

# Forecast Verification

CBRFC Stakeholder Forum  
October 20, 2015



# Forecast Verification

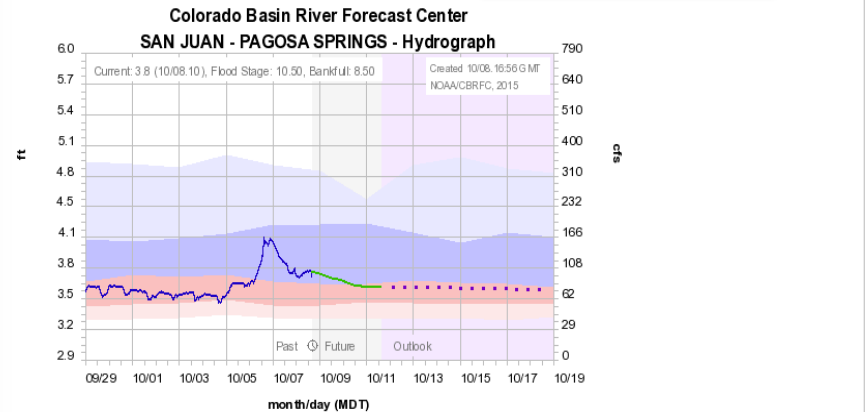
## Current Forecast Verification

Types of Forecasts	Daily Verification	Seasonal Verification April-July	
		Raw Model	Official Forecasts
Daily Deterministic	X		X
Water Supply		X	X
Peak Flow			X

# Forecast Verification: Daily Forecasts

**SAN JUAN - PAGOSA SPRINGS (PSPC2)**

Info: Station Rating type Critical Stages Yearly Peaks Daily Stats **Recent Verification** Seasonal Verification USGS data



Observed — Forecast (10/08.14.00) — Outlook (increasing uncertainty) —  
 Historical Exceedance Probability (USGS): 90-75% 75-50% 50-25% 25-10%  
 Observed=QIRIGZZ, Simulated=QRIQZZZ, Forecast=QRIFEZZ F (2015-10-08 14:00)  
 resoutid=

**Hydrograph Options**

- Critical Stages
- Simulated
- Raw Data
- Linear Flow
- Mean Daily Values
- Forecast Peak
- Historical Peak
- Yearly Peaks
- Daily Maxima
- Statistics
- Contingency
- Adjust
- Requery
- Forecasts

**Years** 1936 | **Date** 10-08-15  
**Past Days** 10  
**Future Days** 10  
**ESP** Off  
**Analog Years** Off  
**Analog Years Period** Off

**Graphs**

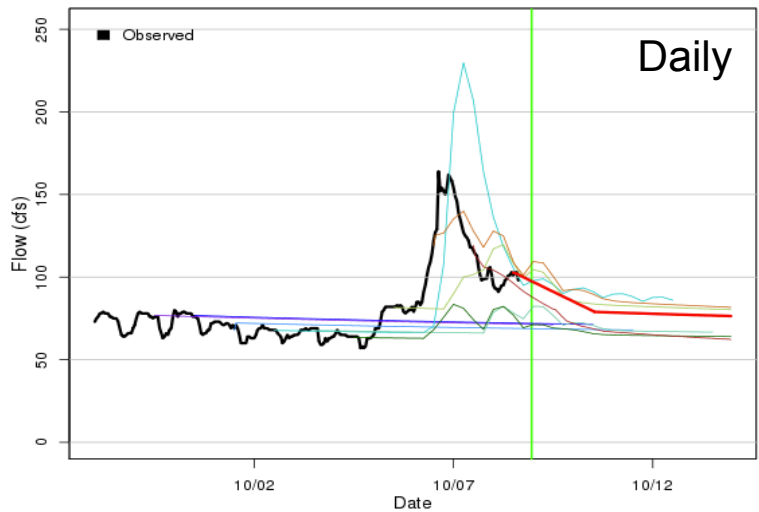
- Precipitation
- Temperature
- Freezing Level
- Snow
- Soil Moisture
- Hydrograph

