

CBRFC/NRCS DISCUSSION

CRFS

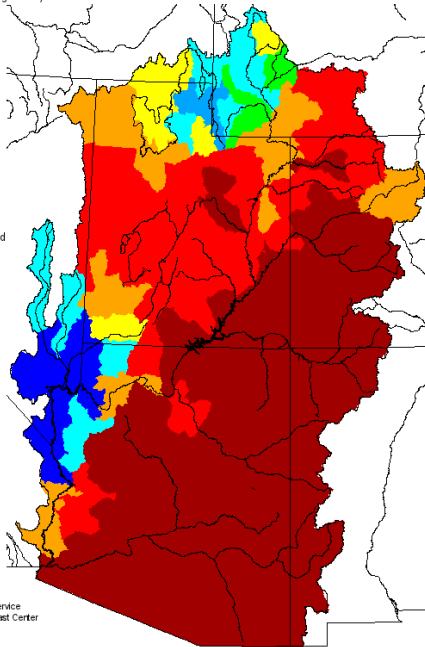
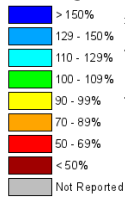
March 21, 2013

WY 2013 PRECIPITATION AND SNOWPACK CONDITIONS

Monthly Precipitation for October 2012

(Averaged by Hydrologic Unit)

% Average

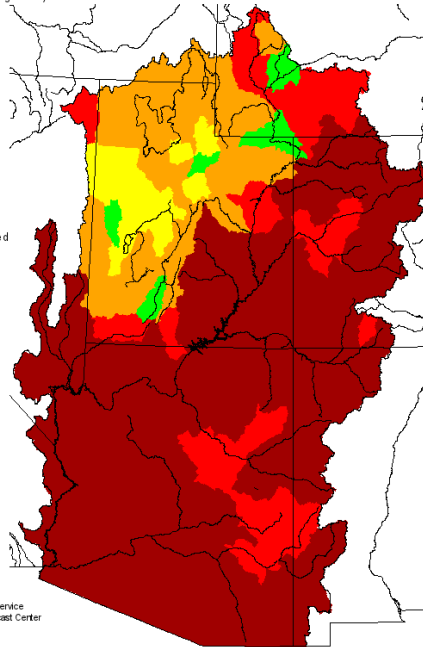
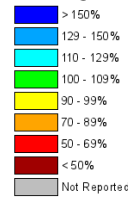


Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

Monthly Precipitation for November 2012

(Averaged by Hydrologic Unit)

% Average

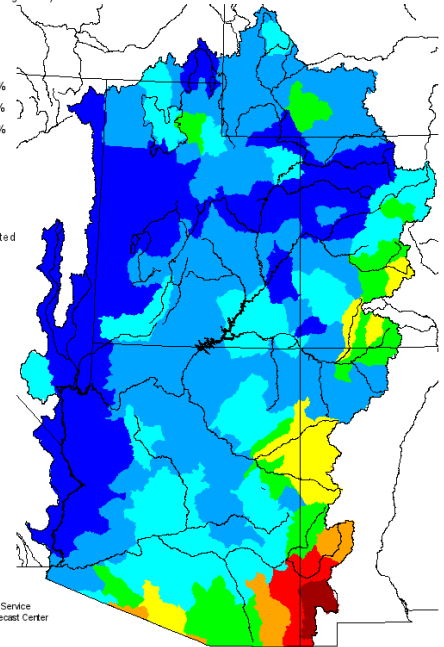
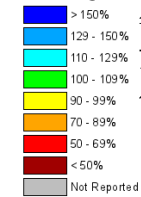


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Monthly Precipitation for December 2012

(Averaged by Hydrologic Unit)

% Average

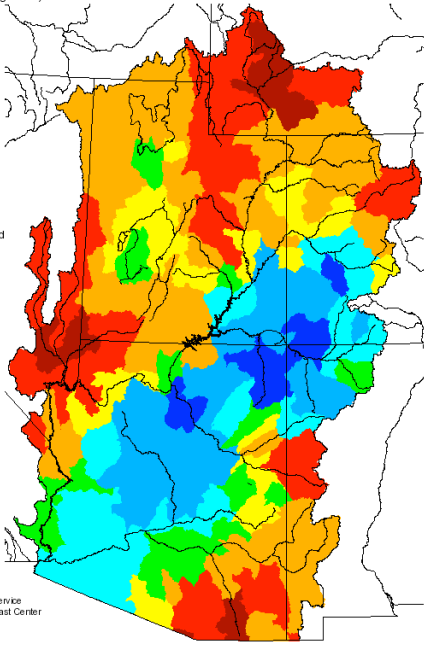
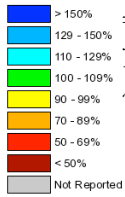


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Monthly Precipitation for January 2013

(Averaged by Hydrologic Unit)

% Average

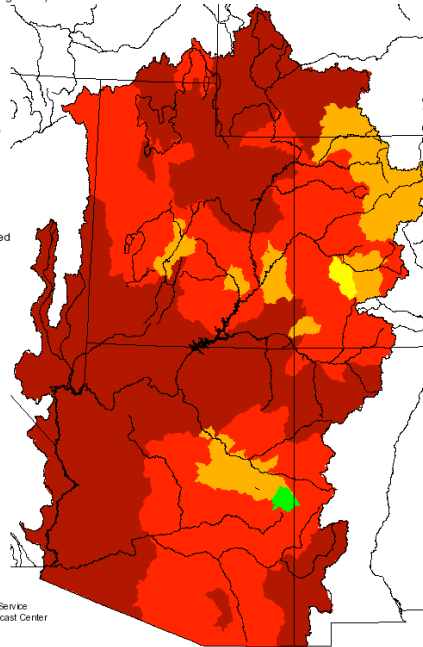
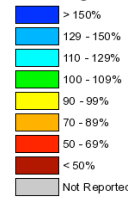


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Monthly Precipitation for February 2013

(Averaged by Hydrologic Unit)

% Average

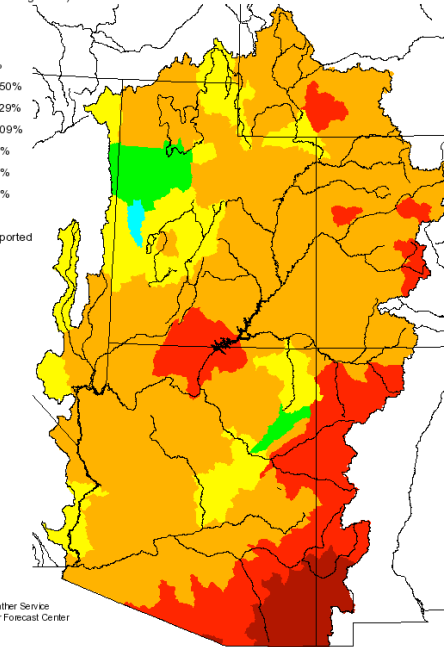
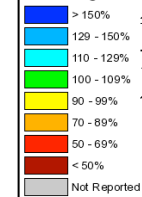


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Seasonal Precipitation, October 2012 - February 2013

(Averaged by Hydrologic Unit)

% Average



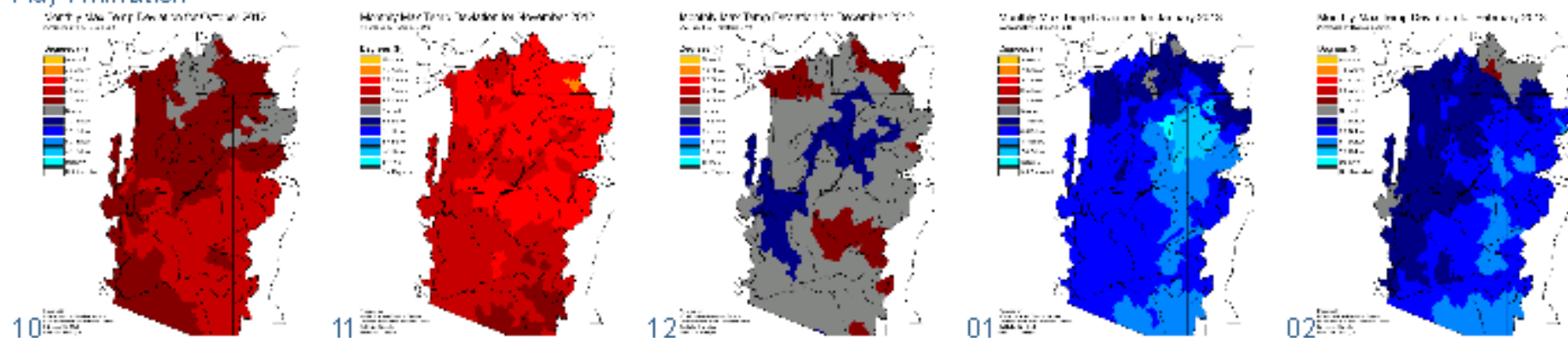
Prepared by
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www.cbrfc.noaa.gov

mapsum.cgi?temp?cbrfc???? **Maximum Temperature Deviation - CBRFC - 2013**

Choose Type: *Max Temp* Min Temp

Choose Year: *2013* 2012 2011 2010 2009 2008 2007 2006 2005

Play Animation

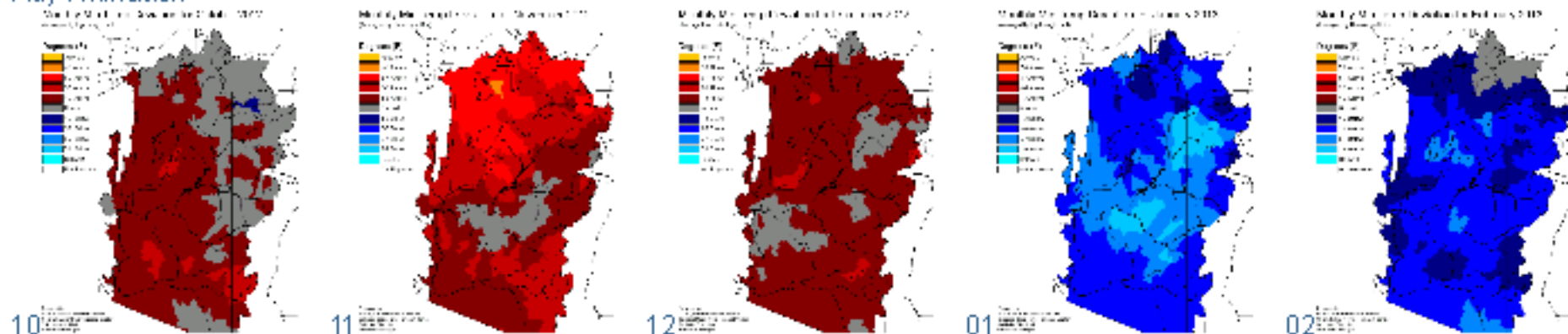


Minimum Temperature Deviation - CBRFC - 2013

Choose Type: Max Temp *Min Temp*

Choose Year: *2013* 2012 2011 2010 2009 2008 2007 2006 2005

Play Animation



Westwide SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal

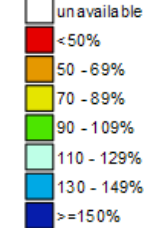
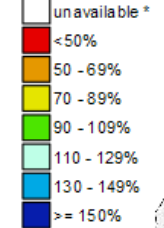
Westwide SNOTEL Current Month to Date Precipitation % of Normal

Mar 20, 2013

Mar 20, 2013

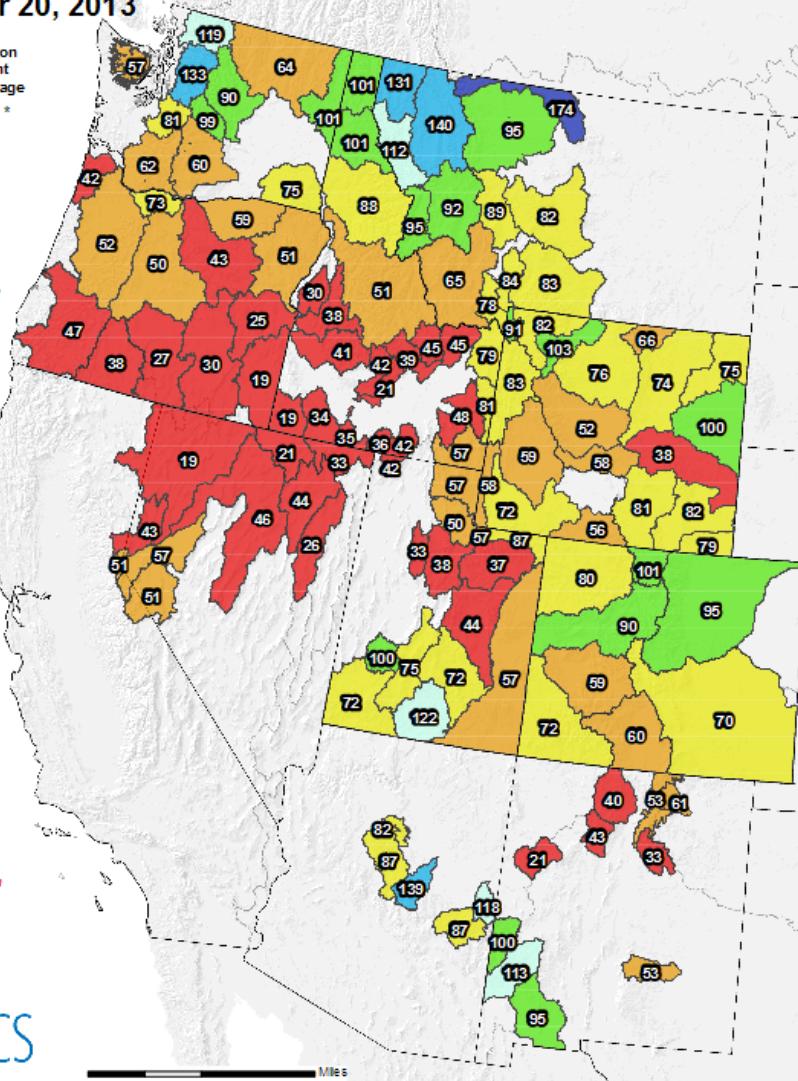
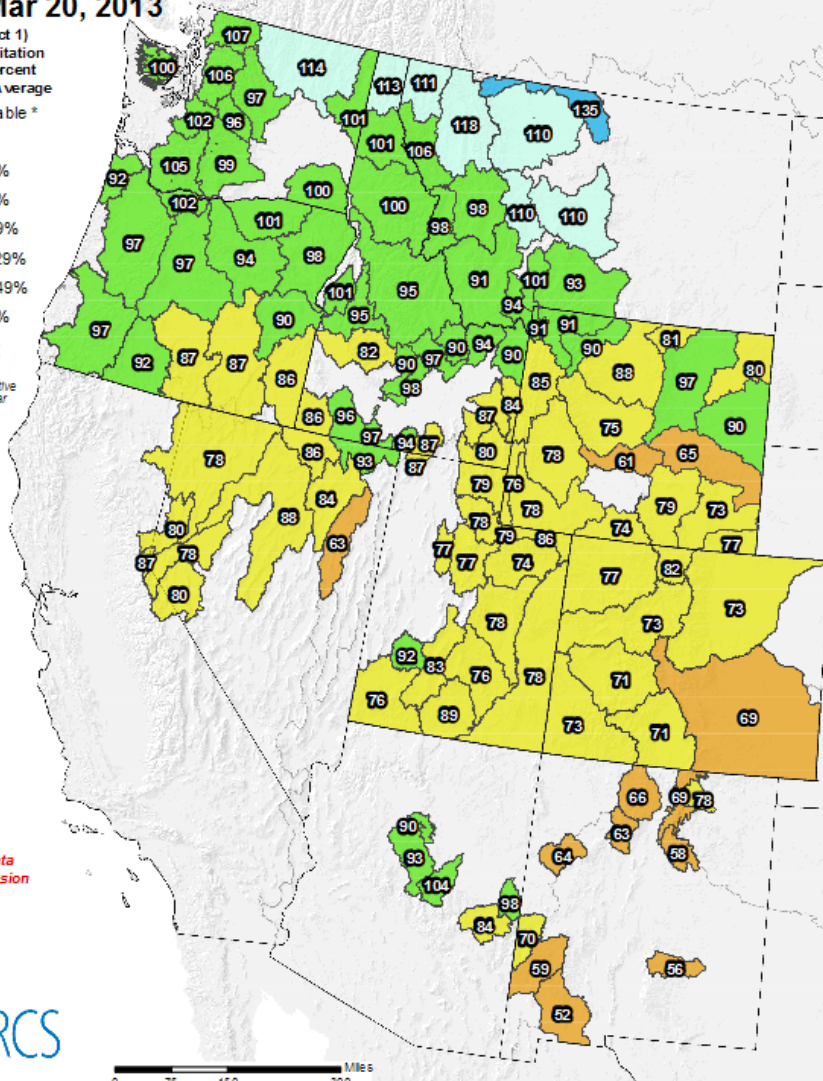
Water Year (Oct 1) to Date Precipitation Basin-wide Percent of 1981-2010 Average

Current Month to Date Precipitation Basin-wide Percent of 1981-2010 Average



* Data unavailable at time of posting or measurement is not representative at this time of year

* Data unavailable at time of posting or measurement is not representative at this time of year



Provisional data subject to revision

Provisional data subject to revision



The water year to date precipitation percent of normal represents the accumulated precipitation found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by the USDA/NRCS National Water and Climate Center Portland, Oregon <http://www.wcc.nrcs.usda.gov/gis/> Based on data from <http://www.wcc.nrcs.usda.gov/reports/> Science contact: Jim.Marron@por.usda.gov 503 414 3047

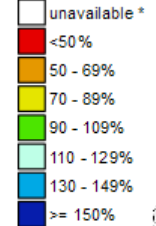
The current month to date precipitation percent of normal represents the accumulated precipitation found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by the USDA/NRCS National Water and Climate Center Portland, Oregon <http://www.wcc.nrcs.usda.gov/gis/> Based on data from <http://www.wcc.nrcs.usda.gov/reports/> Science contact: Jim.Marron@por.usda.gov 503 414 3047

Westwide SNOTEL Current Snow Water Equivalent (SWE) % of Normal

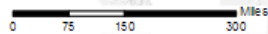
Mar 01, 2013

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median



* Data unavailable at time of posting or measurement is not representative at this time of year

Provisional data subject to revision



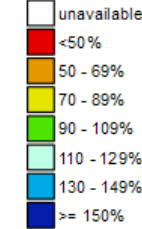
The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by the USDA/NRCS National Water and Climate Center Portland, Oregon <http://www.woc.nrcs.usda.gov/gis/>
Based on data from <http://www.woc.nrcs.usda.gov/reports/>
Science contact: Jim.Marron@por.usda.gov 503 414 3047

Westwide SNOTEL Current Snow Water Equivalent (SWE) % of Normal

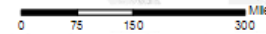
Mar 20, 2013

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median



* Data unavailable at time of posting or measurement is not representative at this time of year

Provisional data subject to revision

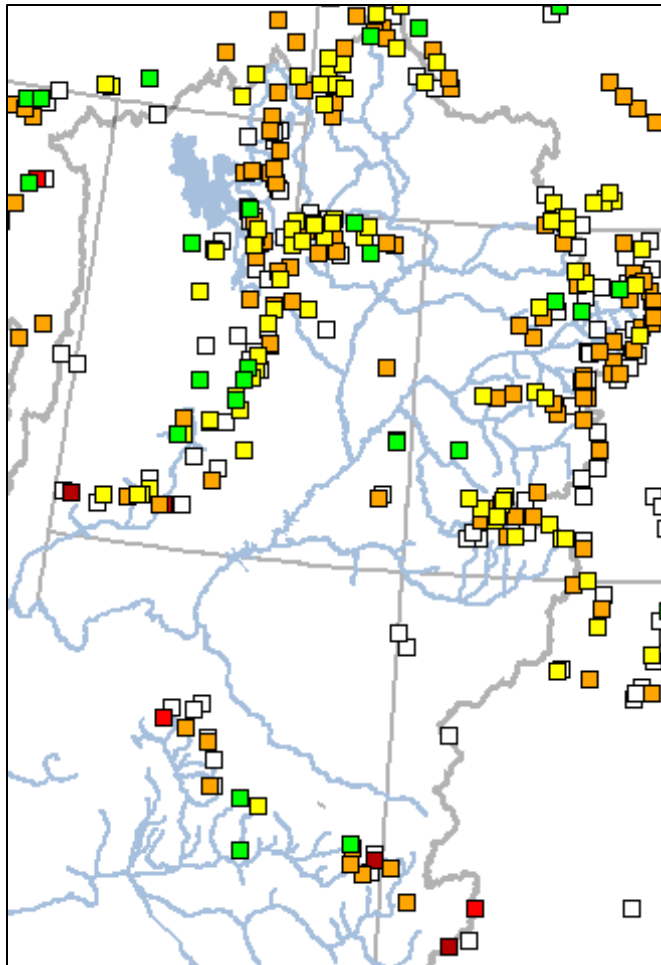


The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

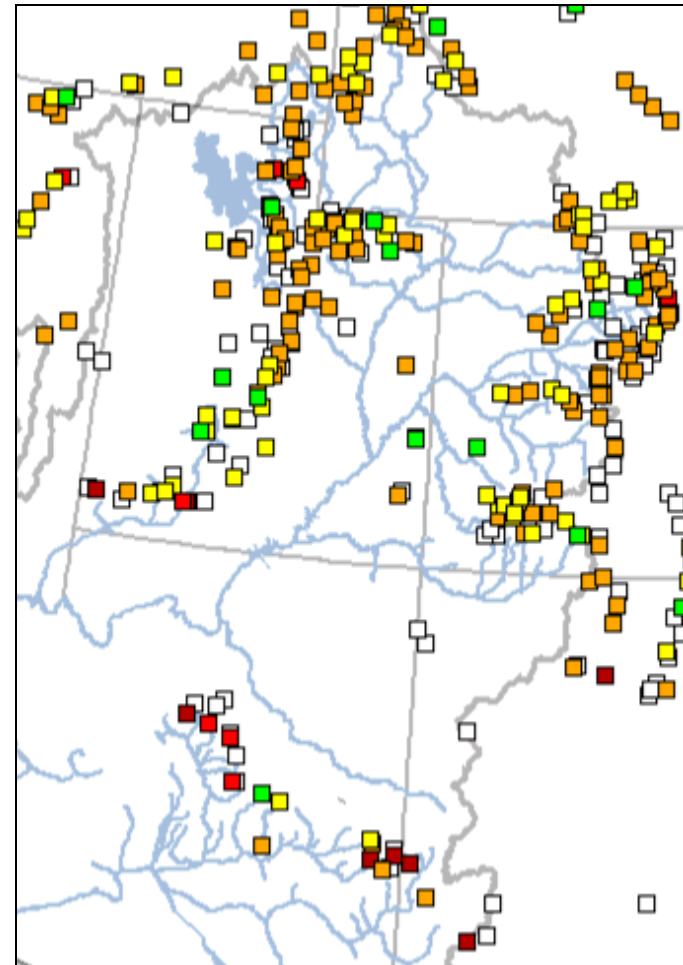
Prepared by the USDA/NRCS National Water and Climate Center Portland, Oregon <http://www.woc.nrcs.usda.gov/gis/>
Based on data from <http://www.woc.nrcs.usda.gov/reports/>
Science contact: Jim.Marron@por.usda.gov 503 414 3047

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

Created: March 4, 2013,

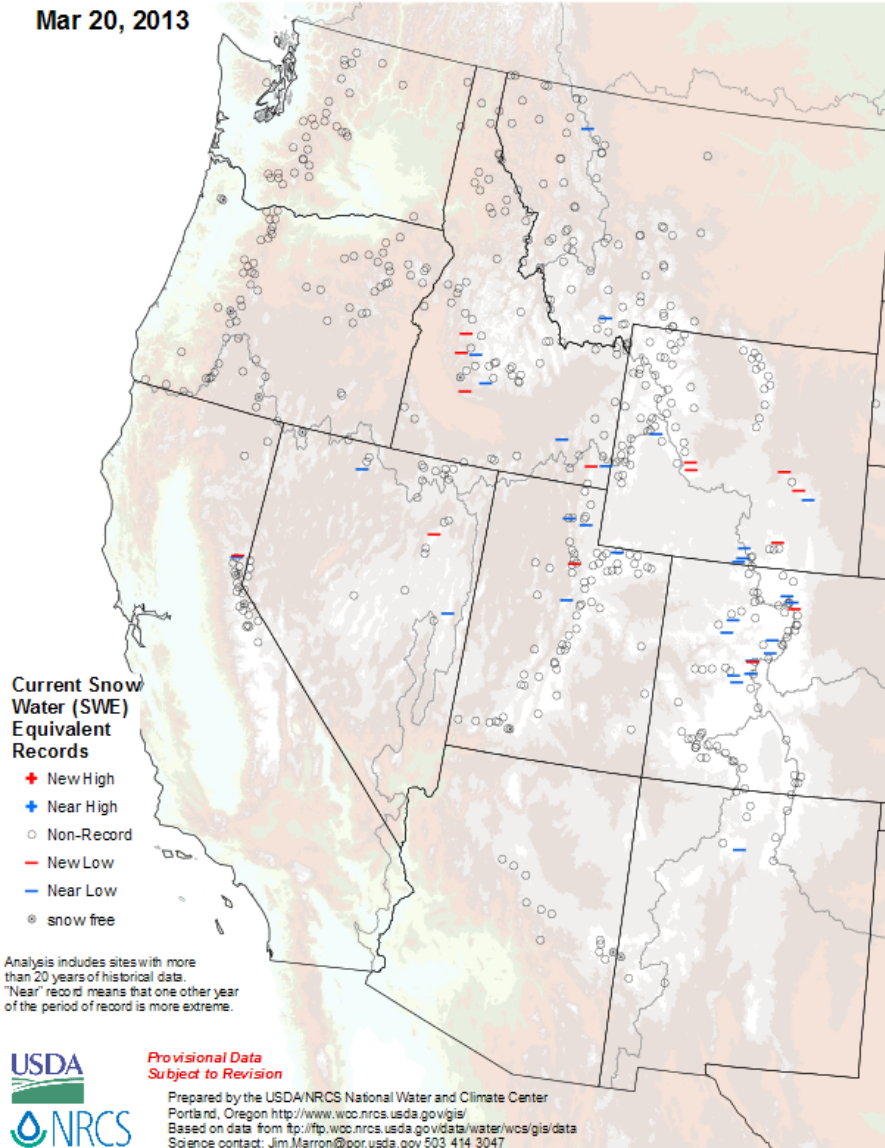


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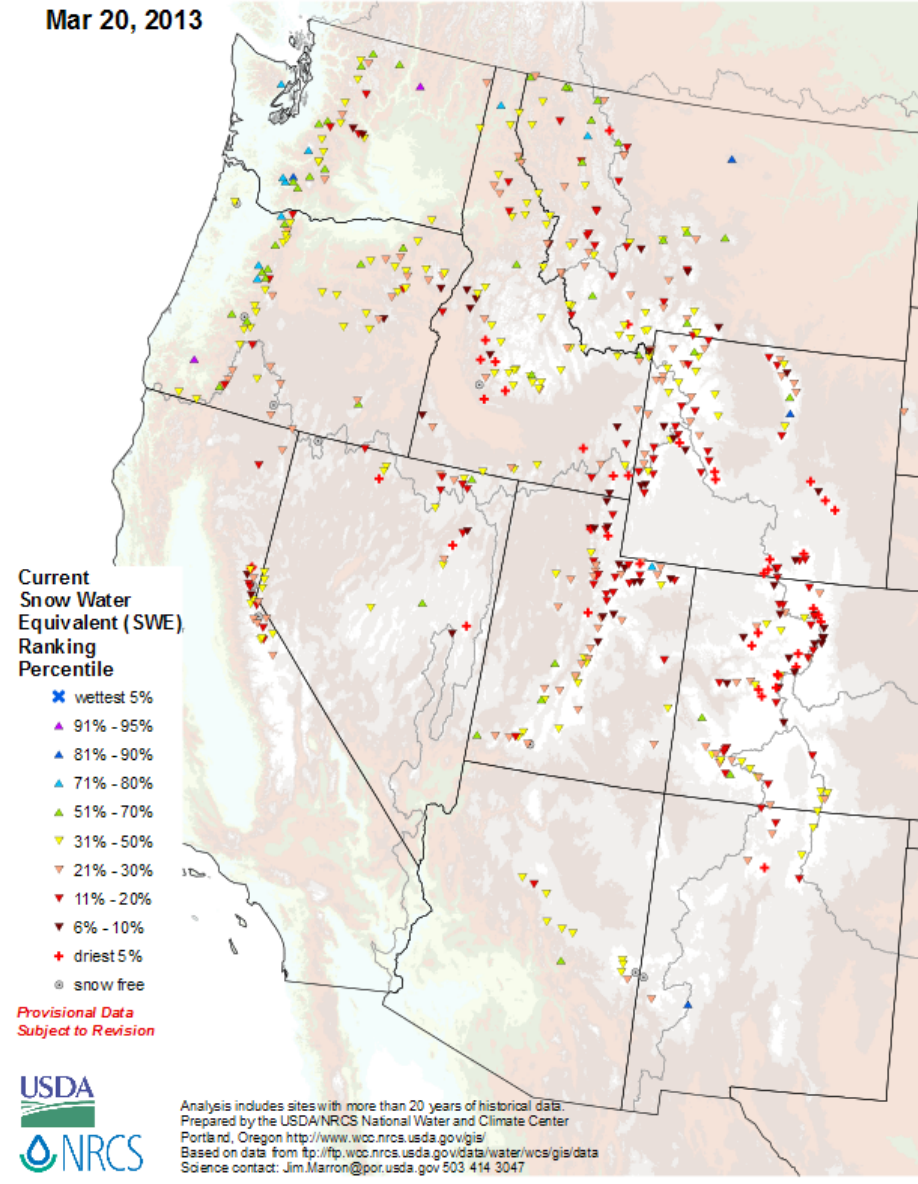
SNOTEL Current Snow Water Equivalent (SWE) Records

