

# Idaho Water Supply Outlook Report

## January 1, 2015



# 78<sup>th</sup> IWUA

## Convention

### Boise, Idaho

# Water Supply Outlook

## Jan 22, 2015

The good news:  
need 1, 2 or 3 big  
storms depending if  
you are a have,  
or a have not.

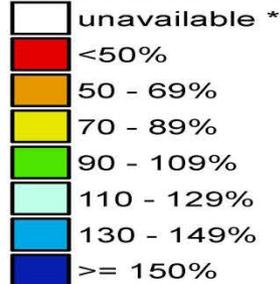
An avalanche on Sunday December 21<sup>st</sup> shows the unstable conditions created by the mid-December storm

Ron Abramovich  
Water Supply Specialist  
USDA NRCS Snow Survey Boise, Idaho

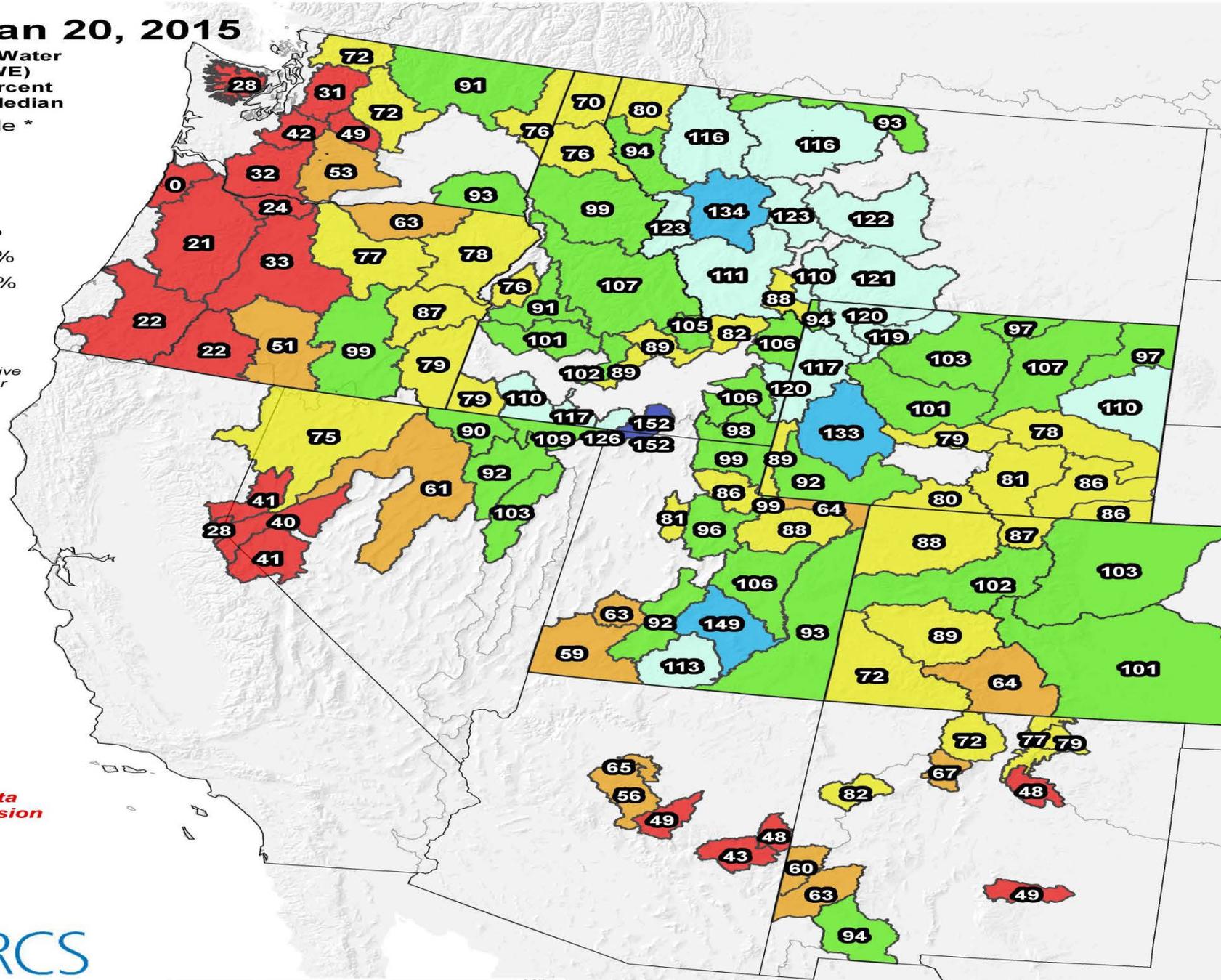
# Westwide SNOTEL Current Snow Water Equivalent (SWE) % of Normal

## Jan 20, 2015

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



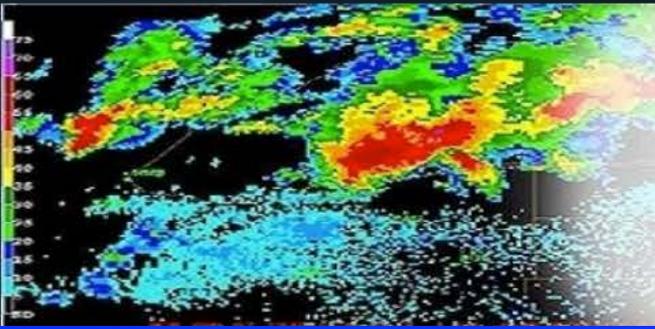
\* Data unavailable at time of posting or measurement is not representative at this time of year



Provisional data subject to revision



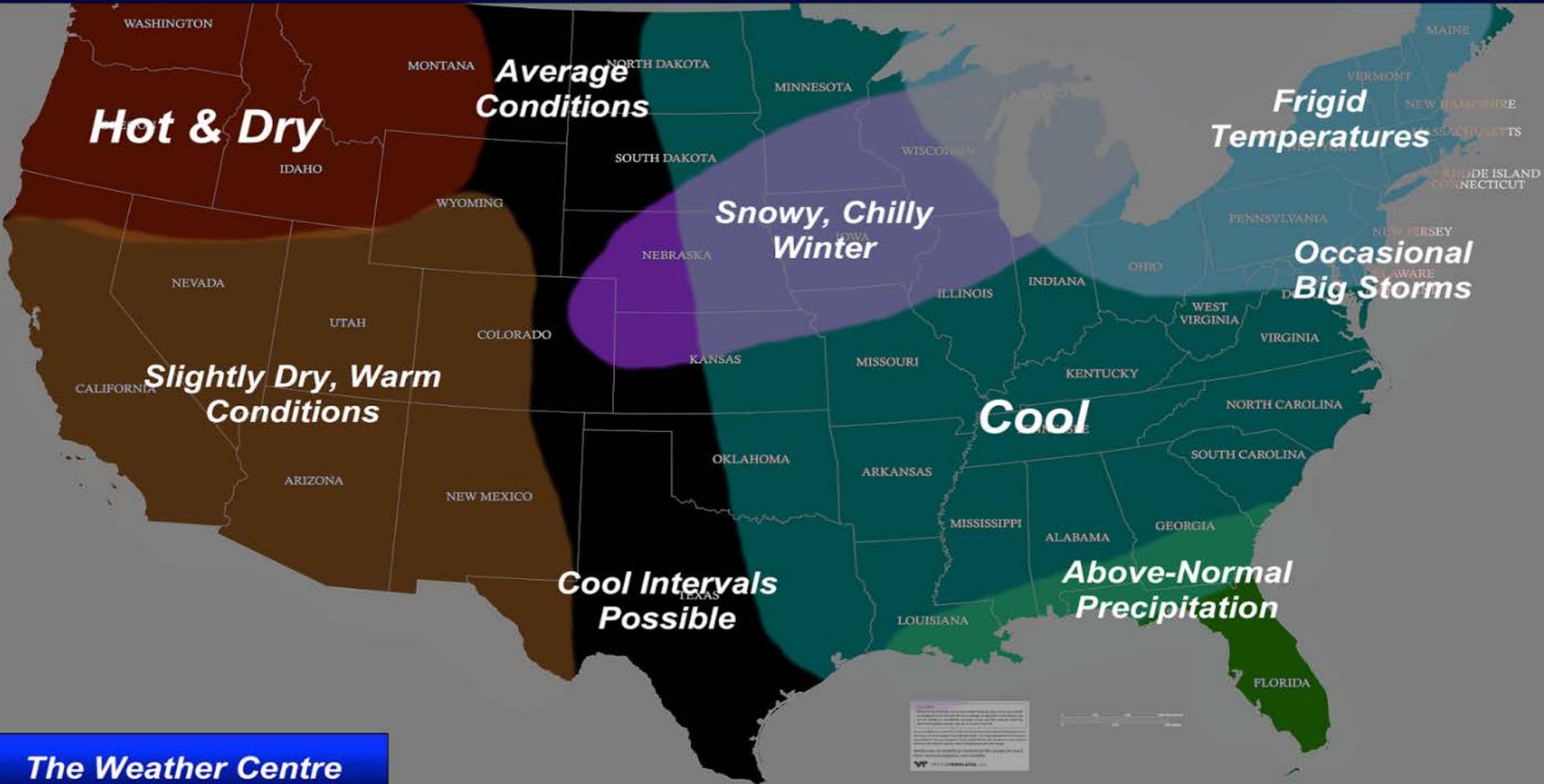
Miles



# The Weather Centre



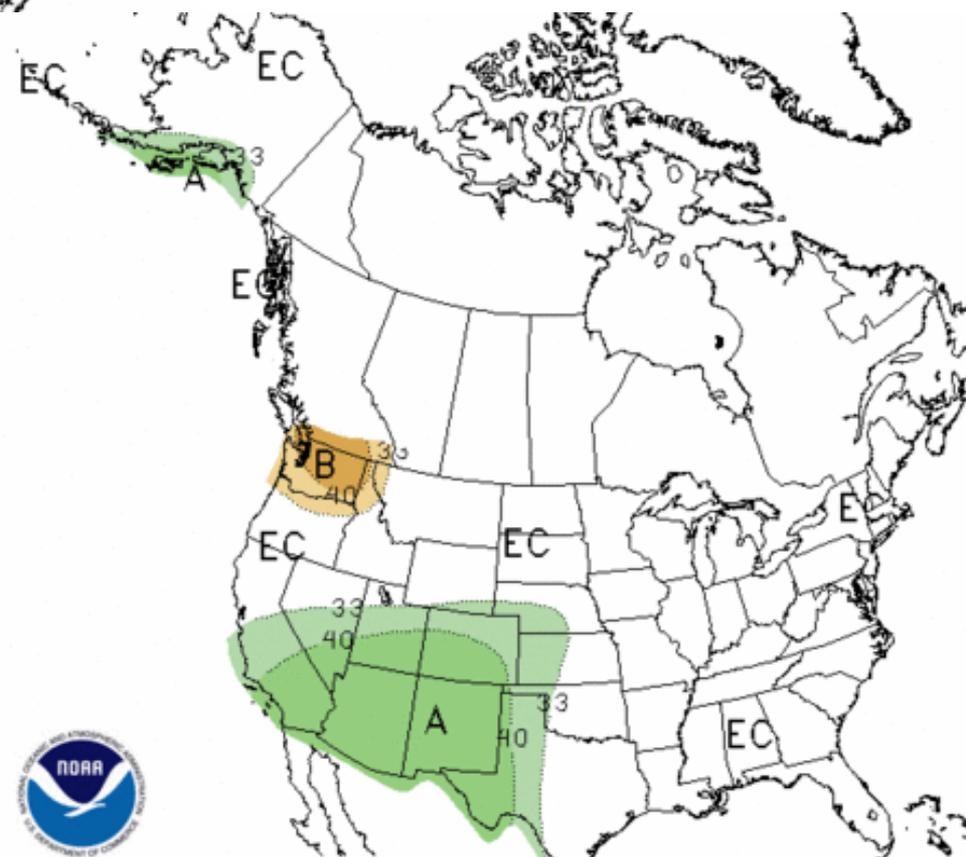
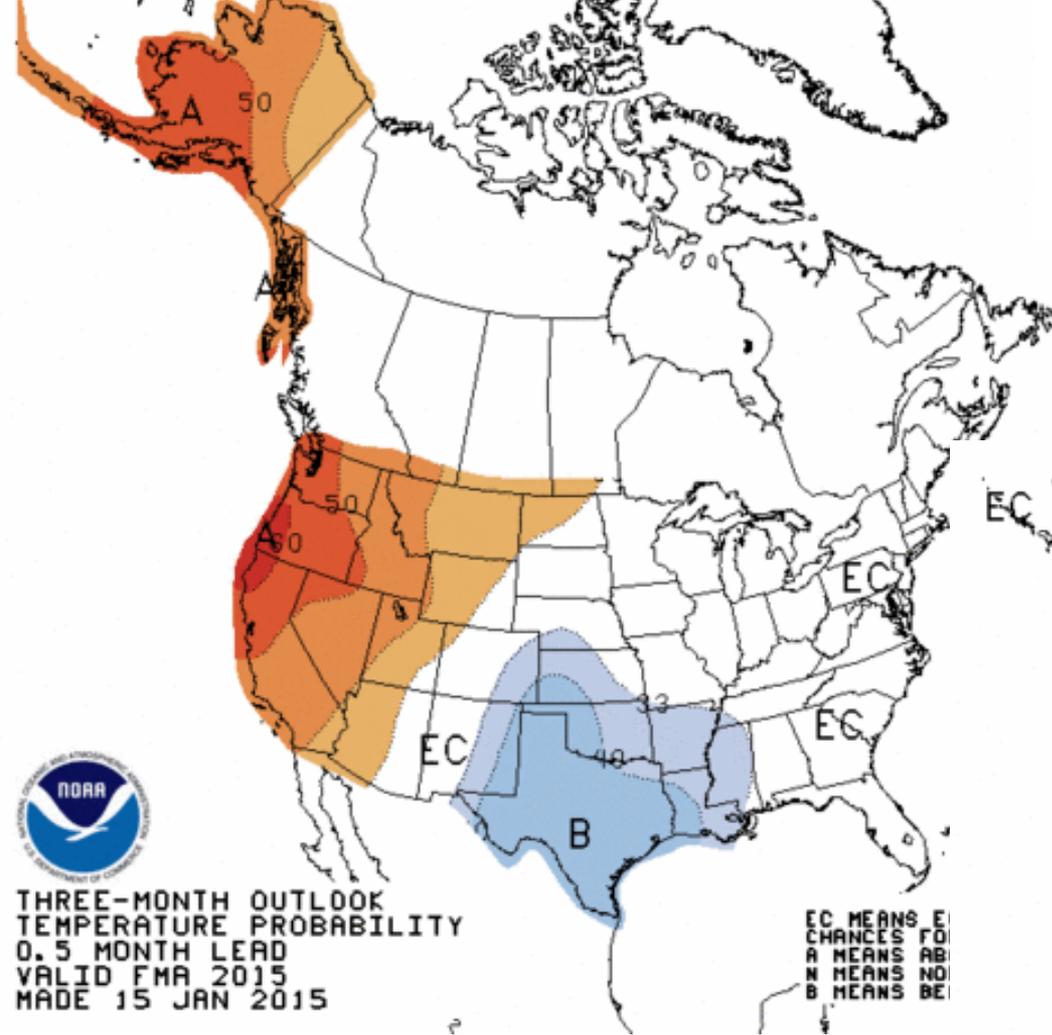
## Official 2014-2015 Winter Forecast



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# Three-Month Outlooks

## OFFICIAL Forecasts



THREE-MONTH OUTLOOK  
TEMPERATURE PROBABILITY  
0.5 MONTH LEAD  
VALID FMA 2015  
MADE 15 JAN 2015

EC MEANS EQUAL  
CHANCES FOR  
A MEANS ABOVE  
N MEANS NORMAL  
B MEANS BELOW

**Feb-Mar-Apr Temperature  
Forecast made Jan 15, 2105**



THREE-MONTH OUTLOOK  
PRECIPITATION PROBABILITY  
0.5 MONTH LEAD  
VALID FMA 2015  
MADE 15 JAN 2015

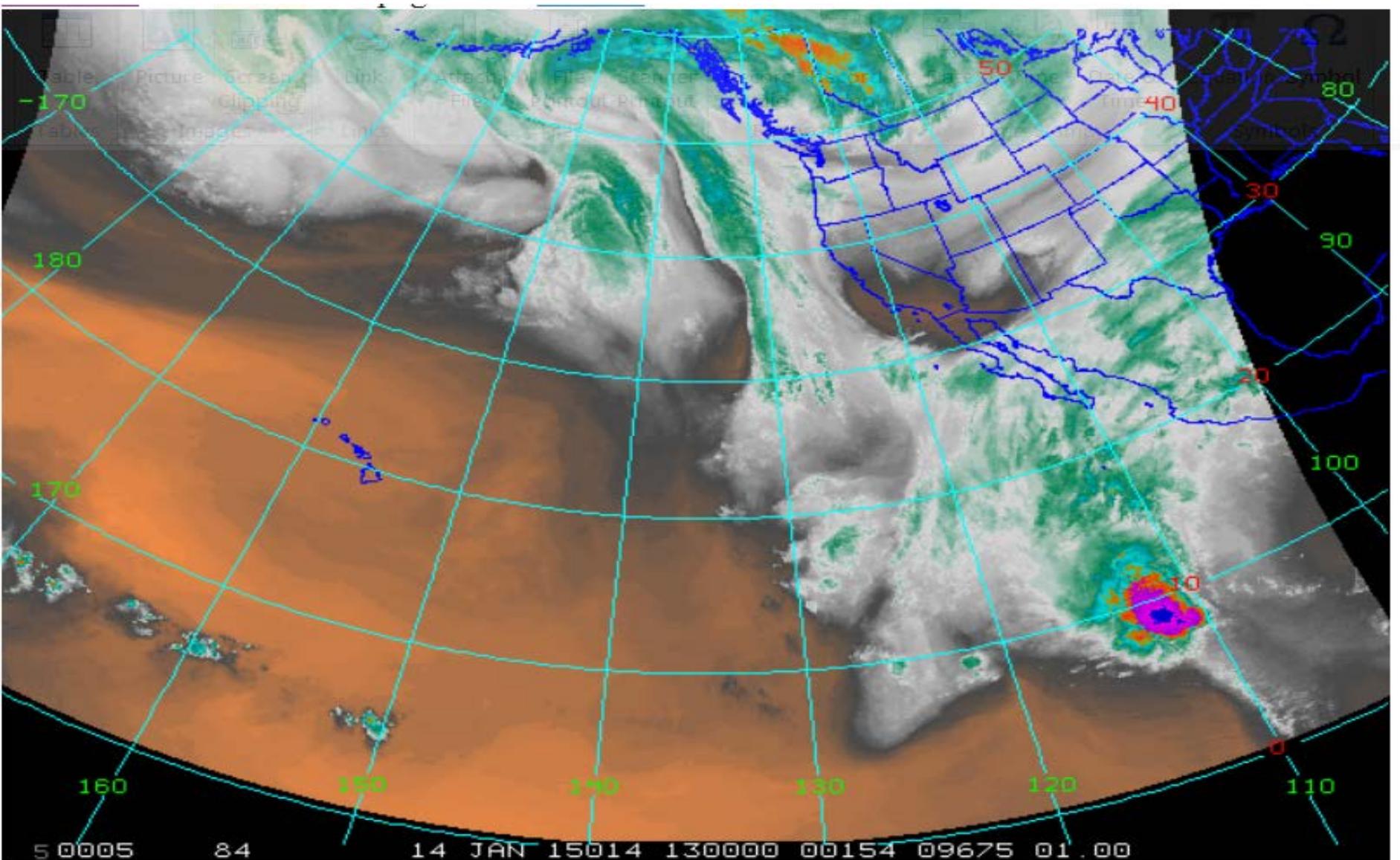
EC MEANS EQUAL  
CHANCES FOR A.  
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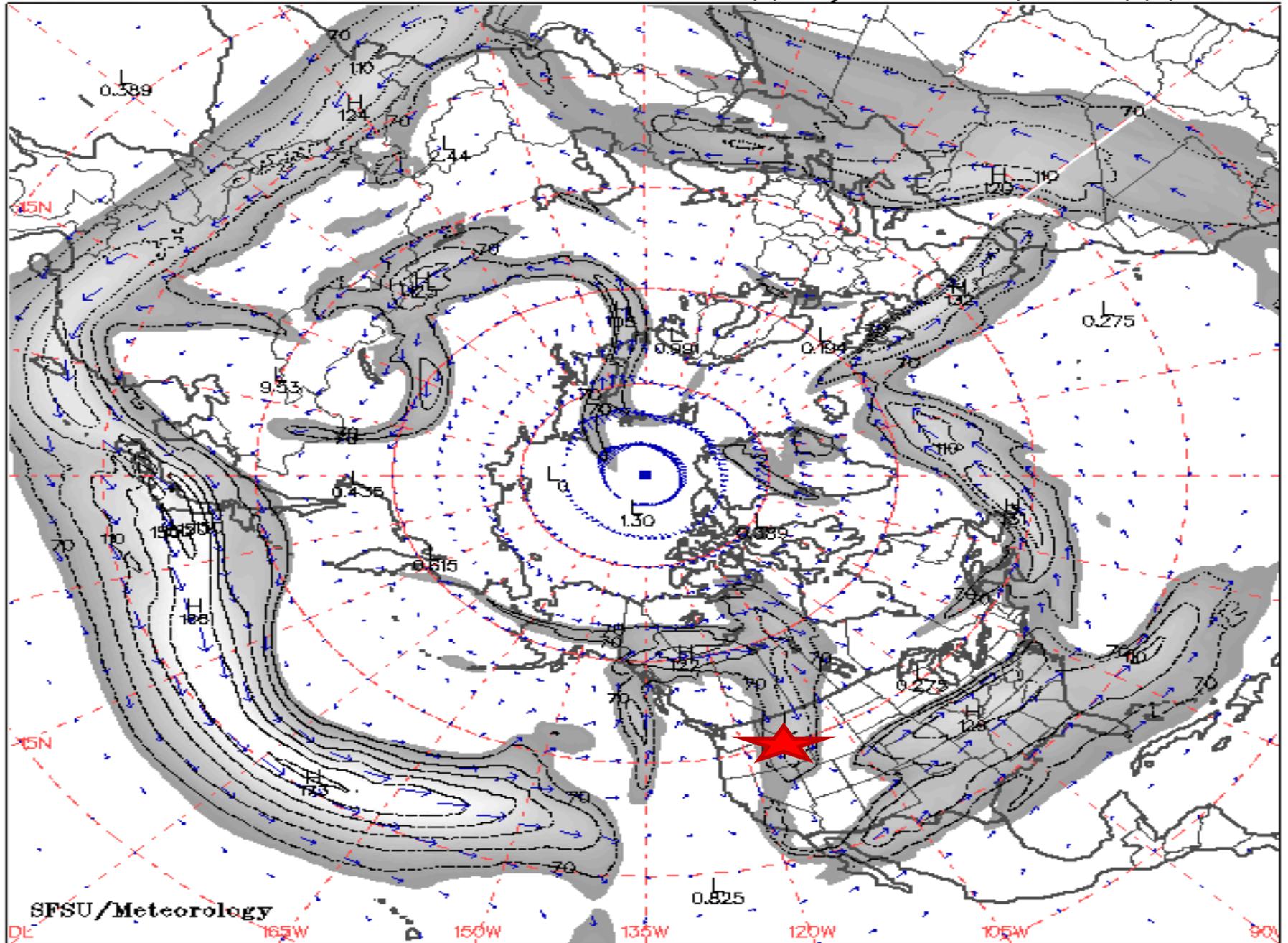
**Feb-Mar-Apr Precipitation  
Forecast made Jan 15, 2105**

