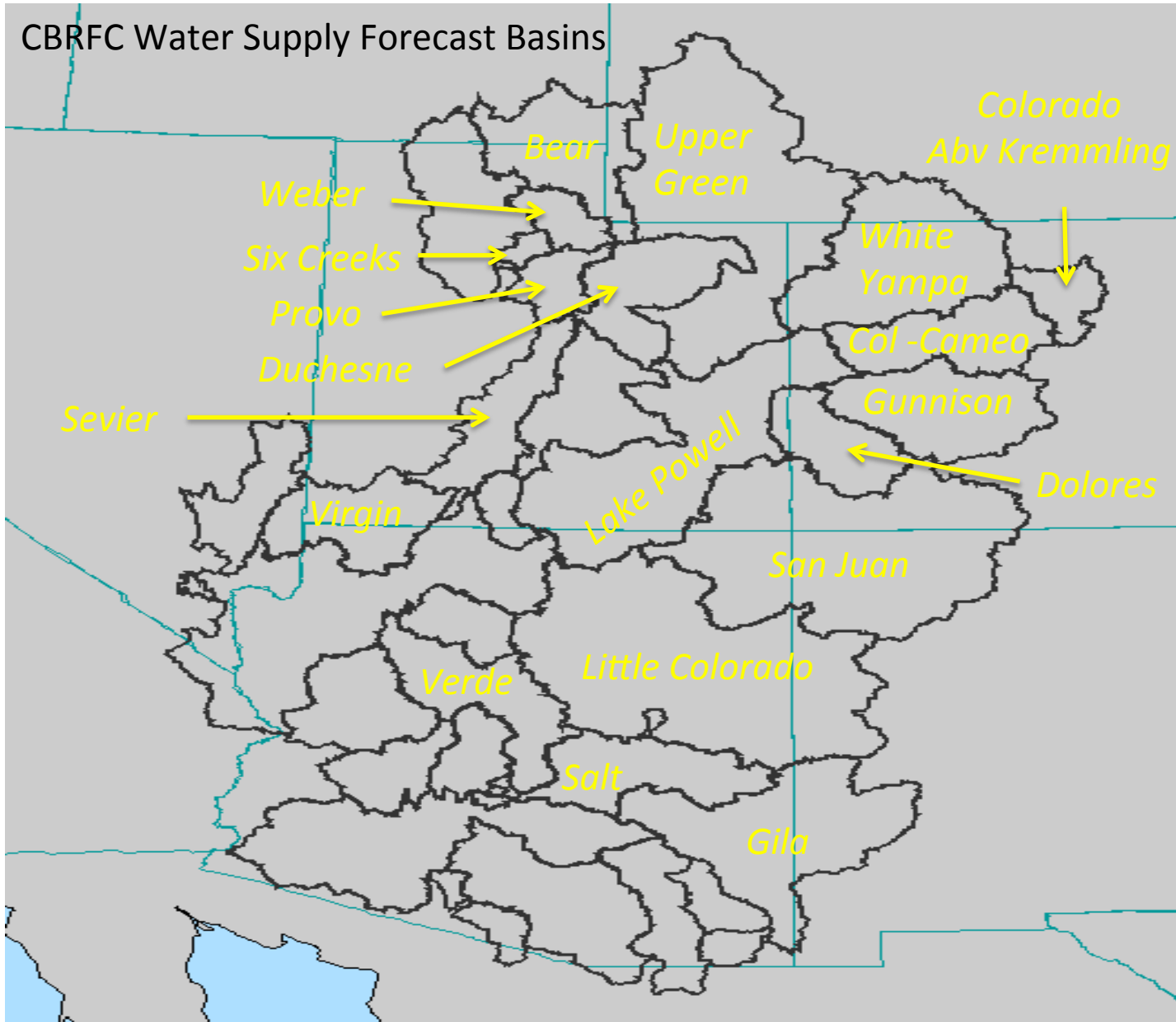


CBRFC WATER SUPPLY WEBINAR - February 5th 1 pm MST

Presented By: Greg Smith – Sr. Hydrologist



CBRFC WATER SUPPLY WEBINAR - February 5th 1 pm MST

Presented By: Greg Smith – Sr. Hydrologist

Today's Presentation

January Weather Review

Current Conditions (driving the forecasts)

February 1st Water Supply Forecast Summary

Future Weather Outlook

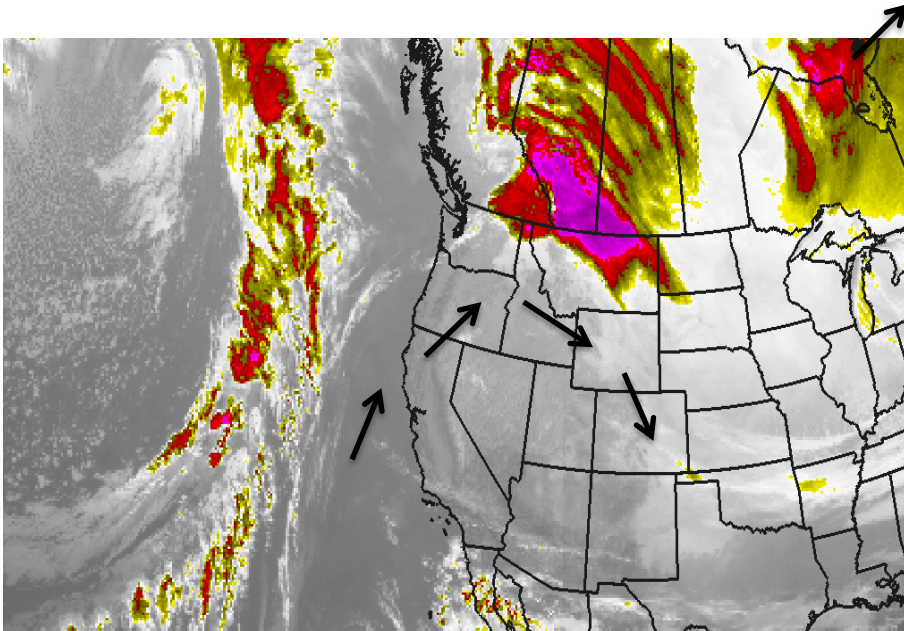
Dust on Snow Issue – CBRFC Progress (Brief)

Web Page Update

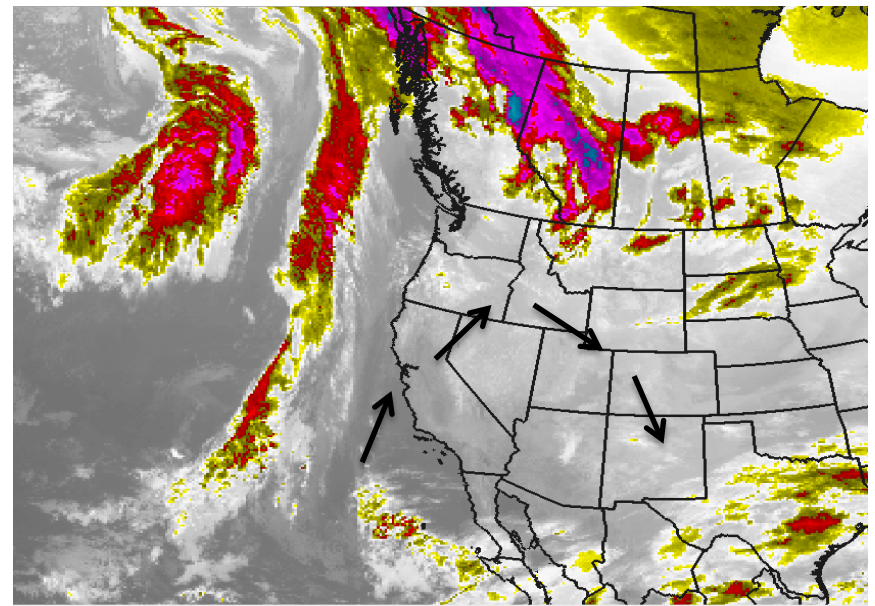
This presentation available at: www.cbrfc.noaa.gov/present/present2015.cgi

JANUARY WEATHER

Jan 7 2015 – Big Ridge of High Pressure

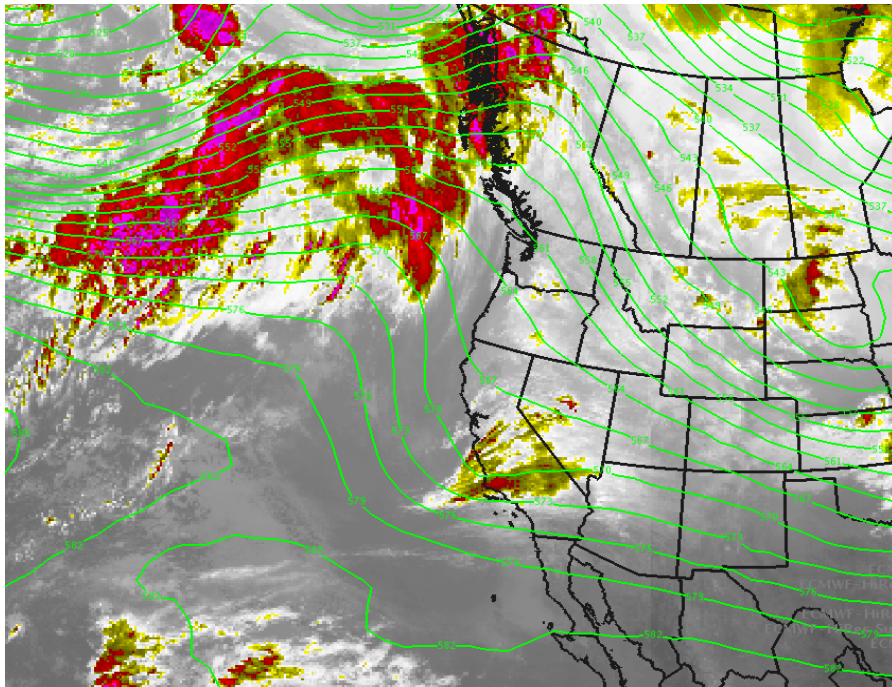


Jan 12 2015 – Big Ridge of High Pressure

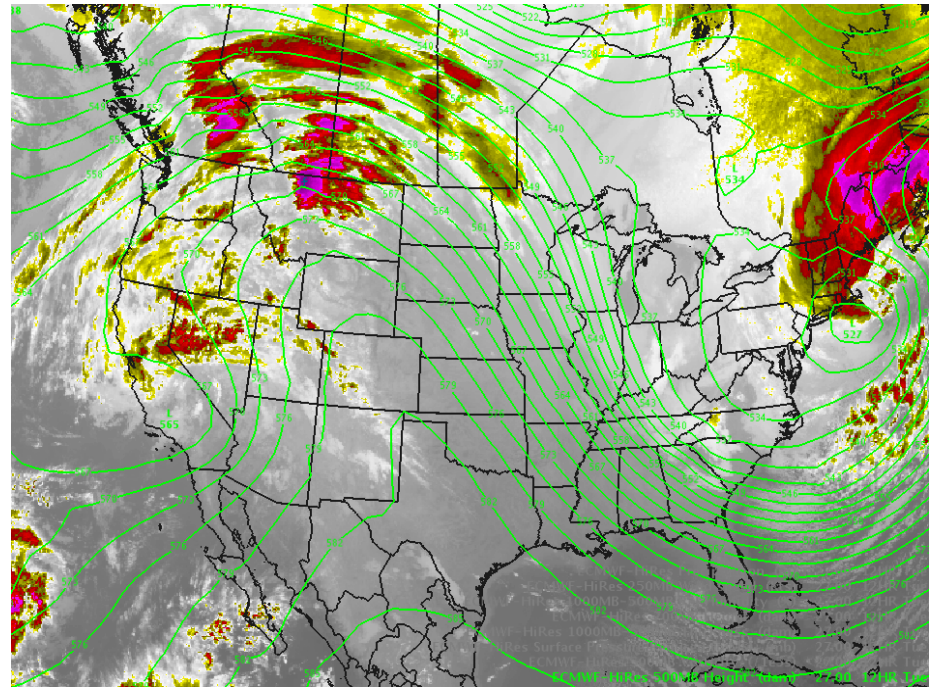


JANUARY WEATHER

Jan 20 2015 – Ridge Flattens – Weak Storm



Jan 27 2015 – Tropical Moisture South

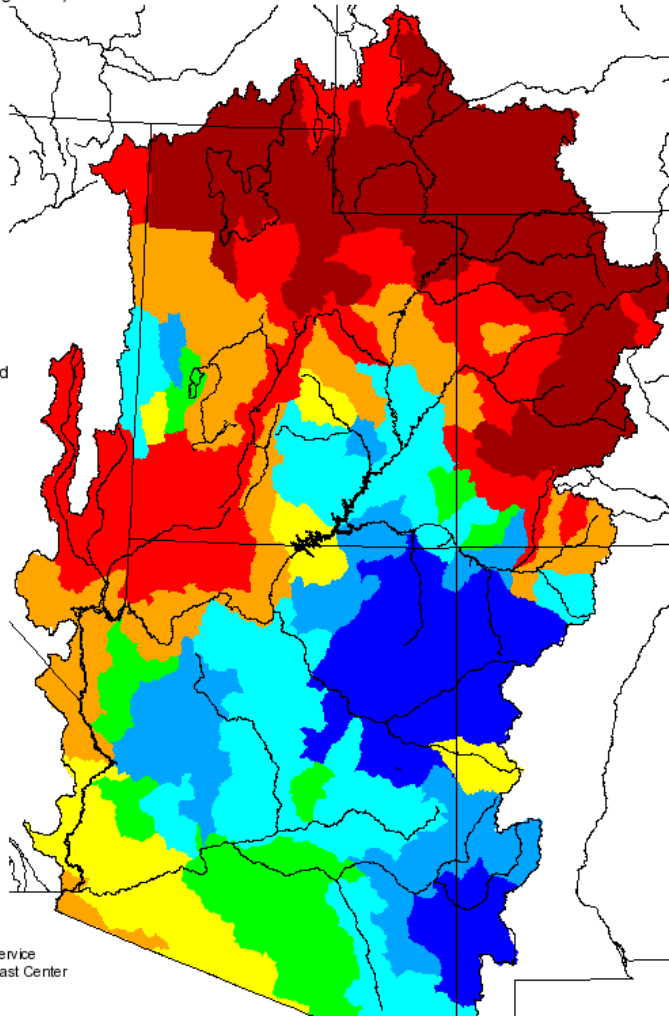
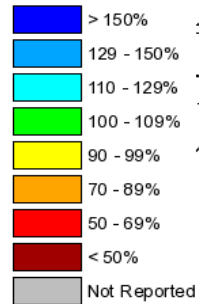


January and Seasonal Precipitation

Monthly Precipitation for January 2015

(Averaged by Hydrologic Unit)