Mar 20, 2013



SNOTEL Current Snow Water Equivalent (SWE) Ranking Percentile

Mar 20, 2013



**Upper Colorado River Basin
SNOTEL Snowpack Comparison Update Report**

Based on Mountain Data from NRCS SNOTEL Sites

Provisional data, subject to revision

Data based on the first reading of the day (typically 00:00) for Wednesday, March 20, 2013

Basin Site Name	Elev (ft)	Snow Water Equivalent			Current as Percent of 2012	Current as Percent of Median	2012 as Percent of Median
		Current (in)	2012 (in)	Median (in)			
UPPER GREEN RIVER BASIN							
Basin-wide percent					82	80	102
DUCHESNE RIVER BASIN							
Basin-wide percent					98	73	74
YAMPA/WHITE RIVER BASINS							
Basin-wide percent					103	78	77
PRICE-SAN RAFAEL							
Basin-wide percent					113	74	65
ESCALANTE RIVER BASINS							
Basin-wide percent					92	89	96
DIRTY DEVIL RIVER BASIN							
Basin-wide percent					101	86	88
UPPER COLORADO RIVER HEADWATERS							
Basin-wide percent					103	76	76
ROARING FORK RIVER BASIN							
Basin-wide percent					99	80	80
SOUTH EASTERN UTAH							
Basin-wide percent					109	83	76
GUNNISON RIVER BASIN							
Basin-wide percent					91	77	84
DOLORES/SAN MIGUEL RIVER BASINS							
Basin-wide percent					98	82	84
SAN JUAN RIVER HEADWATERS							
Basin-wide percent					96	79	84
ANIMAS RIVER BASIN							
Basin-wide percent					89	78	86
COLORADO RIVER BASIN ABOVE LAKE POWELL (TOTAL OF ALL SNOTEL SITES)							
Basin-wide percent					96	77	81

**Upper Colorado River Basin
SNOTEL Snowpack Comparison Update Report**

Based on Mountain Data from NRCS SNOTEL Sites

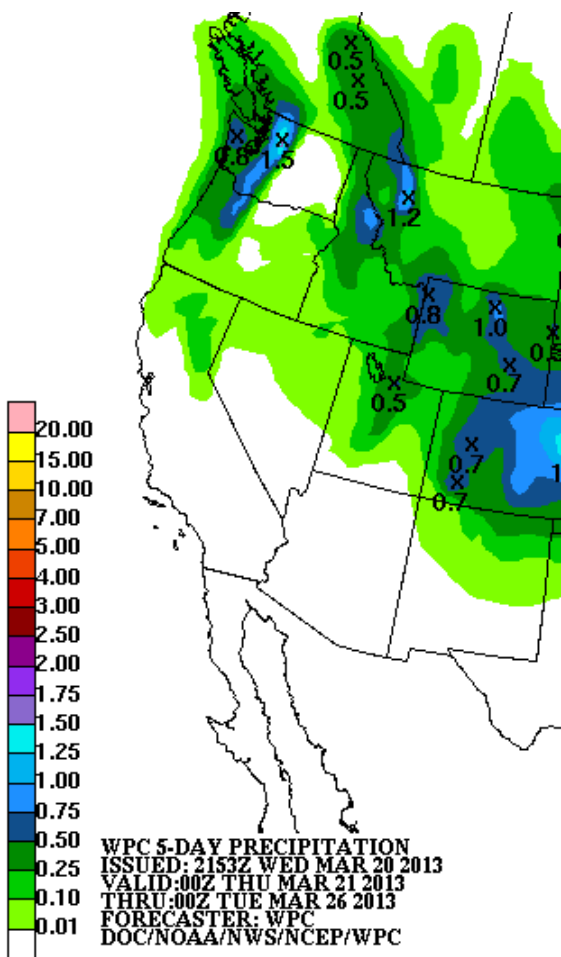
Provisional data, subject to revision

Data based on the first reading of the day (typically 00:00) for Wednesday, March 20, 2013

Basin Site Name	Elev (ft)	Snow Water Equivalent			Current as Percent of 2002	Current as Percent of Median	2002 as Percent of Median
		Current (in)	2002 (in)	Median (in)			
UPPER GREEN RIVER BASIN							
Basin-wide percent					85	80	94
DUCHESNE RIVER BASIN							
Basin-wide percent					99	73	73
YAMPA/WHITE RIVER BASINS							
Basin-wide percent					96	78	80
PRICE-SAN RAFAEL							
Basin-wide percent					93	74	79
ESCALANTE RIVER BASINS							
Basin-wide percent					189	89	47
DIRTY DEVIL RIVER BASIN							
Basin-wide percent					103	86	83
UPPER COLORADO RIVER HEADWATERS							
Basin-wide percent					98	76	77
ROARING FORK RIVER BASIN							
Basin-wide percent					96	80	83
SOUTH EASTERN UTAH							
Basin-wide percent					132	83	63
GUNNISON RIVER BASIN							
Basin-wide percent					108	77	71
DOLORES/SAN MIGUEL RIVER BASINS							
Basin-wide percent					136	82	60
SAN JUAN RIVER HEADWATERS							
Basin-wide percent					190	79	41
ANIMAS RIVER BASIN							
Basin-wide percent					148	78	53
COLORADO RIVER BASIN ABOVE LAKE POWELL (TOTAL OF ALL SNOTEL SITES)							
Basin-wide percent					106	77	73

WY 2013

WEATHER AND CLIMATE FORECASTS



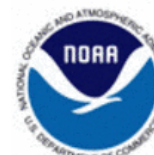
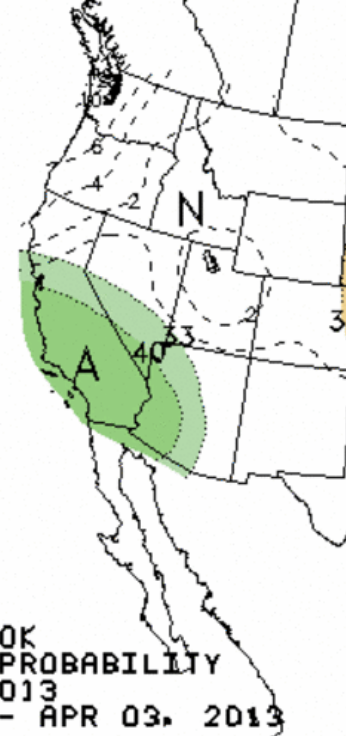
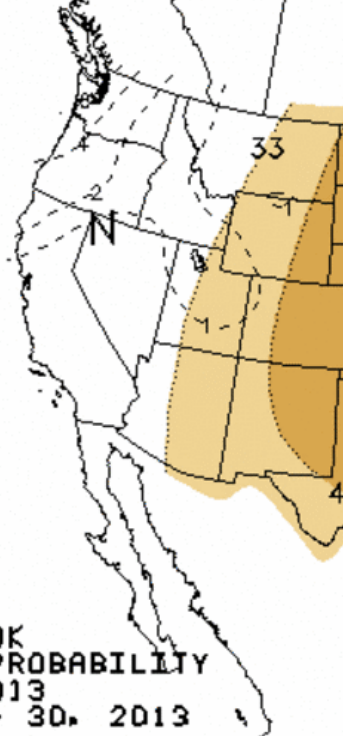
WPC 5-DAY PRECIPITATION
 ISSUED: 2153Z WED MAR 20 2013
 VALID: 00Z THU MAR 21 2013
 THRU: 00Z TUE MAR 26 2013
 FORECASTER: WPC
 DOC/NOAA/NWS/NCEP/WPC



6-10 DAY OUTLOOK
 PRECIPITATION PROBABILITY
 MADE 20 MAR 2013
 VALID MAR 26 - 30, 2013



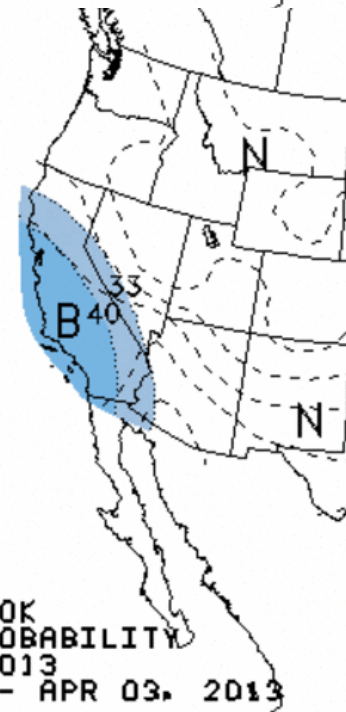
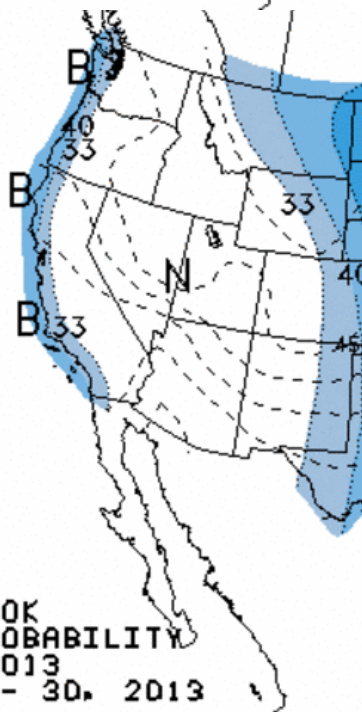
8-14 DAY OUTLOOK
 PRECIPITATION PROBABILITY
 MADE 20 MAR 2013
 VALID MAR 28 - APR 03, 2013

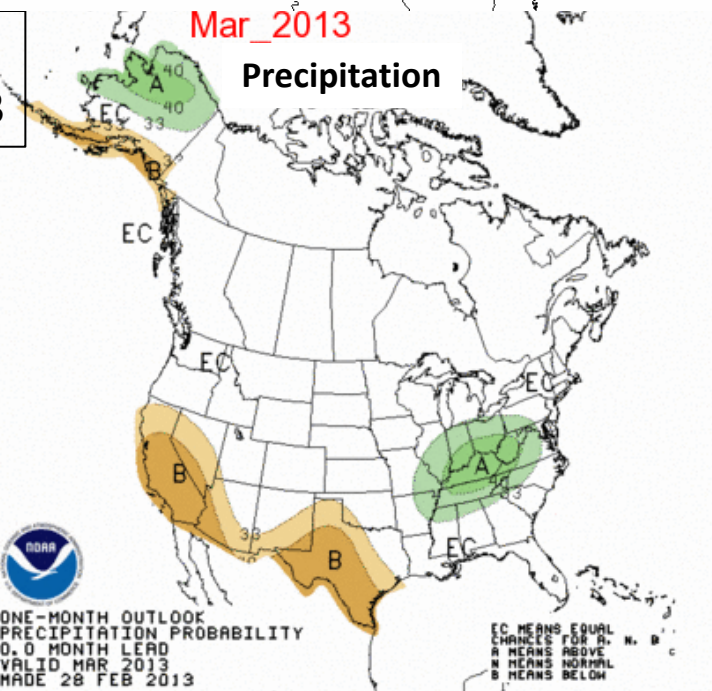
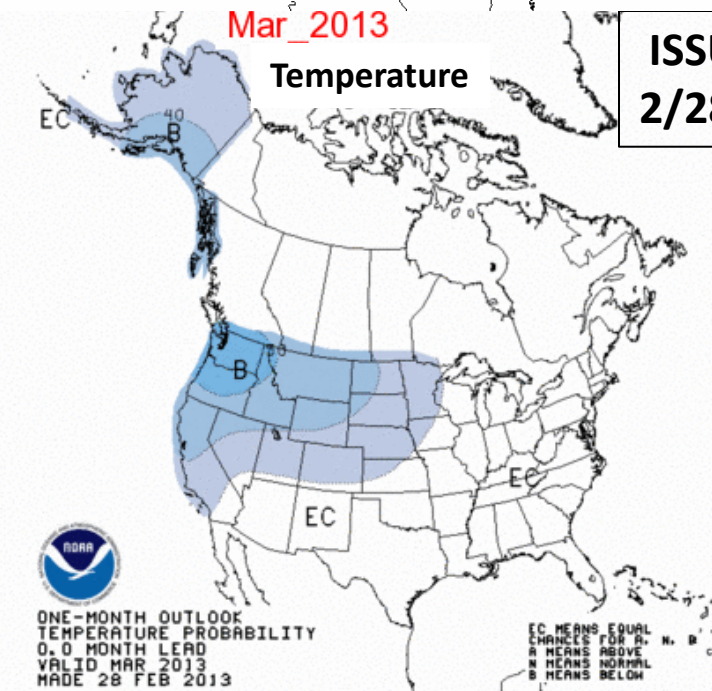
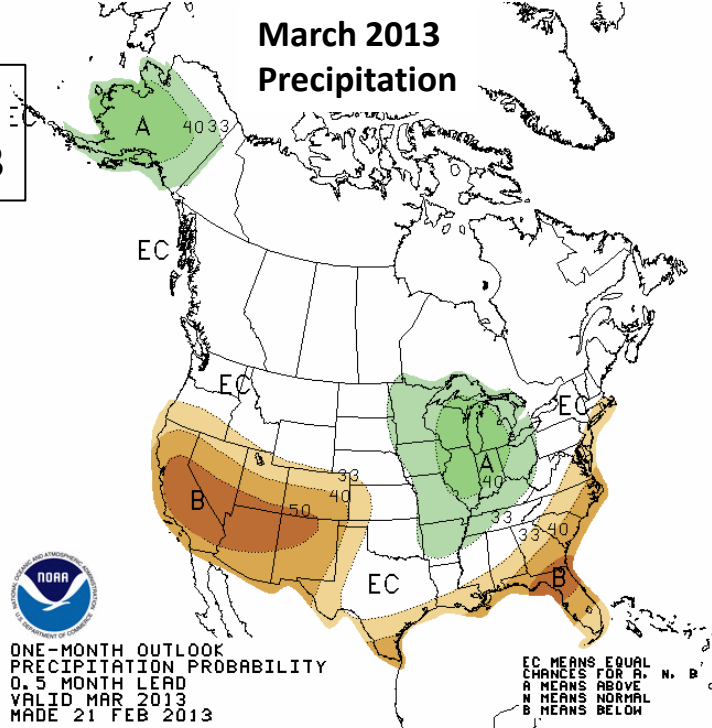
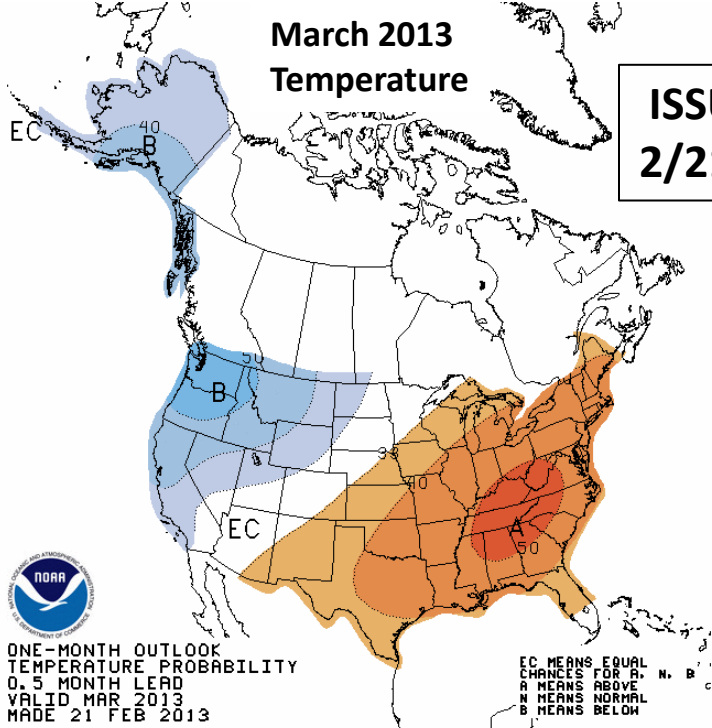


6-10 DAY OUTLOOK
 TEMPERATURE PROBABILITY
 MADE 20 MAR 2013
 VALID MAR 26 - 30, 2013



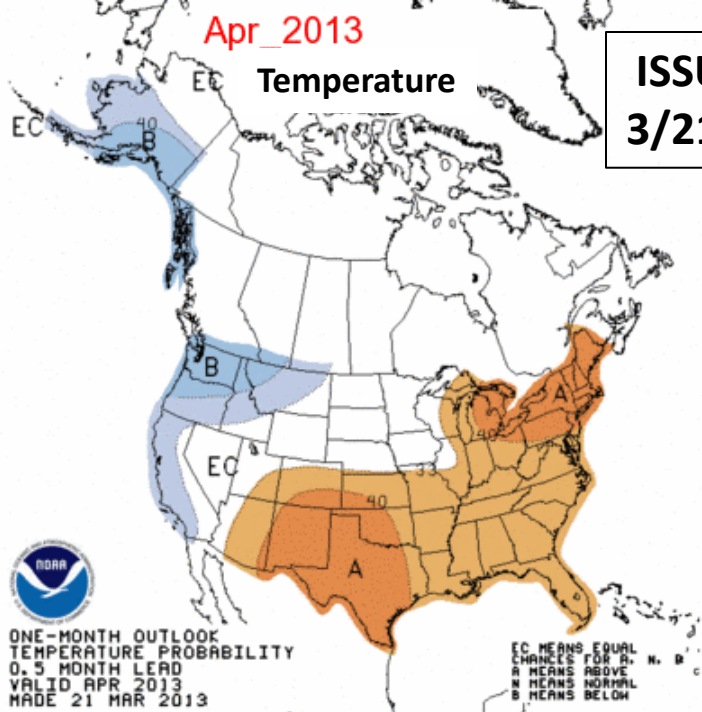
8-14 DAY OUTLOOK
 TEMPERATURE PROBABILITY
 MADE 20 MAR 2013
 VALID MAR 28 - APR 03, 2013





