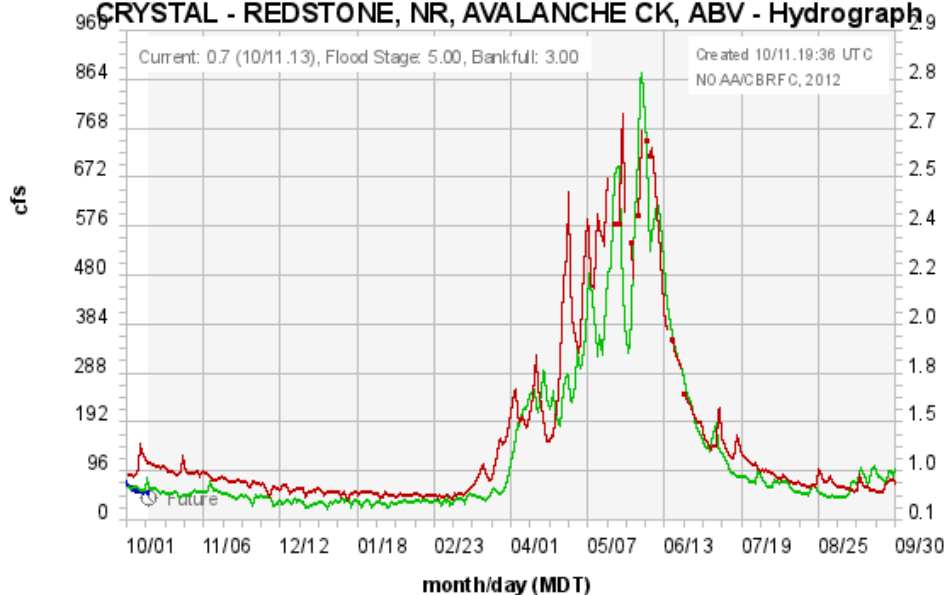
Colorado Basin River Forecast Center, Salt Lake City, Utah



- Extreme dry

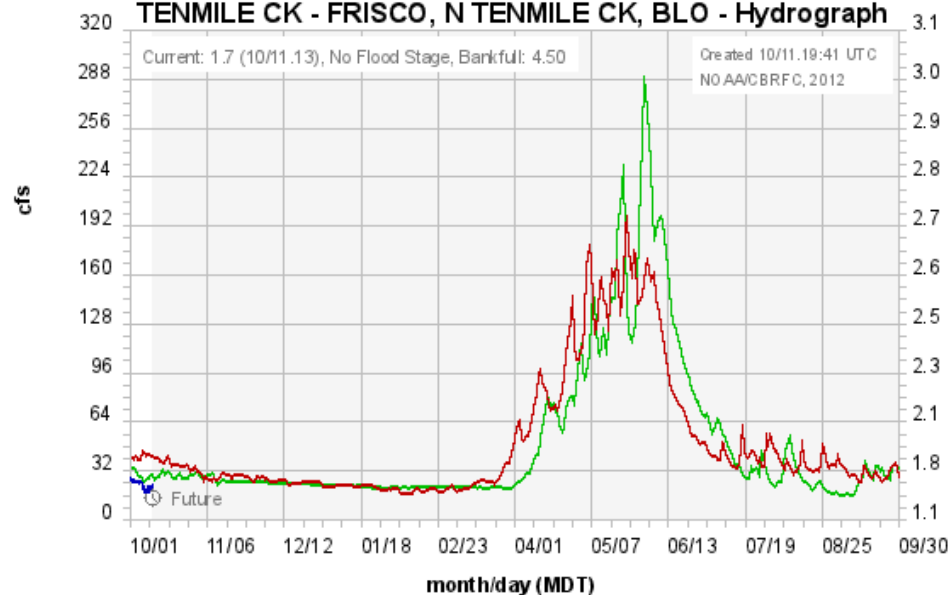
Colorado Basin River Forecast Center

CRYSTAL - REDSTONE, NR, AVALANCHE CK, ABV - Hydrograph



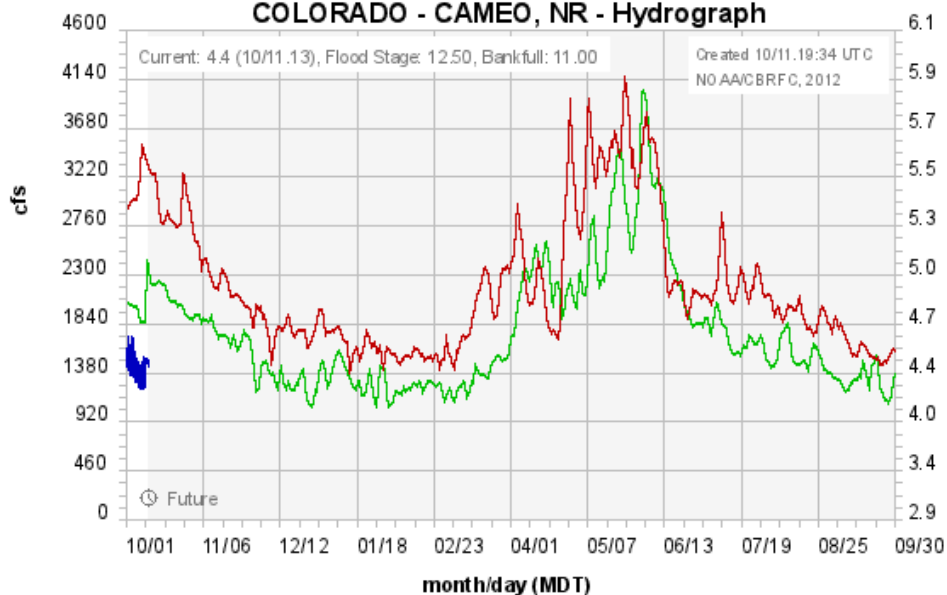
Colorado Basin River Forecast Center

TENMILE CK - FRISCO, N TENMILE CK, BLO - Hydrograph



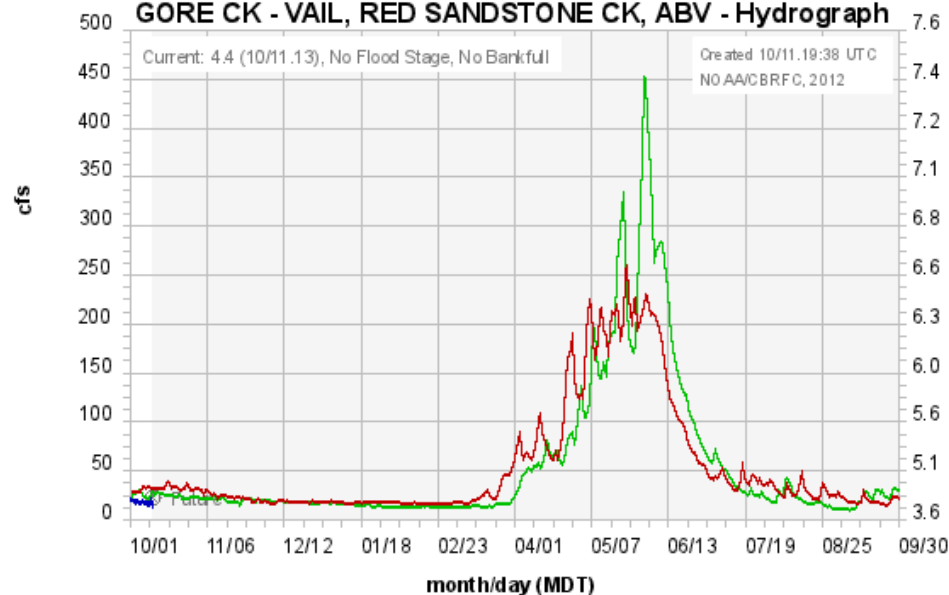
Colorado Basin River Forecast Center

COLORADO - CAMEO, NR - Hydrograph

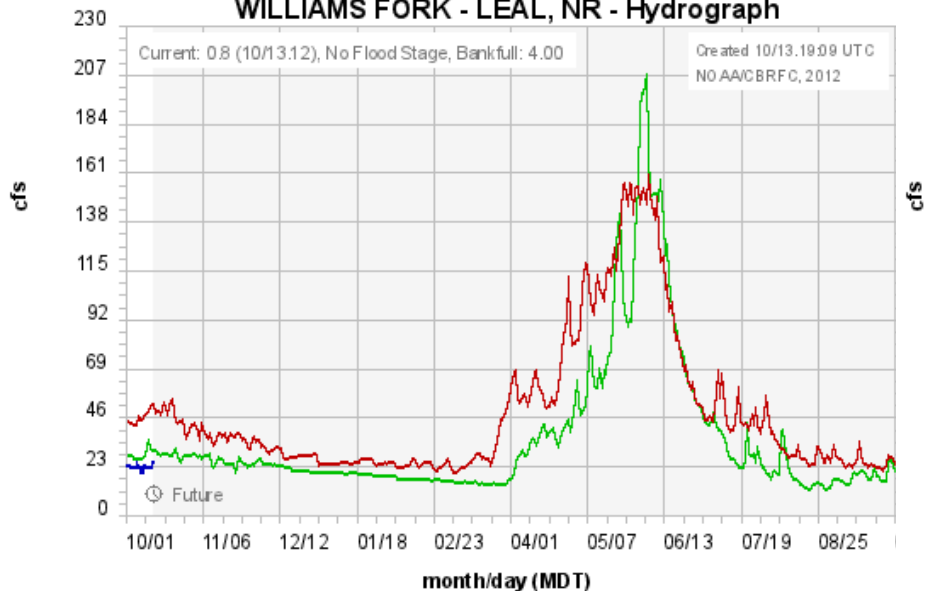


Colorado Basin River Forecast Center

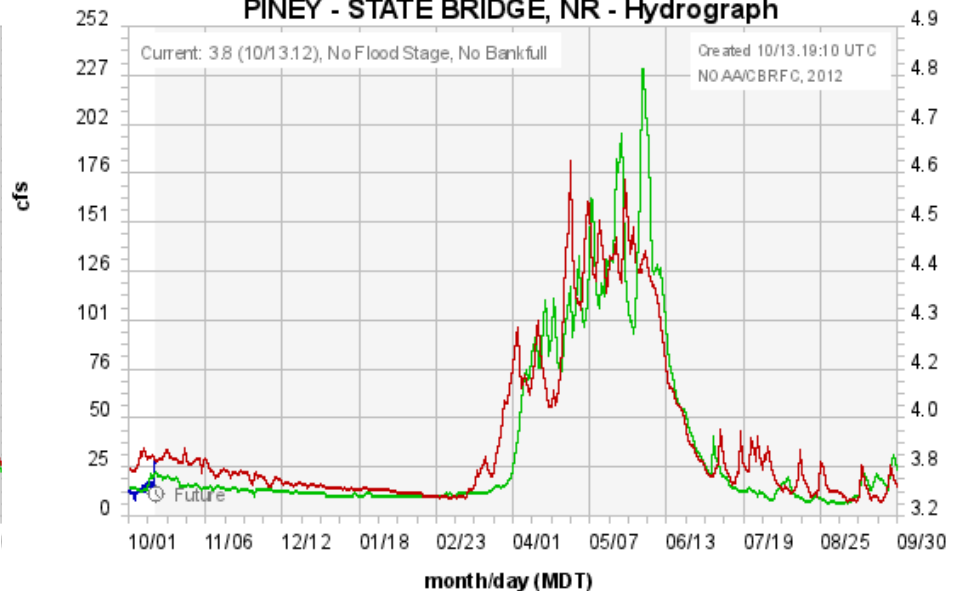
GORE CK - VAIL, RED SANDSTONE CK, ABV - Hydrograph



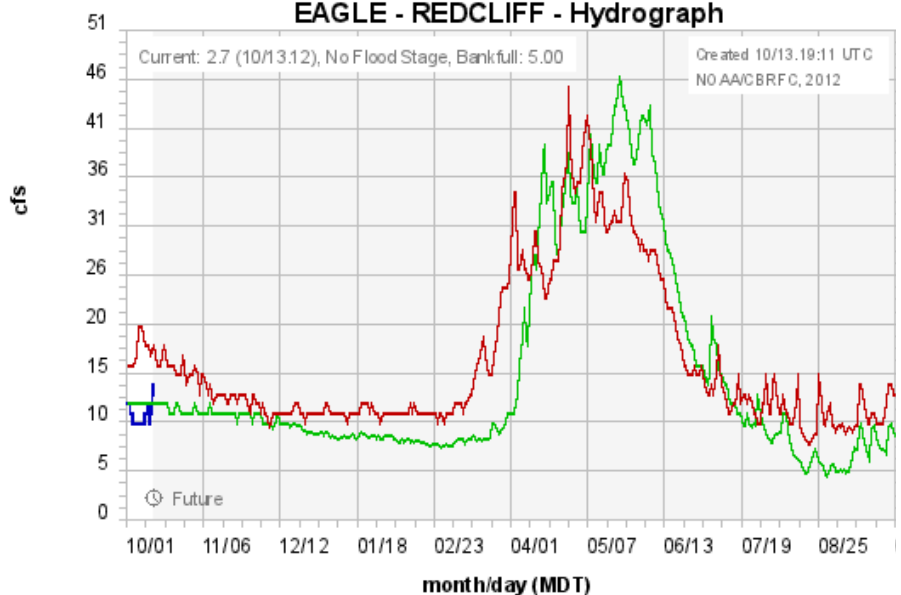
Colorado Basin River Forecast Center
WILLIAMS FORK - LEAL, NR - Hydrograph



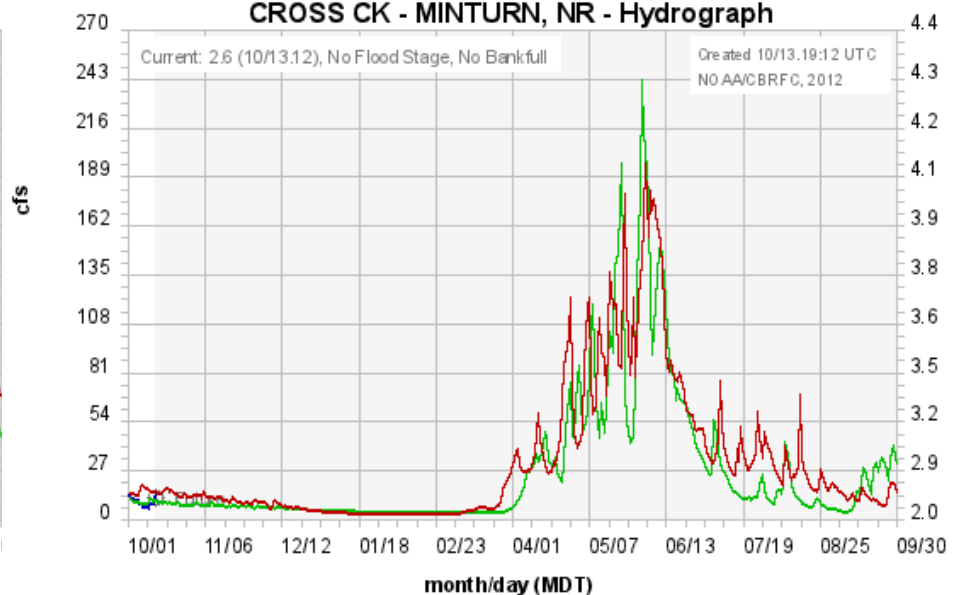
Colorado Basin River Forecast Center
PINEY - STATE BRIDGE, NR - Hydrograph



Colorado Basin River Forecast Center
EAGLE - REDCLIFF - Hydrograph



Colorado Basin River Forecast Center
CROSS CK - MINTURN, NR - Hydrograph



BLUE - DILLON RES (DIRC2)

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



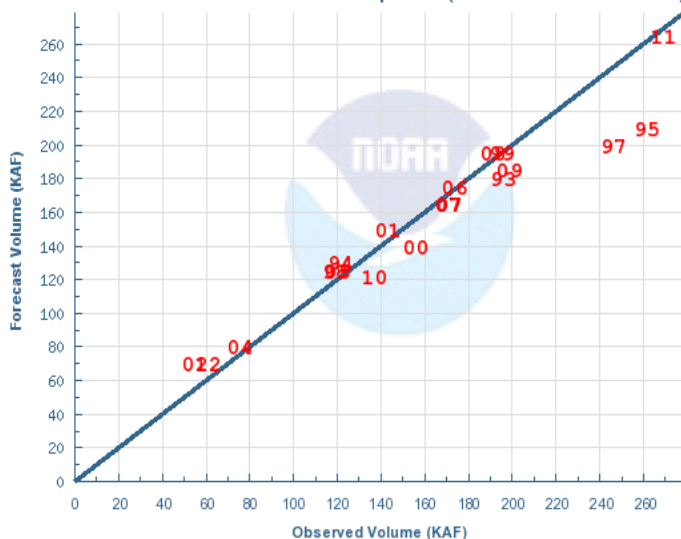
Dillon saw relatively poor forecasts

CBRFC/NWS/NOAA 10/11/12 20:13:41 UTC



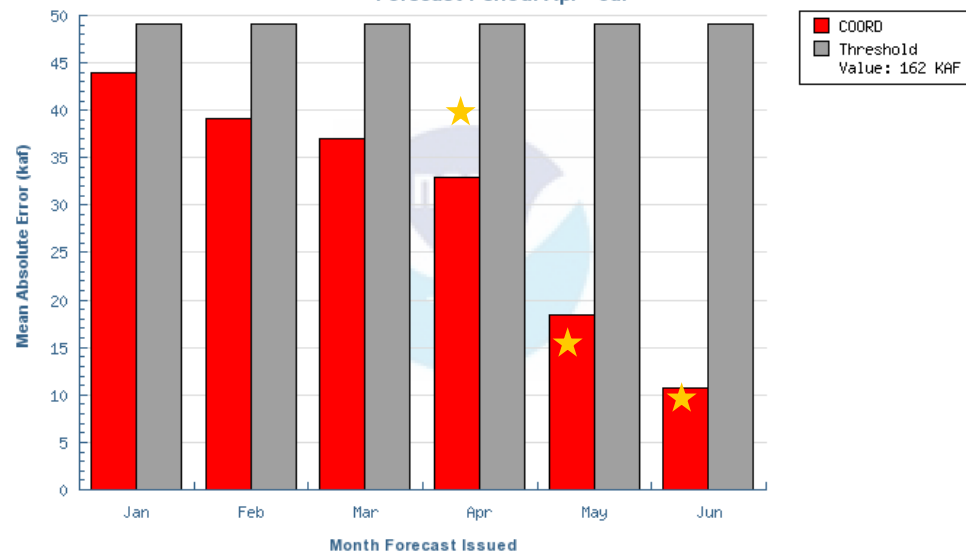
Streamflow - BLUE - DILLON RES (DIRC2)

Forecast Period: Apr - Jul (Jun Forecast Streamflow)

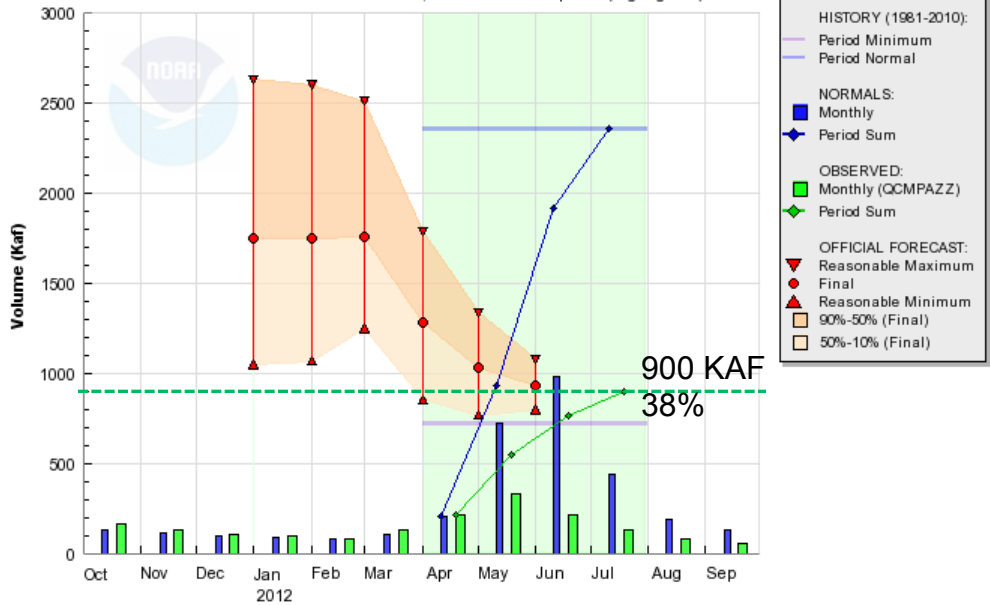


Mean Absolute Error - BLUE - DILLON RES (DIRC2)