% Average

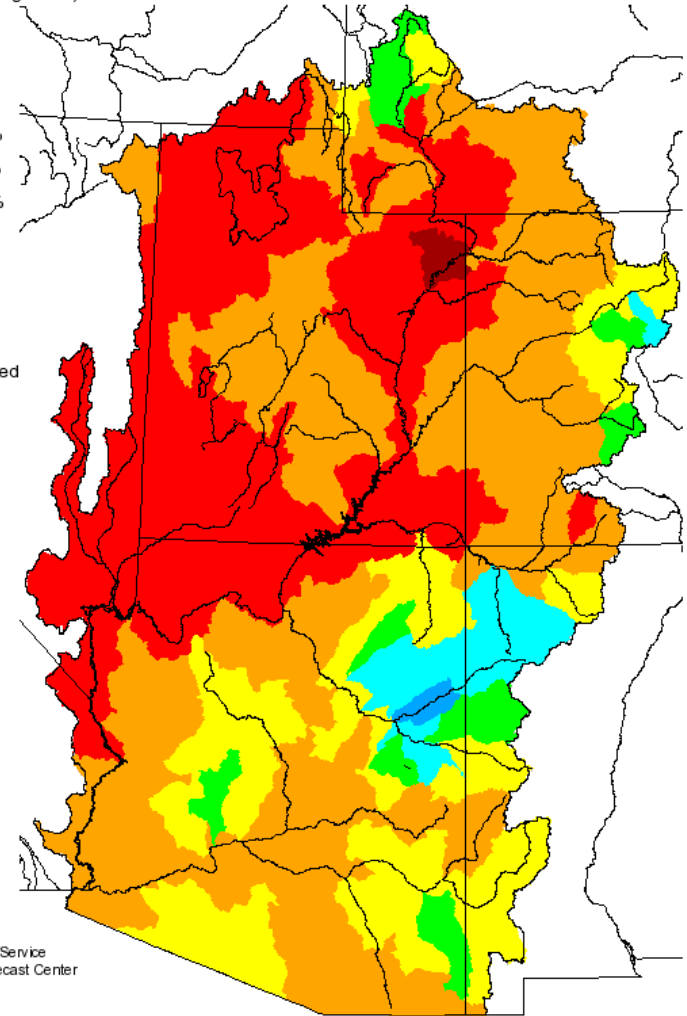
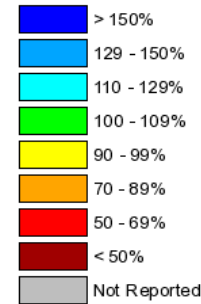


Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbafc.noaa.gov

Seasonal Precipitation, October 2014 - January 2015

(Averaged by Hydrologic Unit)

% Average



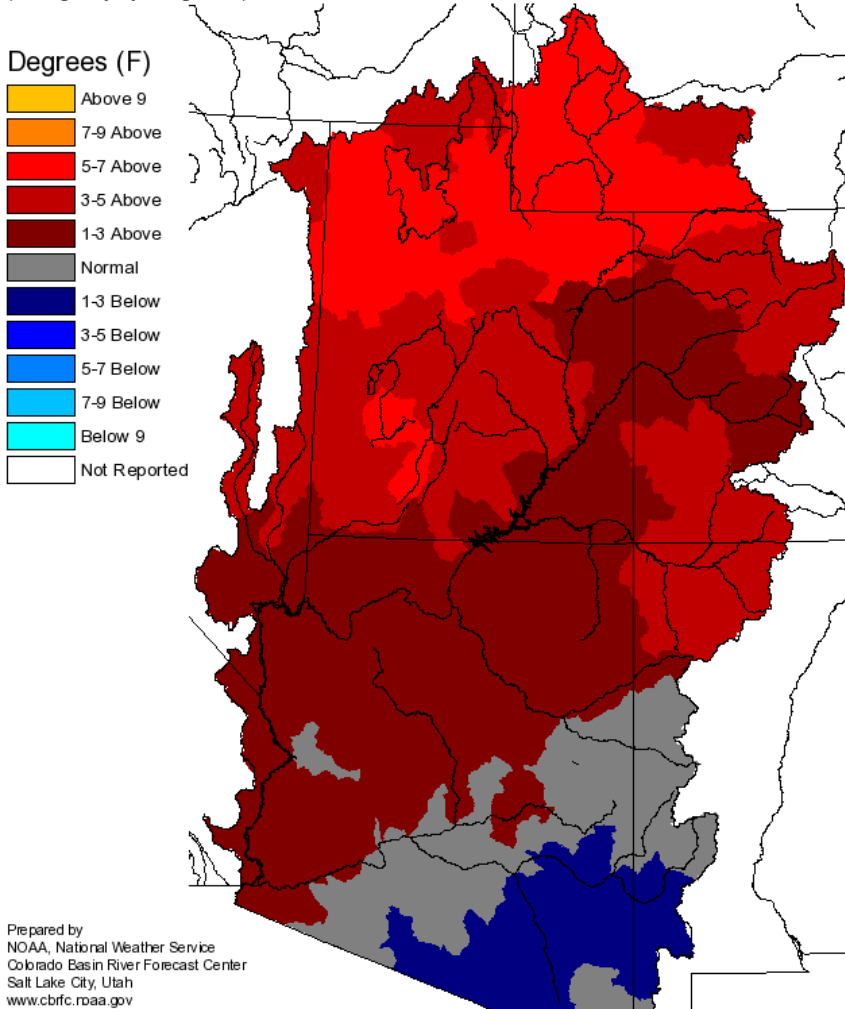
Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbafc.noaa.gov

January Temperatures

* several daily temperature records established *

Monthly Max Temp Deviation for January 2015

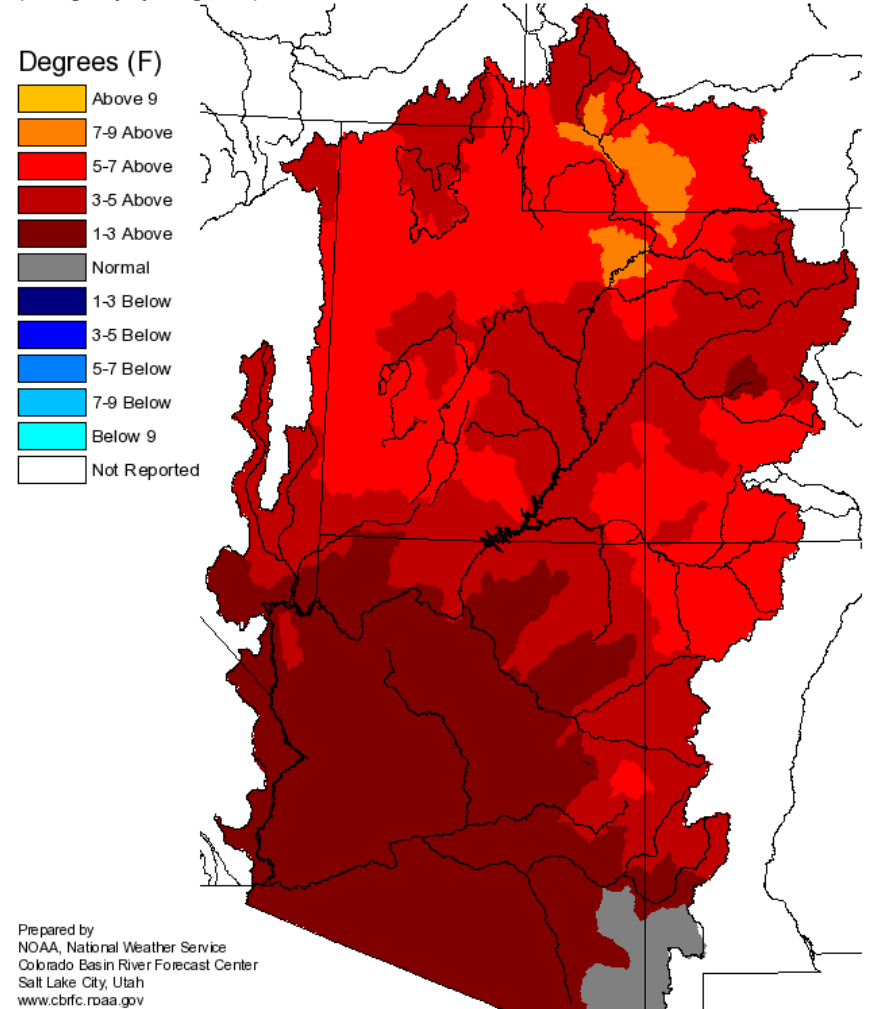
(Averaged by Hydrologic Unit)



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

Monthly Min Temp Deviation for January 2015

(Averaged by Hydrologic Unit)

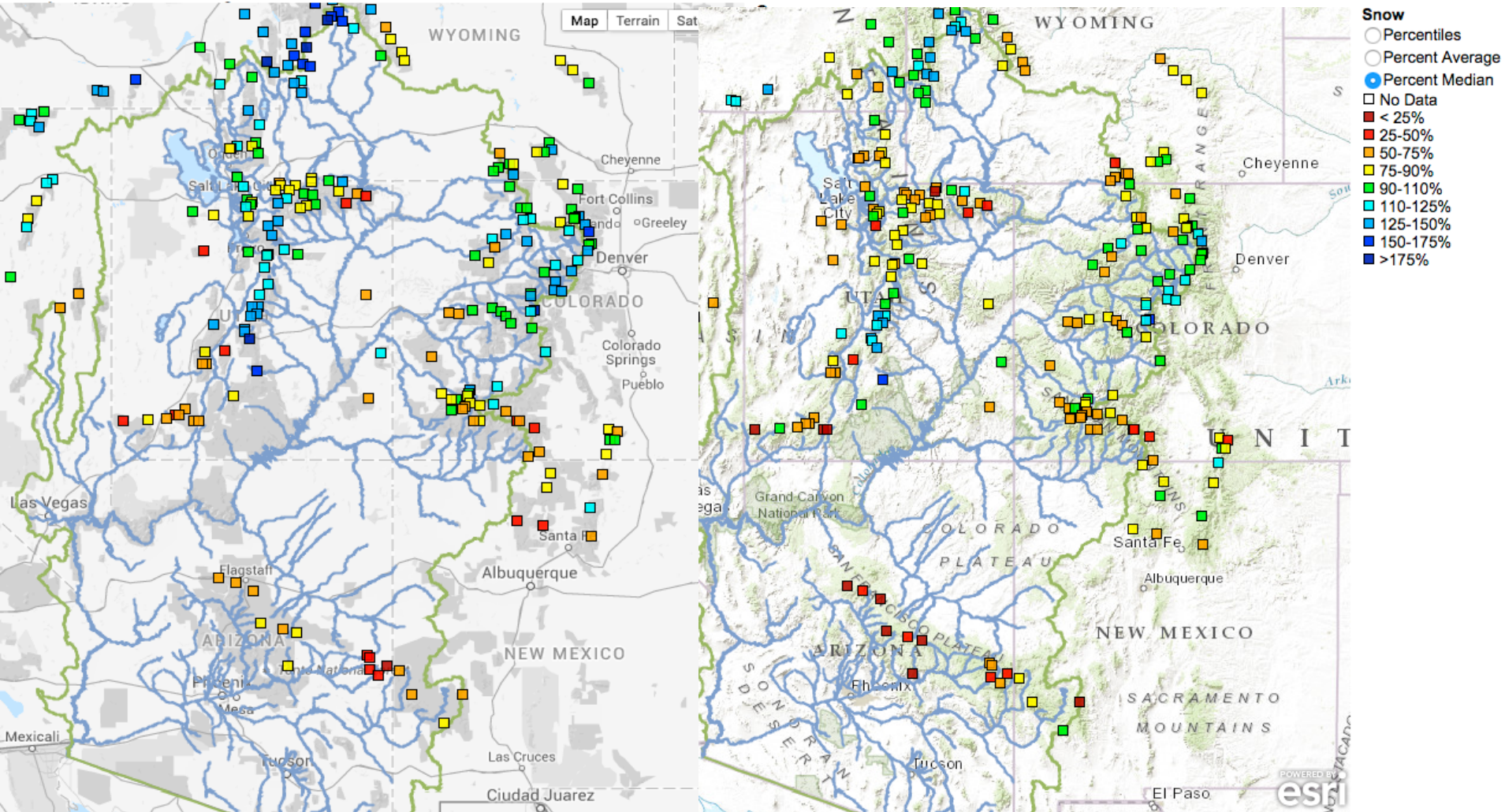


Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbffc.noaa.gov

SNOW CONDITIONS

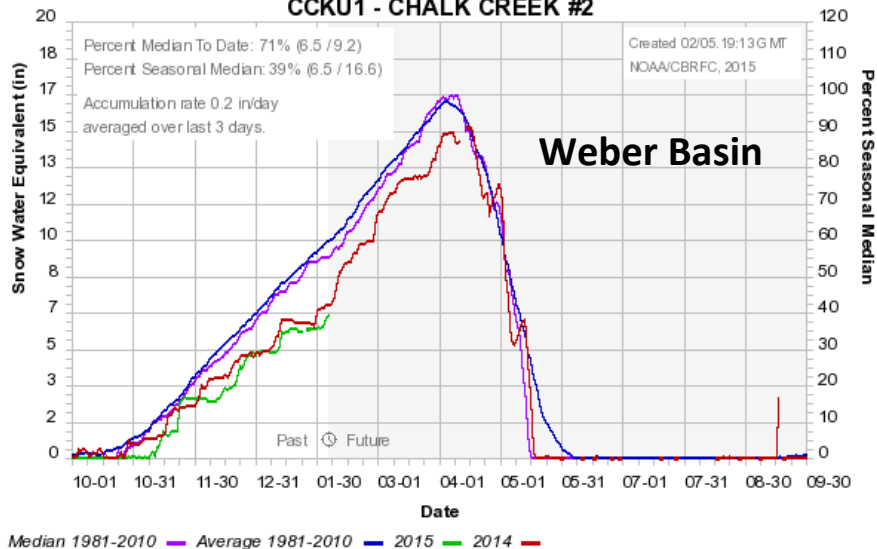
SNOTEL SWE - JAN 6 2015

SNOTEL SWE - FEB 3 2015

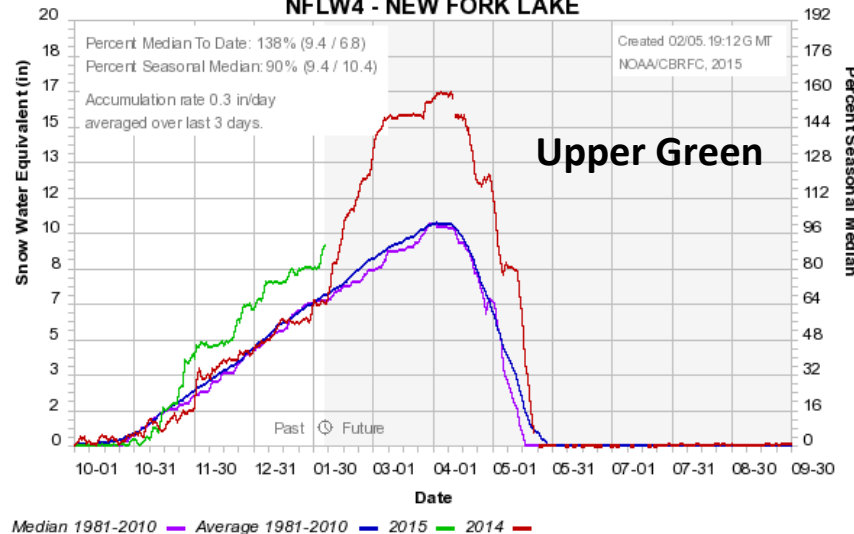


SNOTEL SAMPLE

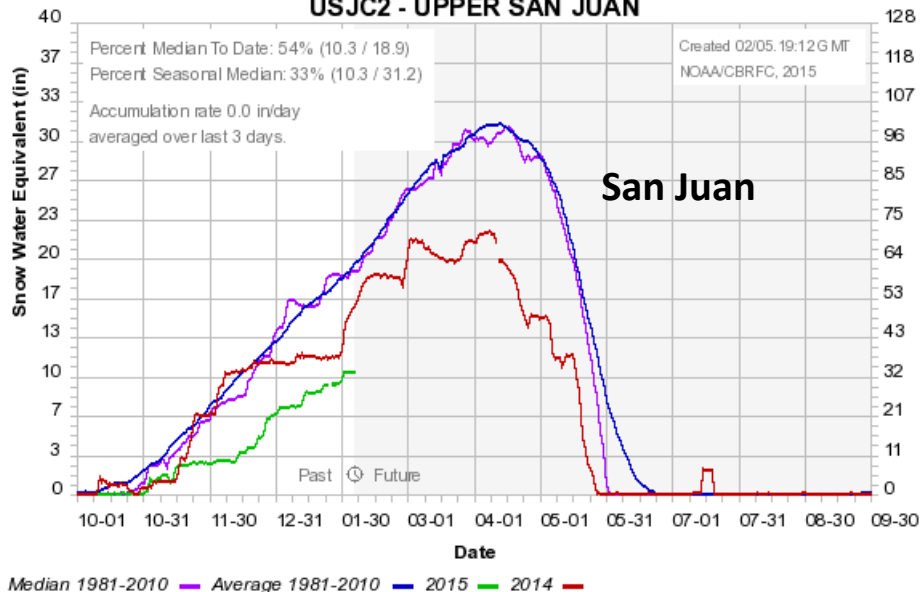
Colorado Basin River Forecast Center
CCKU1 - CHALK CREEK #2