Apr_2013

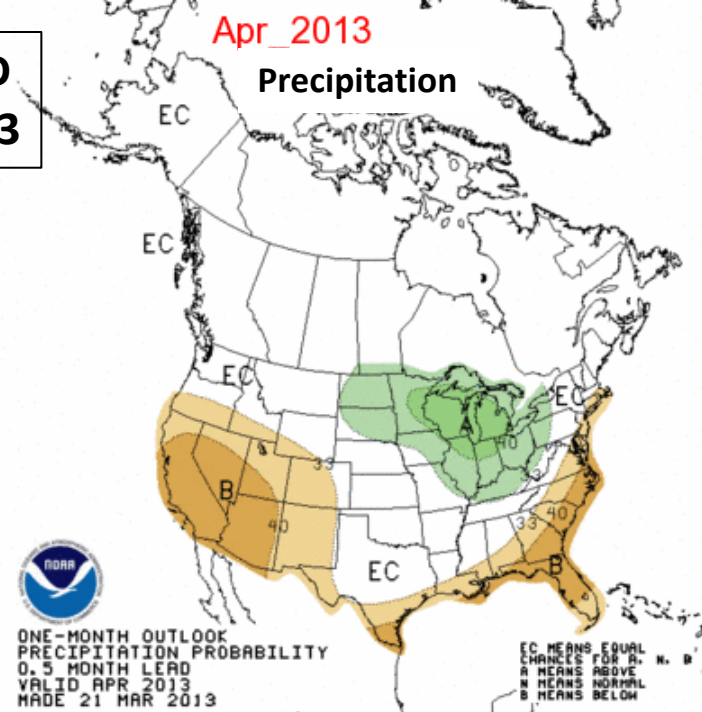
Temperature



ISSUED
3/21/13

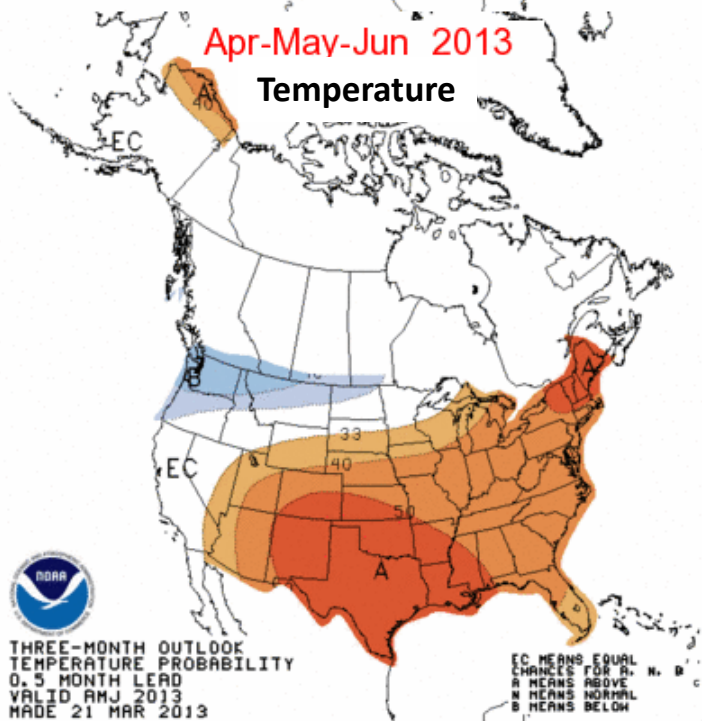
Apr_2013

Precipitation



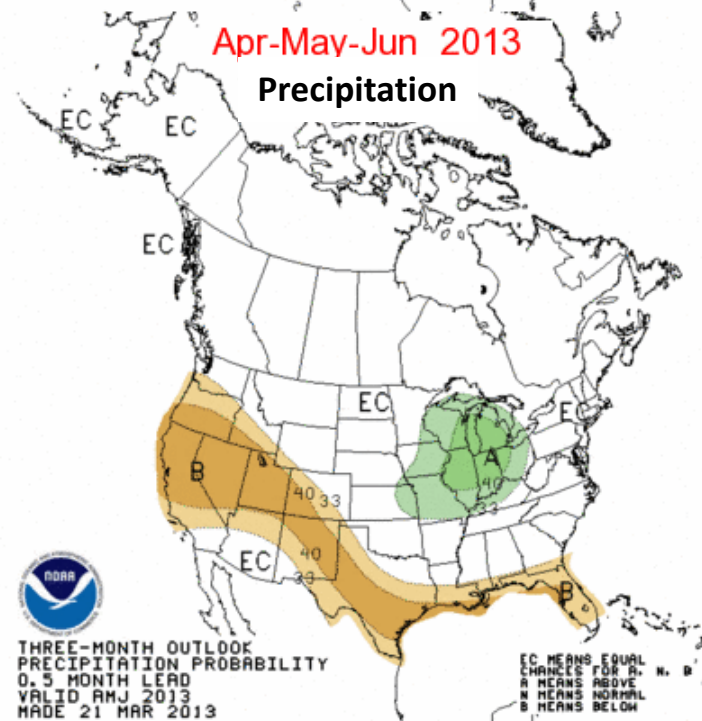
Apr-May-Jun 2013

Temperature



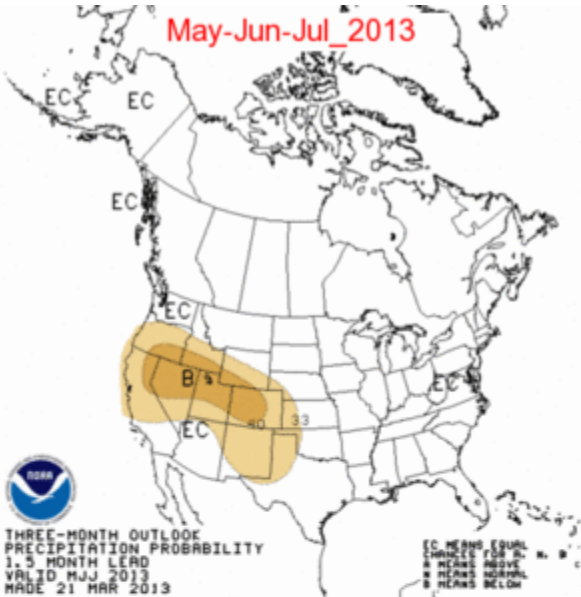
Apr-May-Jun 2013

Precipitation

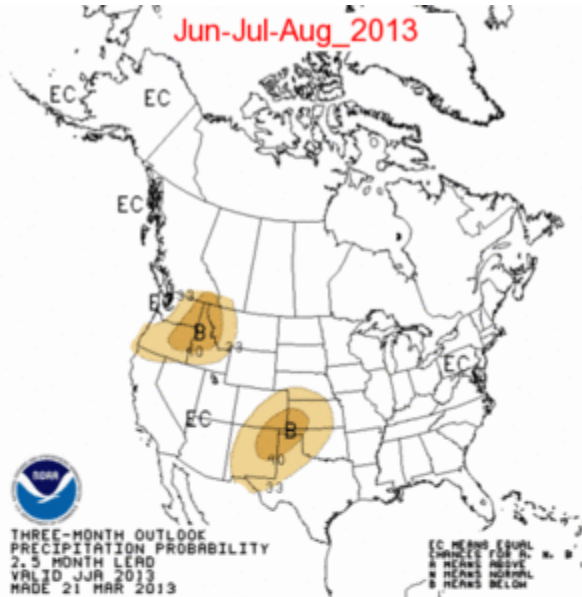


Precipitation Outlooks Issued 3/21/13

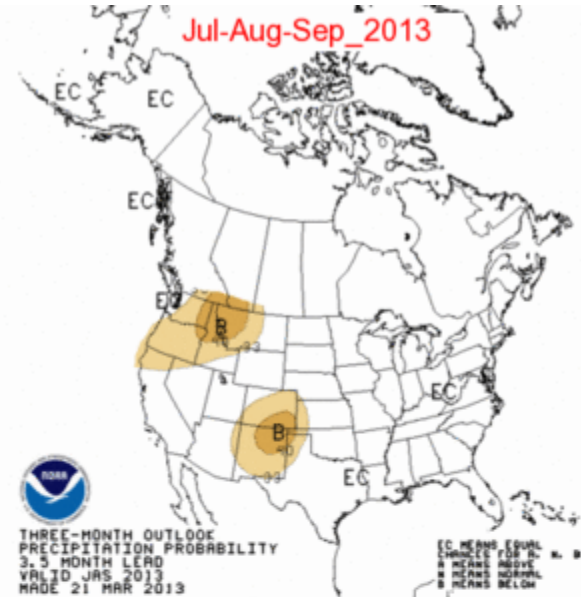
May-Jun-Jul_2013



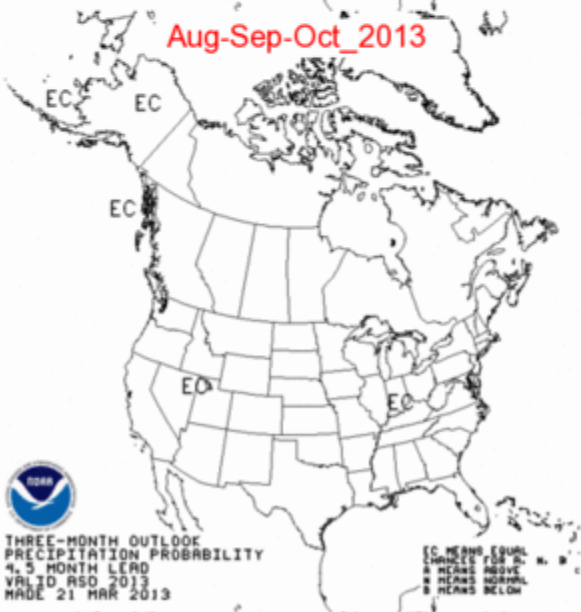
Jun-Jul-Aug_2013



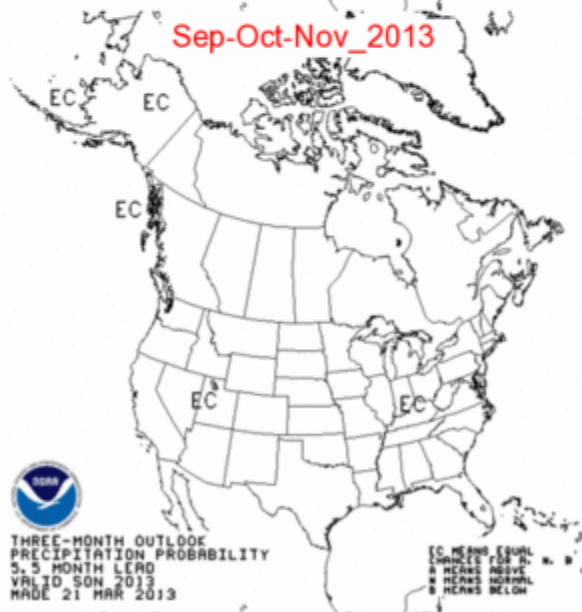
Jul-Aug-Sep_2013



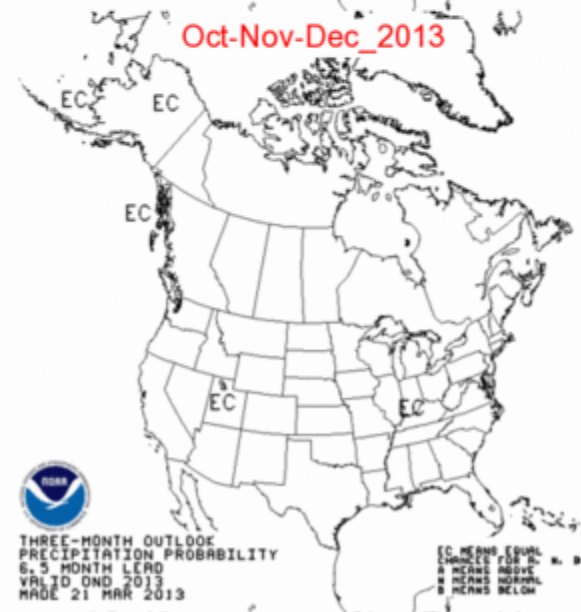
Aug-Sep-Oct_2013



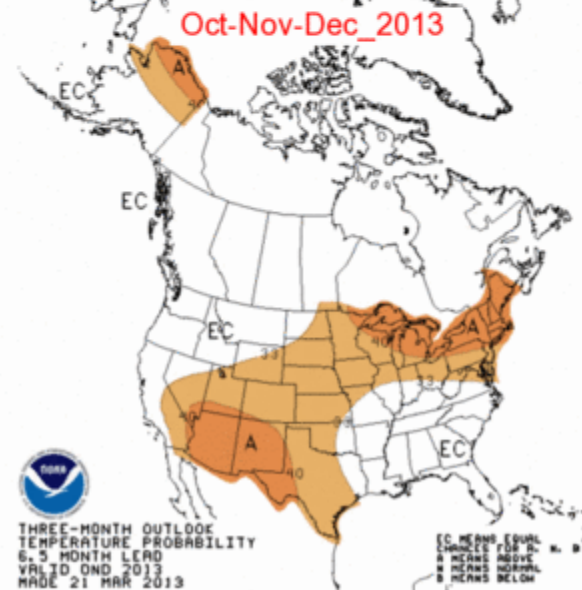
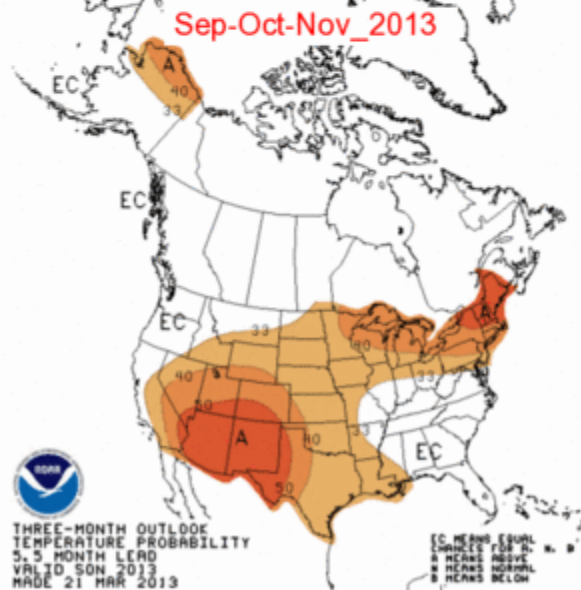
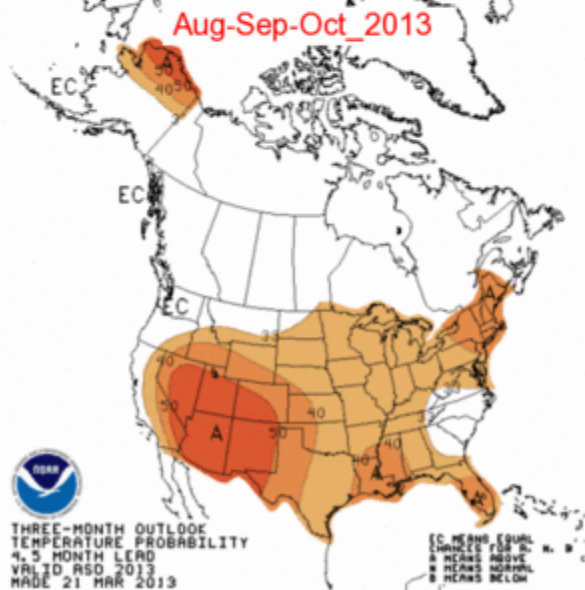
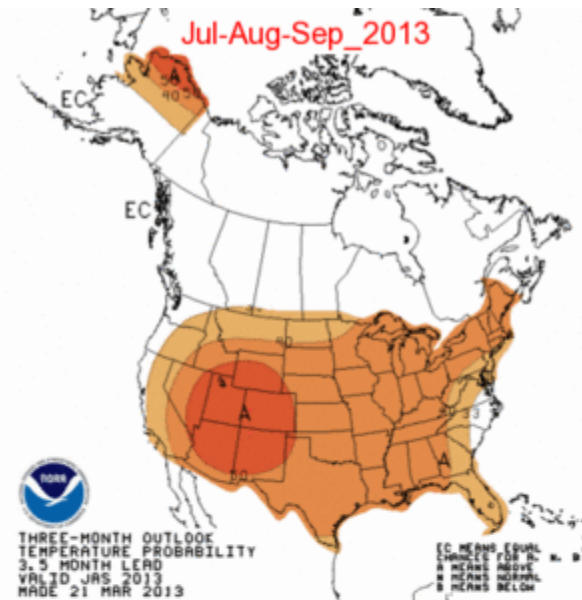
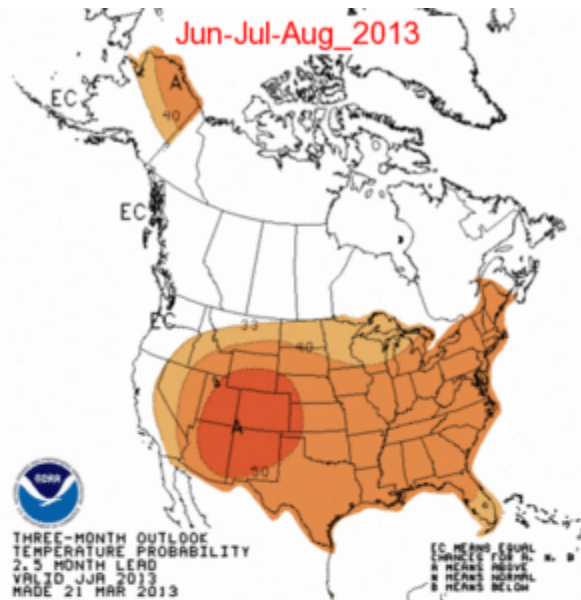
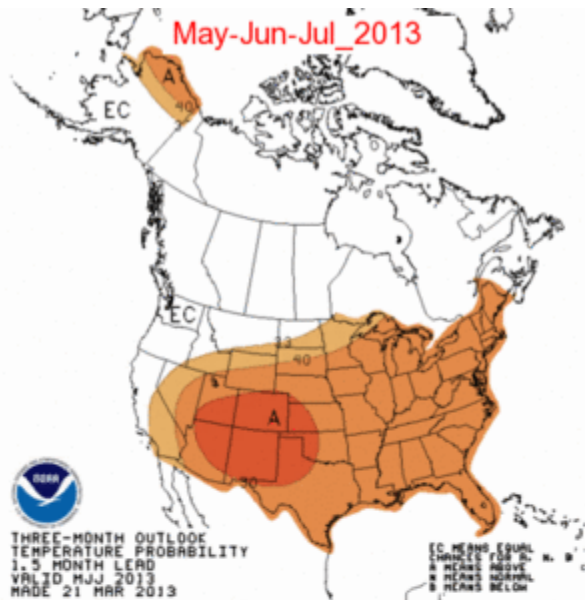
Sep-Oct-Nov_2013



Oct-Nov-Dec_2013

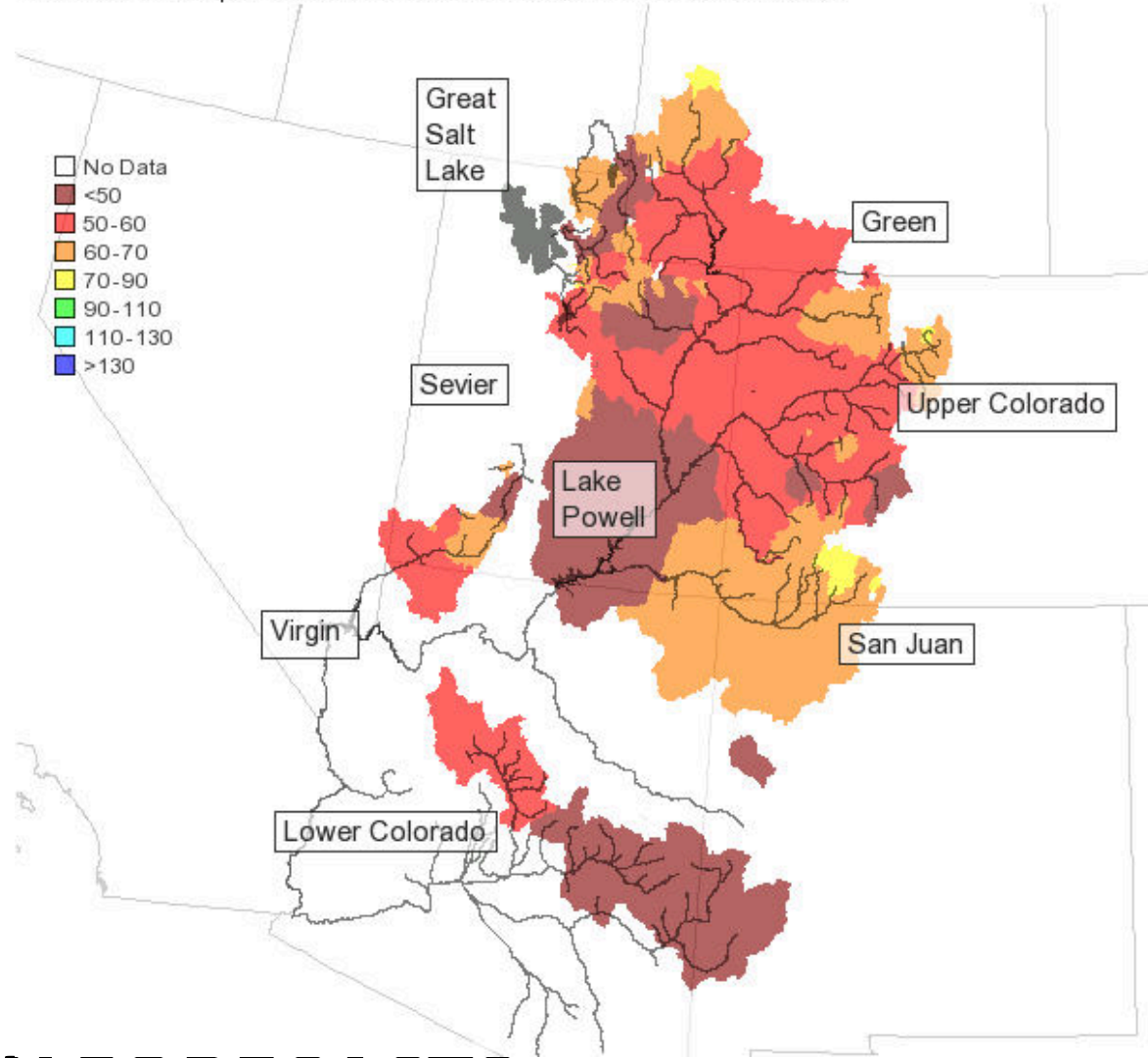


Temperature Outlooks Issued 3/21/13



Water Supply Outlook, March 1, 2013

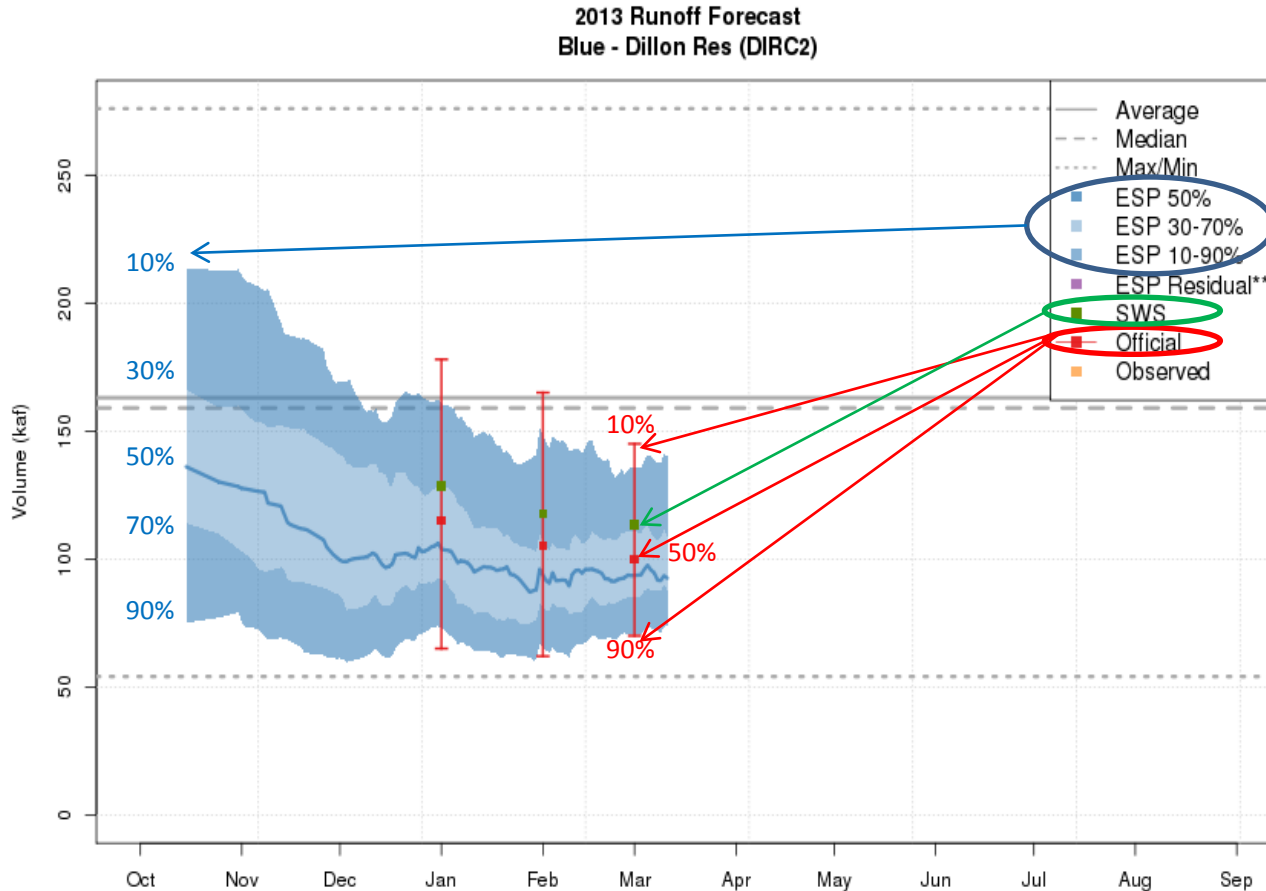
Click on text box for publication. Colors indicate the values of residual forecasts.



WY 2013

WATER SUPPLY FORECASTS

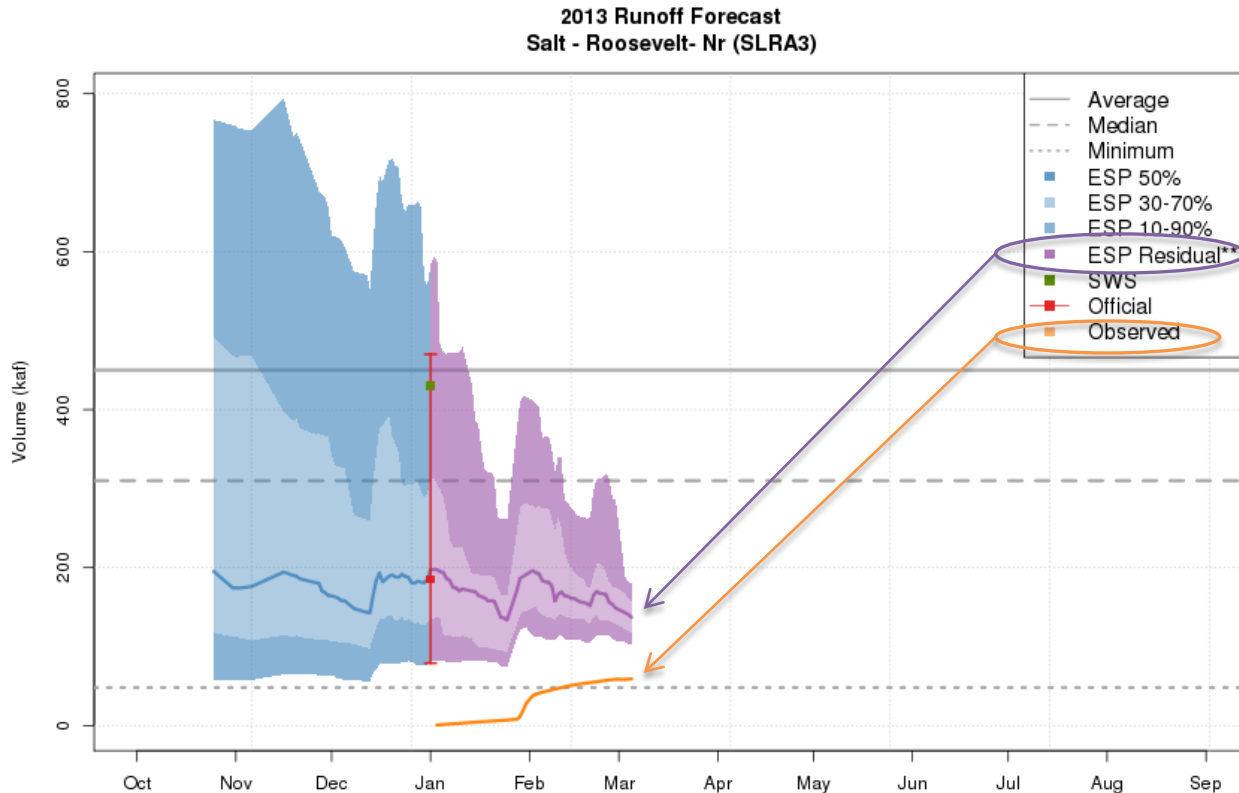
Daily ESP and Official Forecast Evolution Plot



Plot Created 2013-03-11 13:30:00, Latest ESP Run from 2013-03-11, CBRFC / NWS / NOAA
Maximum of 276 in 1984, Minimum of 54.1 in 2002, Average/Median for 1981-2010.

Available through links at: <http://www.cbrfc.noaa.gov/gmap/list/list.php?type=wsup>

Evolution Plot with ESP Residual and Observed Data



Plot Created 2013-03-06 09:56:59, Lastest ESP Run from 2013-01-01, CBRFC / NWS / NOAA
Maximum of 2120.2 in 1916, Minimum of 48.2 in 2002, Average/Median for 1981-2010.

**Residual forecasts include observed

Plot Created 2013-03-17 12:25:40, Lastest ESP Run from 2013-02-28, CBRFC / NWS / NOAA
Maximum of 196.8 in 1985, Minimum of 9.6 in 1977, Average/Median for 1981-2010.

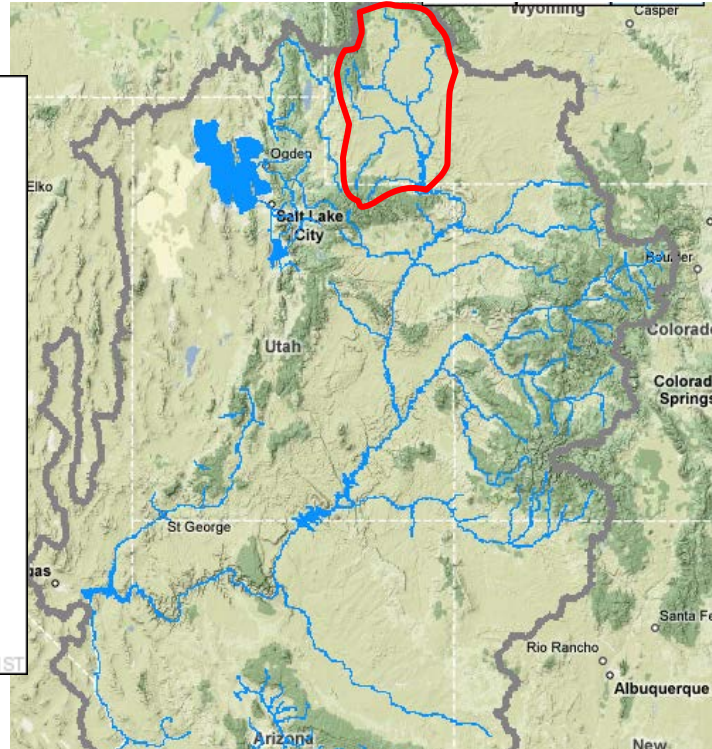
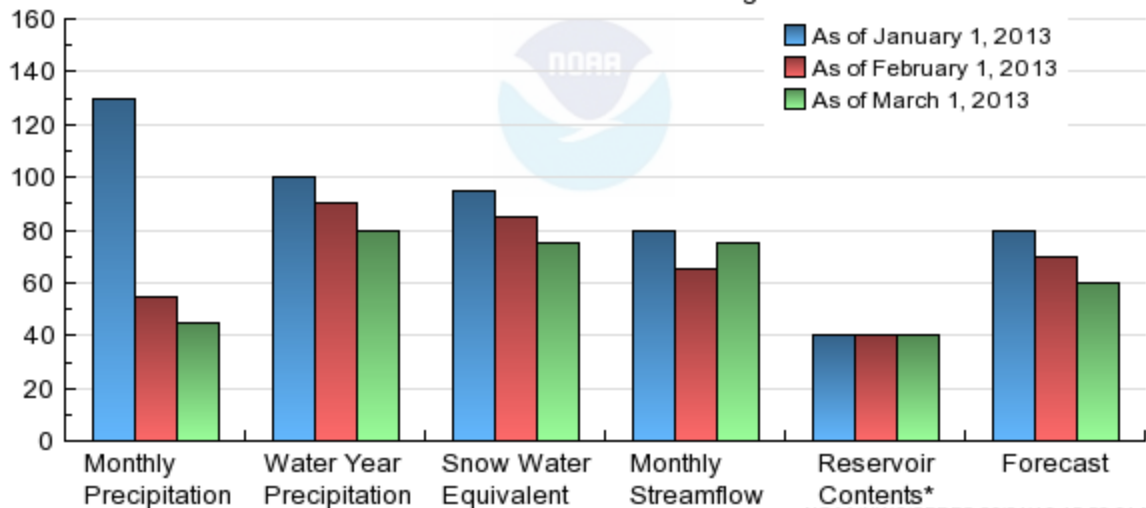
**No residual observations available, ESP Residual is not total runoff.