Forecast Period: Apr - Jul

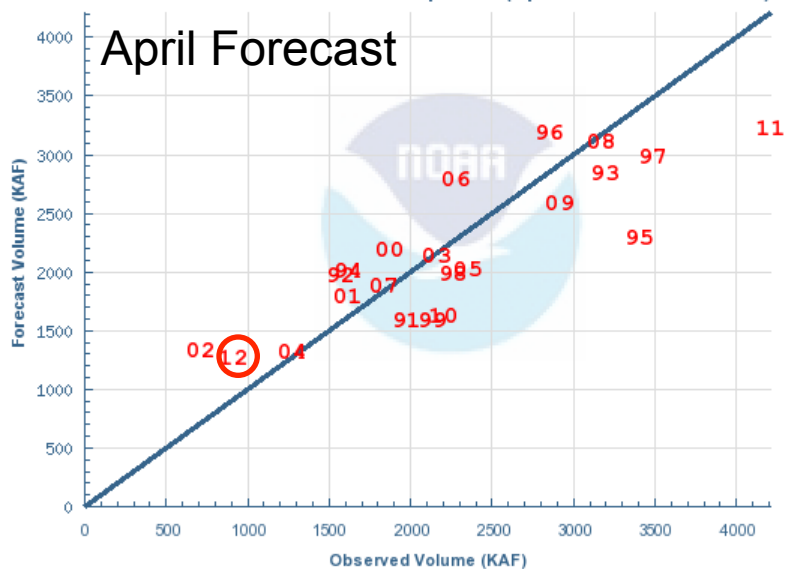


COLORADO - CAMEO, NR (CAMC2) Water Year 2012, Forecast Period Apr-Jul (highlighted)

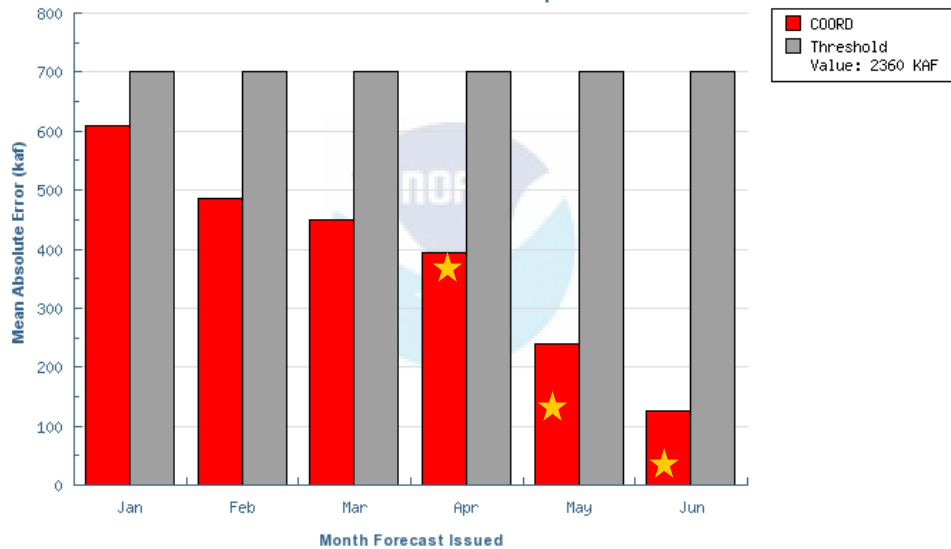


CBRFC/NWS/NOAA 10/11/12

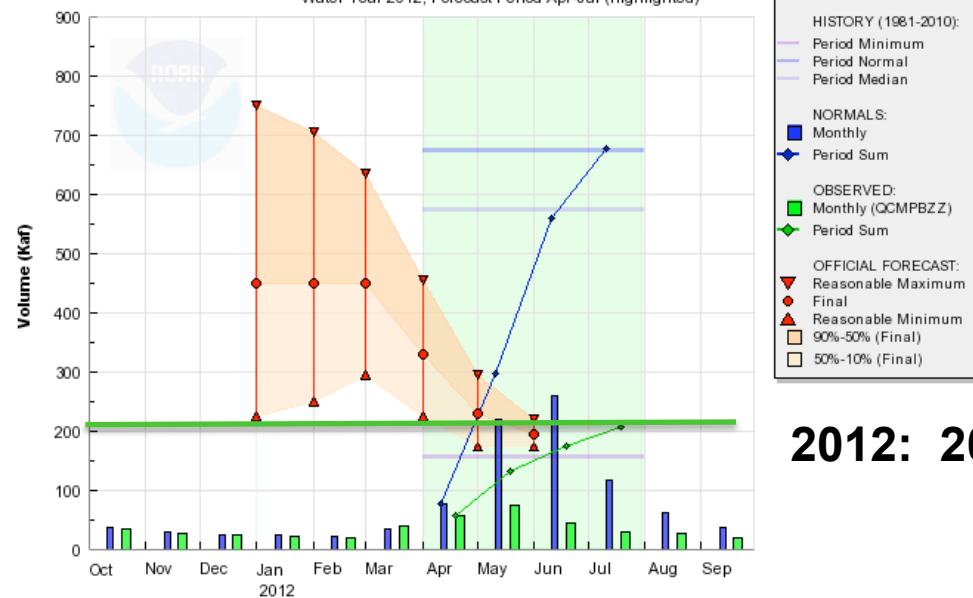
Streamflow - COLORADO - CAMEO, NR (CAMC2) Forecast Period: Apr - Jul (Apr Forecast Streamflow)



Mean Absolute Error - COLORADO - CAMEO, NR (CAMC2) Forecast Period: Apr - Jul

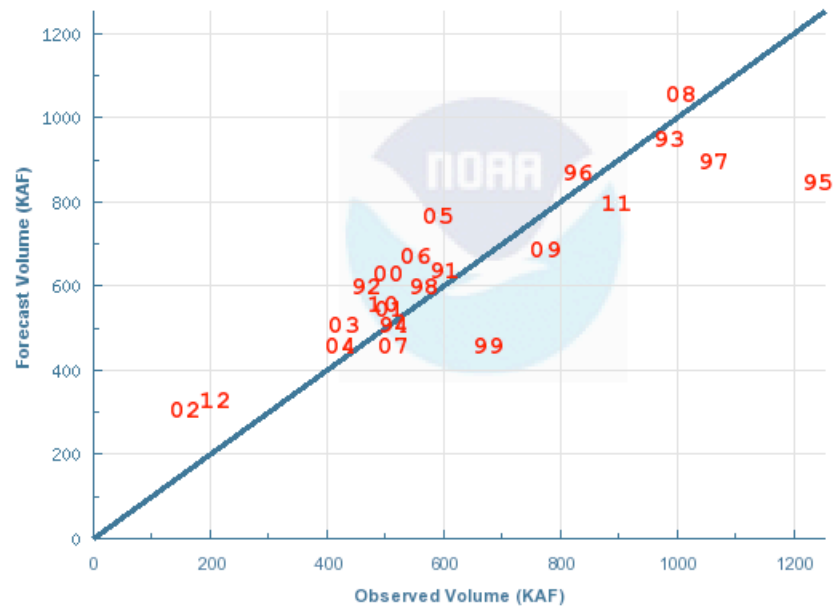


GUNNISON - BLUE MESA RES (BMDC2)
Water Year 2012, Forecast Period Apr-Jul (highlighted)

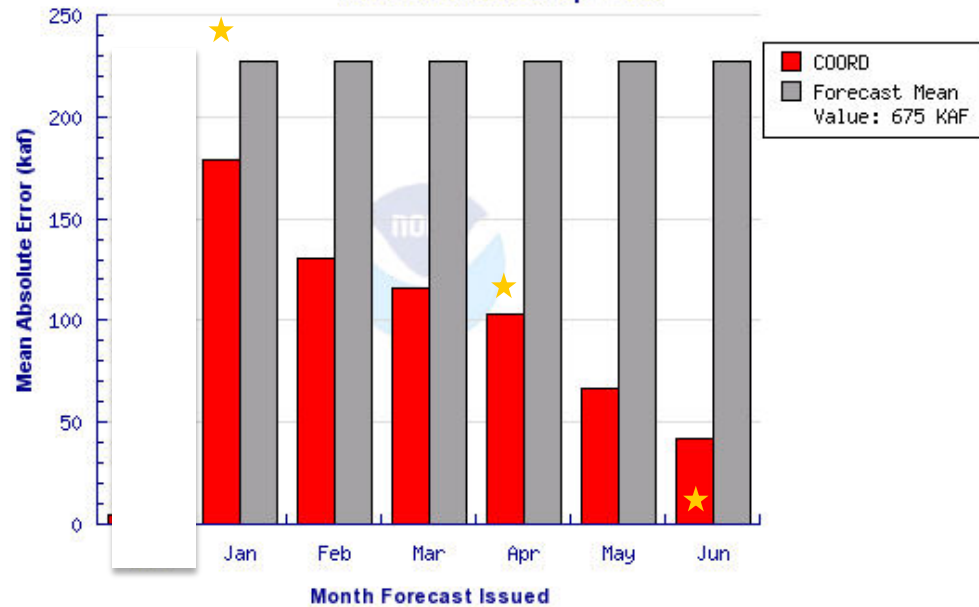


2012: 206 KAF (31% of average)

Streamflow - GUNNISON - BLUE MESA RES (BMDC2)
Forecast Period: Apr - Jul (Apr Forecast Streamflow)

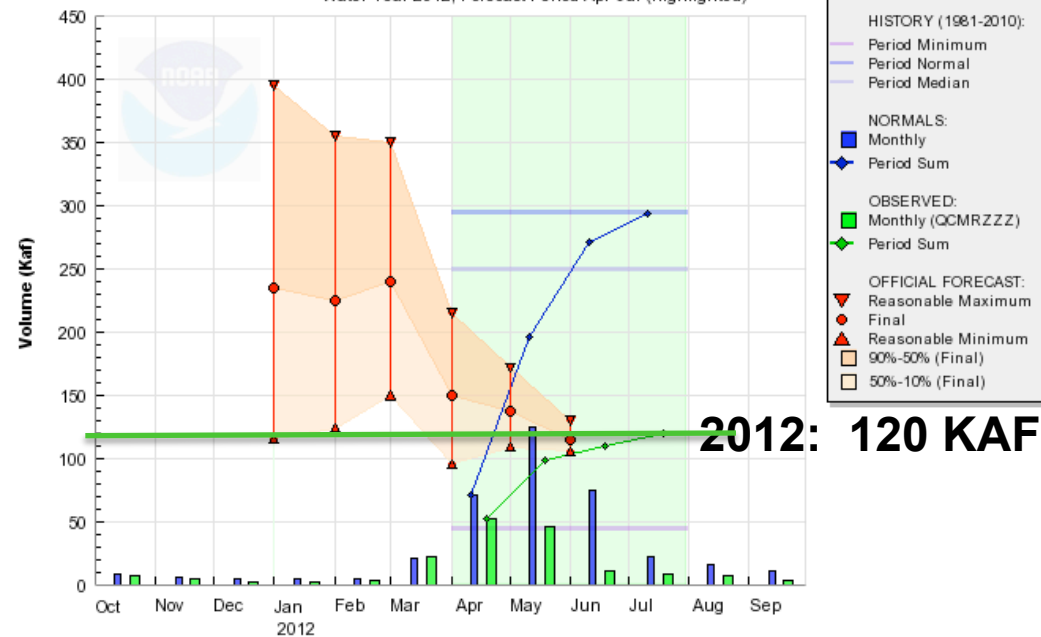


Forecast Period: Apr - Jul



DOLORES - MCPHEE RES (MPHC2)

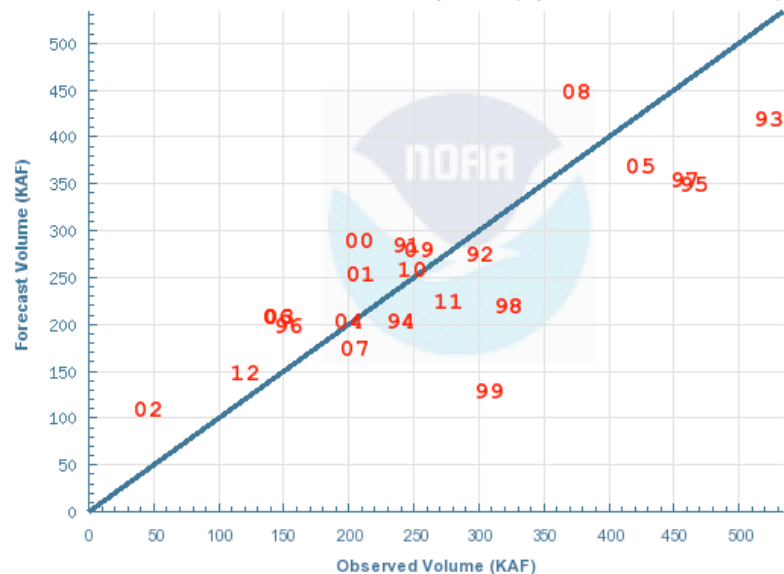
Water Year 2012, Forecast Period Apr-Jul (highlighted)



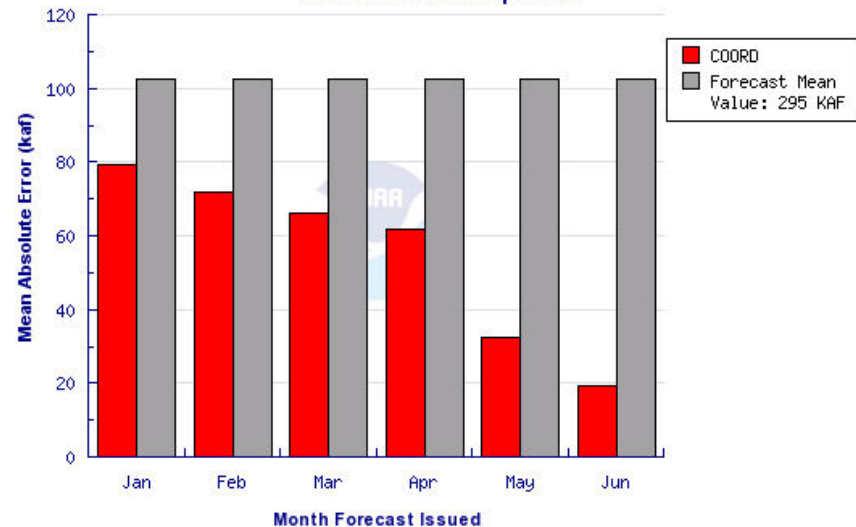
CBRFC/NWS/NOAA 10/26/12 19:11:34 UTC

Streamflow - DOLORES - MCPHEE RES (MPHC2)

Forecast Period: Apr - Jul (Apr Forecast Streamflow)

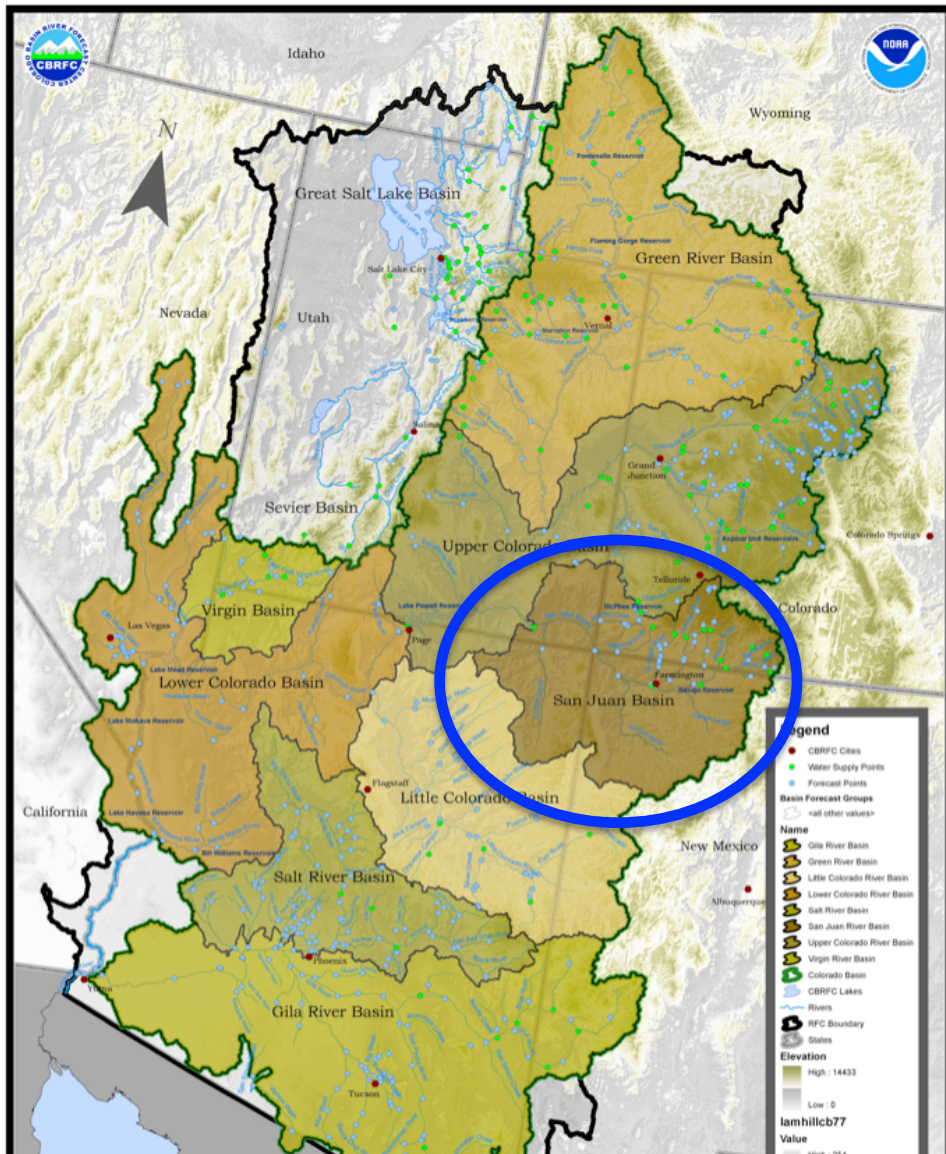


Forecast Period: Apr - Jul



San Juan Basin

Colorado Basin River Forecast Center, Salt Lake City, Utah



- Dry, but not quite as extreme as further north

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

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

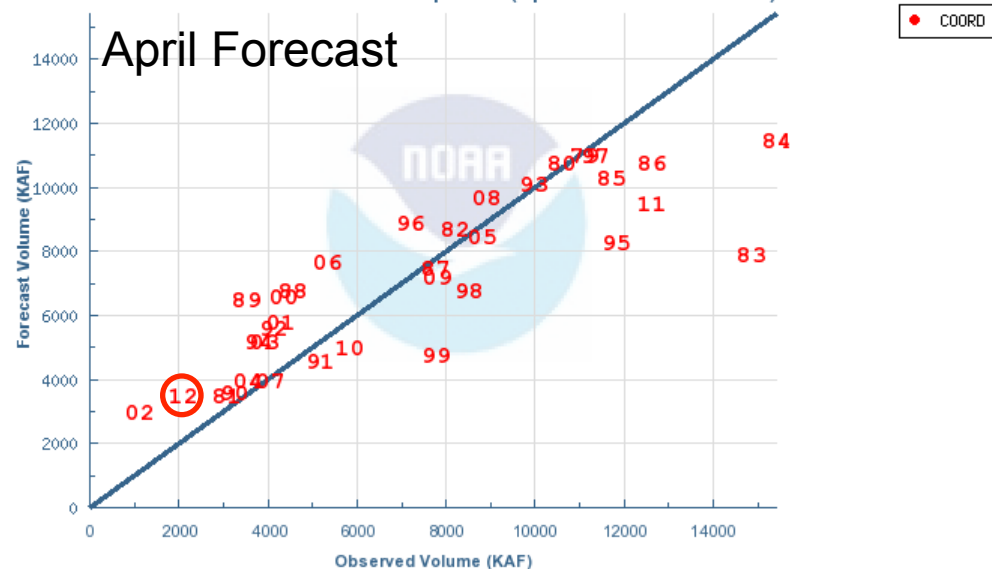
Water Year 2012, Forecast Period Apr-Jul (highlighted)