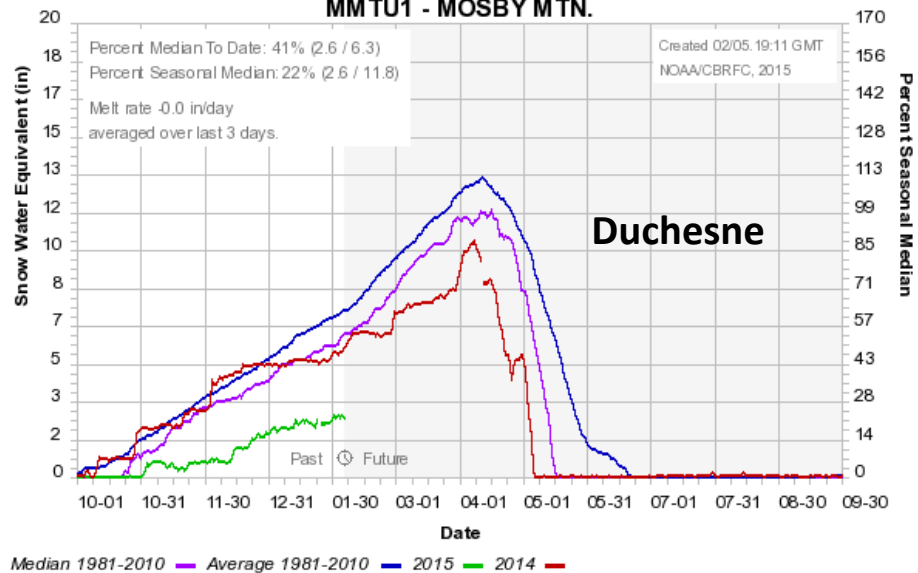
Colorado Basin River Forecast Center
NFLW4 - NEW FORK LAKE



Colorado Basin River Forecast Center
USJC2 - UPPER SAN JUAN

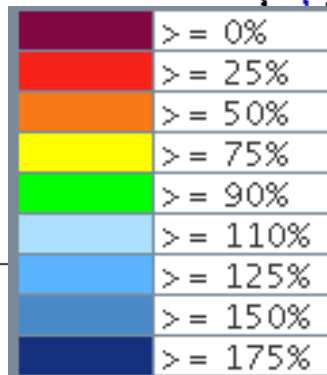
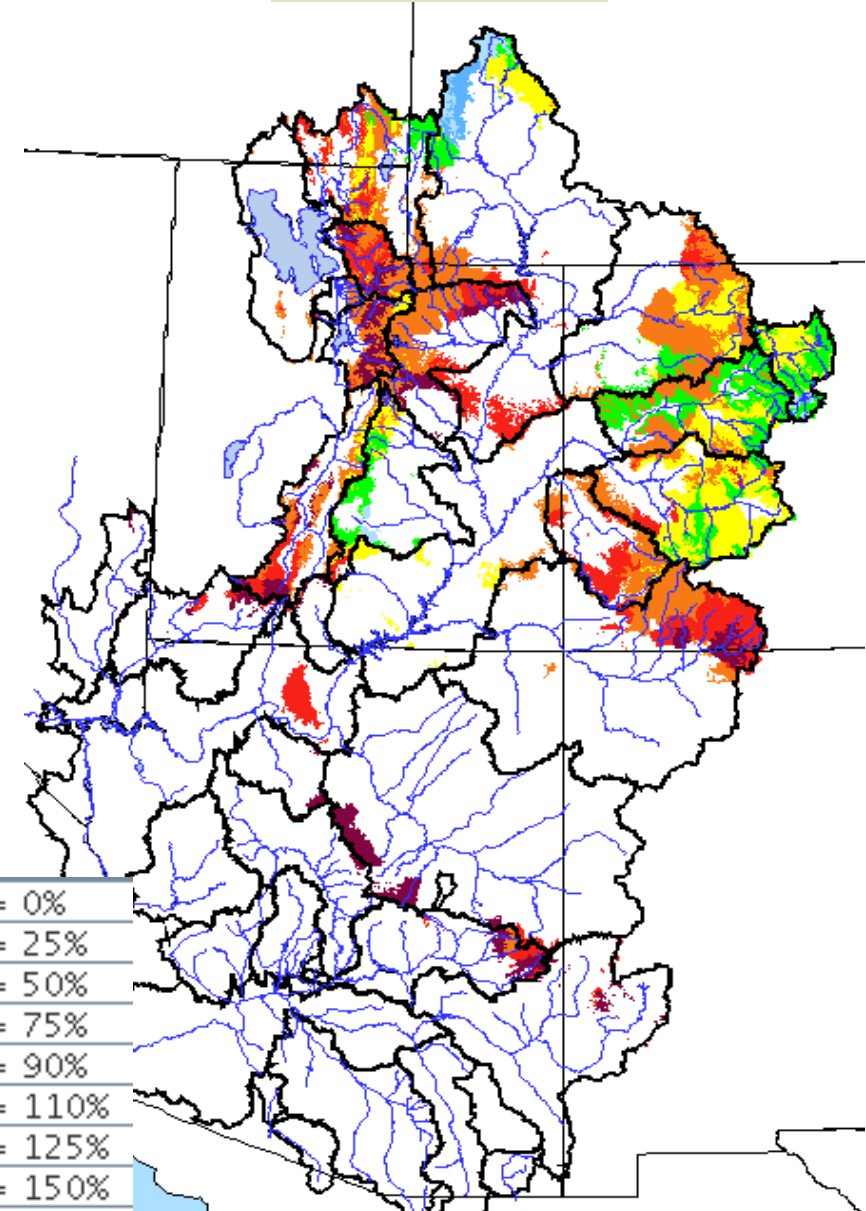
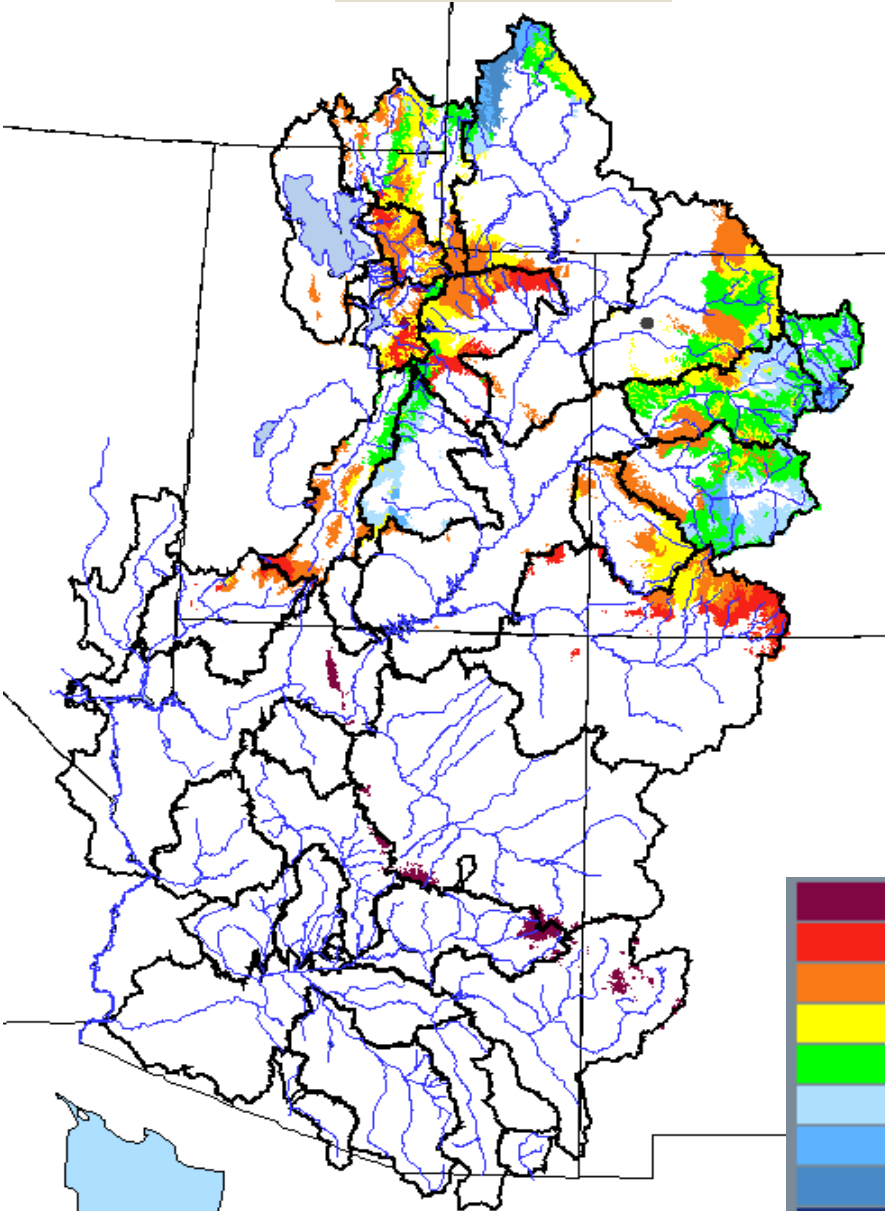


Colorado Basin River Forecast Center
MMTU1 - MOSBY MTN.



Model Snow
1/6/2015

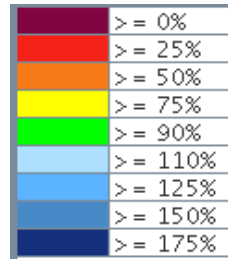
Model Snow
2/4/2015



Model Soil Moisture and Snow – Where are the signals the same ?