WATER YEAR 2012 vs. 2013

	WY 2012	WY 2013
Previous Apr-Jul runoff	Near record high	Near record low
Soil Moisture entering winter	Good	Poor
Winter (Nov-Feb) temperatures	Near to above normal	Near to below normal
March 1 SWE	~80% average	~75% average
Mid-March SWE	~75% average	~75% average
April 1 SWE	~55% average	???
Spring (Mar-May) temperatures	Above to much above normal	???
Spring precipitation	Much below normal	???
Apr-Jul Volumes (Grn Riv., Cisco, Bluff)	Observed ~35% average	Forecast ~55% average

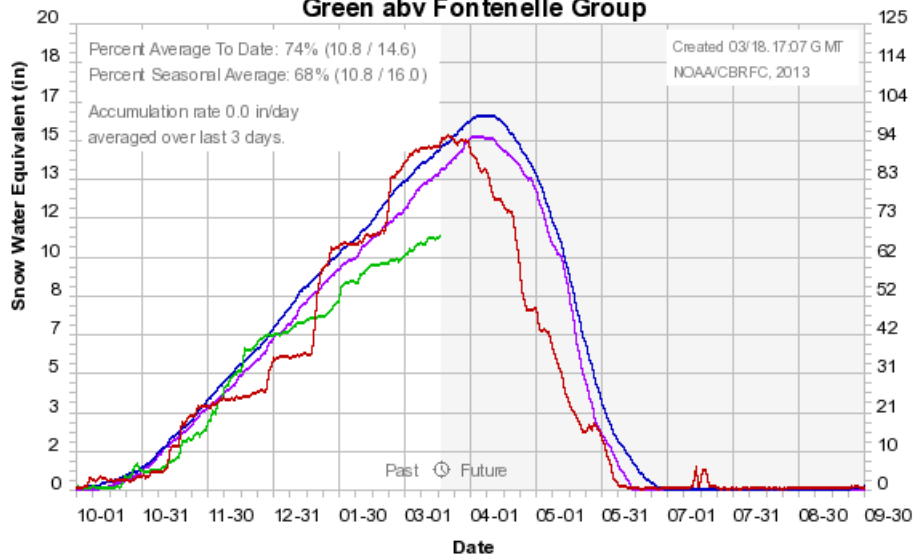
Upper Green Basin Conditions

Percent of 1981-2010 Average



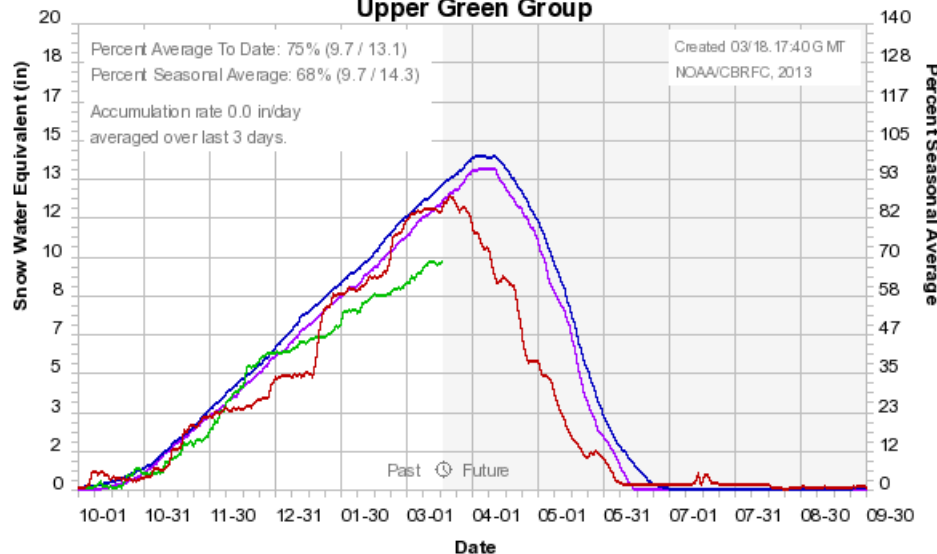
Colorado Basin River Forecast Center

Green abv Fontenelle Group



Colorado Basin River Forecast Center

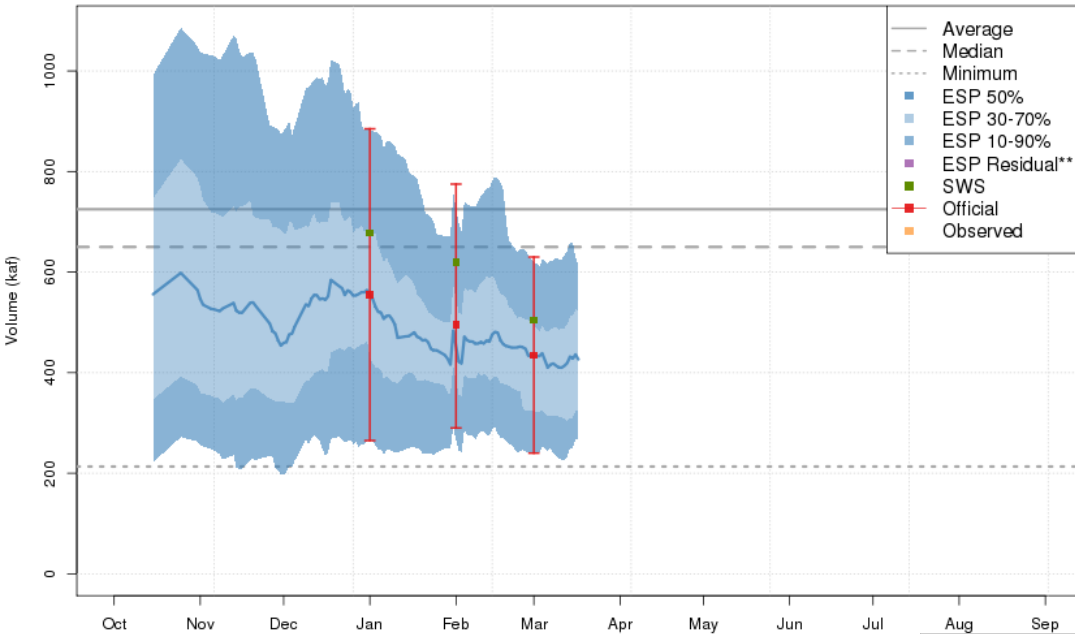
Upper Green Group



Median 1981-2010 — Average 1981-2010 — 2013 — 2012 —

Median 1981-2010 — Average 1981-2010 — 2013 — 2012 —

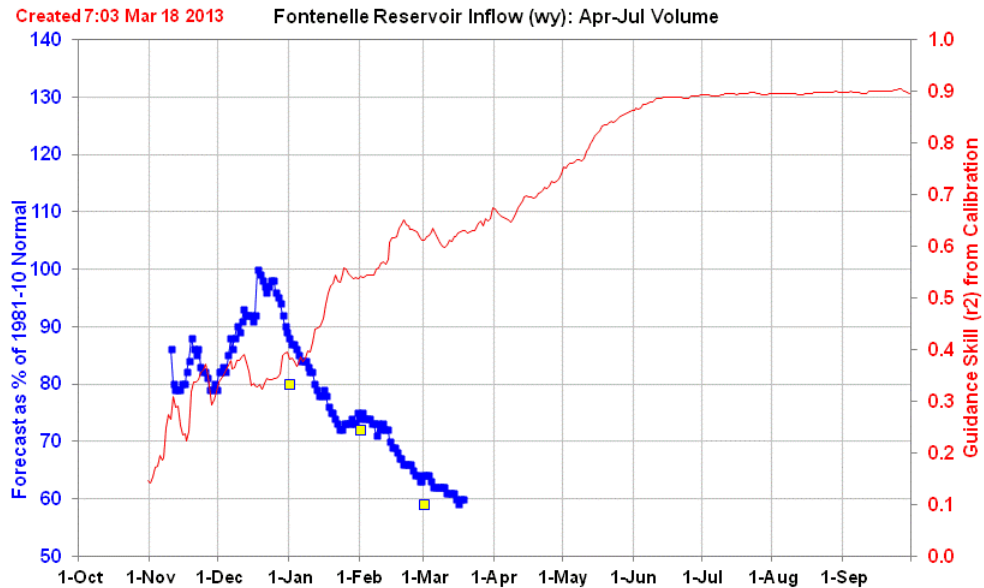
2013 Runoff Forecast
Green - Fontenelle Res- Fontenelle Nr (GBRW4)



Plot Created 2013-03-18 09:27:11, Lastest ESP Run from 2013-03-17, CBRFC / NWS / NOAA
Maximum of 1682.9 in 1986, Minimum of 213.3 in 1977, Average/Median for 1981-2010.

	Mar 1	Mar 18
CBRFC-SWS	507	
CBRFC-ESP	433	426
CBRFC FINAL	435 / 60%	435 / 60%

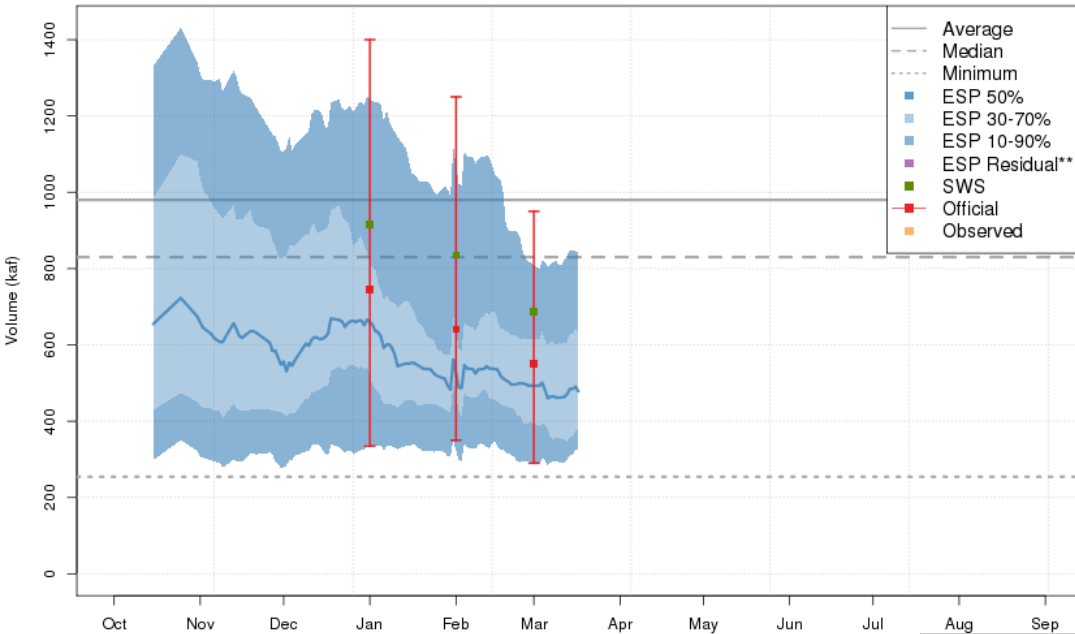
	Mar 1	Mar 18
NRCS- Daily	461	437
NRCS-Statistical	480/430R	450/385R
NRCS FINAL	430 / 59%	



This is an automated product based solely on SNOTEL data, provisional data are subject to change. This product is a statistically based guidance forecast combining indices of snowpack and precipitation. Skill is defined as the correlation (squared) between the guidance and observed during calibration. This product does not consider climate information such as El Niño or short range weather forecasts, or a variety of other factors considered in the official forecasts. This product is not meant to replace or superecede the official forecasts produced in coordination with the National Weather Service. Science Contact: Jim.Marron@por.usda.gov www.wcc.nrcs.usda.gov/west/daily_forecasts.html



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

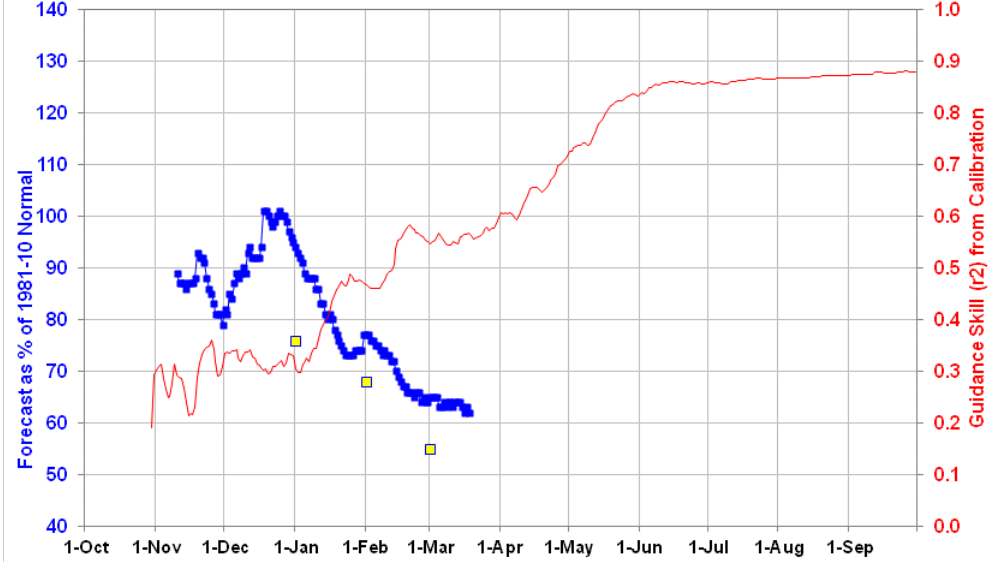


Plot Created 2013-03-18 09:27:21, Latest ESP Run from 2013-03-17, CBRFC / NWS / NOAA
Maximum of 2224.3 in 1986, Minimum of 254.3 in 1977, Average/Median for 1981-2010.

	Mar 1	Mar 18
CBRFC-SWS	658	
CBRFC-ESP	493	478
CBRFC FINAL	550 / 56%	550 / 56%

	Mar 1	Mar 18
NRCS- Daily	638	612
NRCS-Statistical	535R	490R
NRCS FINAL	535 / 55%	

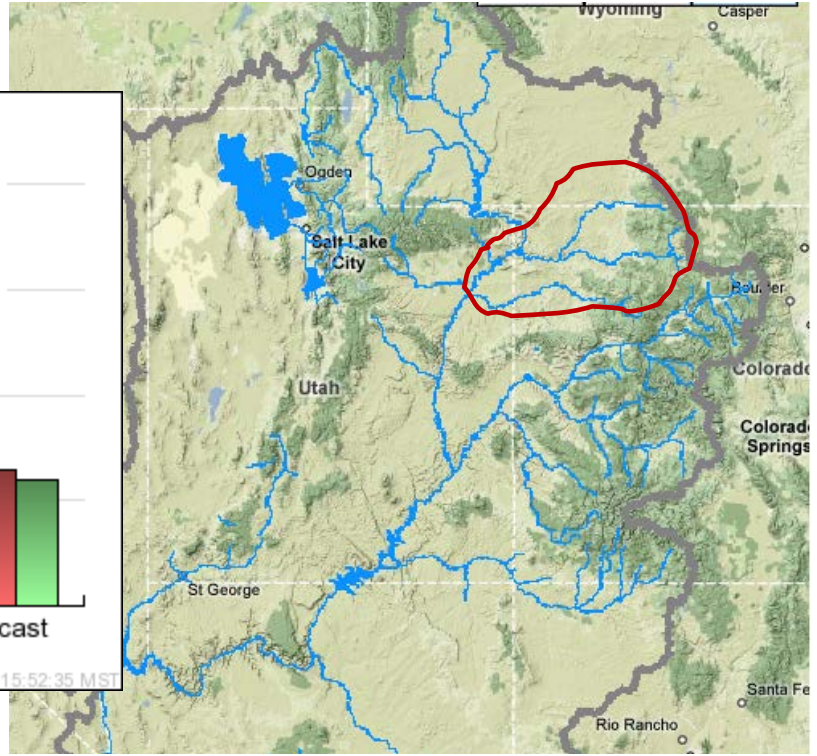
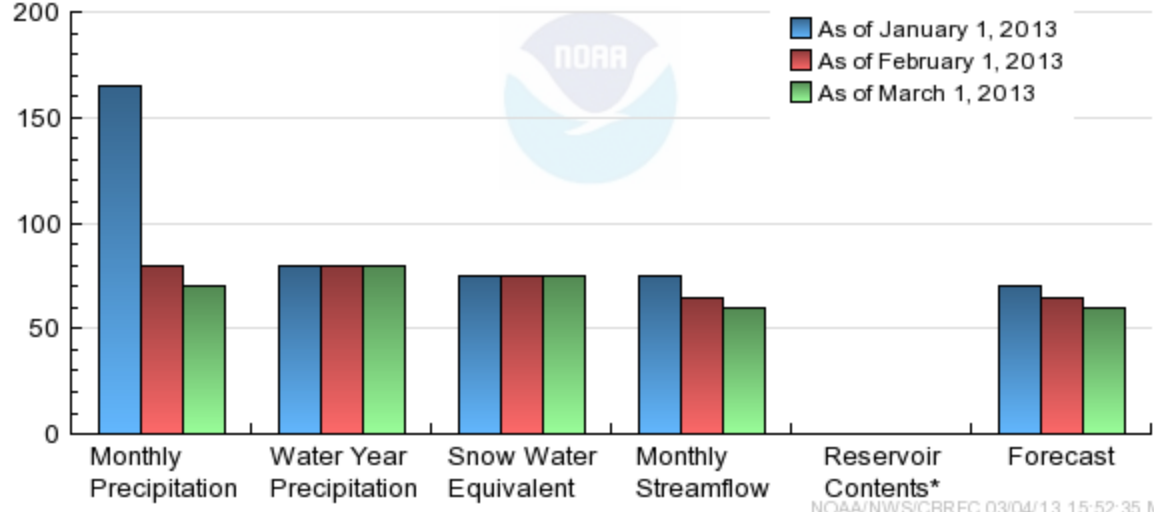
Created 7:04 Mar 18 2013 Flaming Gorge Reservoir Inflow (UT): Apr-Jul Volume



This is an automated product based solely on SNOTEL data, provisional data are subject to change. This product is a statistically based guidance forecast combining indices of snowpack and precipitation. Skill is defined as the correlation (squared) between the guidance and observed during calibration. This product does not consider climate information such as El Niño or short range weather forecasts, or a variety of other factors considered in the official forecasts. This product is not meant to replace or supersede the official forecasts produced in coordination with the National Weather Service. Science Contact: Jim Marron@por.usda.gov www.wcc.nrcs.usda.gov/wsf/daily_forecasts.html

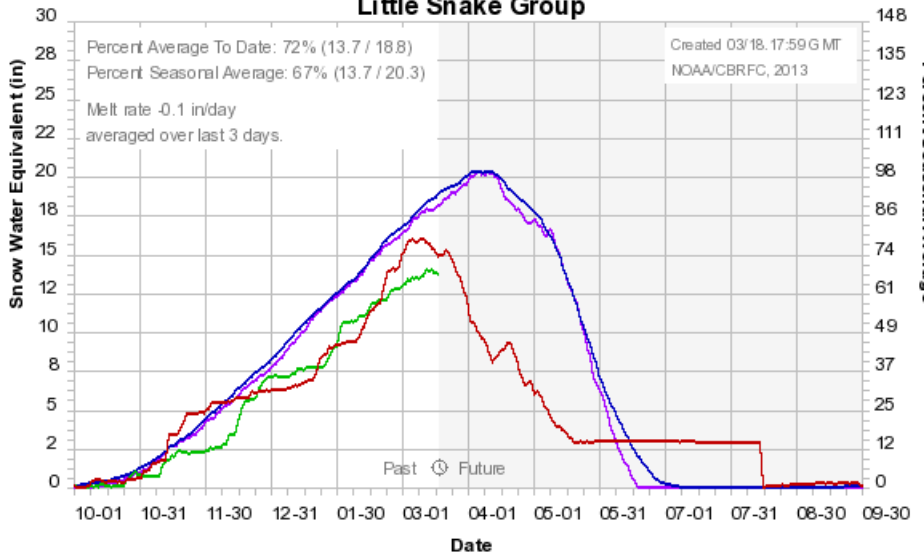
Yampa/White Basin Conditions

Percent of 1981-2010 Average



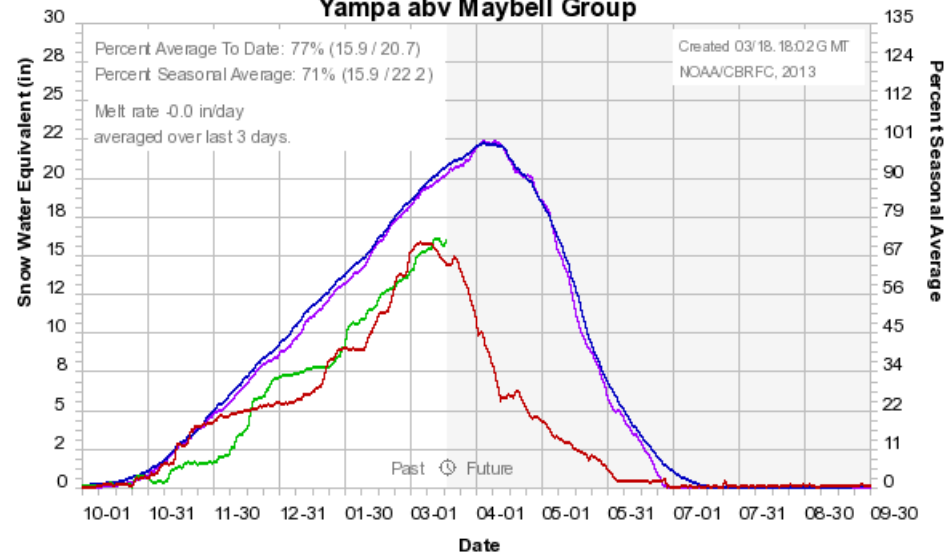
Colorado Basin River Forecast Center

Little Snake Group



Colorado Basin River Forecast Center

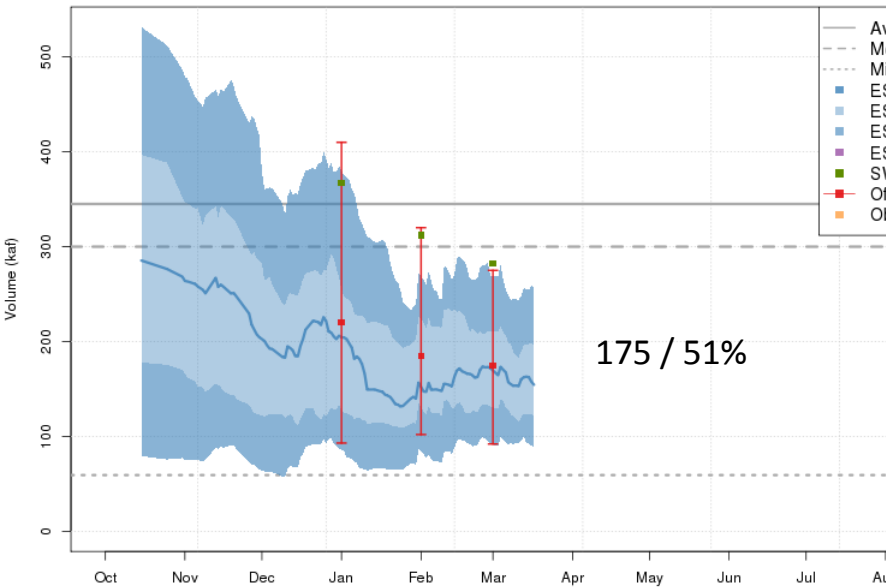
Yampa abv Maybell Group



Median 1981-2010 — Average 1981-2010 — 2013 — 2012 —

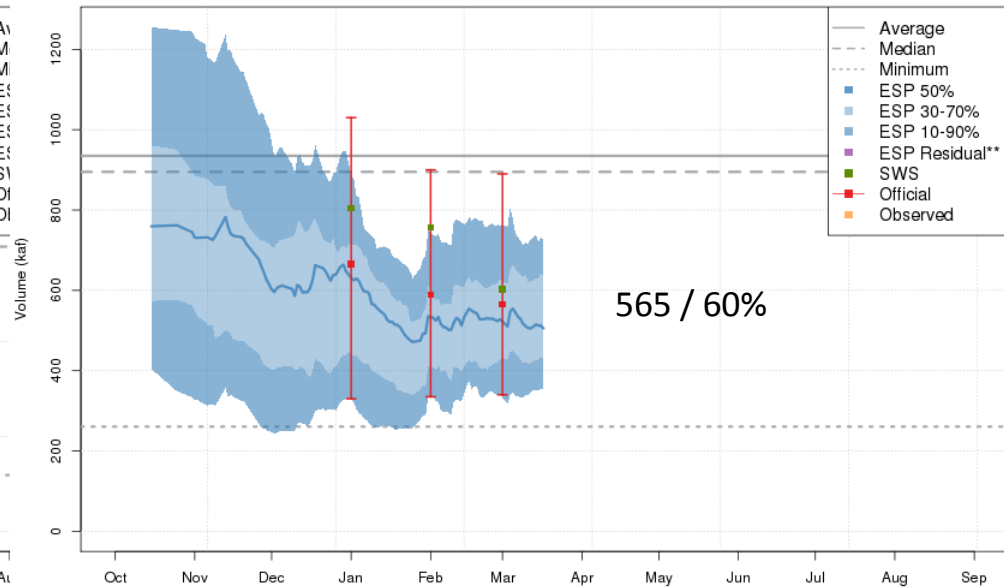
Median 1981-2010 — Average 1981-2010 — 2013 — 2012 —

2013 Runoff Forecast
Little Snake - Lily- Nr (LILC2)



Plot Created 2013-03-18 09:27:42, Latest ESP Run from 2013-03-17, CBRFC / NWS / NOAA
Maximum of 795.1 in 1984, Minimum of 59.2 in 1934, Average/Median for 1981-2010.