CBRFC/NWS/NOAA 10/15/12 18:25:12 UTC

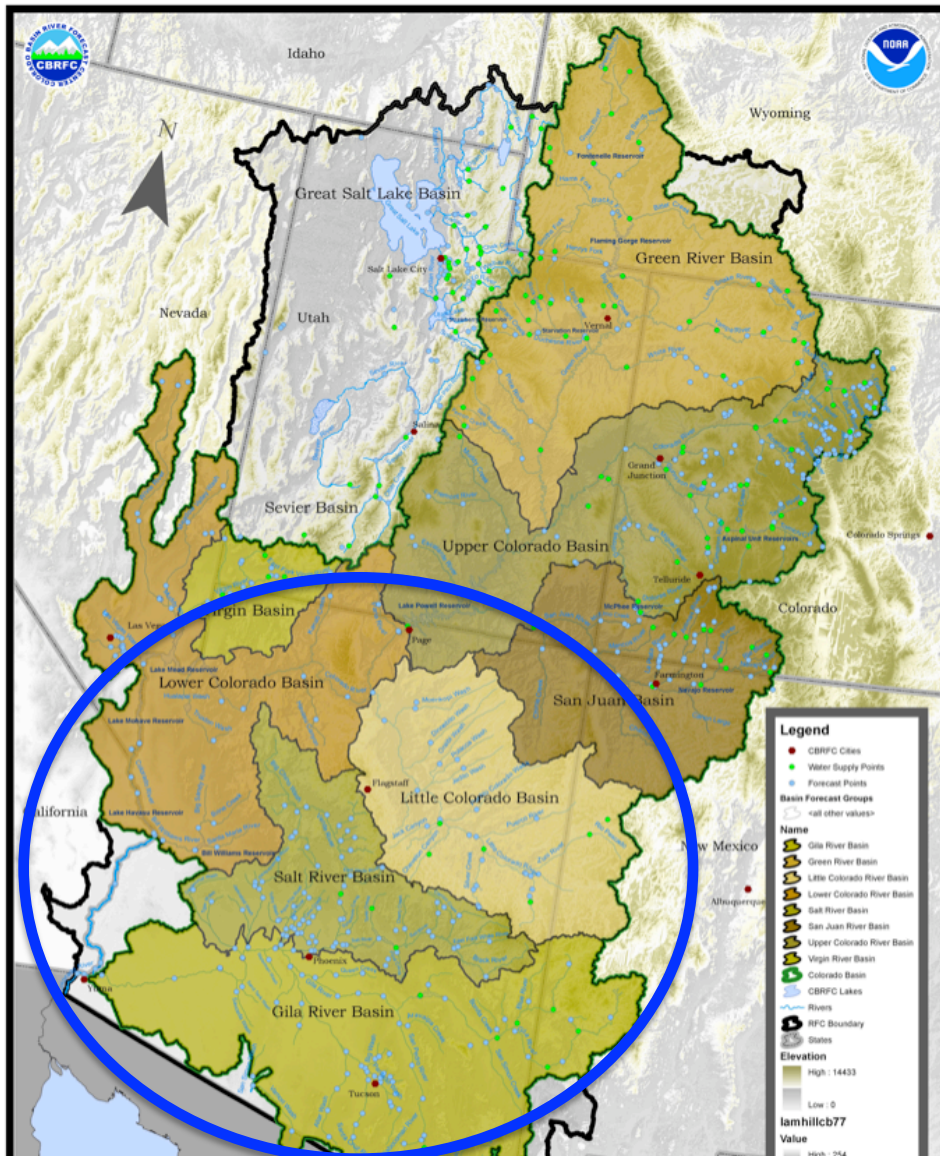
Streamflow - COLORADO - LAKE POWELL, GLEN CYN DAM, AT (GLDA3)

Forecast Period: Apr - Jul (Apr Forecast Streamflow)



Lower Colorado Basin

Colorado Basin River Forecast Center, Salt Lake City, Utah

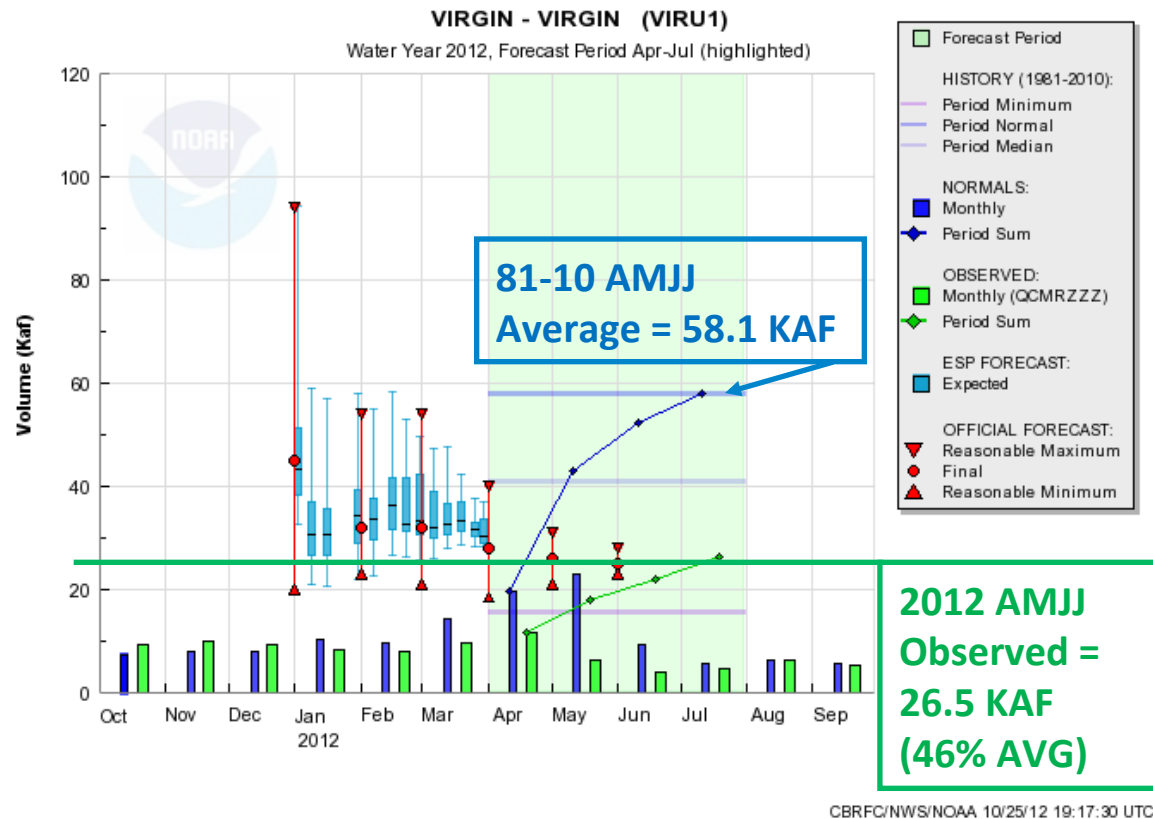


- Dry again



Phoenix dust storm

Virgin @ Virgin (VIRU1)



SUMMARY:

Early months: overforecast
(especially January).

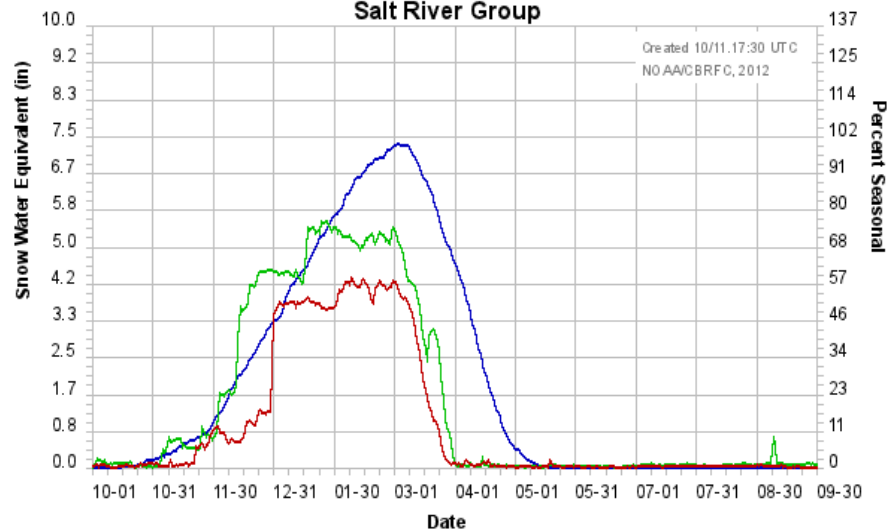
As season progressed: Precip
dried out; fcsts dropped.

Fcsts issued in Apr, May, June:
were closest to the volume that
was eventually observed.

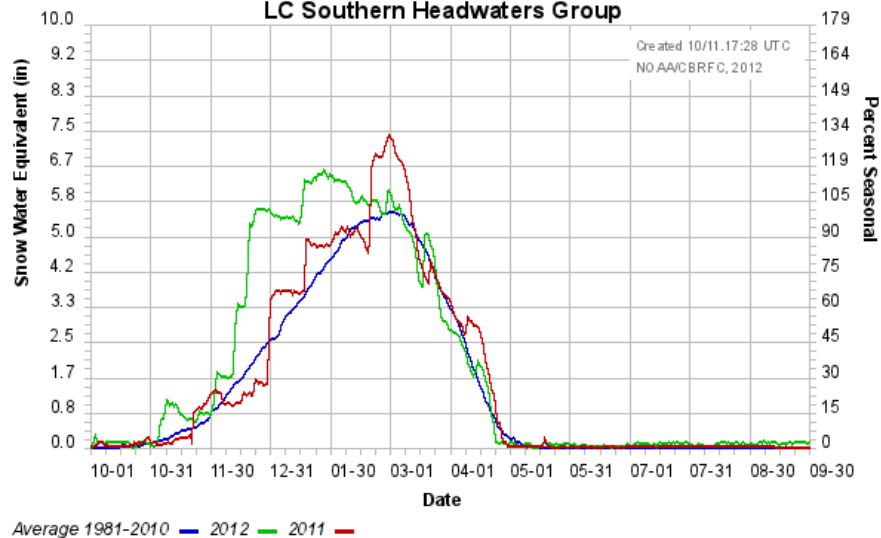
Least Erroneous Official WY12
Fcst : May

2012 Snowpack – Lower Colorado River Basin

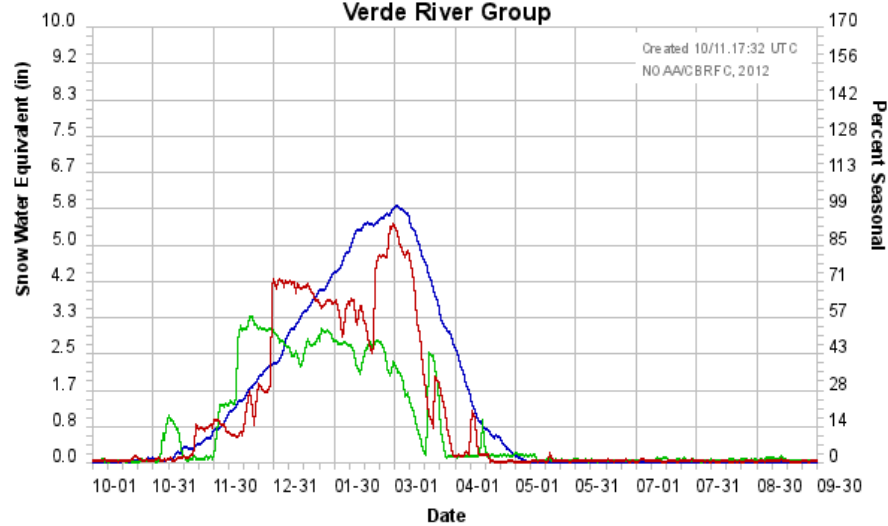
Colorado Basin River Forecast Center
Salt River Group



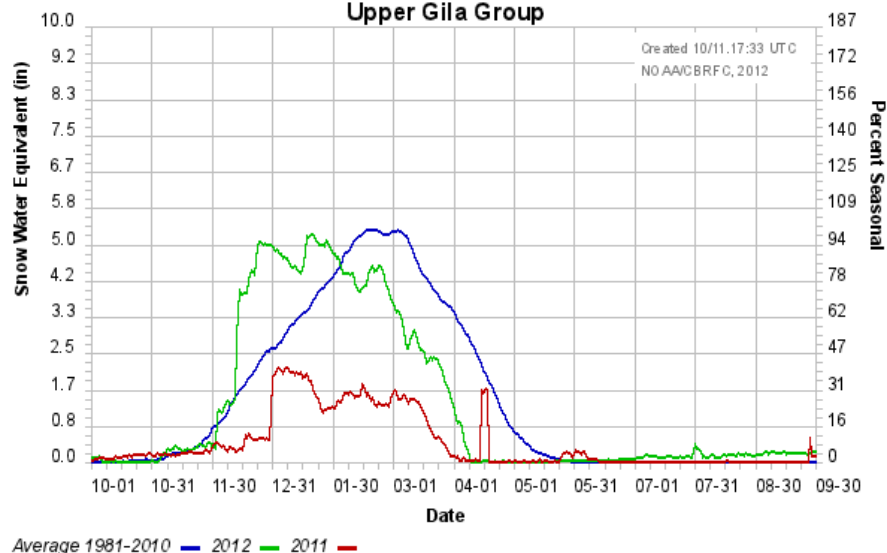
Colorado Basin River Forecast Center
LC Southern Headwaters Group



Colorado Basin River Forecast Center
Verde River Group

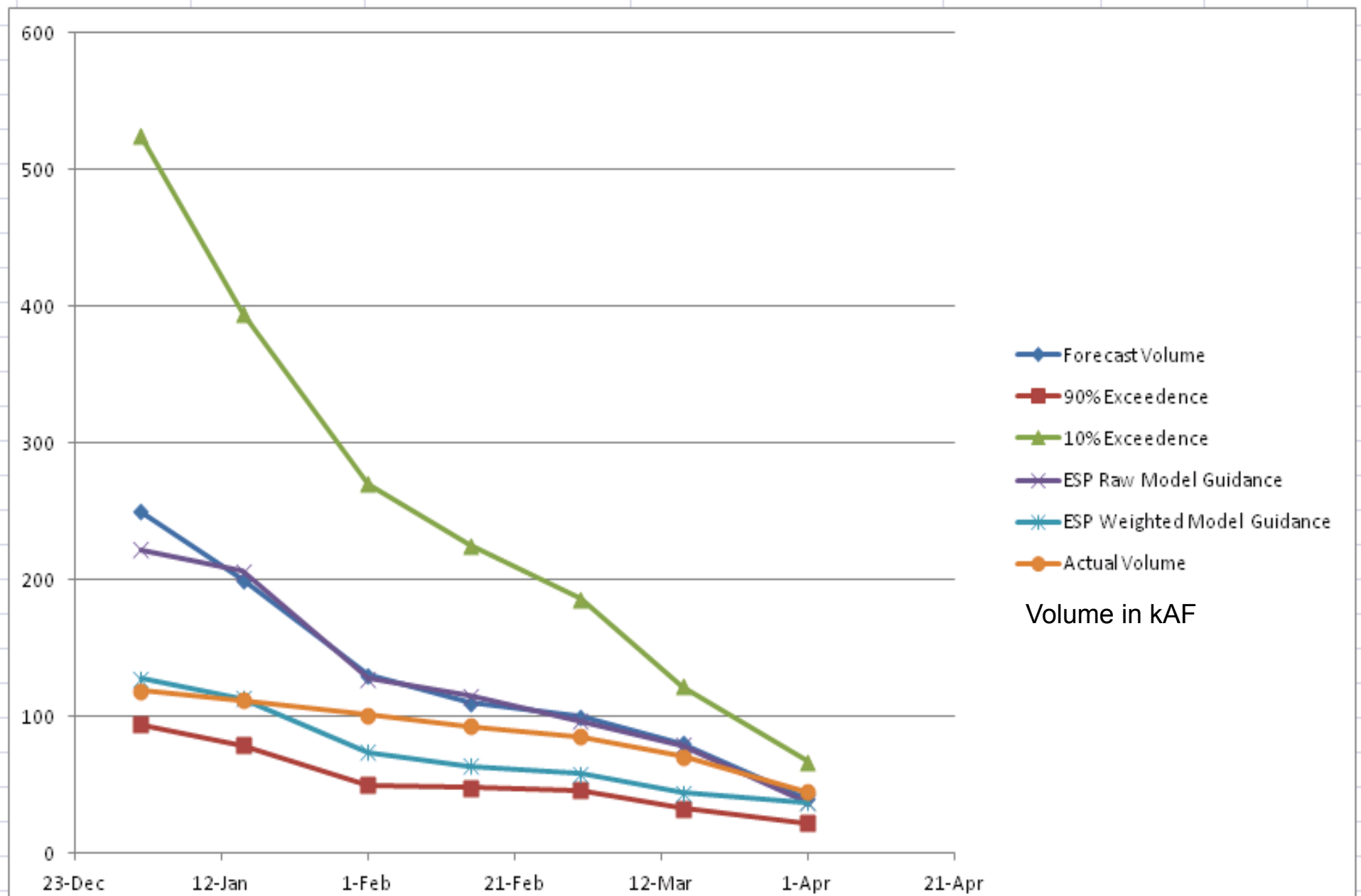


Colorado Basin River Forecast Center
Upper Gila Group



SALT – ROOSEVELT: 2012 CBRFC-NRCS COORDINATED FORECASTS

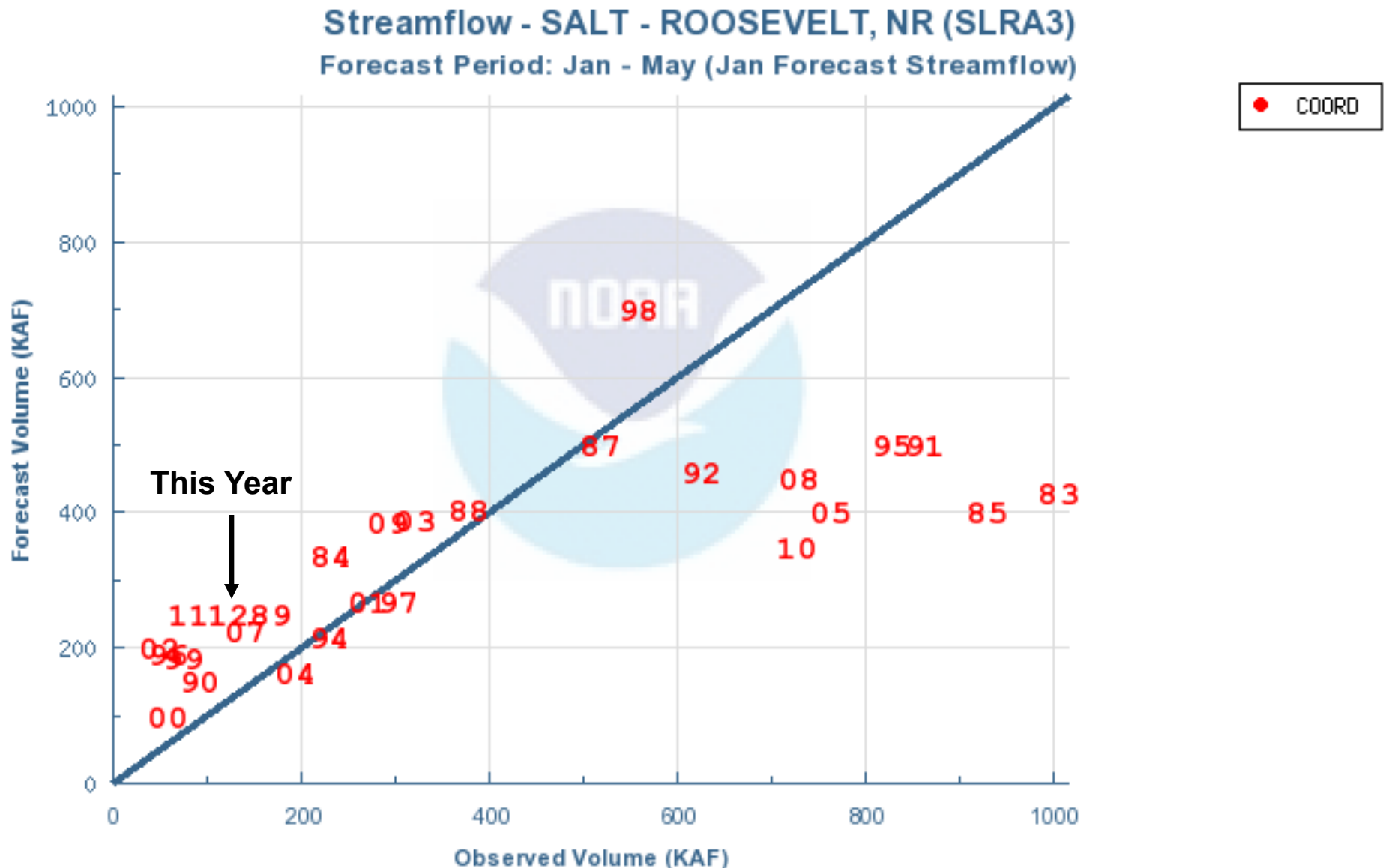
Progressive Forecast Period (Forecast Issue Date through May)