**Tabular Data**

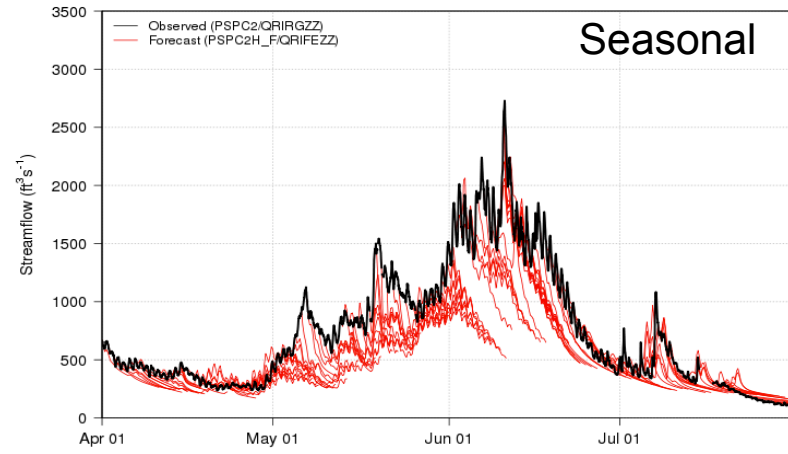
- Precipitation
- Temperature
- Freezing Level
- Snow
- Soil Moisture
- Flows

Apply and Redisplay

**SAN JUAN - PAGOSA SPRINGS (PSPC2)**  
 Recent streamflow forecasts



**CBRFC Deterministic Forecasts for SAN JUAN - PAGOSA SPRINGS (PSPC2)**  
 (includes forecasts issued 20150401 to 20150731)




**Error Summary:**

Lead Time (days):	1	2	3	4	5	Overall
Mean Error:	-68.2	-104.4	-131.2	-171.2	-206.1	-100.0
Mean Abs. Error:	111.7	145.0	168.1	196.7	227.7	111.7
Relative Abs. Error (%):	12.4	17.3	19.9	22.1	25.1	11.1



# Forecast Verification: Water Supply Forecasts

## Raw Model Verification

 **COLORADO BASIN RIVER FORECAST CENTER**  
NATIONAL WEATHER SERVICE / NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME RIVERS SNOW WATER SUPPLY RESERVOIRS WEATHER CLIMATE HELP ABOUT NEWS

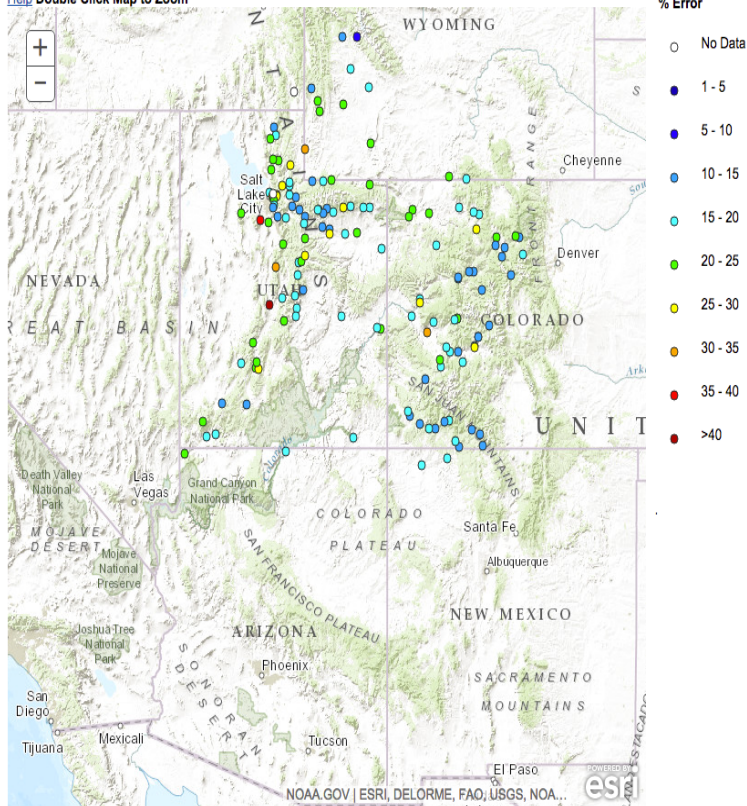
News  
CBRFC 2015 Stakeholder Forum - October 20th 2015 [Read More...](#)  
CBRFC 2015 Verification Webinar - October 21st 2015 [Read More...](#)  
Stay Safe this Summer with NWS Weather Safety Information [Read More...](#)