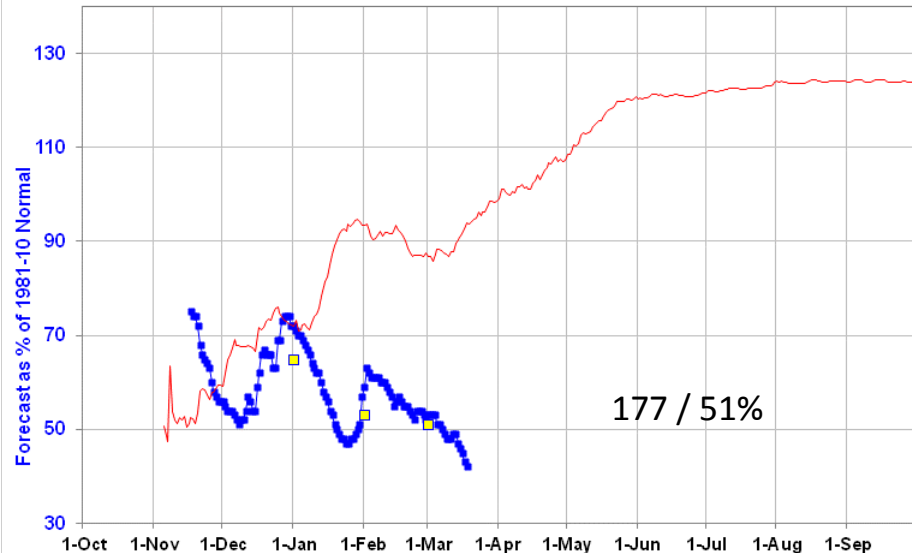
2013 Runoff Forecast
Yampa - Maybell- Nr (MBLC2)



Plot Created 2013-03-18 09:27:47, Latest ESP Run from 2013-03-17, CBRFC / NWS / NOAA
Maximum of 1920.4 in 1984, Minimum of 260.6 in 1977, Average/Median for 1981-2010.

Created 7:05 Mar 18 2013

Little Snake R nr Lily (CO): Apr-Jul Volume

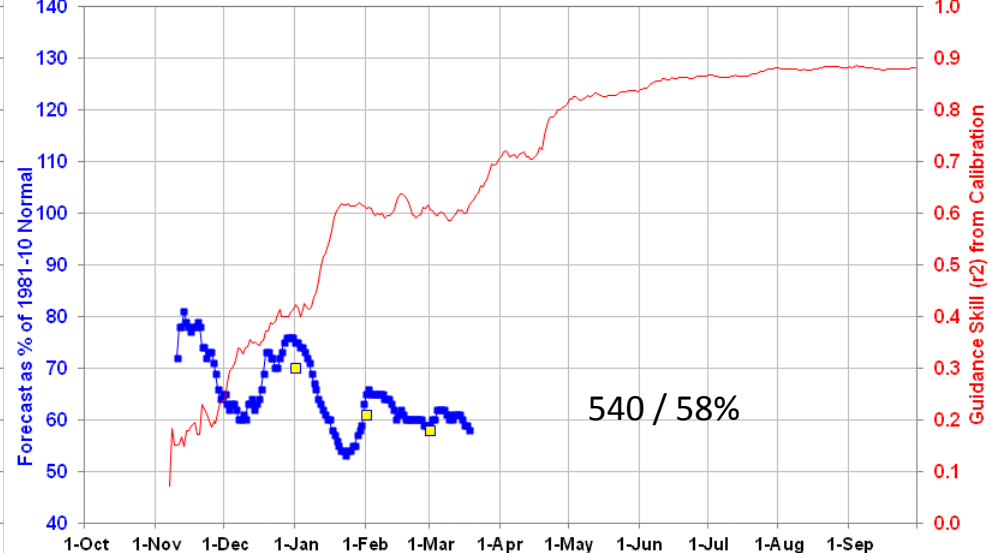


This is an automated product based solely on SNOTEL data, provisional data are subject to change. This product is a statistically based guidance forecast combining indices of snowpack and precipitation. Skill is defined as the correlation (squared) between the guidance and observed during calibration. This product does not consider climate information such as El Niño or short range weather forecasts, or a variety of other factors considered in the official forecasts. This product is not meant to replace or supersede the official forecasts produced in coordination with the National Weather Service. Science Contact: Jim.Marron@por.usda.gov www.wcc.nrcs.usda.gov/wsf/daily_forecasts.html



Created 7:04 Mar 18 2013

Yampa R nr Maybell (CO): Apr-Jul Volume

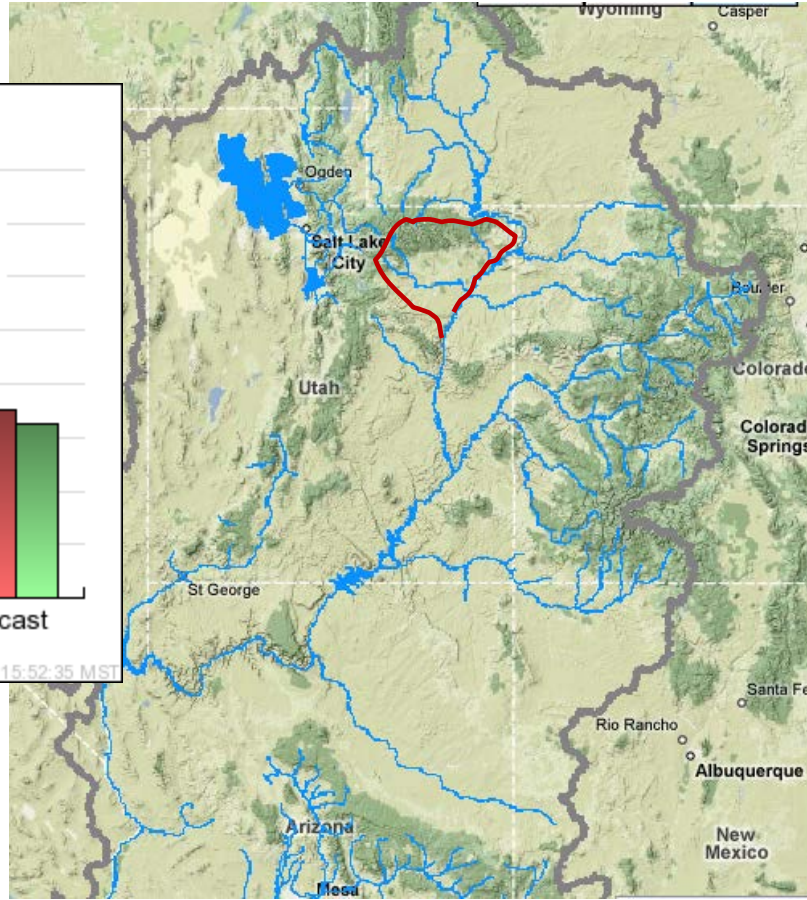
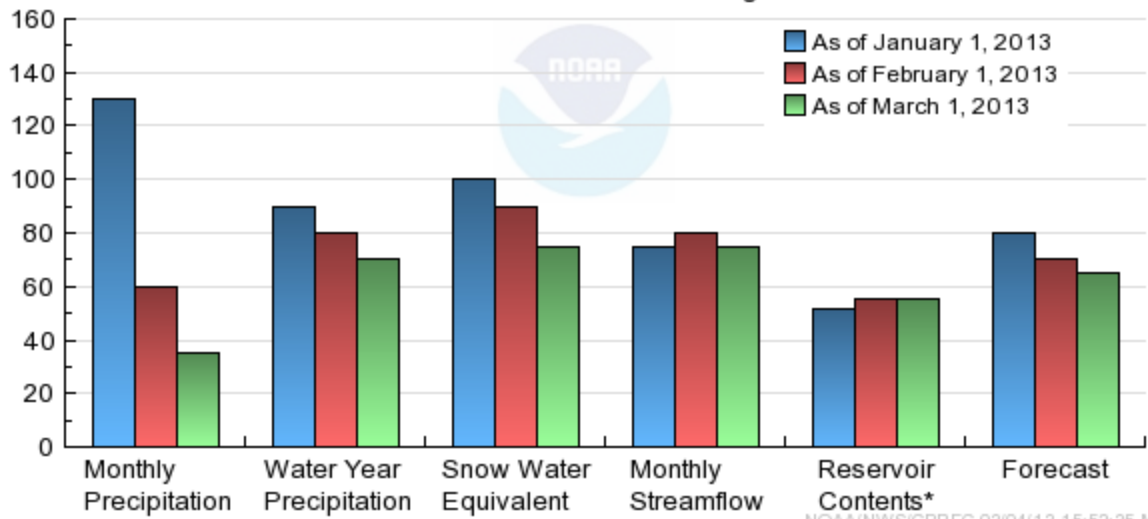


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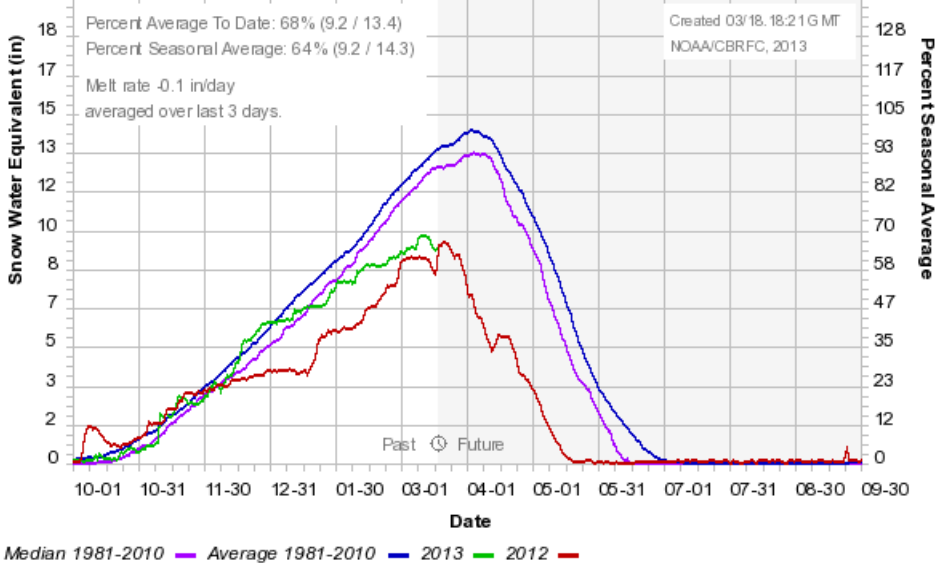


Duchesne Basin Conditions

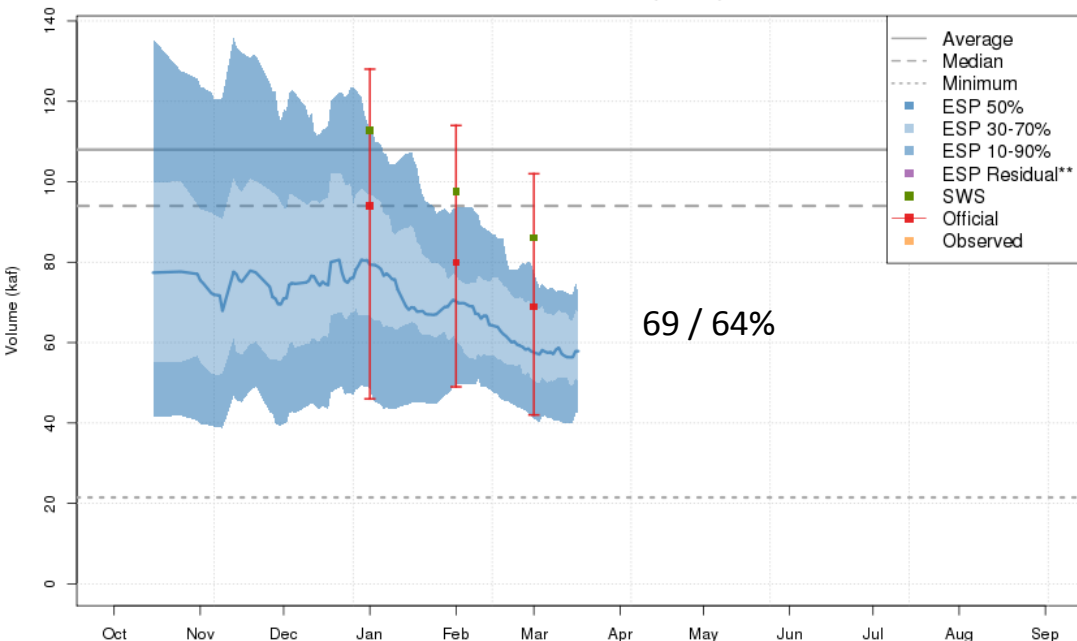
Percent of 1981-2010 Average



Colorado Basin River Forecast Center Duchesne River Group

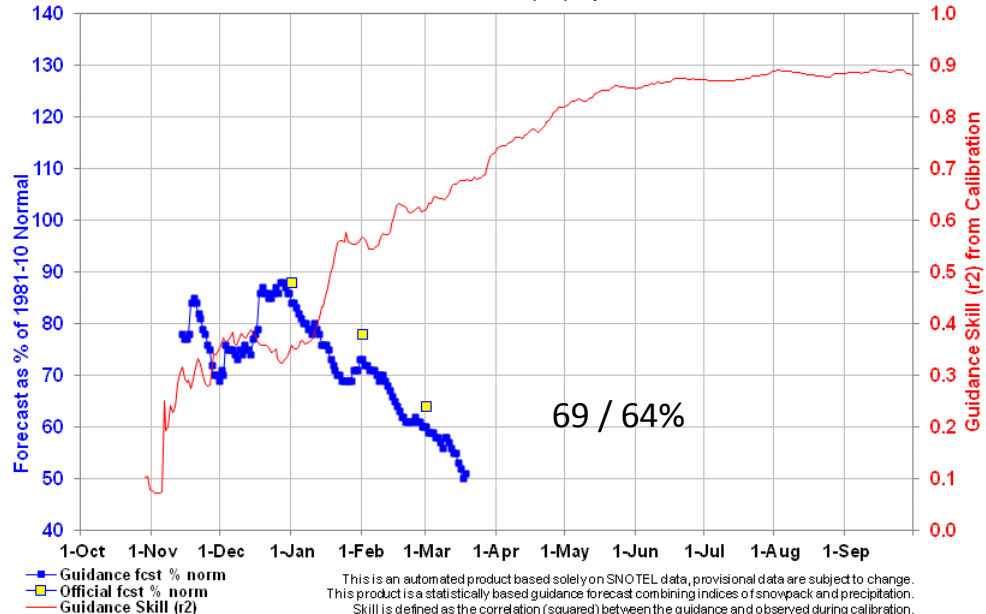


2013 Runoff Forecast Duchesne - Tabiona- Nr (TADU1)



Plot Created 2013-03-18 09:28:29, Latest ESP Run from 2013-03-17, CBRFC / NWS / NOAA
Maximum of 206.1 in 1952, Minimum of 21.5 in 1934, Average/Median for 1981-2010.

Created 7:06 Mar 18 2013 Duchesne River nr Taboia (UT): Apr-Jul Volume

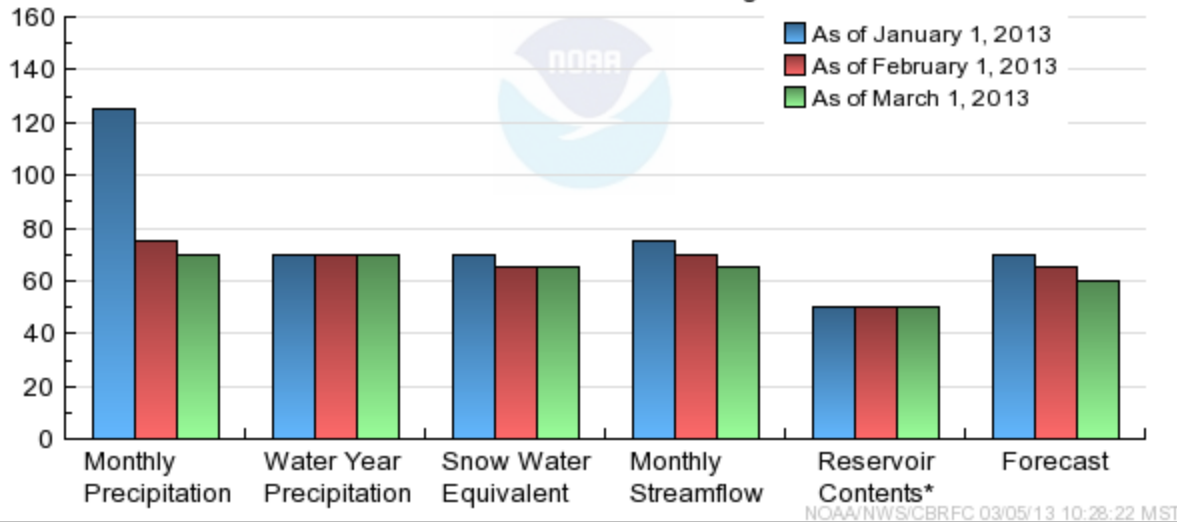


This is an automated product based solely on SNOTEL data, provisional data are subject to change. This product is a statistically based guidance forecast combining indices of snowpack and precipitation. Skill is defined as the correlation (squared) between the guidance and observed during calibration. This product does not consider climate information such as El Niño or short range weather forecasts, or a variety of other factors considered in the official forecasts. This product is not meant to replace or supersede the official forecasts produced in coordination with the National Weather Service. Science Contact: Jim Marron@por.usda.gov www.wcc.nrcs.usda.gov/wsf/daily_forecasts.html

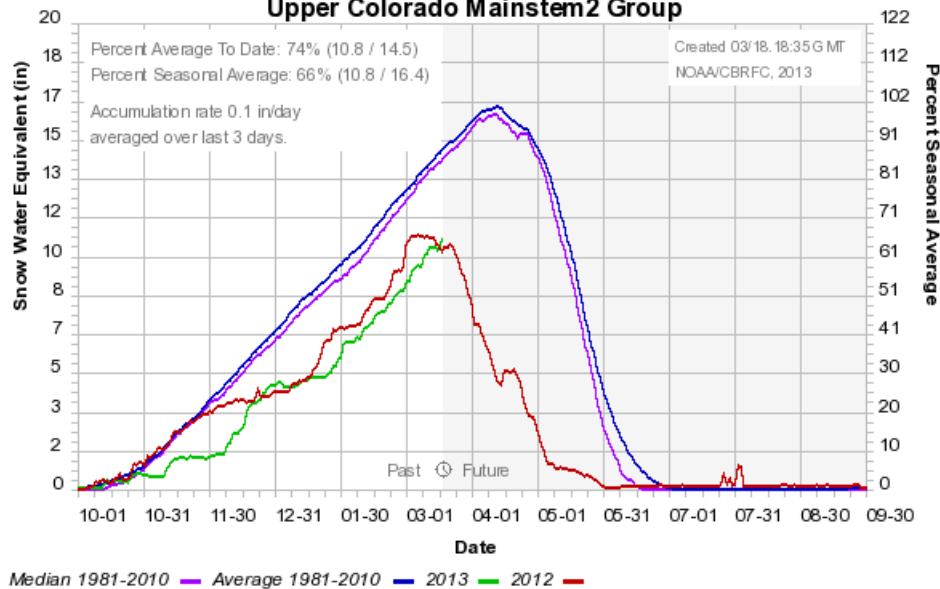


Upper Colorado Mainstem Basin Conditions

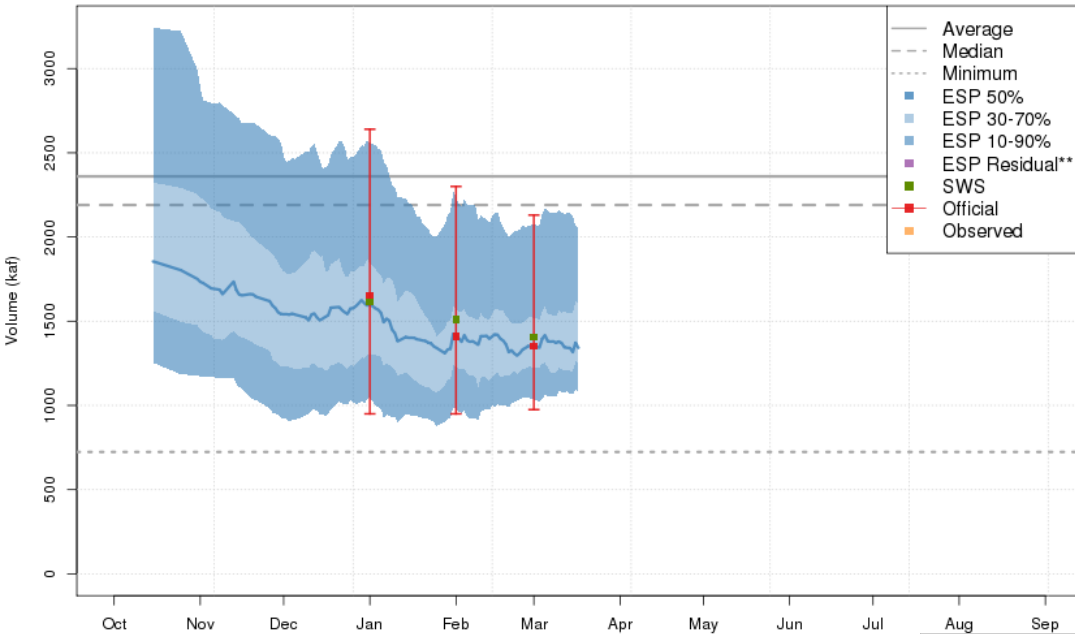
Percent of 1981-2010 Average



Colorado Basin River Forecast Center Upper Colorado Mainstem2 Group



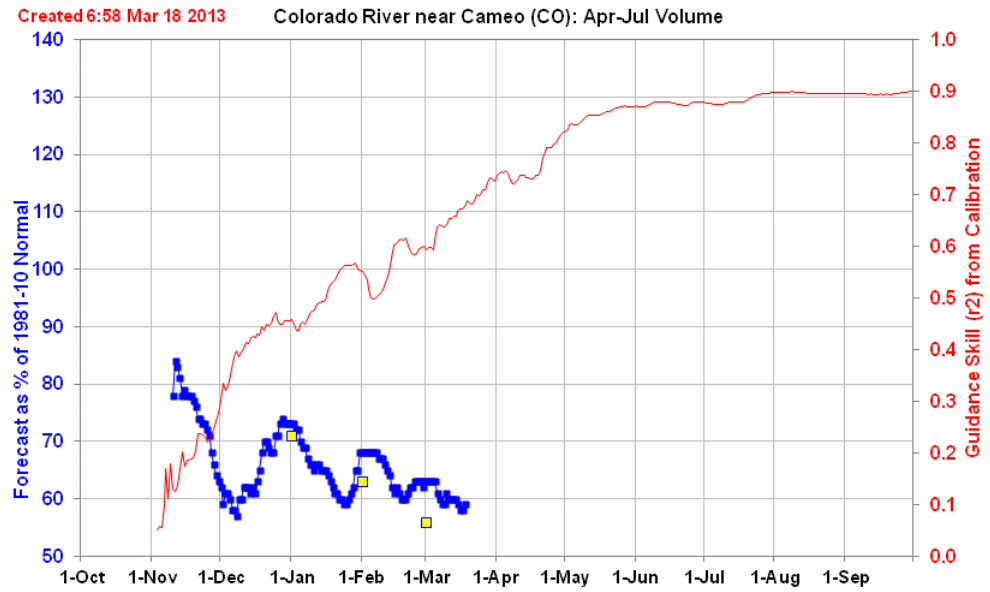
2013 Runoff Forecast
Colorado - Cameo- Nr (CAMC2)



Plot Created 2013-03-18 09:26:33, Latest ESP Run from 2013-03-17, CBRFC / NWS / NOAA
Maximum of 4503 in 1984, Minimum of 723.6 in 2002, Average/Median for 1981-2010.

