February 2017
Great Basin
Water Supply Briefing

Feb 7, 2017

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Colorado Basin River Forecast Center
National Weather Service
NOAA

Please mute your phone until ready to ask questions

CBRFC Forecast Areas

Today's Presentation

January weather - A game changer !

Current snowpack conditions

2017 water supply forecasts update and current trends

February forecasts – How good are they?

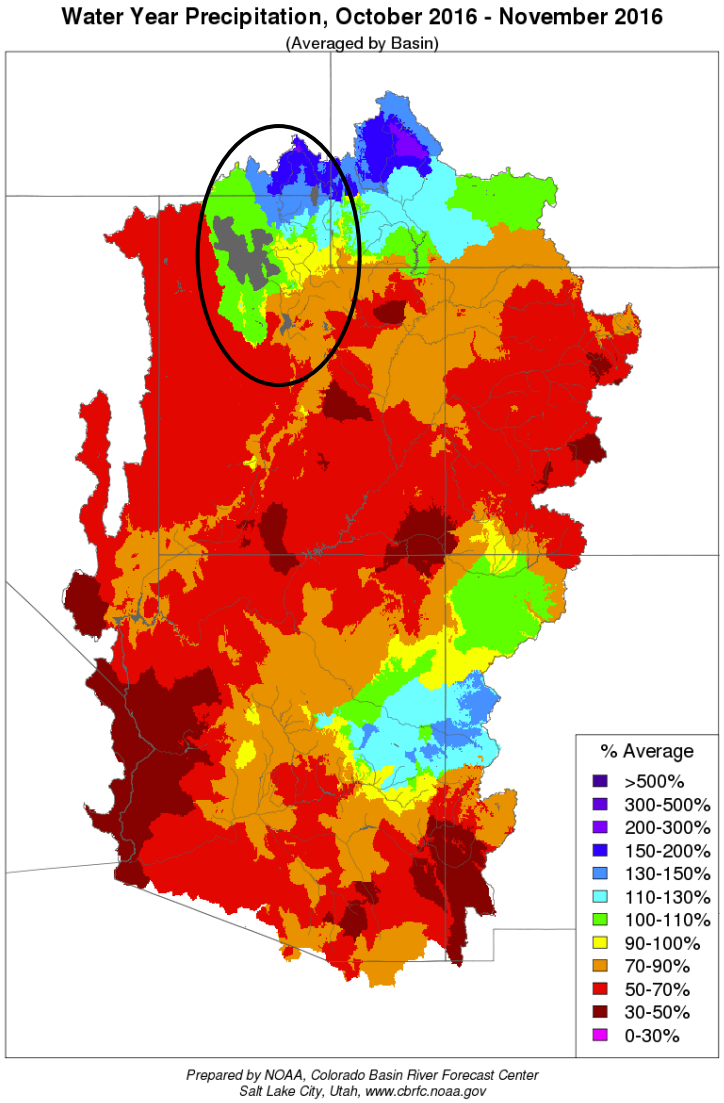
Upcoming weather – Potential impacts to water supply forecasts

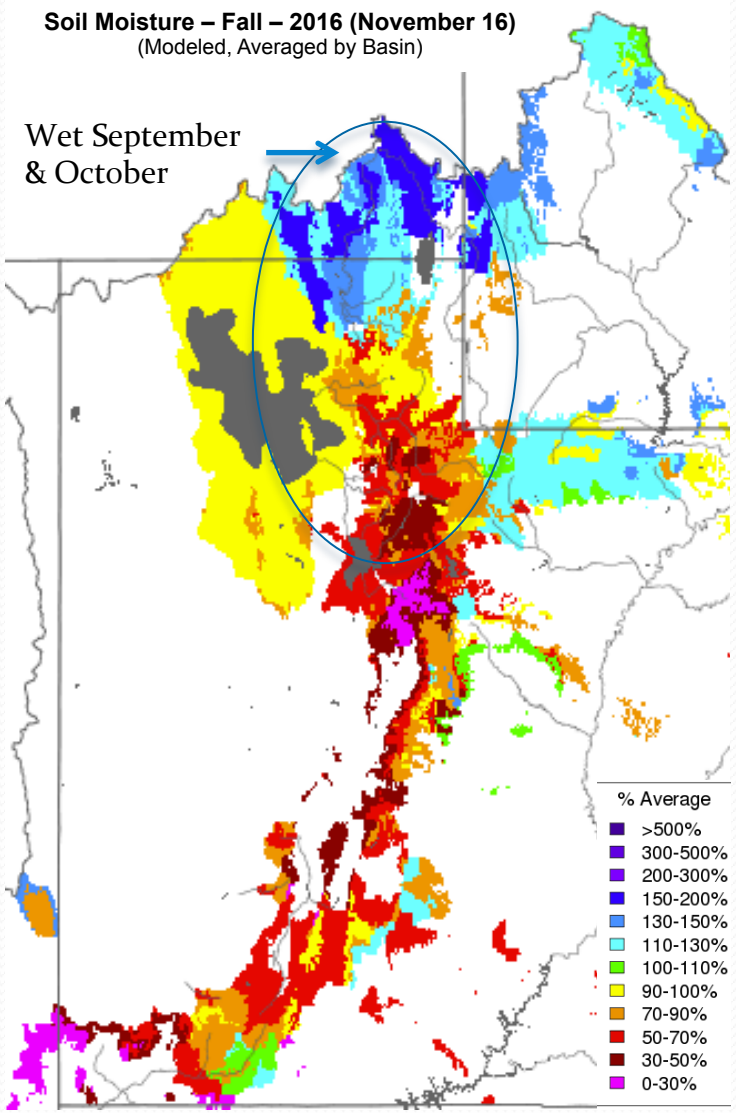
Contacts & Questions

*** Please mute your phone until ready to ask questions ***

Fall Weather Impacts

Impacts to Soil Moisture entering Winter

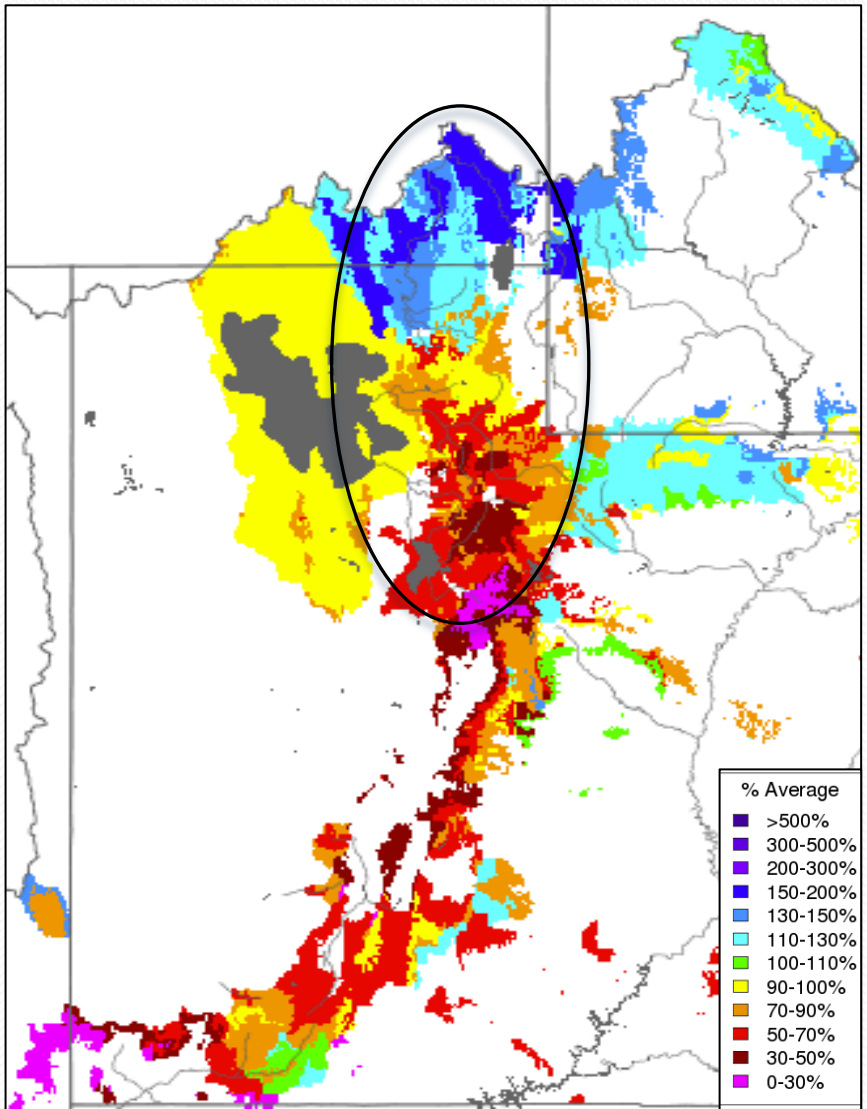




Fall Weather Impacts

Impacts to Soil Moisture Entering Winter

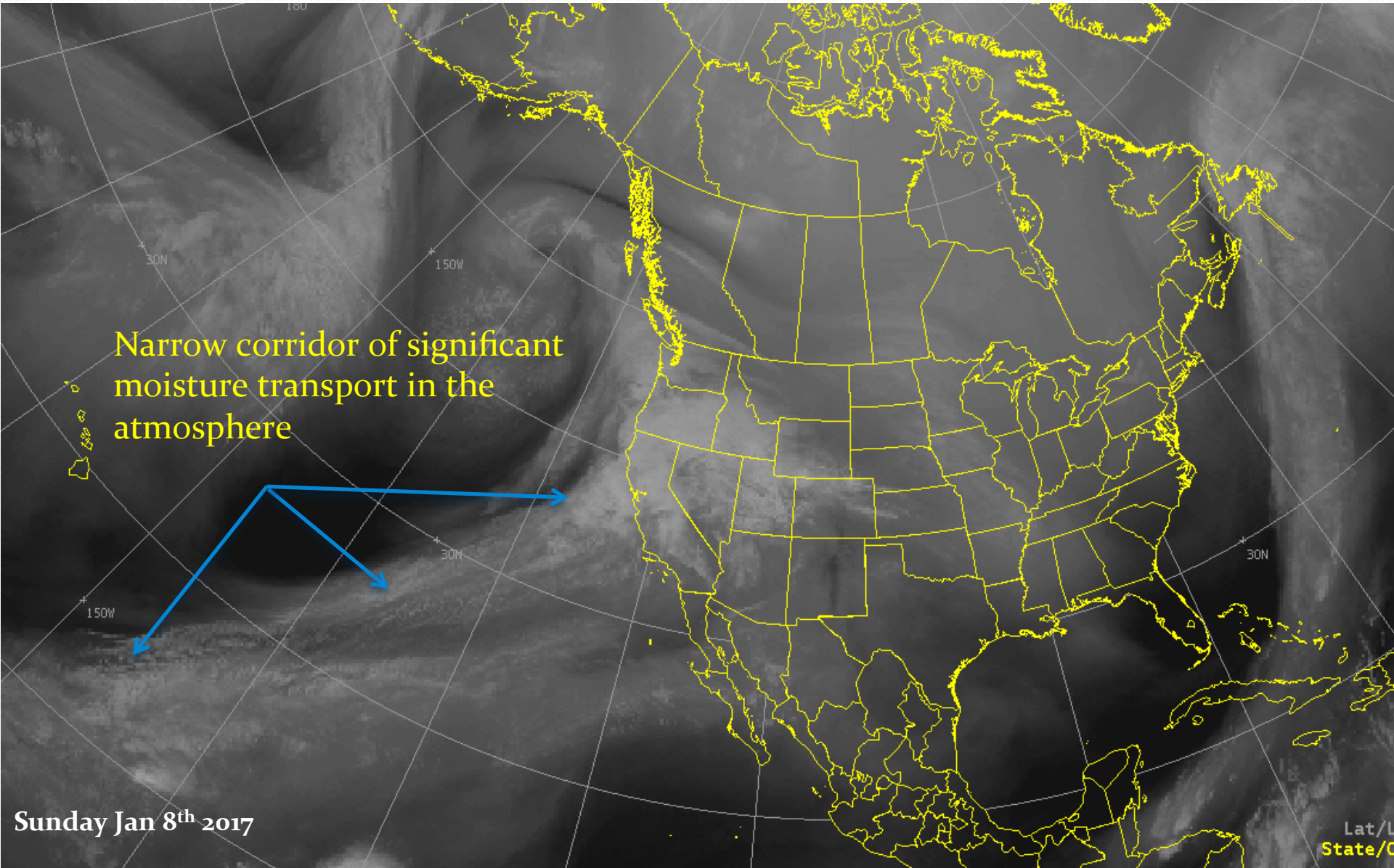
Soil Moisture – Fall – 2016 (November 16)
(Modeled, Averaged by Basin)



Water Supply Impacts:

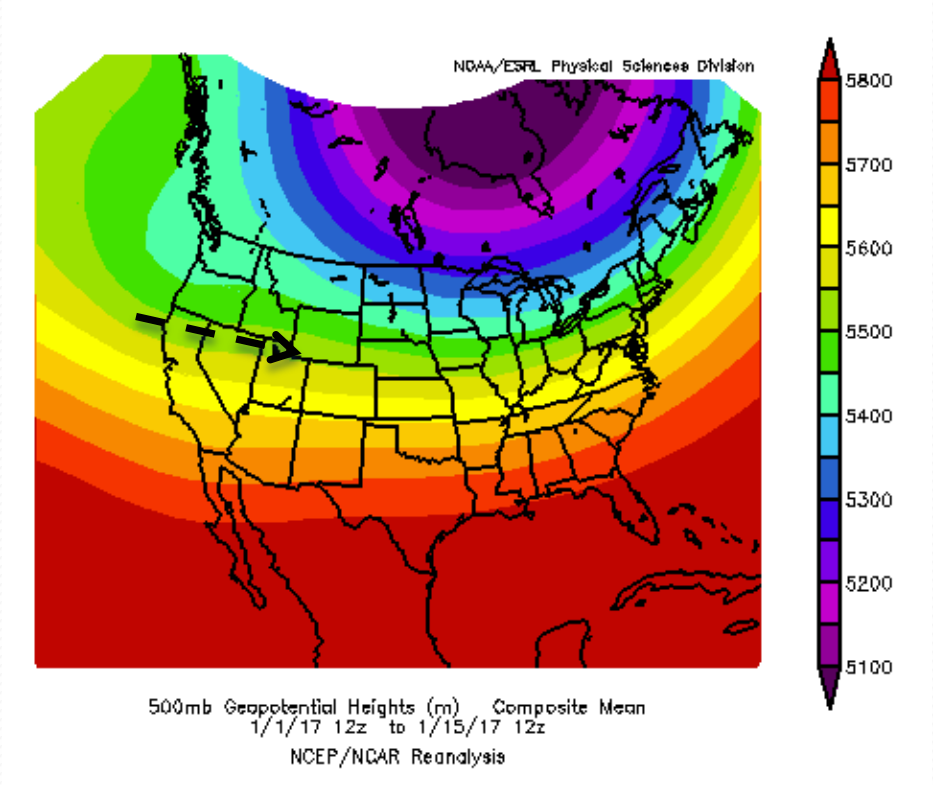
- Early season forecasts higher/lower by 3-10% of average
- Significant snowpack, like this year, lessens the impacts of dry soils on spring runoff
- Significant snowpack + wet soils could see more enhanced spring runoff