### Historical Water Supply Verification - April

[Help](#) [Double Click Map to Zoom](#)

Forecast Month

- [January](#)
- [February](#)
- [March](#)
- [April](#)
- [May](#)
- [June](#)



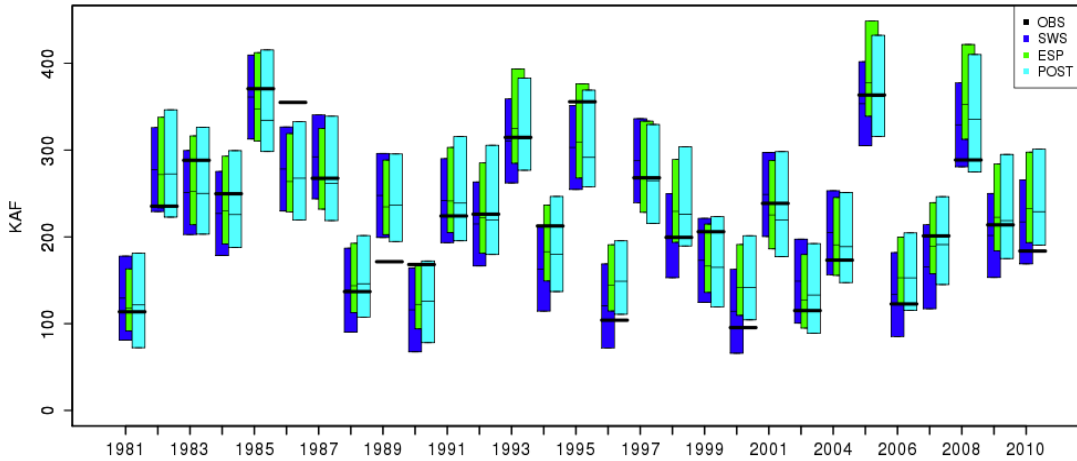
### What is on the map?

- Mean Absolute Percent Error
- Based on 30 years of (1981-2010) reforecasts
- Indicator of quality of model calibration
- Only analyzes 50% exceedance forecast
- April-June forecast lead times
- “Help” Option