	Mar 1	Mar 18
CBRFC-SWS	1457	
CBRFC-ESP	1350	1342
CBRFC FINAL	1350 / 57%	

	Mar 1	Mar 18
NRCS- Daily	1462	1379
NRCS-Statistical	1330R	1350R
NRCS FINAL	1320 / 56%	

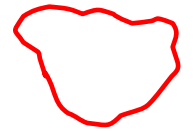
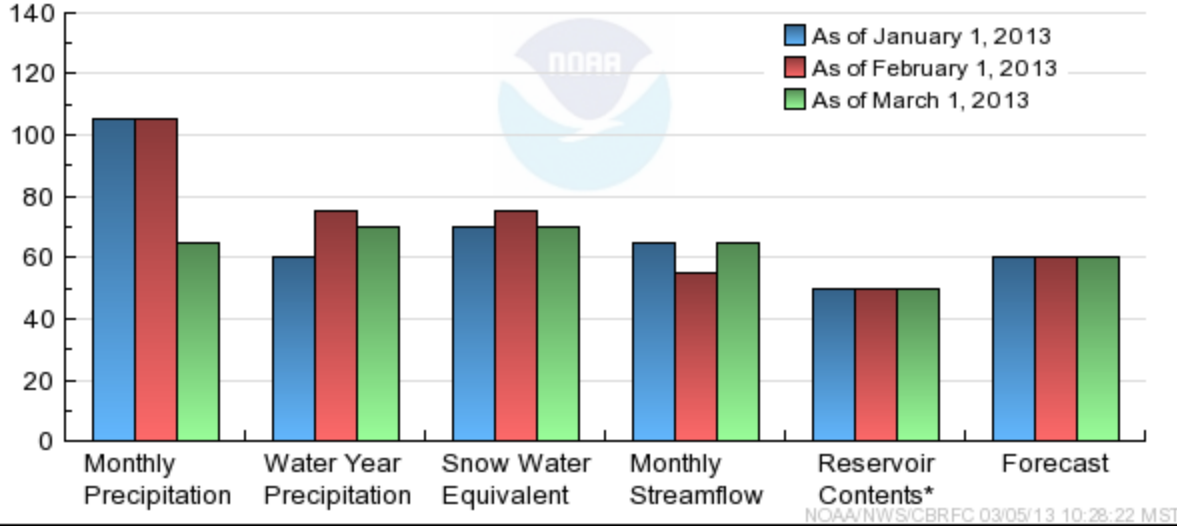


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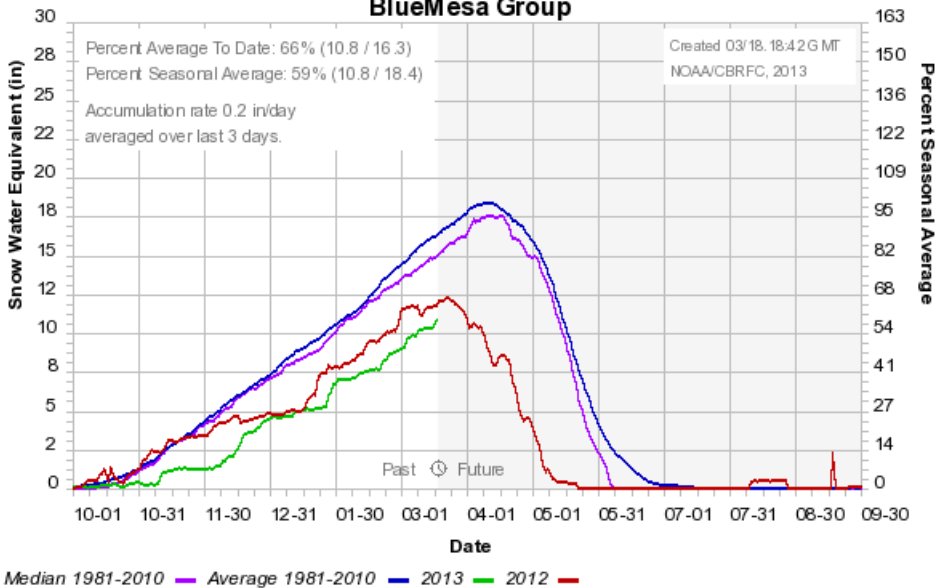
Gunnison Basin Conditions

Percent of 1981-2010 Average

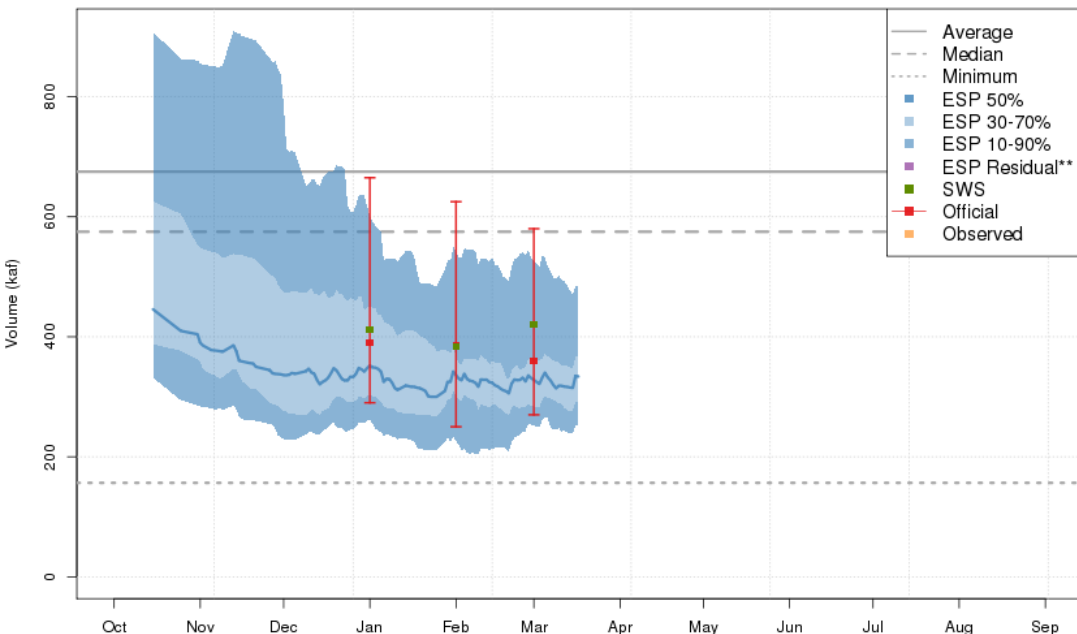


Colorado Basin River Forecast Center

BlueMesa Group



2013 Runoff Forecast
Gunnison - Blue Mesa Res (BMDC2)

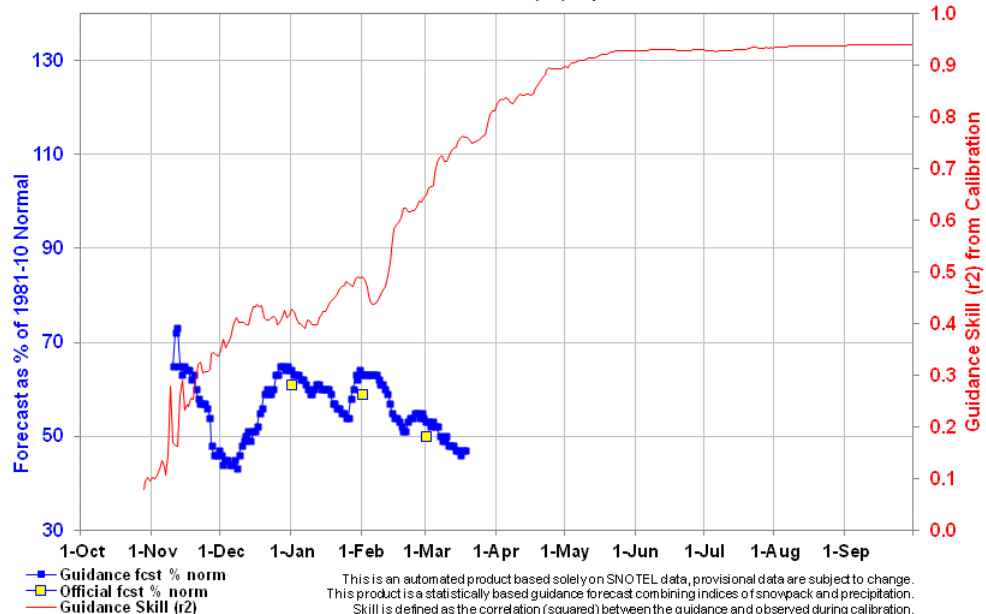


Plot Created 2013-03-18 09:26:28, Latest ESP Run from 2013-03-17, CBRFC / NWS / NOAA
Maximum of 1433 in 1984, Minimum of 156.6 in 2002, Average/Median for 1981-2010.

	Mar 1	Mar 18
CBRFC-SWS	434	
CBRFC-ESP	331	334
CBRFC FINAL	360 / 53%	345 / 51%

	Mar 1	Mar 18
NRCS- Daily	357	320
NRCS-Statistical	315/335R	305/330R
NRCS FINAL	335 / 50%	

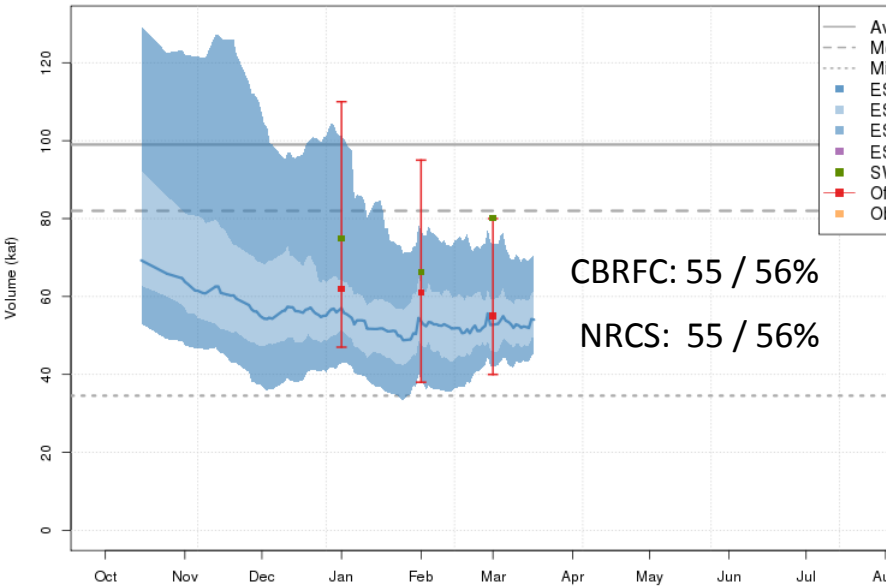
Created 6:59 Mar 18 2013 Blue Mesa Reservoir Inflow (co): Apr-Jul Volume



This is an automated product based solely on SNOTEL data, provisional data are subject to change. This product is a statistically based guidance forecast combining indices of snowpack and precipitation. Skill is defined as the correlation (squared) between the guidance and observed during calibration. This product does not consider climate information such as El Niño or short range weather forecasts, or a variety of other factors considered in the official forecasts. This product is not meant to replace or supersede the official forecasts produced in coordination with the National Weather Service. Science Contact: Jim.Marron@por.usda.gov www.wcc.nrcs.usda.gov/wsf/daily_forecasts.html

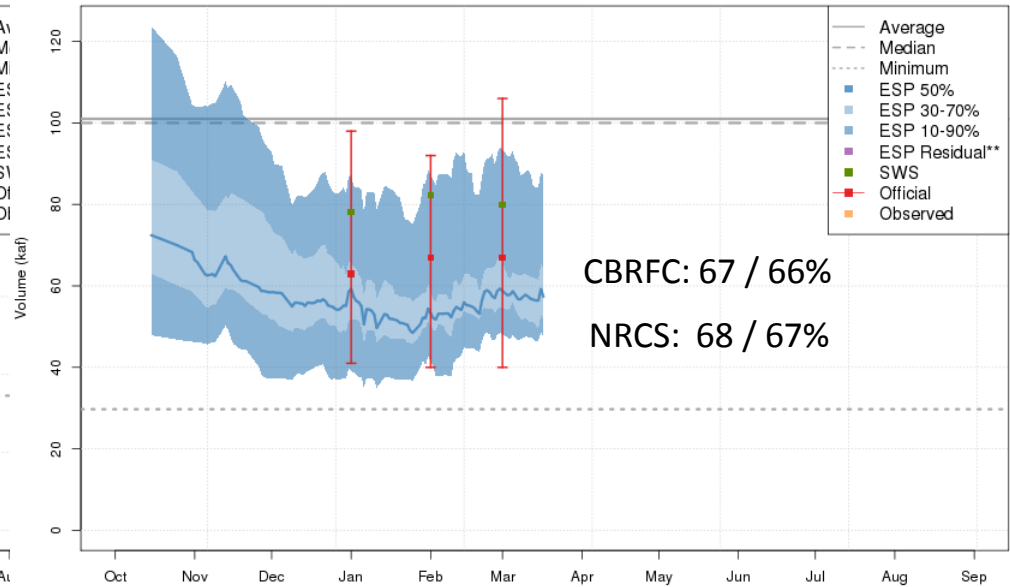


2013 Runoff Forecast
Taylor - Taylor Park Res (TPIC2)



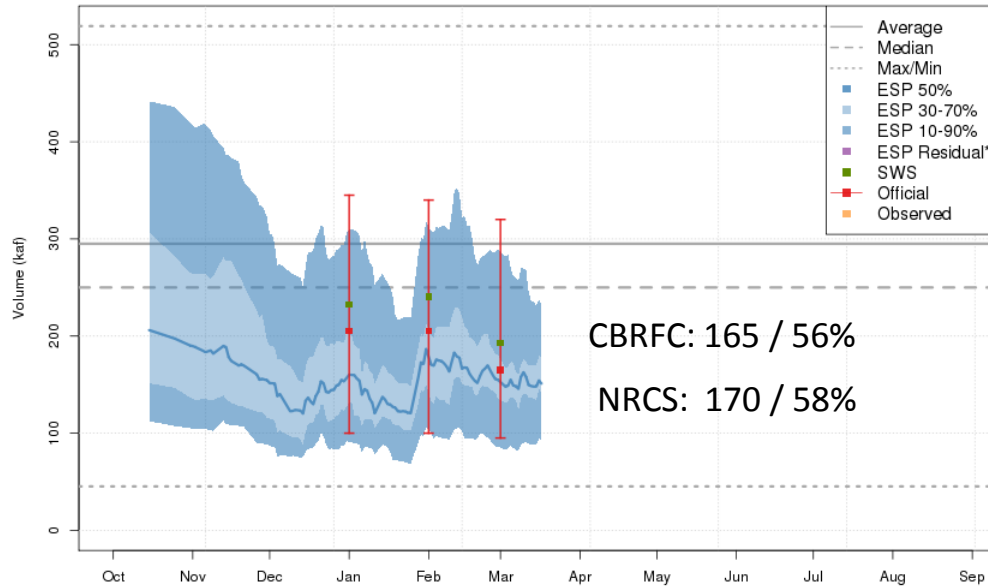
Plot Created 2013-03-18 09:28:32, Lastest ESP Run from 2013-03-17, CBRFC / NWS / NOAA
Maximum of 182.1 in 1995, Minimum of 34.5 in 2002, Average/Median for 1981-2010.

2013 Runoff Forecast
Uncompahgre - Ridgway Res (RBSC2)



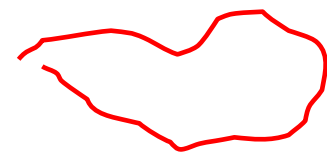
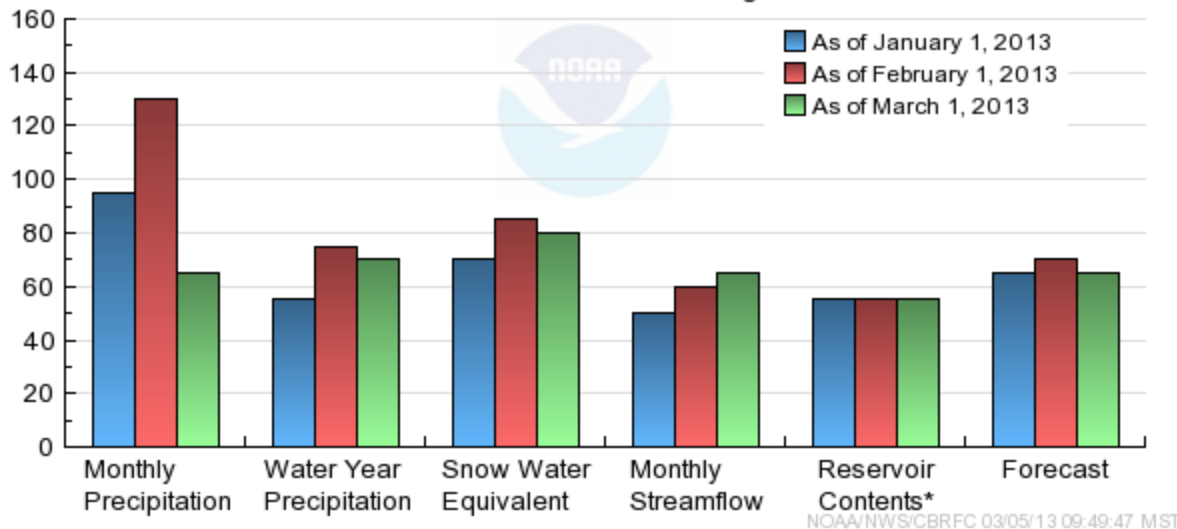
Plot Created 2013-03-18 09:28:06, Lastest ESP Run from 2013-03-17, CBRFC / NWS / NOAA
Maximum of 187.6 in 1984, Minimum of 29.7 in 2002, Average/Median for 1981-2010.

2013 Runoff Forecast
Dolores - Mcphee Res (MPHC2)

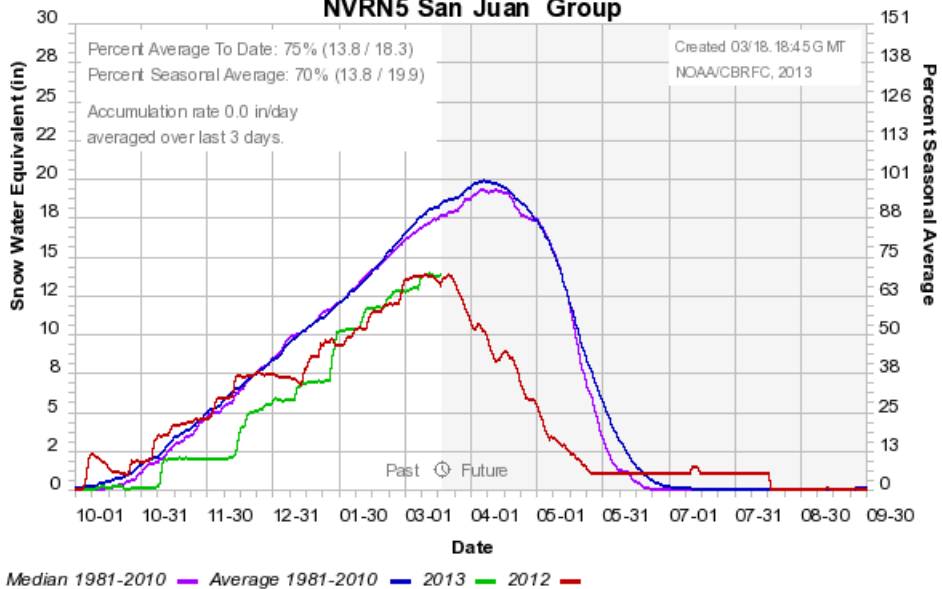


Plot Created 2013-03-18 09:27:50, Lastest ESP Run from 2013-03-17, CBRFC / NWS / NOAA
Maximum of 519.1 in 1993, Minimum of 45.2 in 2002, Average/Median for 1981-2010.

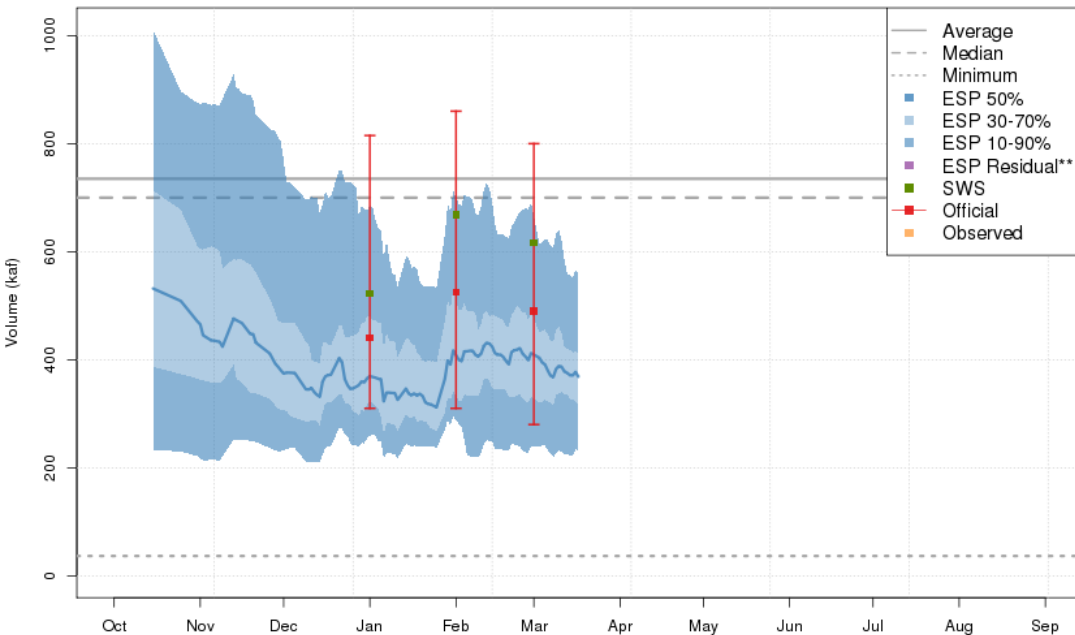
San Juan Basin Conditions Percent of 1981-2010 Average



Colorado Basin River Forecast Center NVRN5 San Juan Group



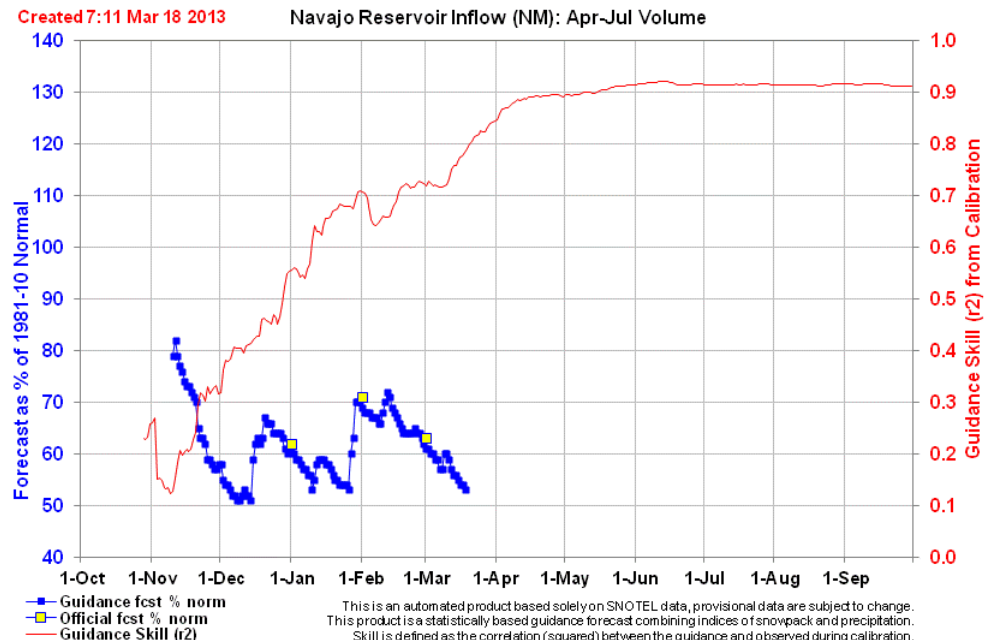
2013 Runoff Forecast
San Juan - Navajo Res- Archuleta- Nr (NVRN5)



Plot Created 2013-03-18 13:05:18, Latest ESP Run from 2013-03-17, CBRFC / NWS / NOAA
Maximum of 1776.8 in 1979, Minimum of 36.7 in 2002, Average/Median for 1981-2010.

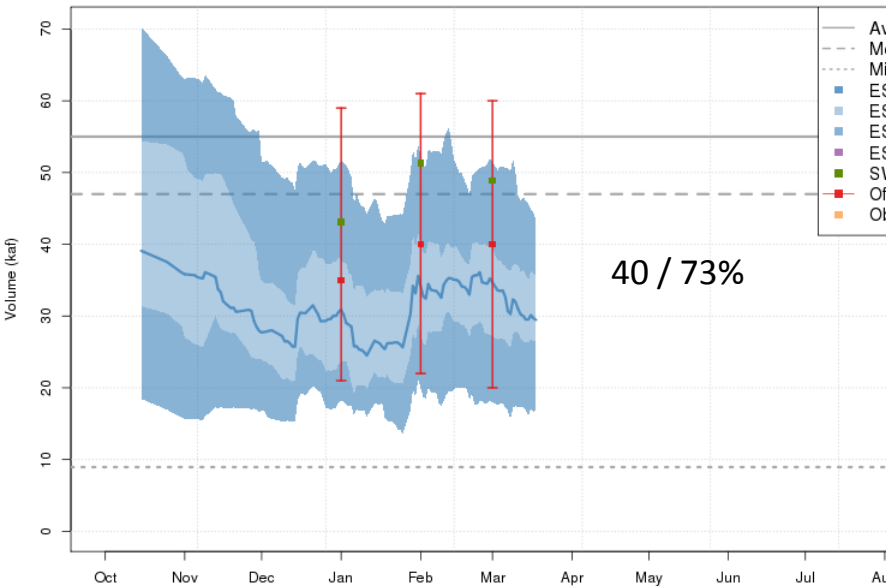
	Mar 1	Mar 18
CBRFC-SWS	628	
CBRFC-ESP	412	368
CBRFC FINAL	490 / 67%	450 / 61%

	Mar 1	Mar 18
NRCS- Daily	456	389
NRCS-Statistical	465	415R
NRCS FINAL	465 / 63%	



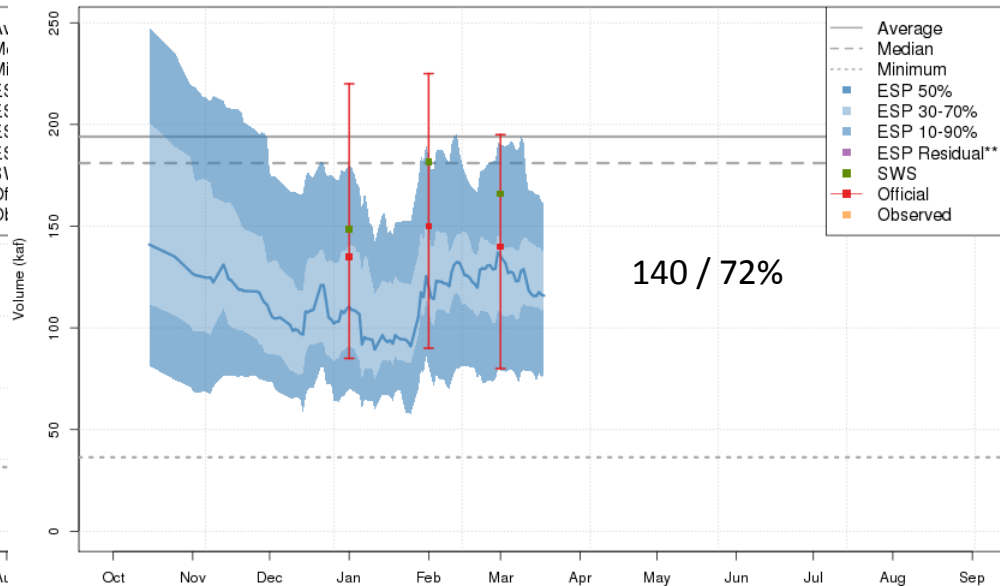
This is an automated product based solely on SNOTEL data, provisional data are subject to change. This product is a statistically based guidance forecast combining indices of snowpack and precipitation. Skill is defined as the correlation (squared) between the guidance and observed during calibration. This product does not consider climate information such as El Niño or short range weather forecasts, or a variety of other factors considered in the official forecasts. This product is not meant to replace or supersede the official forecasts produced in coordination with the National Weather Service. Science Contact: Jim Marron@por.usda.gov www.wcc.nrcs.usda.gov/wsf/daily_forecasts.html

2013 Runoff Forecast
Florida - Lemon Res- Durango- Nr (LEMC2)



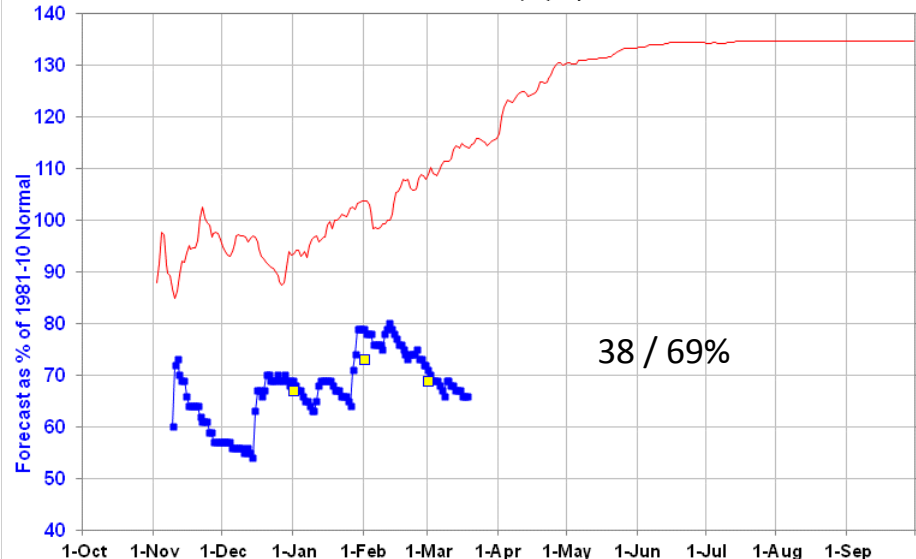
Plot Created 2013-03-18 13:05:04, Latest ESP Run from 2013-03-18, CBRFC / NWS / NOAA
 Maximum of 101.7 in 1979, Minimum of 8.9 in 2002, Average/Median for 1981-2010.

