

Weather and Water Outlook

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Reno National Weather Service
Forecasting for the Sierra and western Nevada since 1905



Weather Outlook – “30,000 Foot View”

- A colder and wetter period likely mid-month (~14th -20th).
 - More significant snowfall totals possible
- No atmospheric rivers signal through next 10 day +
- Drier again last 1/3rd of January?

Situational Awareness - When Should I Freak Out?

NWS Reno 7-14 Day Scan for Unusual Upcoming Weather across the Eastern Sierra and Western Nevada

	Thurs ^{1/9}	Fri ^{1/10}	Sat ^{1/11}	Sun ^{1/12}	Mon ^{1/13}	Tues ^{1/14}	Wed ^{1/15}	W2 ^{1/16-22}
Wind	Cool NW winds but nothing overly strong.	Round of stronger SW winds Friday evening through Saturday morning. Could see road impacts mountain areas, Hwy 395 corridor. Rough air for flying.		Nothing remarkable. Enjoy.	Potential for stronger SW winds areawide Mon PM into Tues AM with road and air impacts possible. Possibly more substantial than Sat AM wind.		Blustery but nothing excessive.	Potential for stronger cold storms. Thurs-Fri bears watching for wind, snow impacts areawide. Weaker storms maybe into MLK holiday but much less certain.
Snow	Snow showers fading this morning.	Looking dry.	Ligh snow showers possible just about anywhere. Sierra pass impacts.	Snow showers, mainly far NE Cal and N Sierra. Poss pass impacts late Sun eve.	Potential stronger cold storm with snow Mon into Tues. Could come in pieces and not looking as widespread as before. Confidence remains below normal.		A lull.	
Flooding	No monster atmospheric rivers on the horizon.							
Unusual Cold or Heat	Seasonable temperatures. Some day to day variation. Fri + Mon could be "mild".					Turning colder but not tremendously.		Favoring below normal temperatures.
Ventilation, Fog	Multiple weak-moderate storm systems will keep things mixed - ventilation shouldn't be a problem.							

What Does This Mean?
Integrates impacts and confidence

No worries



Low freakoutness



Moderate freakoutness



High freakoutness



Really bad

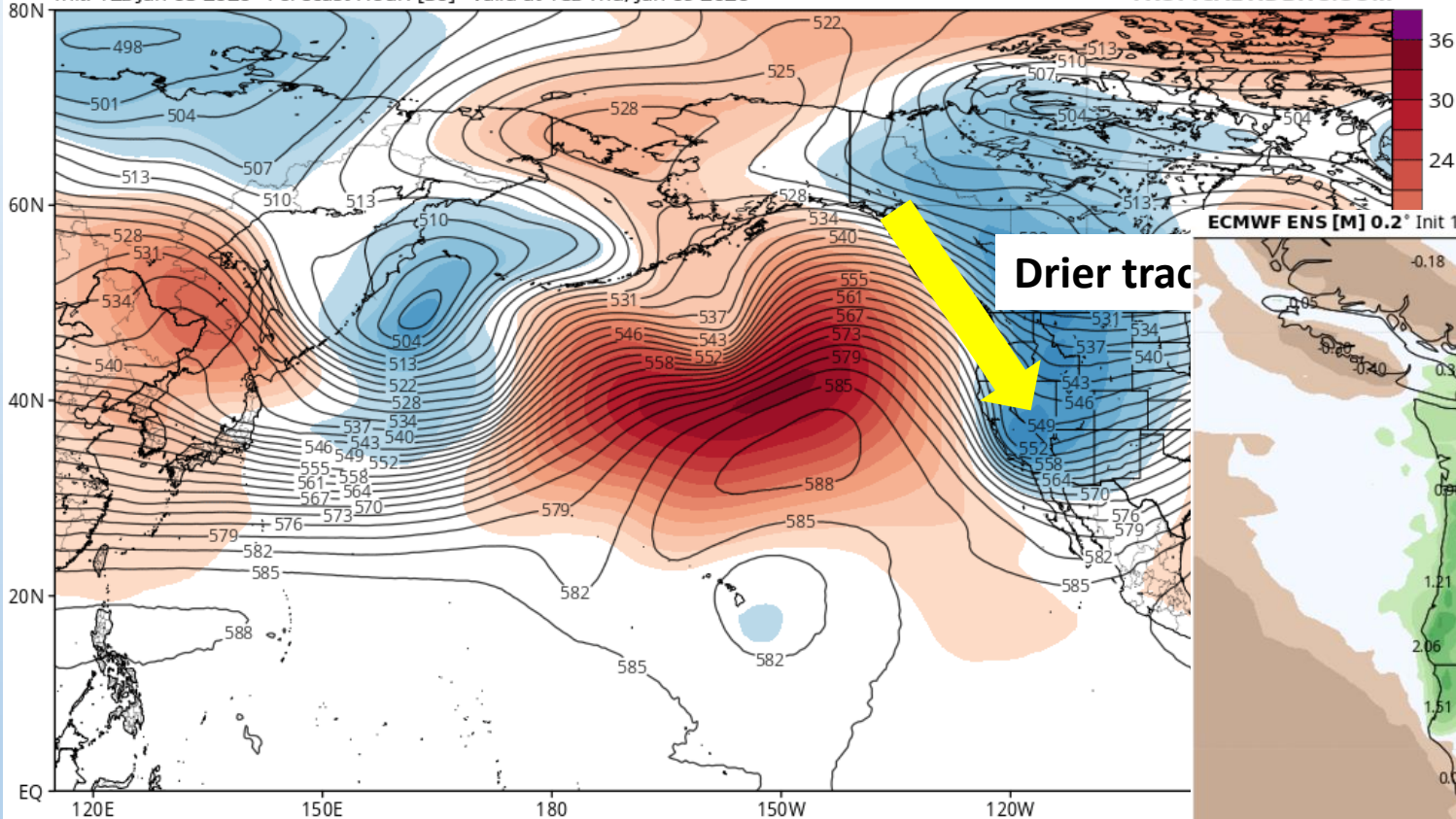


Current Pattern

GEPS 500mb Geopotential Height & Anomaly (dam) (based on CFSR 1981-2010 Climatology)