Model Soil Moisture
11/15/2015

Model Snow
2/4/2015



Above Average

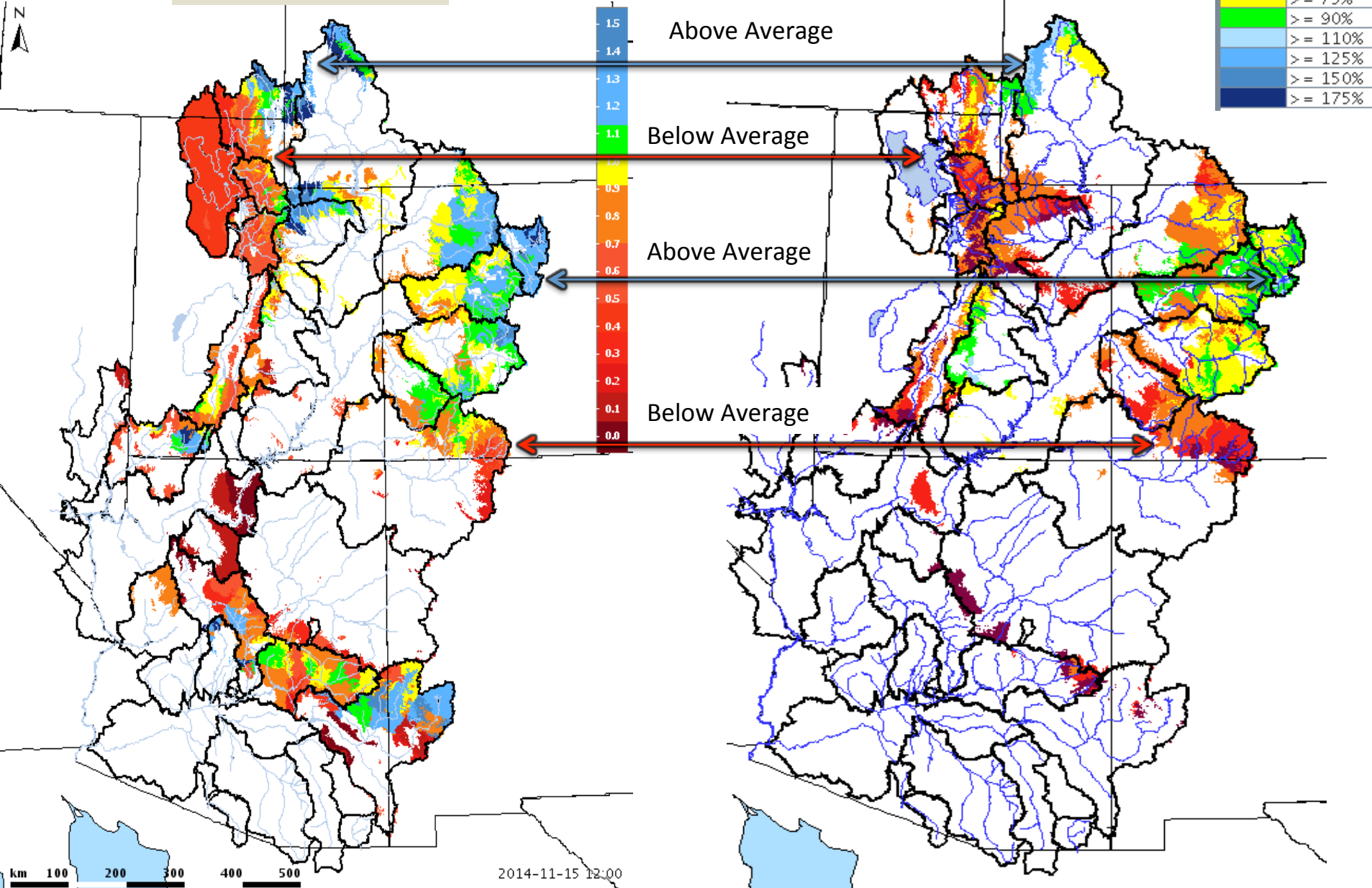
Below Average

Above Average

Below Average

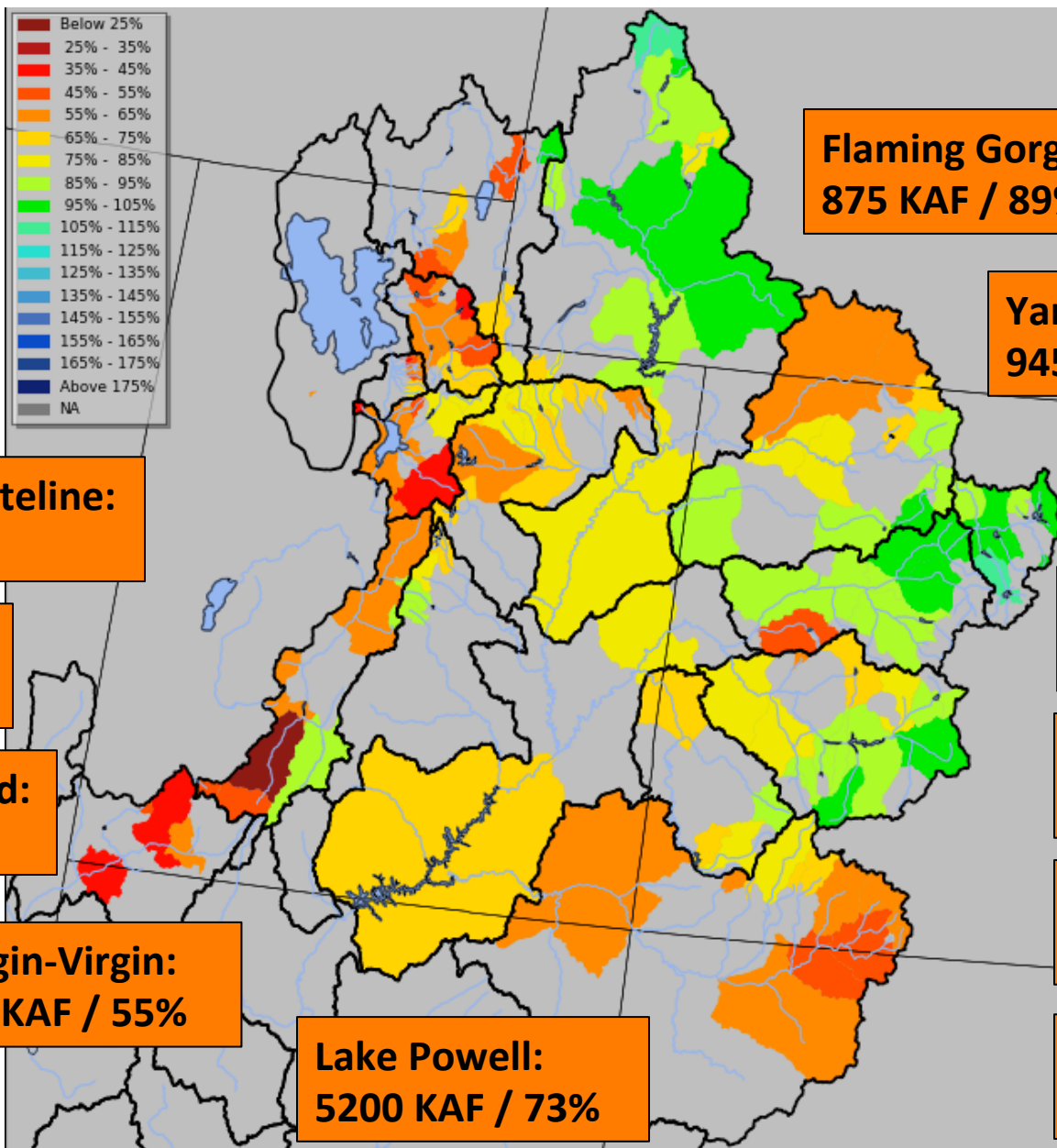


2014-11-15 12:00



February 1st Water Supply Forecasts

Apr-Jul Volumes / % Average – (50% exceedance forecasts)