SALT RIVER – Forecast Performance the Last 21 Yrs

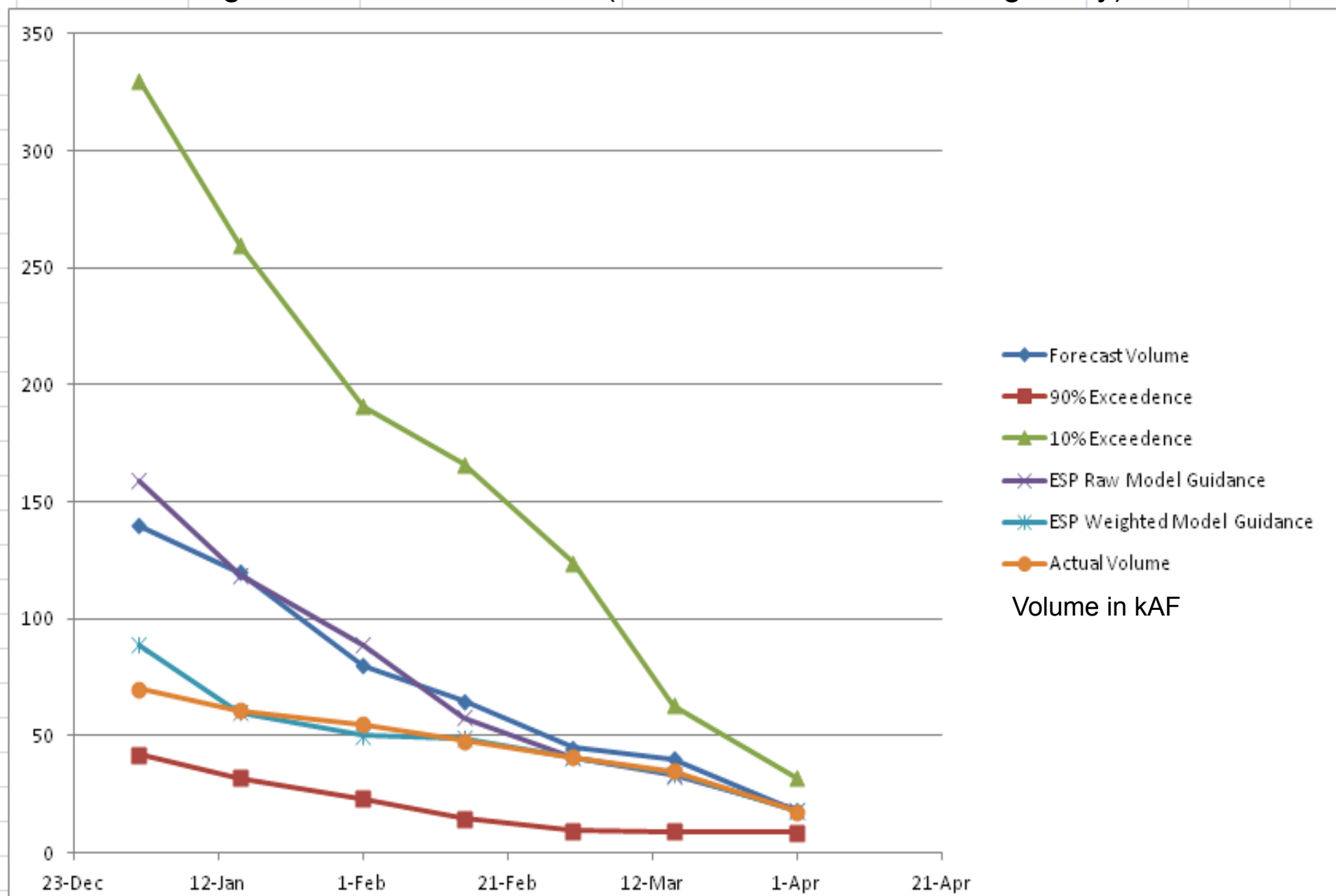
How did this year Compare ?

1991-2012: Exclude 1993



VERDE-HORSHOE: 2011 CBRFC-NRCS COORDINATED FORECASTS

Progressive Forecast Period (Forecast Issue Date through May)



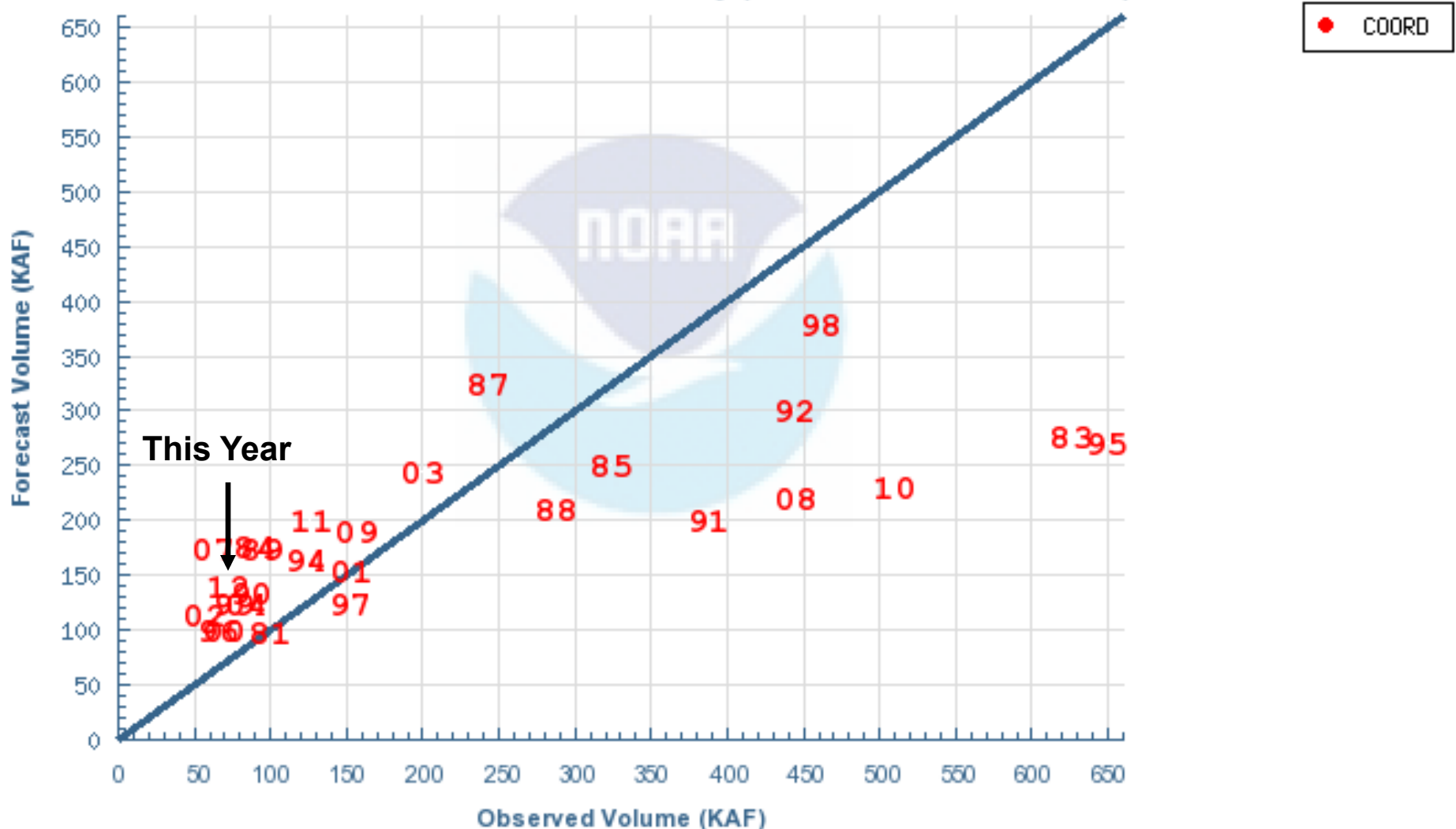
VERDE RIVER – Forecast Performance the Last ~ 21 Yrs

How did this year Compare ?

1991-2012: Exclude 1980,1993

Streamflow - VERDE - BLO TANGLE CK, ABV HORSEHOE DAM (VDTA3)

Forecast Period: Jan - May (Jan Forecast Streamflow)



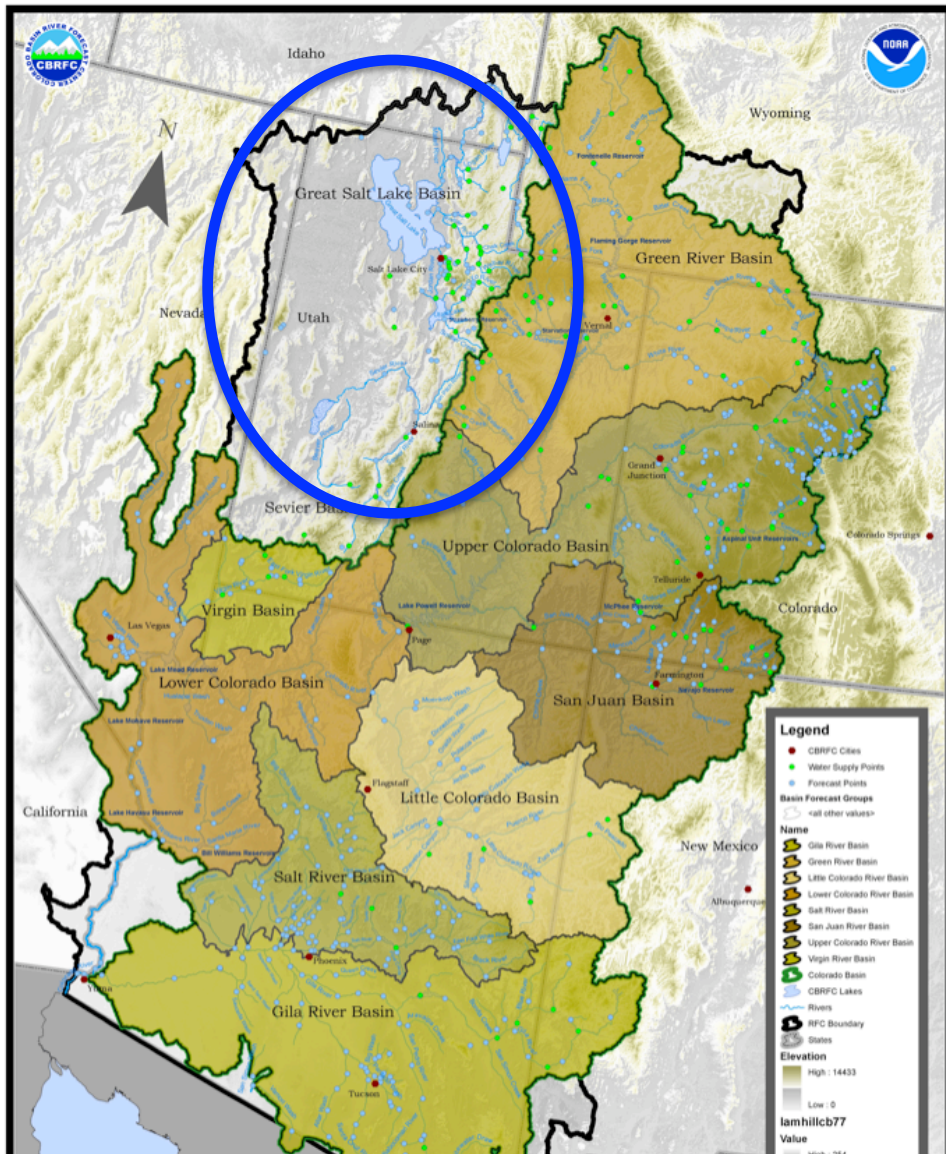
Arizona / New Mexico Basins – Impacts to Forecasts and Runoff Volumes

➤ **All areas:**

- Generally dry for an extended period, particularly in the Verde.
- La Nina conditions – continued from last year.
- Dry soil conditions entering the season definitely factored into this year's forecast.
- Early season snowpack fizzled.
- Forecast guidance below average and declined over time.
- JAN errors tend to be less in dry years compared to wet years.
- Weighted ESP seemed to predict the much below average volume for this year.

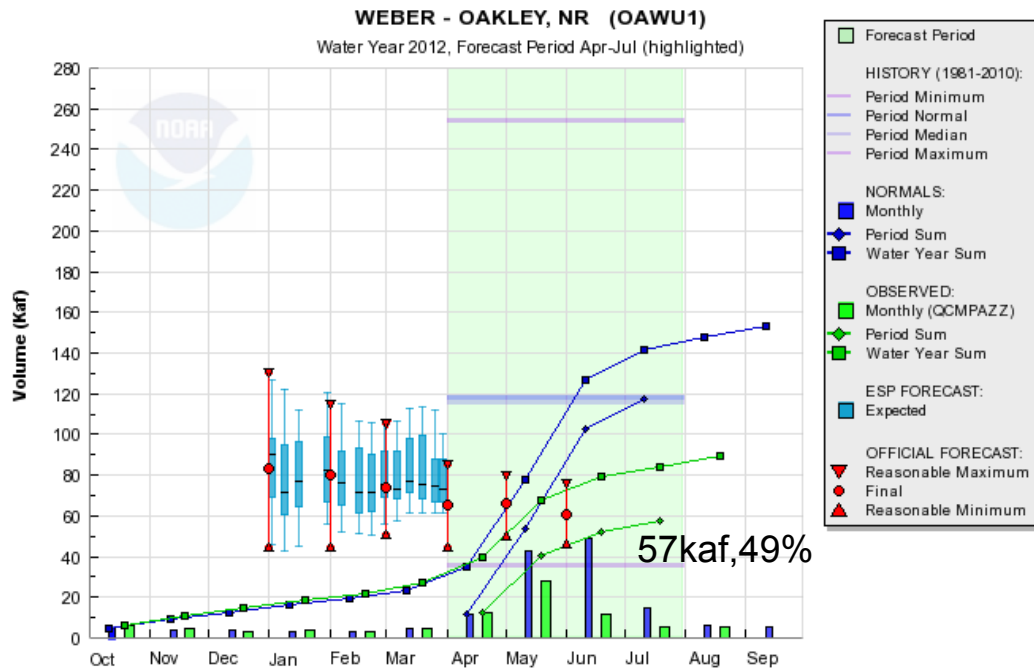
Great Basin

Colorado Basin River Forecast Center, Salt Lake City, Utah



- Dry

Weber River at Oakley, Utah

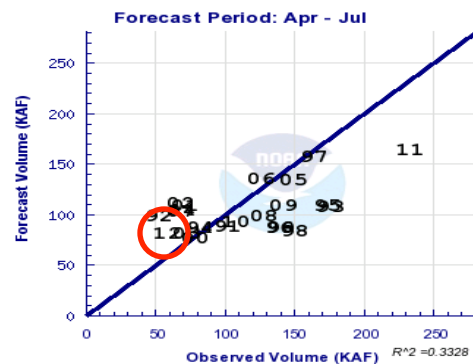


2012 Ranked 6th lowest of 108 years

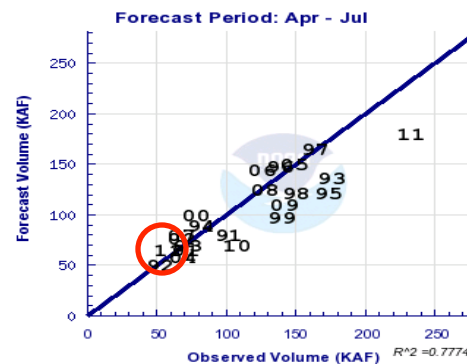
Streamflow Scatterplot

1991-2012

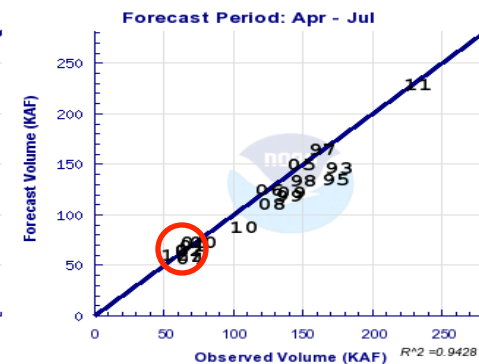
January Coordinated Forecast



April Coordinated Forecast

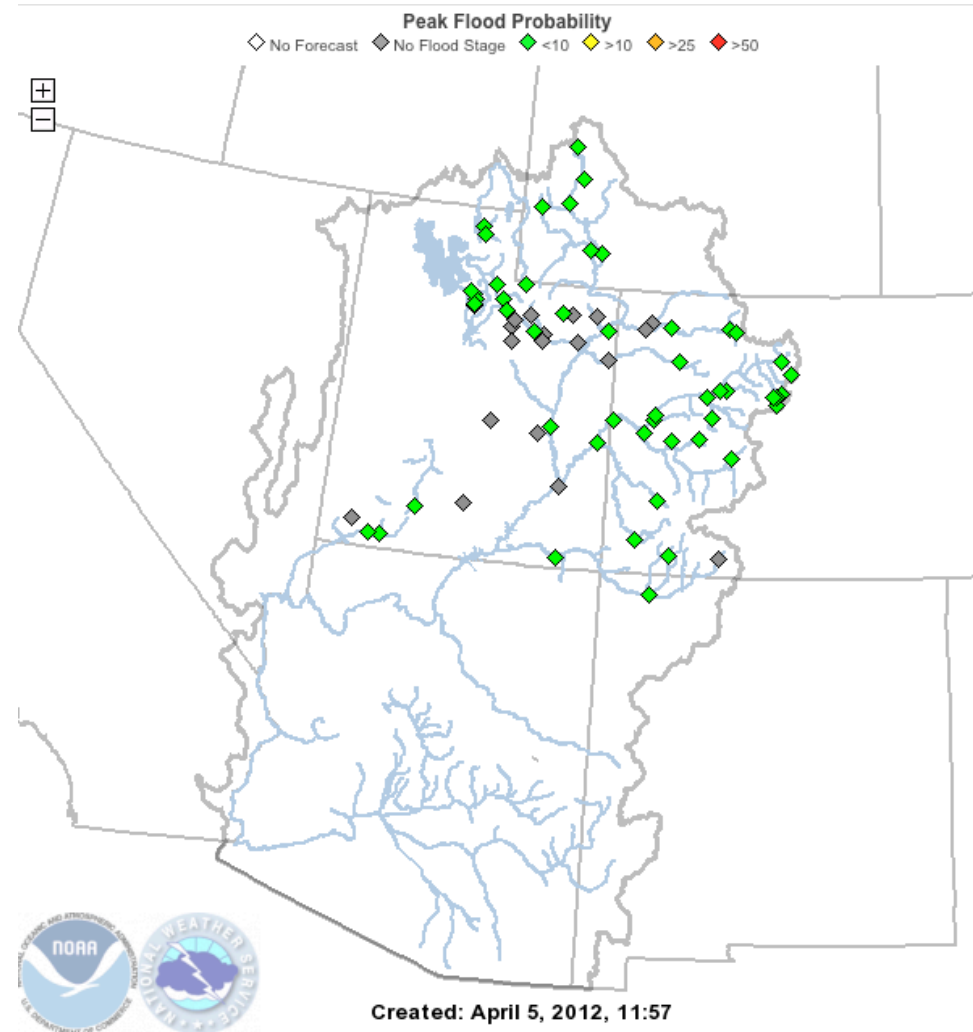


June Coordinated Forecast



Peak Flow Forecast Synopsis

- All 50% forecasts were (much) below flood stages
- All 10% forecasts below flood stage
- Upper Green had somewhat higher chances of river flows near bankfull reflecting near average snow pack in that drainage



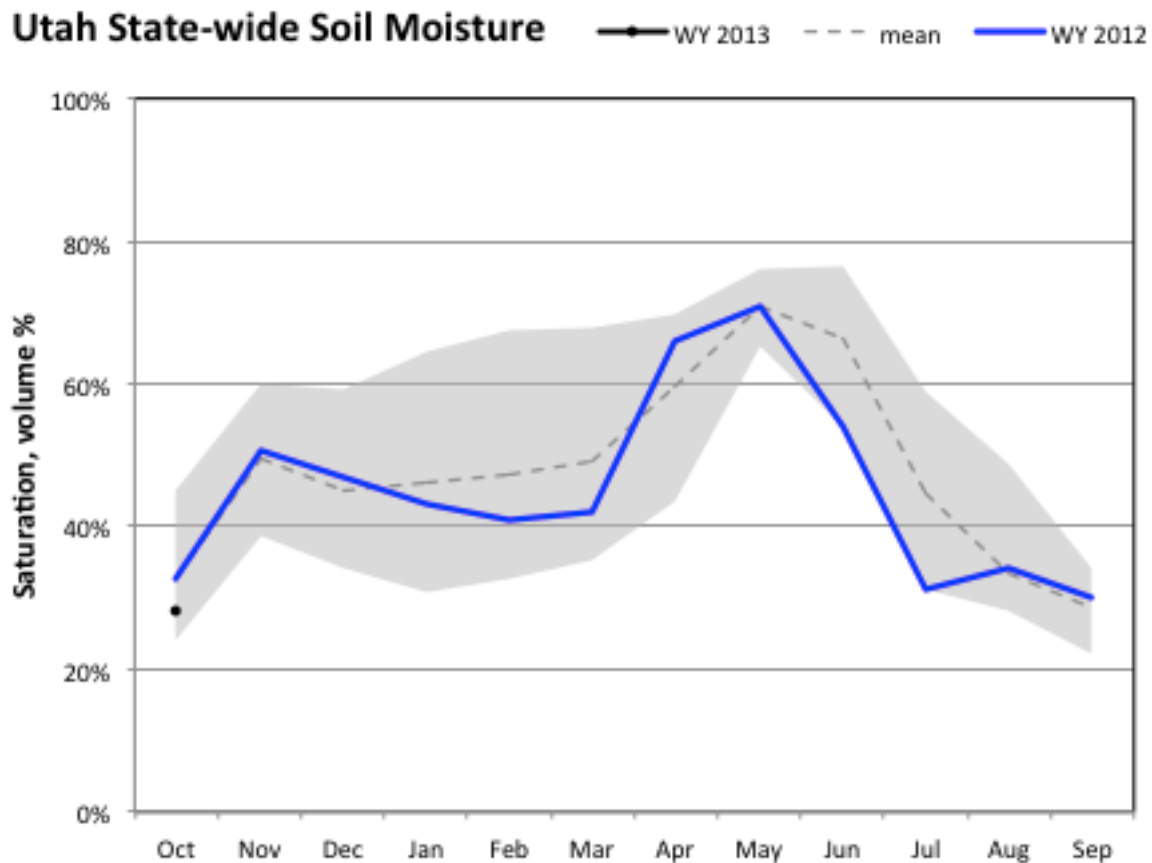
2012 Summary

- ☑ Dry to extremely dry
- ☑ January – April forecasts consistent and consistently high throughout basin.
- ☑ As extreme dryness in April-June became increasingly evident, forecasts reflected that.