# Water Vapor Image

Jan 14, 2015

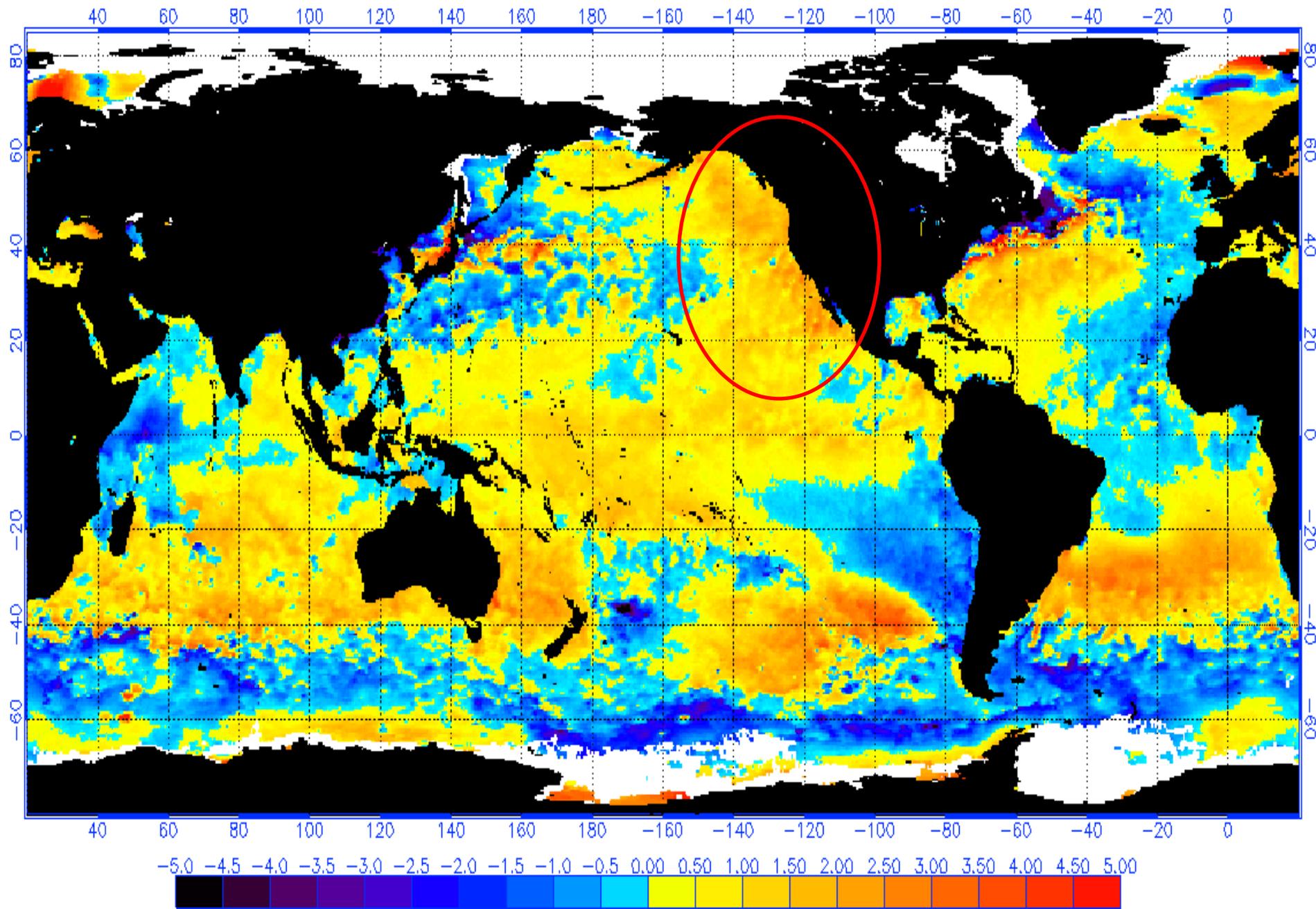
Last weekend's storm brought rain up to 8,000 ft in Big Wood basin





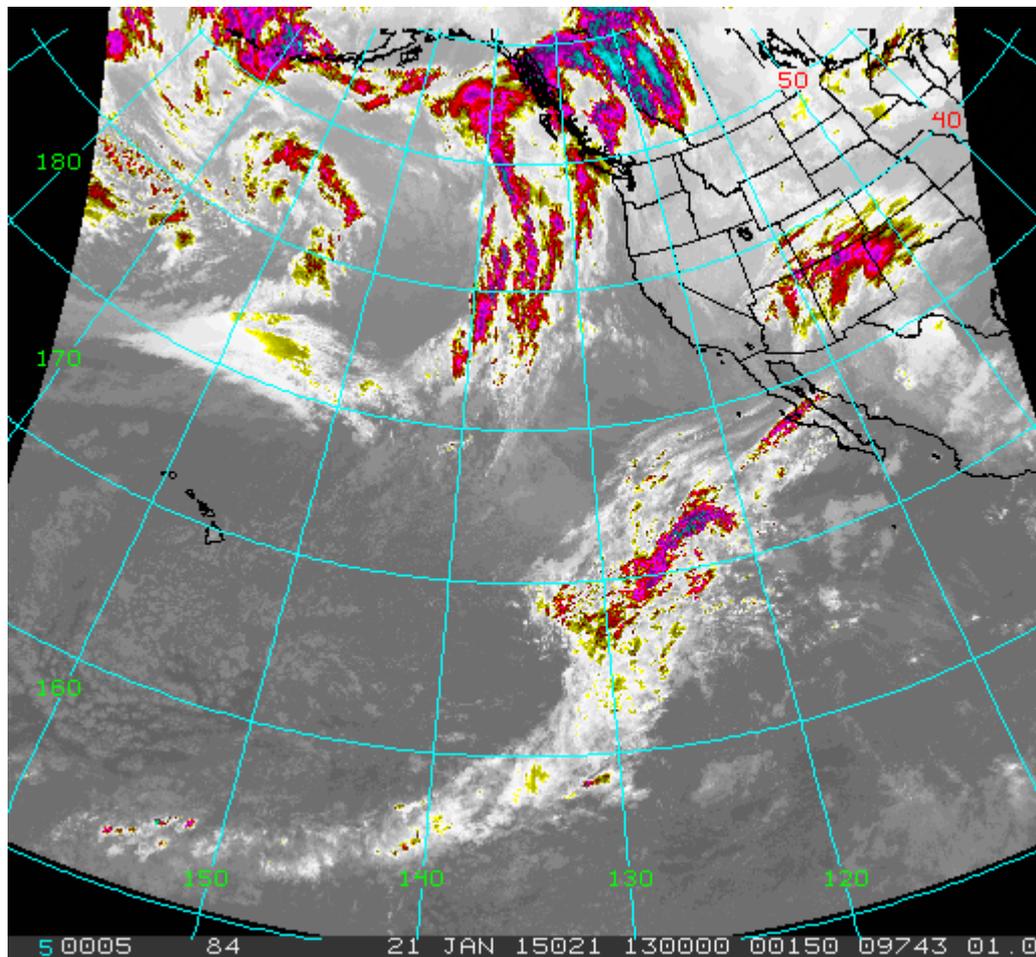
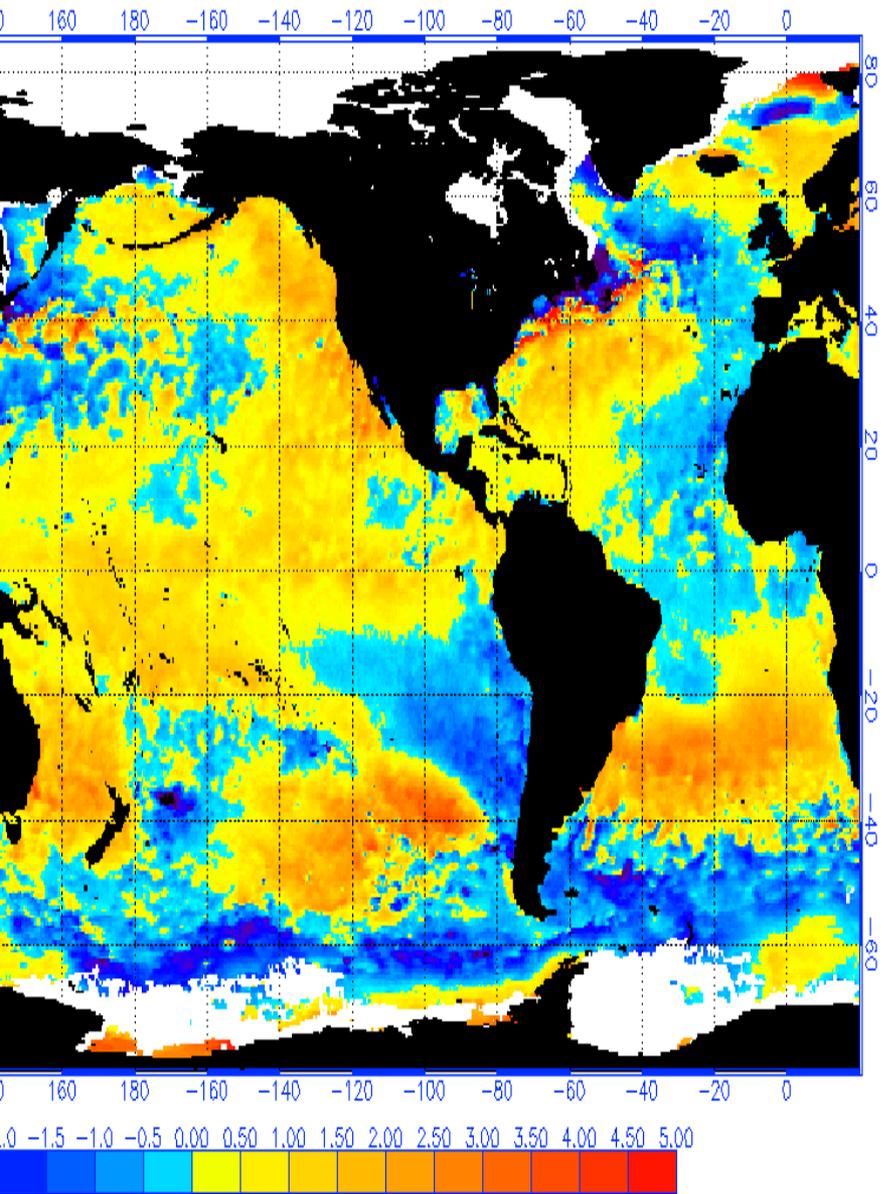
# NOAA/NESDIS 50 KM GLOBAL ANALYSIS: SST Anomaly (degrees C), 1/19/2015

(white regions indicate sea-ice)

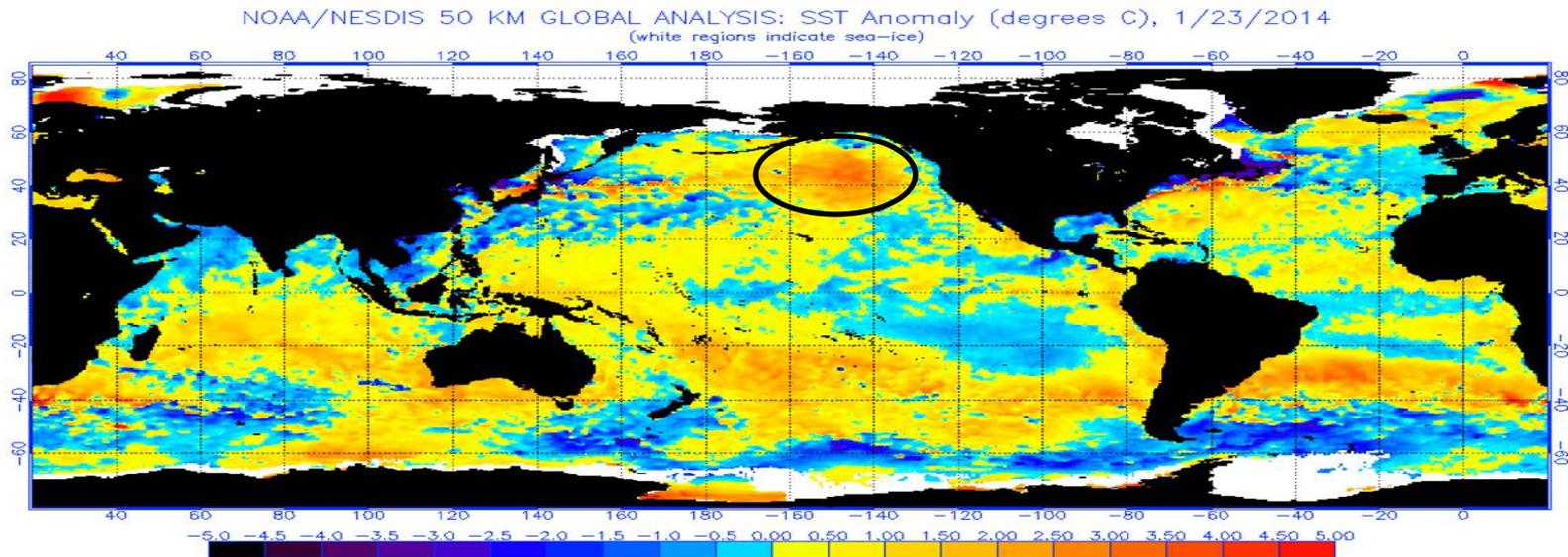


# GLOBAL ANALYSIS: SST Anomaly (degrees C), 1/19/2015

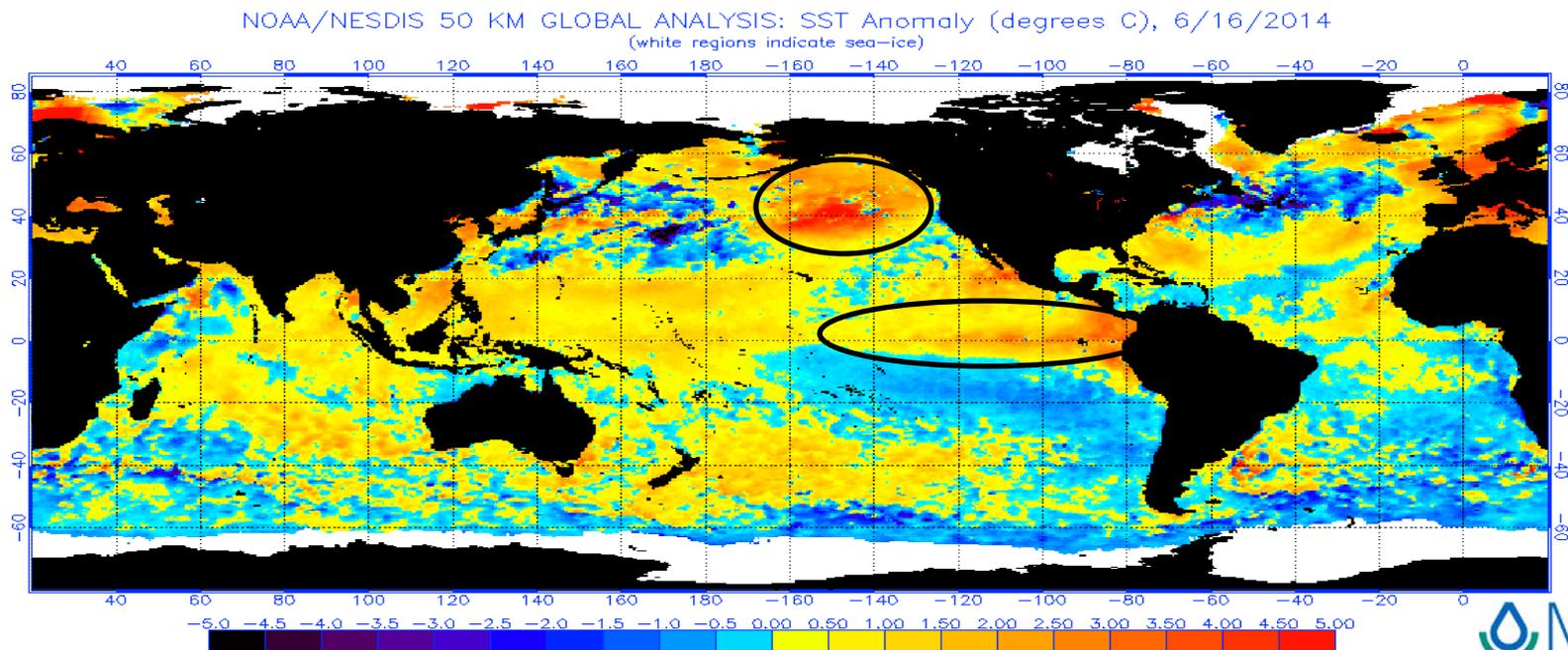
(white regions indicate sea-ice)