Winter Weather
Mid December through January: "Atmospheric Rivers"



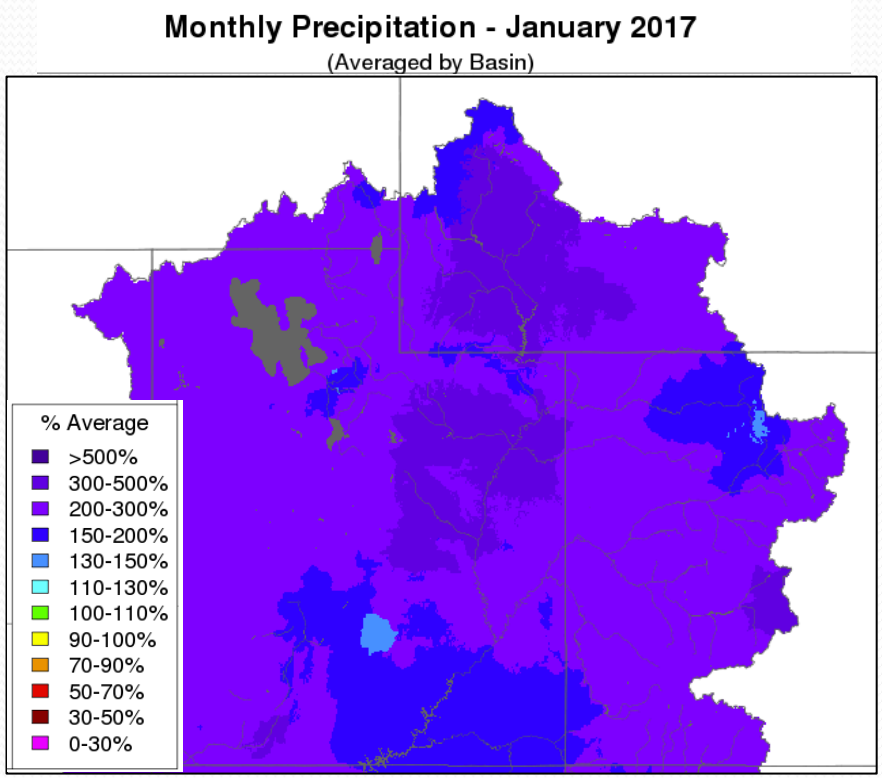
January Weather – Wow!

Active and wet pattern continued for most of the month
Drier conditions the last week of the month



January Atmospheric Pattern:

Strong onshore flow continued to transport significant moisture into the western U.S

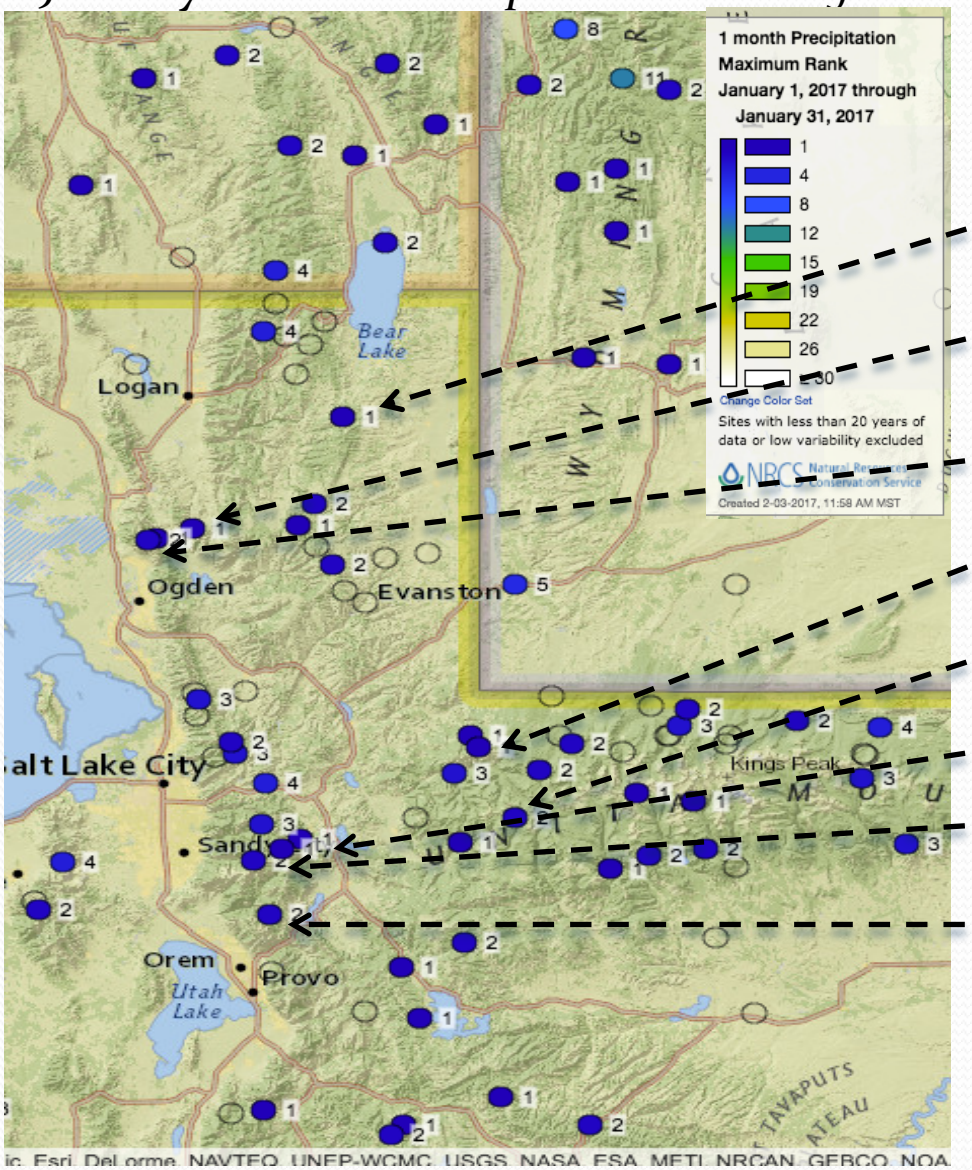


Bear:	230% !!
Weber:	265% !!
Six Creeks:	195% !!
Provo/UT Lake:	260% !!

Game changer for water supply!

January Weather – Wow!

January SNOTEL Precipitation Rankings

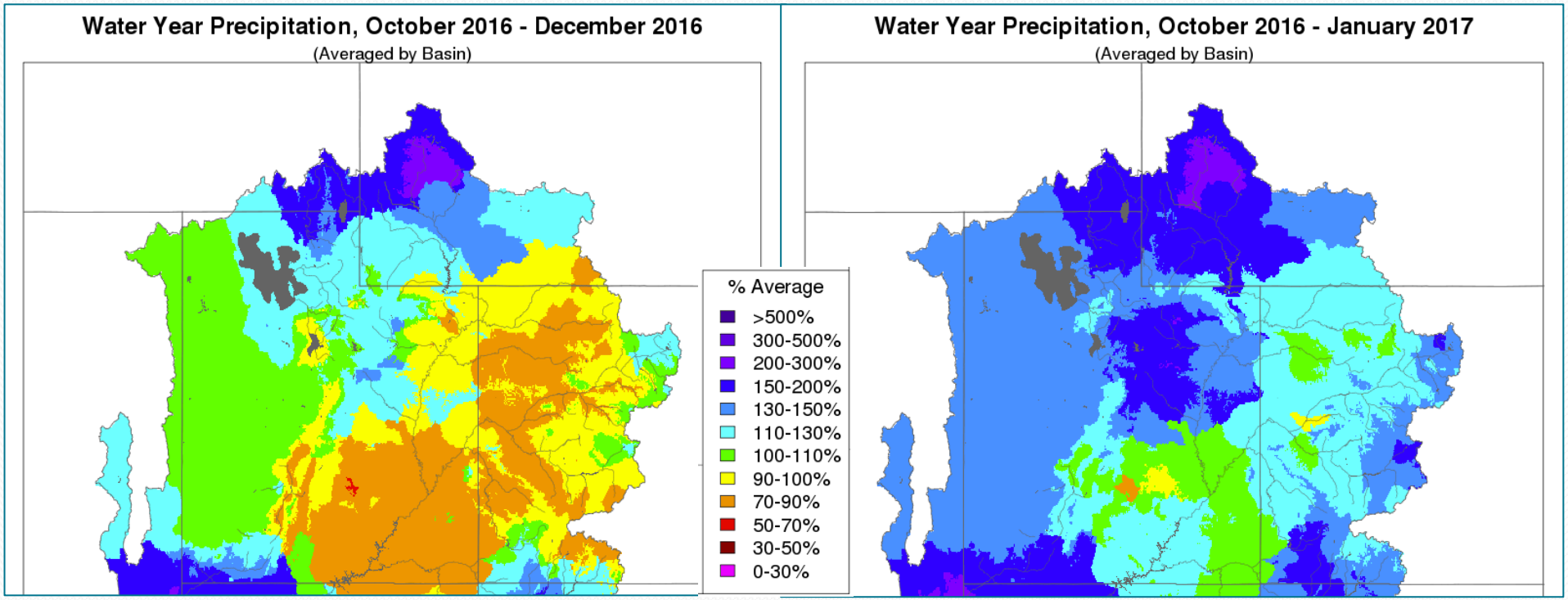


Location	January Observed (in)	% of Average	Anomaly (in)
Bug Lake	10.0	267%	6.8
Little Bear	11.9	275%	8.0
Ben Lomand Peak	18.7	221%	10.1
Chalk Creek #1	10.5	245%	7.3
Trial Lake	10.5	245%	7.3
Thaynes Canyon	9.9	216%	6.2
Brighton	12.1	225%	7.5
Timp Divide	12.2	240%	7.7

Many SNOTEL locations had record or near precipitation for the month of January (35-39 years of record most sites)