2013 Runoff Forecast
Los Pinos - Vallecito Res- Bayfield- Nr (VCRC2)



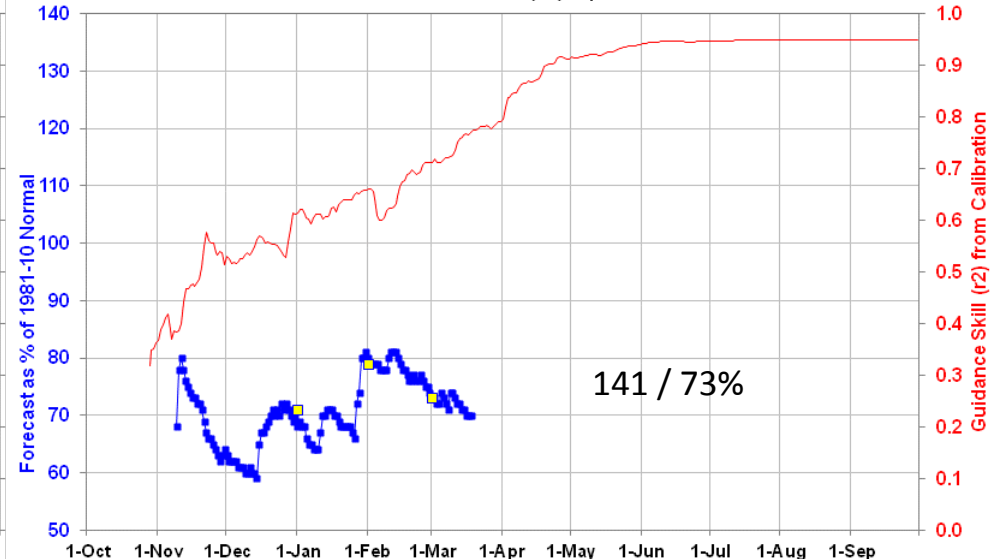
Plot Created 2013-03-18 13:06:00, Latest ESP Run from 2013-03-18, CBRFC / NWS / NOAA
 Maximum of 366.6 in 1979, Minimum of 36.4 in 2002, Average/Median for 1981-2010.

Created 7:12 Mar 18 2013 **Lemon Reservoir Inflow (co): Apr-Jul Volume**



This is an automated product based solely on SNOTEL data, provisional data are subject to change. This product is a statistically based guidance to recast combining indices of snowpack and precipitation. Skill is defined as the correlation (squared) between the guidance and observed during calibration. This product does not consider climate information such as El Nino or short range weather forecasts, or a variety of other factors considered in the official forecasts. This product is not meant to replace or supersede the official forecasts produced in coordination with the National Weather Service. Science Contact: Jim.Marron@por.usda.gov www.wcc.nrcs.usda.gov/wst/daily_forecasts.html

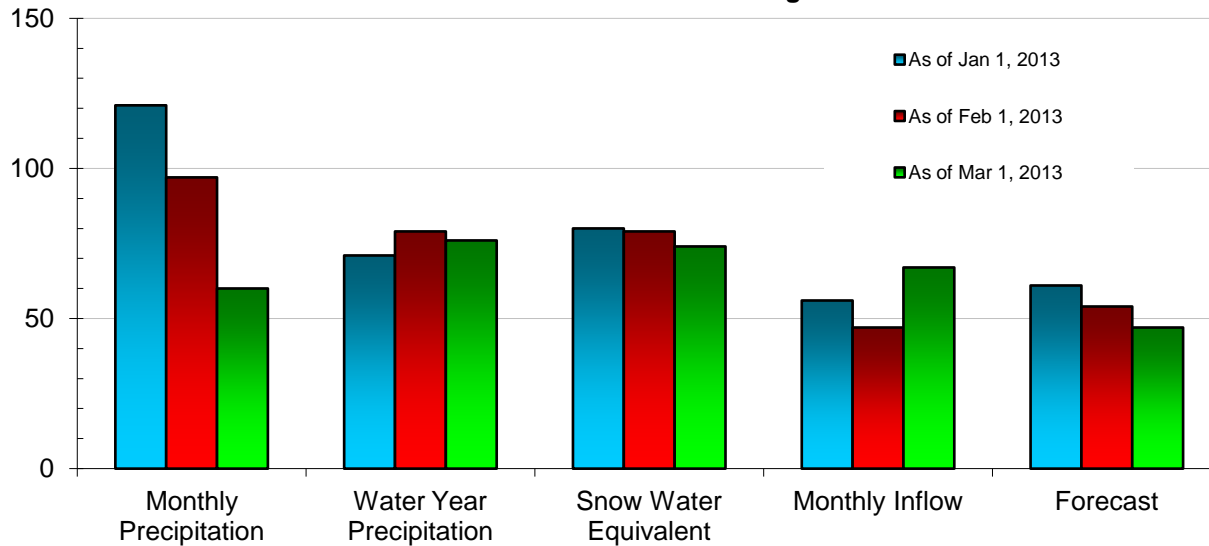
Created 7:11 Mar 18 2013 **Vallecito Reservoir Inflow (co): Apr-Jul Volume**



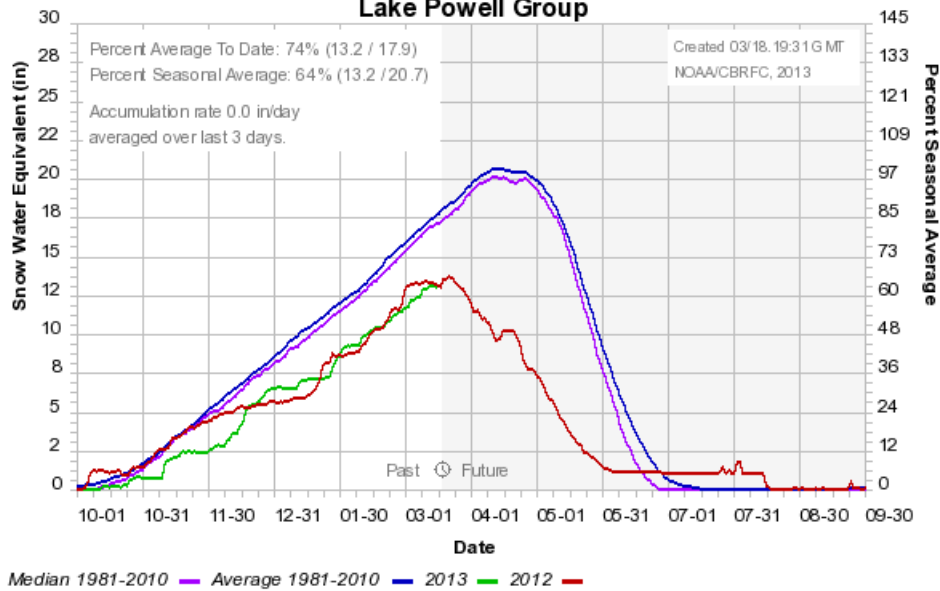
This is an automated product based solely on SNOTEL data, provisional data are subject to change. This product is a statistically based guidance to recast combining indices of snowpack and precipitation. Skill is defined as the correlation (squared) between the guidance and observed during calibration. This product does not consider climate information such as El Nino or short range weather forecasts, or a variety of other factors considered in the official forecasts. This product is not meant to replace or supersede the official forecasts produced in coordination with the National Weather Service. Science Contact: Jim.Marron@por.usda.gov www.wcc.nrcs.usda.gov/wst/daily_forecasts.html



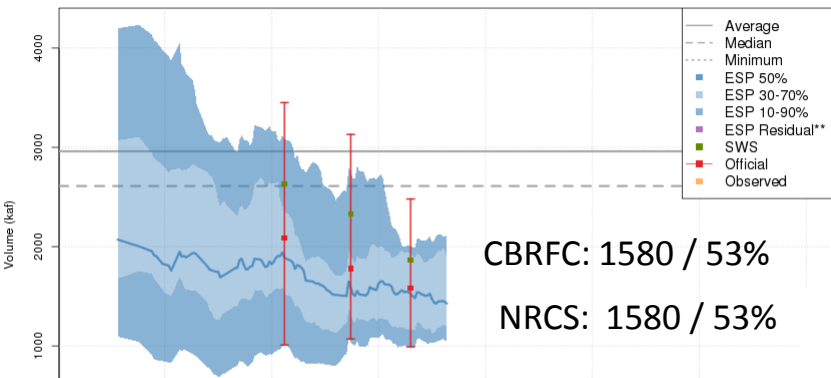
Lake Powell Basin Conditions Percent of 1981-2010 Average



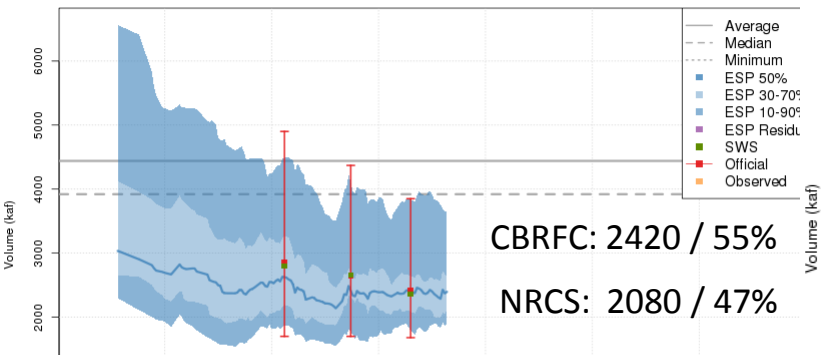
Colorado Basin River Forecast Center Lake Powell Group



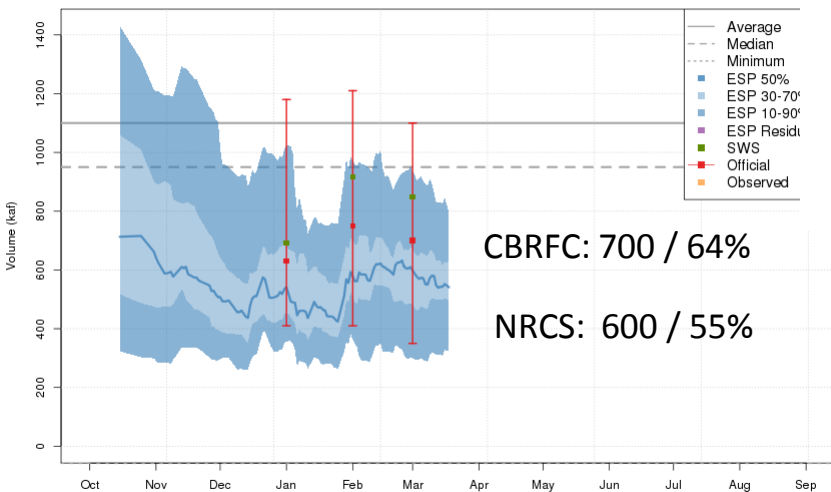
2013 Runoff Forecast
Green - Green River- Ut (GRVU1)



2013 Runoff Forecast
Colorado - Cisco- Nr (CLRU1)



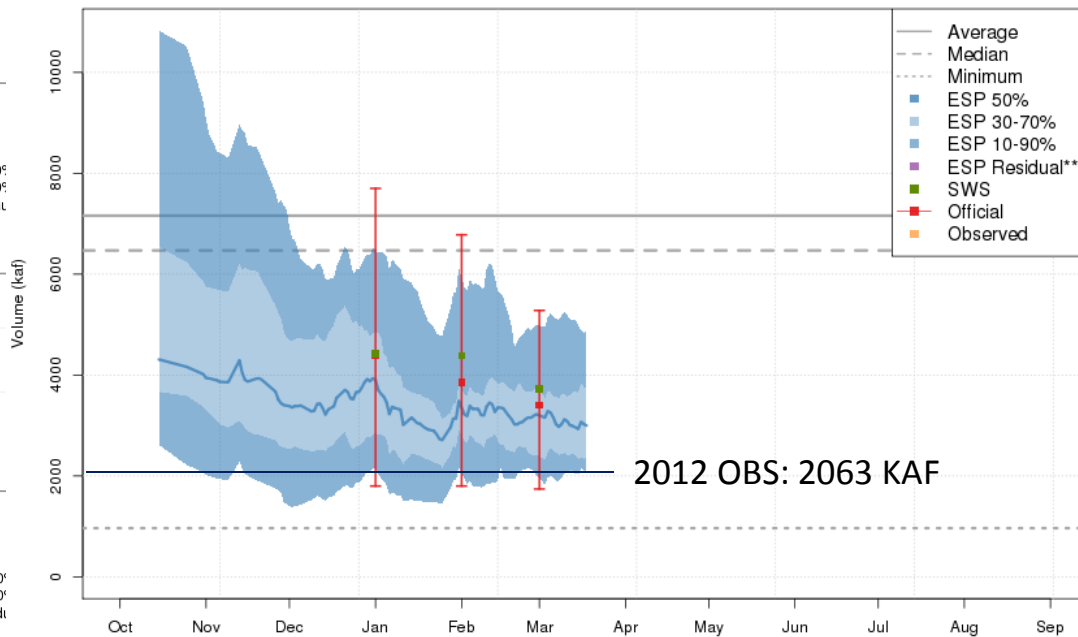
2013 Runoff Forecast
San Juan - Bluff- Nr (BFFU1)



Plot Created 2013-03-18 13:19:12, Latest ESP Run from 2013-03-18, CBRFC / NWS / NOAA
Maximum of 3175.2 in 1941, Minimum of -61.2 in 2002, Average/Median for 1981-2010.

	Mar 1	Mar 18
CBRFC-SWS	4238	
CBRFC-ESP	3220	3027
CBRFC FINAL	3400 / 47%	3300 / 46%

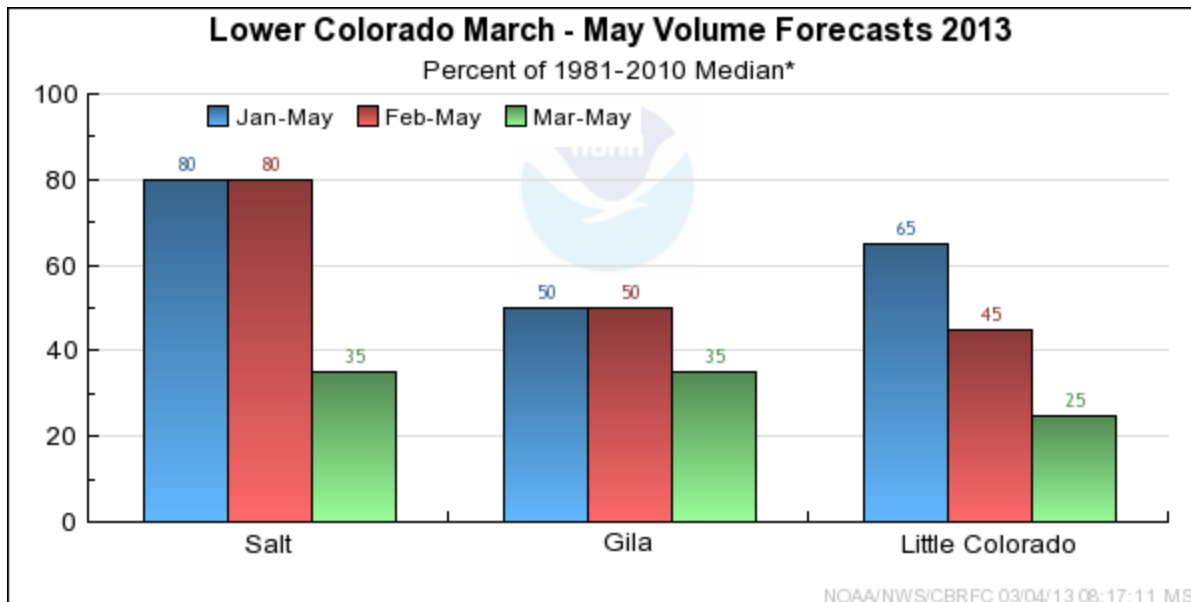
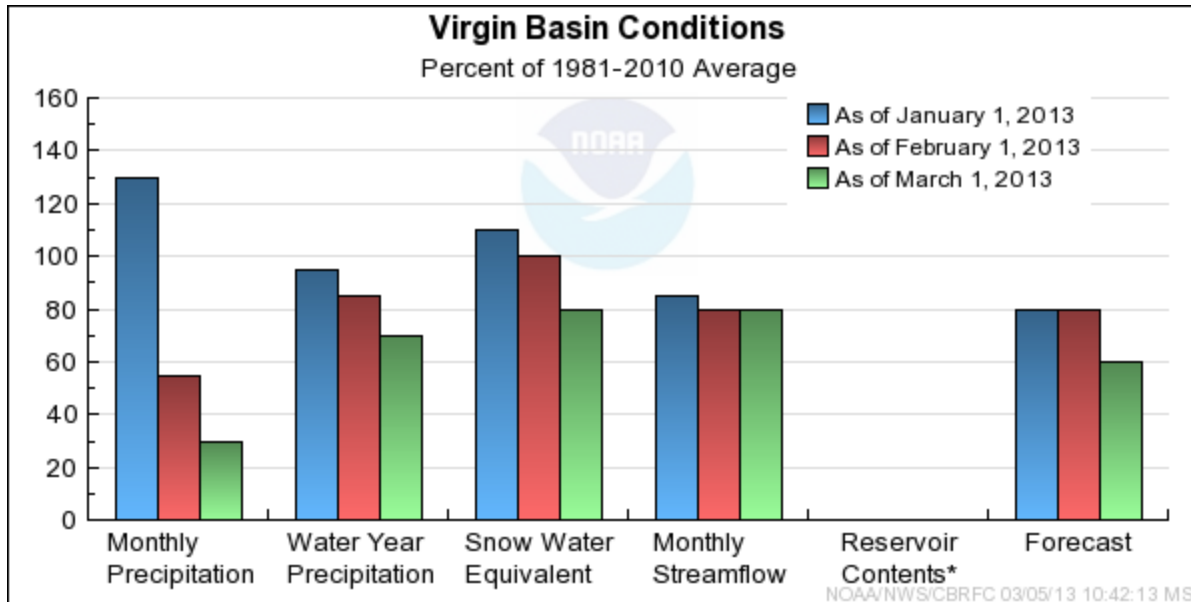
2013 Runoff Forecast
Colorado - Lake Powell- Glen Cyn Dam- At (GLDA3)



Plot Created 2013-03-18 13:20:22, Latest ESP Run from 2013-03-18, CBRFC / NWS / NOAA
Maximum of 15316.1 in 1984, Minimum of 964 in 2002, Average/Median for 1981-2010.

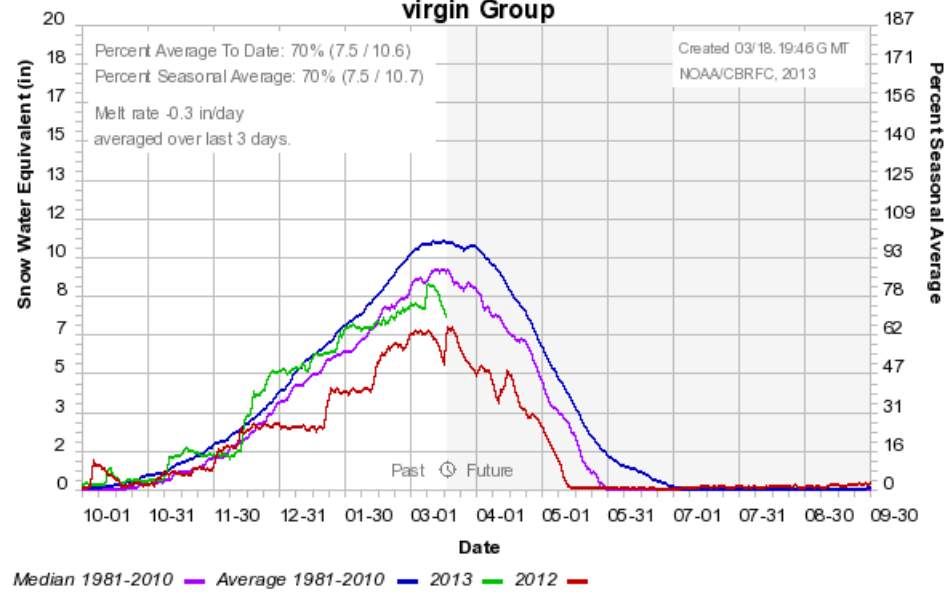
	Mar 1	Mar 18
NRCS- Daily		
NRCS-Statistical	3080R	2800R
NRCS FINAL	3100 / 43%	3000/39%

Virgin and Lower Colorado



Colorado Basin River Forecast Center

virgin Group



Lake Mead Intervening Flow Forecast issued 3/18/2013

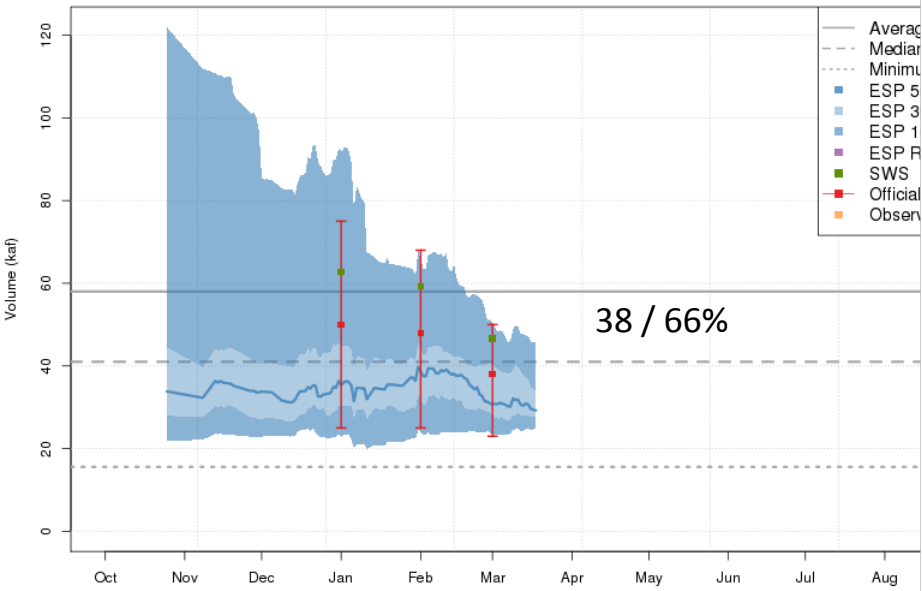
March: 90 KAF / 83%

April: 60 KAF / 57%

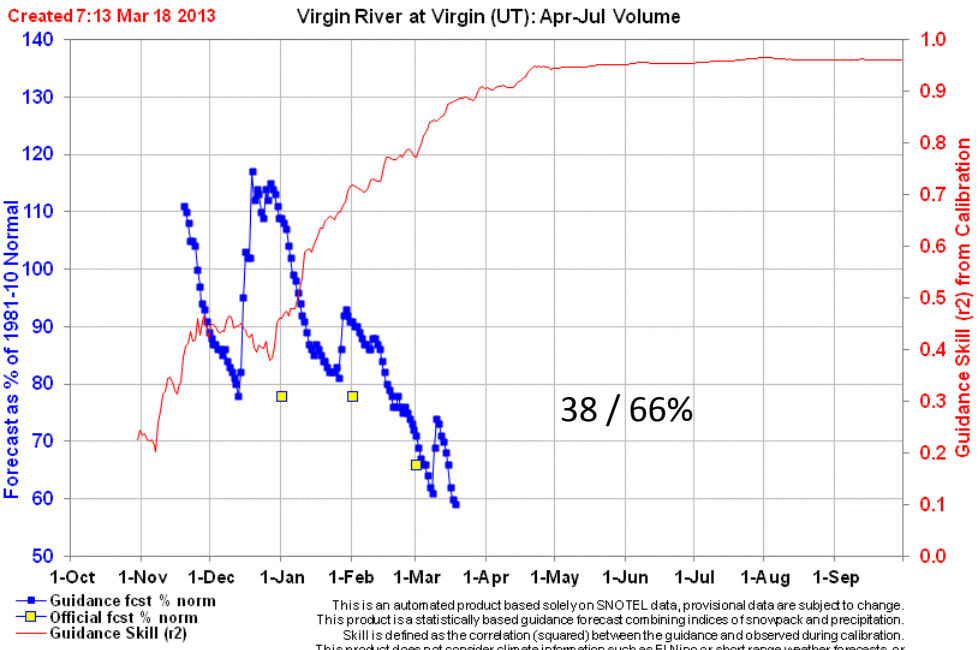
May: 50 KAF / 66%

April - July: 180 KAF / 65%

2013 Runoff Forecast Virgin - Virgin (VIRU1)

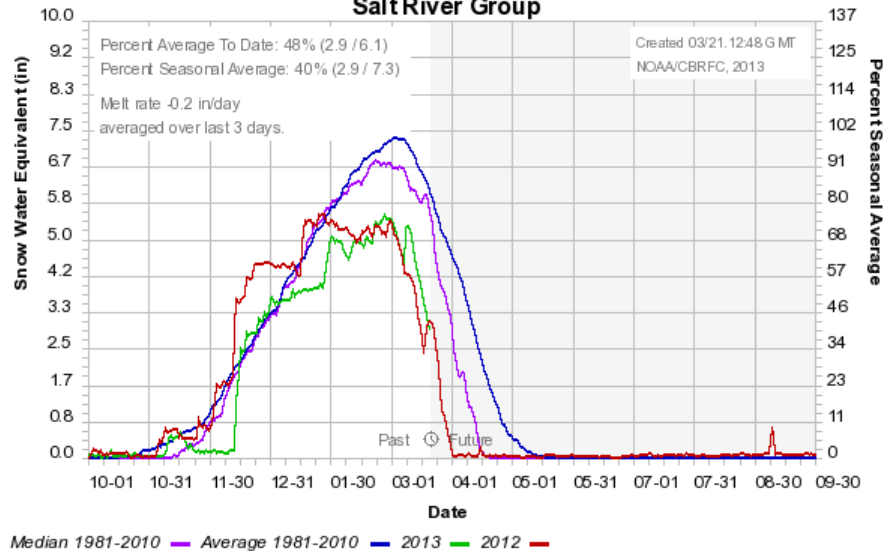


Plot Created 2013-03-18 13:36:02, Latest ESP Run from 2013-03-18, CBRFC / NWS / NOAA
Maximum of 208.3 in 2005, Minimum of 15.6 in 2002, Average/Median for 1981-2010.