Flaming Gorge:
875 KAF / 89%

Yampa-Deerlodge:
945 KAF / 76%

Bear-UT/WY Stateline:
95 KAF / 84 %

Weber-Oakley:
87 KAF / 74%

Provo-Woodland:
82 KAF / 82%

Virgin-Virgin:
32 KAF / 55%

Lake Powell:
5200 KAF / 73%

Colorado-Cameo:
2150 KAF / 91%

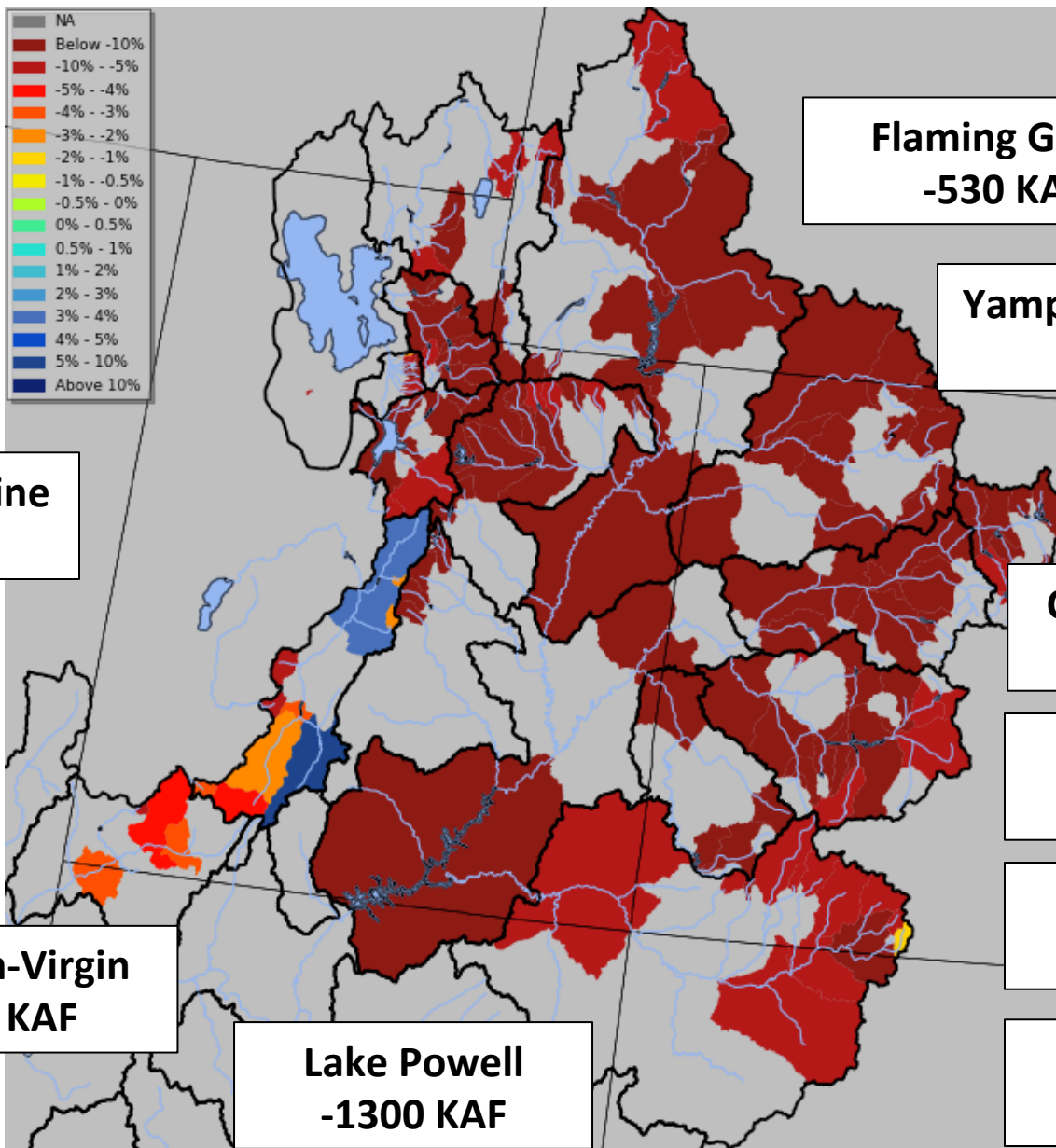
Blue Mesa:
620 KAF / 91%

McPhee Res:
210KAF / 71%

Navajo Res:
400 KAF / 54%

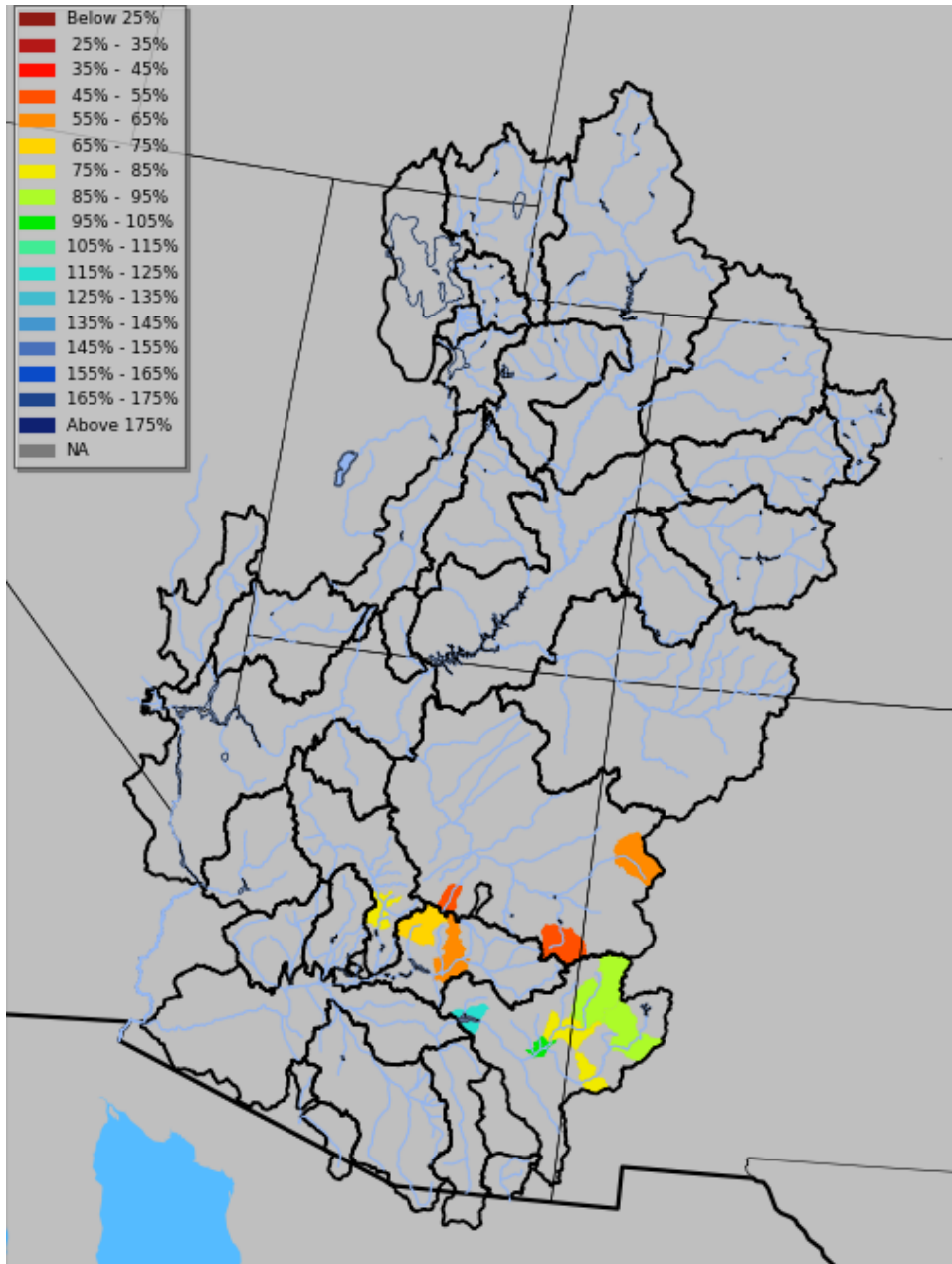
February 1st Water Supply Forecasts

Apr-Jul Volumes / % Of Average Change from January 1st Forecasts



February 1st Water Supply Forecasts

Feb-May Volumes / % Median



Little Colorado-Lyman:
3.2 KAF / 49%

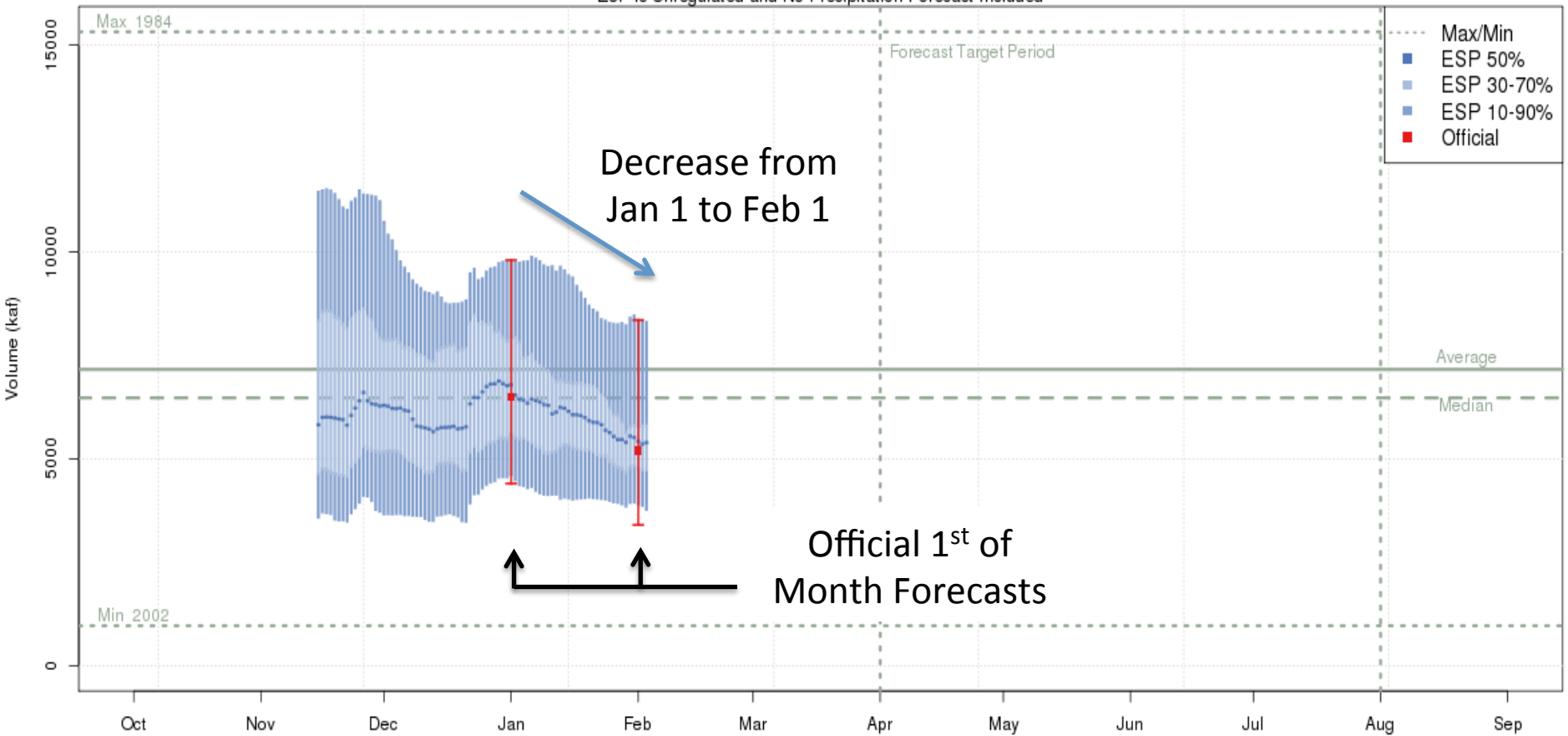
Verde-Horseshoe:
120 KAF / 88%

Salt - Roosevelt:
200 KAF / 70%

Gila-Gila:
48 KAF / 96%

Lake Powell – Model Forecast Evolution Plot

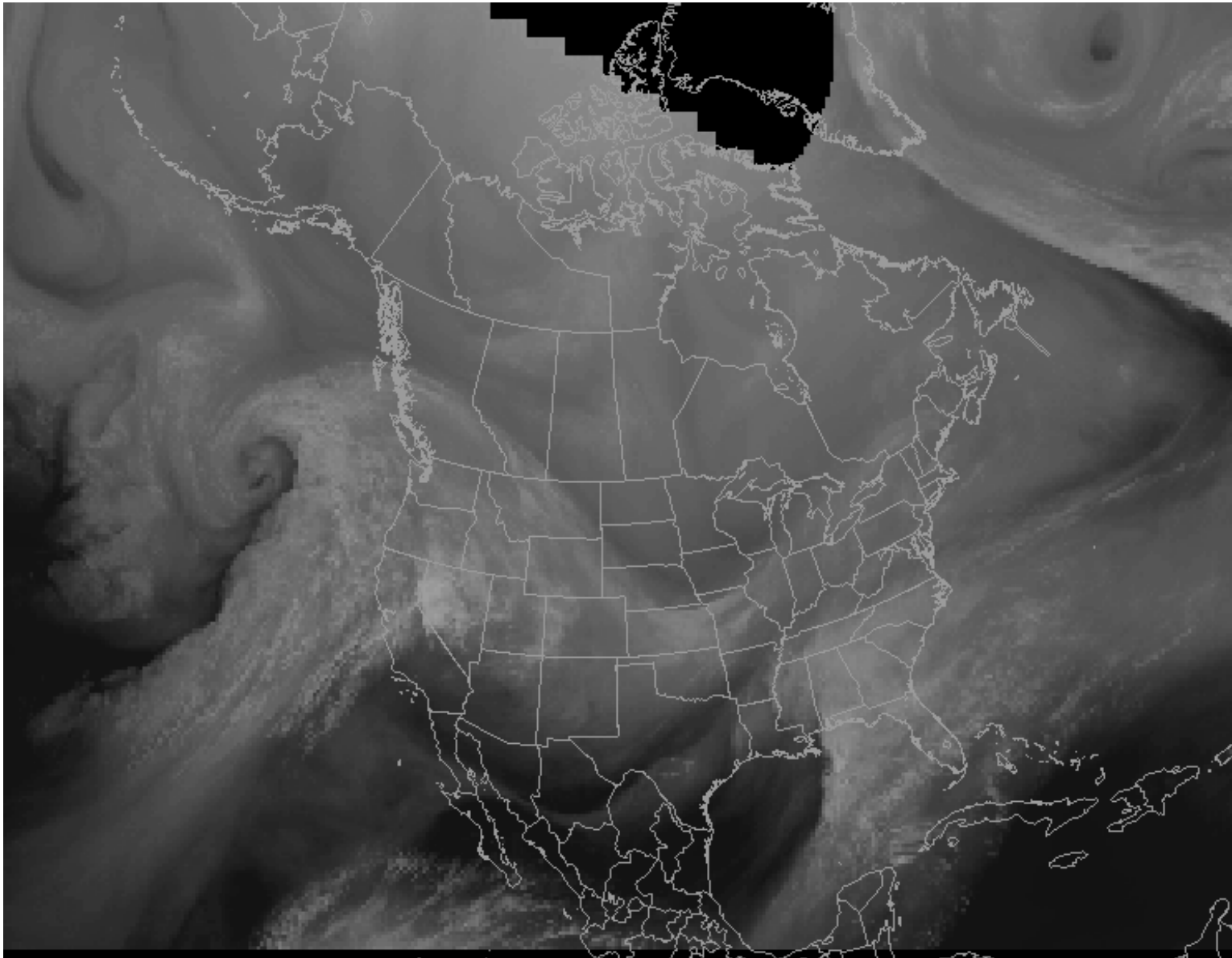
Colorado - Lake Powell- Glen Cyn Dam- At (GLDA3)
2015-02-01 Apr-Jul Official 50% Forecast: 5200 kaf (73% of average)
ESP is Unregulated and No Precipitation Forecast Included



The latest (2015-02-03) 50% ESP forecast is 5389 kaf.
Plot Created 2015-02-04 15:08:39, NOAA / NWS / CBRFC

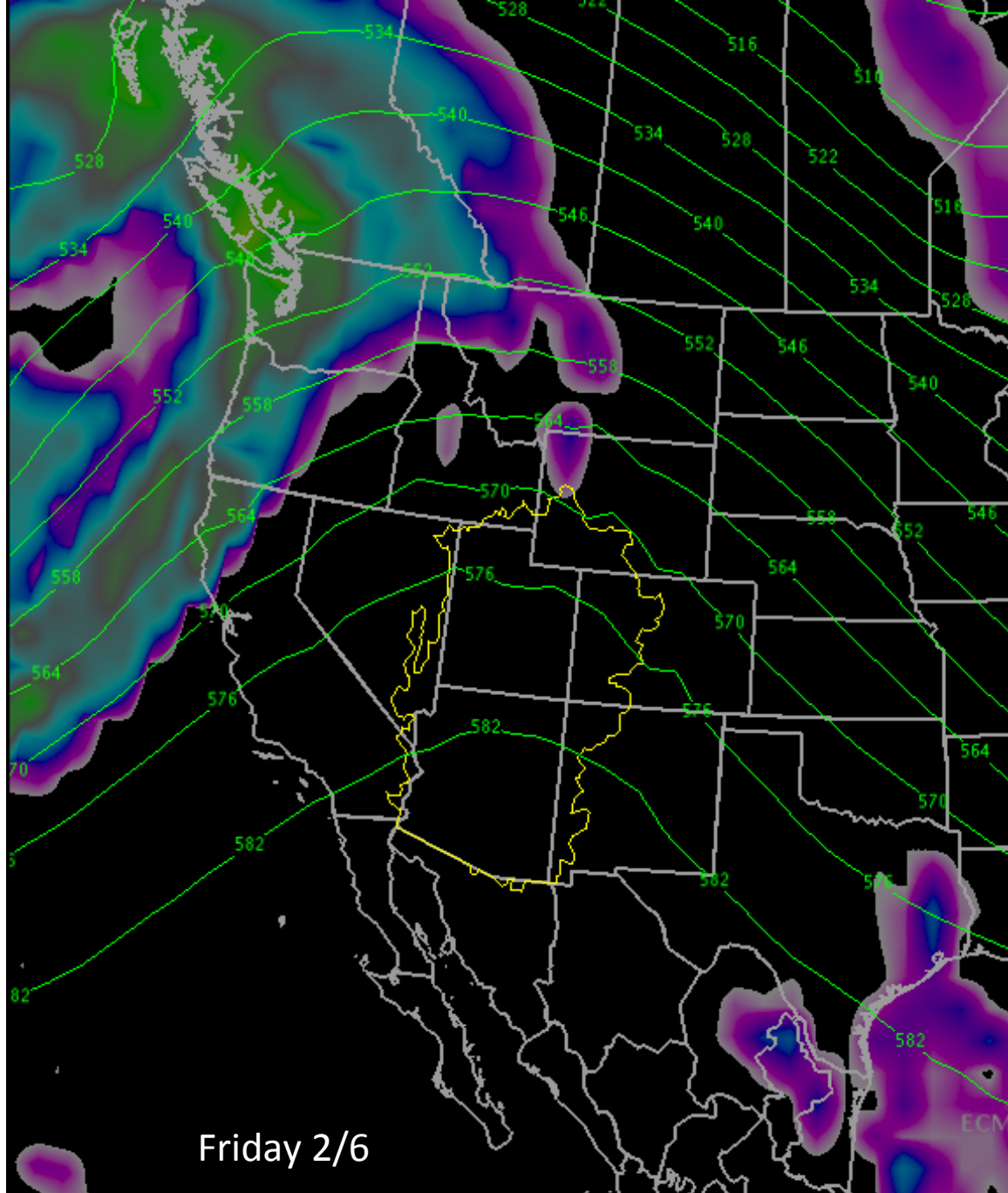
FUTURE WEATHER

Another February Atmospheric River – However Impacts Will Be Limited
- satellite water vapor image as of 2/4/2015 -



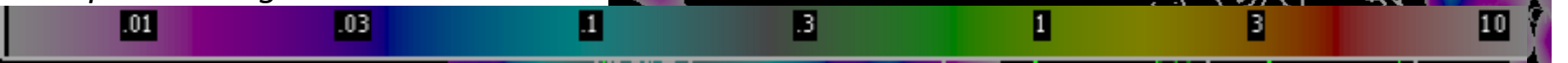
Medium Range Weather Forecast Model

Ridge Builds Through Friday



Friday 2/6

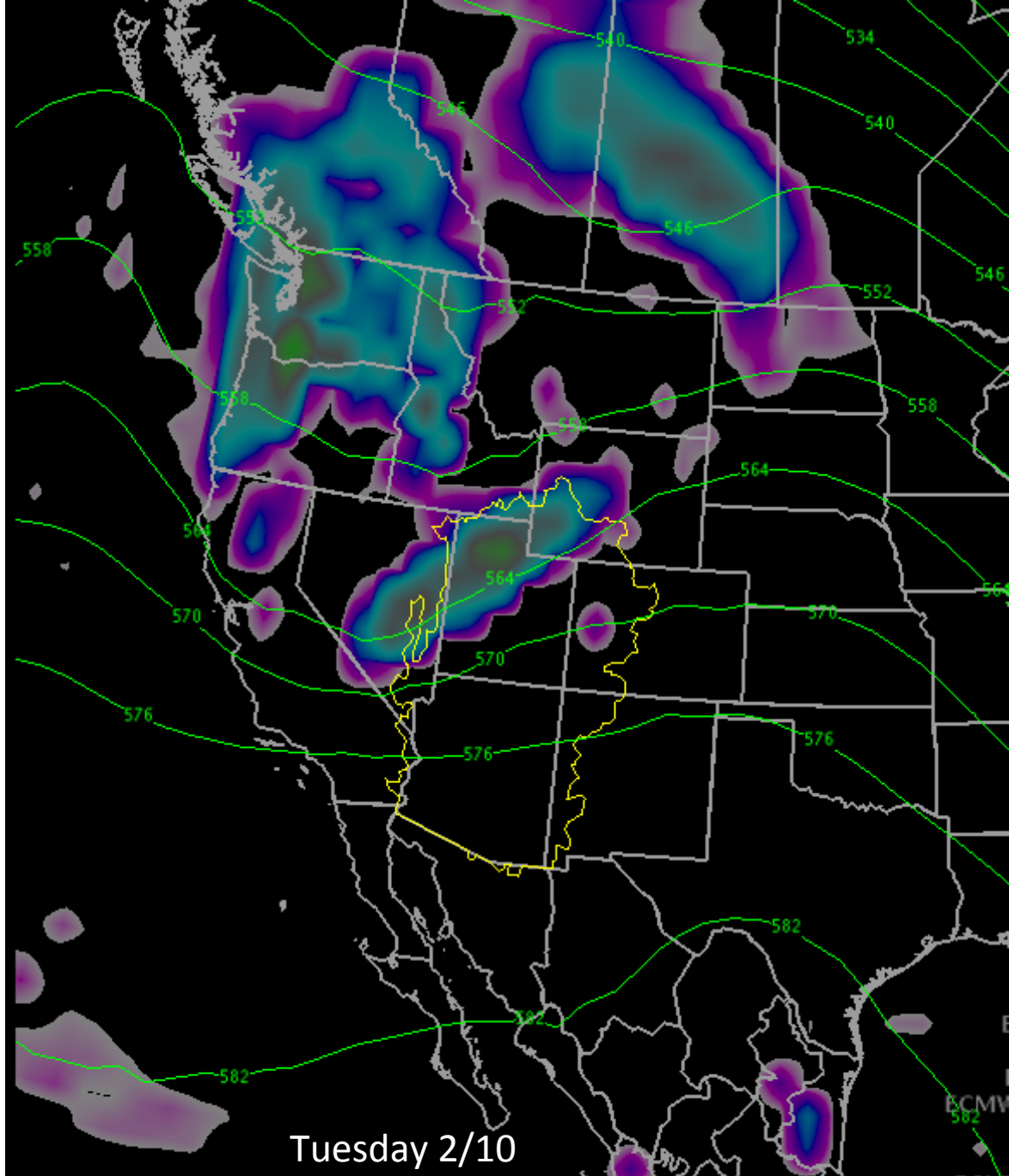
Precipitation Legend:



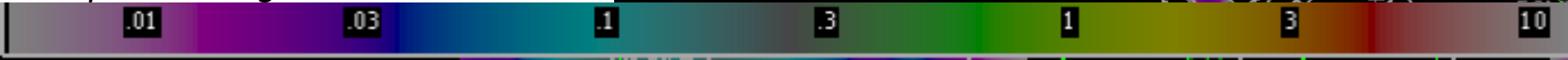
Medium Range Weather Forecast Model

Ridge flattens over the weekend as a storm system approaches.

Mon-Wed: Splitting and weakening storm should bring some precipitation.



Precipitation Legend:

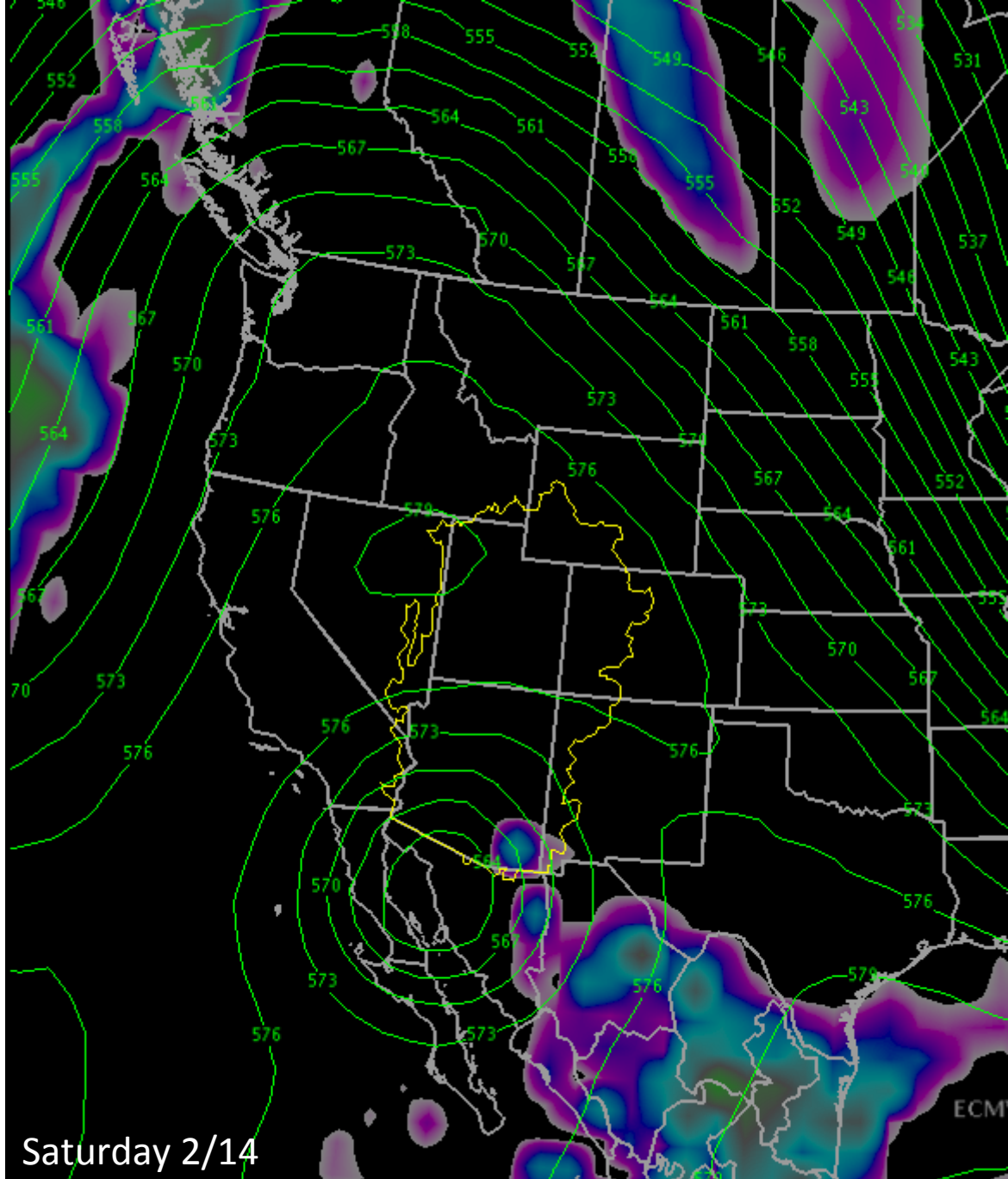


Medium Range Weather Forecast Model

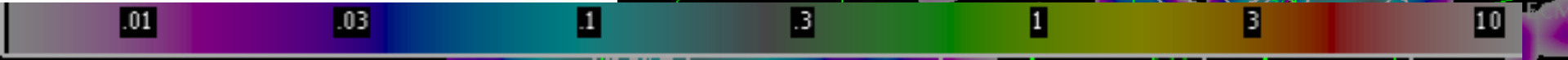
* Lower confidence period *

Ridging rebounds over
most of the area.