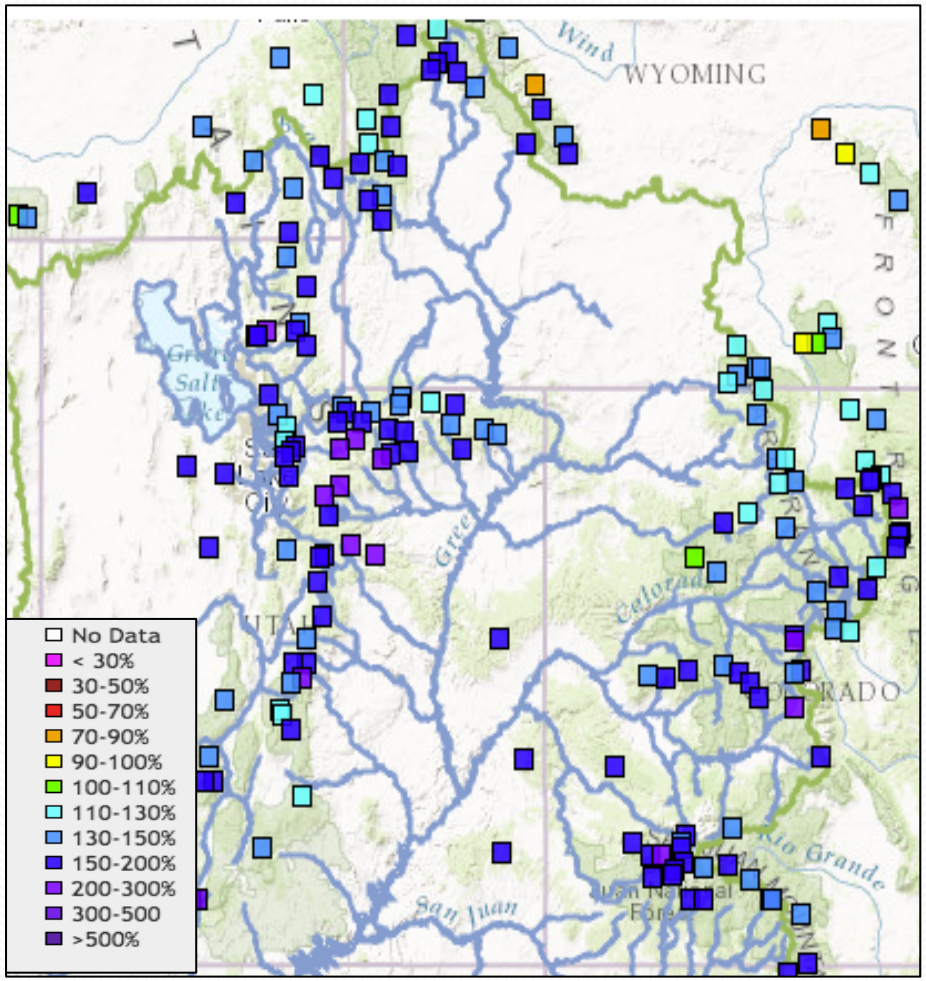
Seasonal precipitation

Looking Very Good

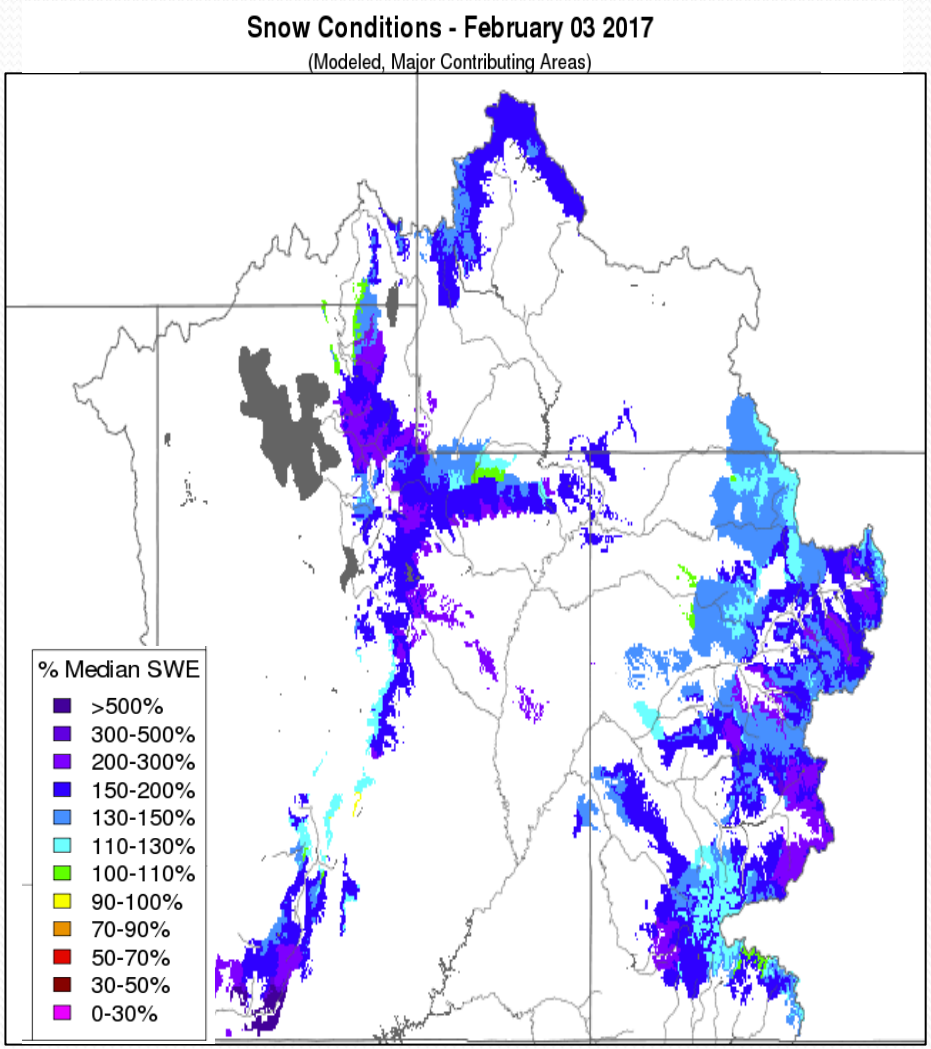


Snow Conditions

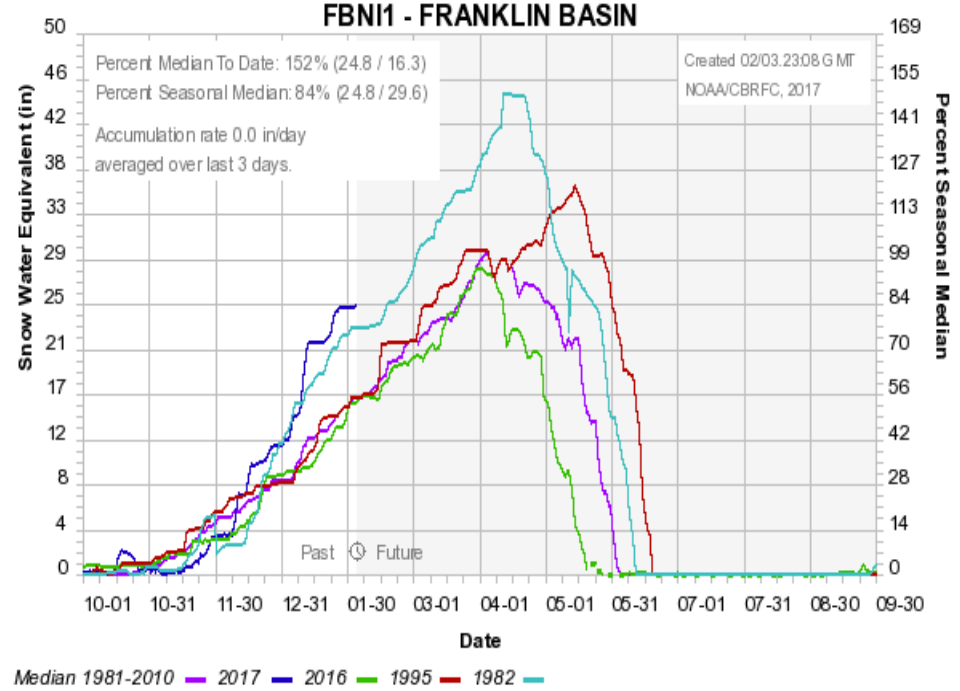
SNOTEL (% median): February 3, 2017



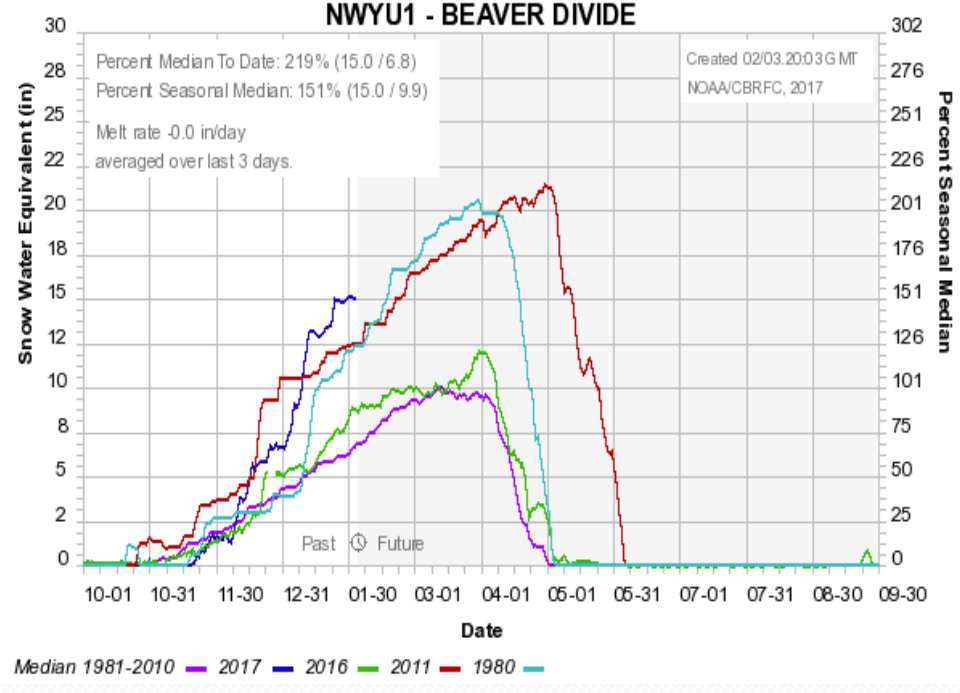
CBRFC MODEL SNOW (% median):



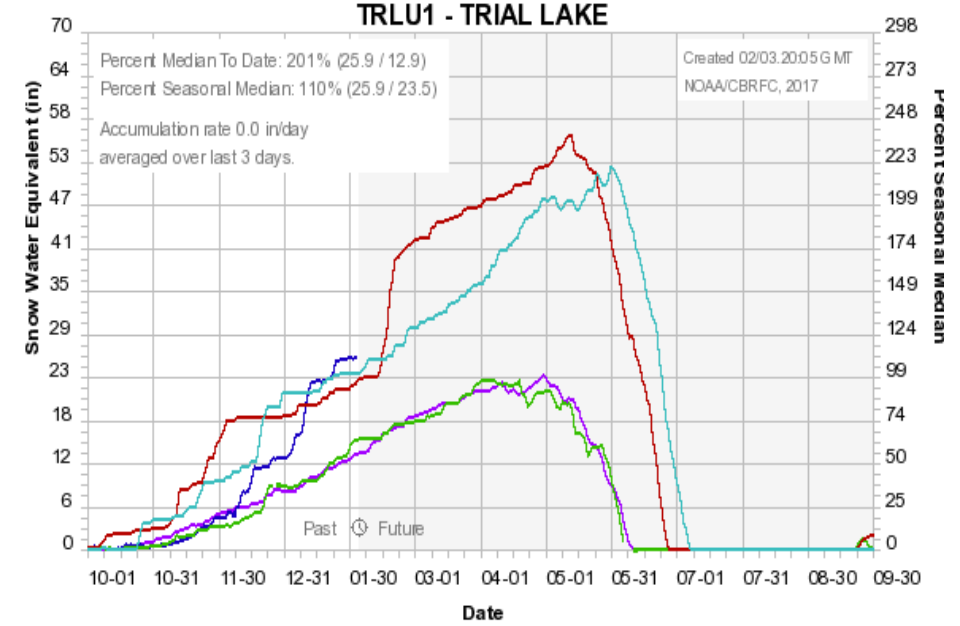
Colorado Basin River Forecast Center
FBNI1 - FRANKLIN BASIN



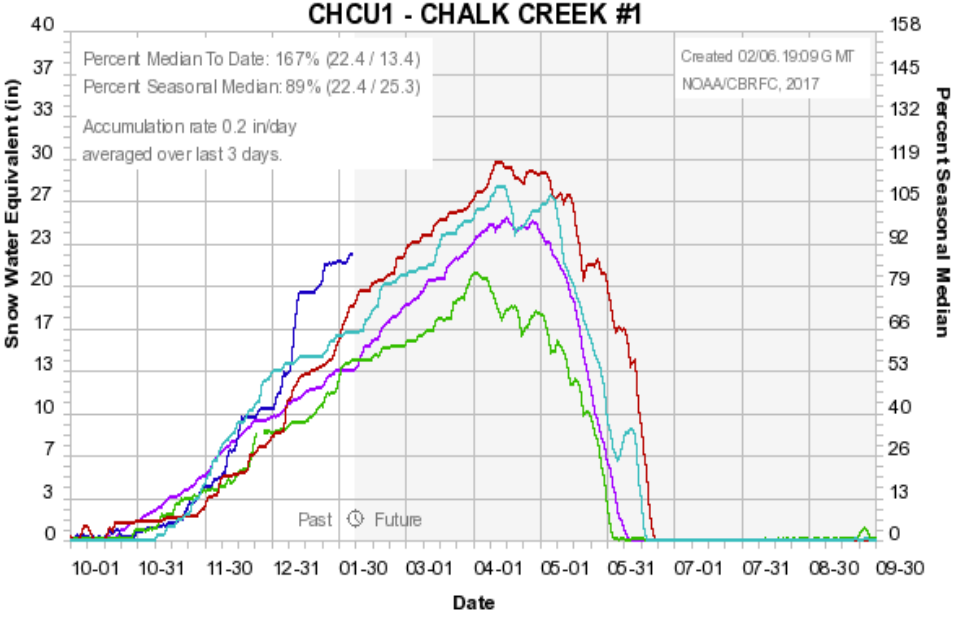
Colorado Basin River Forecast Center
NWYU1 - BEAVER DIVIDE



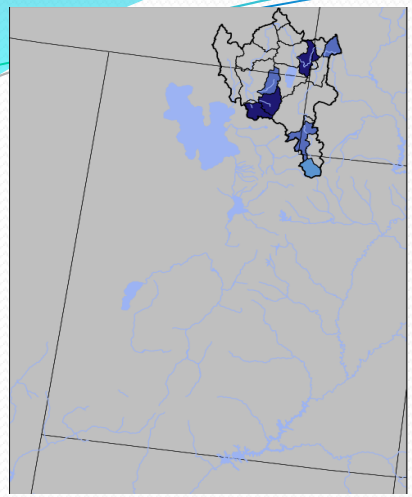
Colorado Basin River Forecast Center
TRLU1 - TRIAL LAKE



Colorado Basin River Forecast Center
CHCU1 - CHALK CREEK #1

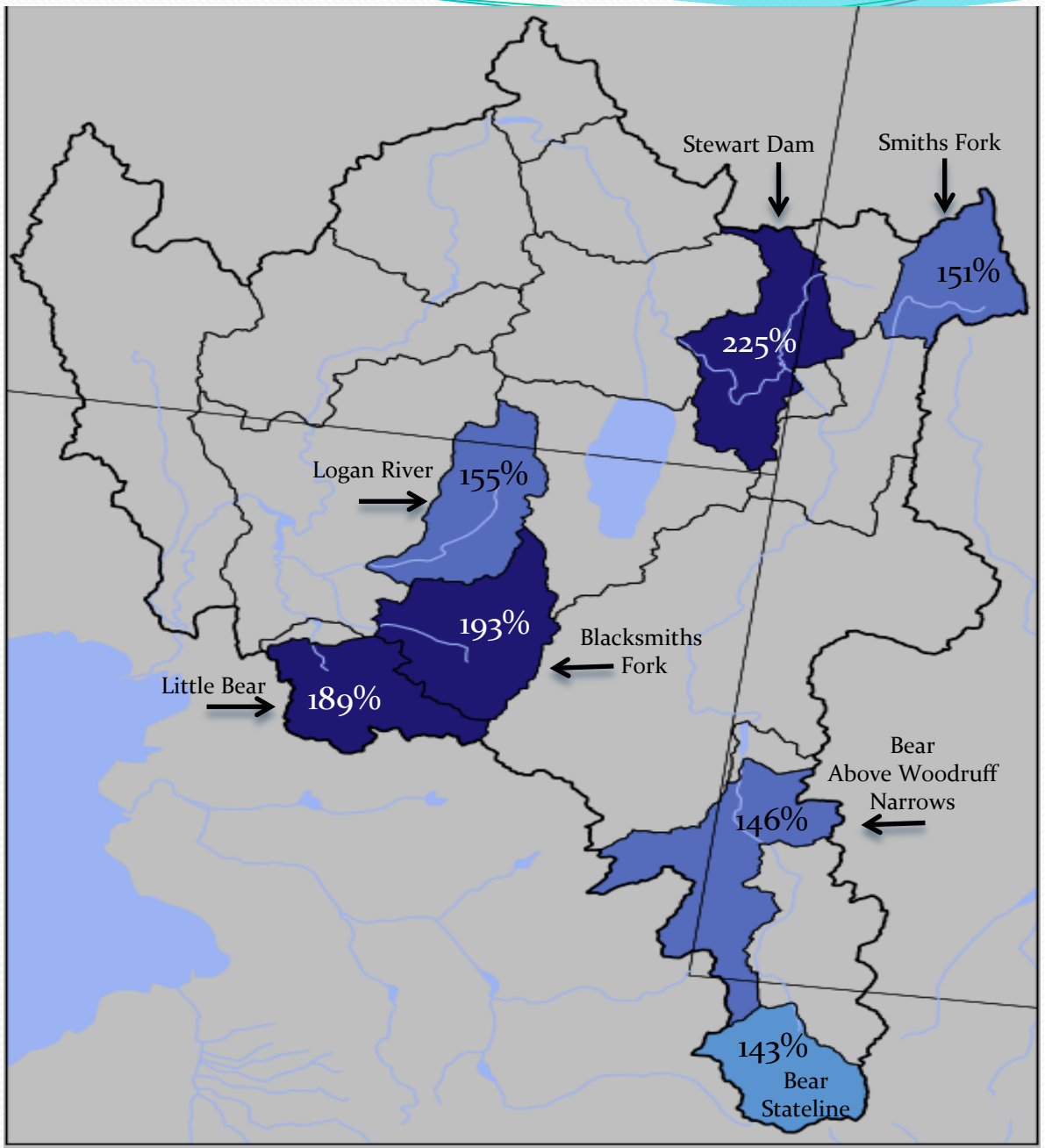


February 1st Water Supply Forecasts – Bear River Basin

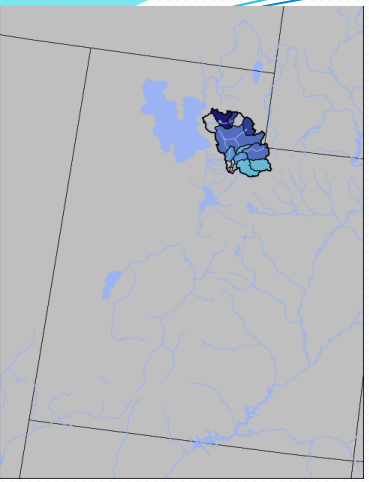


April-July
Forecast
Streamflow Volumes
(% of 1981-2010 average)

- Below 25%
- 25% - 35%
- 35% - 45%
- 45% - 55%
- 55% - 65%
- 65% - 75%
- 75% - 85%
- 85% - 95%
- 95% - 105%
- 105% - 115%
- 115% - 125%
- 125% - 135%
- 135% - 145%
- 145% - 155%
- 155% - 165%
- 165% - 175%
- Above 175%
- NA