# January 23, 2014 – warm water in NW Pacific increasing

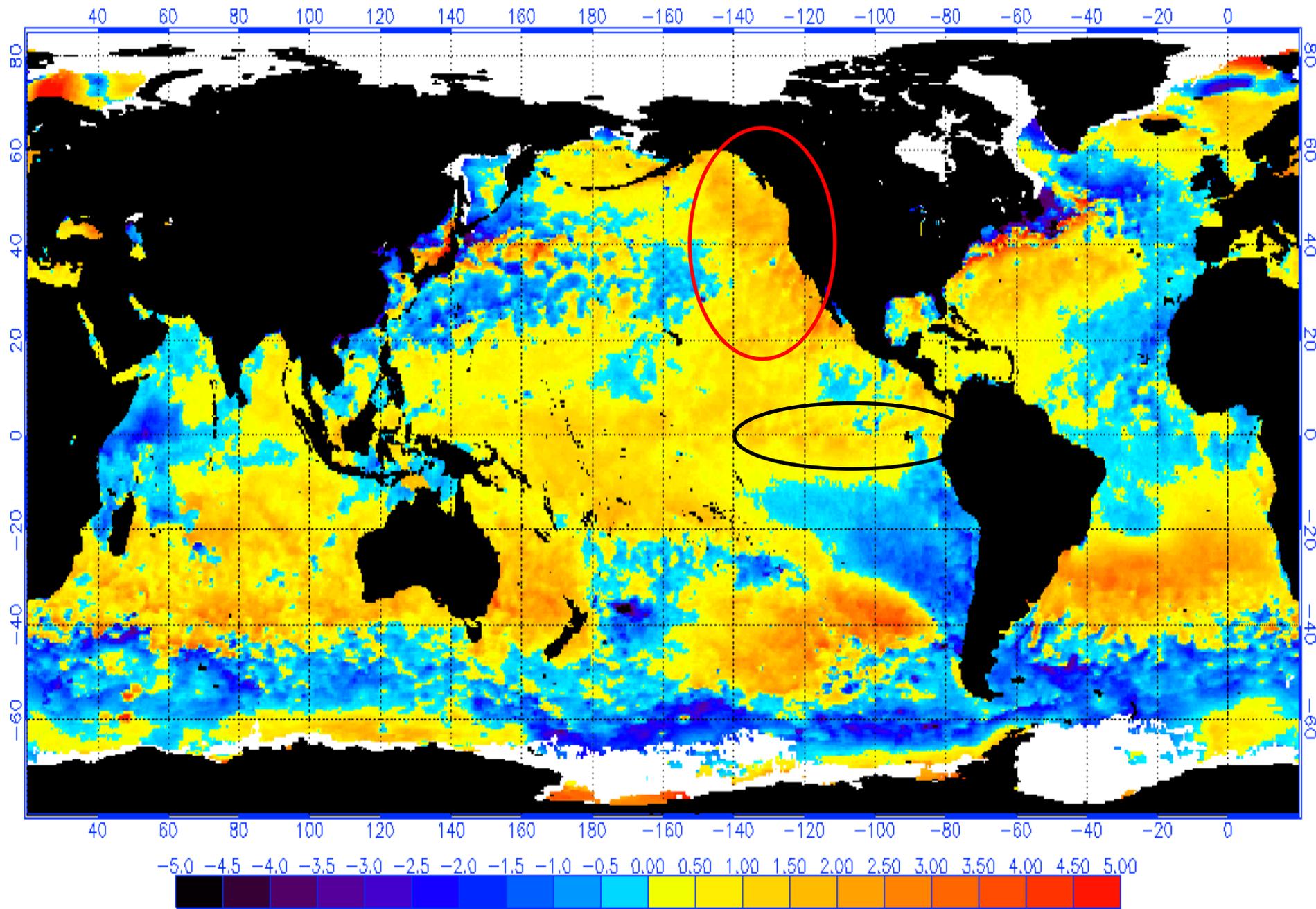


# June 16, 2014 – El Nino Brewing

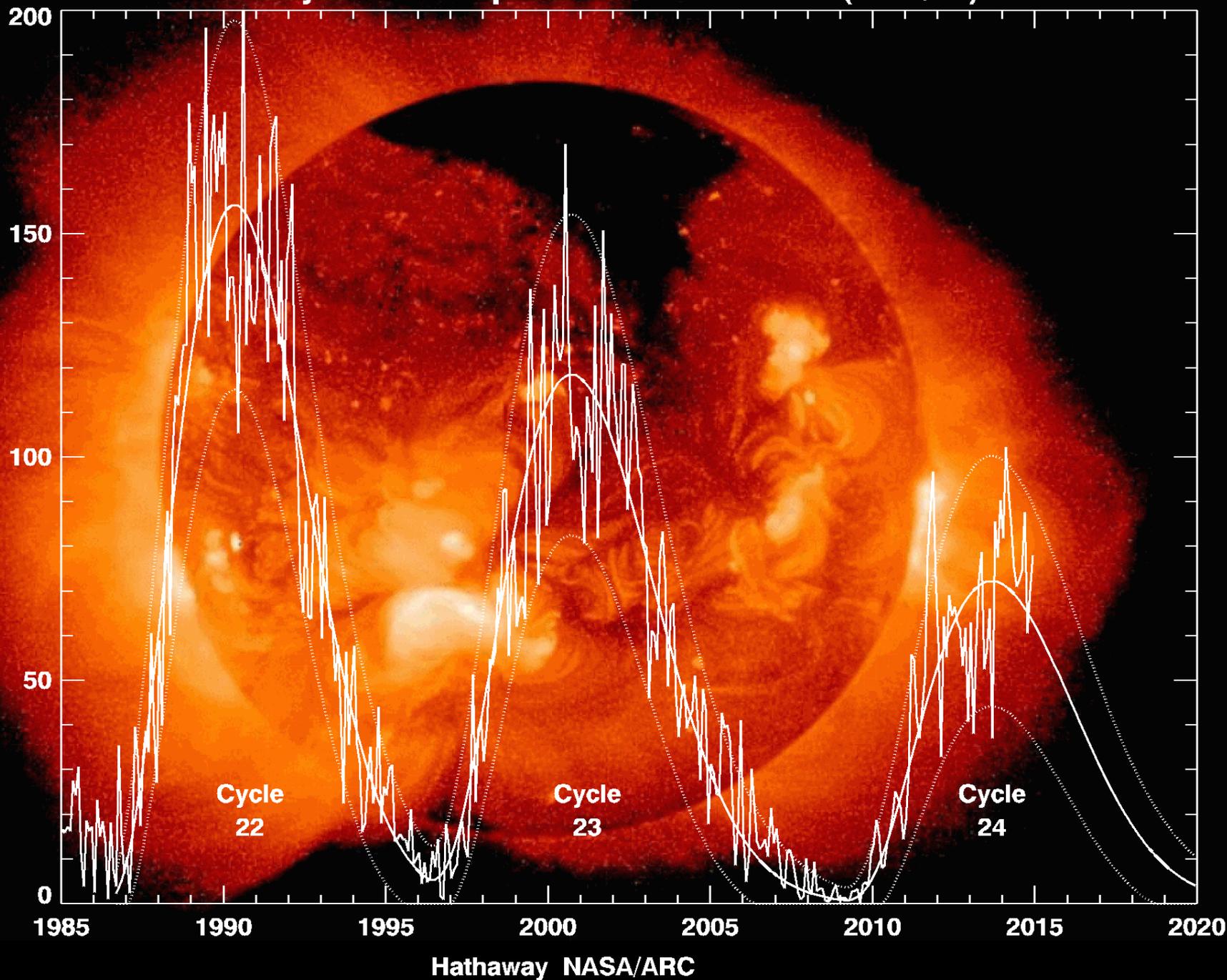


# NOAA/NESDIS 50 KM GLOBAL ANALYSIS: SST Anomaly (degrees C), 1/19/2015

(white regions indicate sea-ice)



# Cycle 24 Sunspot Number Prediction (2015/01)

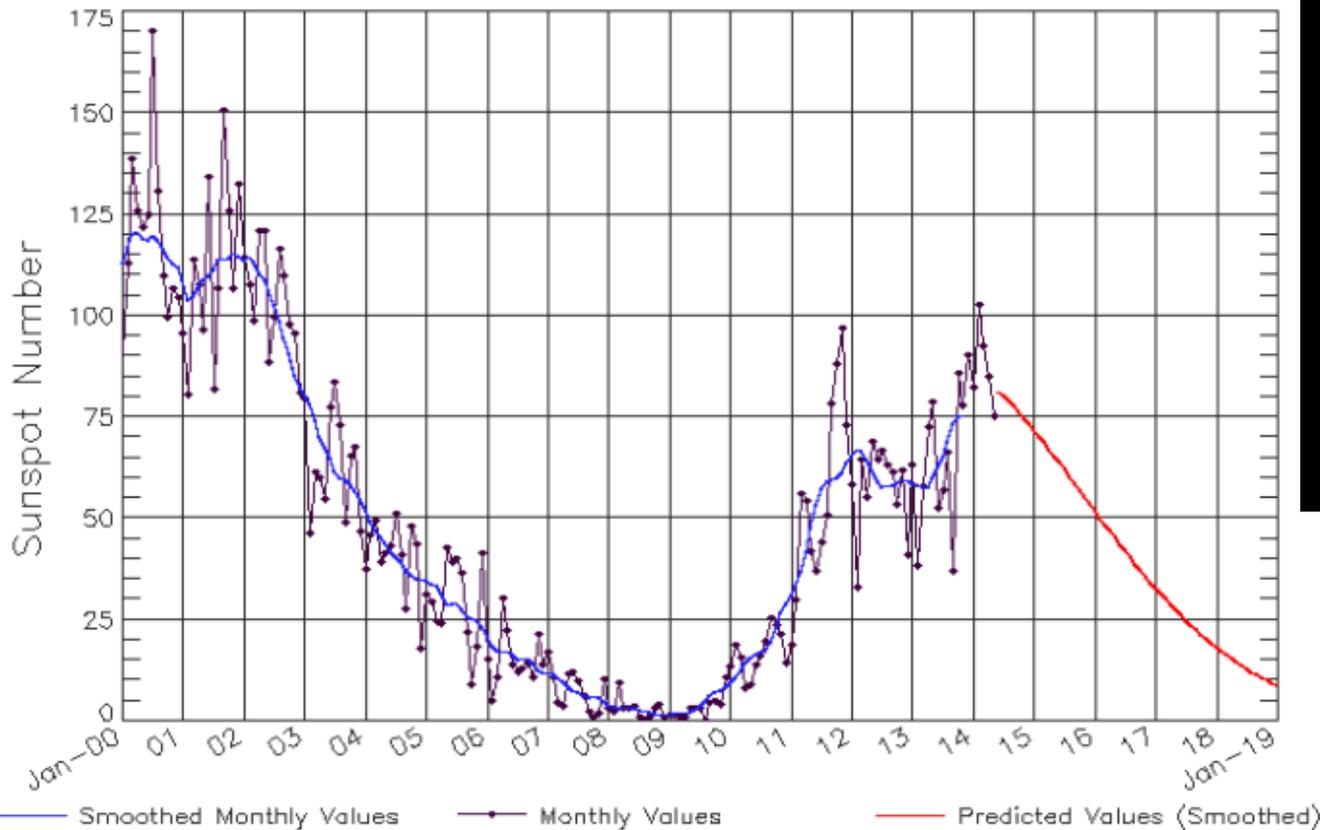


Hathaway NASA/ARC

The abnormally low sunspot numbers will likely have some sort of effect on the Earth ... take home message: is that we are more prone to a chilly winter with sunspots projected to drop than a warm one Andrew 6-14-14



ISES Solar Cycle Sunspot Number Progression  
Observed data through May 2014



**Sept 9, 2013 - the sun, which should be at SOLAR MAX, only has a measly 24 sunspots number (150 is more typical)**



# The Weather Centre

EXPECT THE UNEXPECTED

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[2014-2015 Winter Forecast Directory](#) [Official 2014-2015 Winter Forecast](#)

## Today's Featured Post: [Long Range Outlook \(Made January 21, 2015\)](#)

Wednesday, January 21, 2015

[Long Range Outlook \(Made January 21, 2015\)](#)

By [Andreat](#) 4:30 PM

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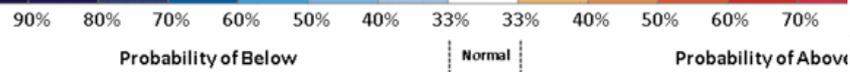
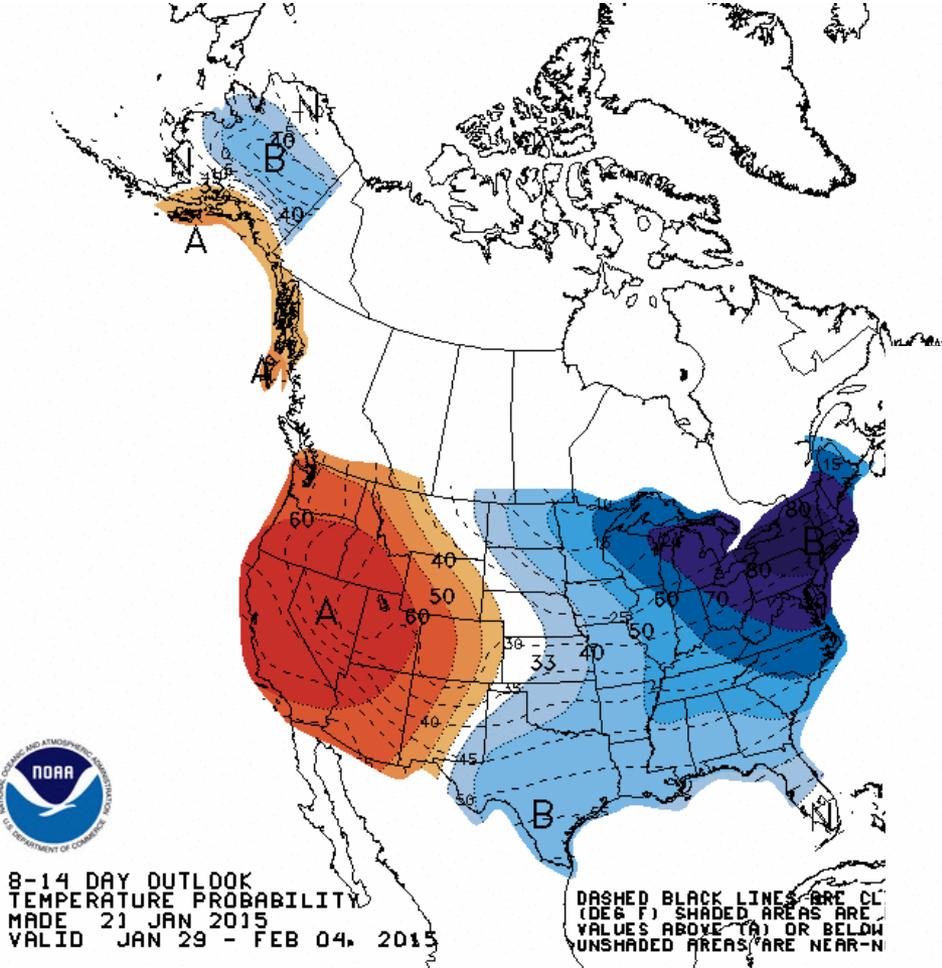
**Jan 20-27:** strong ridge pumping north in the Western US, resulting in a deep trough (and associated cold weather) in the East US.

**End January:** +NAO is being overruled by the strong ridge in the West, ensuring a cold period to end January

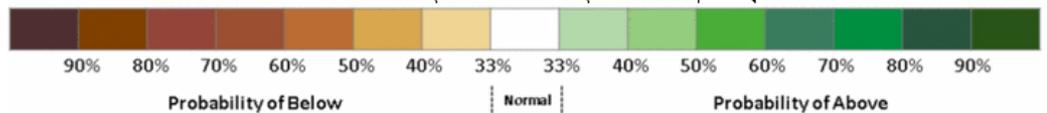
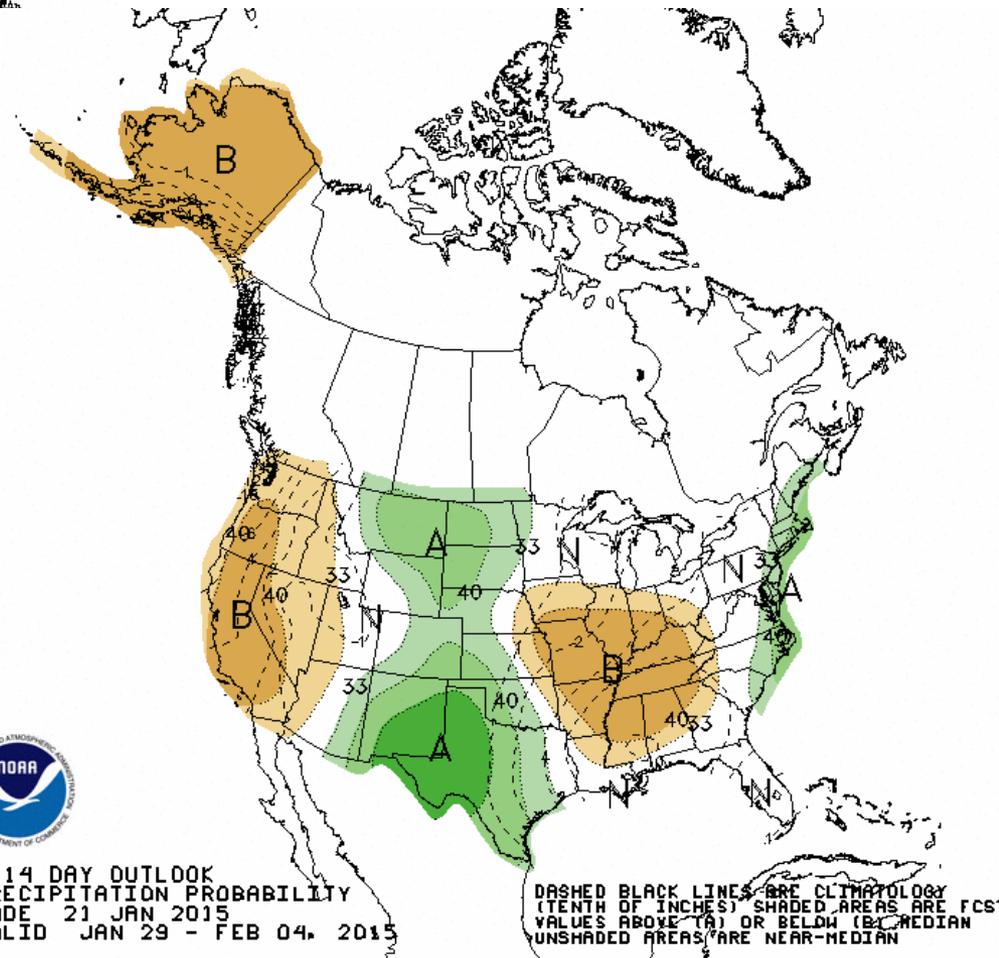
**Jan 31** - The ridge in the West US has been swallowed up by a more dominant ridge stretching across the Bering Sea and into the North-Central Pacific.

+NAO signal is now in play, as we see the West US ridge 'bleeding east' into the Plains.