2013 Look Ahead

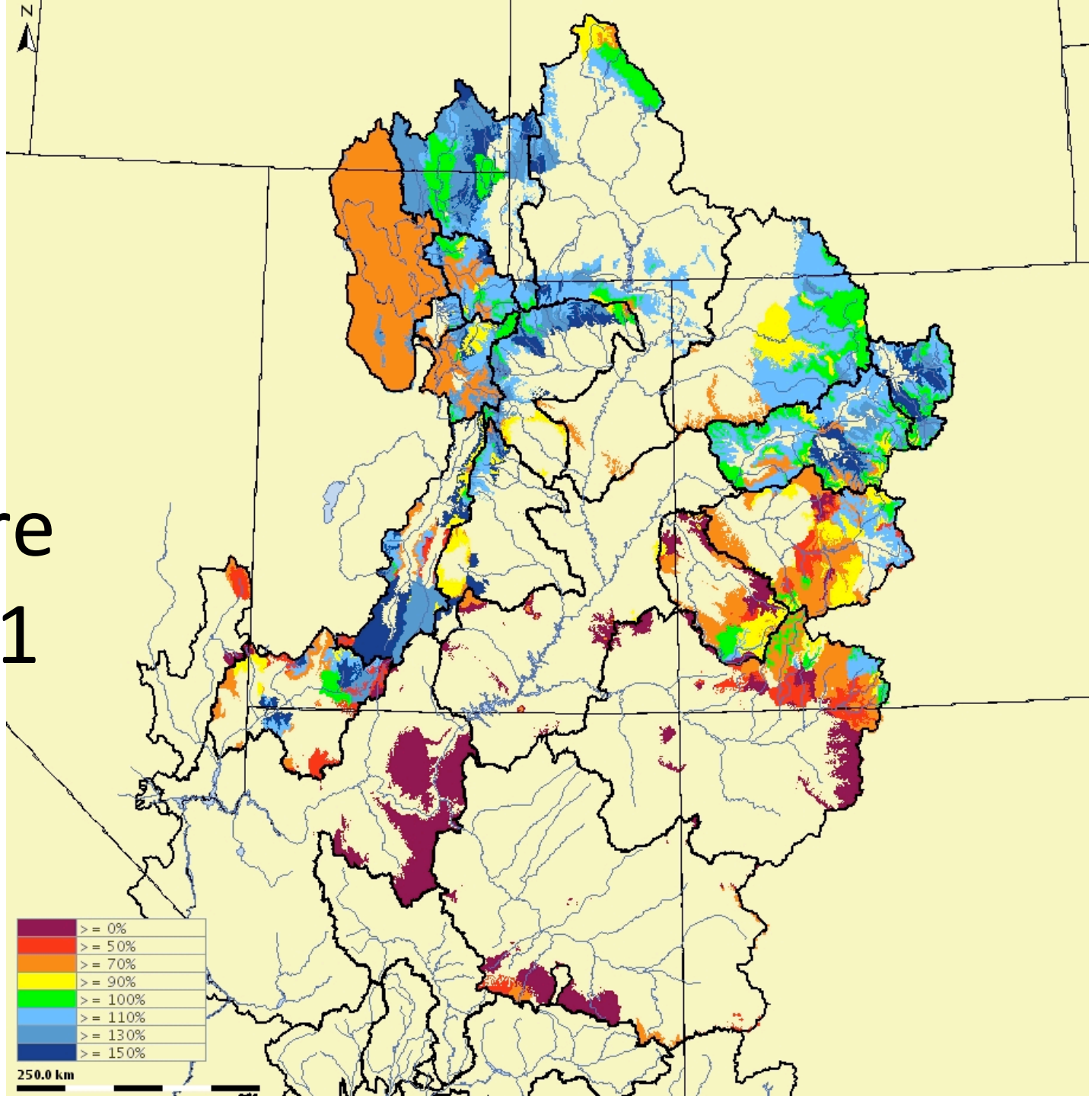
- Outlook and current situation:
 - Poor antecedent conditions
 - Climate Forecasts and ENSO
- CBRFC updates
 - Daily ESP
 - CBRFC official forecasts
 - Webinars

Soil Moisture

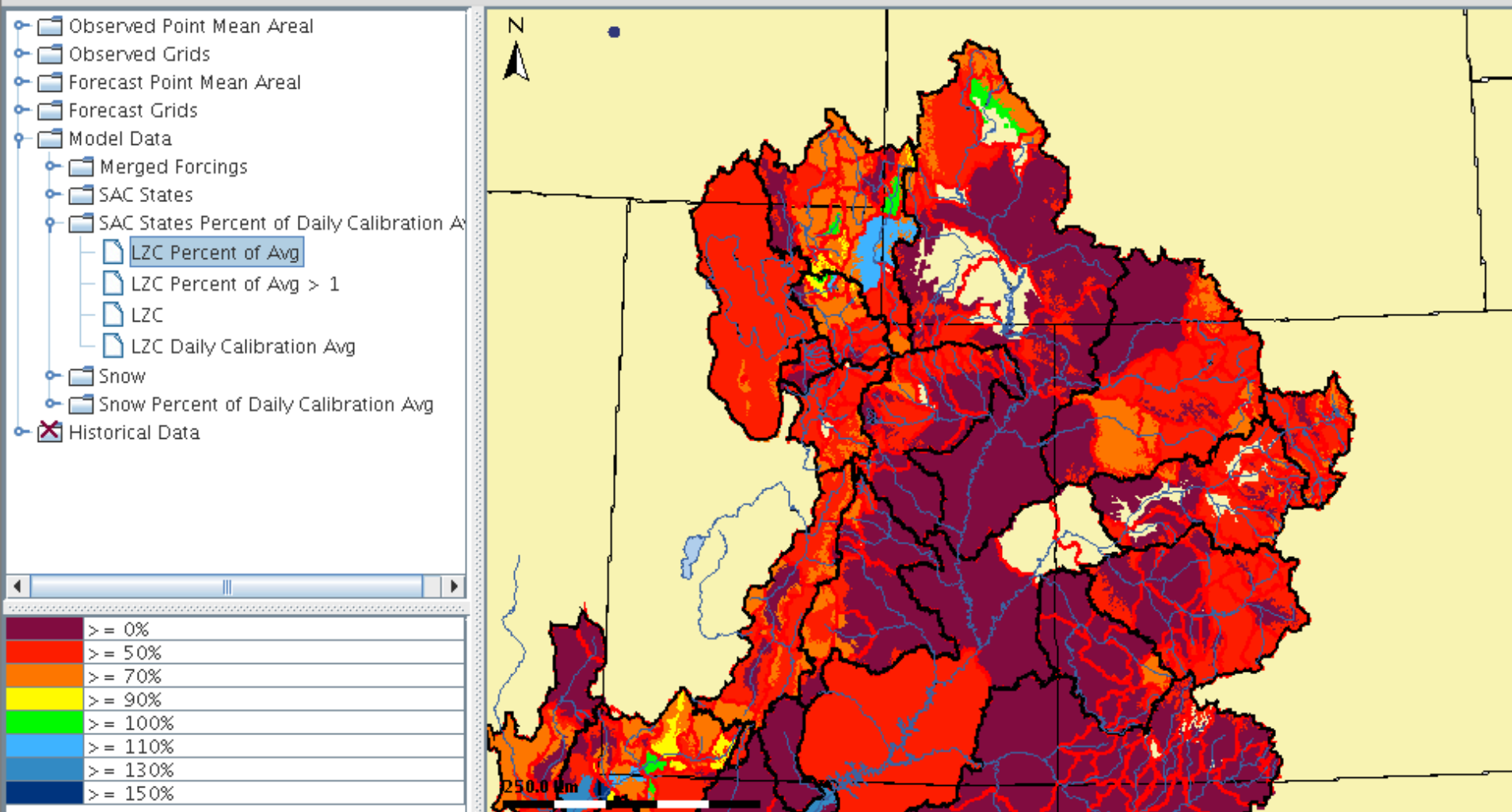


Percent saturation is calculated using the weighted average of volumetric soil moisture content at 2, 8, and 20-inch depths. Saturation is estimated as 40% volumetric water content. The gray area represents the range in saturation values since 2005.

CBRFC
Model
soil
moisture
11/1/11

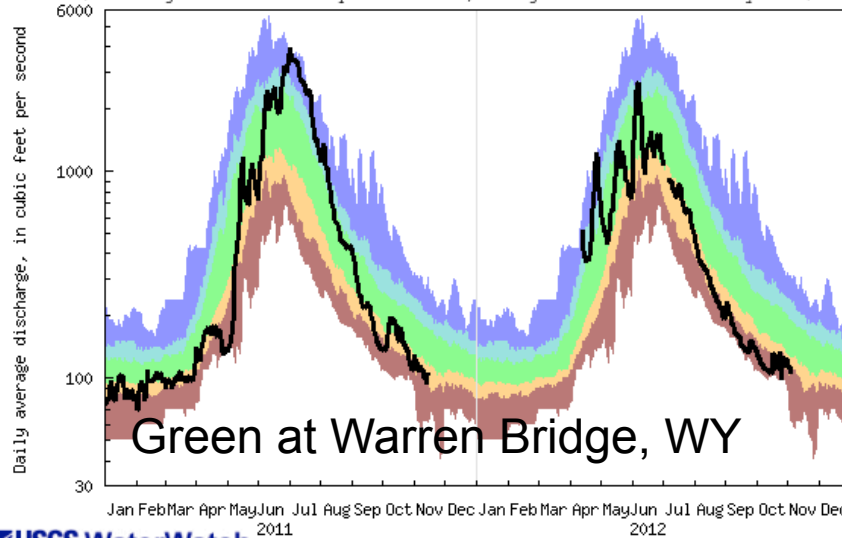


CBRFC Model Soil Moisture 11/1/12

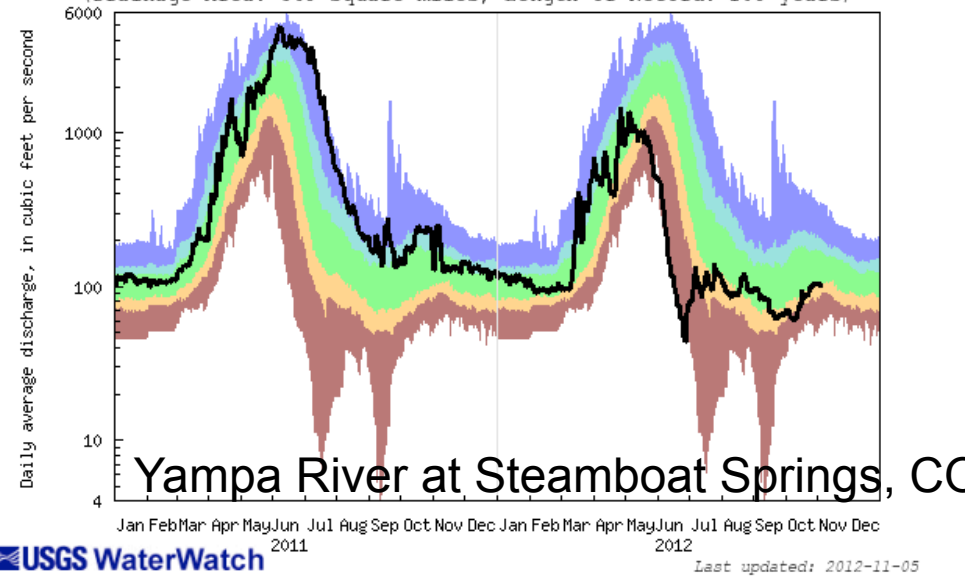


Base flows

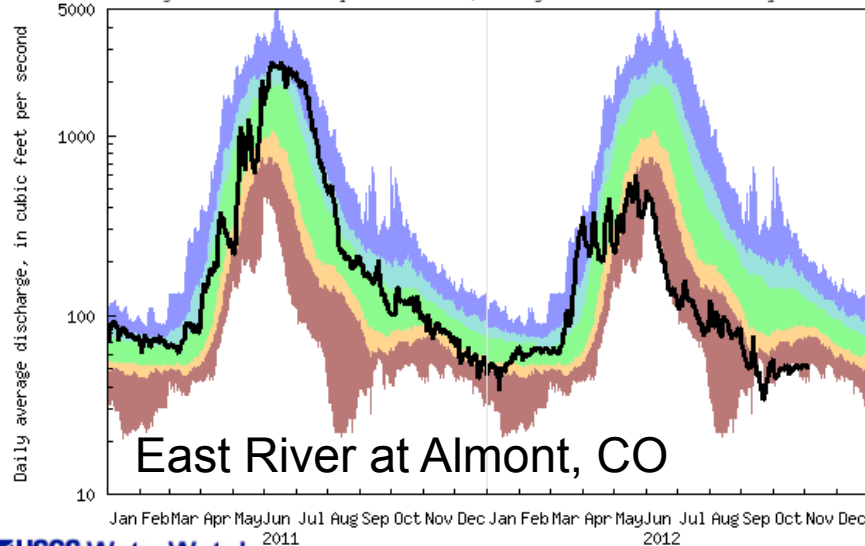
Duration hydrograph of daily average streamflow for USGS 09188500
(Drainage Area: 468 square miles, Length of Record: 80 years)



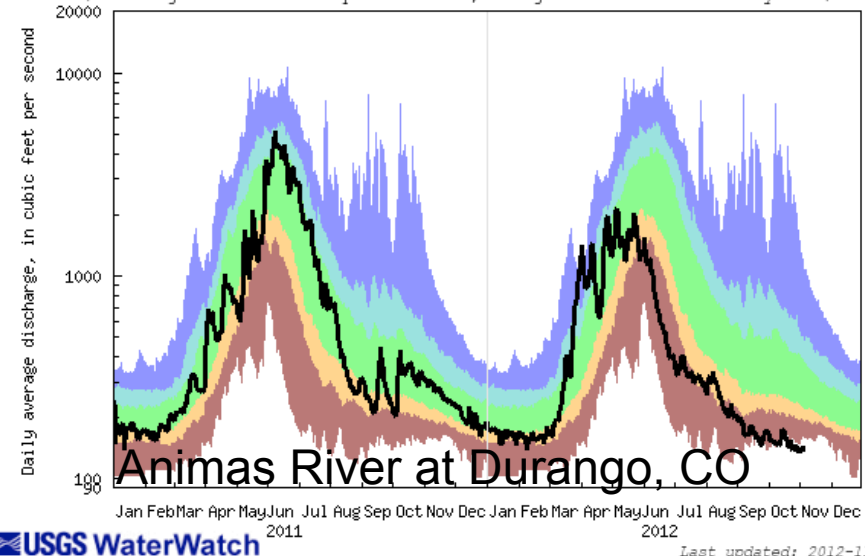
Duration hydrograph of daily average streamflow for USGS 09239500
(Drainage Area: 568 square miles, Length of Record: 108 years)



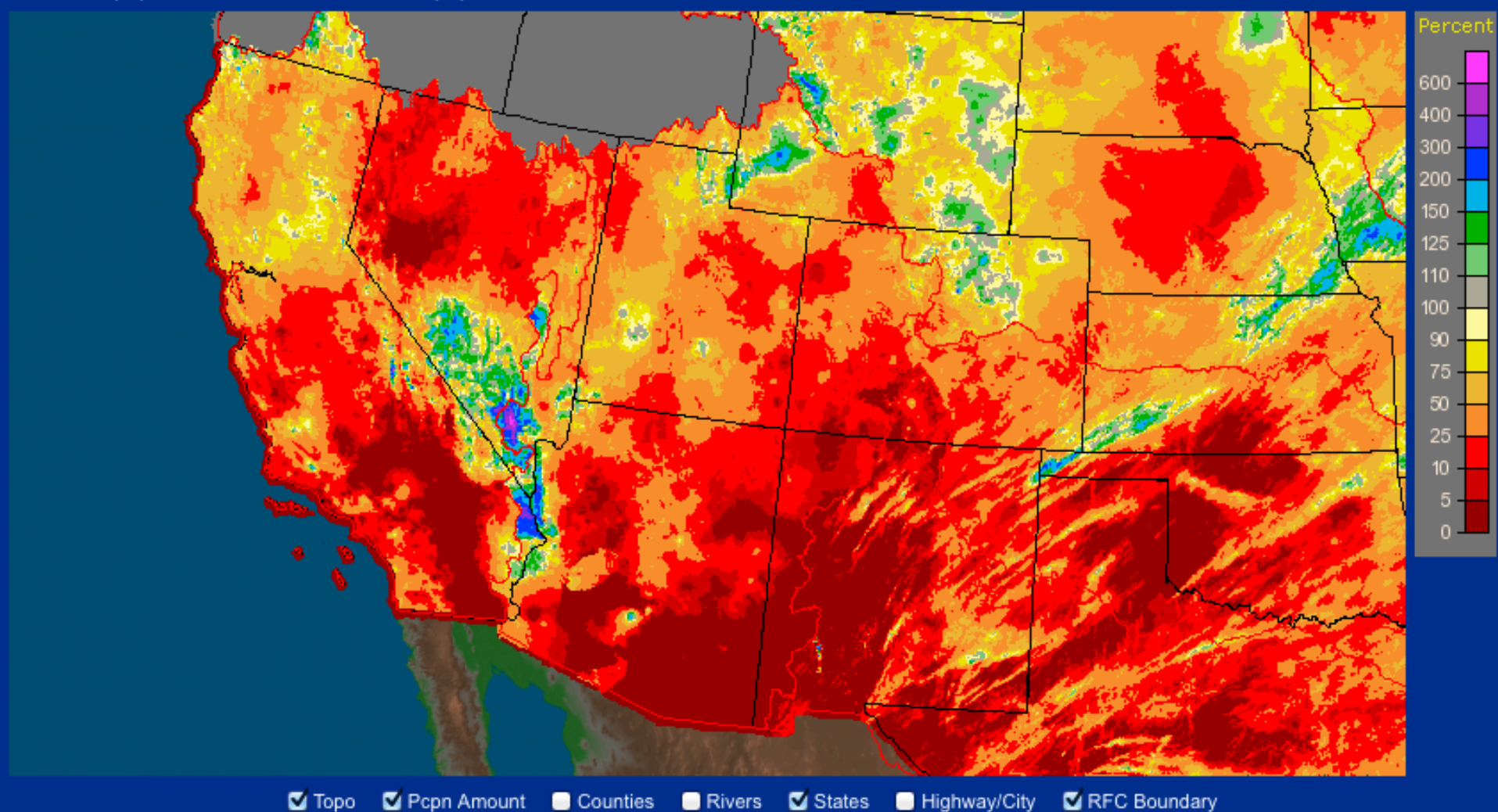
Duration hydrograph of daily average streamflow for USGS 09112500
(Drainage Area: 289 square miles, Length of Record: 101 years)