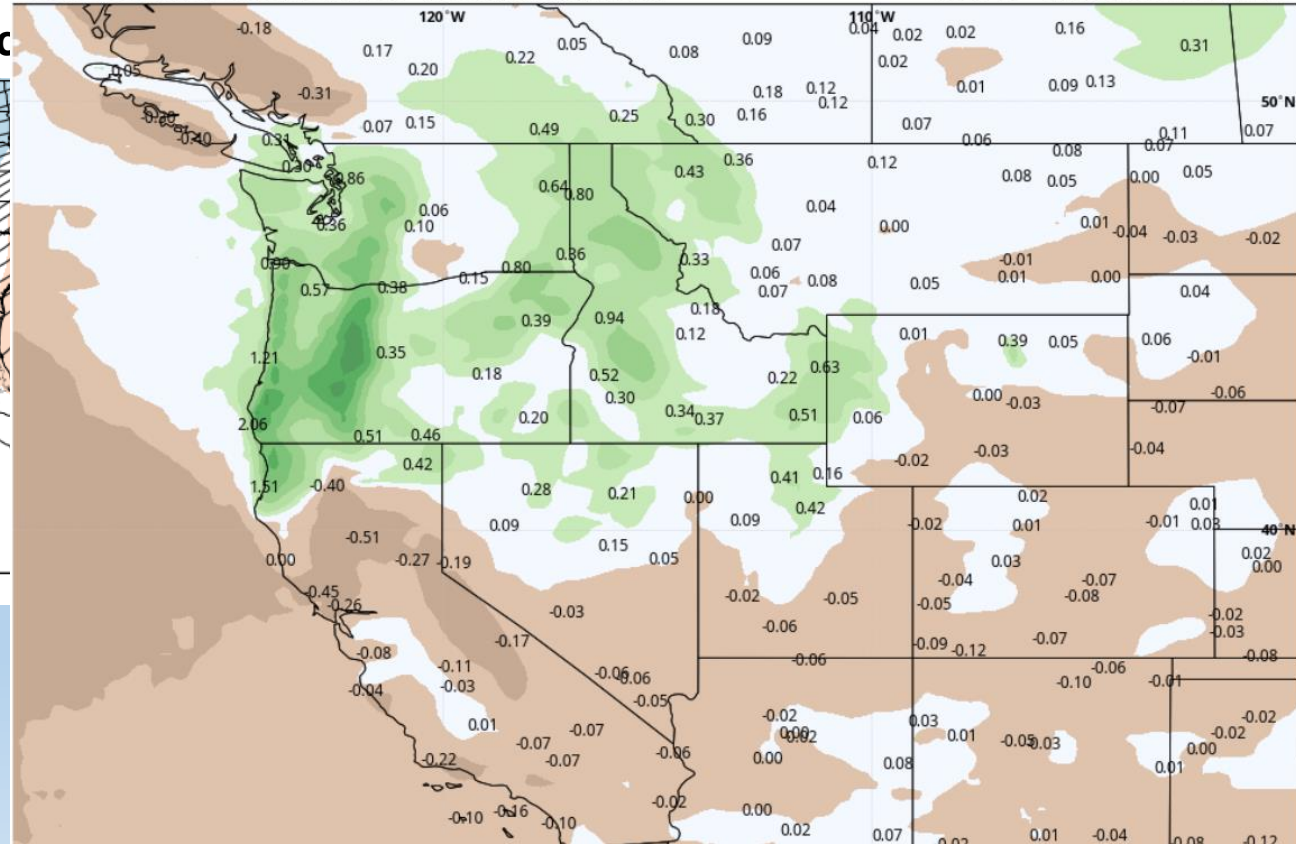
Init: 12z Jan 08 2020 Forecast Hour: [30] valid at 18z Thu, Jan 09 2020

TROPICALTIDBITS.COM



ECMWF ENS [M] 0.2' Init 12z 8 Jan 2020 • QPF 5-Day Anomaly (Inches)

Hour: 120 • Valid: 12z Mon 13 Jan 2020

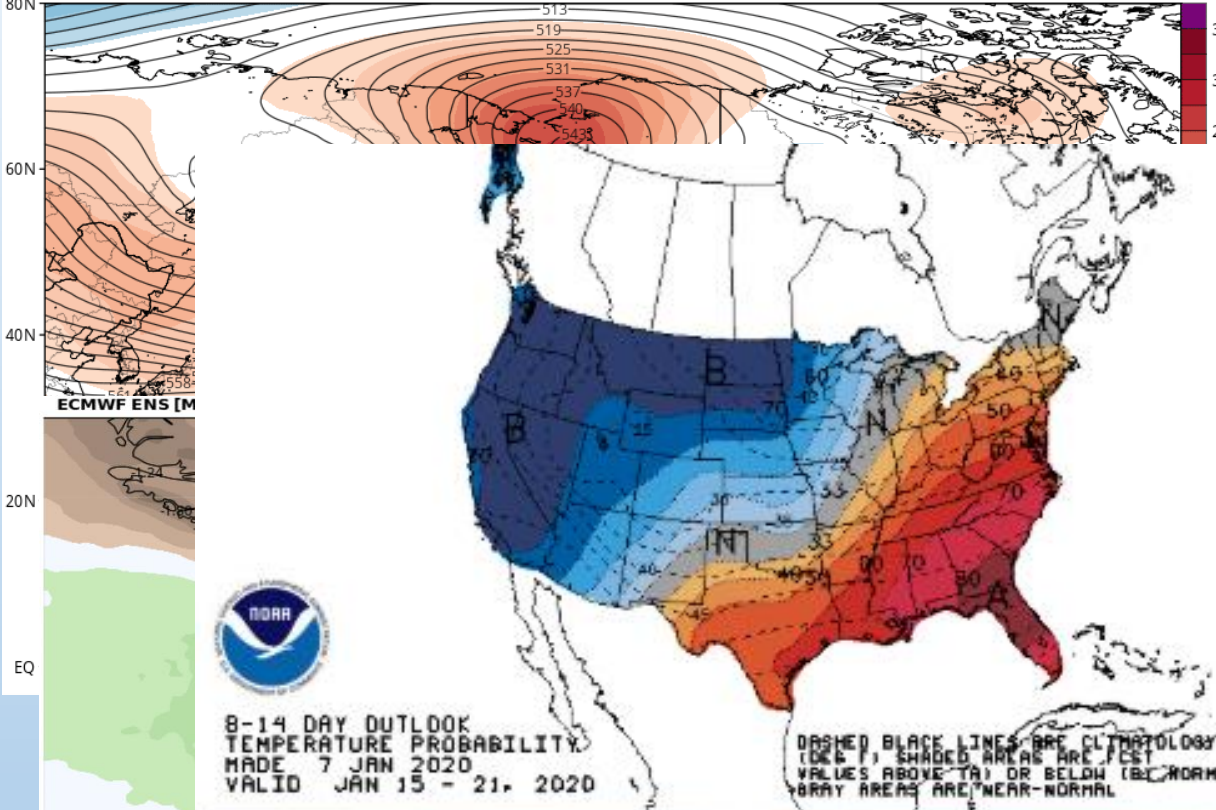


Mid-Month Cold and Stormy Period

EPS 500mb Geopotential Height & Anomaly (dam) (based on CFSR 1981-2010 Climatology)