# Precipitation Jan 29 – Feb 4



# Temperature Jan 29 – Feb 4



**Looking in Early February...**

**A strong ridge now encompasses all of Japan, bringing a 'heat wave' to the region. This ridge persists for more than a couple of days, which could very well validate my (ANDREW'S) outlook for a mild middle of February.**

**Using the Typhoon Rule here, we look to find ourselves in a warm period around a **Jan 31 - Feb 4 period, possibly for longer...** This warmth is then interrupted by a brief cool shot before that warmth may return.**

**~Feb 4 – 22** The forecast for the PNA is positive for the next two weeks, and a sustained strong positive signal . **This tells me (ANDREW) we're looking at that ridge sticking around the West US for a prolonged period of time into February, though it may very well bleed east into the Central US.**

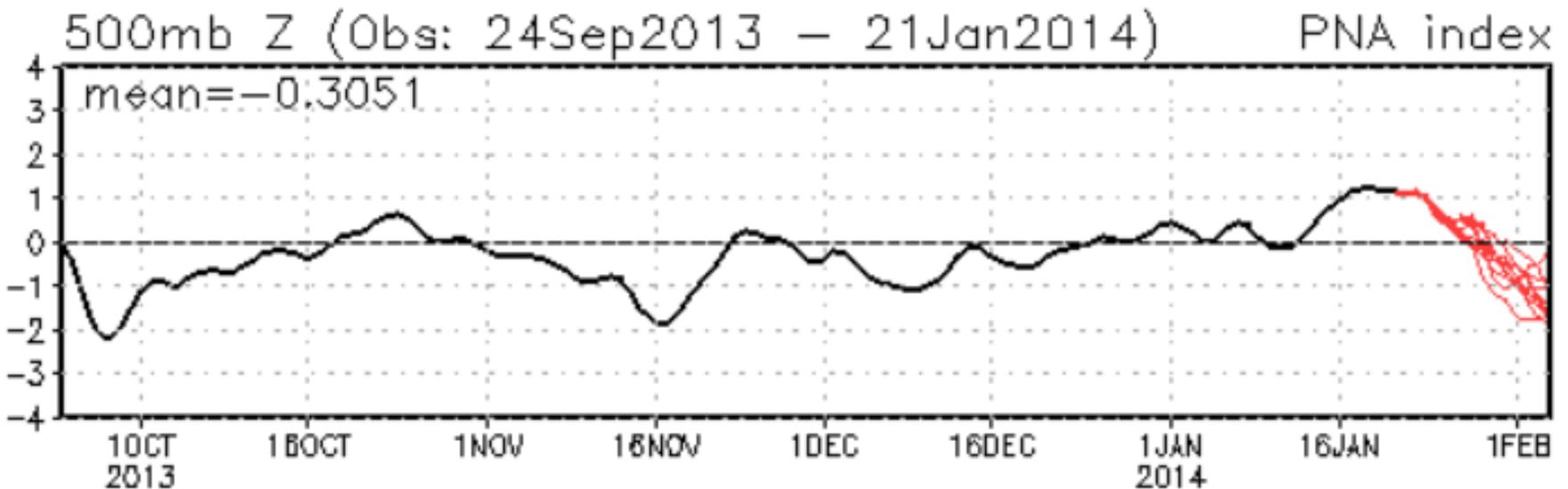
**SLIDE FROM JAN 21, 2014**

**The PNA is getting interestingly negative:**

**PNA - Pacific North American Index**

**is one parameter (index) that helps for moisture in the PAC NW but there are others that are needed**

**PNA: Observed & ENSM forecasts**



... favoring a warmer nation as we move into **mid-February**.

As this wave moves eastward over time, it is expected that the wave will go into phases even more favorable for warm weather, which is why I'm maintaining my call for **a warm period in mid-late February**.

**Beyond that 31 day benchmark, confidence is too low to forecast further.**

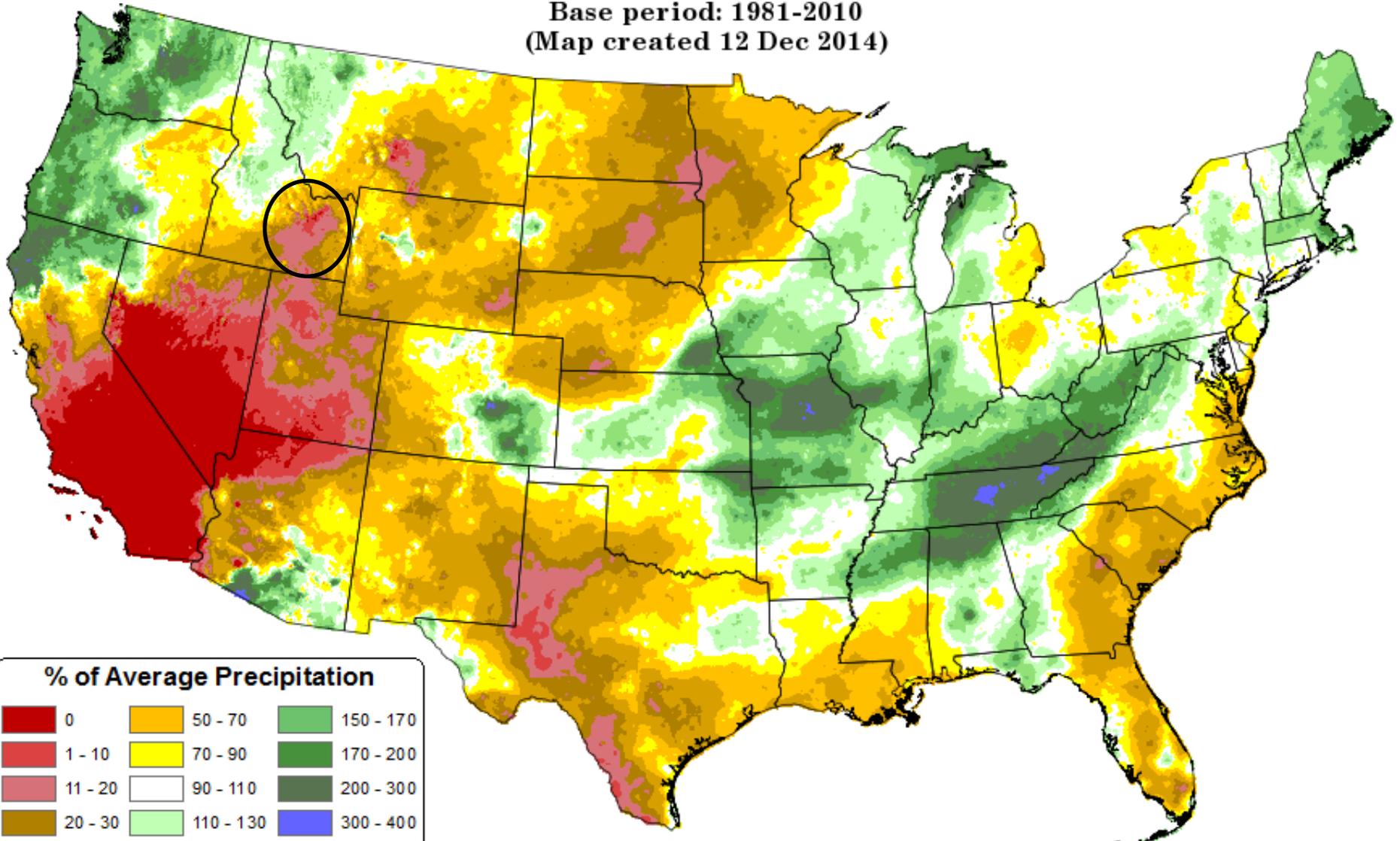
# Recent Precipitation & Temperature Patterns

## Total Precipitation Anomaly: October 2014

Period ending 31 Oct 2014

Base period: 1981-2010

(Map created 12 Dec 2014)

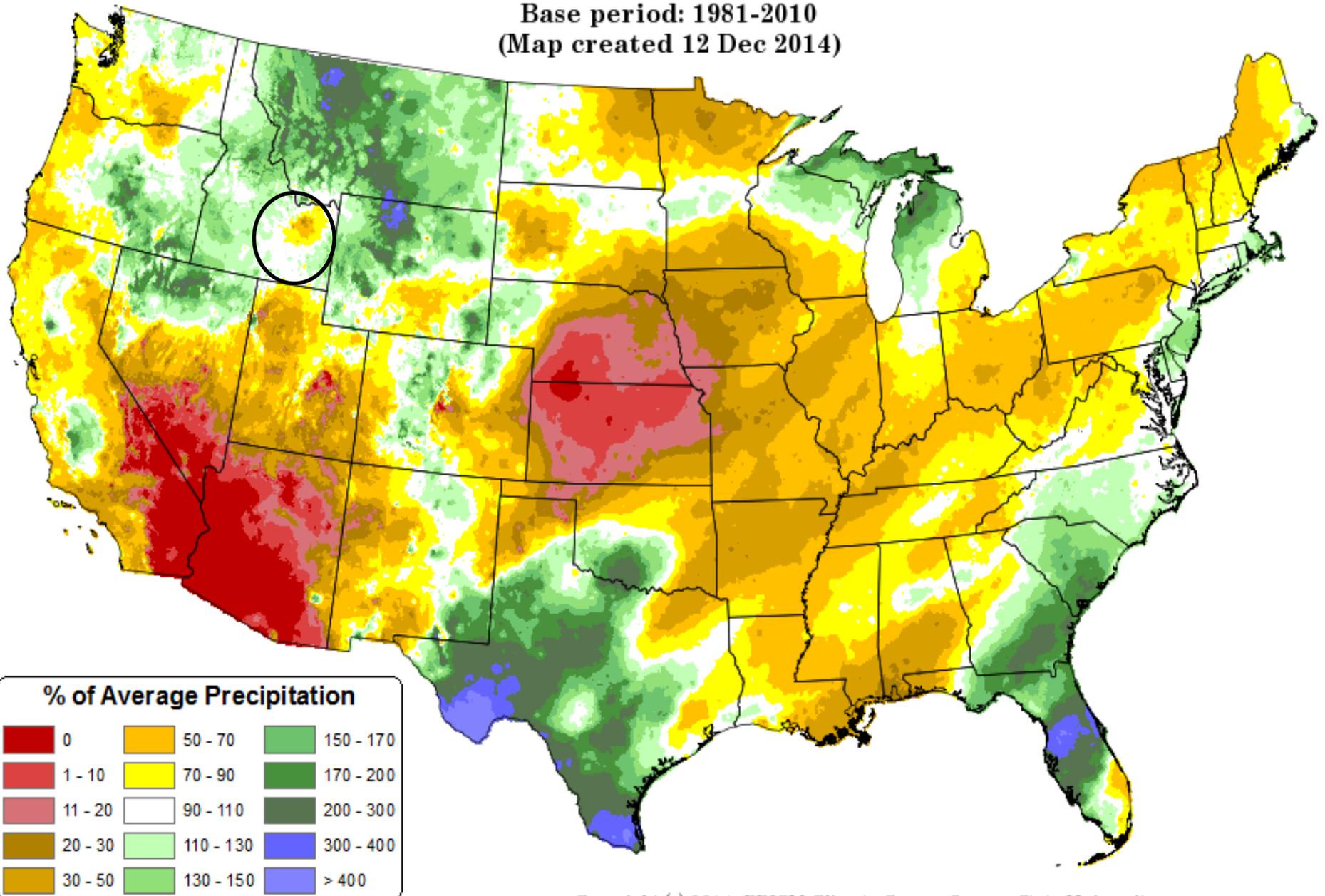


# Total Precipitation Anomaly: November 2014

Period ending 30 Nov 2014

Base period: 1981-2010

(Map created 12 Dec 2014)

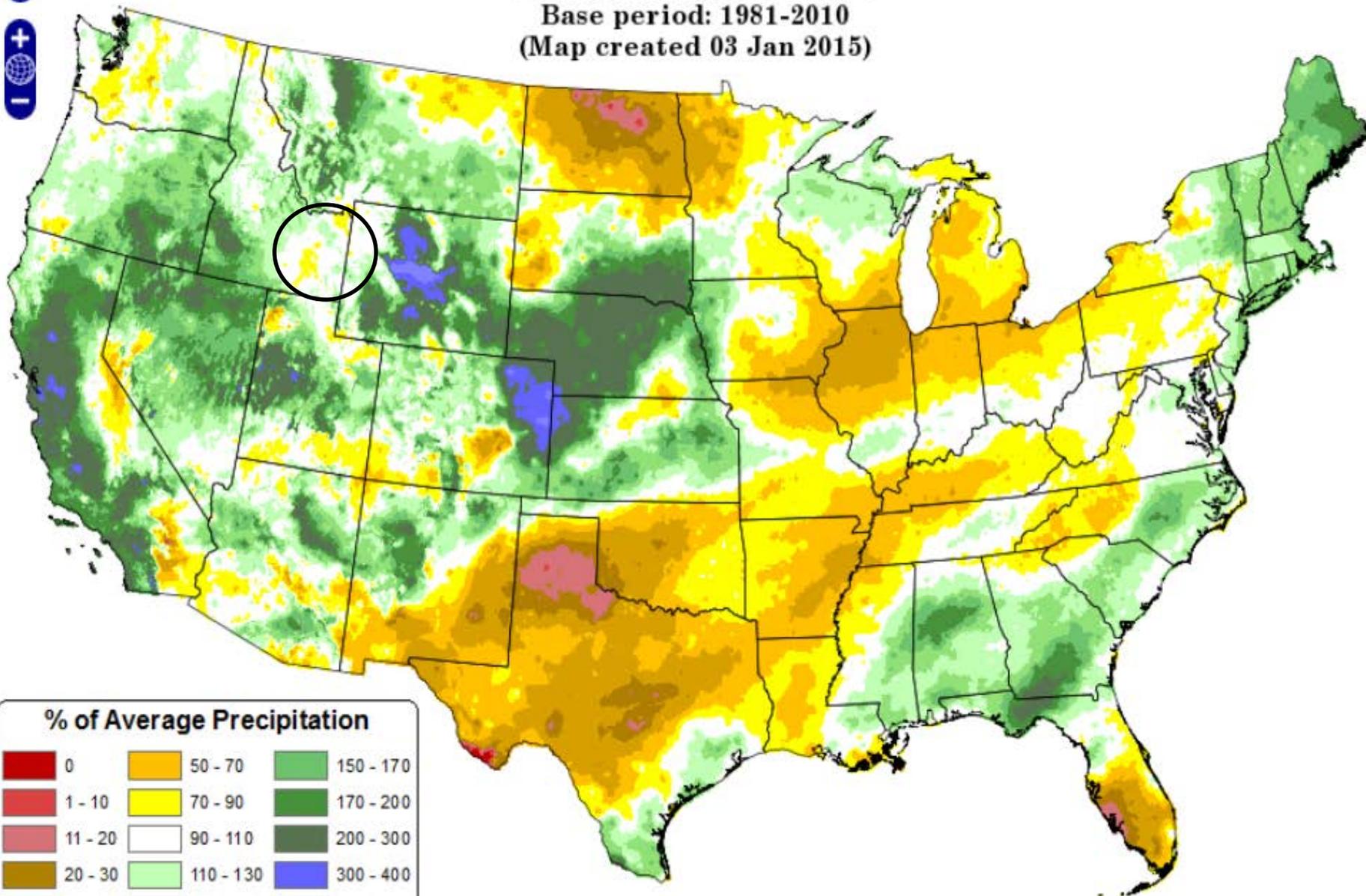


# Total Precipitation Anomaly: December 2014

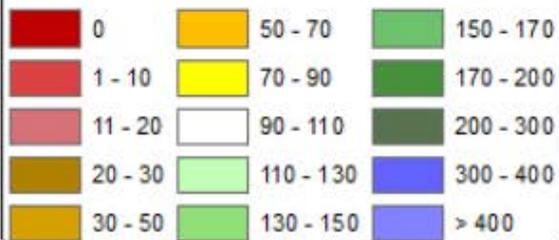
Period ending 31 Dec 2014

Base period: 1981-2010

(Map created 03 Jan 2015)



## % of Average Precipitation

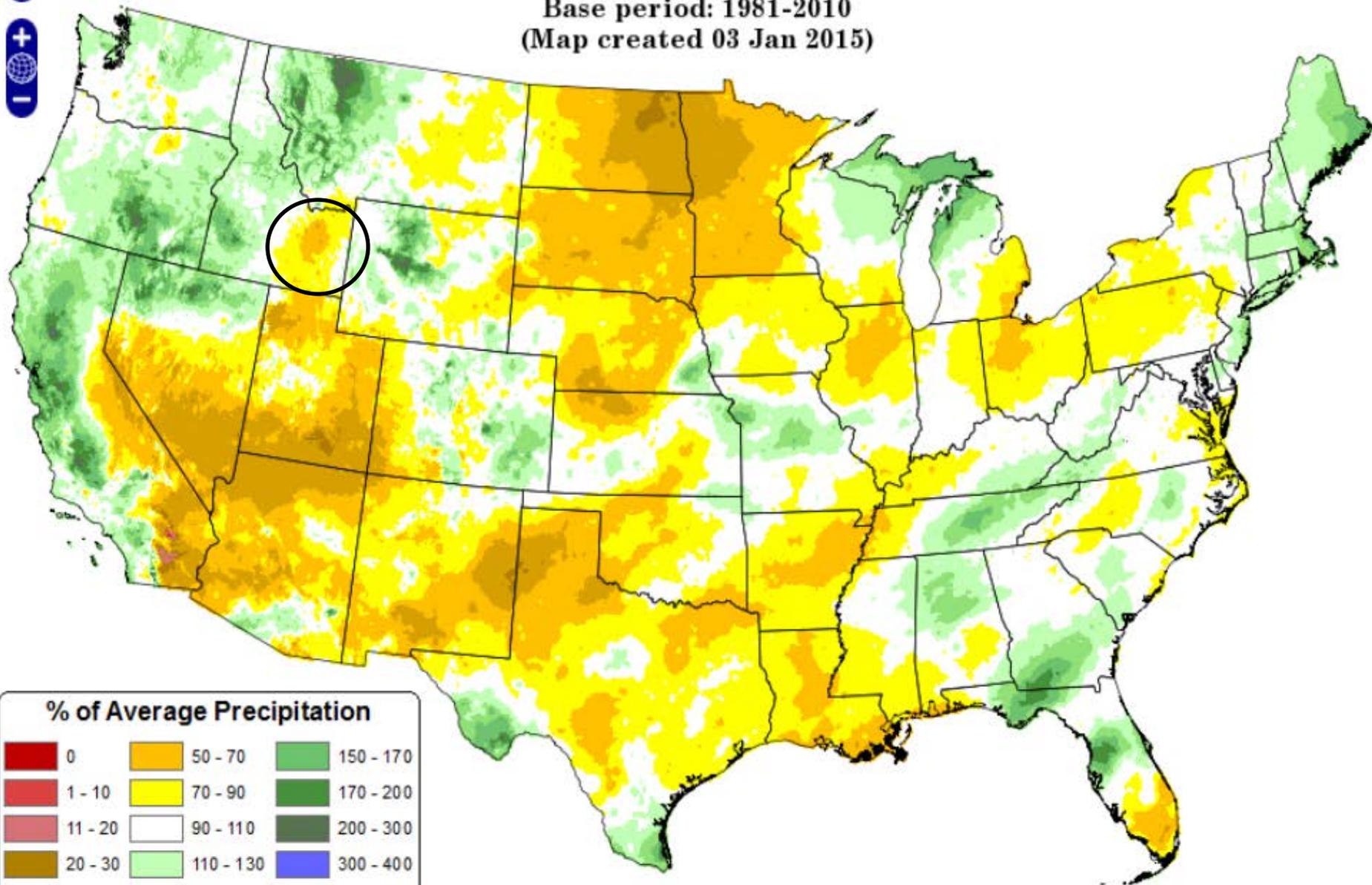


# Total Precipitation Anomaly: October 2014 - December 2014

Period ending 7 AM EST 31 Dec 2014

Base period: 1981-2010

(Map created 03 Jan 2015)