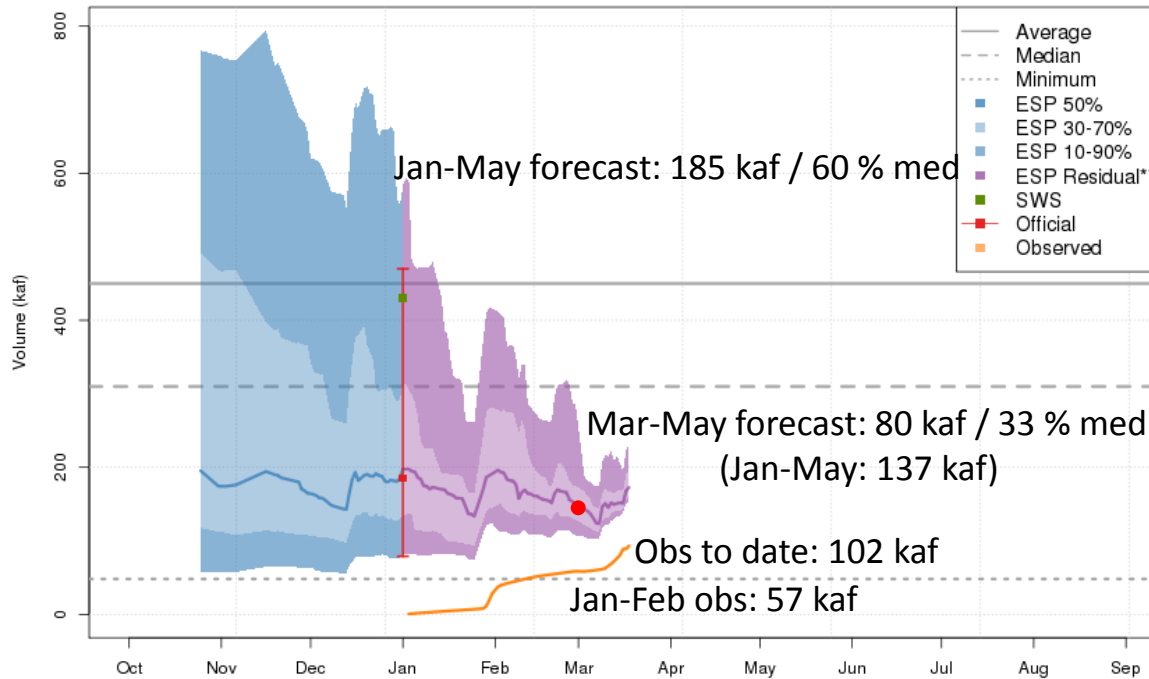


This is an automated product based solely on SNOTEL data, provisional data are subject to change. This product is a statistically based guidance forecast combining indices of snowpack and precipitation. Skill is defined as the correlation (squared) between the guidance and observed during calibration. This product does not consider climate information such as El Niño or short range weather forecasts, or a variety of other factors considered in the official forecasts. This product is not meant to replace or supersede the official forecasts produced in coordination with the National Weather Service. Science Contact: Jim Marron@por.usda.gov www.wcc.nrcs.usda.gov/west/daily_forecasts.html

Colorado Basin River Forecast Center Salt River Group



2013 Runoff Forecast Salt - Roosevelt- Nr (SLRA3)



ESP TRACES

32 Month ESP Traces

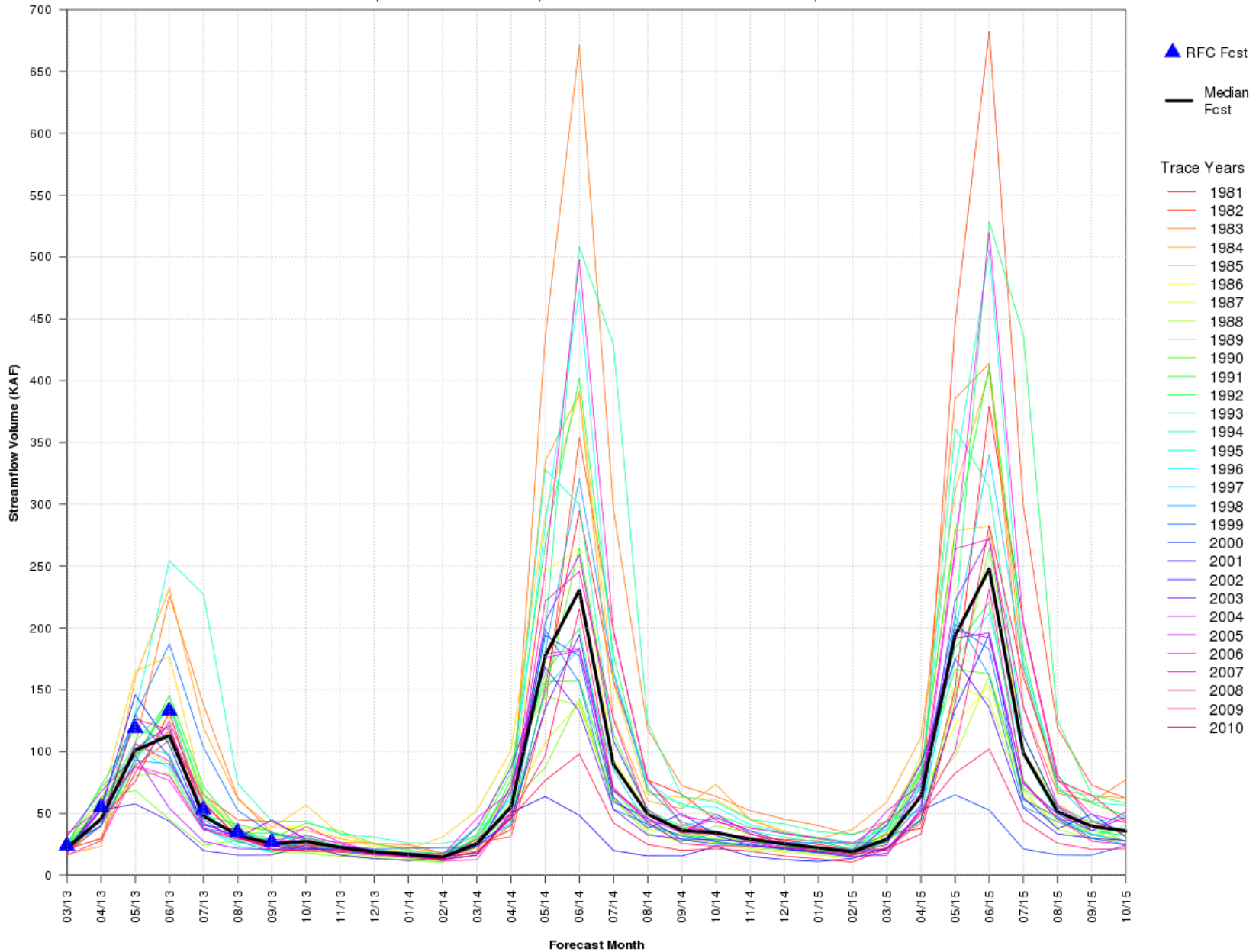
- Monthly timestep
- Length = 32 months
- Created the beginning of the month only
- Adjusted model output
 - Force median of monthly traces to equal Official Forecasts
- Motivation/Use:
 - 24 month study and MTOM have similar inputs

Daily ESP Traces

- Daily timestep
- Length = 12 months
- Created ~twice per week
- Raw model output
 - Median of traces may not match Official Forecasts
- Use:
 - Reclamation specific reservoir models

RAW Monthly Streamflow Forecast Traces for BMDC2 (GUNNISON - BLUE MESA)

(ESP Run Date: 2013-02-28, Most Recent RFC Fcst Issue Date: 2013-03-01)

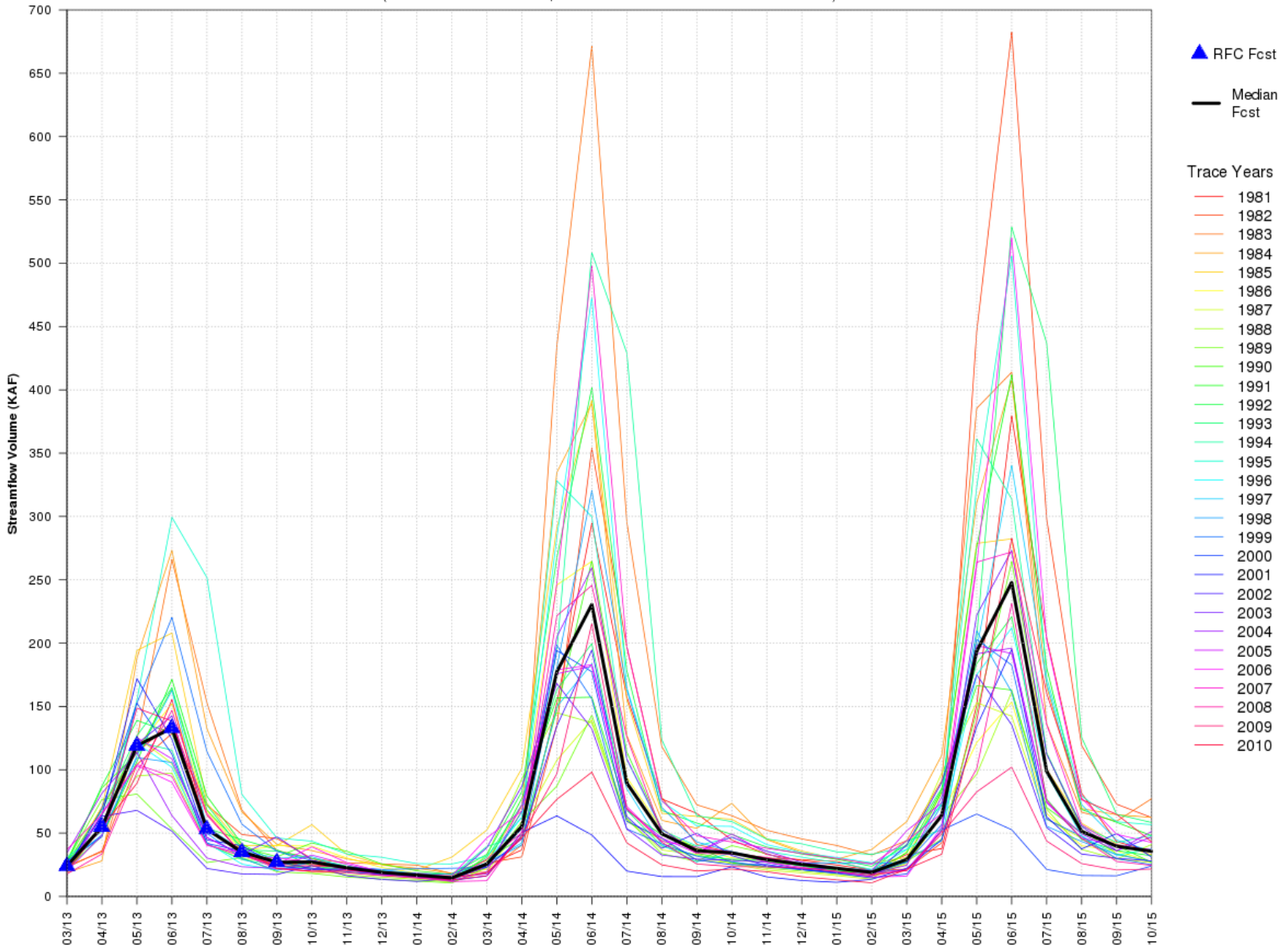


OFF:	24.0	55.0	119.0	133.0	53.0	35.0	27.0
RAW:	21.8	45.7	101.1	113.0	47.8	32.2	25.6

FCST INFO:
 OFF = Official RFC Fcst
 RAW = Raw ESP Median

ADJUSTED Monthly Streamflow Forecast Traces for BMDC2 (GUNNISON - BLUE MESA)

(ESP Run Date: 2013-02-28, Most Recent RFC Fcst Issue Date: 2013-03-01)



- ▲ RFC Fcst
- Median Fcst

Trace Years

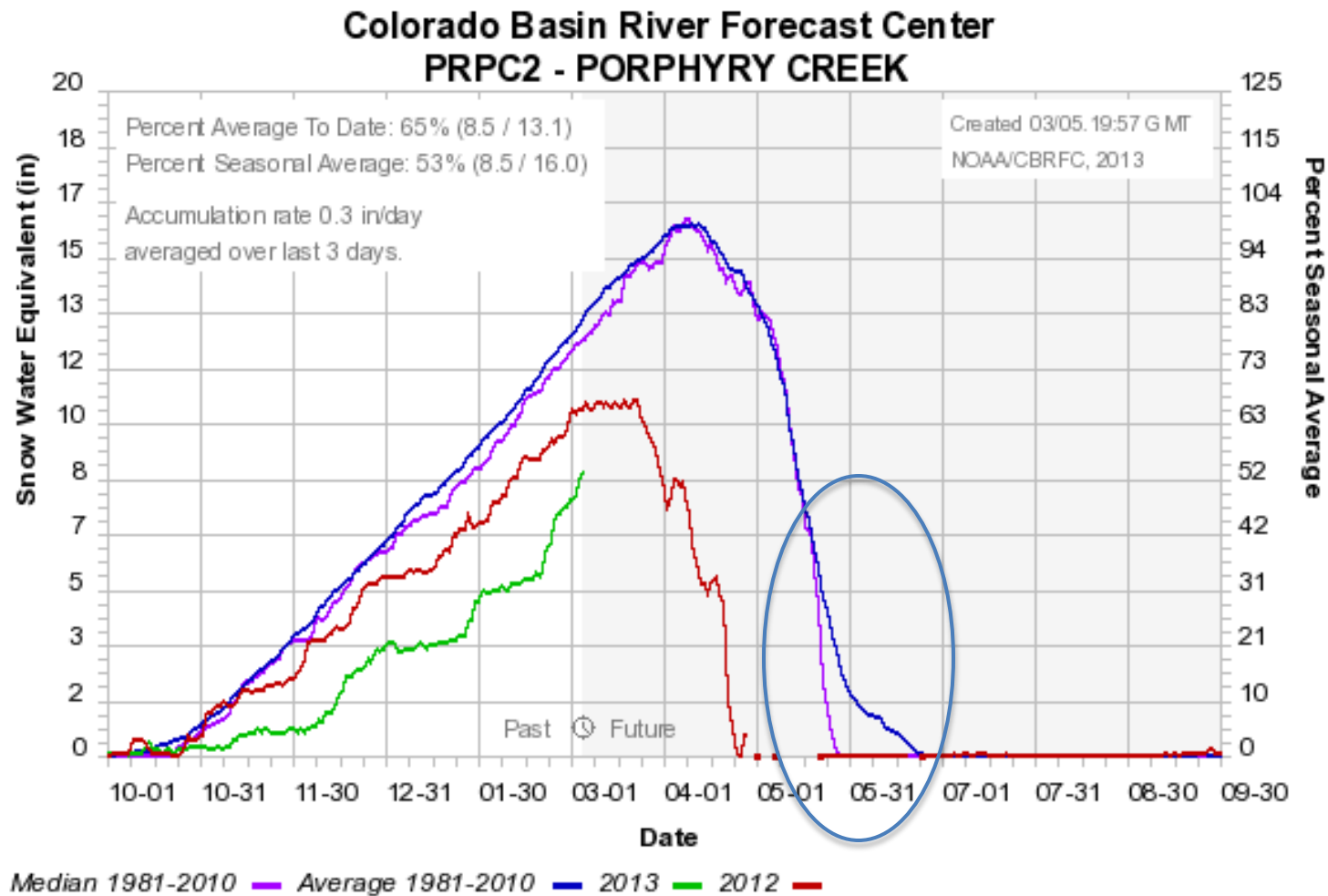
- 1981
- 1982
- 1983
- 1984
- 1985
- 1986
- 1987
- 1988
- 1989
- 1990
- 1991
- 1992
- 1993
- 1994
- 1995
- 1996
- 1997
- 1998
- 1999
- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009
- 2010

OFF:	24.0	55.0	119.0	133.0	53.0	35.0	27.0																												
RAW:	21.8	45.7	101.1	113.0	47.8	32.2	25.6	27.1	22.6	18.9	16.8	14.6	25.6	55.3	177.3	230.5	89.5	49.5	36.2	34.4	29.1	25.3	22.2	19.0	29.1	63.9	193.6	247.9	98.7	51.4	39.6	35.6			
FAC:	1.101	1.202	1.177	1.177	1.109	1.087	1.053																												
ADJ:	24.0	55.0	119.0	133.0	53.0	35.0	27.0	27.1	22.6	18.9	16.8	14.6	25.6	55.3	177.3	230.5	89.5	49.5	36.2	34.4	29.1	25.3	22.2	19.0	29.1	63.9	193.6	247.9	98.7	51.4	39.6	35.6			

FCST INFO:

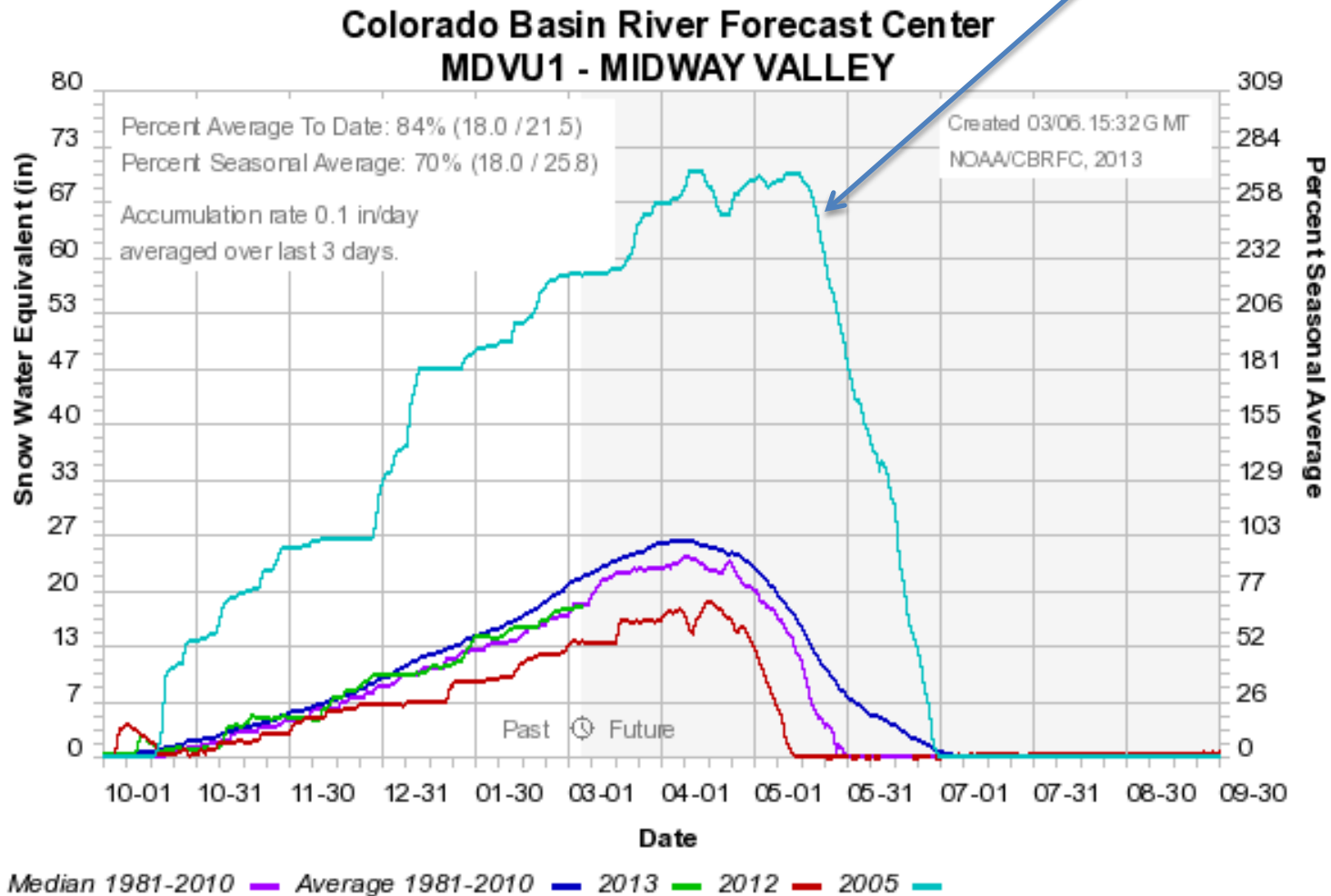
OFF = Official RFC Fcst
 RAW = Raw ESP Median
 FAC = Adj Factor
 ADJ = Adj ESP Median

SNOW: Historical Median vs Average



SNOW: Historical Median vs Average

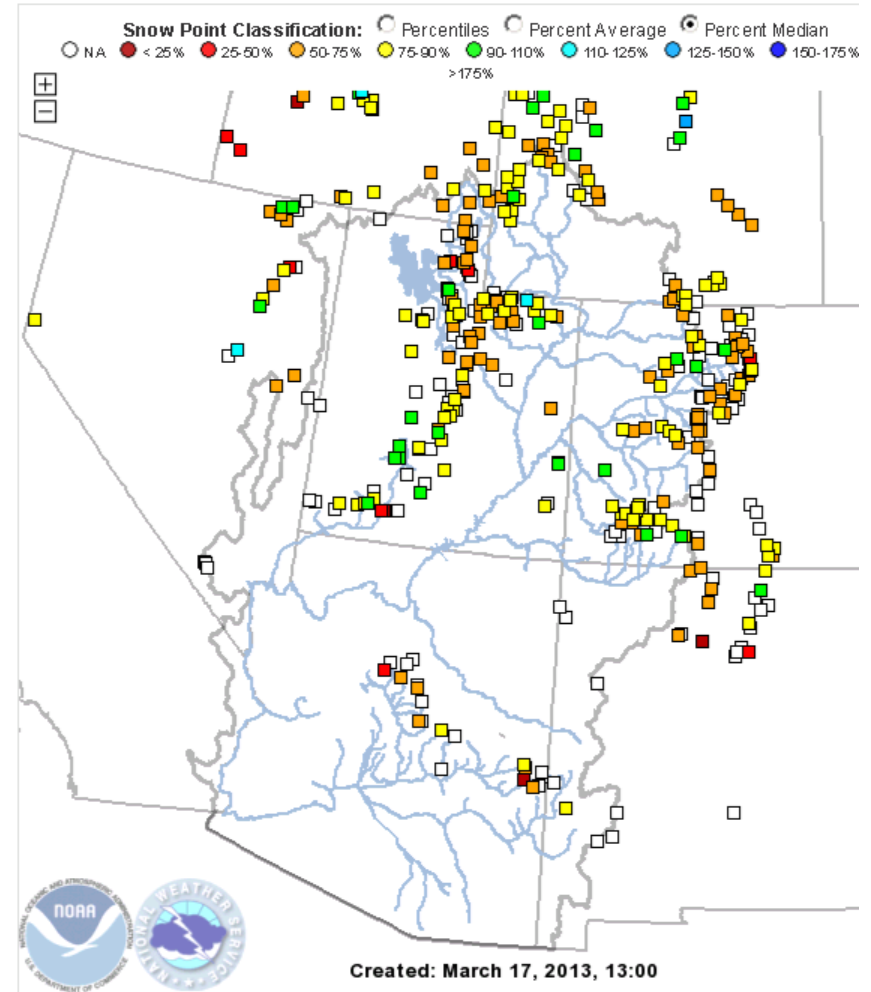
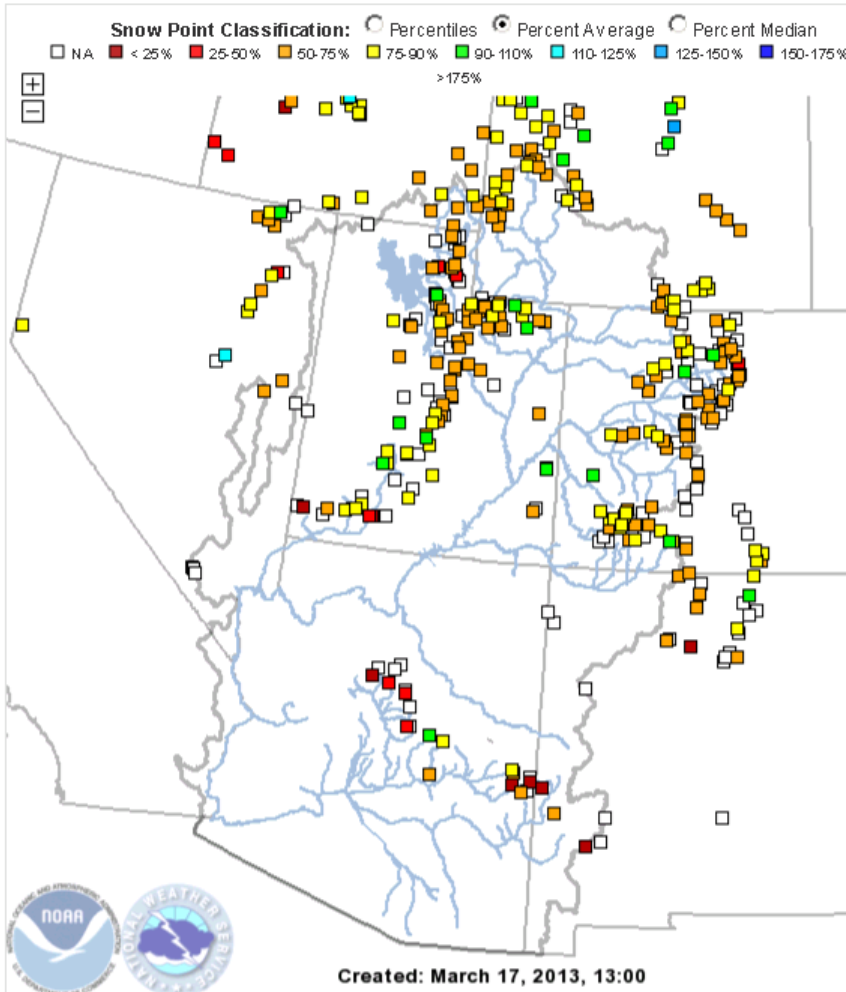
Very large years like 2005 can skew the historical average



SWE

% AVERAGE

% MEDIAN



SWE PERCENTILE RANKING