Duration hydrograph of daily average streamflow for USGS 09361500
(Drainage Area: 692 square miles, Length of Record: 115 years)



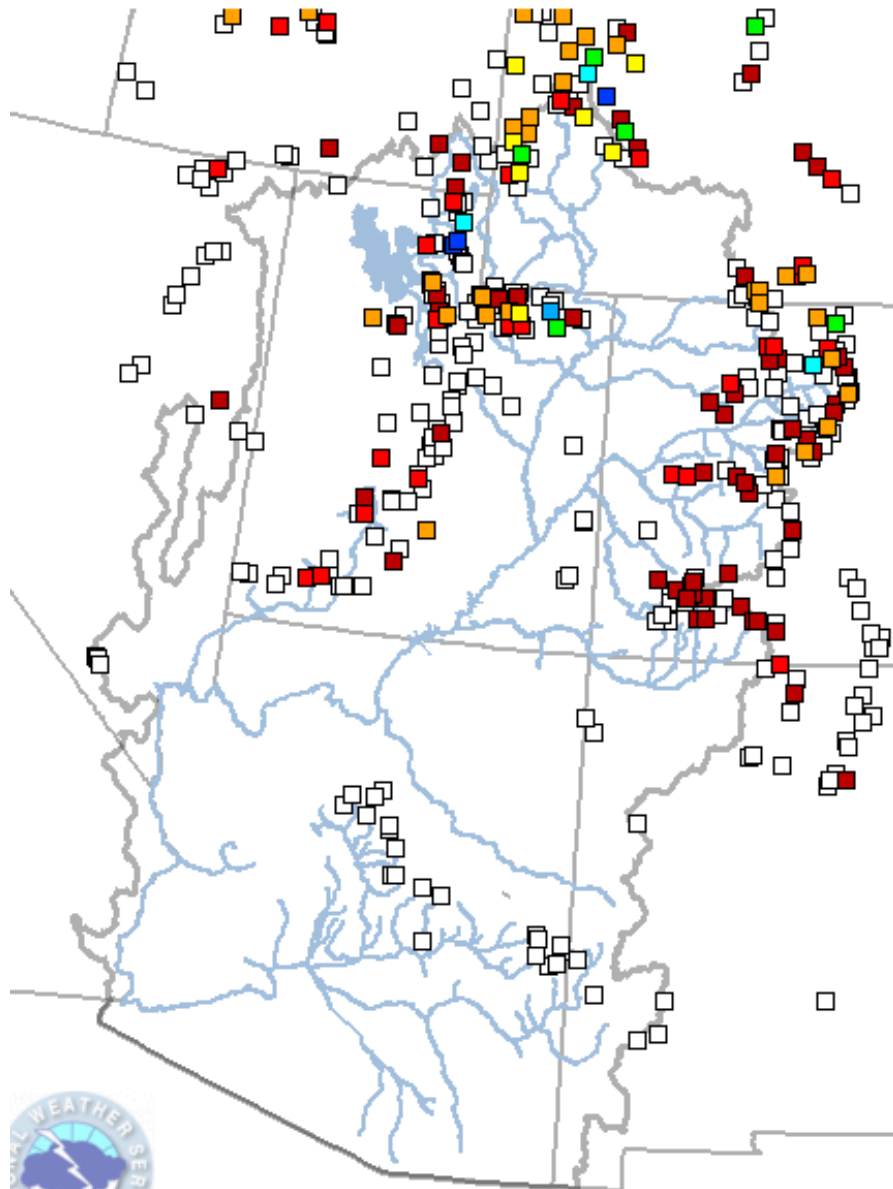
Colorado Basin RFC Salt Lake City, UT: Current Water-Year (Oct 1) Percent of Normal Precipitation
Valid at 11/8/2012 1200 UTC - Created 11/8/12 15:54 UTC



Snow so far

Snow Point Classification: ○ Percentiles ● Percent Average

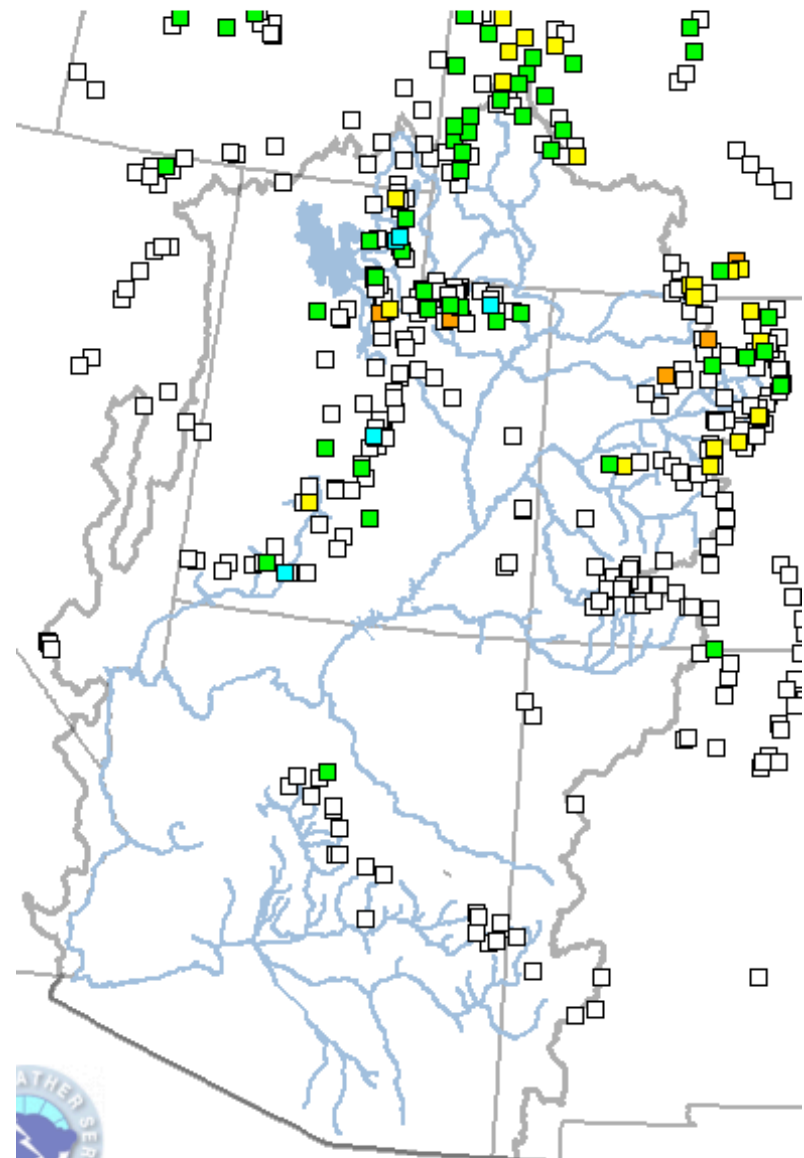
5% 25-50% 50-75% 75-90% 90-110% 110-125% 125-150% 150-1



Created: November 8, 2012, 9:00

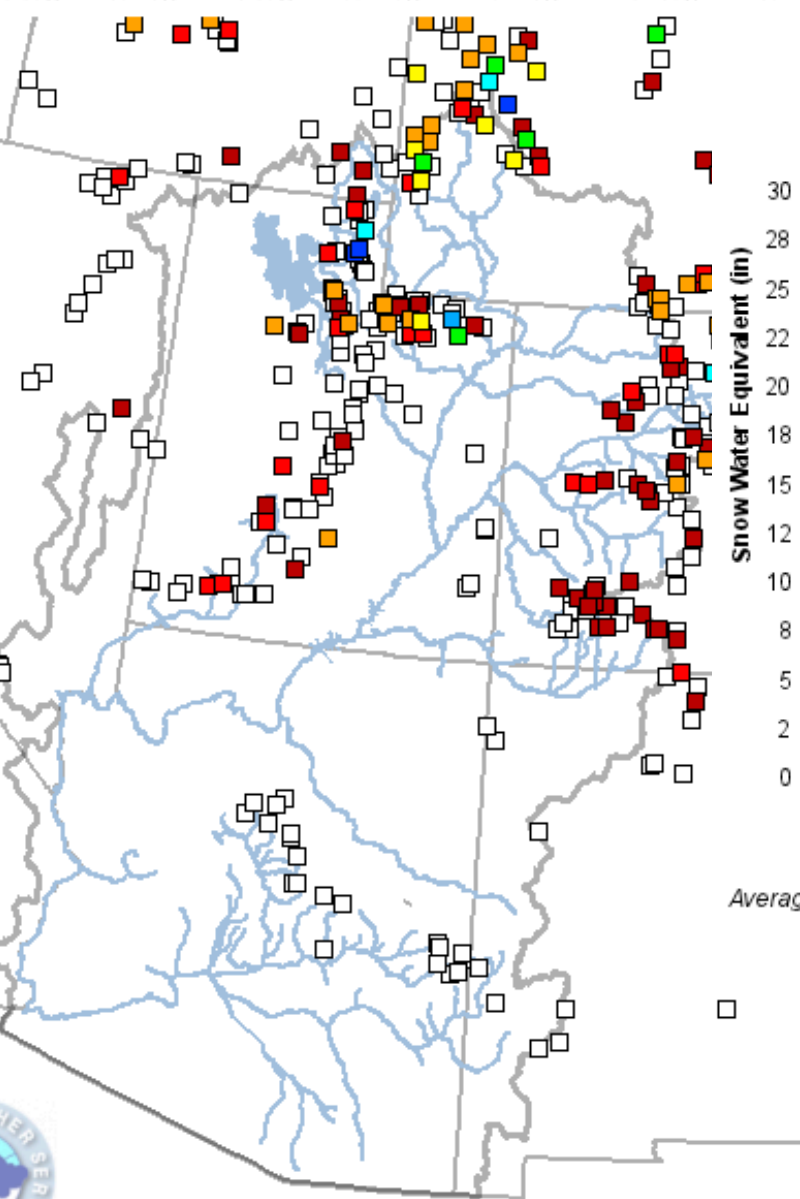
Snow Point Classification: ● Percentiles ○ Percent Average

Not Ranked Low <10 10-25 25-75 75-90 >90 High

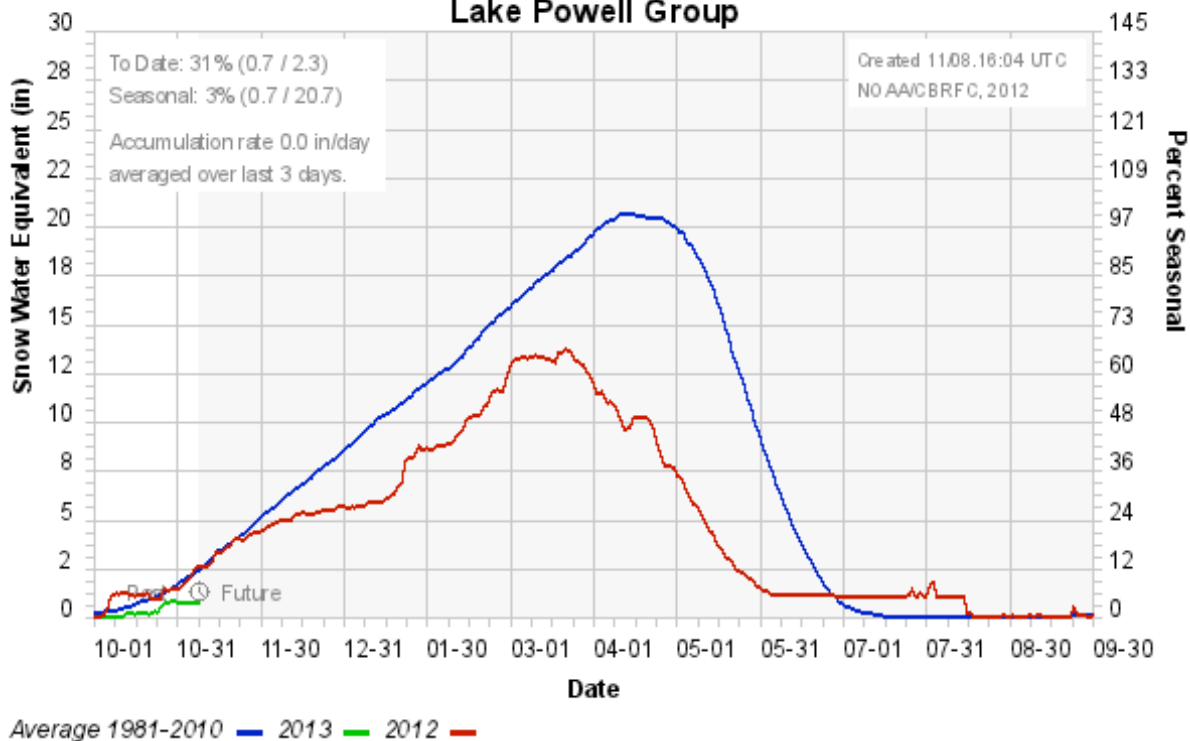


Created: November 8, 2012, 9:00

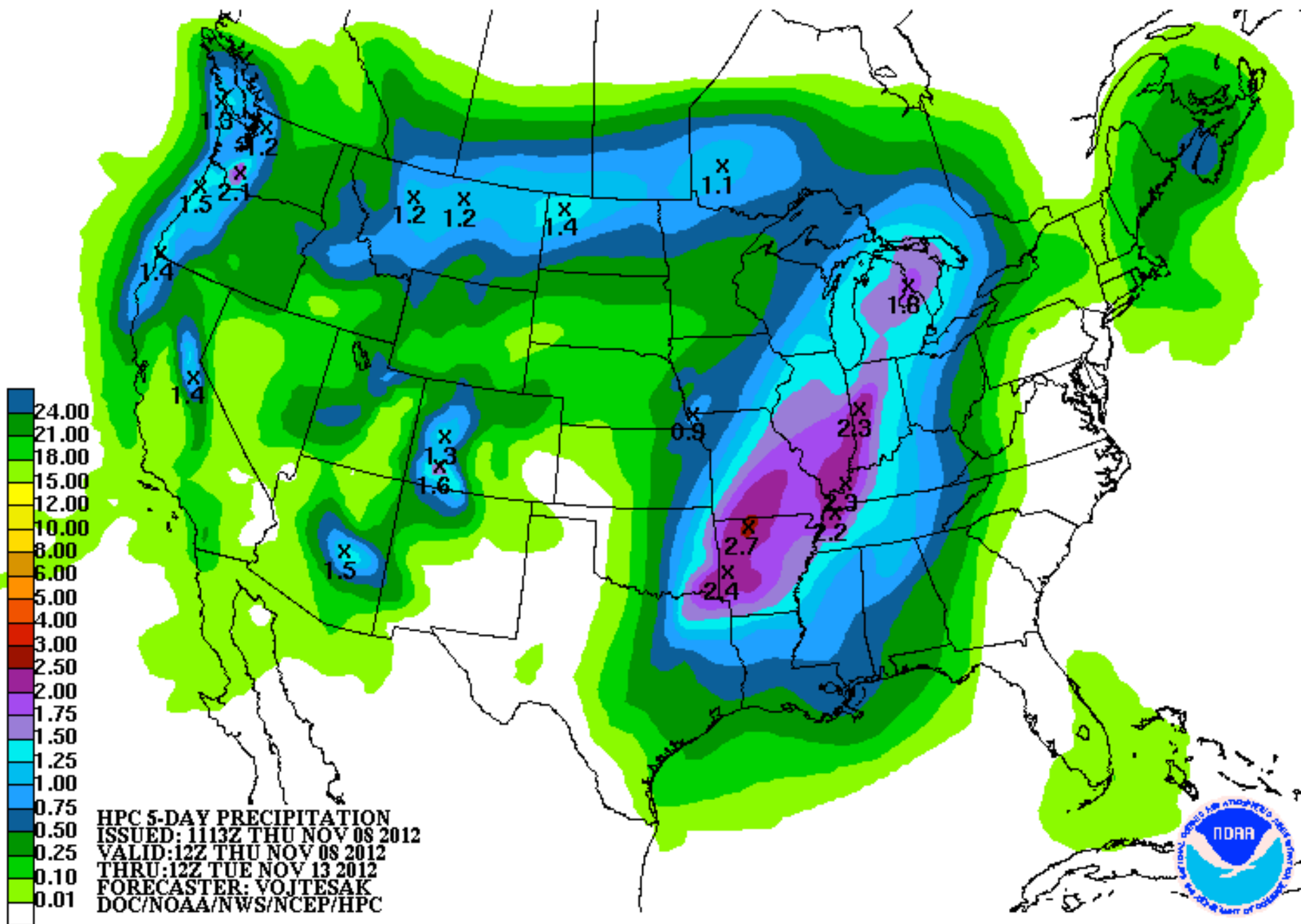
Snow Point Classification: ○ Percentiles ● Percent Average
 5-50% 50-75% 75-90% 90-110% 110-125% 125-150% 150-1



Colorado Basin River Forecast Center Lake Powell Group



Created: November 8, 2012, 9:00



- Series of three storms:

- Storm #1

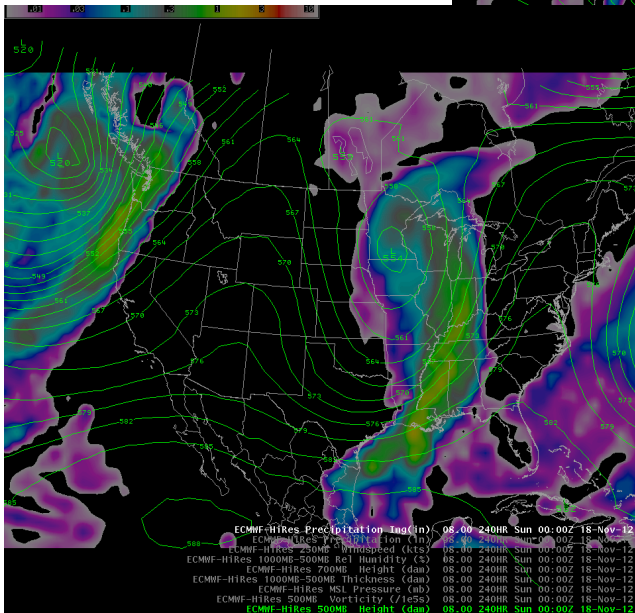
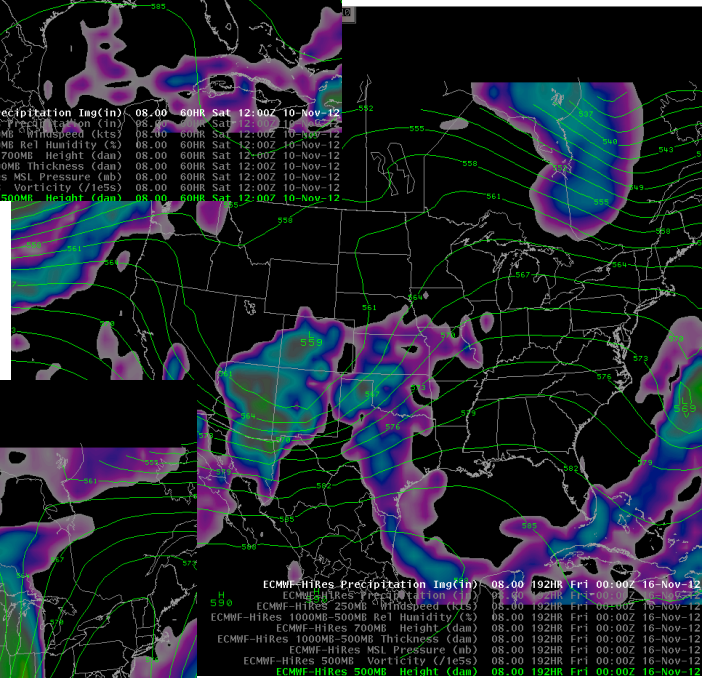
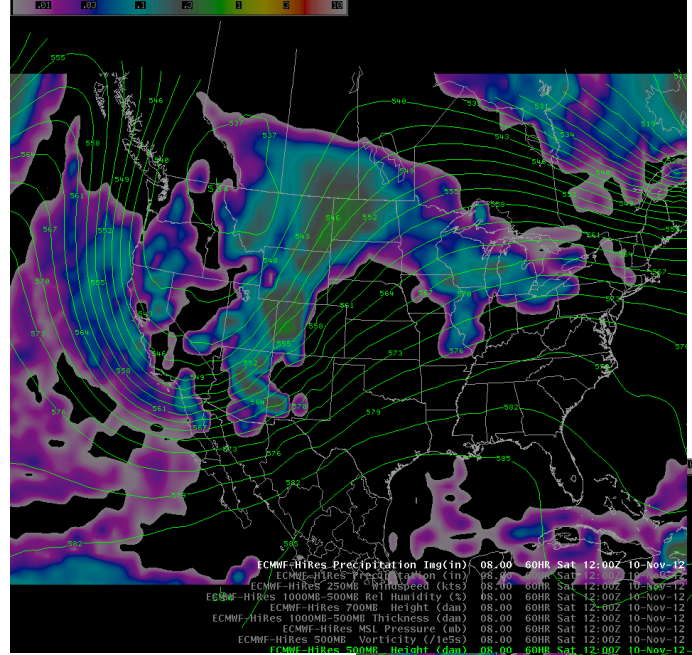
- Today – Sunday
 - Cold temperatures
 - ~1” SWE widespread