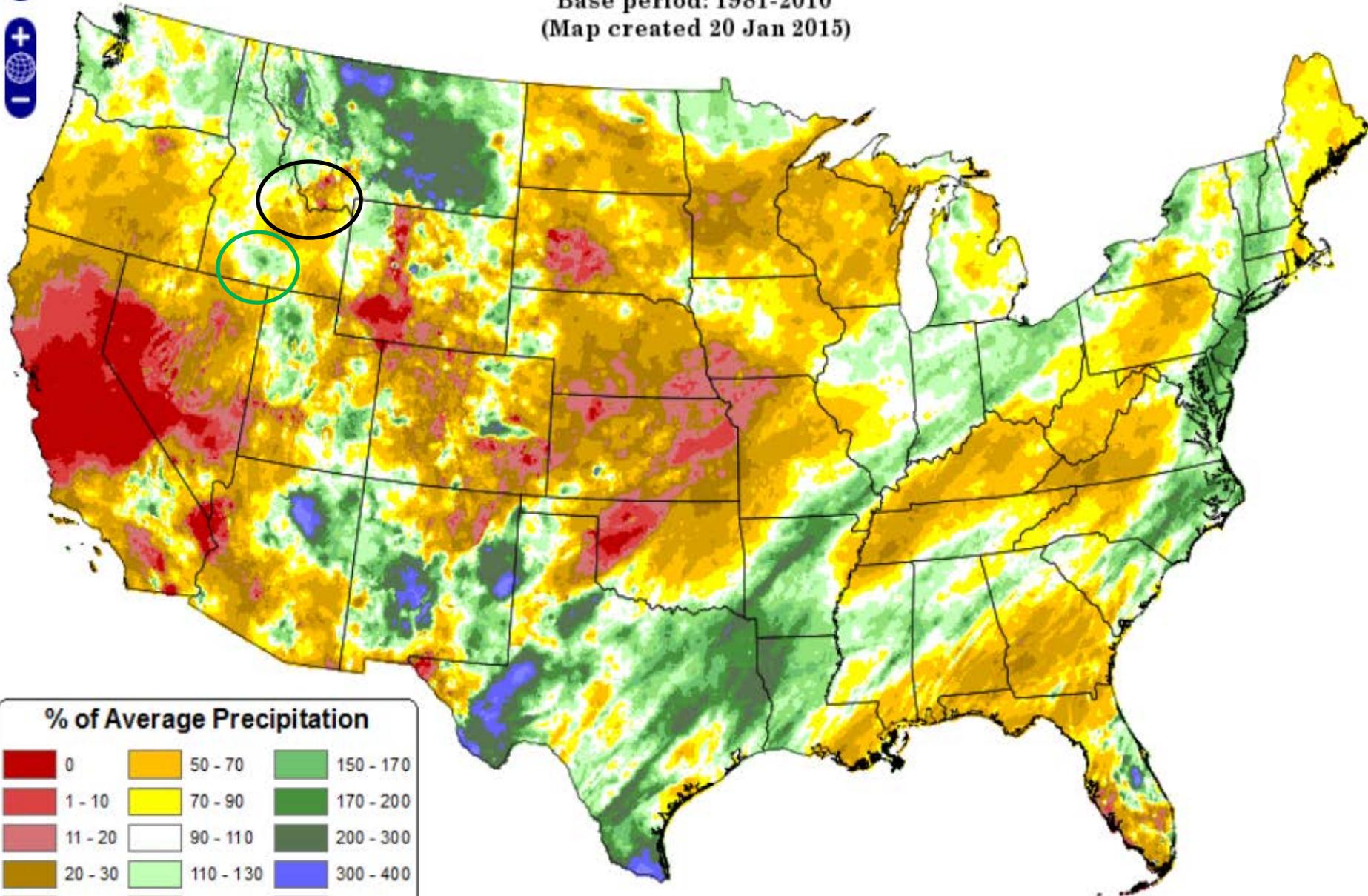


# Total Precipitation Anomaly: 01 January 2015 - 19 January 2015

Period ending 7 AM EST 19 Jan 2015

Base period: 1981-2010

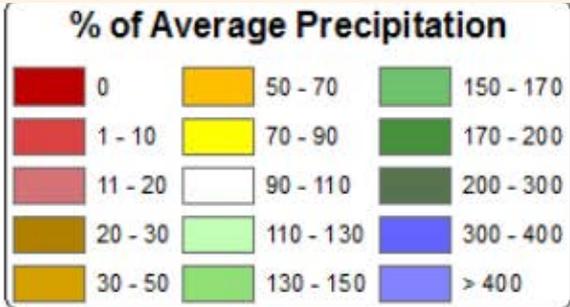
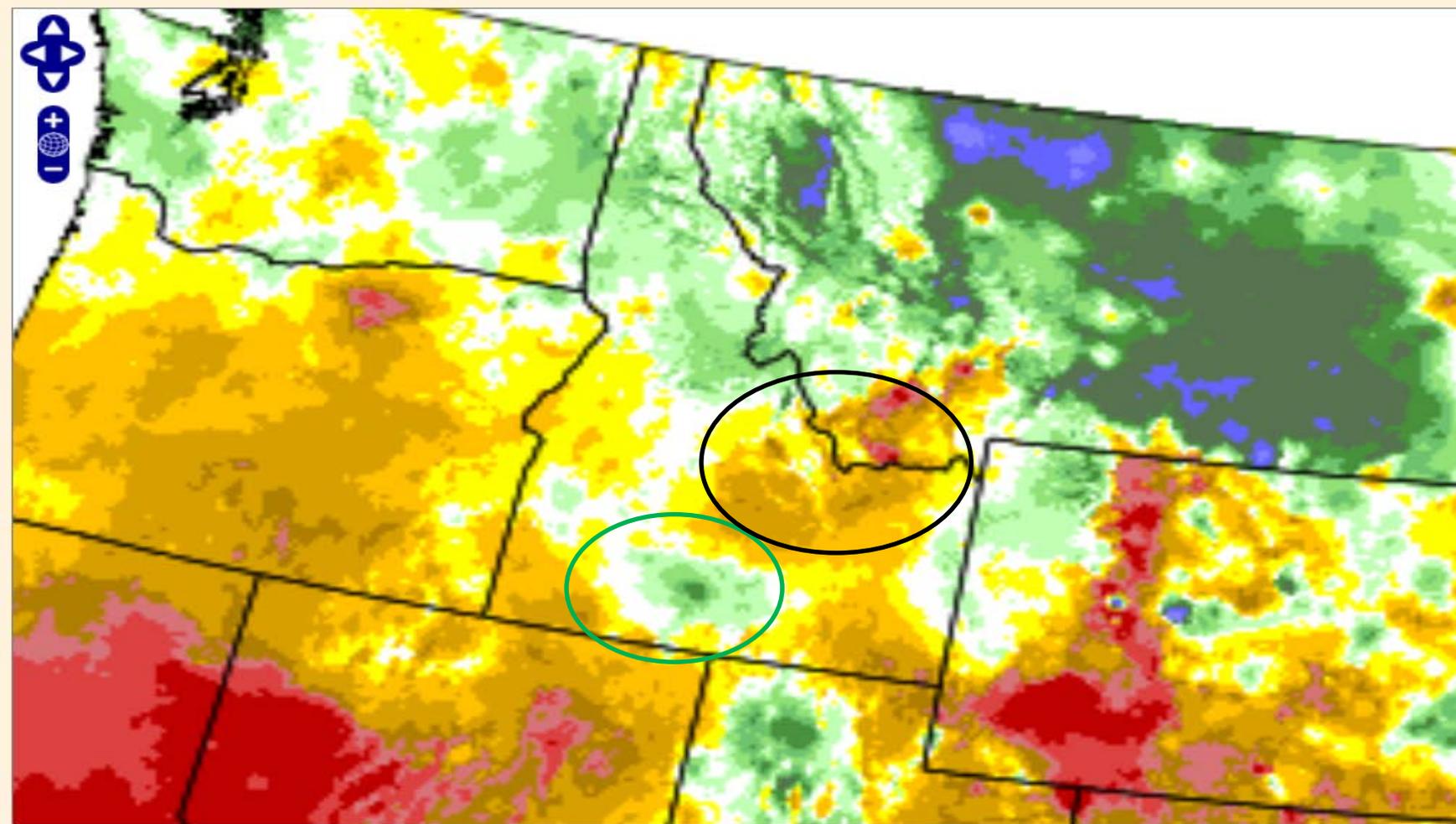
(Map created 20 Jan 2015)

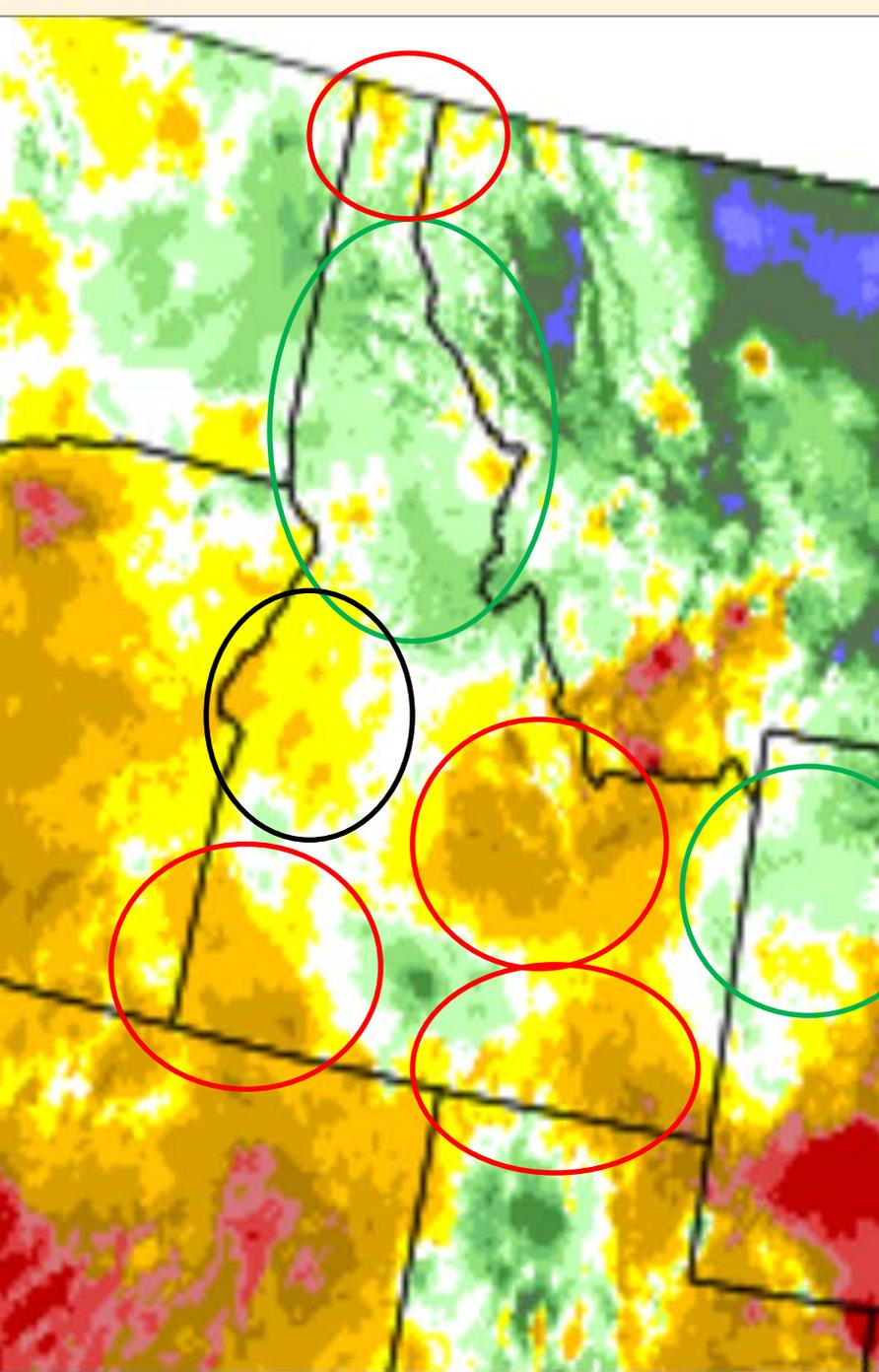


## % of Average Precipitation

0	50 - 70	150 - 170
1 - 10	70 - 90	170 - 200
11 - 20	90 - 110	200 - 300
20 - 30	110 - 130	300 - 400
30 - 50	130 - 150	> 400

# Total Precipitation Anomaly: 01 January 2015 - 19 January 2015





**SNOTEL Precipitation  
Jan 1 - 20 % of Monthly Total**

<b>Panhandle</b>	<b>54%</b>
<b>Spokane, Clearwater, Salmon</b>	<b>65-75%</b>
<b>West Central Mnts, Big Wood</b>	<b>50-60%</b>
<b>Little Wood to Mud Lake</b>	<b>25-50%</b>
<b>Upper Snake</b>	<b>65-70%</b>
<b>Across Southern Idaho</b>	
<b>From low to high</b>	
<b>Owyhee 34%</b>	<b>to Oakley 51%</b>
<b>Bear, Bruneau, Willow,</b>	
<b>Blackfoot, Salmon Falls,</b>	

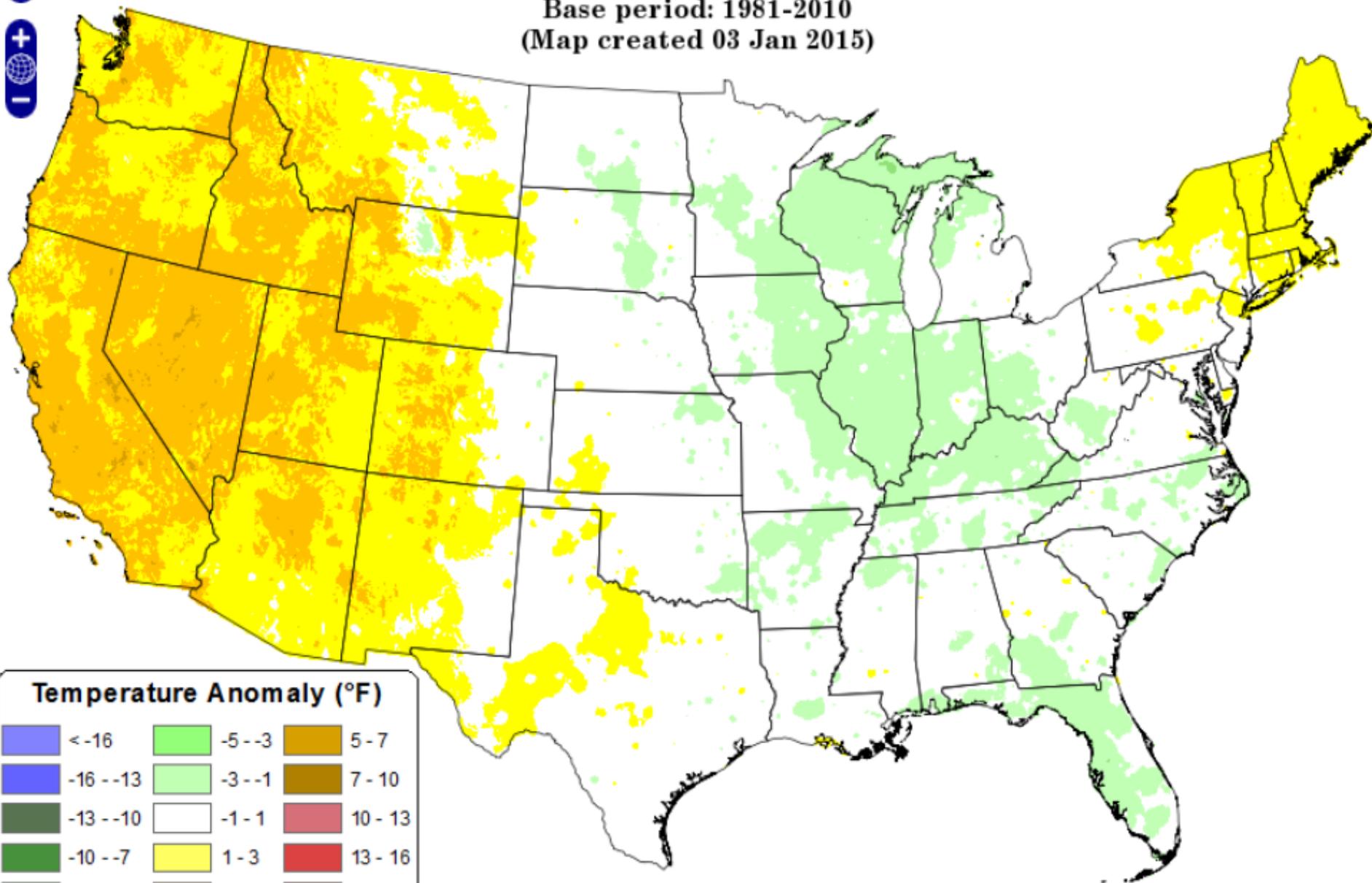


# Daily Mean Temperature Anomaly: October 2014 - December 2014

Period ending 7 AM EST 31 Dec 2014

Base period: 1981-2010

(Map created 03 Jan 2015)



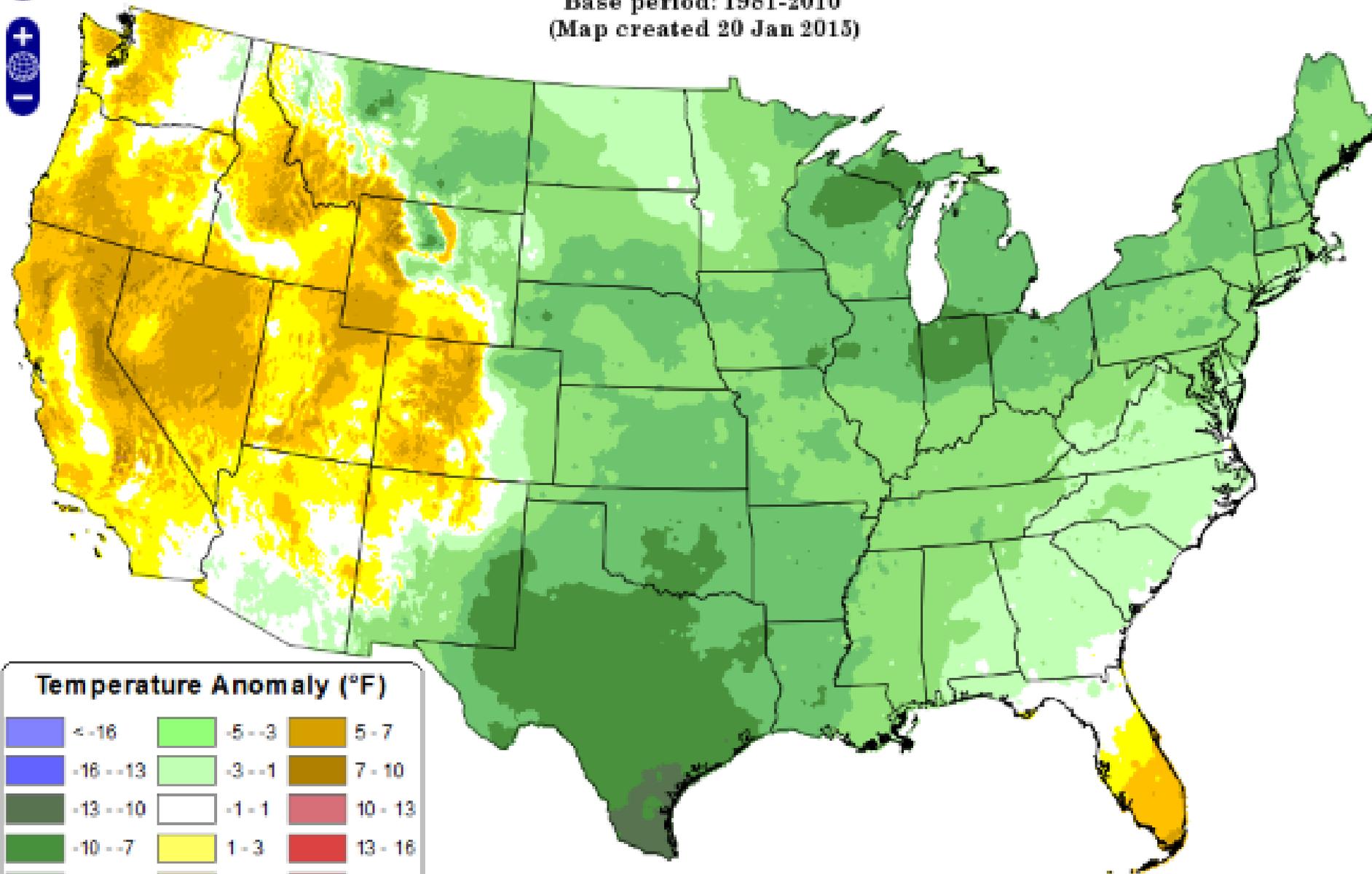


# Daily Mean Temperature Anomaly: 01 January 2015 - 19 January 2015

Period ending 7 AM EST 19 Jan 2015

Base period: 1981-2010

(Map created 20 Jan 2015)