# Forecast Verification: Water Supply Forecasts

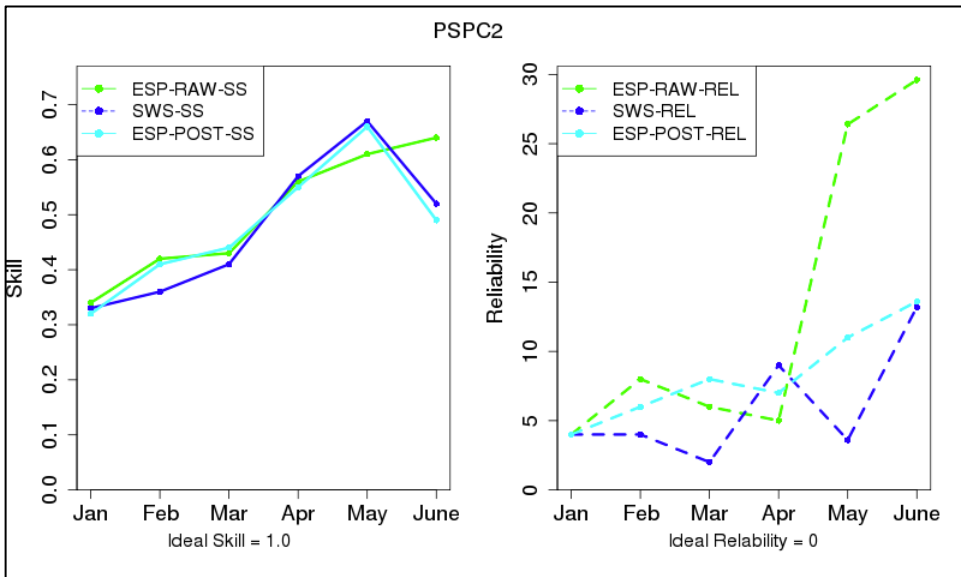
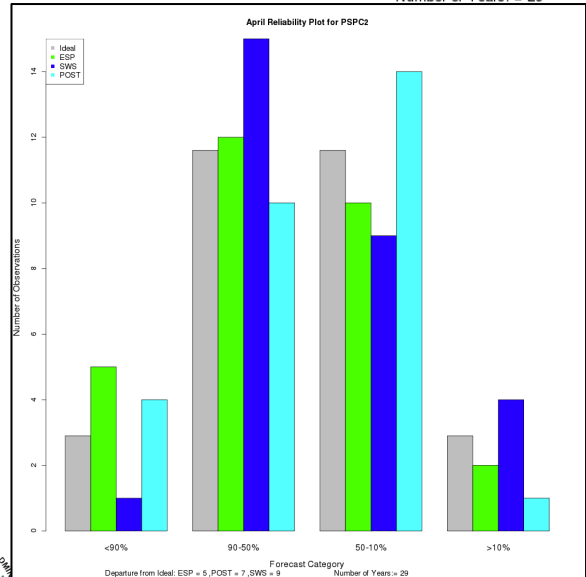
## Raw Model Verification

April PSPC2




- Based on 30 years of reforecasts
- Skill and spread of ensembles and statistical regressions

Number of Years: = 29



# Forecast Verification: Water Supply Forecasts

## Official Forecasts Verification

 **COLORADO BASIN RIVER FORECAST CENTER**  
NATIONAL WEATHER SERVICE / NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME RIVERS SNOW WATER SUPPLY RESERVOIRS WEATHER CLIMATE HELP ABOUT NEWS

News

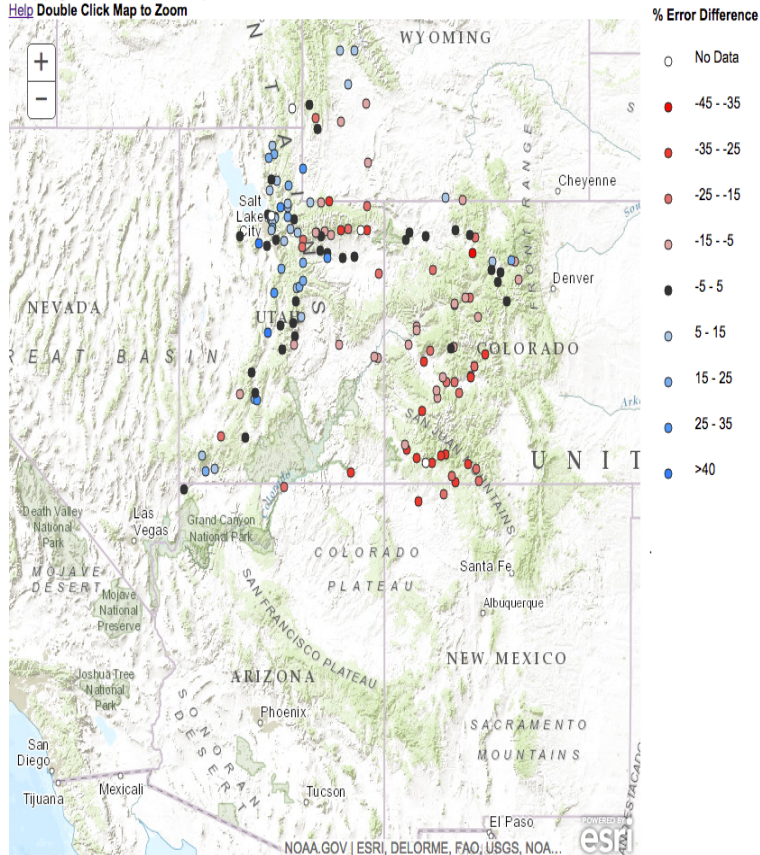
CBRFC 2015 Stakeholder Forum - October 20th 2015 [Read More...](#)  
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### 2015 Water Supply Verification - April

[Help](#) [Double Click Map to Zoom](#)

Forecast Month

- [January](#)
- [February](#)
- [March](#)
- [April](#)
- [May](#)
- [June](#)



What is on the map?