A low pressure to the south
brining moisture to
Arizona / Lower Colorado
Region



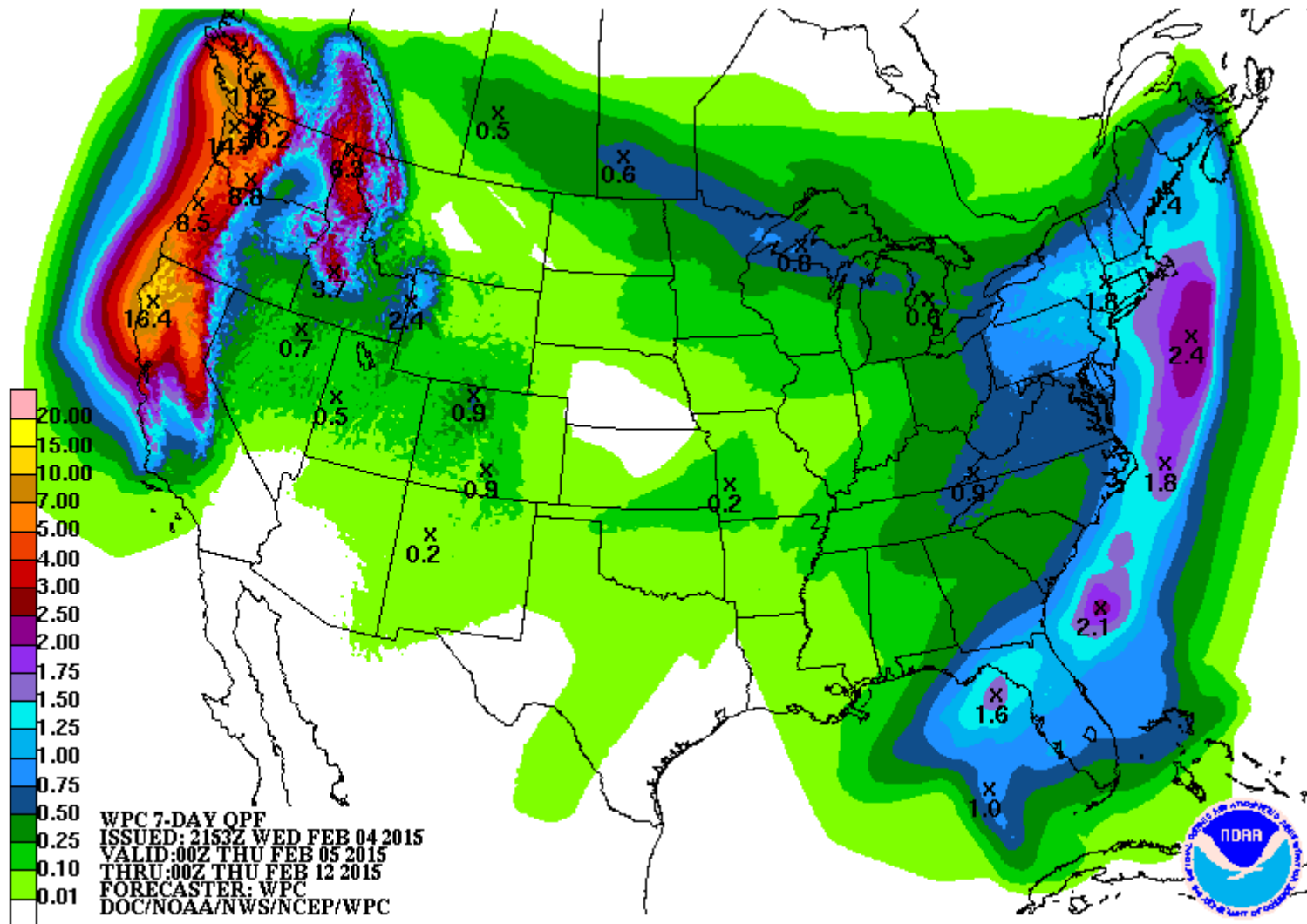
Precipitation Legend:



Quantitative Precipitation Forecast

Weather Prediction Center

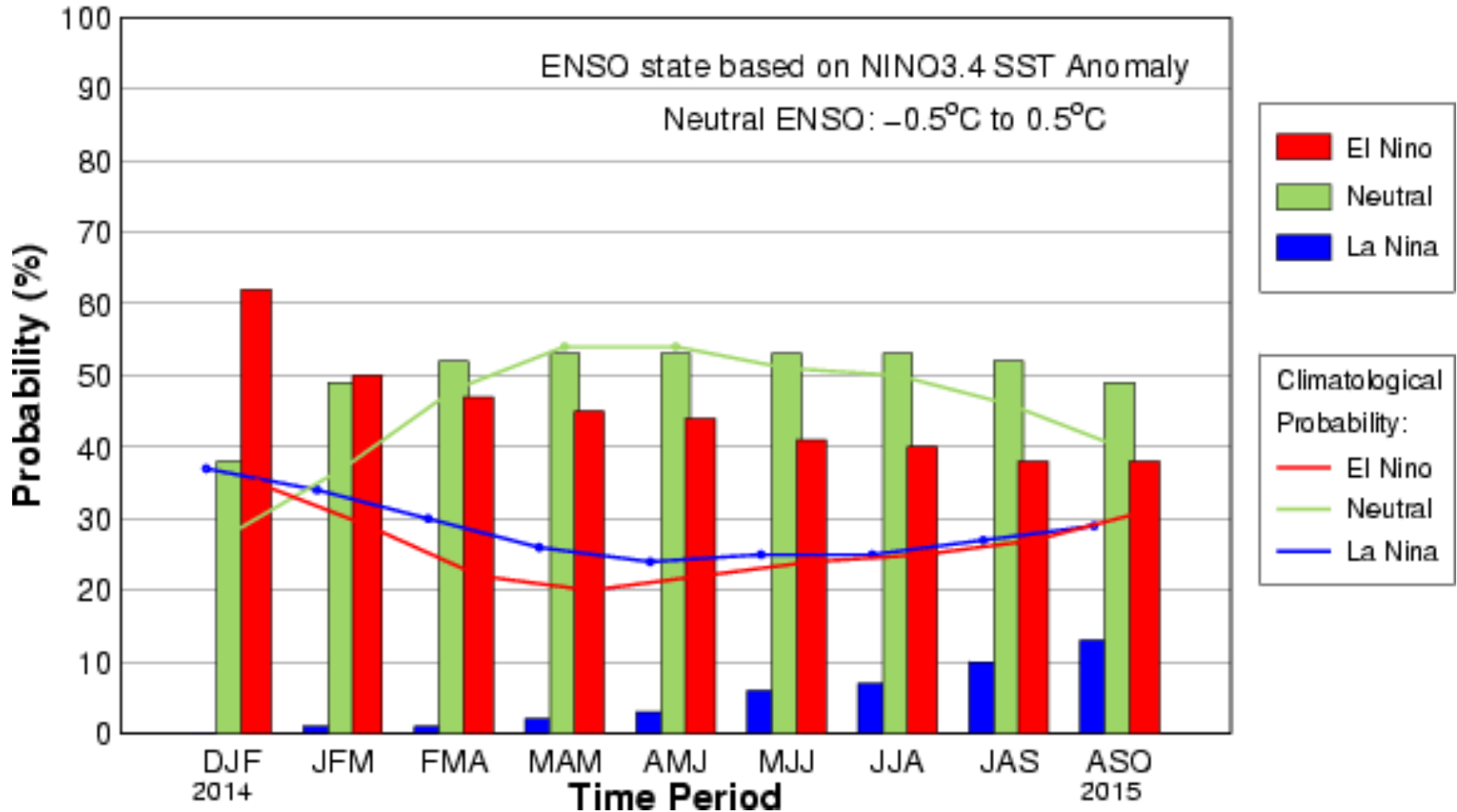
7 Day Total February 5-12



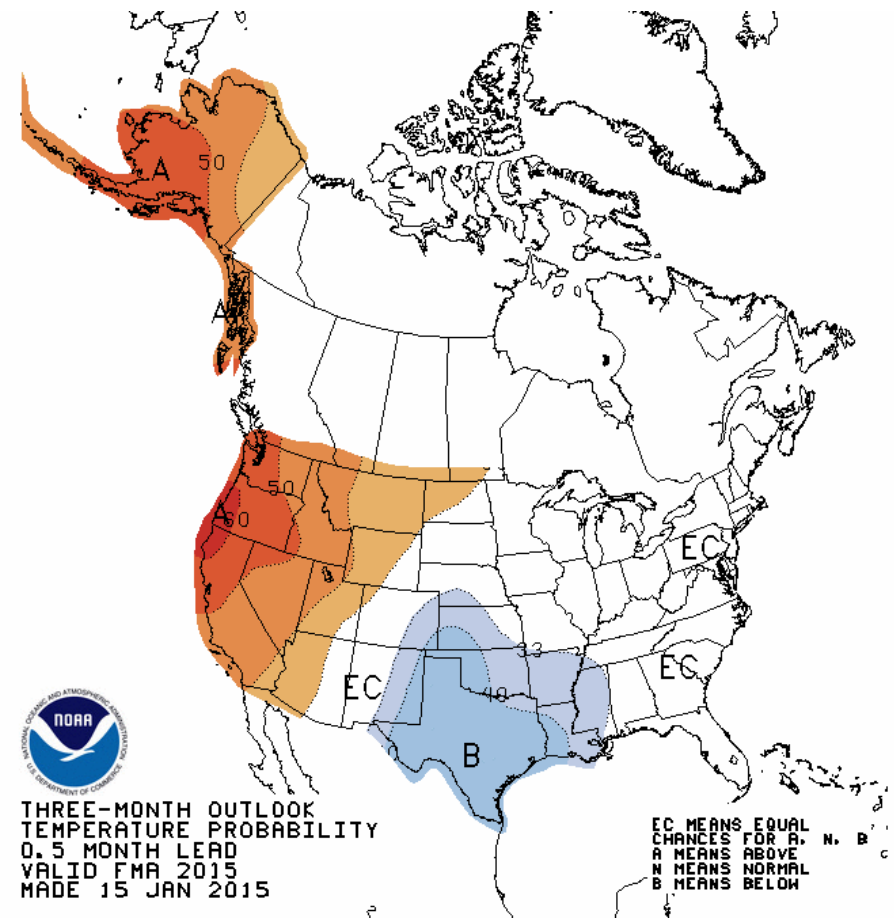
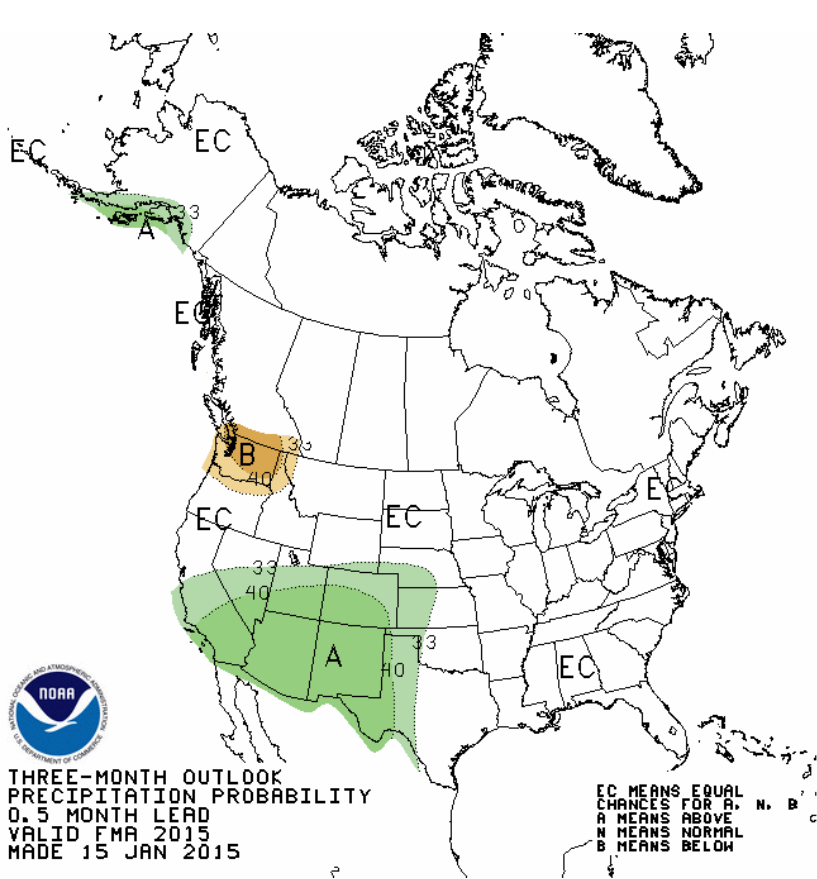
LONG RANGE WEATHER

A 50%-60% chance of weak El Nino conditions February-March
Neutral conditions likely through the summer

Early-Jan CPC/IRI Consensus Probabilistic ENSO Forecast



Climate Prediction Center 90 day outlooks



The Dust On Snow Issue

CBRFC Efforts to Address This

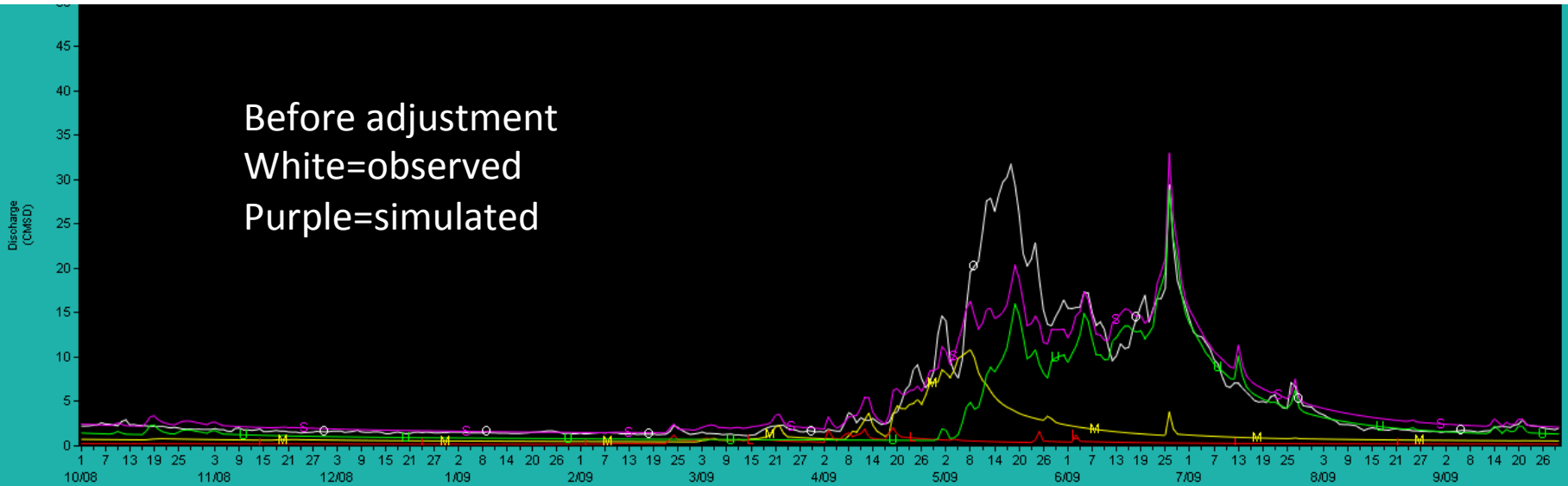
- Data was gathered from JPL.
- Daily snow melt and mean areal dust contamination was determined.
- A method was developed to incorporate into CBRFC model
- Solar radiation drives the melt
 - **Should be little effect from dusty snowpack in heavily forested areas**
- Temperature drives the snowmelt in the model
- Therefore: Adjustments were made to the model temperatures (in the historical calibration period) based on the dust data.
- Initial Results