## Temperature Anomaly (°F)

 < -16	 -5 - -3	 5 - 7
 -16 - -13	 -3 - -1	 7 - 10
 -13 - -10	 -1 - 1	 10 - 13
 -10 - -7	 1 - 3	 13 - 16
 -7 - -5	 3 - 5	 > 16

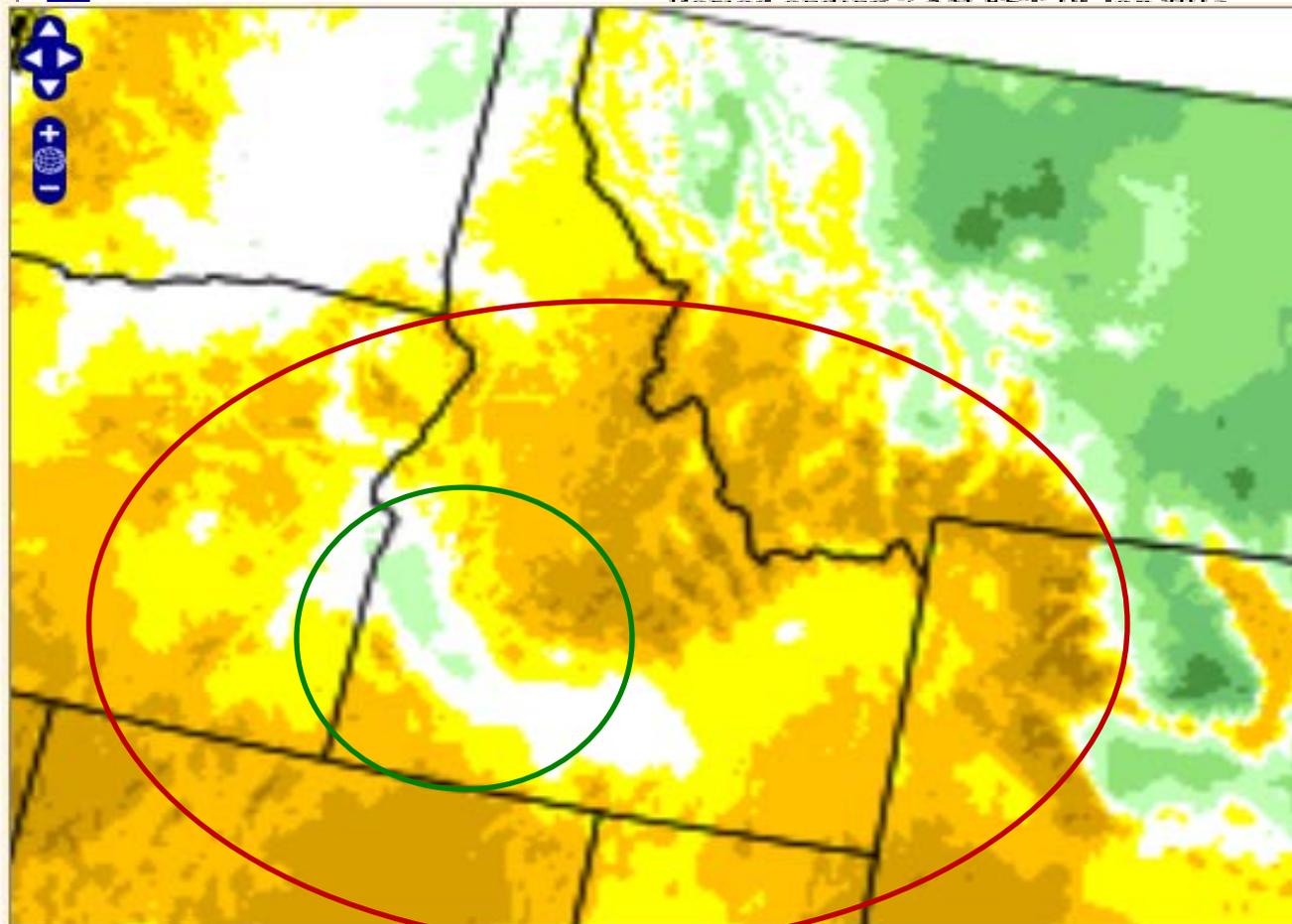


# Daily Mean Temperature Anomaly: 01 January 2015 - 19 January 2015

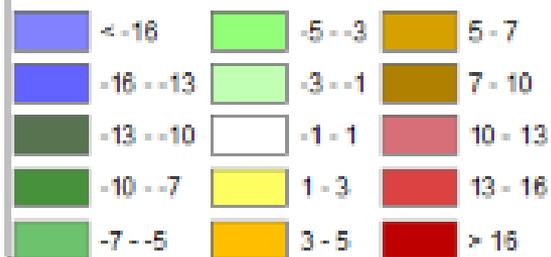
Revised online 24 January 2015, 10:15 AM PST

**Don't let the valley fog fool you... it's warm in those mountains, 3-7 F above normal**

**Snow Densities higher than normal from temps & rain**

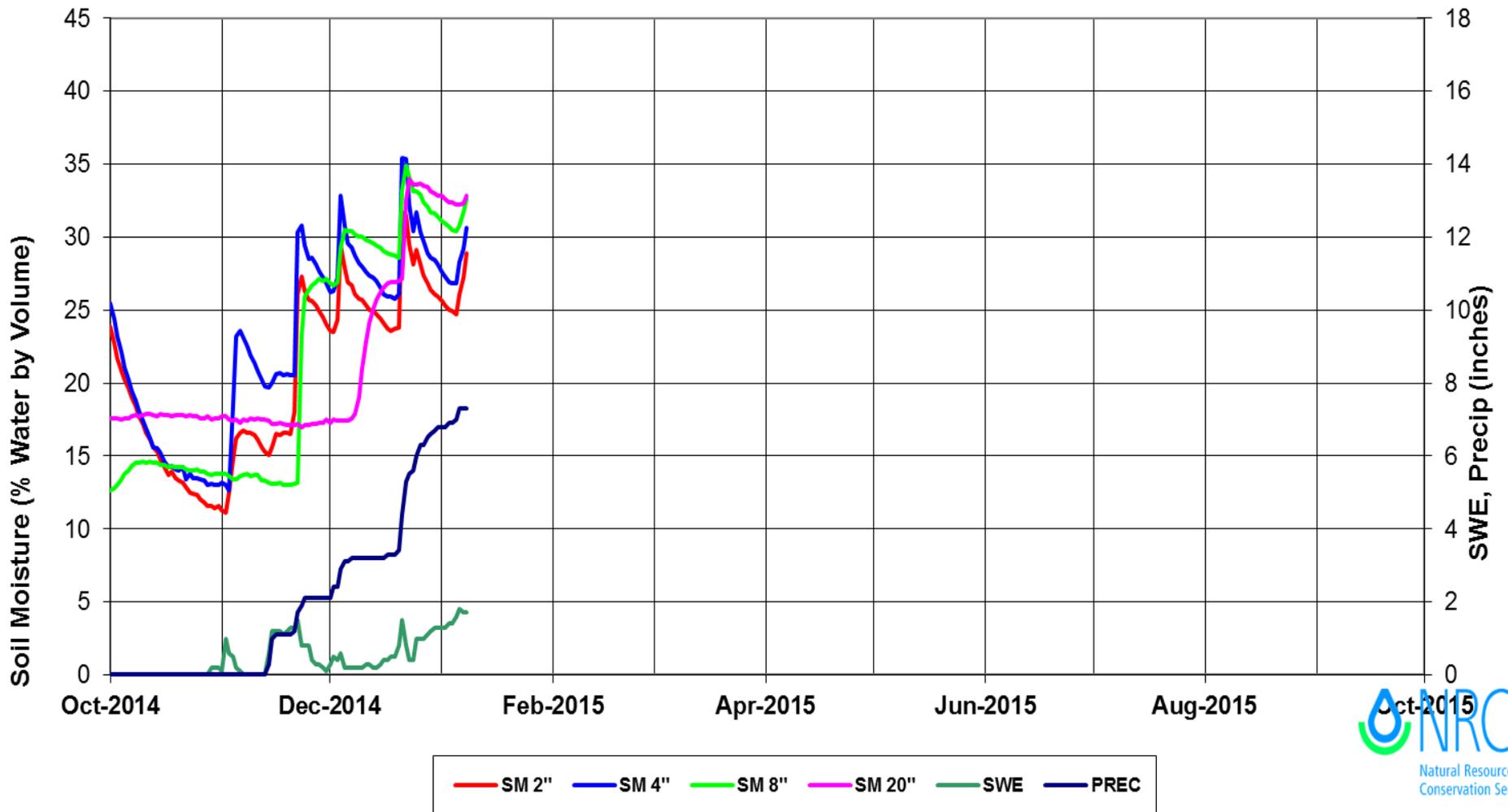


Temperature Anomaly (°F)



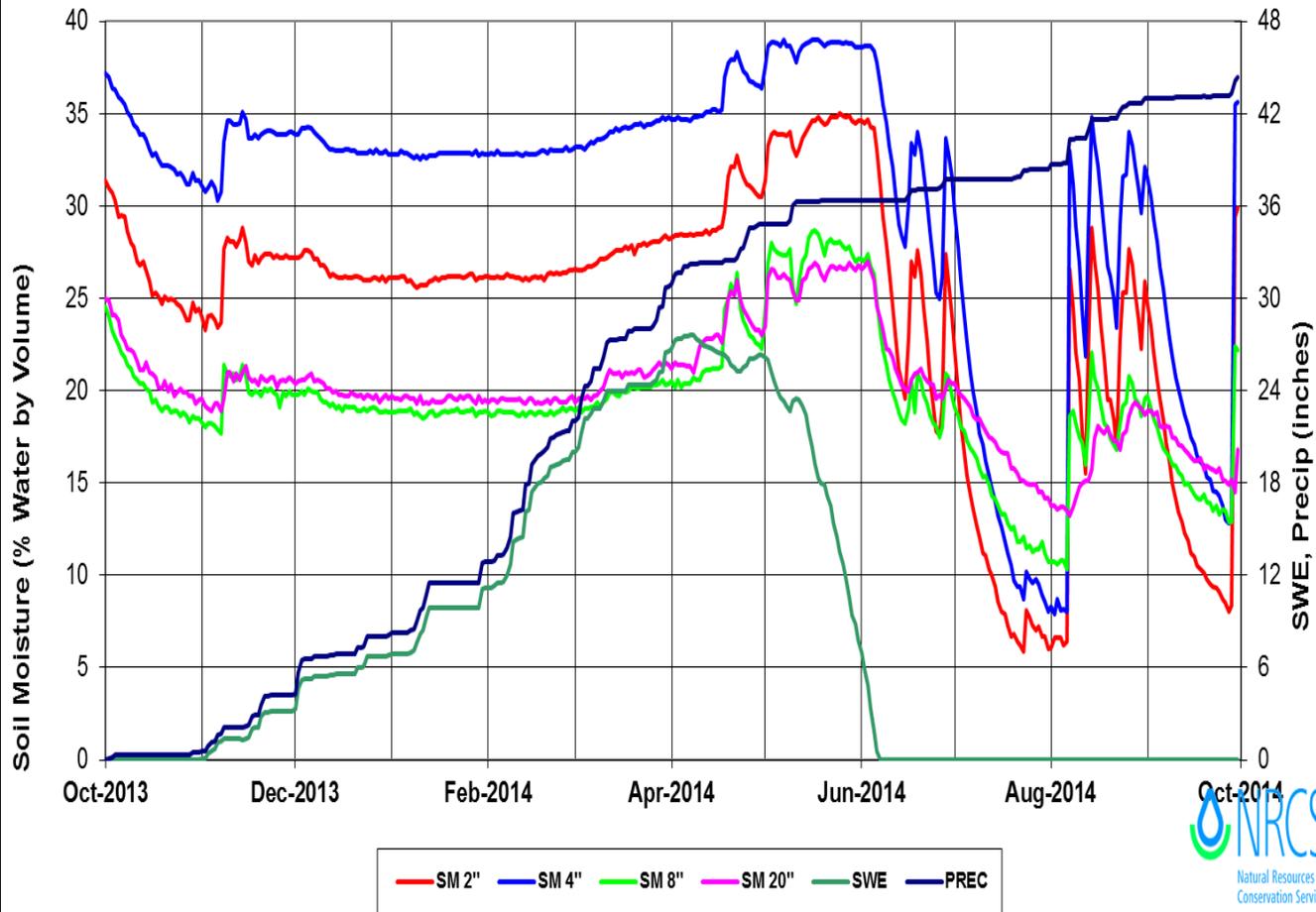
# Some Good News! Soil Moisture Owyhee Basin

## Reynolds Creek Soil Moisture - Water Year 2015

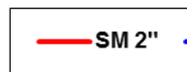
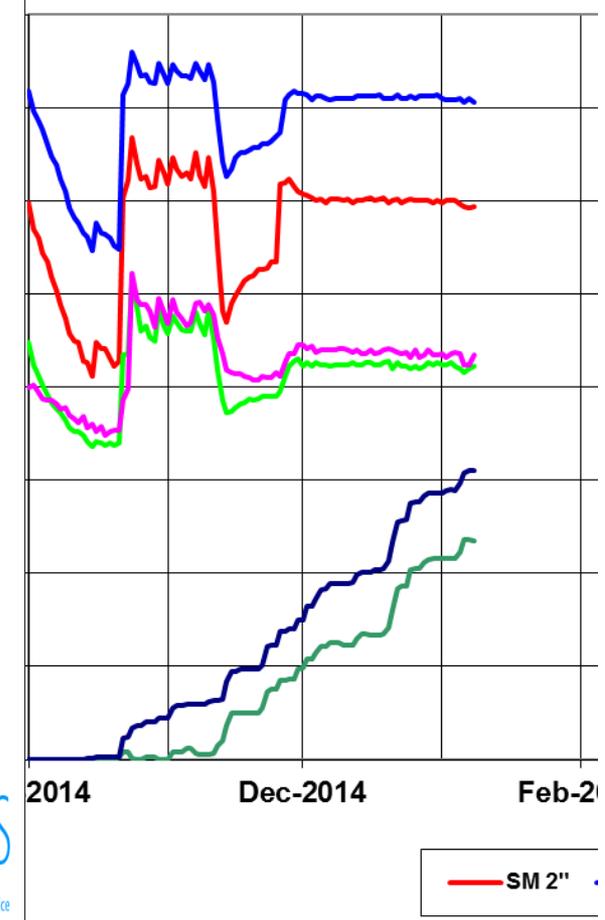