Init: 12z Jan 08 2020 Forecast Hour: [192] valid at 12z Thu, Jan 16 2020

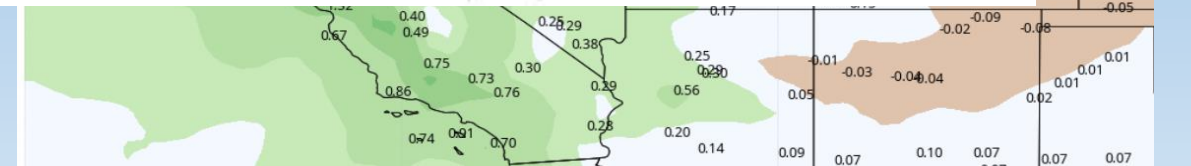
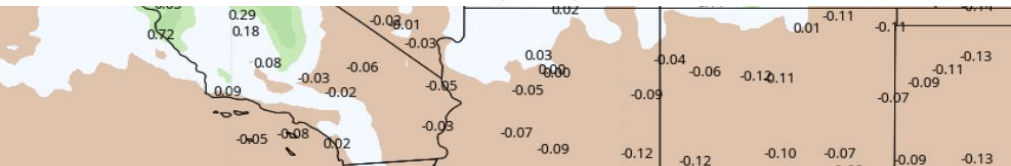
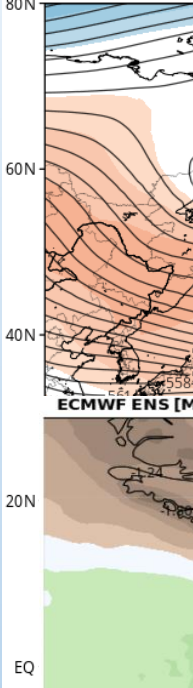
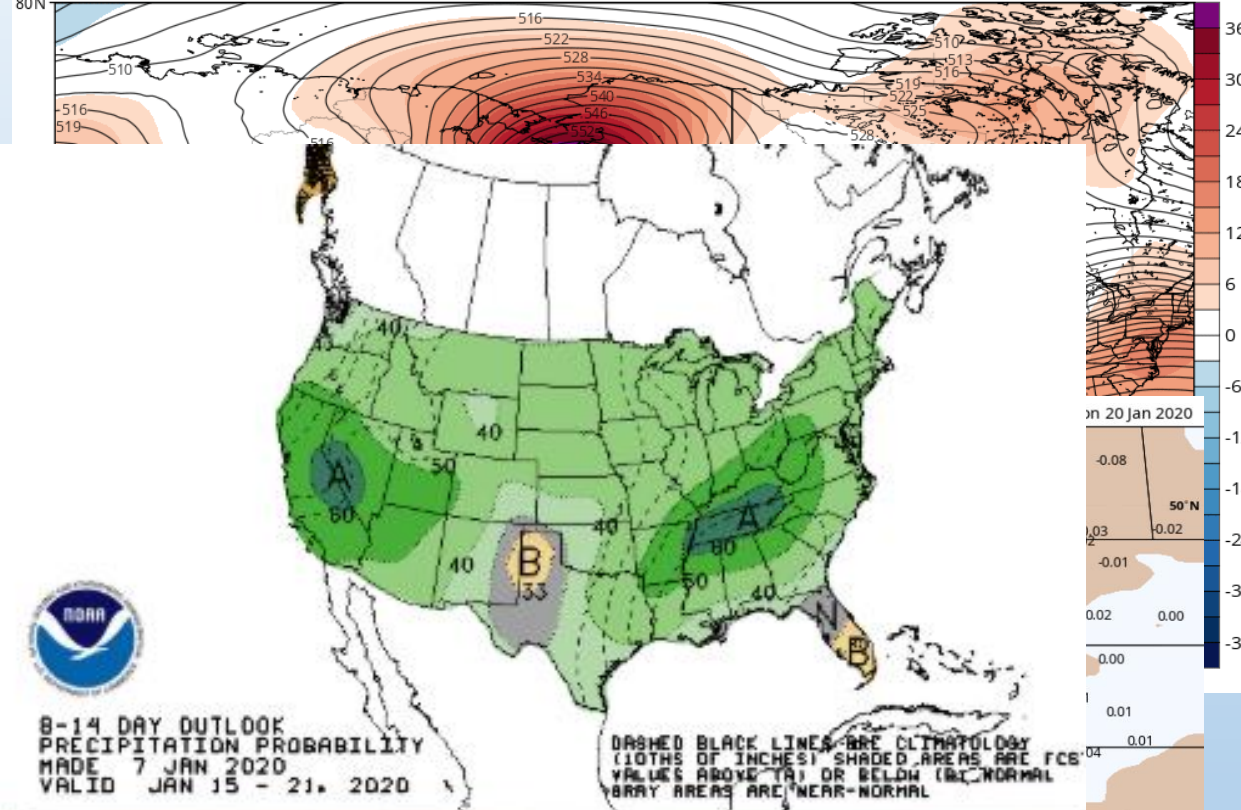
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GEFS 500mb Geopotential Height & Anomaly (dam) (based on CFSR 1981-2010 Climatology)