Results for Two Basins

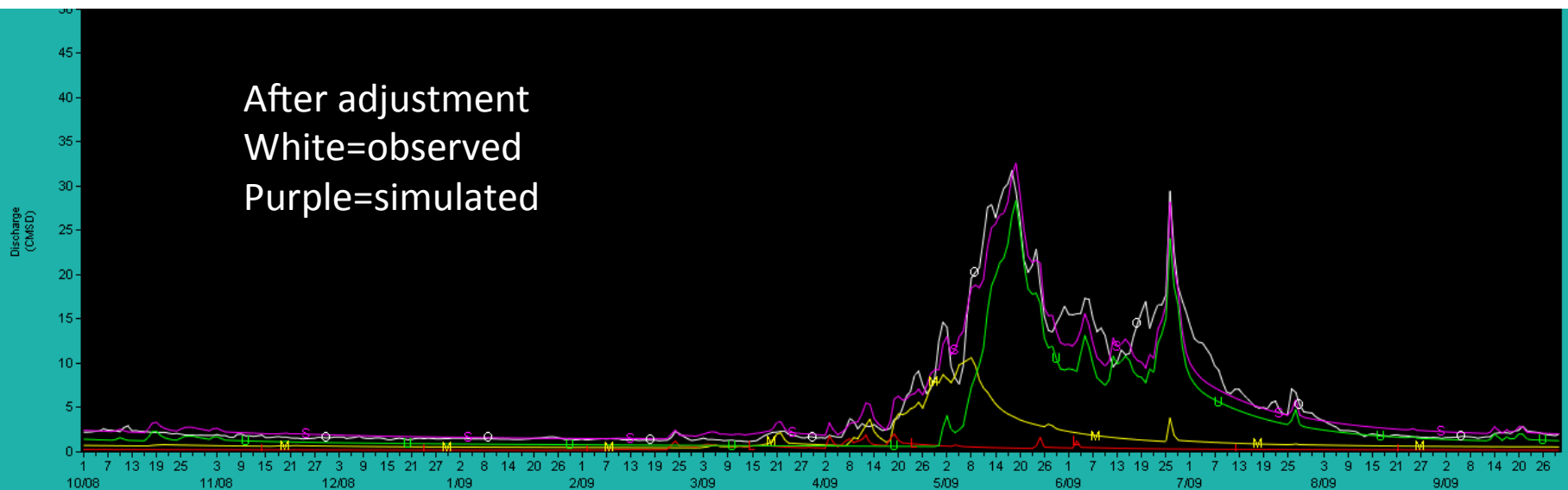
- Uncompahgre near Ridgway
 - Area above 11000 79% open 52 sq mi
 - Area 9000-11000 17 % open 45 sq mi
 - **Would expect significant effect**
- Elk at Milner
 - Area above 10000 43 % open 66 sq mi
 - Area 8500-10000 11 % open 156 sq mi
 - **Would expect small effect.** The percent of open area is small and the relative open area compared to the total forested area is small.

Results: 2009 High Dust – Uncompahgre near Ridgeway

Before adjustment
White=observed
Purple=simulated

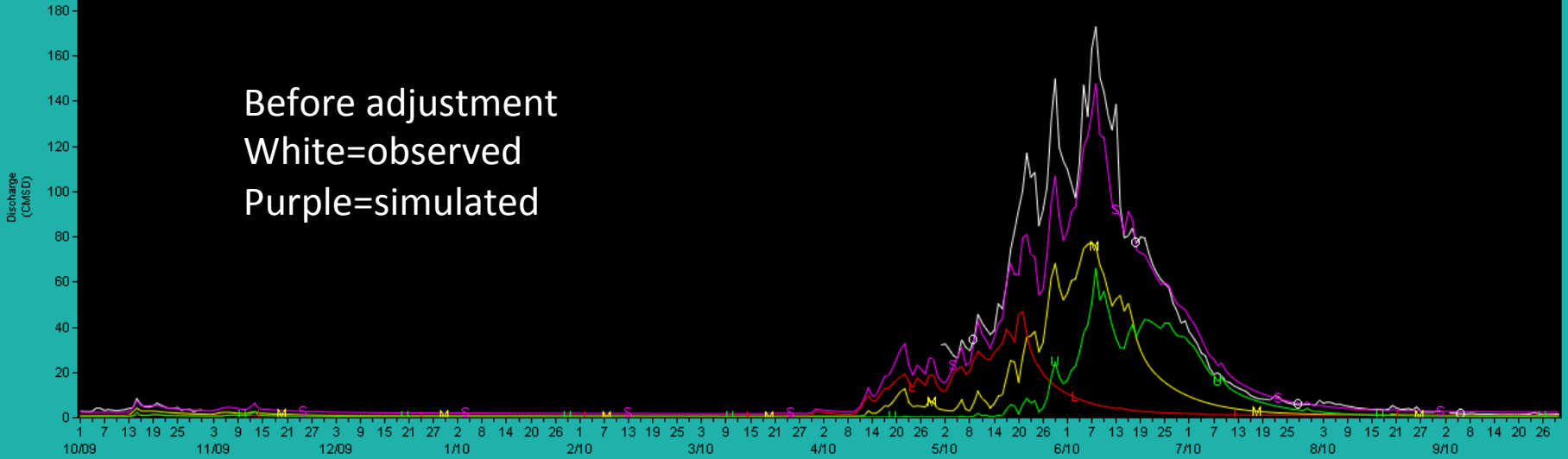


After adjustment
White=observed
Purple=simulated

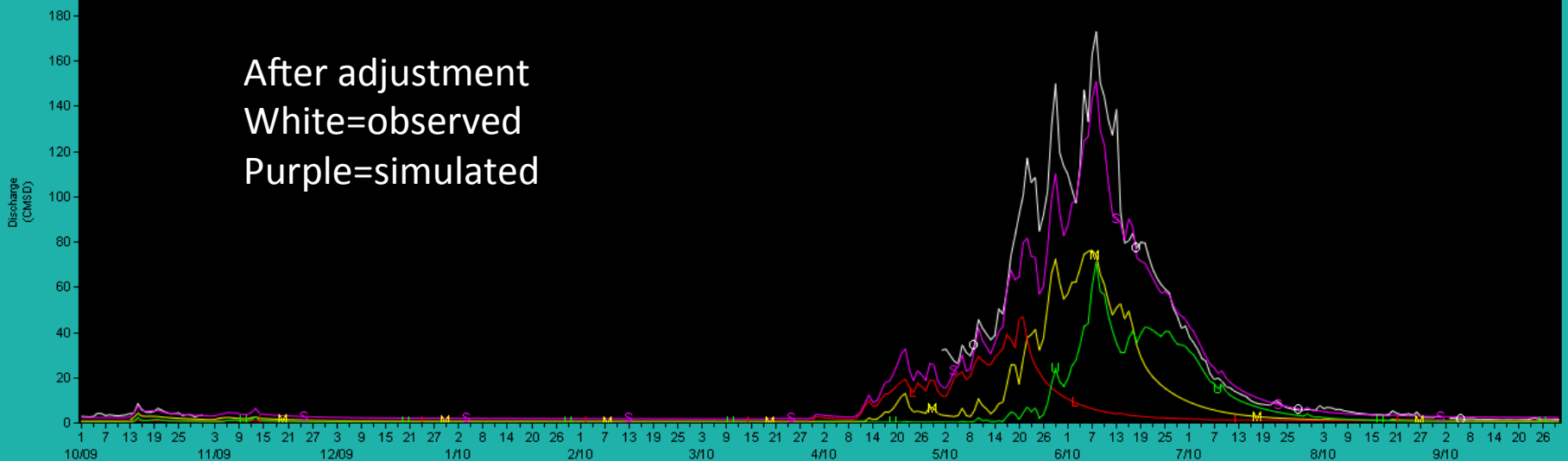


Results: 2010 High Dust / High Evergreen – Elk near Milner

Before adjustment
White=observed
Purple=simulated



After adjustment
White=observed
Purple=simulated



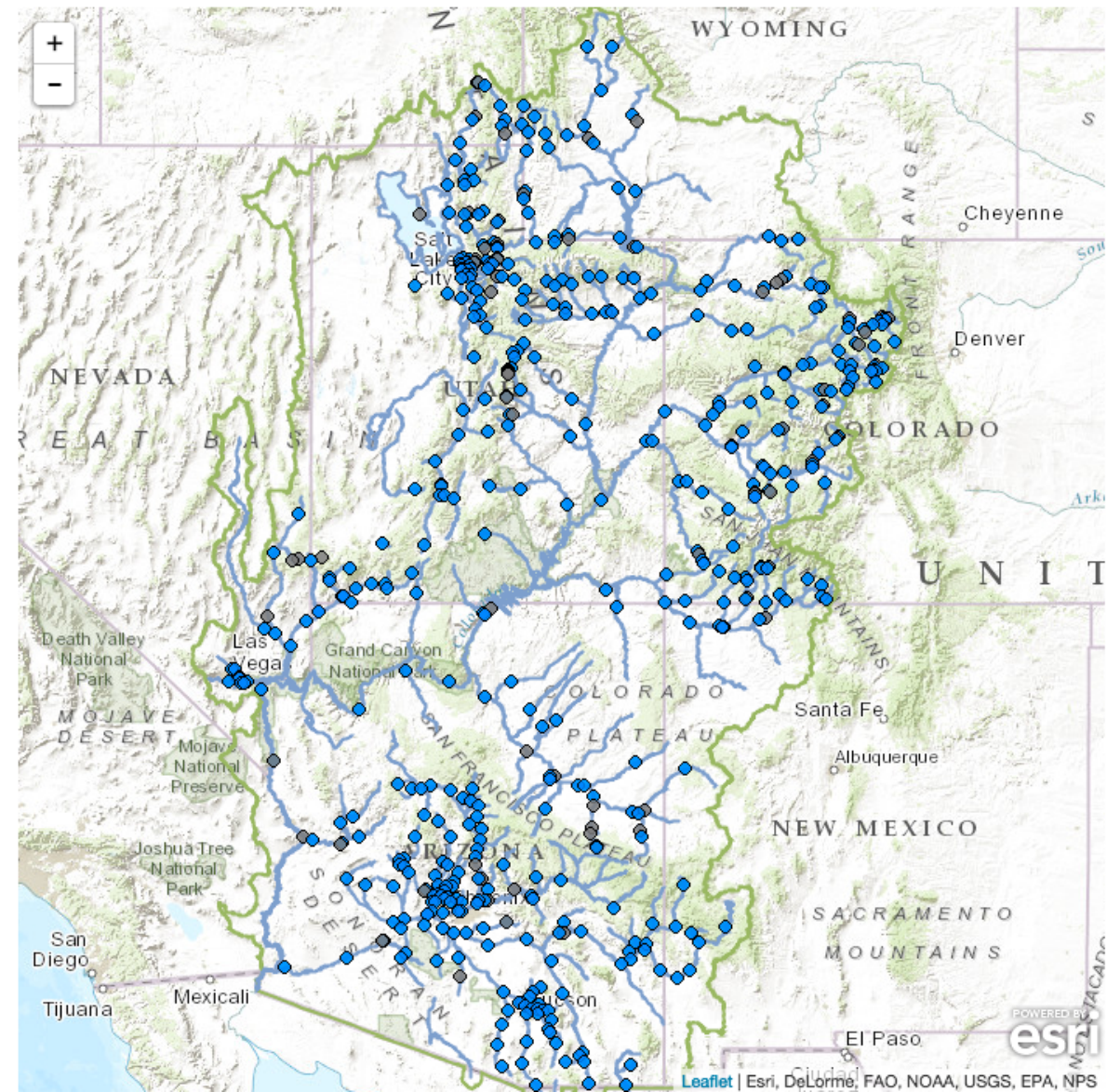
Results

- Definitely improves the timing of melt
- Seasonal volumes do not appear to be affected much.
- However, our qualitative expectations are that dust exposure very early or very late in the season may affect seasonal volumes (+/- 5 percent).
- More work to be done.
- Plan to implement a procedure this spring.
- A more detailed/technical webinar can be provided for those interested.