- 2015 Forecast Error vs Mean Model Error (previous map)
- % Error Difference
- April-June forecast lead times
- Only analyzes 50% exceedance forecast
- “Help” Option

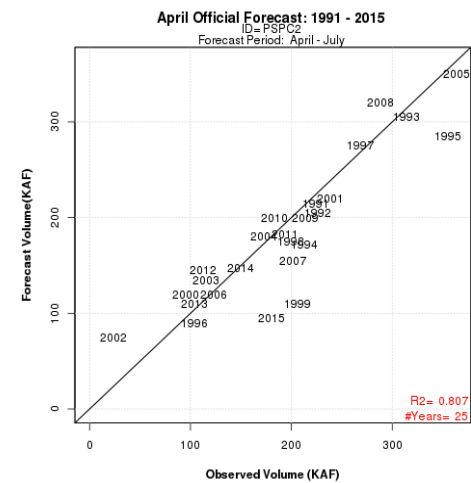
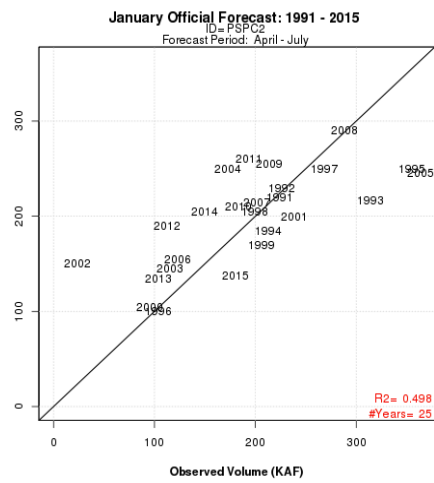
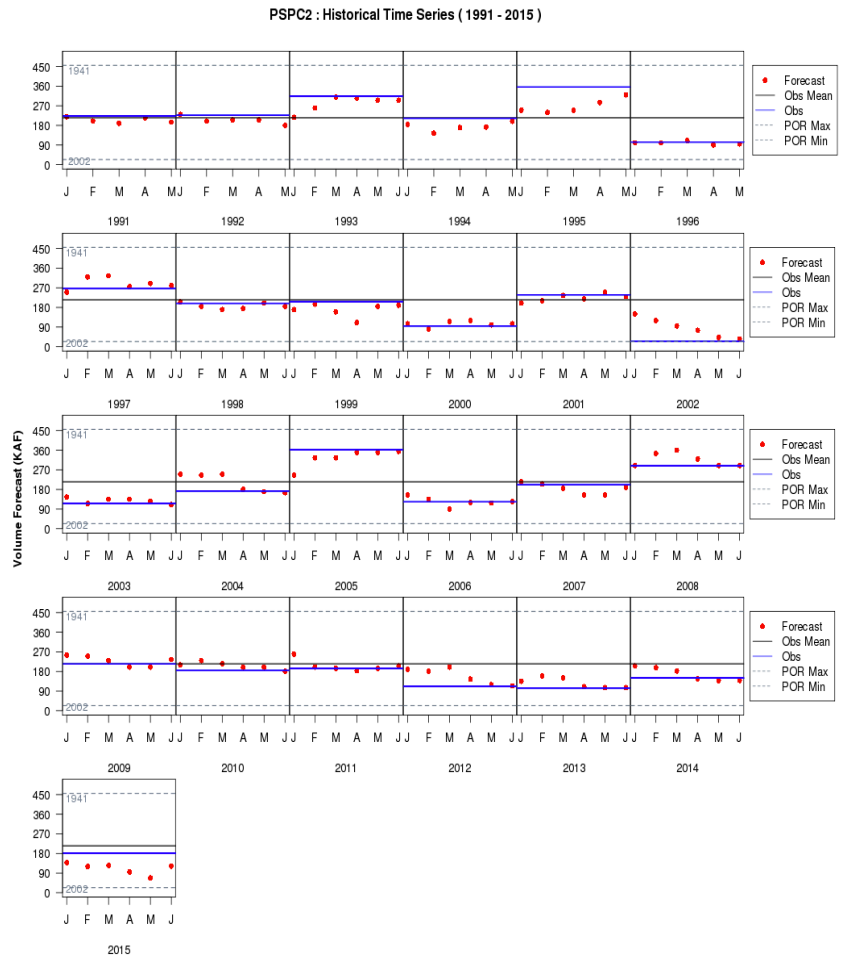
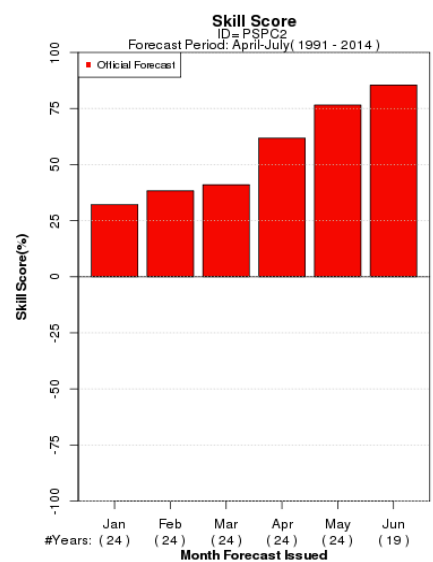
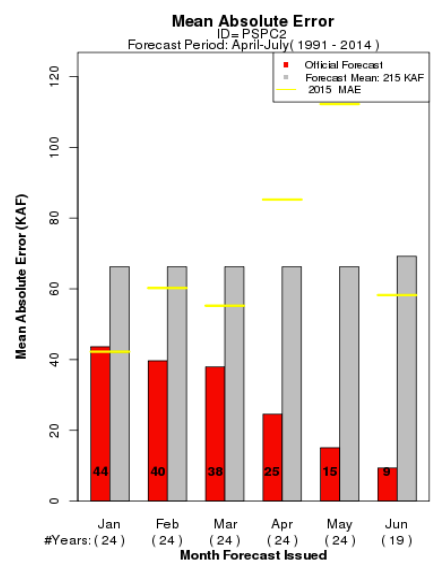
What does the map mean?