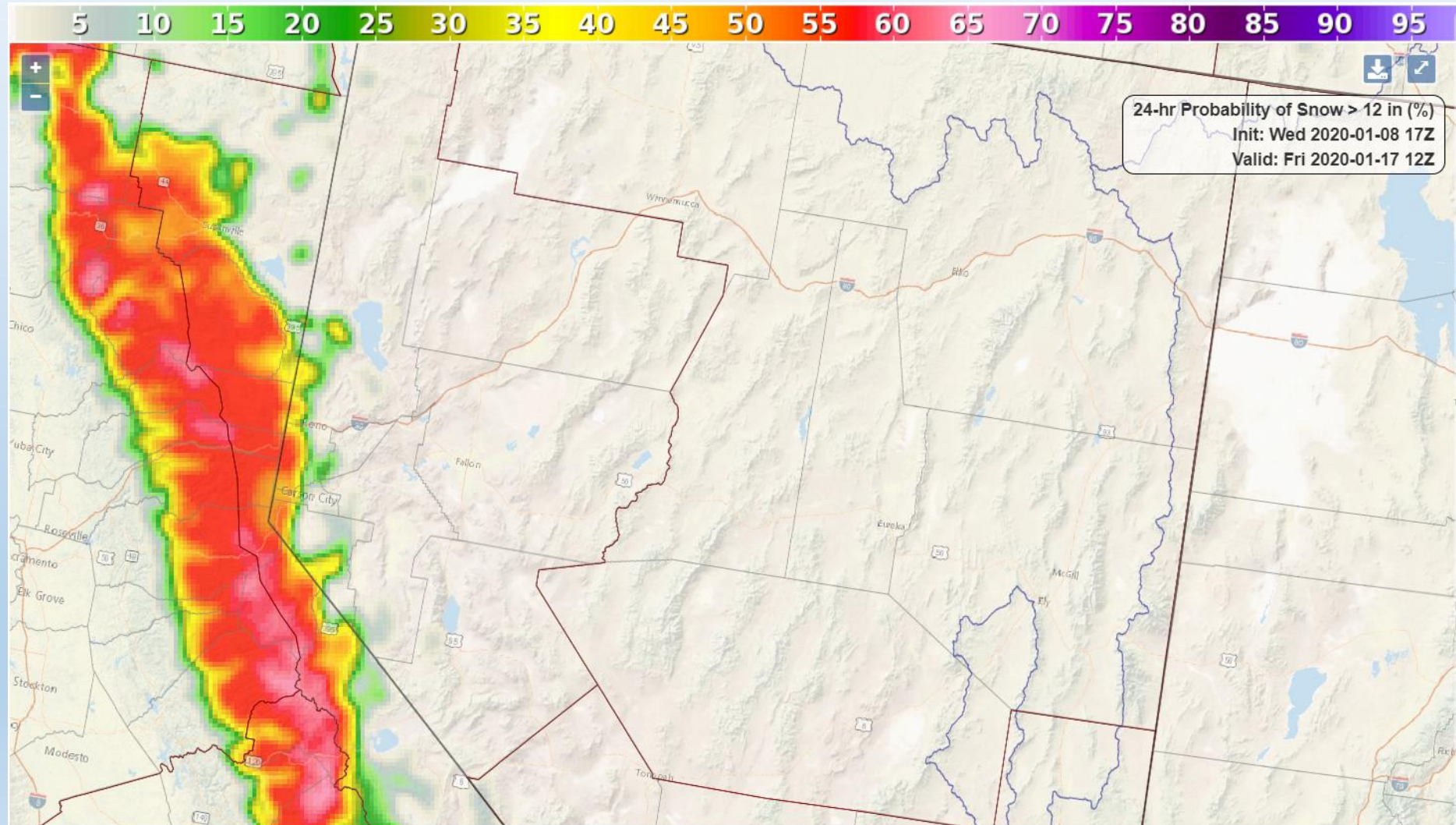
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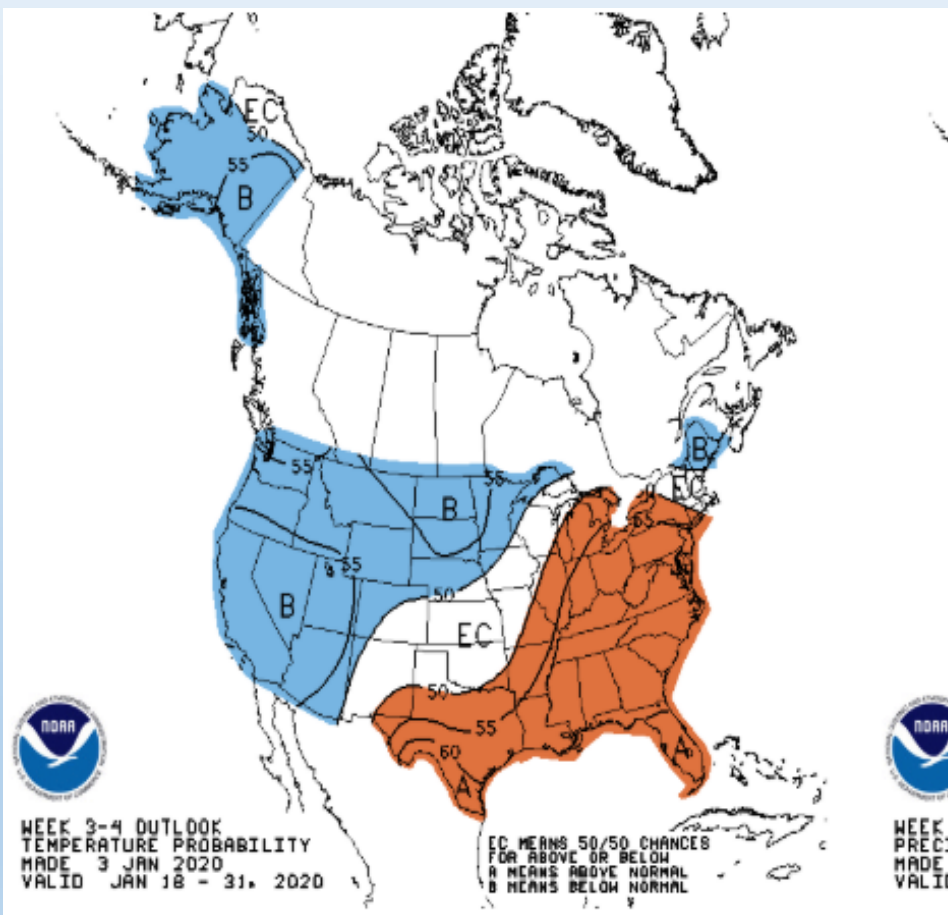


National Blend of Models -NBM

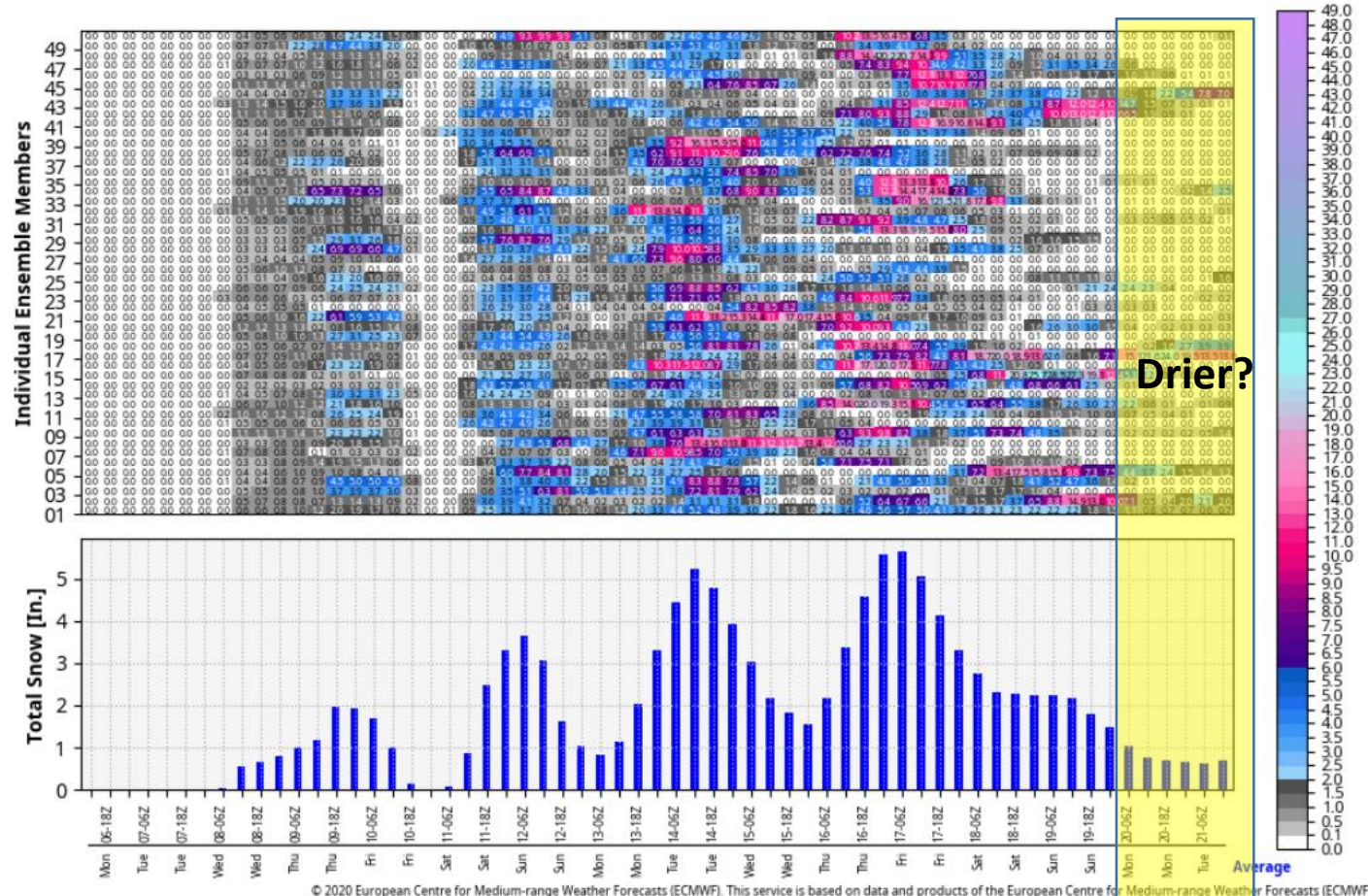
Probability of 12" or greater 24 hour snow accumulation