# Soil Moisture Boise Basin

Jackson Peak Soil Moisture - Water Year 2014



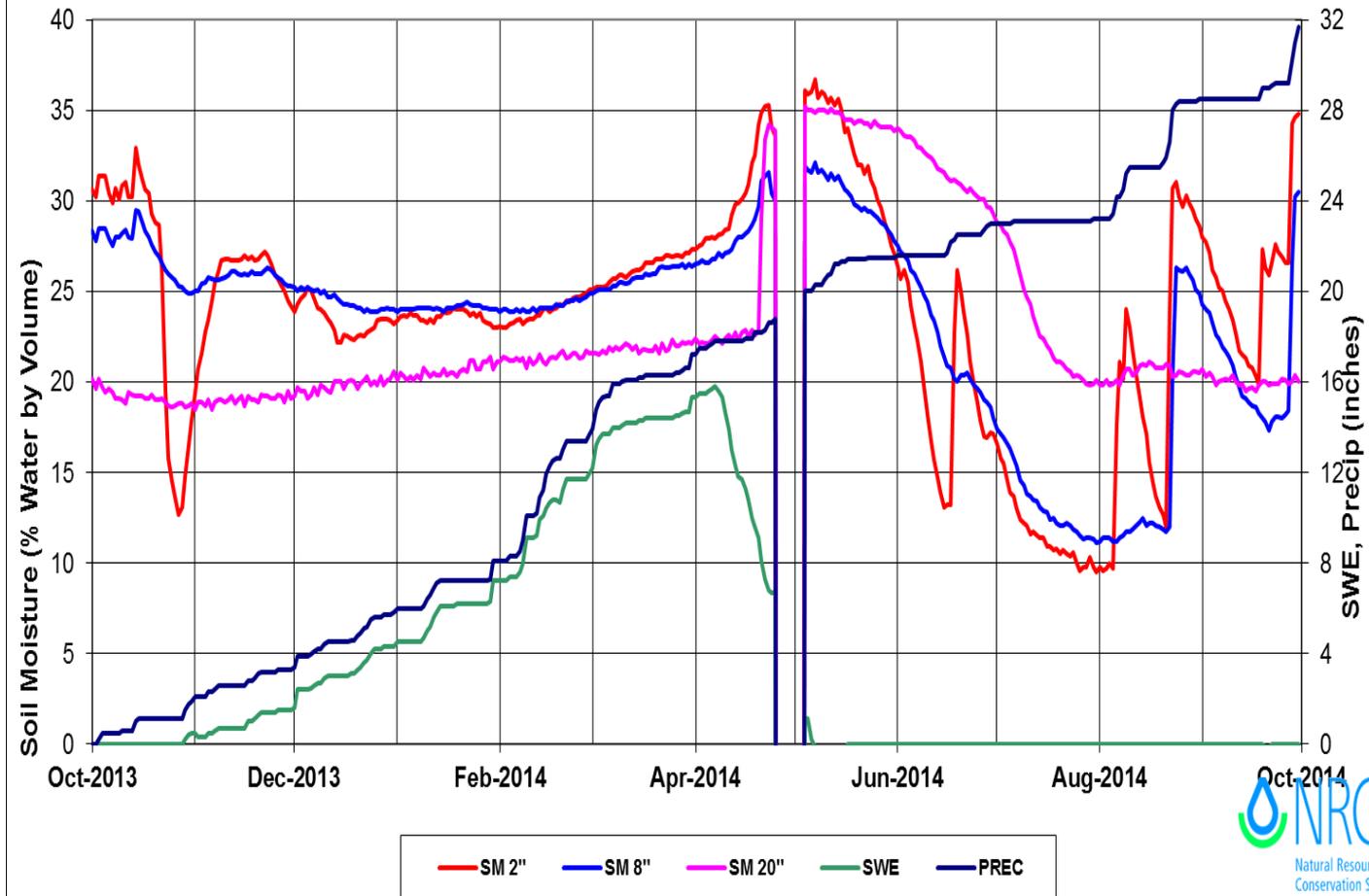
Jackson Peak



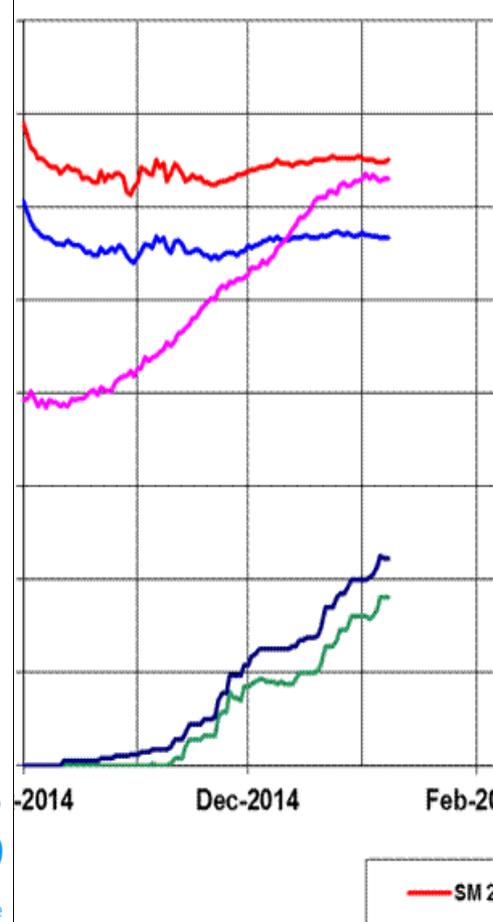
# Soil Moisture

## Eastern Idaho near Grays Lake

Somsen Ranch Soil Moisture - Water Year 2014



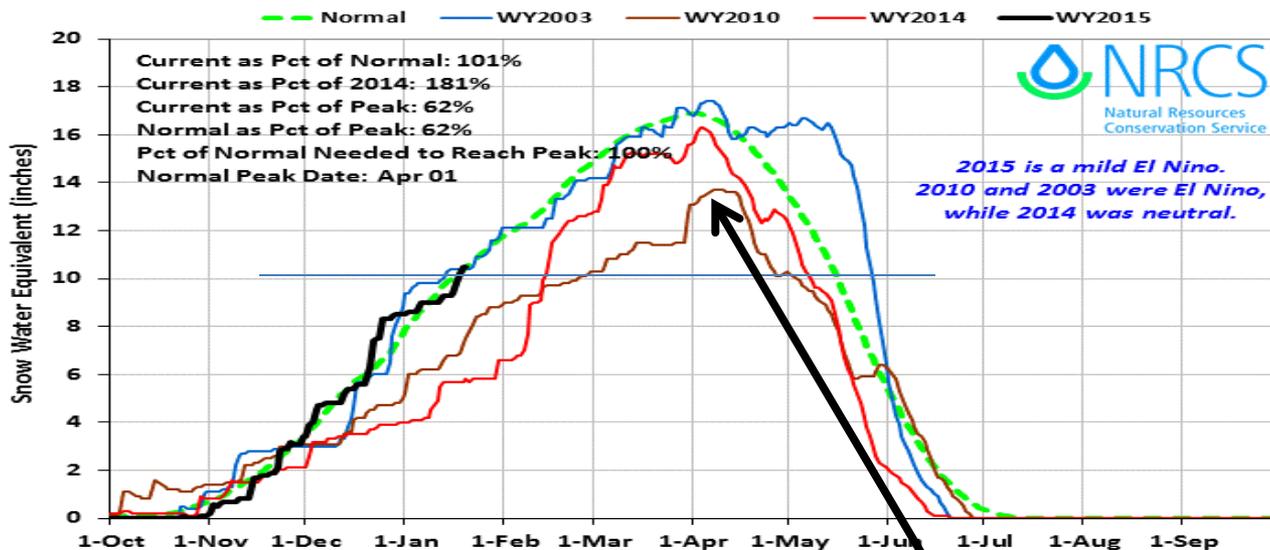
Somsen Ra



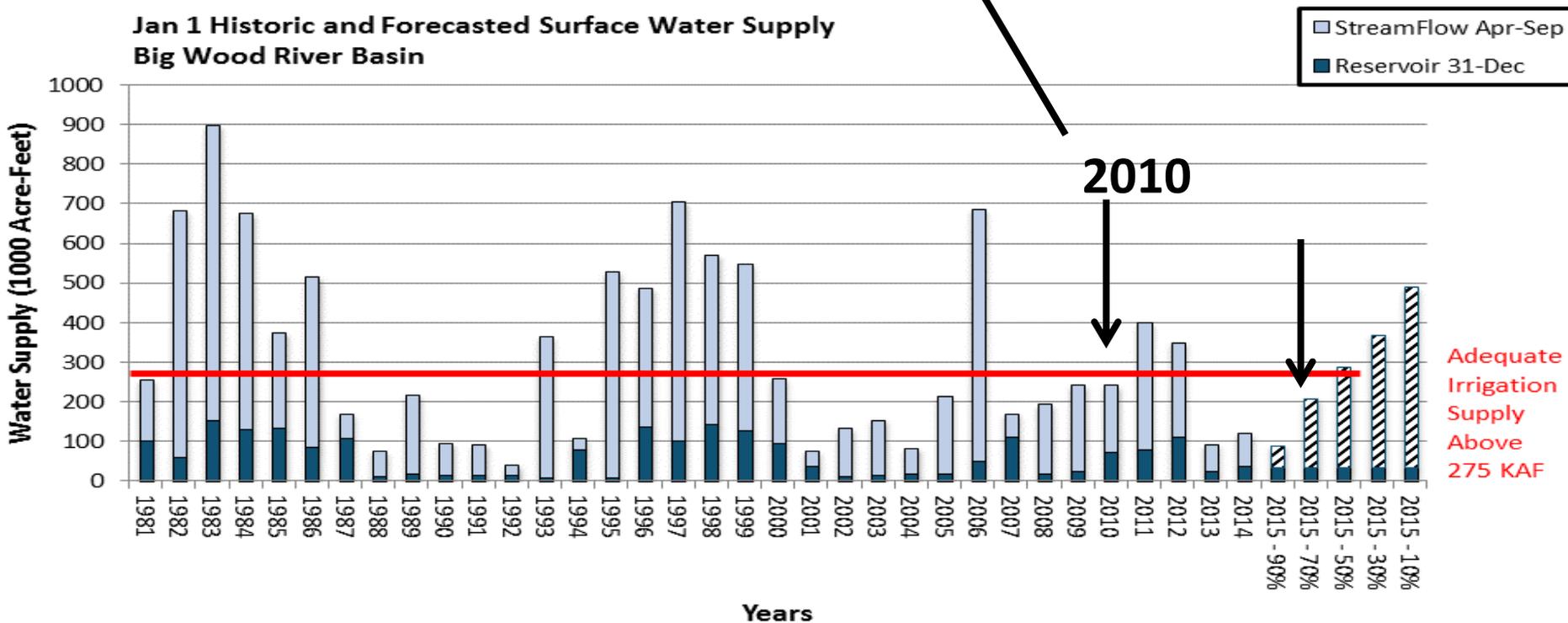


### Big Wood Basin 2015 Snowpack Comparison Graph (9 sites)

Based on Provisional SNOTEL data as of Jan 20, 2015



### Jan 1 Historic and Forecasted Surface Water Supply Big Wood River Basin

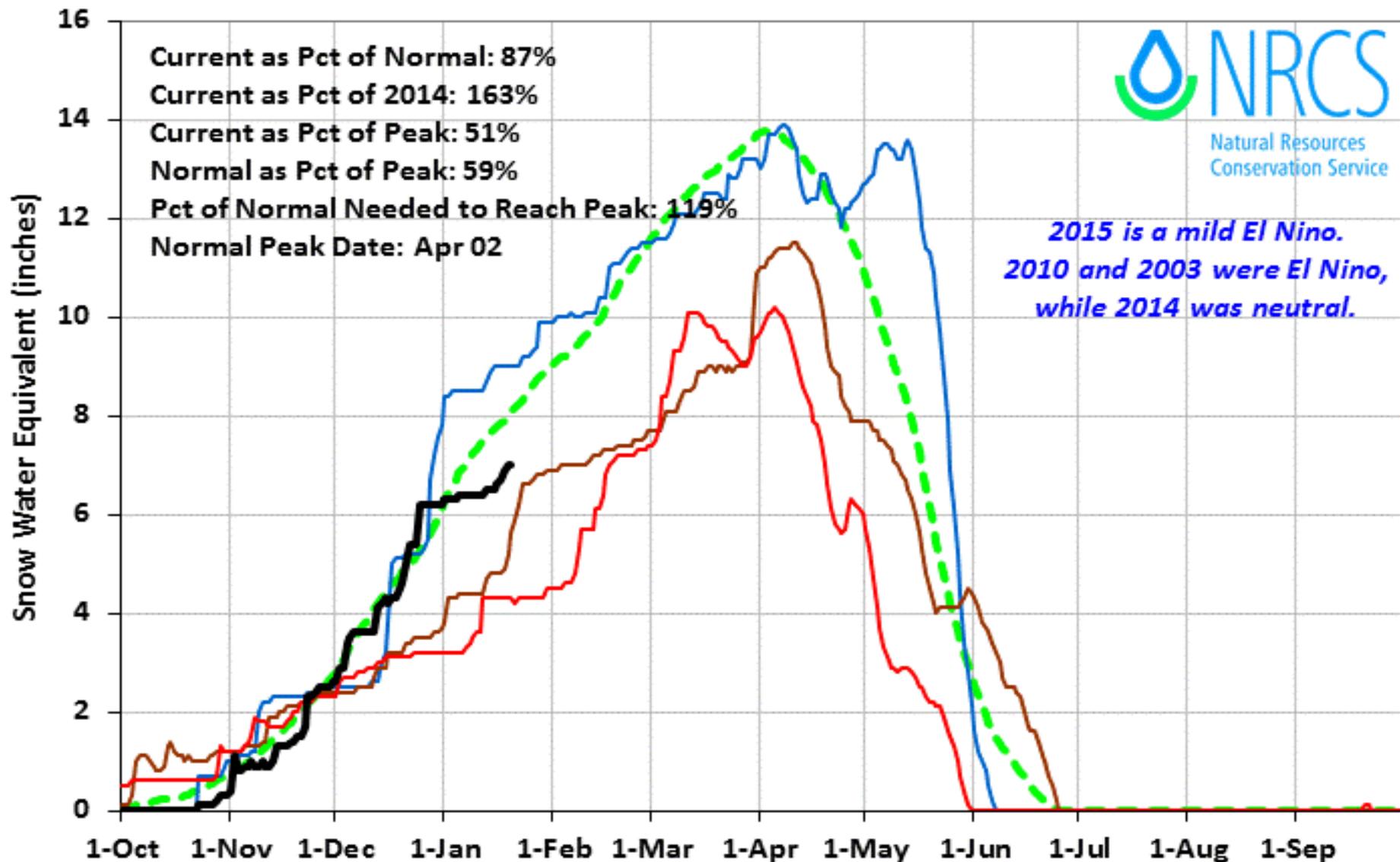




# Little Wood Basin 2015 Snowpack Comparison Graph (5 sites)

Based on Provisional SNOTEL data as of Jan 20, 2015

Normal WY2003 WY2010 WY2014 WY2015

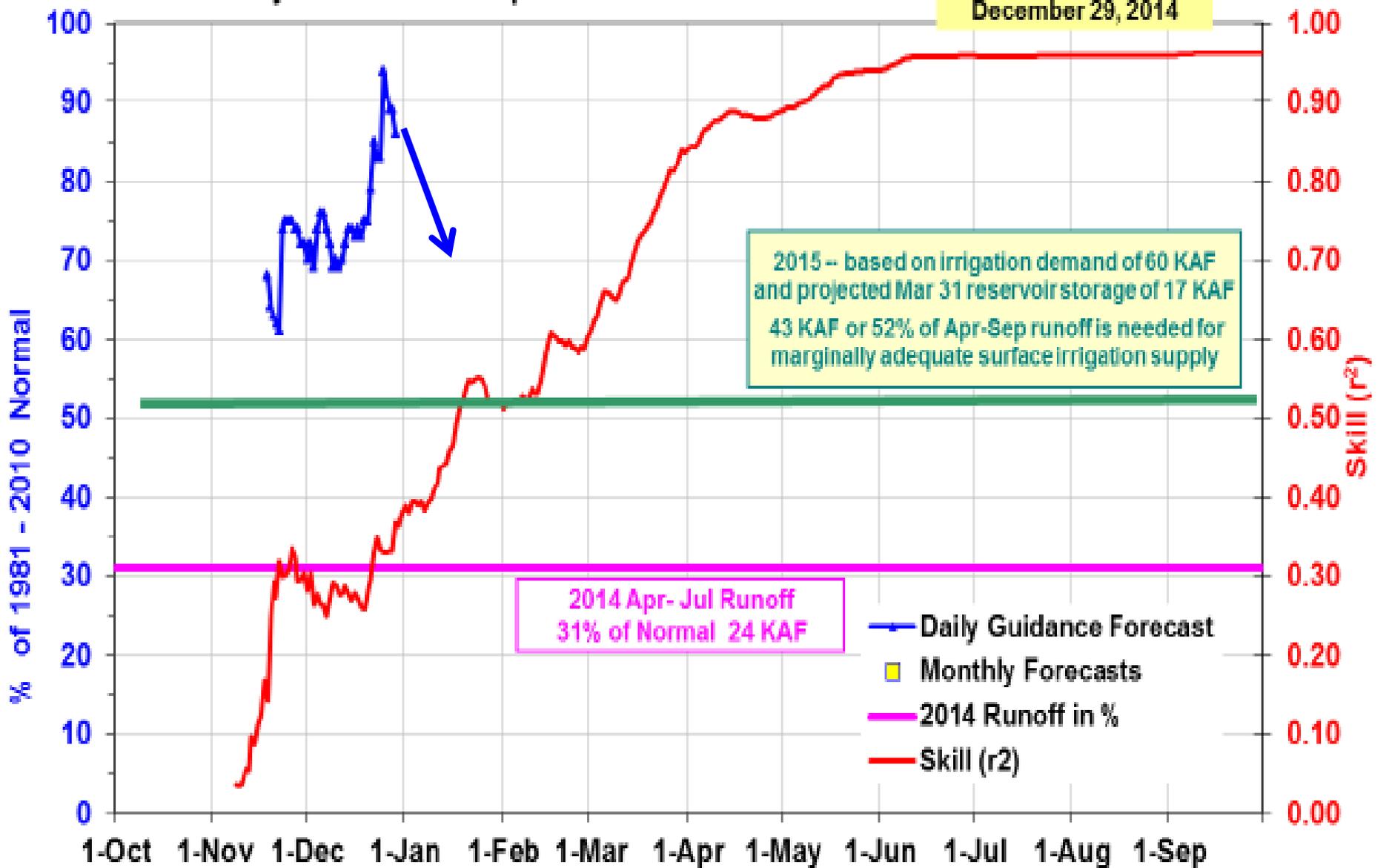


# 2015 Little Wood River near Carey: Apr - Jul Volume

## NRCS Monthly Forecasts are Squares

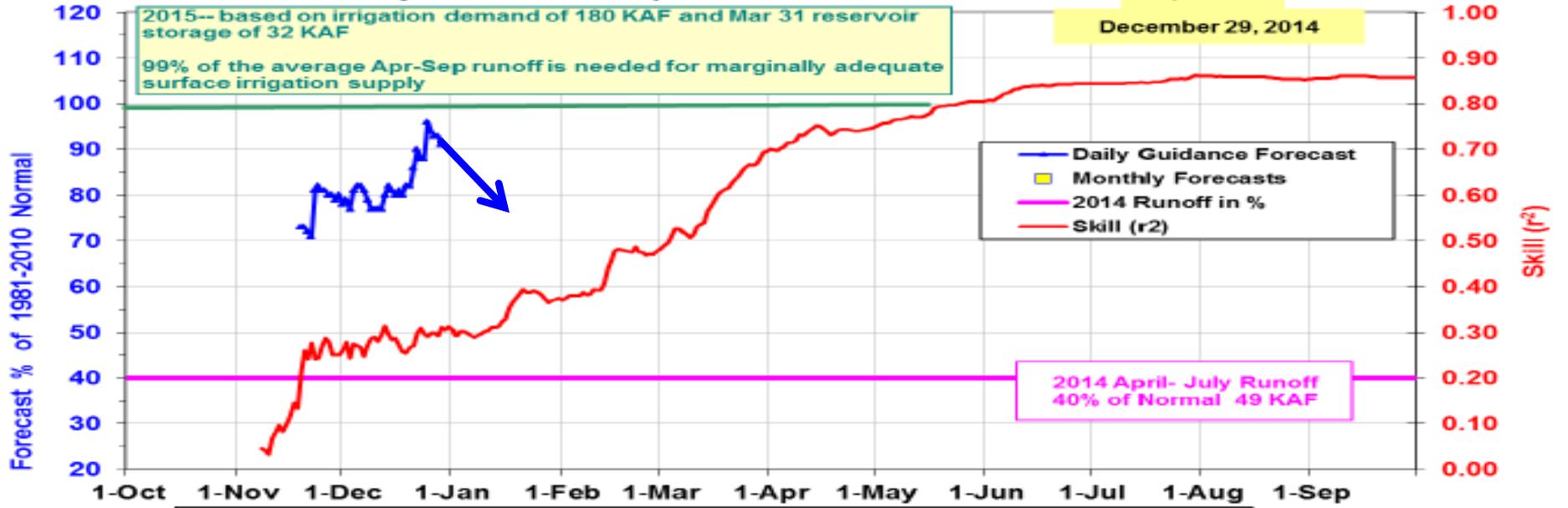


Updated  
December 29, 2014

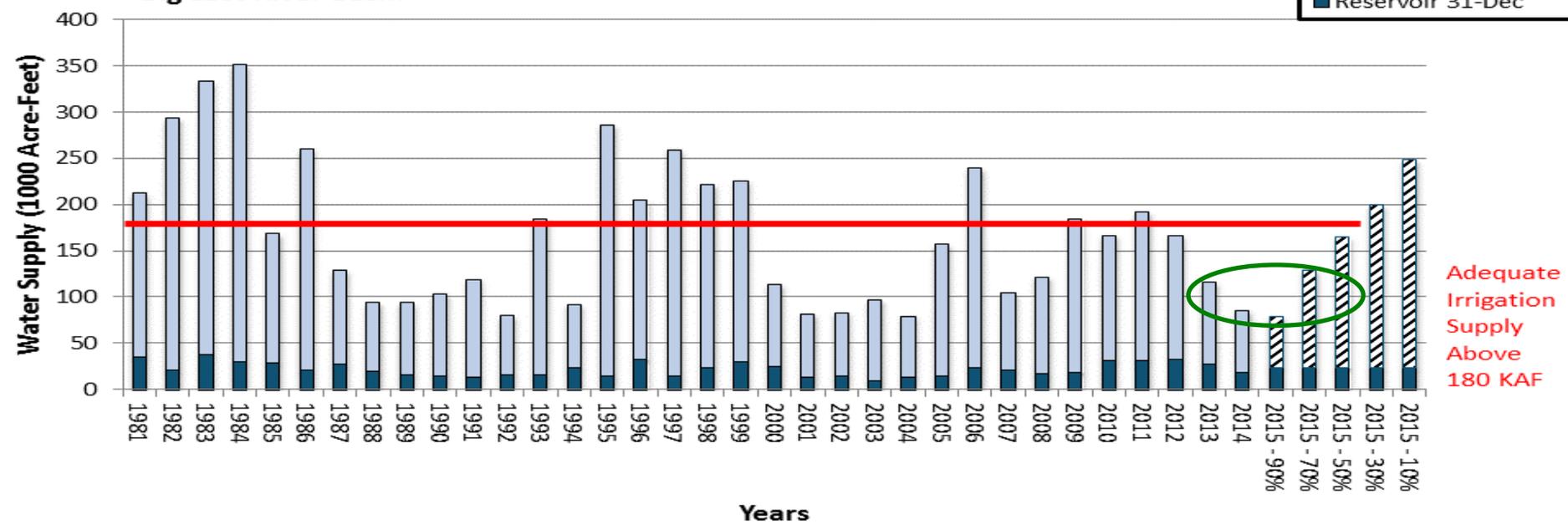


SNOTEL Sites used: Swede Peak, Garfiled RS, Hyndman, Lost-Wood Divide, Bear Canyon