February 1st Water Supply Forecasts – Weber River Basin



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- 105% - 115%
- 115% - 125%
- 125% - 135%
- 135% - 145%
- 145% - 155%
- 155% - 165%
- 165% - 175%
- Above 175%
- NA

South Fork Ogden

204%
Pineview Inflow

175%

172%
Lost Creek Inflow

154%
Weber-Gateway

Echo
135%

137%
East Canyon Inflow

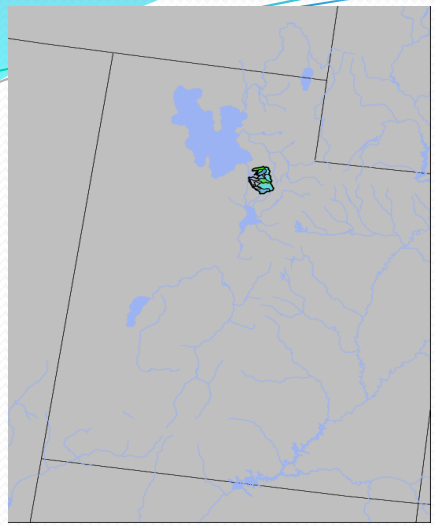
Weber Coalville
135%

146%
Chalk Creek

129%
Weber-Oakley

Rockport Inflow
133%

February 1st Water Supply Forecasts – Six Creeks



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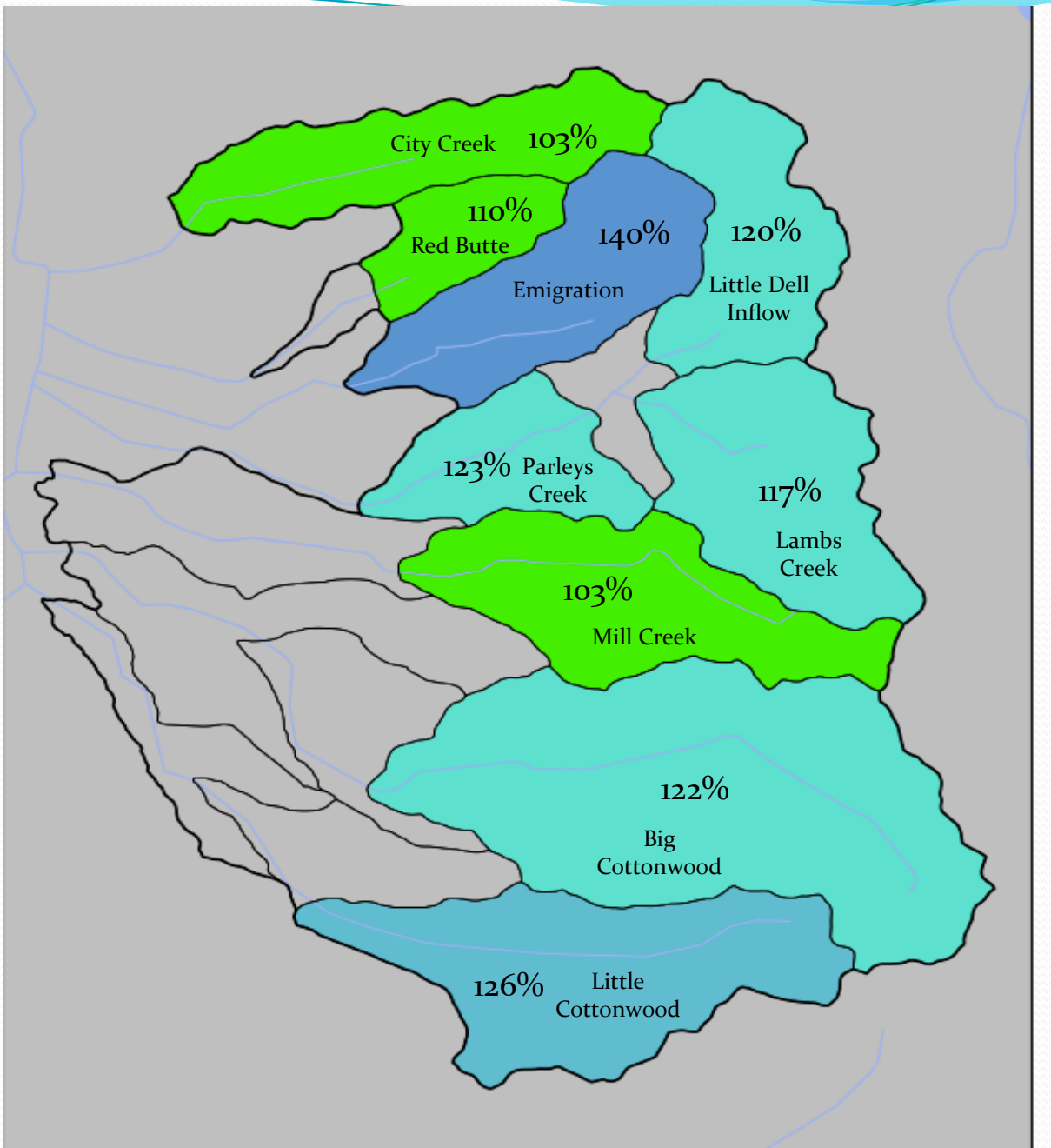
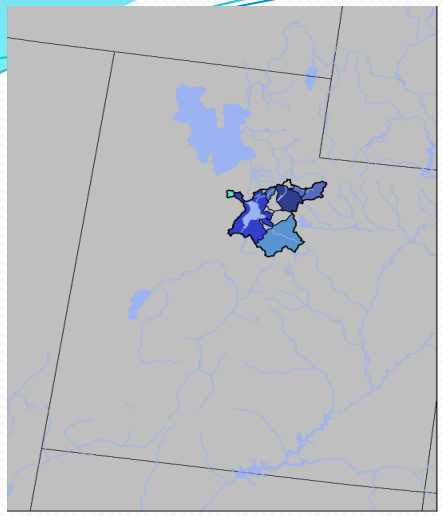


February 1st Water Supply Forecasts – Provo River / Utah Lake



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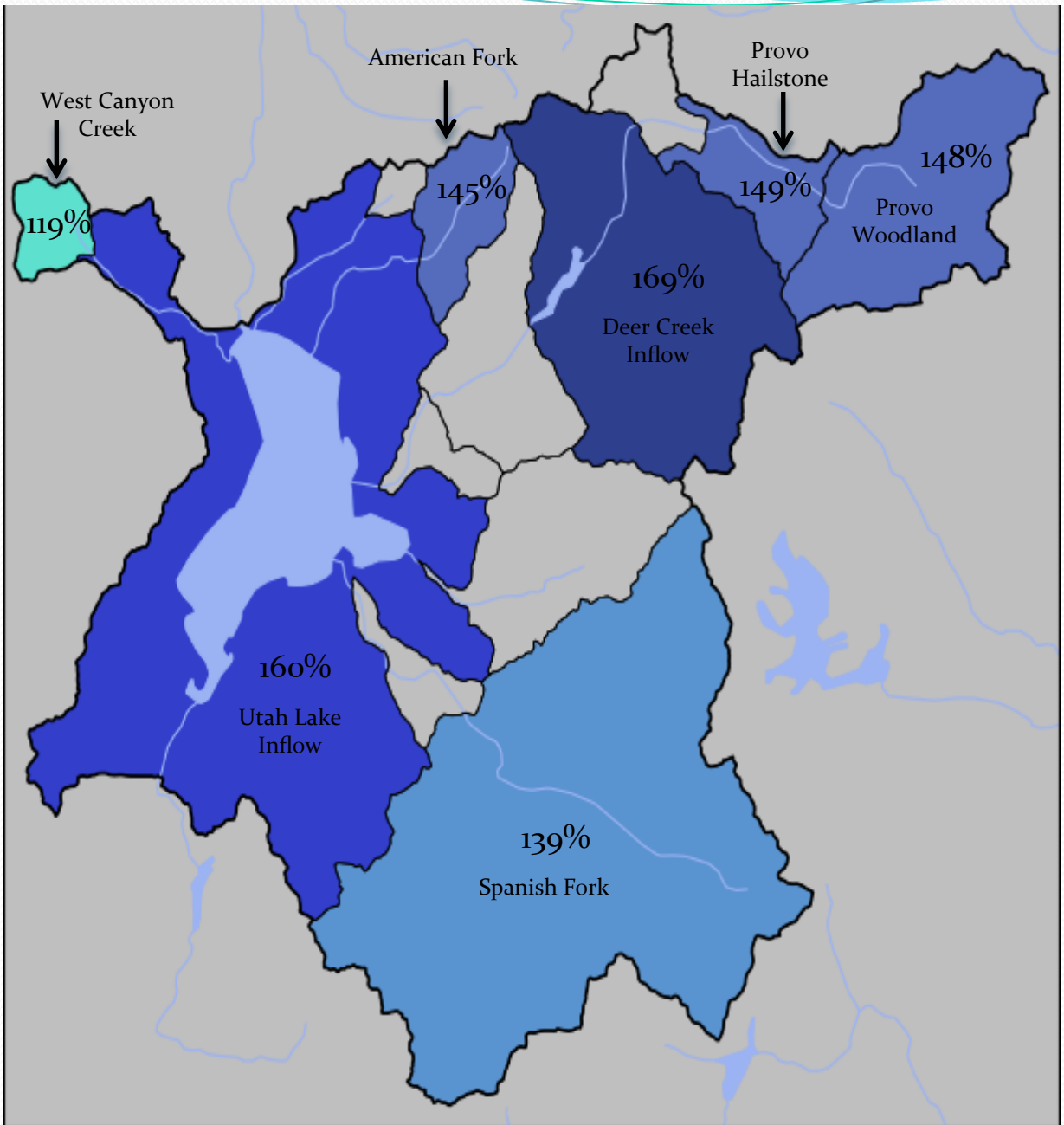
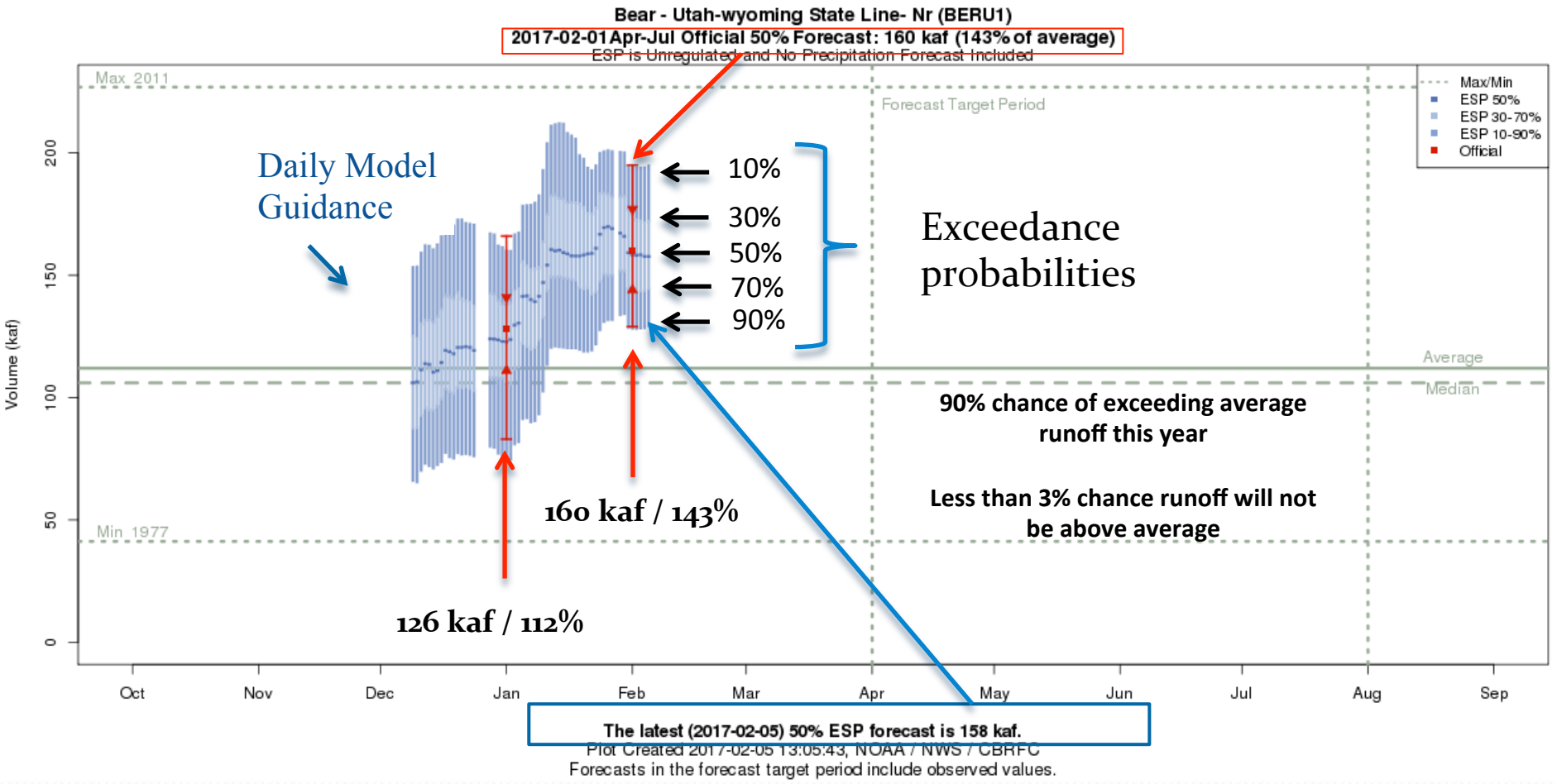


Changes in water supply forecasts between Jan 1st and Feb 1st

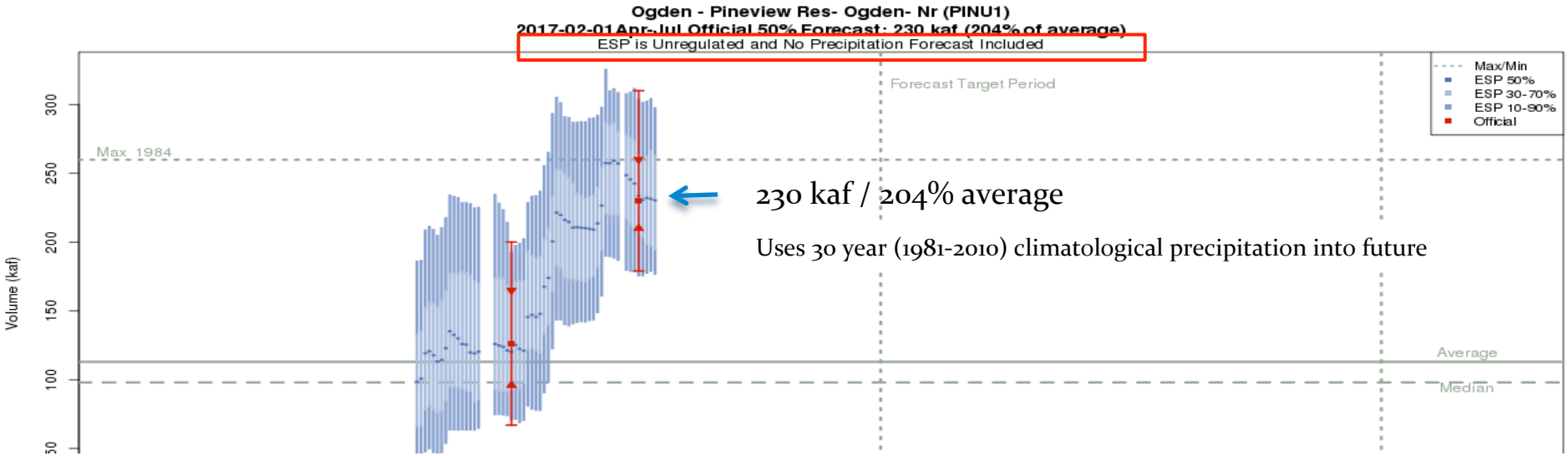
Bear River Basin	28 to 79 % of average increase
Weber River Basin	24 to 92 % of average increase
Six Creeks (SLC)	1 to 33 % of average increase
Provo River / UT Lake	15 to 70% of average increase