Latter January: Drier Weather Returns?

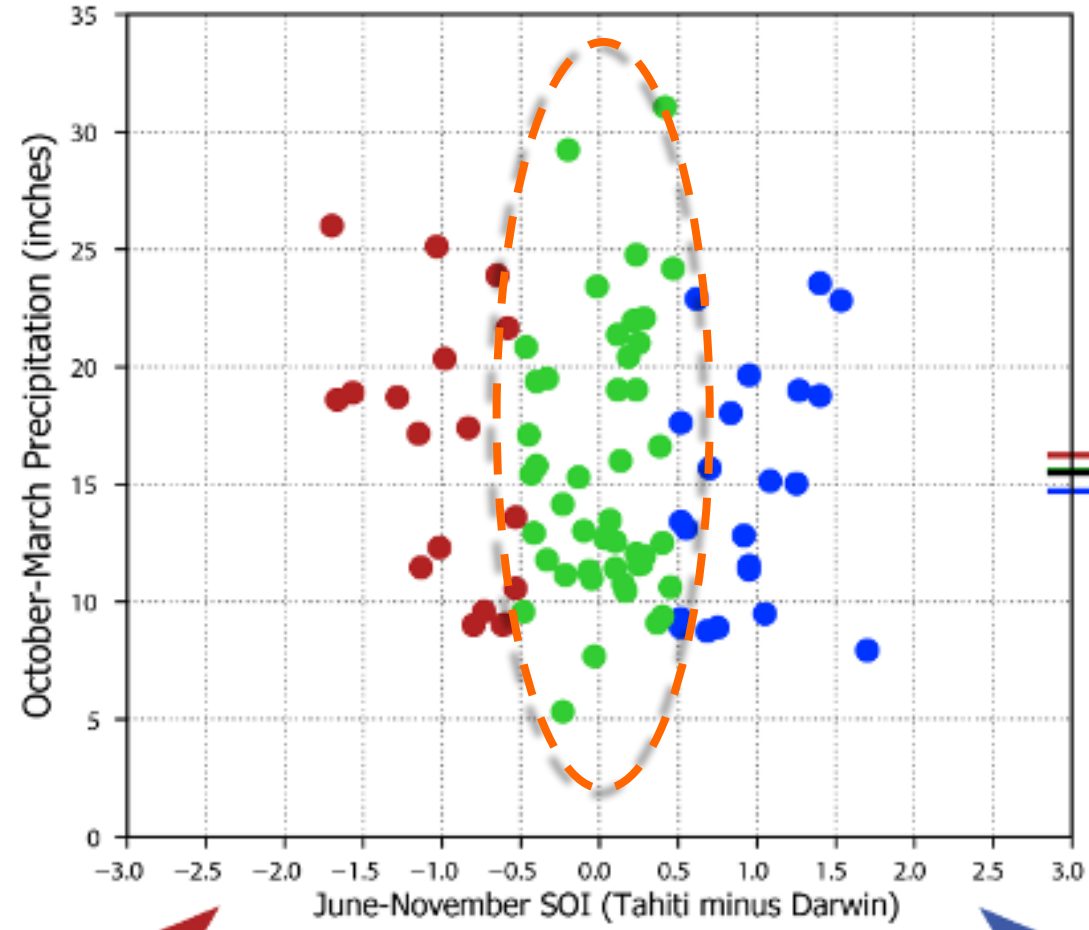


24 Hour Snow Individual Member View • ECMWF ENS 0.2° Init 12z 6 Jan 2020
Truckee Tahoe Airport • KTRK [39.32°N, 120.14°W]



Lets Get This Out of the Way: El Niño

CA Division 3 October-March Precipitation
 (versus Southern Oscillation Index for prior year June-November)