- Storm #2

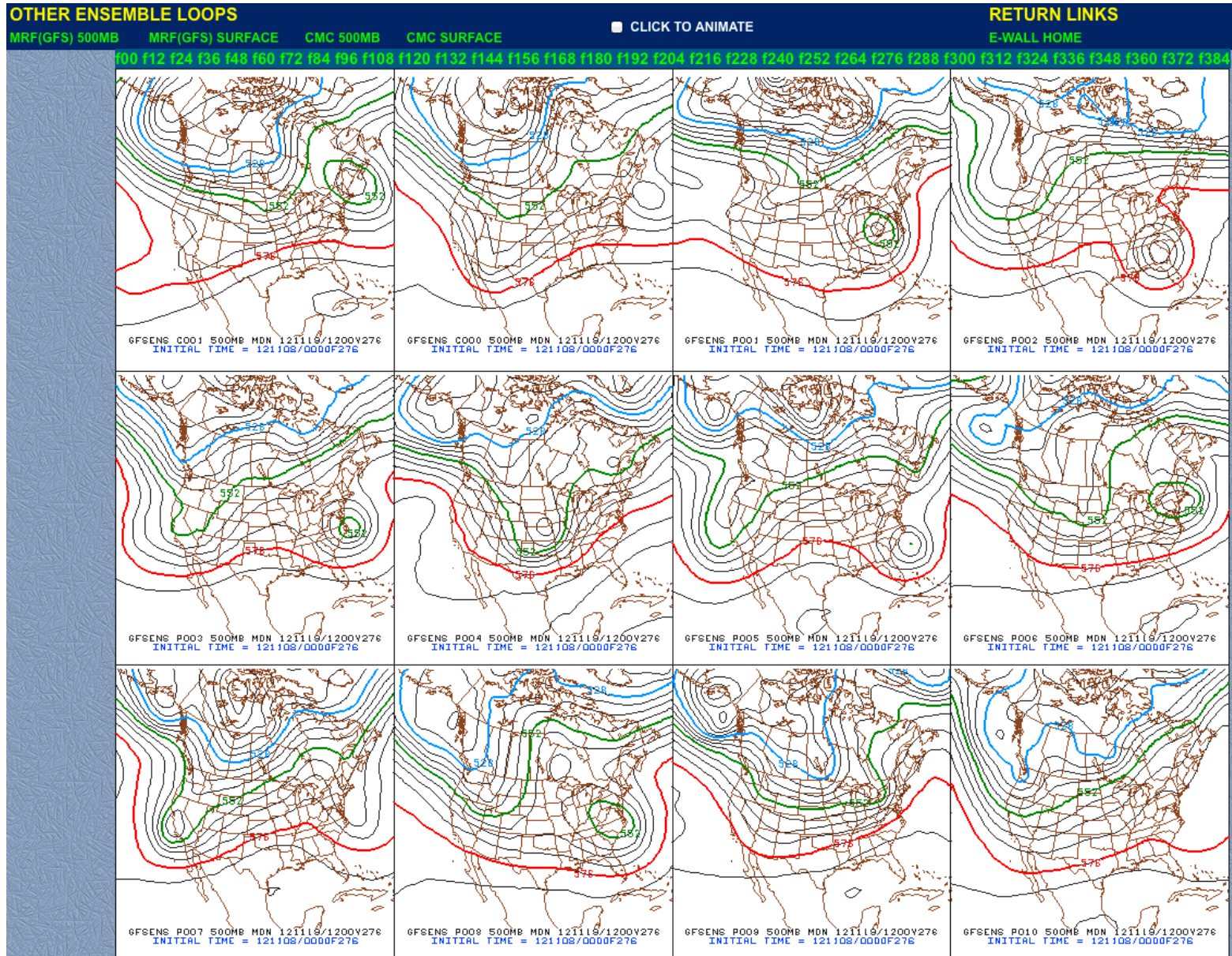
- Wed-Fri next week
 - Warmer
 - Smaller precip amounts mostly to the south

- Storm #3

- ~11 days out; very strong low. Details very uncertain

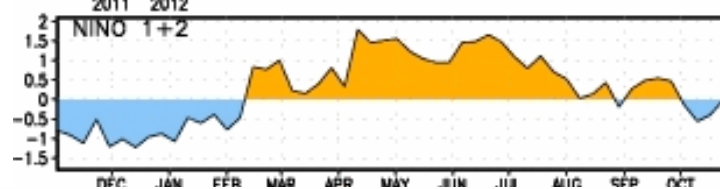
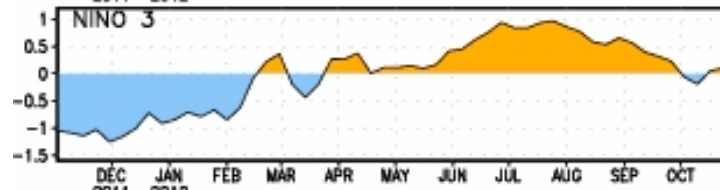
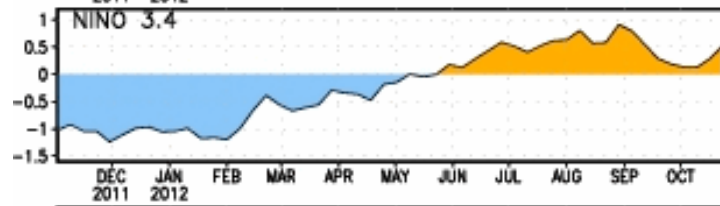
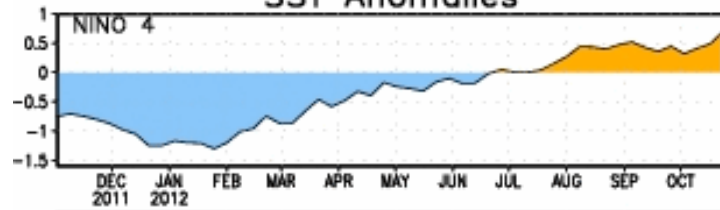


Weather forecasts become very uncertain further out in time

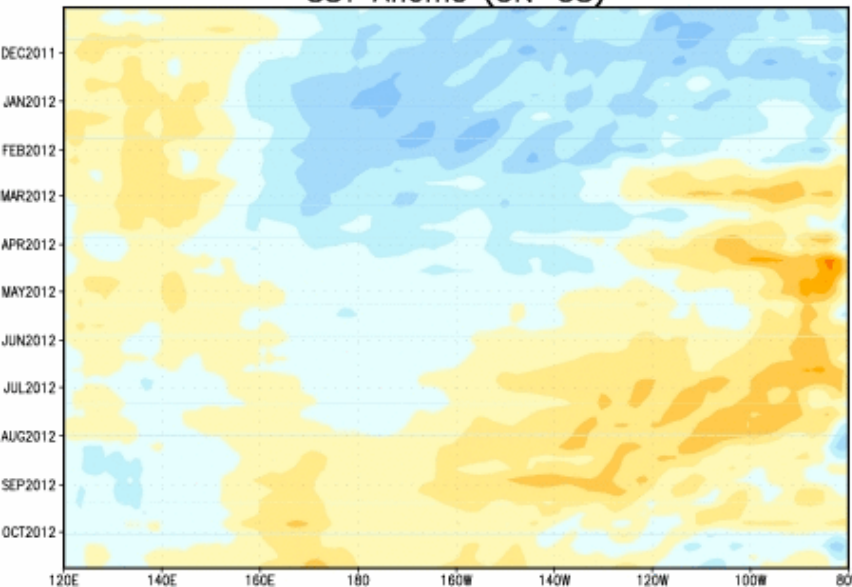


Source: www.meteo.psu.edu

SST Anomalies

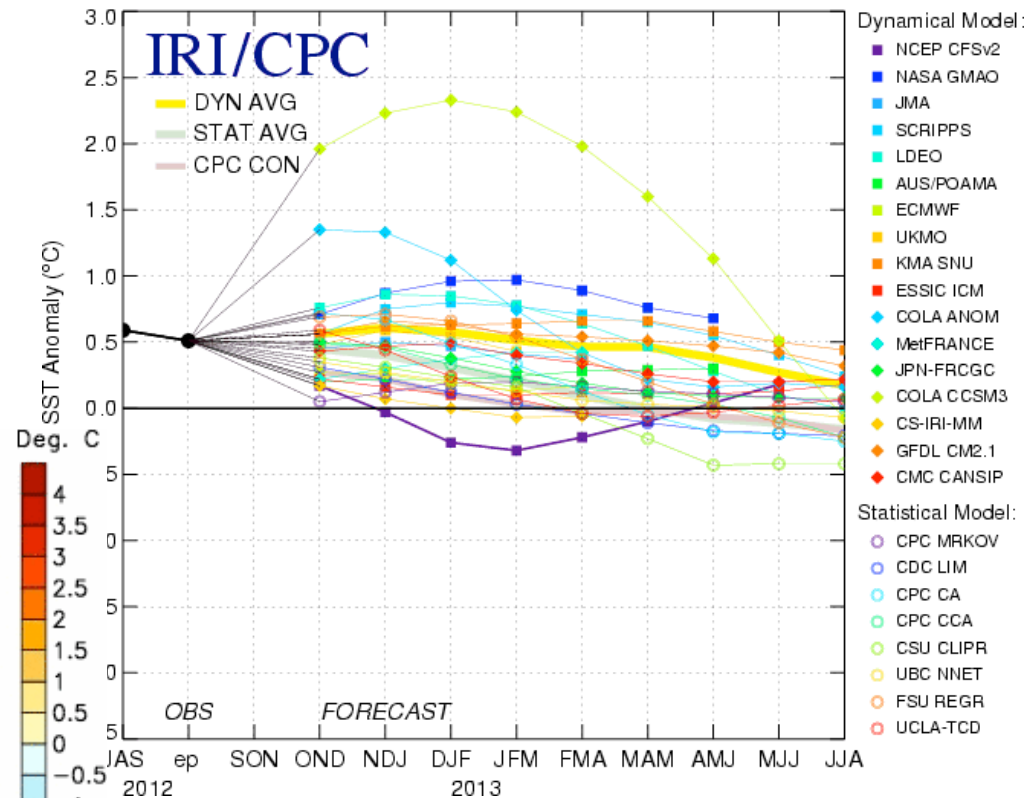


SST Anoms (5N-5S)