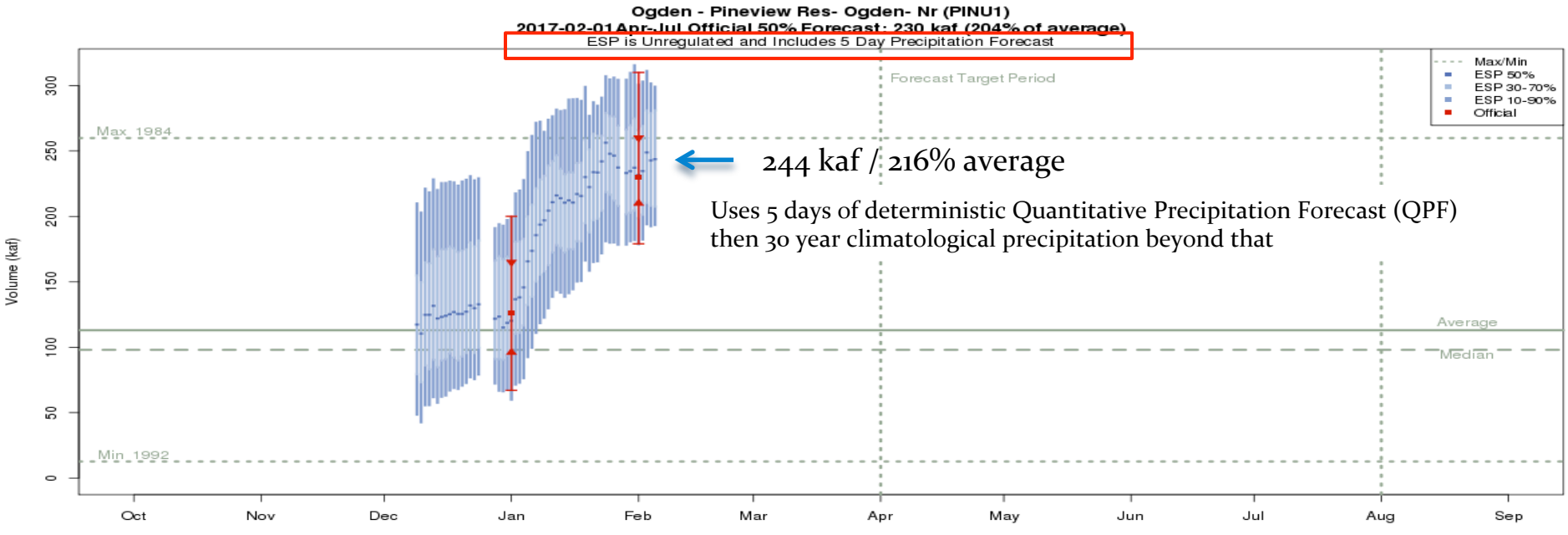
Forecast Evolution Plot – Bear River @ Utah/Wyoming Stateline



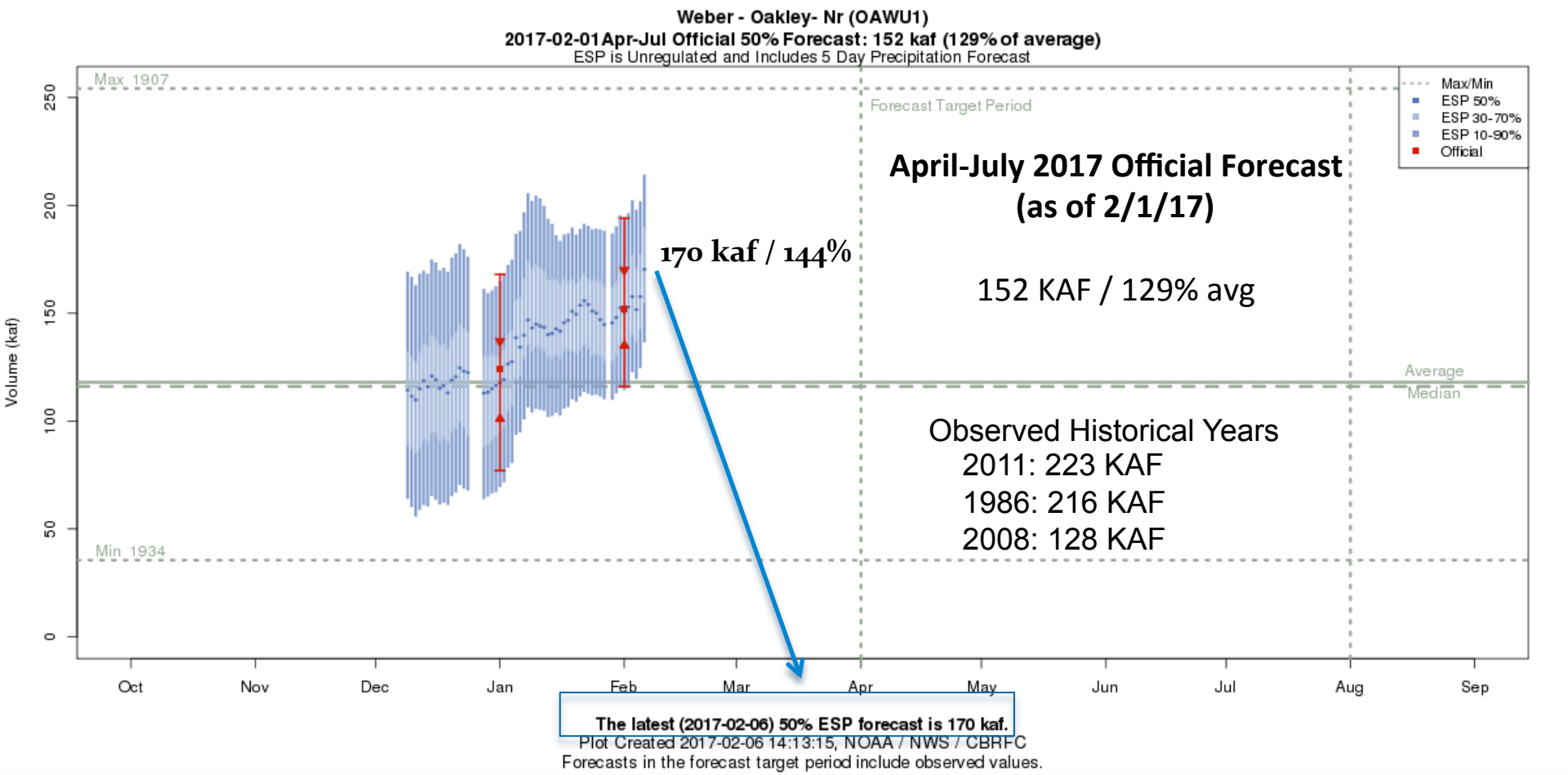
Plots are available at: https://www.cbrfc.noaa.gov
Select WATER SUPPLY from the top menu
Click on desired location for pop-up, click again for full screen

Forecast Evolution Plot – Ogden near Pineview Reservoir

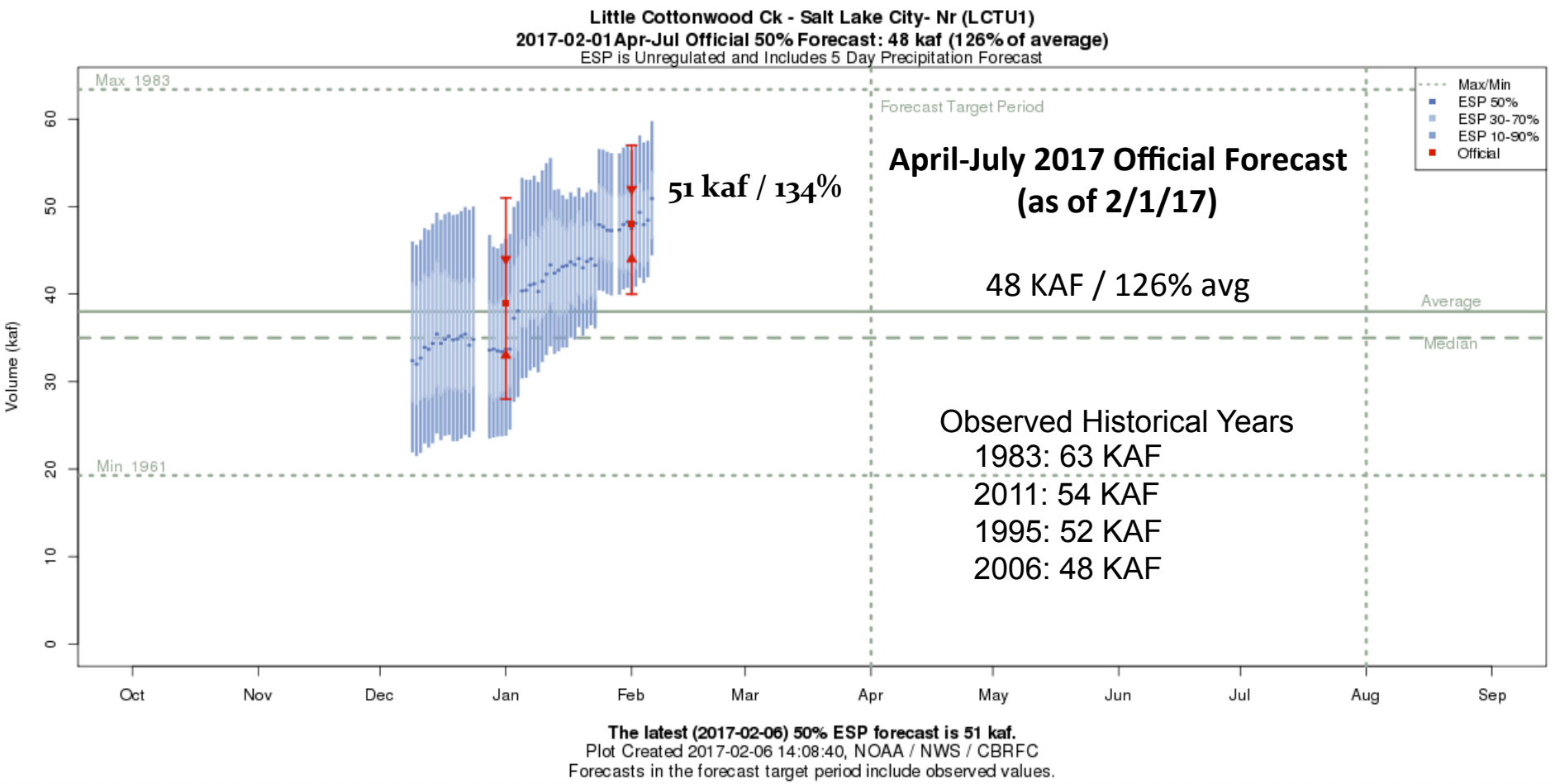




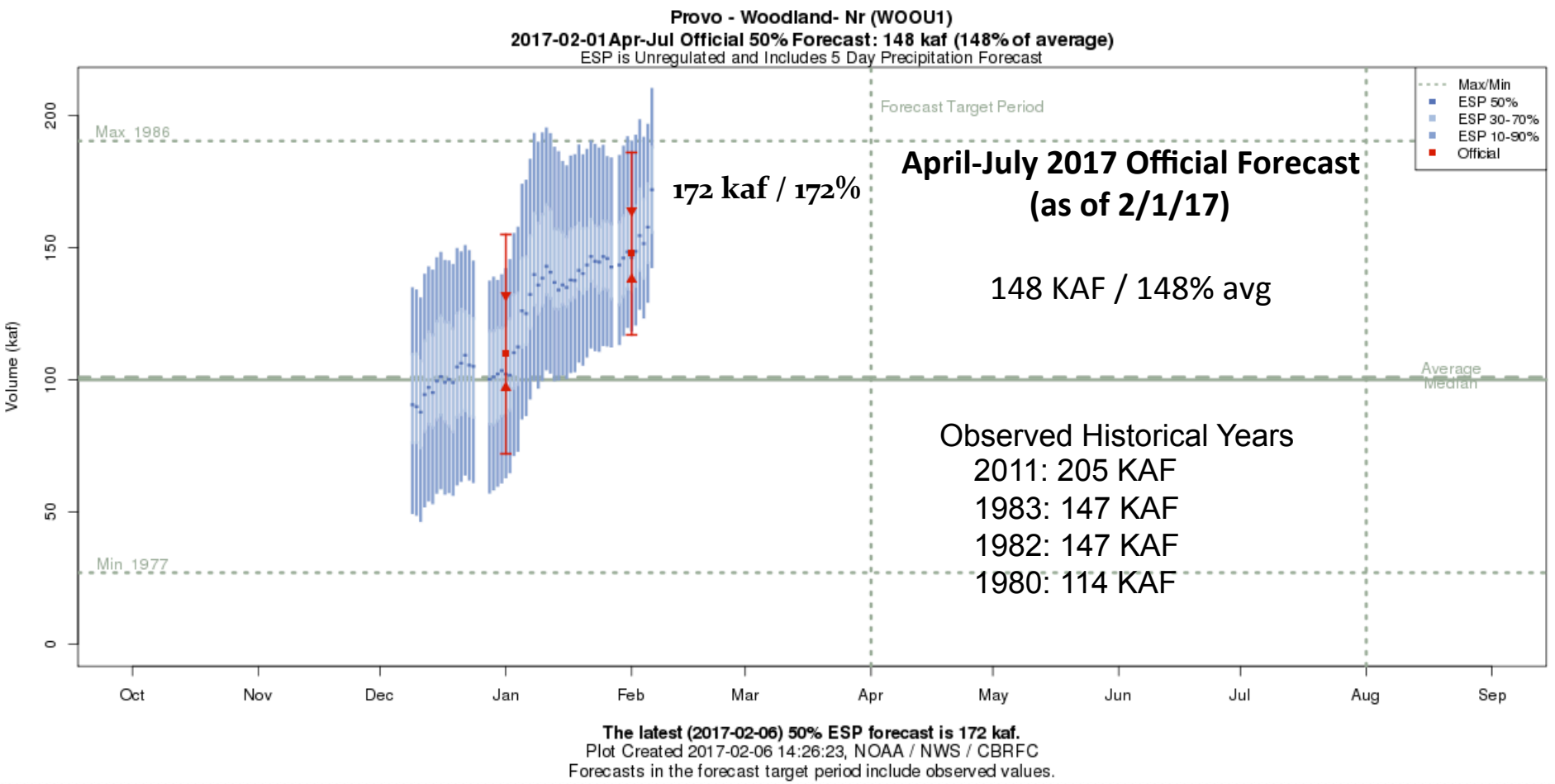
Forecast Evolution Plot – Weber River near Oakley