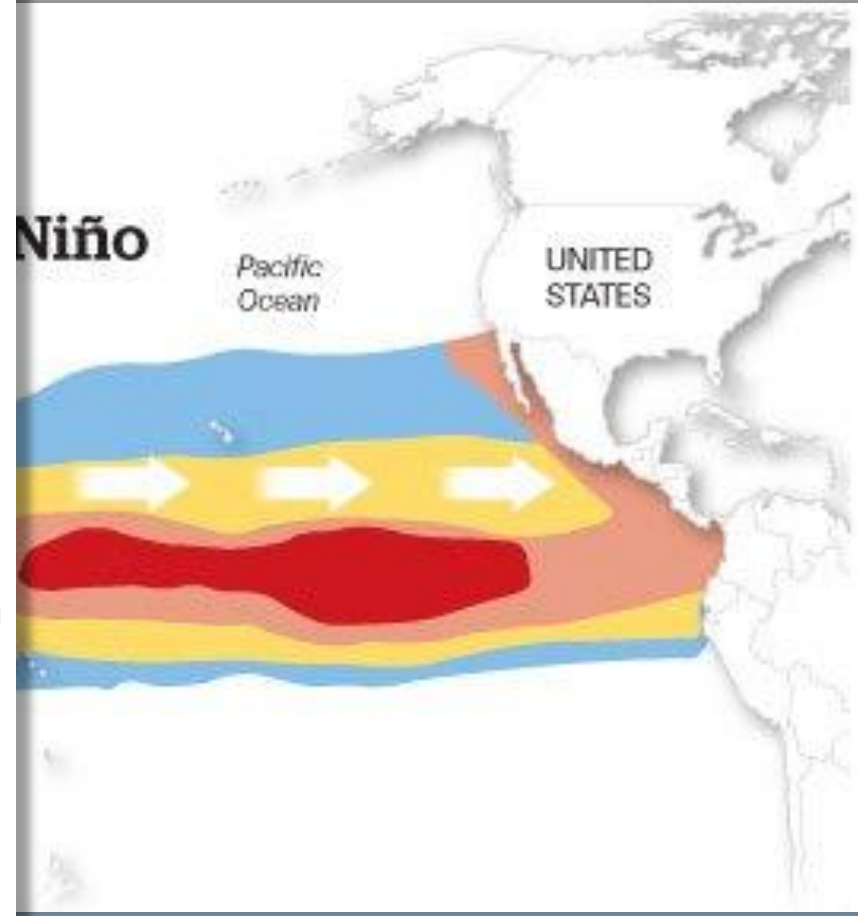


Years 1933/1934 - 2017/2018
 $r^2 = 0.01$
 Correlation = -0.09

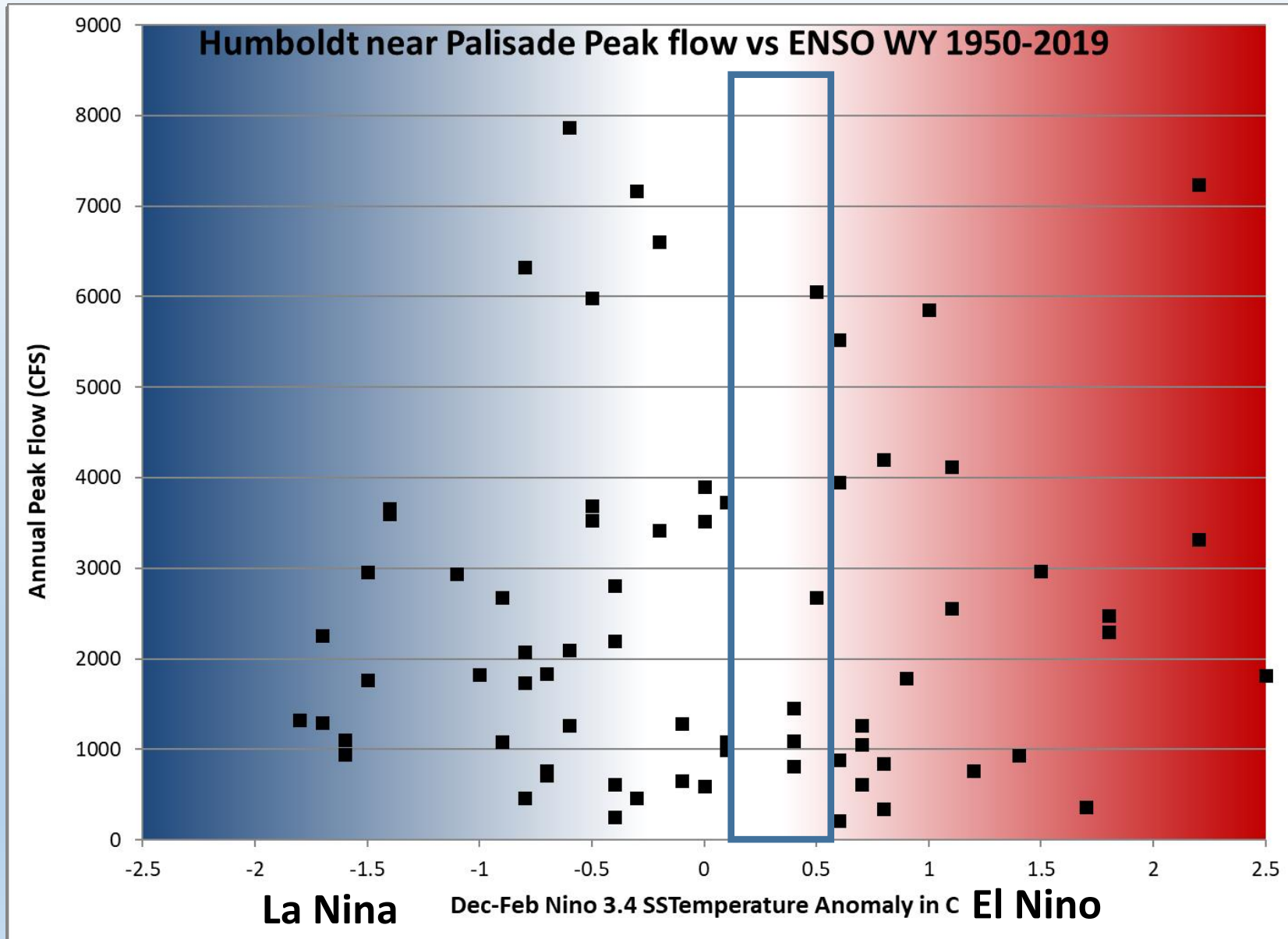
Mean = 16.24 in
 Mean = 15.59 in
 Mean all = 15.50 in
 Mean = 14.71 in