- Positive = 2015 Forecast performed BETTER
- Negative = 2015 Forecast performed WORSE
- -5 to 5 = 2015 Forecast normal performance



# Forecast Verification: Water Supply Forecasts

## Official Forecasts Verification



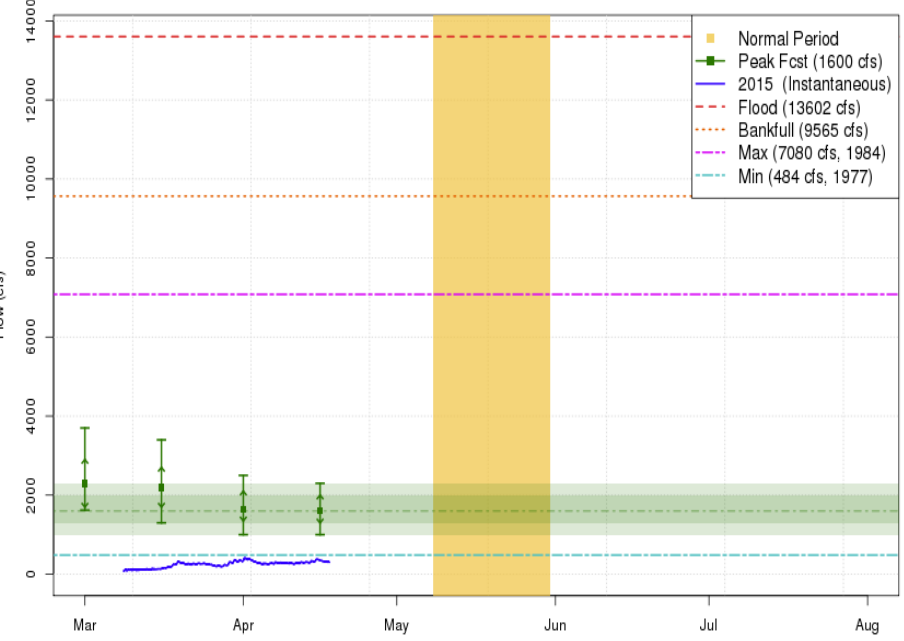
- Annual 50% Forecasts



# Forecast Verification: Peak Flow Forecasts

## Mid-April Forecast

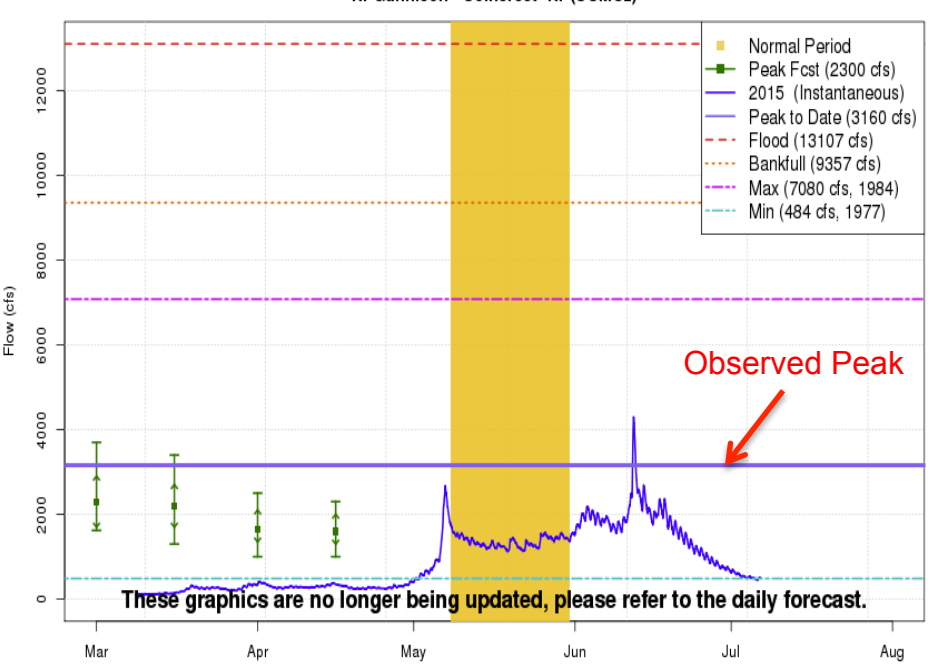
2015 Mean Daily Peak Flow Forecast  
Nf Gunnison - Somerset - Nr (SOMC2)



These graphics are updated approximately every two weeks between 3/1 and 5/1  
Plot Created 2015-04-17 14:40:31  
CBRFC / NWS / NOAA

## April-July Season

2015 Mean Daily Peak Flow Forecast  
Nf Gunnison - Somerset - Nr (SOMC2)



These graphics are no longer being updated, please refer to the daily forecast.

Plot Created 2015-07-06 10:05:50  
CBRFC / NWS / NOAA

River	Location	Flood Flow	Issue Date	Mean Daily 90	Mean Daily 75	Mean Daily 50	Mean Daily 25	Mean Daily 1
East	Almont	3170	2015-04-16	750	900	1000	1300	1500
Nf Gunnison	Somerset	13870	2015-04-16	1000	1300	1600	2000	2300
Surface Ck	Cedaredge	1410	2015-04-16	45	65	90	115	160
Gunnison	Grand Junction	19520	2015-04-16	6000	6600	6600	7000	7500





# Forecast Verification: **What's Next?**

- More Web Documentation
- Easier Web Access
- User Requests
  
- Daily Forecasts
  - QPF(5 day) and Temperature Forecast (10 day) Verification
  
- Water Supply Forecasts
  - Monthly Forecasts
  - HEFS (Climate Forecasts and Streamflow)
  - Post Adjust Techniques