Forecast Evolution Plot – Little Cottonwood Creek



Forecast Evolution Plot – Provo River near Woodland



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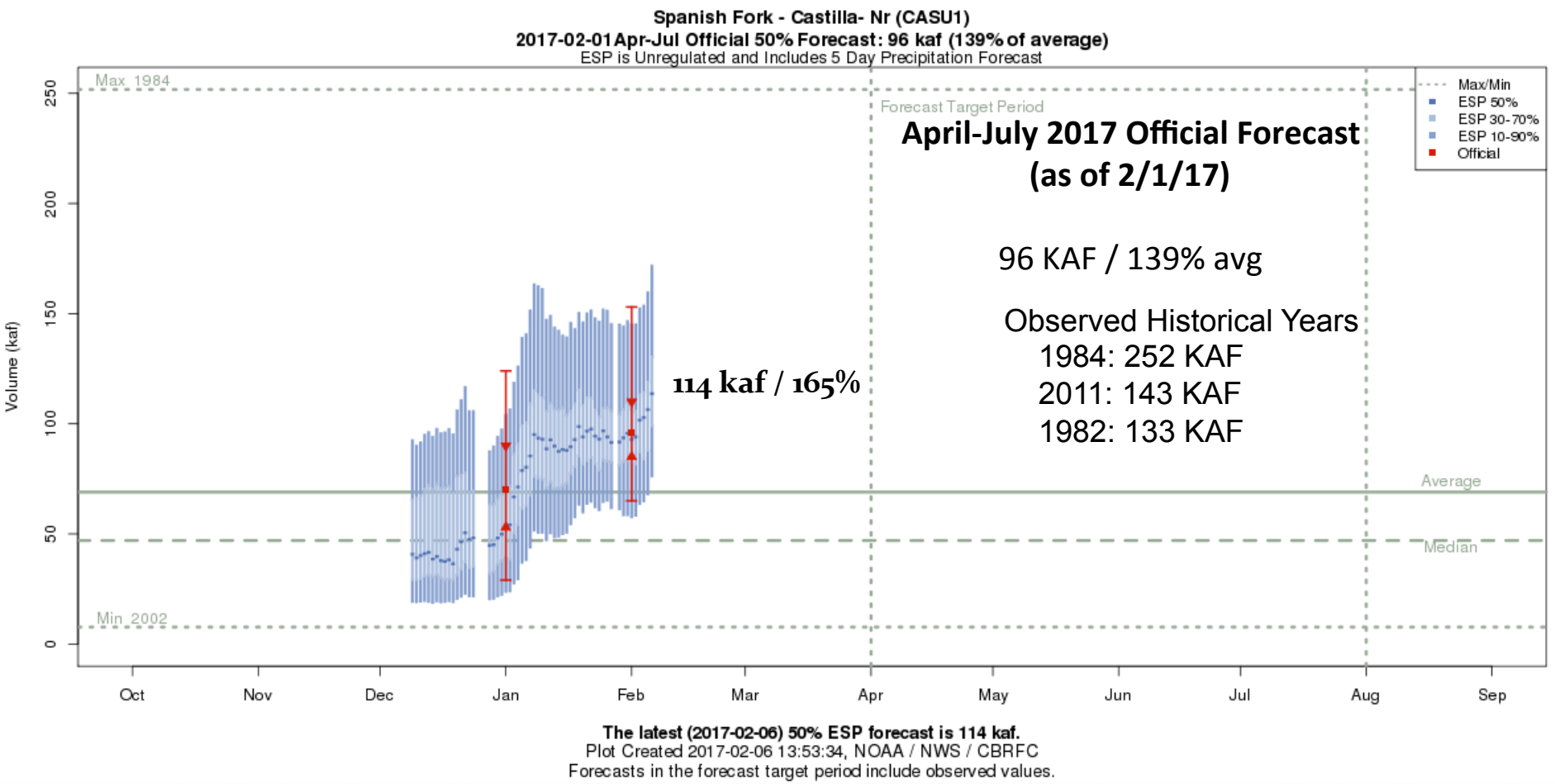


Forecast Validation: How good are forecasts in February ?

Historical Model Error 1981-2010

February forecast error a general improvement over January
significant snow accumulation period remains

Forecasts are better than just going with average

Error tends to decrease each month into the spring

Where We Do Better:
- Headwaters
- Primarily snow melt basins
- Known diversions / demands

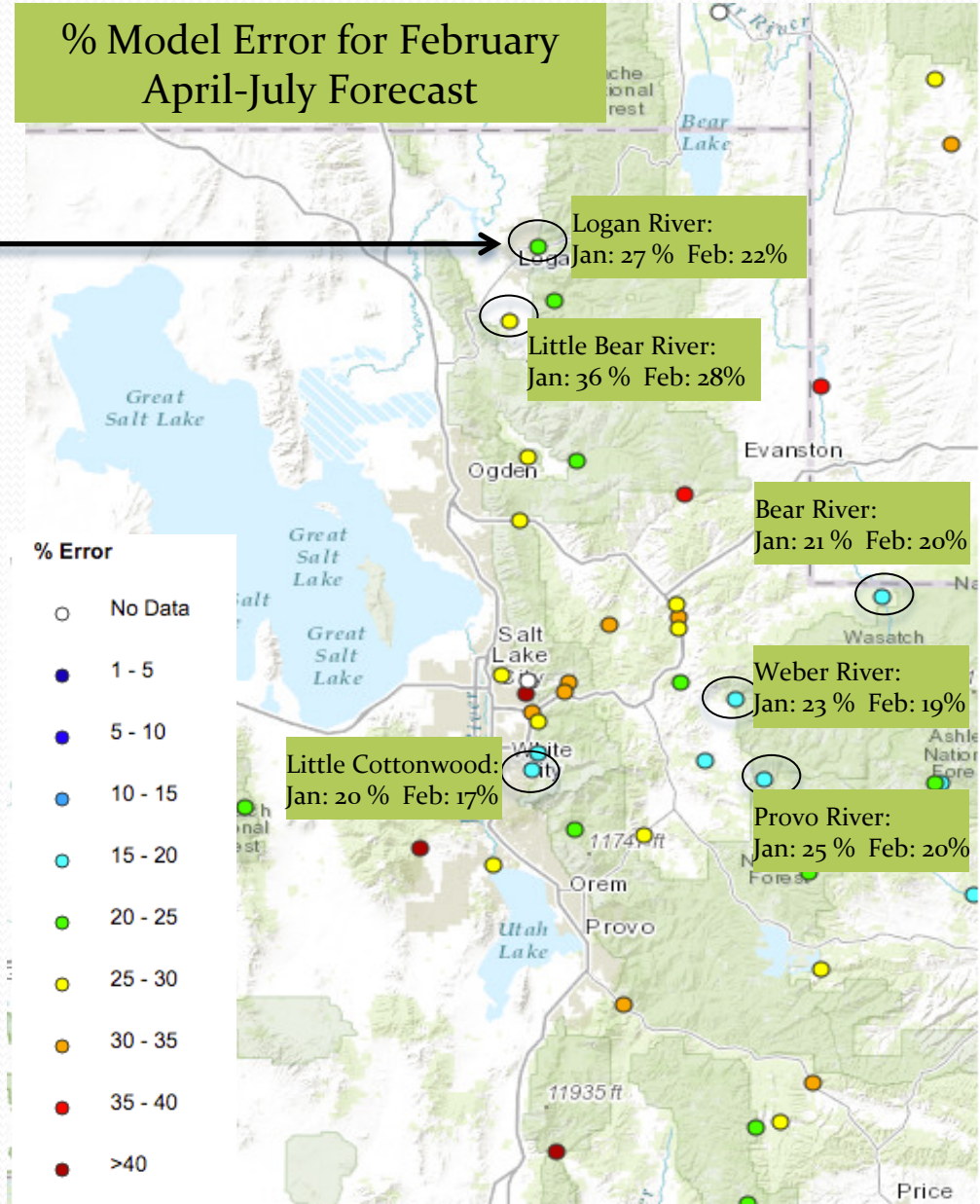
Where We Do Worse:
- Lower elevations (rain or early melt)
- Downstream of diversions / irrigation
- Little is known about diversions / demands

Map is available at:
https://www.cbrfc.noaa.gov/arc/verif/verif.php

From Water Supply drop down menu
→ select Historical Verification Map

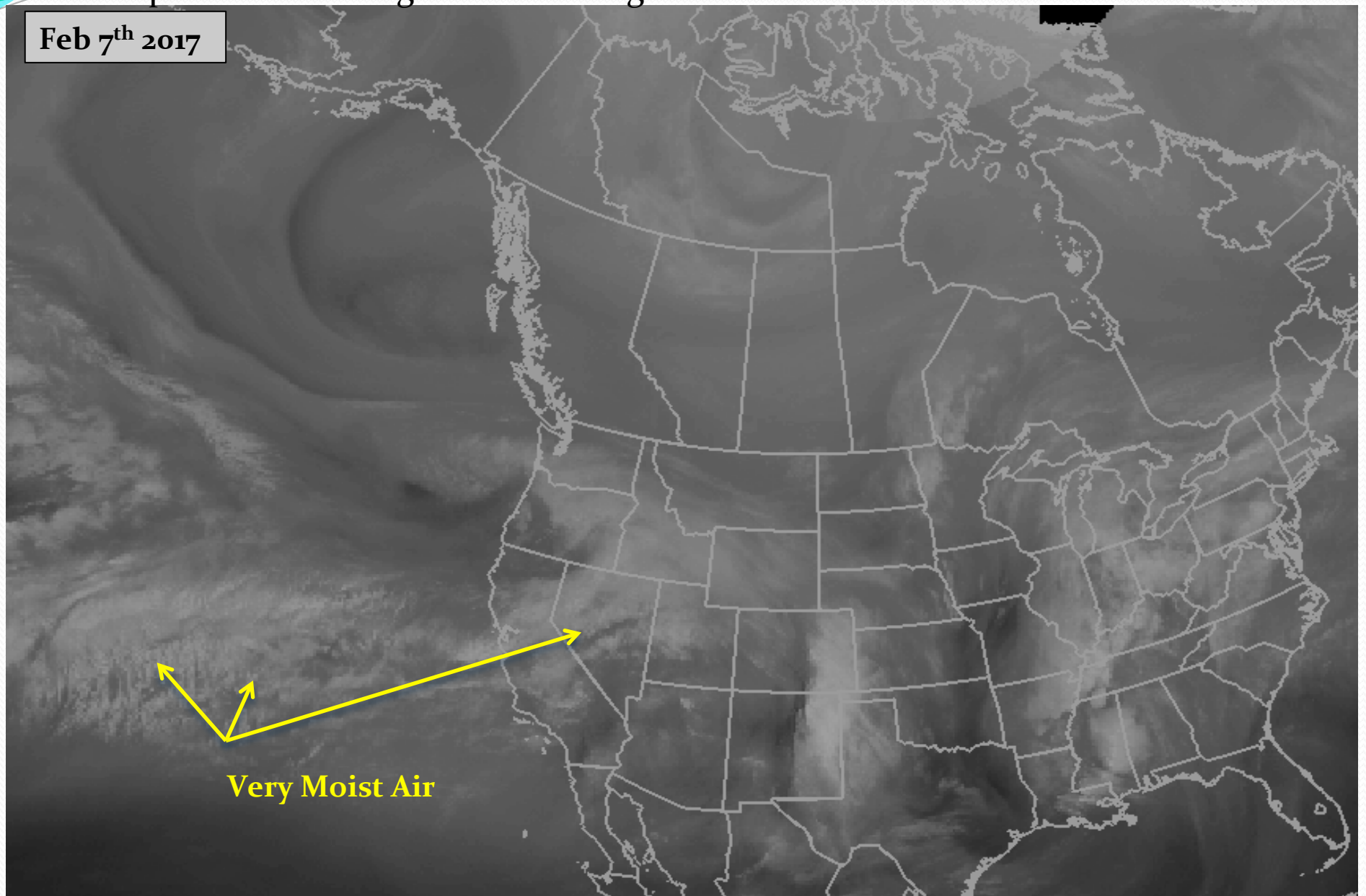
Historical Water Supply Verification - February