Western Regional Climate Center

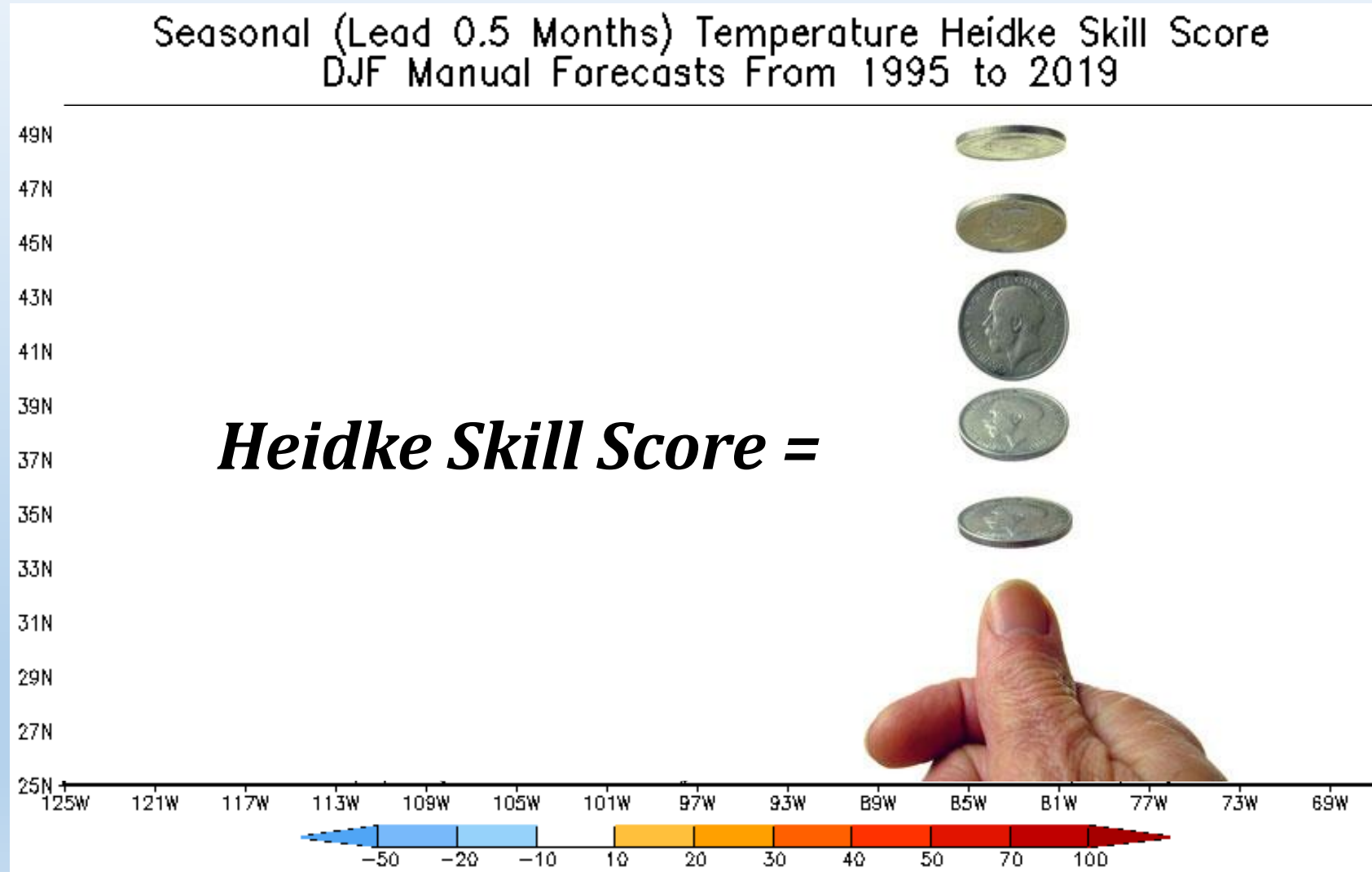


Enso and Peak flow

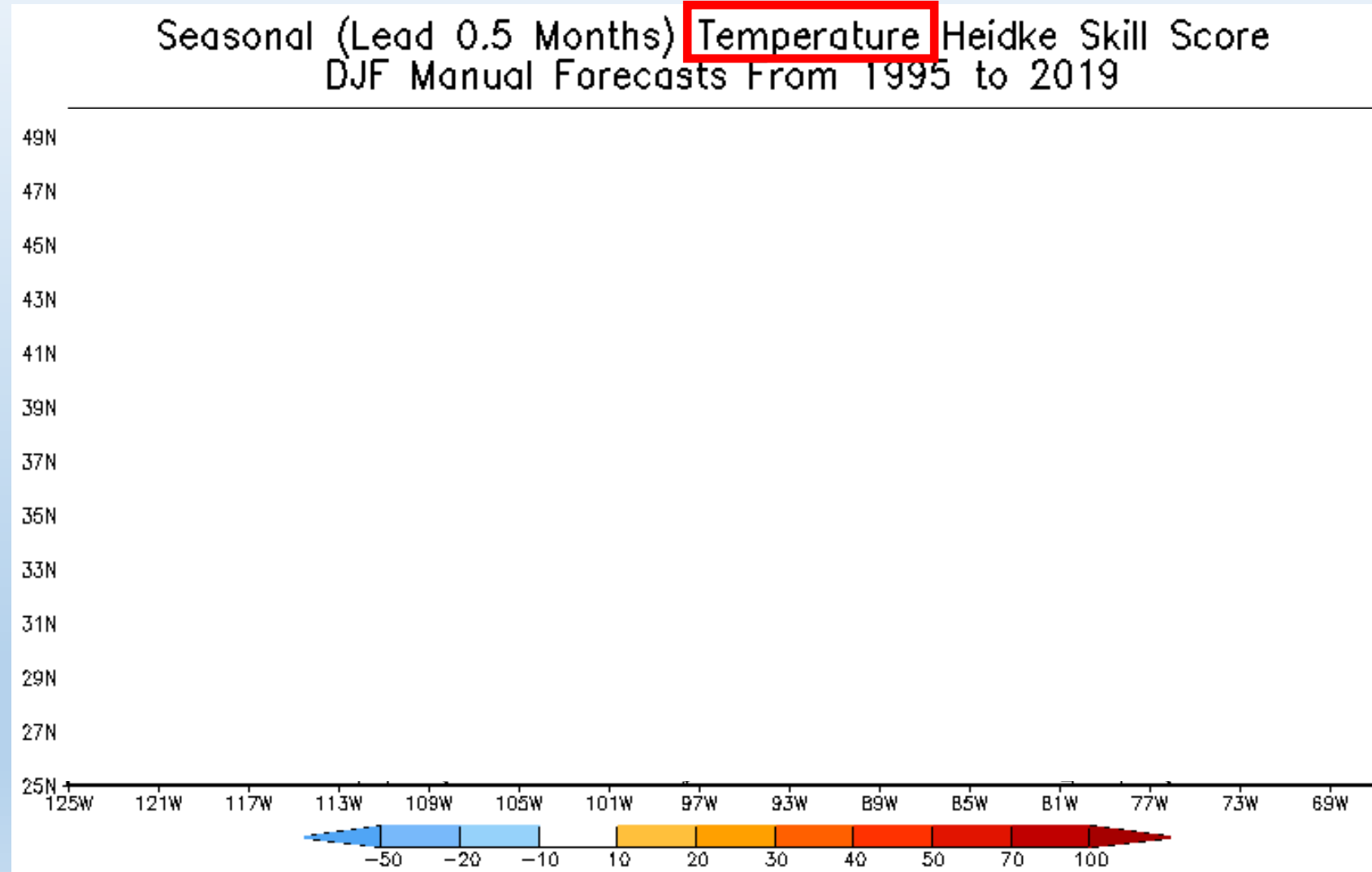


Modified from
Mike Detinger

Seasonal Forecasting - Predictability

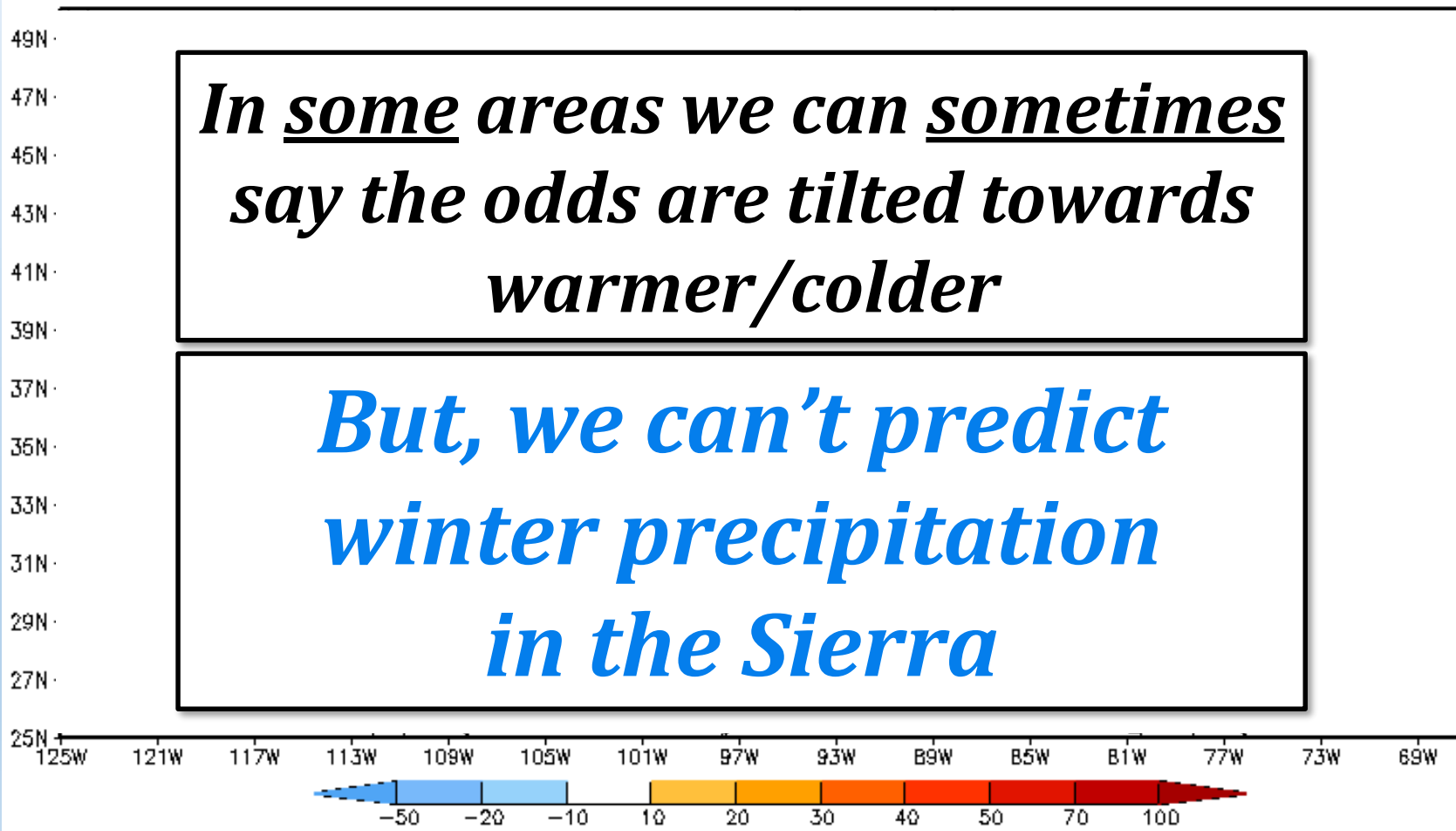