**2015 Big Lost River below Mackay Resv: Apr-Jul Percent of Normal  
NRCS Monthly Forecasts are Squares**

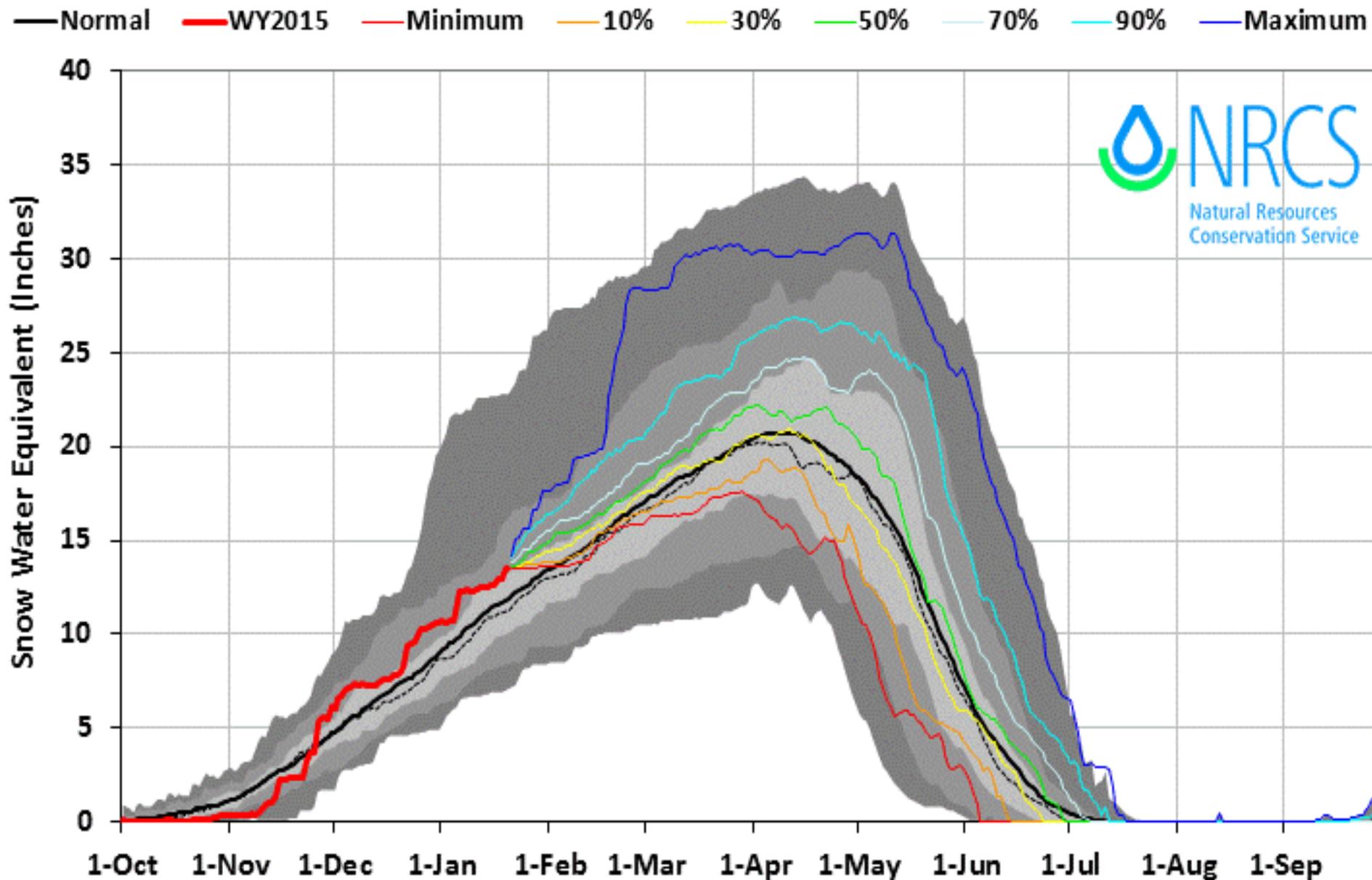


**Jan 1 Historic and Forecasted Surface Water Supply  
Big Lost River Basin**



# Snake Basin above Palisades 2015 Snow Water with Non-Exceedence Projections (18 sites)

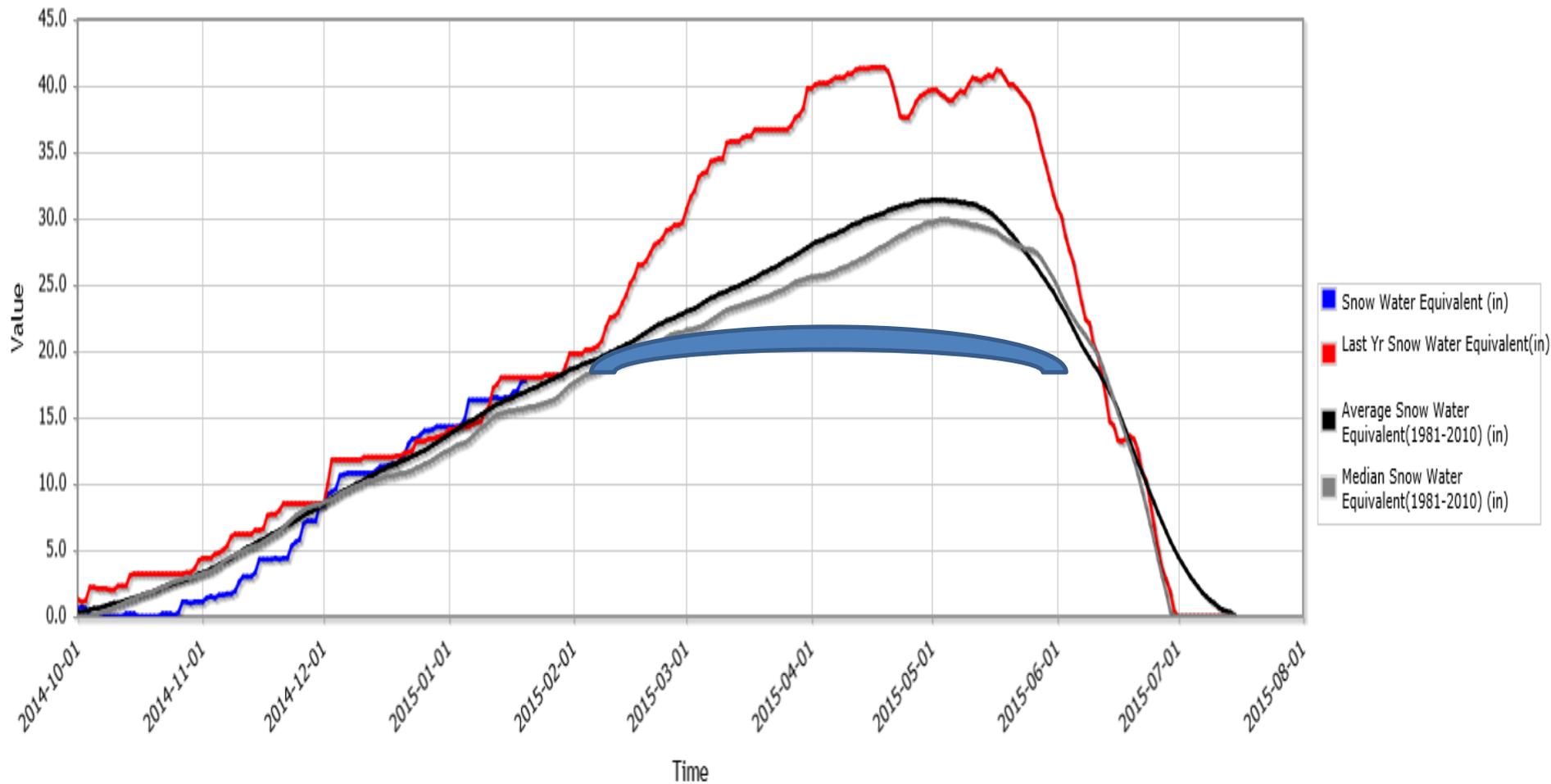
*Based on Provisional SNOTEL data as of Jan 20, 2015*

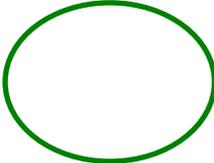


**A riddle: What used to take 2 people, half a day & helicopter....  
now takes 2 people, 5 days & a pack of horses.**

**Pack-in 12 gallons of recharge & Pack-out 40 - 50 gallons out?**

Two Ocean Plateau (837) Wyoming SNOTEL Site - 9240 ft

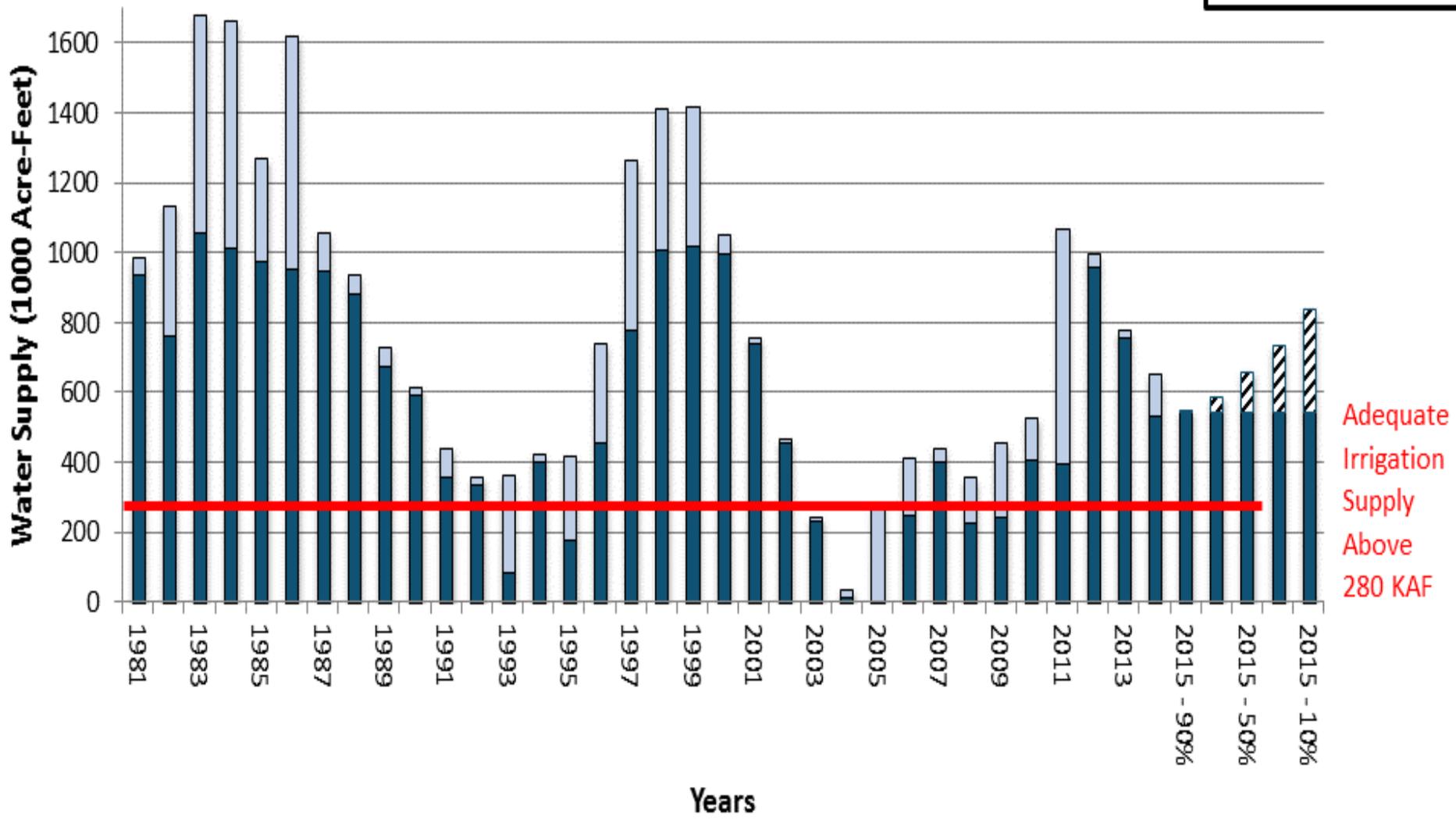




**Note: Bear Lake Capacity does not include 119 KAF of inactive storage that can be released (2003 & 1930s). Values below the active storage level are rounded up zero.**

**Jan 1 Historic and Forecasted Surface Water Supply  
Bear River Basin**

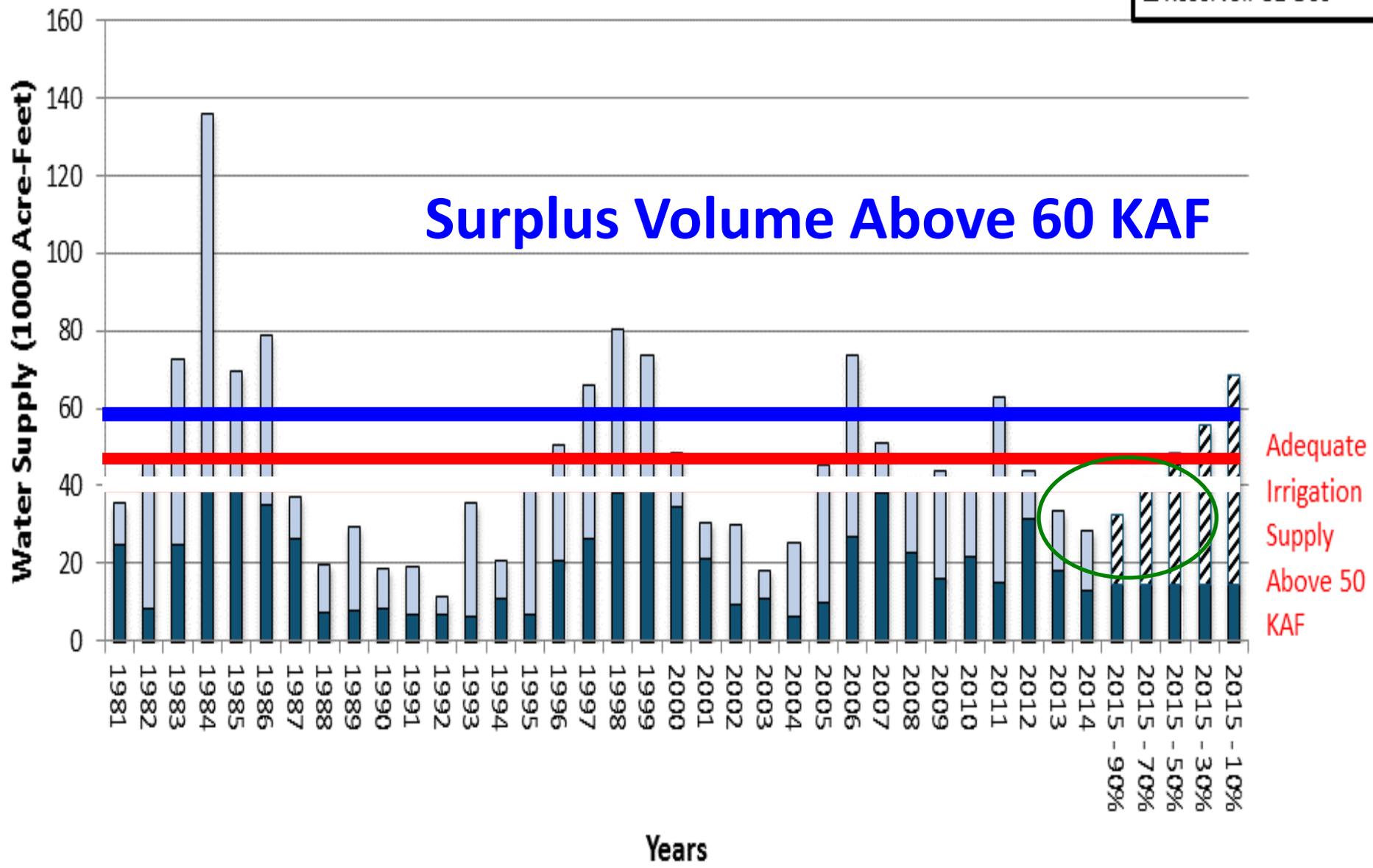
StreamFlow Apr-Sep  
 Reservoir 31-Dec



Adequate  
Irrigation  
Supply  
Above  
280 KAF

# Jan 1 Historic and Forecasted Surface Water Supply Oakley Basin

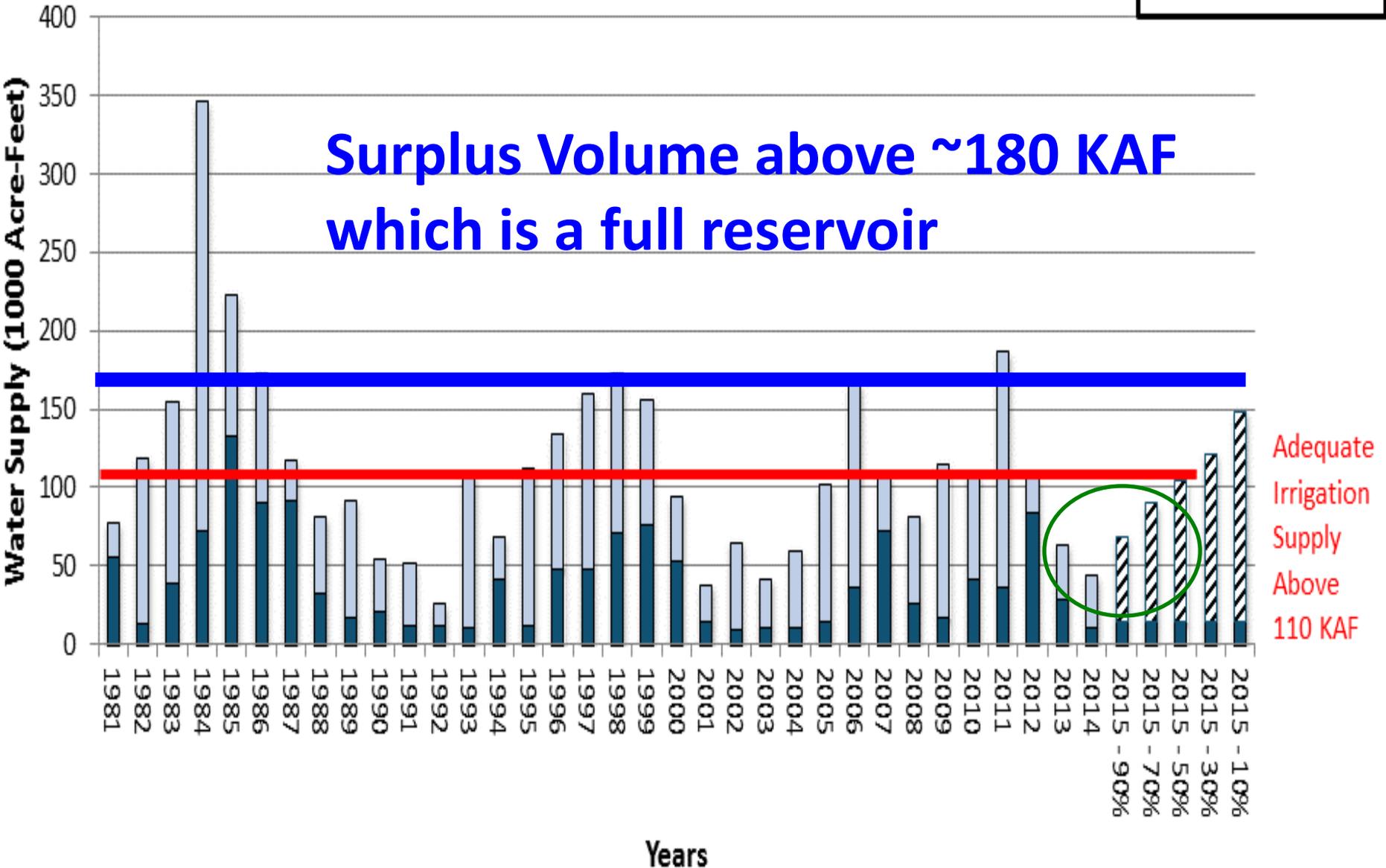
StreamFlow Mar-Sep  
 Reservoir 31-Dec



Adequate  
Irrigation  
Supply  
Above 50  
KAF

# Jan 1 Historic and Forecasted Surface Water Supply Salmon Falls Creek Basin

StreamFlow Mar-Sep  
 Reservoir 31-Dec



**April 18, 2014 Molas Pass  
10,910 feet in southwest Colorado  
San Juan Mountains  
Questions – after Mike & Brian**



MOLAS PASS  
SUMMIT  
ELEV 10910 FT