% Model Error for February April-July Forecast



Upcoming Weather and Impacts to Water Supply Forecasts

Water Vapor Satellite Image This Morning - A wet week ahead for northern Utah



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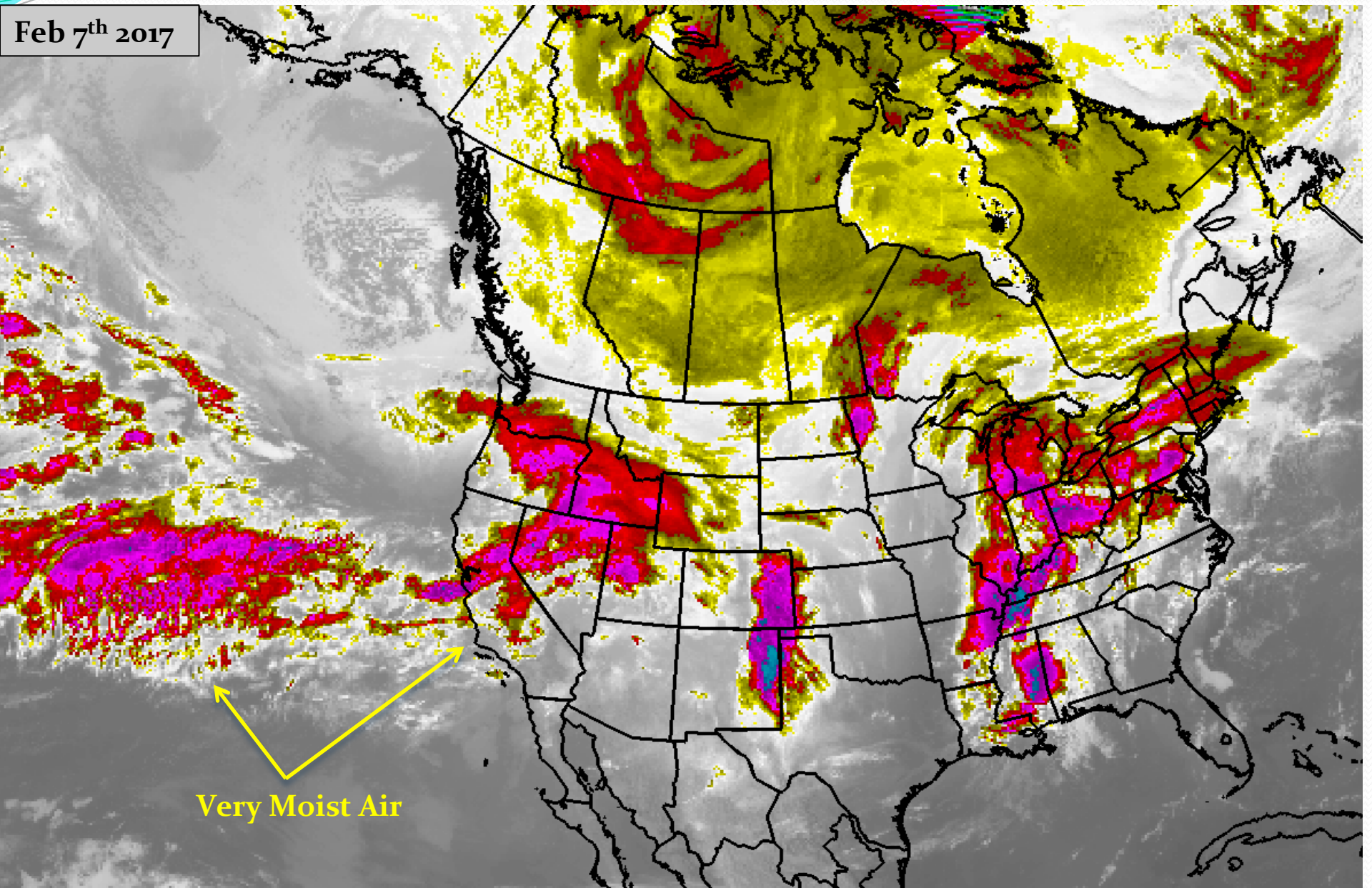
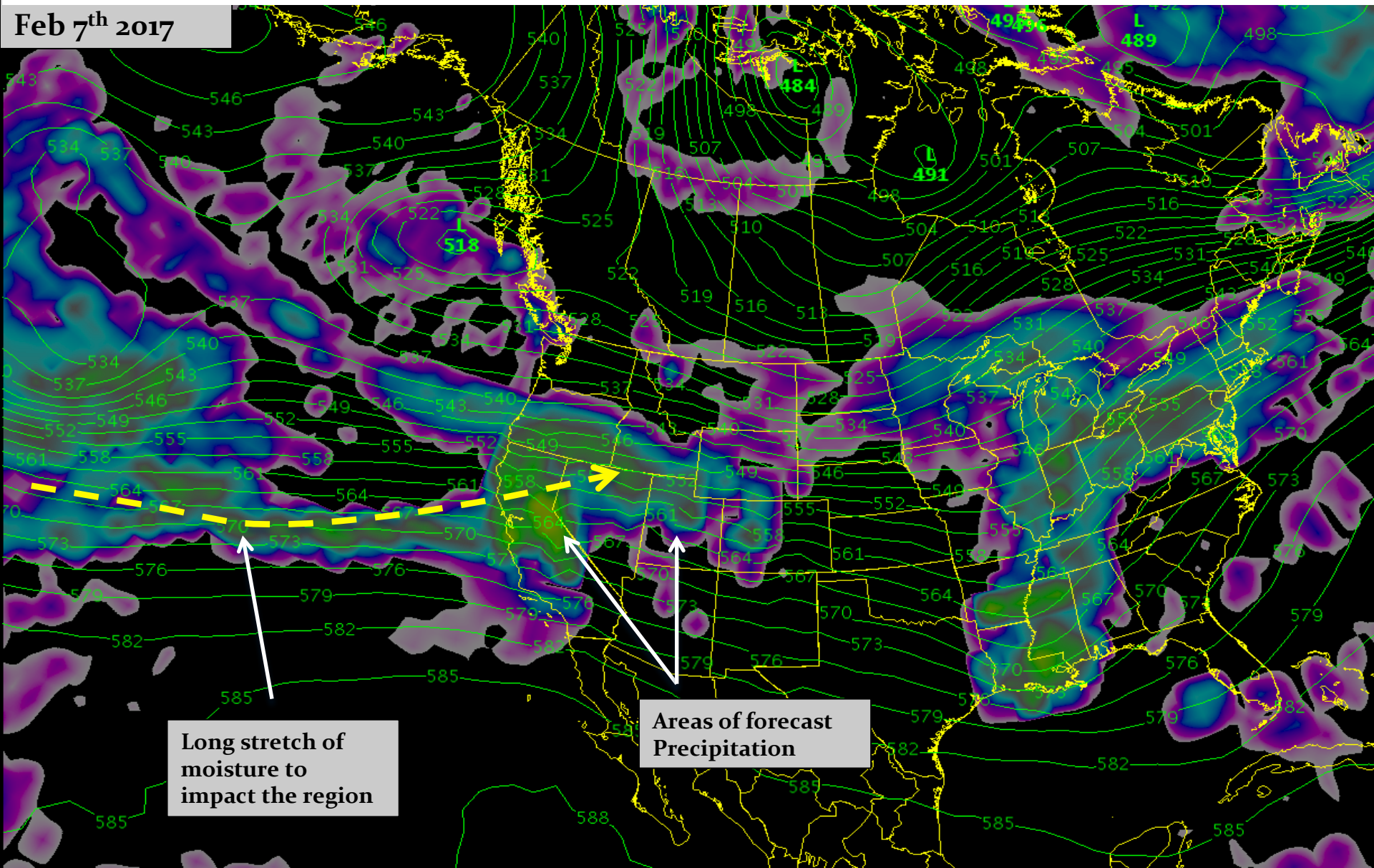


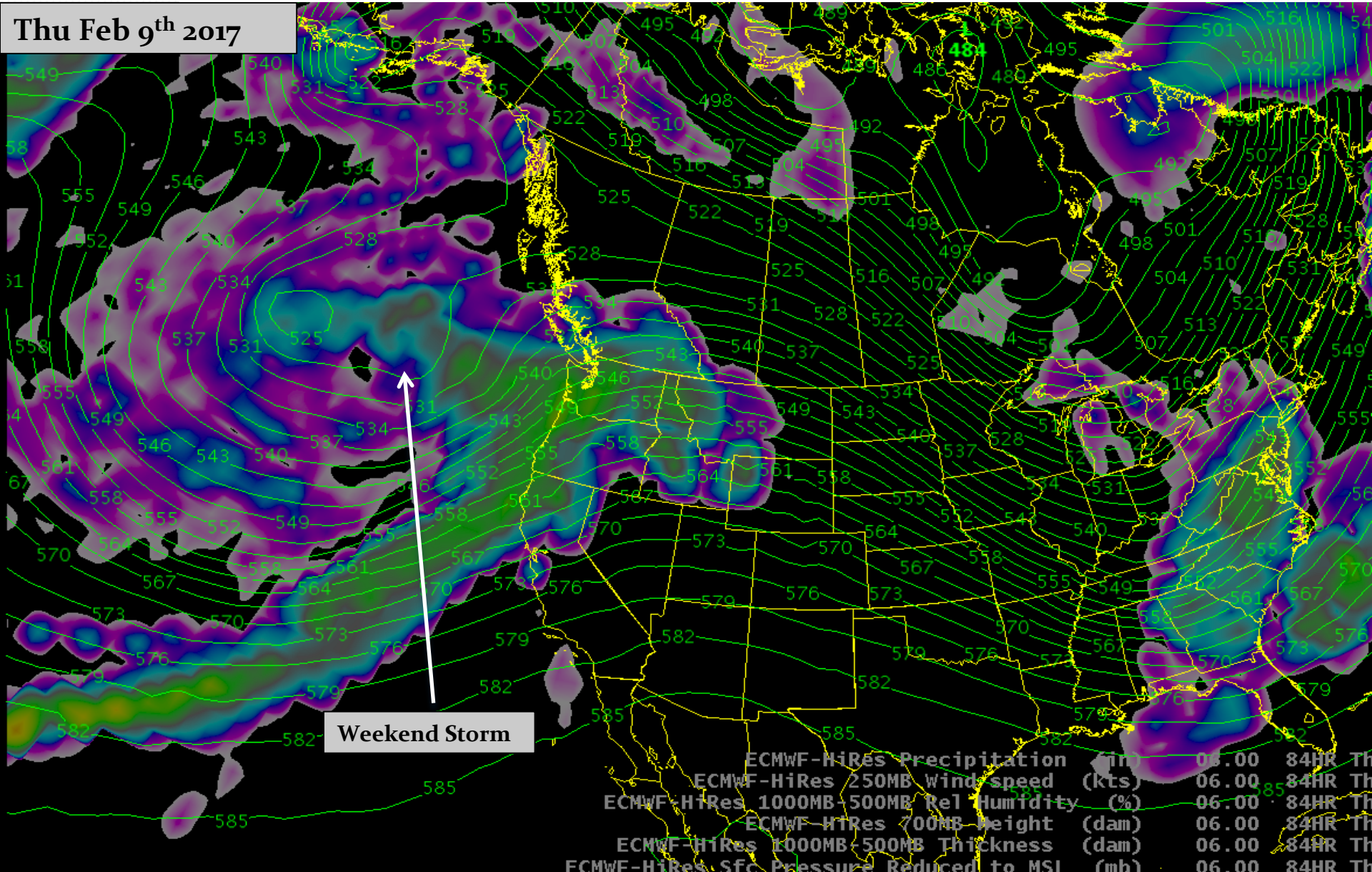
Upcoming Weather and Impacts to Water Supply Forecasts

Meteorological Model Guidance: Tonight through early Wednesday rain valleys / snow mountains (~6500 feet)
Fairly potent system with some 3-4 inch precipitation amounts possible in northern Utah



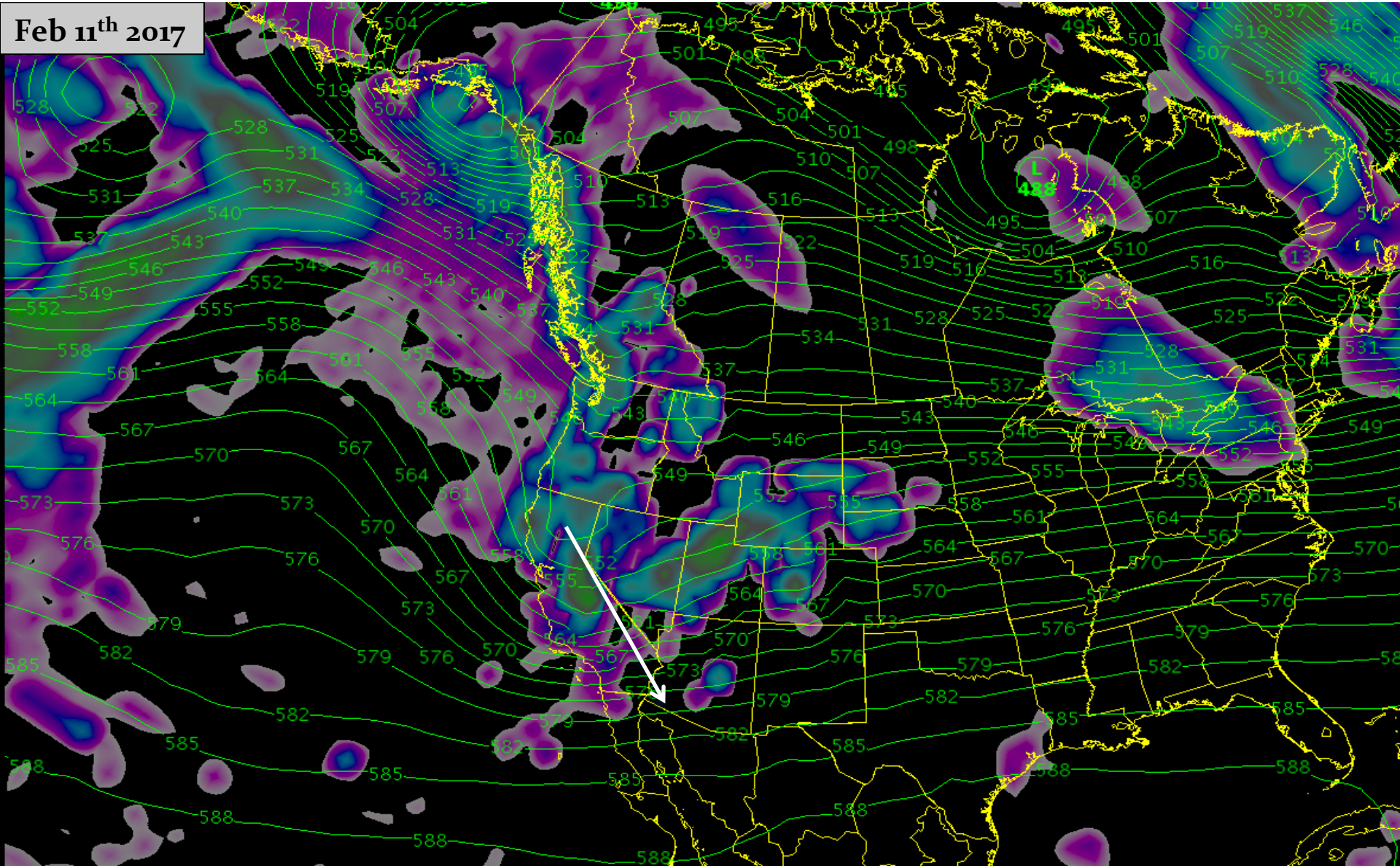
Upcoming Weather and Impacts to Water Supply Forecasts

Meteorological Model Guidance: A lull in precipitation later Wednesday into Friday.