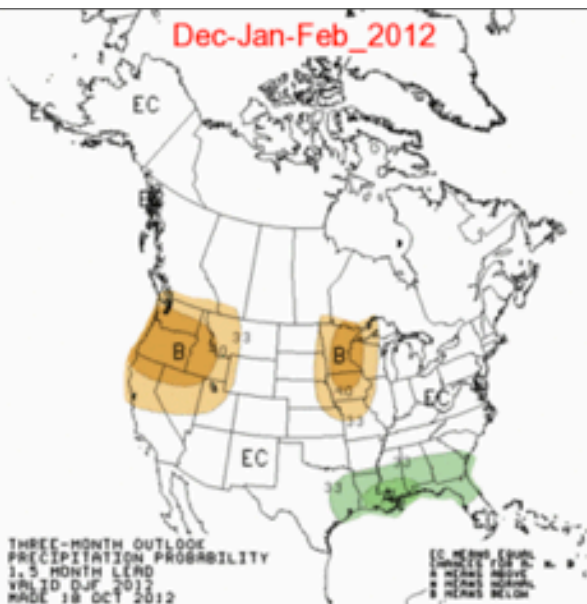
ENSO Neutral

Mid-Oct 2012 Plume of Model ENSO Predictions

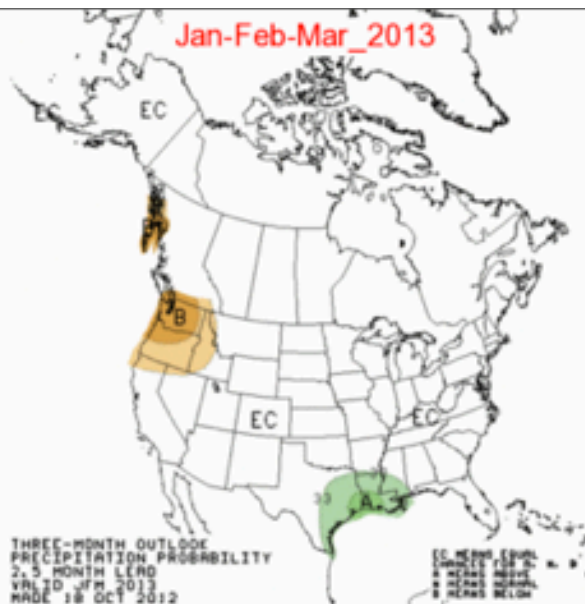


ces: cpc.ncep.noaa.gov and
columbia.edu/climate/ENSO

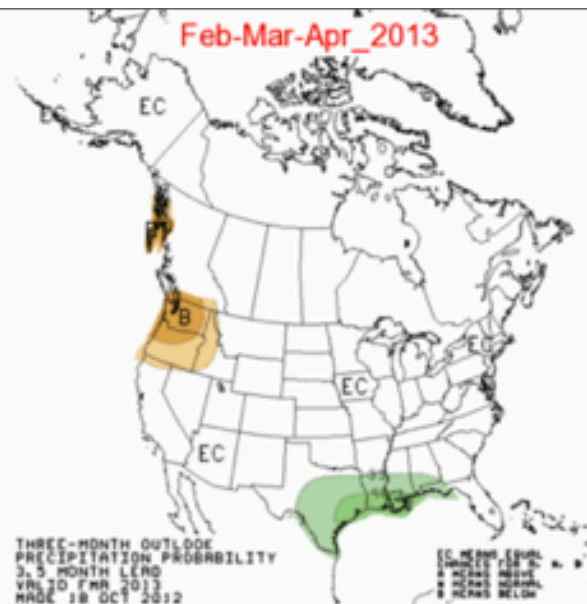
Dec-Jan-Feb_2012



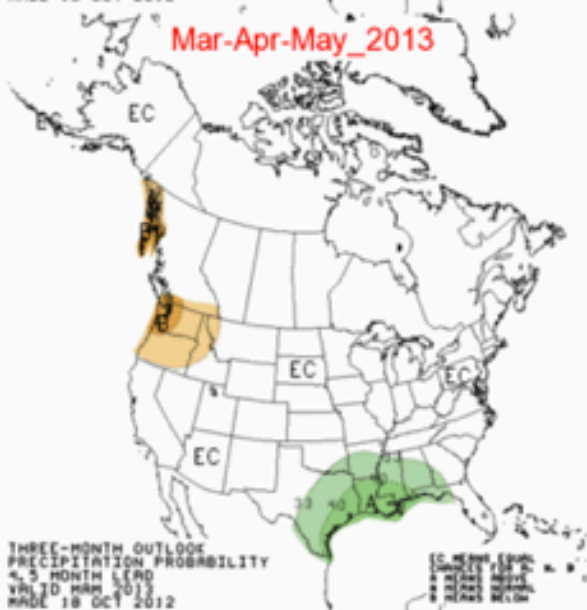
Jan-Feb-Mar_2013



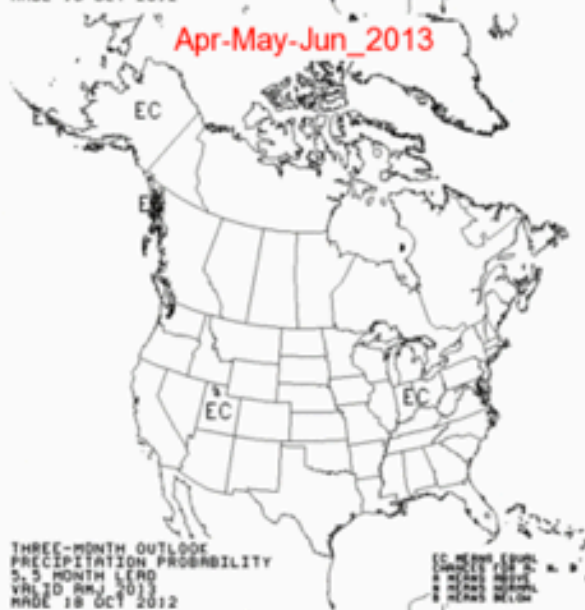
Feb-Mar-Apr_2013



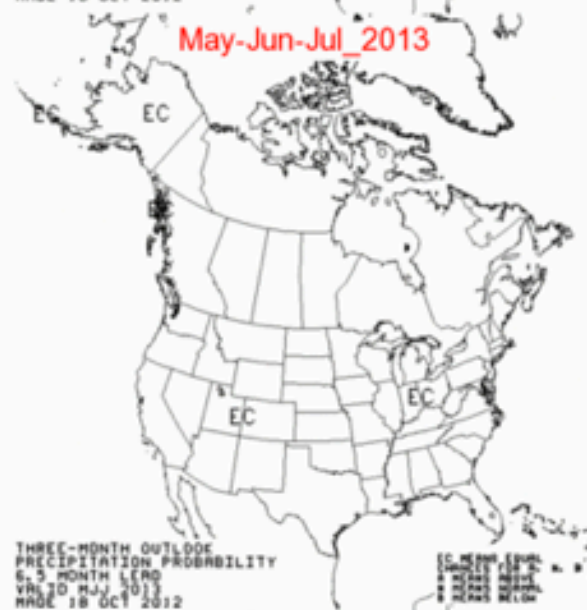
Mar-Apr-May_2013



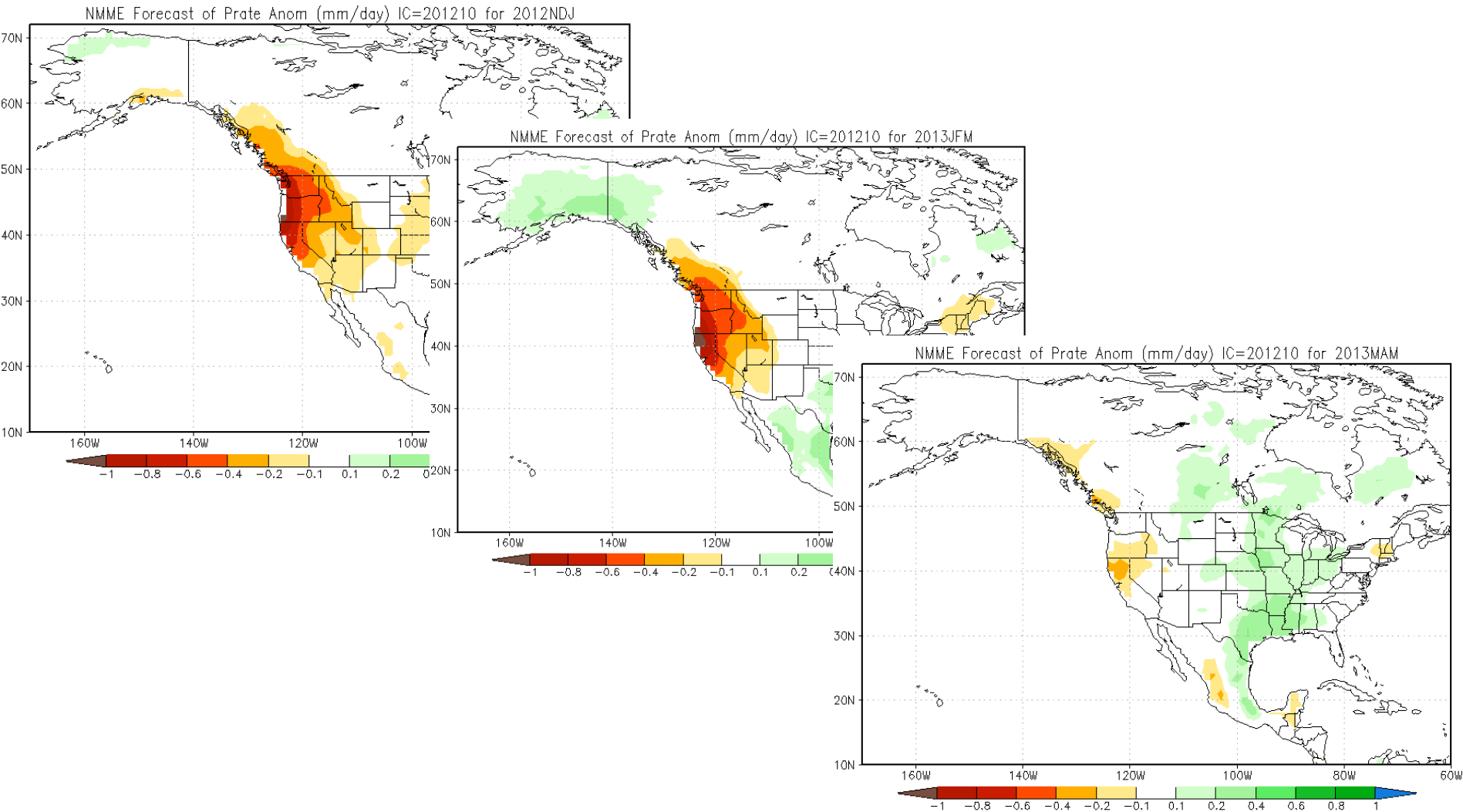
Apr-May-Jun_2013



May-Jun-Jul_2013

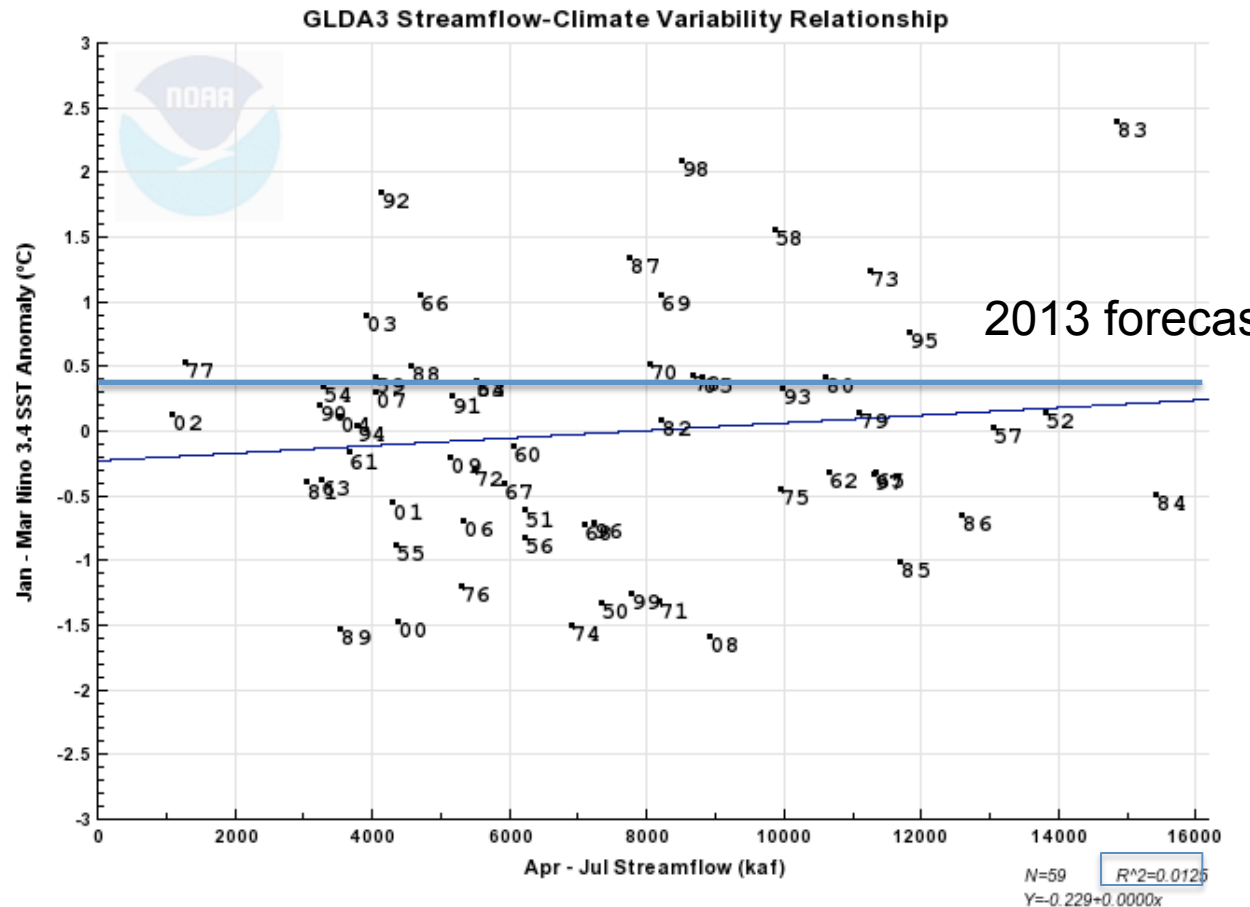


National Multi Model Ensemble (NMME) current forecasts



ENSO and Streamflow

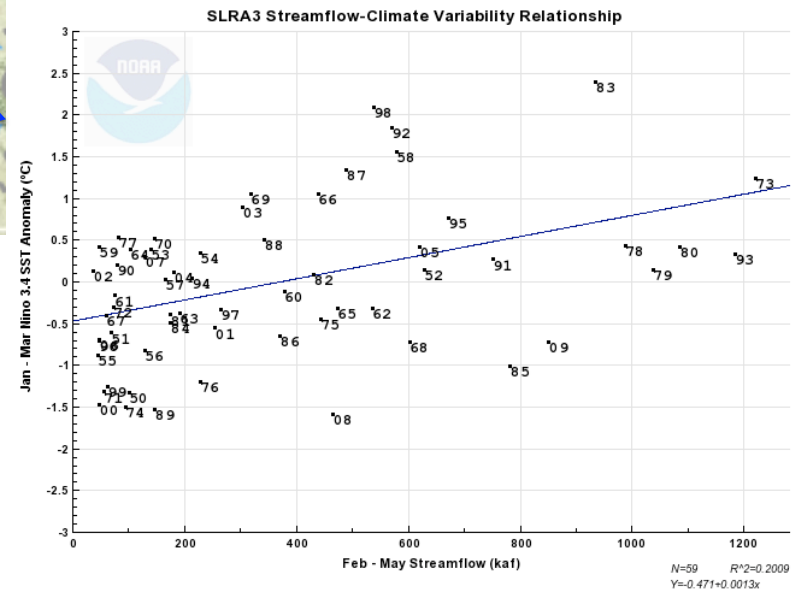
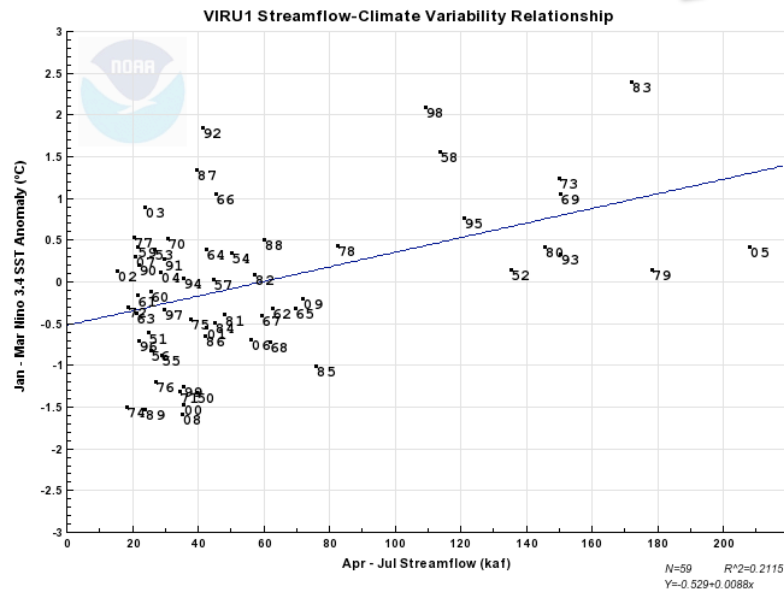
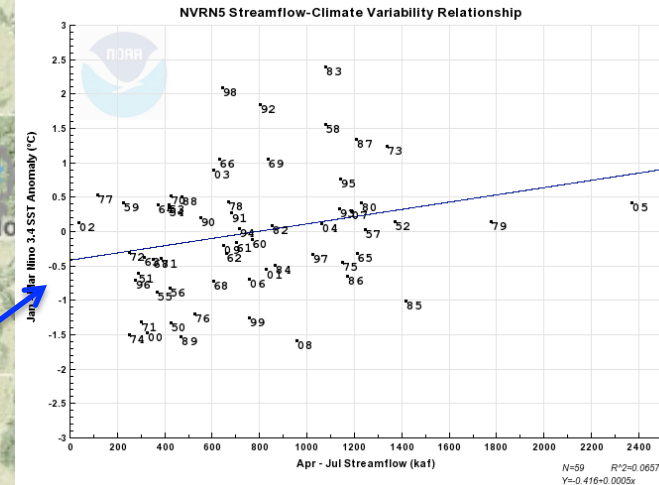
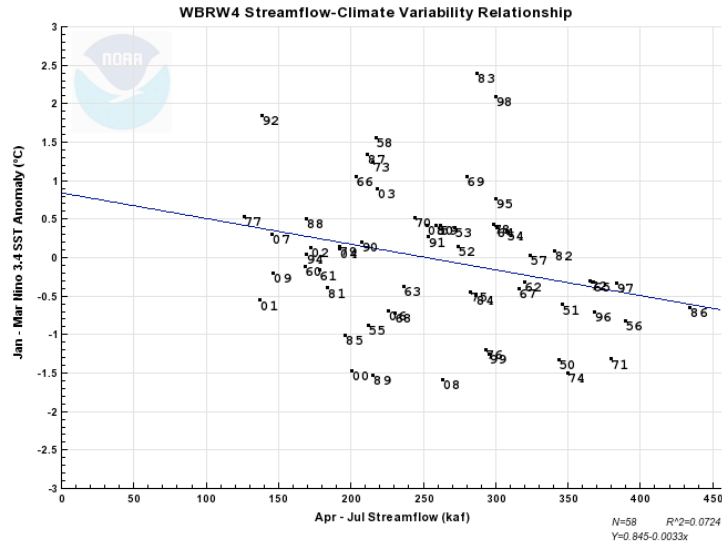
- Very low correlations in most of upper basin (right: Lake Powell)
- La Nina correlated with low streamflow in lower basin at around 0.2 – 0.3
- Weaker correlations for San Juan Basin with low streamflow and Upper Green with high streamflow



Historical Observed Apr-Jul Volumes (kaf)
1970-2010 (winter ENSO status)

(1) - 1984 -	15406.41	(neutral)
(2) - 1983 -	14838.93	(el nino)
(3) - 1986 -	12601.21	(neutral)
(4) - 1995 -	11833.18	(el nino)
(5) - 1985 -	11701.11	(la nina)
(6) - 1997 -	11320.89	(neutral)
(7) - 1973 -	11262.74	(el nino)
(8) - 1979 -	11104.25	(neutral)
(9) - 1980 -	10606.60	(neutral)
(10) - 1993 -	9984.42	(neutral)
(11) - 1975 -	9953.16	(la nina 2)
(12) - 2008 -	8908.50	(la nina)
(13) - 2005 -	8844.02	(el nino)
(14) - 1978 -	8678.09	(el nino 2)
(15) - 1998 -	8510.14	(el nino)
(16) - 1982 -	8210.63	(neutral)
(17) - 1971 -	8180.35	(la nina)
(18) - 1970 -	8037.76	(neutral)
(19) - 2009 -	7806.72	(neutral)
(20) - 1999 -	7788.09	(la nina)
(21) - 1987 -	7758.54	(el nino)
(22) - 1996 -	7233.47	(la nina)
(23) - 1974 -	6915.13	(la nina)
(24) - 2010 -	5795.43	(el nino)
(25) - 1972 -	5494.26	(neutral)
(26) - 2006 -	5319.56	(neutral)
(27) - 1976 -	5297.75	(la nina 3)
(28) - 1991 -	5159.33	(el nino)
(29) - 1988 -	4567.47	(el nino 2)
(30) - 2000 -	4367.05	(la nina 2)
(31) - 2001 -	4320.62	(la nina 3)
(32) - 1992 -	4124.42	(neutral)
(33) - 2007 -	4053.47	(el nino)
(34) - 2003 -	3910.17	(el nino)
(35) - 1994 -	3766.48	(neutral)
(36) - 2004 -	3542.00	(neutral)
(37) - 1989 -	3524.63	(la nina)
(38) - 1990 -	3228.85	(neutral)
(39) - 1981 -	3058.61	(neutral)
(40) - 1977 -	1277.39	(el nino)
(41) - 2002 -	1126.76	(neutral)

La Nina and Streamflow



What's New at CBRFC

- Basin focal points / forecasters:
 - Brenda Alcorn (Upper Colorado)
 - Ashley Nielson (Green + Yampa / White)
 - Greg Smith (San Juan + Gunnison)
 - Brent Bernard (Great Basin)
 - Stacie Bender (Sevier + Virgin)
 - 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)
 - Paul Miller (new senior hydrologist)
 - Vacant senior hydrologist

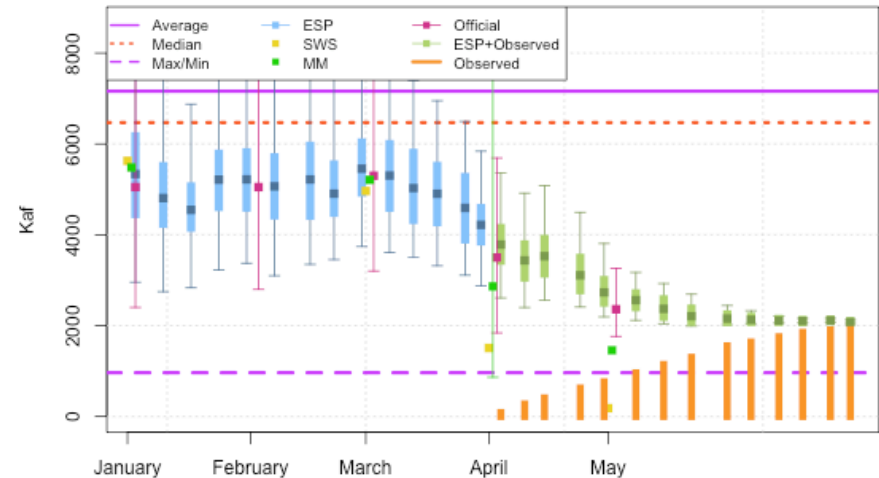
Forecast Changes

- NRCS/NWS evolving forecast coordination to forecast collaboration. Beginning this WY, each agency will publish their own forecasts which may be different from each other. This change will allow:
 - Daily forecast forecast updates
 - More rapid publication of monthly official forecast numbers (typically be second working day)
 - Scientific based (repeatable and testable) approach to forecasting
 - Routine integration of climate and weather forecasts
 - Forecaster explanation available for cases where forecasts deviate from ESP guidance.

Daily ESP

- Daily ESP will be operational by January 1 2013.
- Testing is ongoing and we are shooting for daily ESP online by December 1, 2012. This will allow time for feedback and familiarization ahead of January 1.

GLDA3 - Colorado - Lake Powell; Glen Cyn Dam; At - 0 Days - wakeby



Max 15316.1 1984 - Min 964 2002 - Created 2012-10-24 06:10:13 - CBRFC / NWS / NOAA
Exceedance Forecasts: Points are Most Probable (50%), Boxes are 30-70%, and Whiskers are 10-90%

ESP RAW MODEL GUIDANCE							OFFICIAL COORDINATED FORECAST				
Date Issued	Forecast Period	90% Exceedance	70% Exceedance	50% Exceedance	30% Exceedance	10% Exceedance	Date Issued	Forecast Period	90% Exceedance	50% Exceedance	10% Exceedance
1/1/2010	April-July	150	190	235	278	350	1/1/2010	April-July		240	
1/7/2010	April-July	170	200	255	310	410					
1/14/2010	April-July	195	210	260	310	420	1/14/2010	April-July		240	
1/21/2010	April-July	180	200	255	290	370					
1/28/2010	April-July	160	180	230	260	310					
2/3/2010	April-July	145	165	210	255	300	2/3/2010	April-July		215	

Forecast Webinar Schedule

- Webinar schedule:
 - Dec 5 (repeat of this webinar with updated outlook)
 - January 8
 - Feb 6
 - Mar 6
 - Apr 4
 - May 6
 - Jun 7
- Webinars at 11am MT
- Additional webinars for peak flow and/or as conditions or requests warrant
- Note: **Email list** will be changing; NWS discontinued its contract with our current service provider. Details soon.



More Resources

www.cbrfc.noaa.gov

Forecasts
Verification
Soil moisture maps
Precipitation maps
Temperature maps
Presentations
NWS Water Supply Website

News: November 3 Stakeholder Forum in Denver, CO

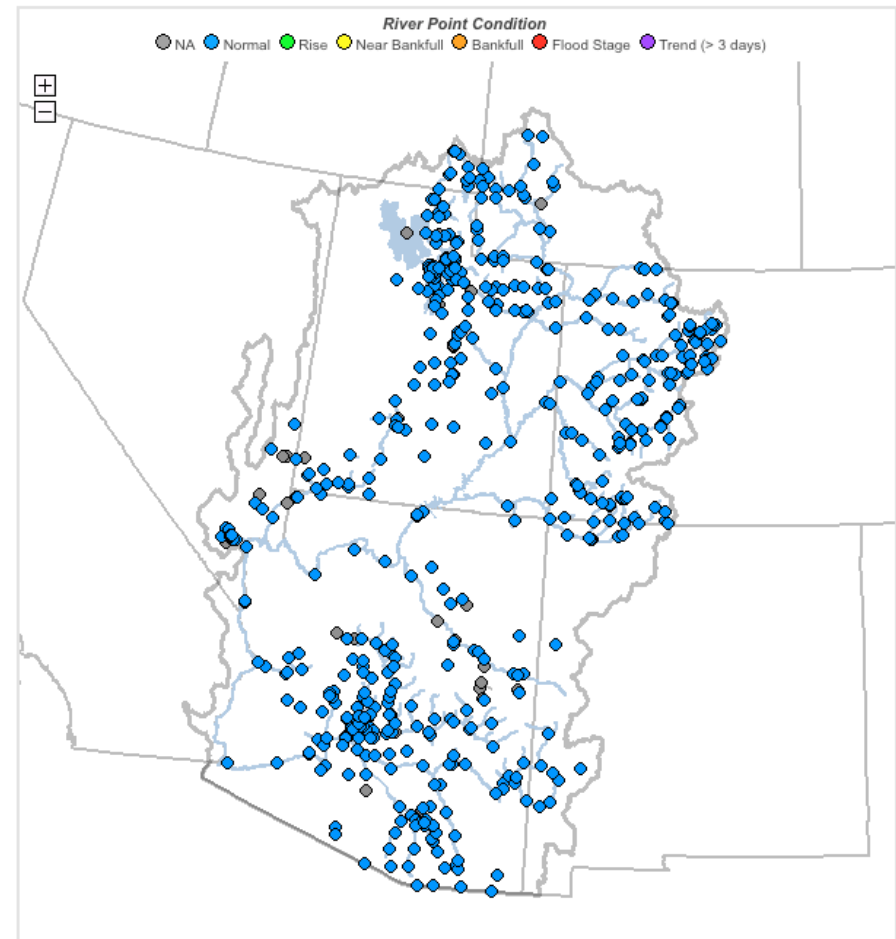
[RIVERS](#) [SNOW](#) [WATER SUPPLY](#) [RESERVOIRS](#) [WEATHER](#)

[Conditions Map](#) [Active Points](#) [Peak Flow Map](#) [Peak Flows](#) [Recreational Forecasts](#)

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

SEARCH POINTS

Double Click to Zoom, Hover Over Point For Details, Click Point For Plot



These slides: <http://www.cbrfc.noaa.gov/present/present2012.cgi>