News

Water Supply Webinar February 5, 1pm MST. [Read More...](#)
CBRFC presentation are posted here. [Read More...](#)
CBRFC Webinars are posted here. [Read More...](#)

Conditions Map [Help](#)



River Conditions

Data Updated: Thu, 05 Feb 2015 11:20:01 -0700 [Help](#)

Show [Hide Other Types](#)

- Data
- Forecast
- Reservoir
- Official Flood
- Active

- ⬤ Not Available
- Normal
- Significant Rise
- Near Bankfull
- Above Bankfull
- Above Flood Stage
- Outlook (> 3 days)

[▶ Snow Conditions](#)

[▶ Water Supply Forecasts](#)

[▶ Peak Flood Probability](#)

[▶ Reservoir Conditions](#)

[▶ Weather Conditions](#)

[▶ Map Options](#)

[▶ Search Points](#)

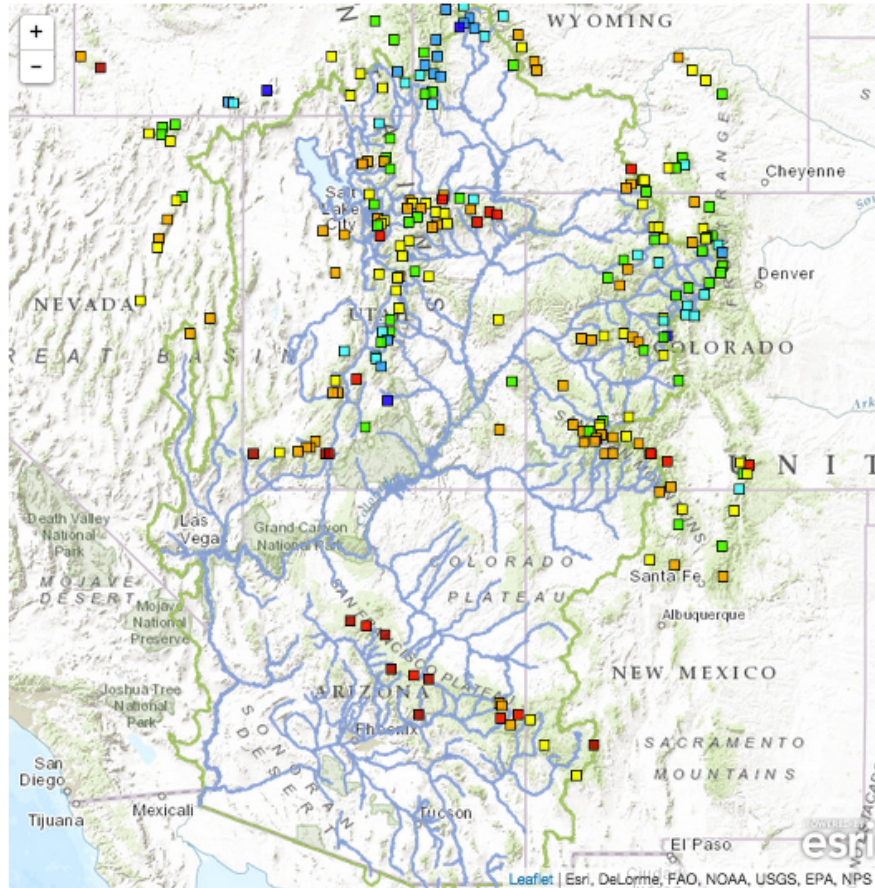


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Conditions Map

[Help](#)



Lat: 37.6 Lng: -110.5, Zoom: 6

[River Conditions](#)

[Snow Conditions](#)

[Points](#)

[Grids](#)

Data Updated: Wed, 04 Feb 2015 12:50:01 [Help](#)
-0700

Show [Hide Other Types](#)

- No Data
- No Average
- < 7000 ft
- 7000-8000 ft
- 8000-9000 ft
- 9000-10000 ft
- > 10000 ft

- Percentiles
- Percent Average
- Percent Median

- No Data
- < 25%
- 25-50%
- 50-75%
- 75-90%
- 90-110%
- 110-125%
- 125-150%
- 150-175%
- >175%

[Water Supply Forecasts](#)

[Peak Flood Probability](#)

[Reservoir Conditions](#)

[Base Map Options](#)

[Boundary Display Options](#)

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COLORADO BASIN RIVER FORECAST CENTER

NATIONAL WEATHER SERVICE / NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



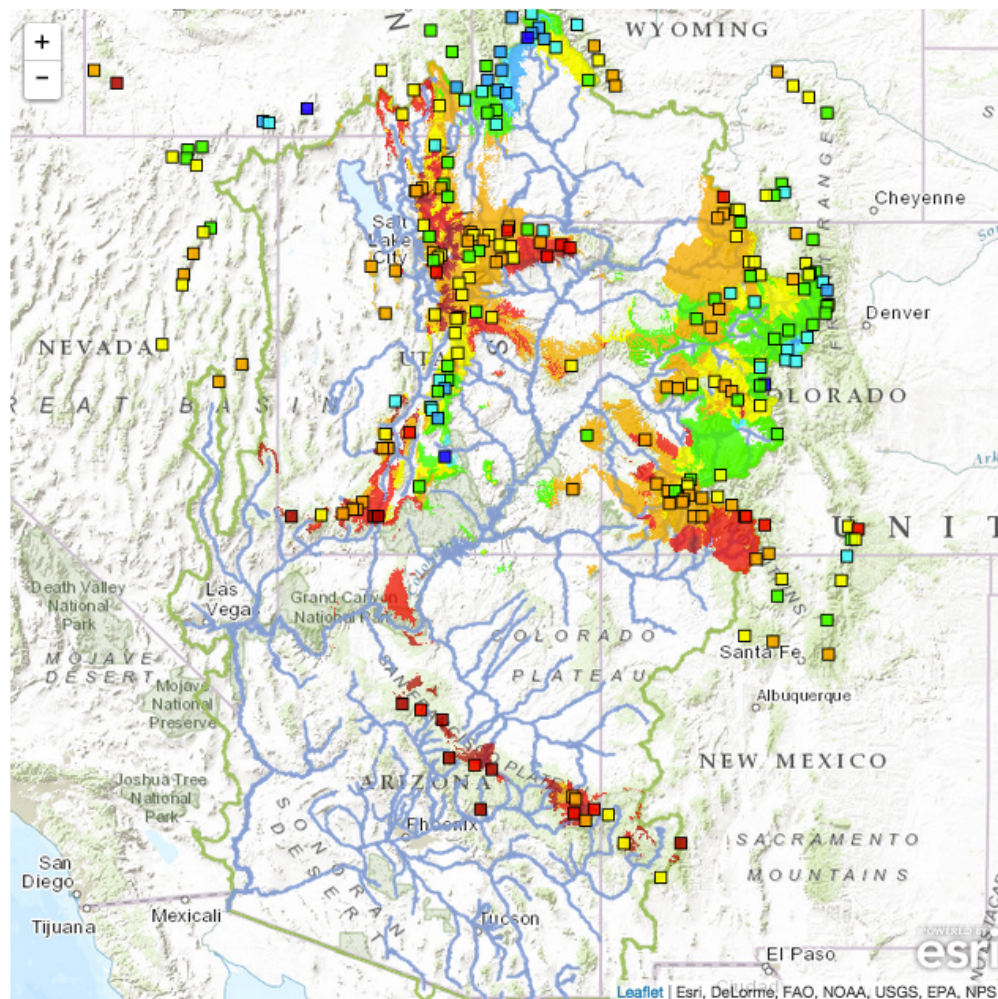
- HOME
- RIVERS
- SNOW
- WATER SUPPLY
- RESERVOIRS
- WEATHER
- CLIMATE
- HELP
- ABOUT
- NEWS
- SEARCH

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Conditions Map

[Help](#)



Lat: 37.6 Lng: -110.5, Zoom: 6

[River Conditions](#)

[Snow Conditions](#)

[Points](#)

[Grids](#)

- Modeled SWE 2015-02-03
- Percent Average
- Percent Average Above 2 in SWE

- No Data
- < 25%
- 25-50%
- 50-75%
- 75-90%
- 90-110%
- 110-125%
- 125-150%
- 150-175%
- >175%

[Water Supply Forecasts](#)

[Peak Flood Probability](#)

[Reservoir Conditions](#)

[Base Map Options](#)

[Boundary Display Options](#)

[Zoom Areas](#)

[Search Points](#)

Leaflet | Esri, DeLorme, FAO, NOAA, USGS, EPA, NPS



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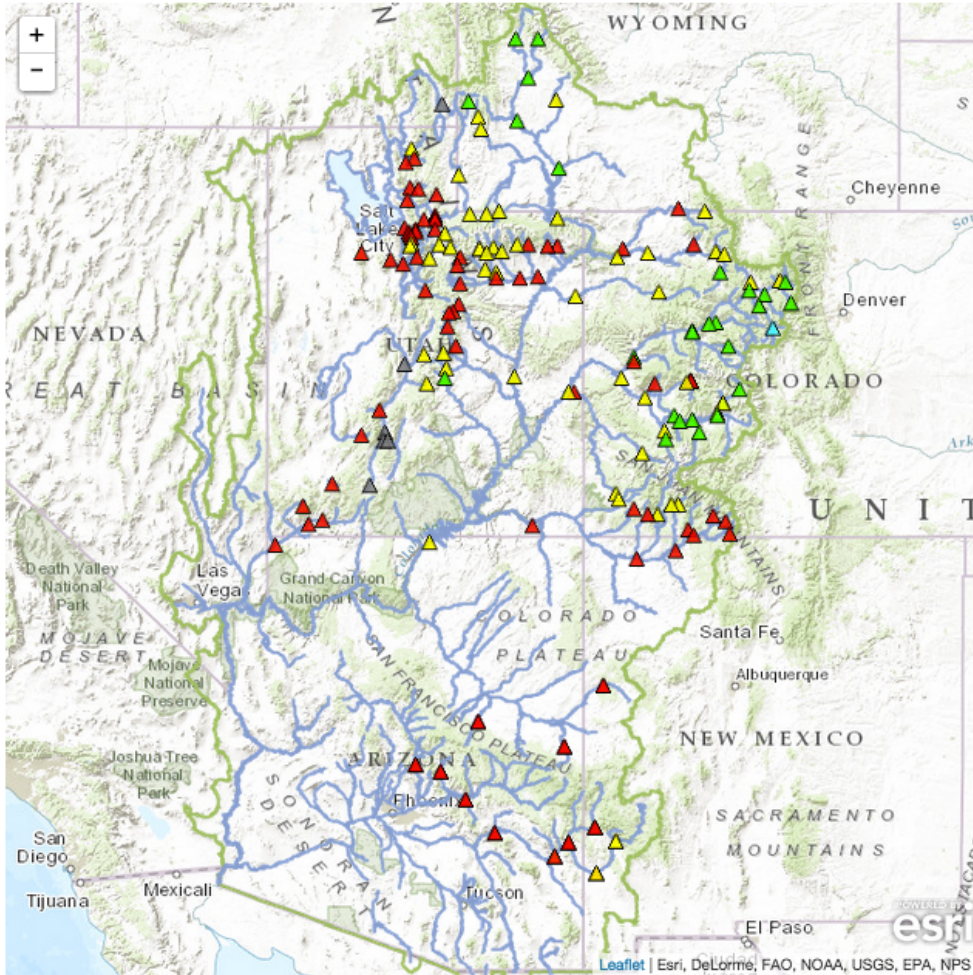
- [HOME](#)
- [RIVERS](#)
- [SNOW](#)
- [WATER SUPPLY](#)
- [RESERVOIRS](#)
- [WEATHER](#)
- [CLIMATE](#)
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Conditions Map

[Help](#)



Lat: 37.6 Lng: -110.5, Zoom: 6

[River Conditions](#)

[Snow Conditions](#)

Water Supply Forecasts

Official Forecast Date: 2015-2-1 [Help](#)

ESP Run Date: 2015-02-03

Show [Hide Other Types](#)

- Official Percent Average
- Official Percent Median
- ESP Percent Average
- ESP Percent Median

- ▲ < 70%
- ▲ 70-90%
- ▲ 90-110%
- ▲ 110-130%
- ▲ > 130%
- ▲ Regulated
- ▲ No Forecast

Offices

- CBRFC
- WGRFC
- ABRFC

[Peak Flood Probability](#)

[Reservoir Conditions](#)

[Base Map Options](#)

[Boundary Display Options](#)

[Zoom Areas](#)

[Search Points](#)

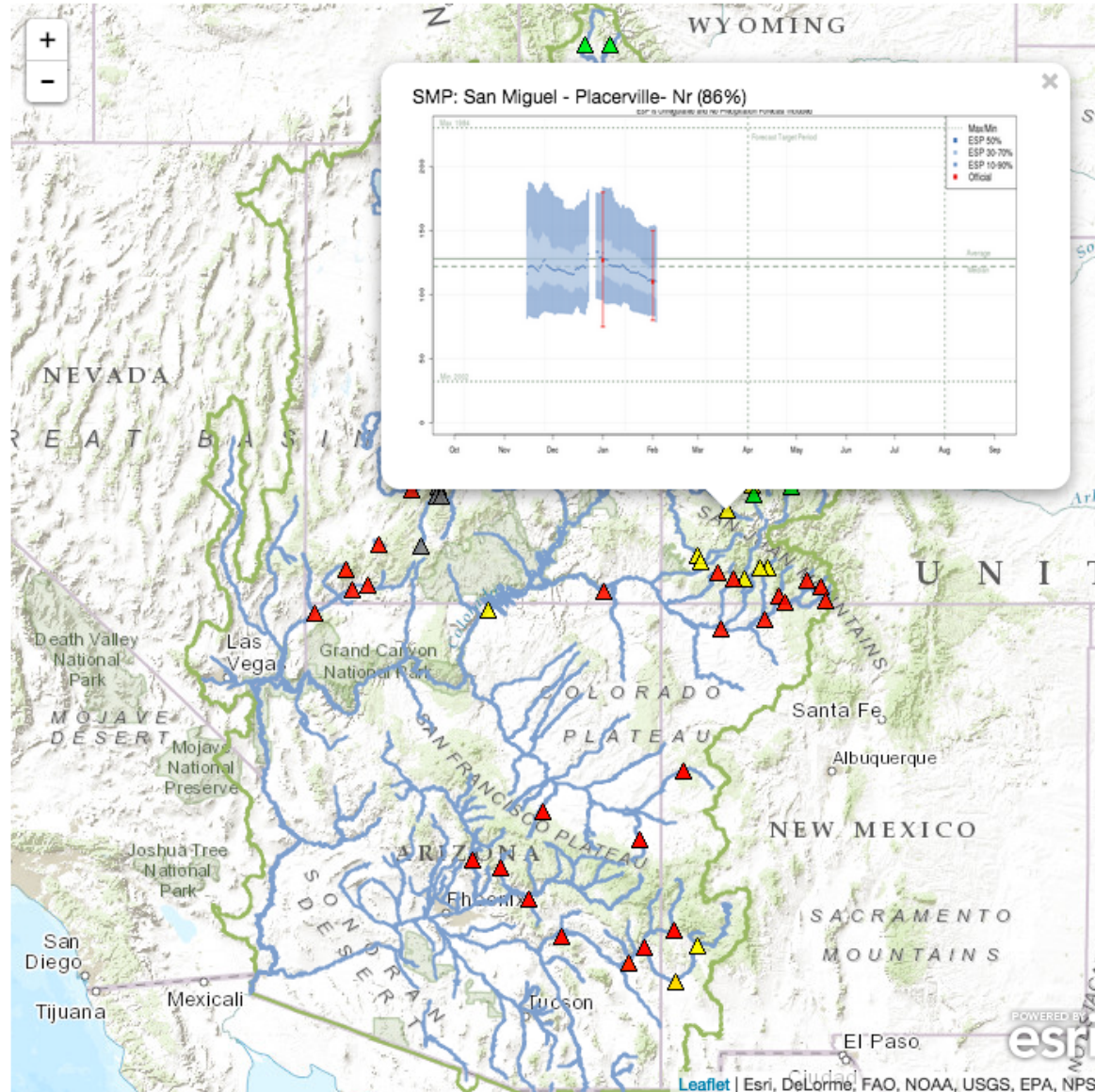
Leaflet | Esri, DeLorme, FAO, NOAA, USGS, EPA, NPS

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Conditions Map

Help



▶ River Conditions

▶ Snow Conditions

▼ Water Supply Forecasts

Official Forecast Date: 2015-2-1
 ESP Run Date: 2015-02-04

Help

Show [Hide Other Types](#)

- Official Percent Average
- Official Percent Median
- ESP Percent Average
- ESP Percent Median

- ▲ < 70%
- ▲ 70-90%
- ▲ 90-110%
- ▲ 110-130%
- ▲ >130%
- ▲ Regulated
- △ No Forecast

Offices

- CBRFC
- WGRFC
- ABRFC

▶ Peak Flood Probability

▶ Reservoir Conditions

▶ Weather Conditions

▶ Map Options

▶ Search Points

2015 Scheduled Webinars

March 5 at 1 pm MT

April 7 at 11am MT

May 7 at 11am MT

Registration available:

www.cbrfc.noaa.gov/news/wswebinar2015.html

- 2015 Key Water Supply Contacts:
 - Michelle Stokes (Hydrologist in Charge)
 - Brenda Alcorn (Upper Colorado, Lake Powell)
 - Ashley Nielson (Green + Yampa / White)
 - Greg Smith (San Juan + Gunnison + Dolores)
 - Paul Miller (Great Basin – Bear, Weber, Provo, Six-Creeks/Jordan)
 - Tracy Cox (Lower Colorado + Virgin + Sevier)

Please contact us with any specific questions