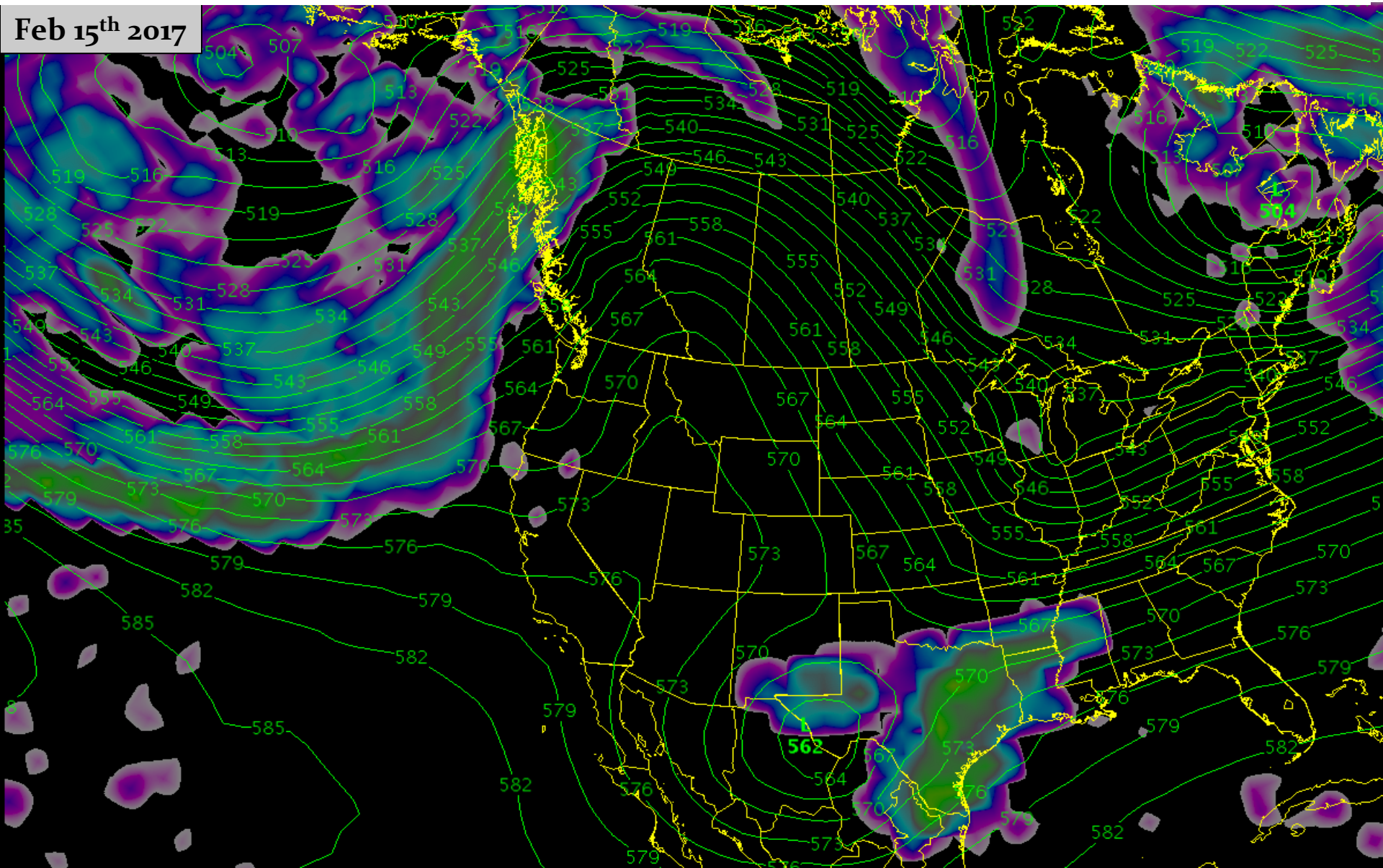
Upcoming Weather and Impacts to Water Supply Forecasts

Meteorological Model Guidance: Increasing precipitation Friday into the Weekend, colder air, lowering snow levels



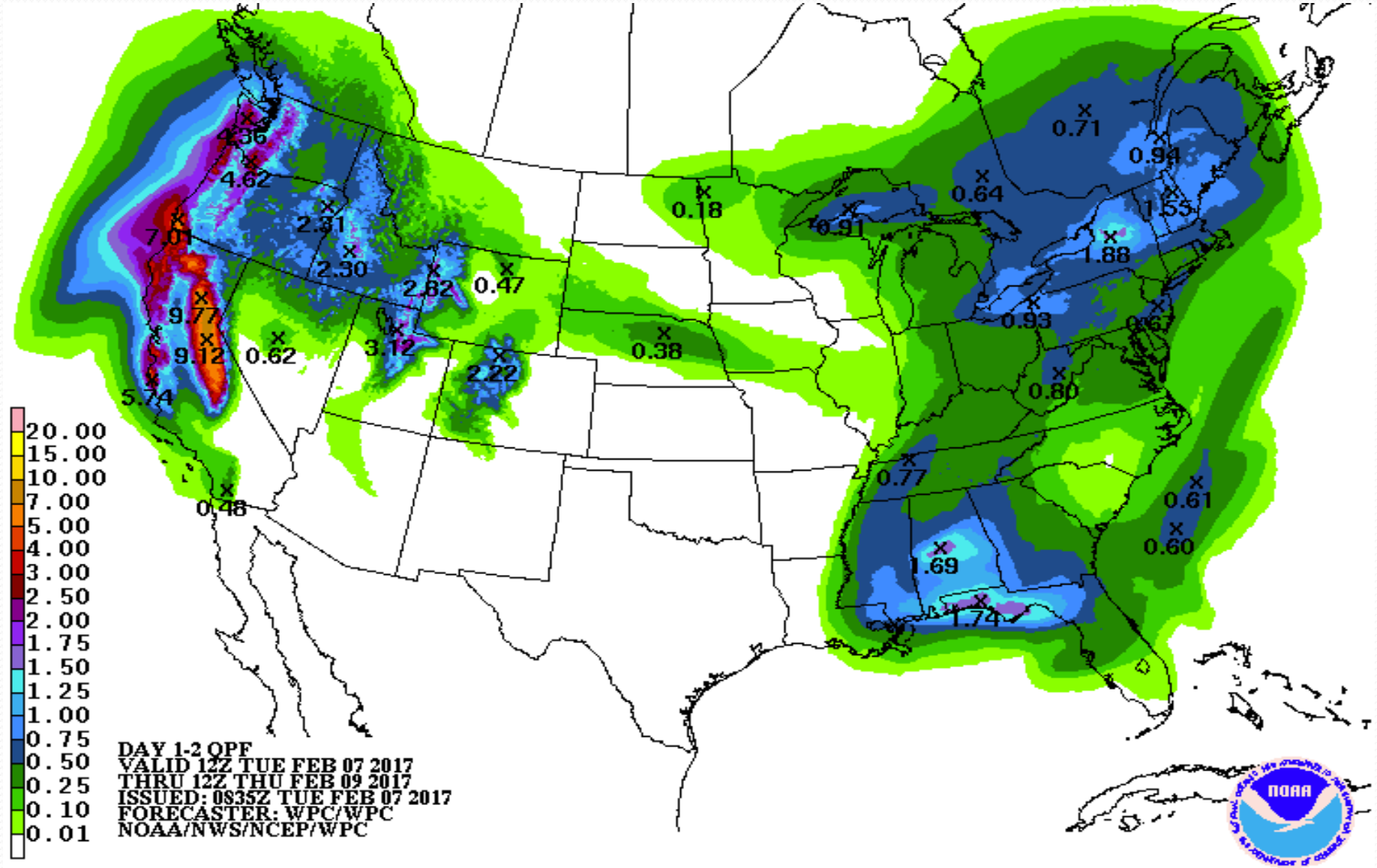
Upcoming Weather and Impacts to Water Supply Forecasts

Meteorological Model Guidance: Next week appears to be on the dry side.
Long range guidance suggest the pattern could become more active again by the weekend of the 18th.



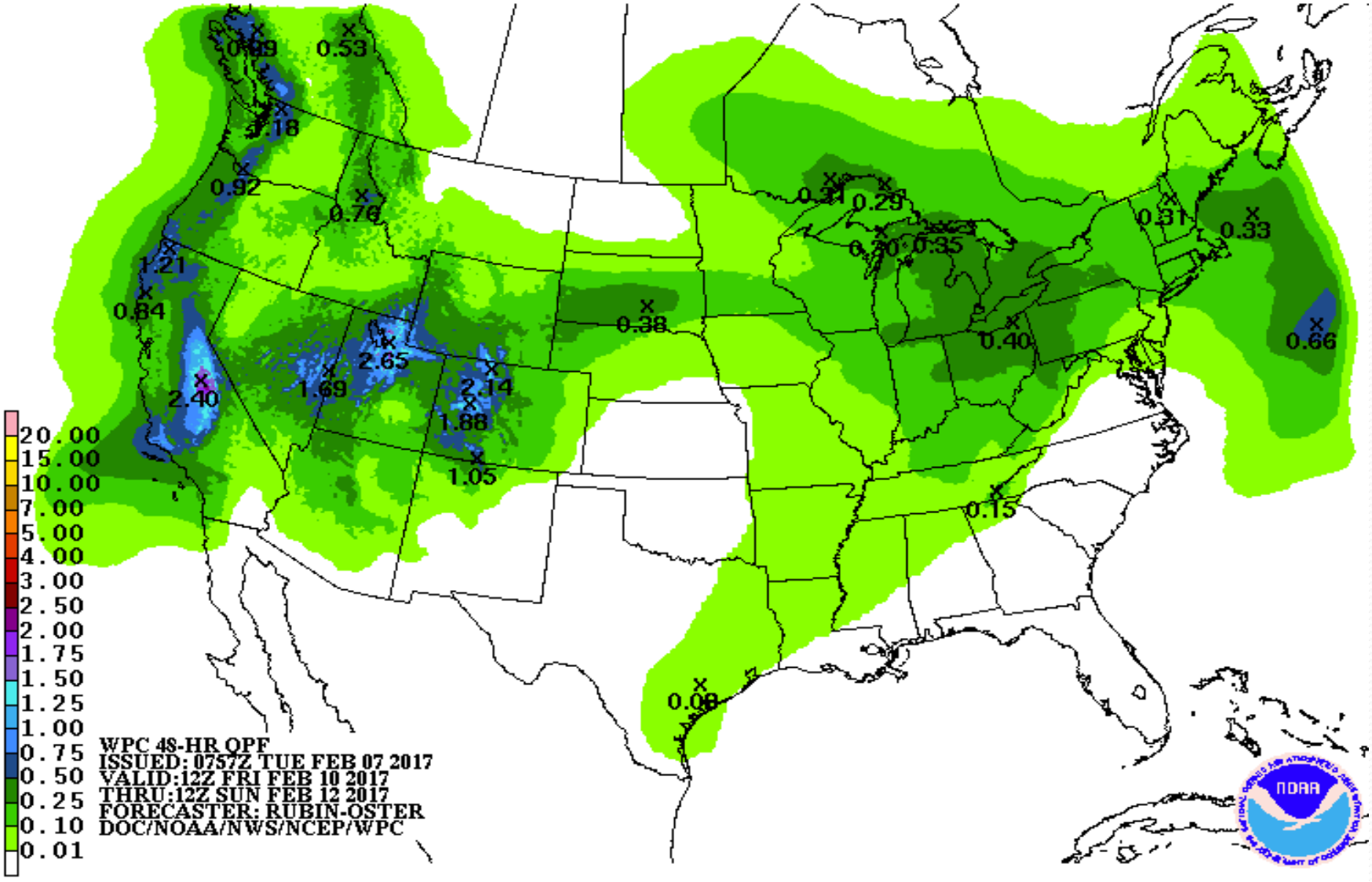
Upcoming Weather and Impacts to Water Supply Forecasts

Precipitation Forecasts the next 48 hours



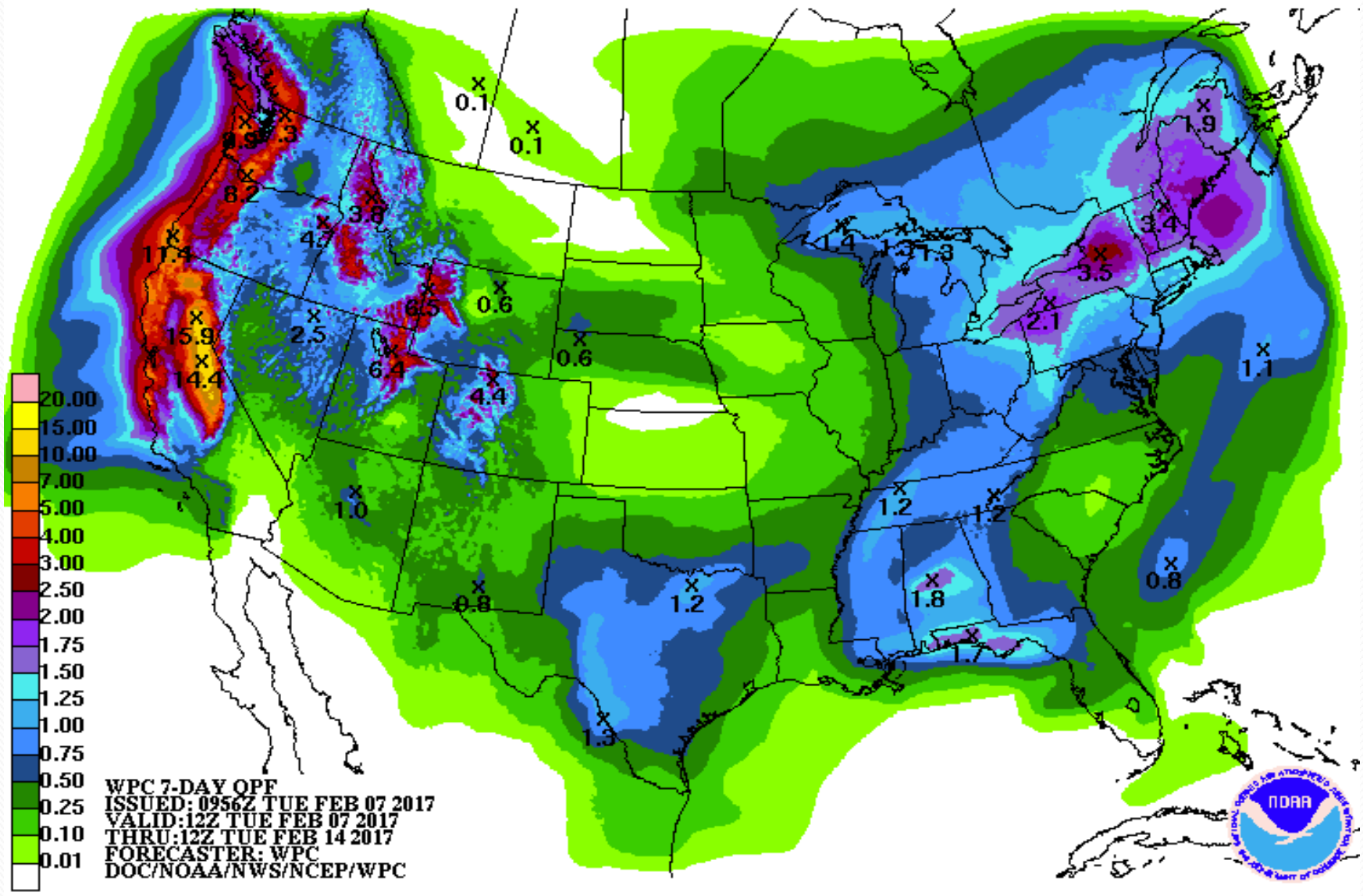
Upcoming Weather and Impacts to Water Supply Forecasts

Precipitation Forecasts the Friday-Saturday storm



Upcoming Weather and Impacts to Water Supply Forecasts

Precipitation Forecast: 7 day total (Feb 6th-Feb 13th)



Key Points

Best start for the snowpack in years , many SNOTEL sites rank in the top 2-5 of record for this time of year (period of record 36-39 years for most)

Dramatic increase in water supply forecasts over those from January 1st

We could still be impacted by abnormally dry spring weather, but impacts would be less in the Bear and Weber (90% or better chance we will see average or better runoff).

A wet week lies ahead for the mountain locations, especially northern Utah (Weber, Bear, Provo headwaters).

Water Supply Forecasts are not likely to decrease in the short term and probably increase in parts of the Bear and Weber Basin and higher elevation headwaters.

2017 water supply briefing schedule

- 2017 monthly water supply briefings for the Great Basin
  - Tuesday Mar 7th @ 1:30 pm MT
  - Thursday Apr 5th @ 1:30 pm MT
  - Friday May 5th @ 1:30 pm MT
  - Colorado River Basin webinars are same dates at 11 am MT
- Peak flow briefing early March. Additional briefings scheduled as needed.
- Date/Times are subject to change. All registration information has been posted to the CBRFC web page.

CBRFC Water Supply Contacts

Please contact us with any questions

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