Seasonal Forecasting - Predictability

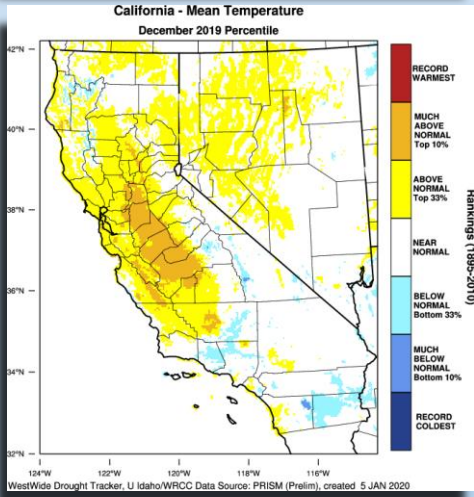
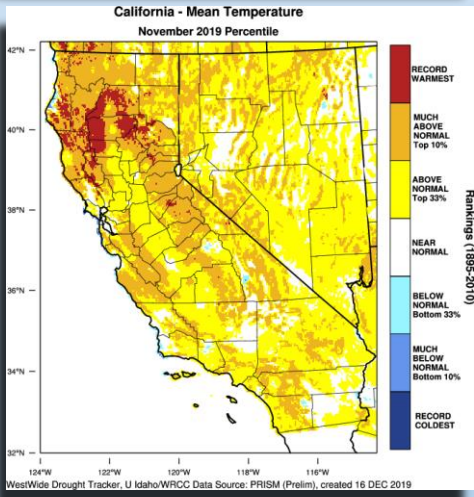
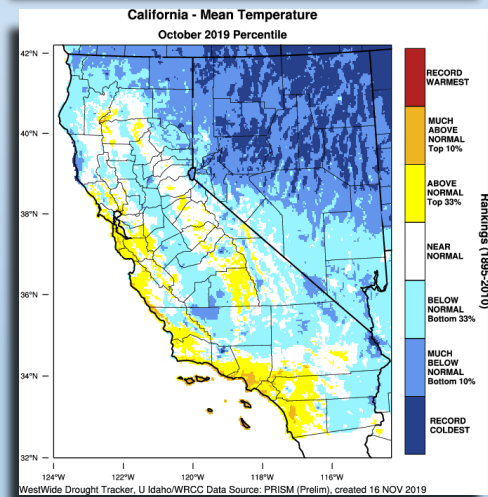
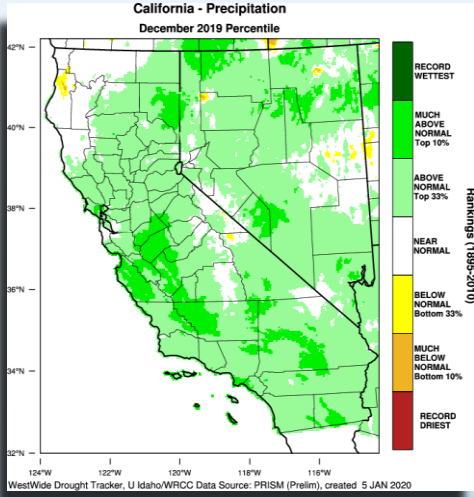
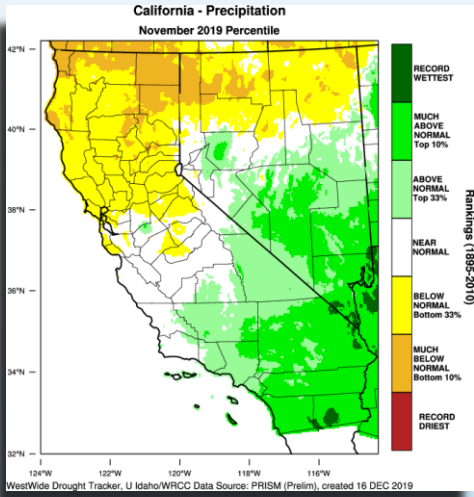
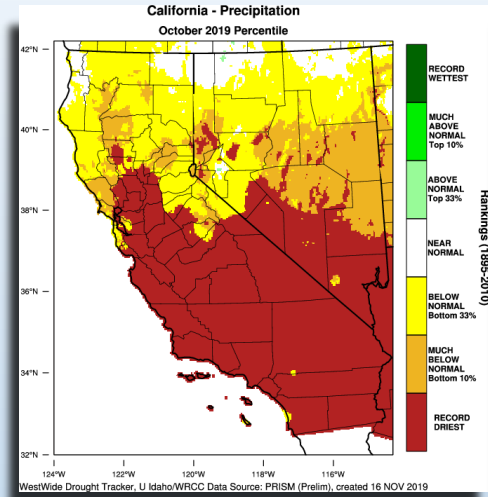
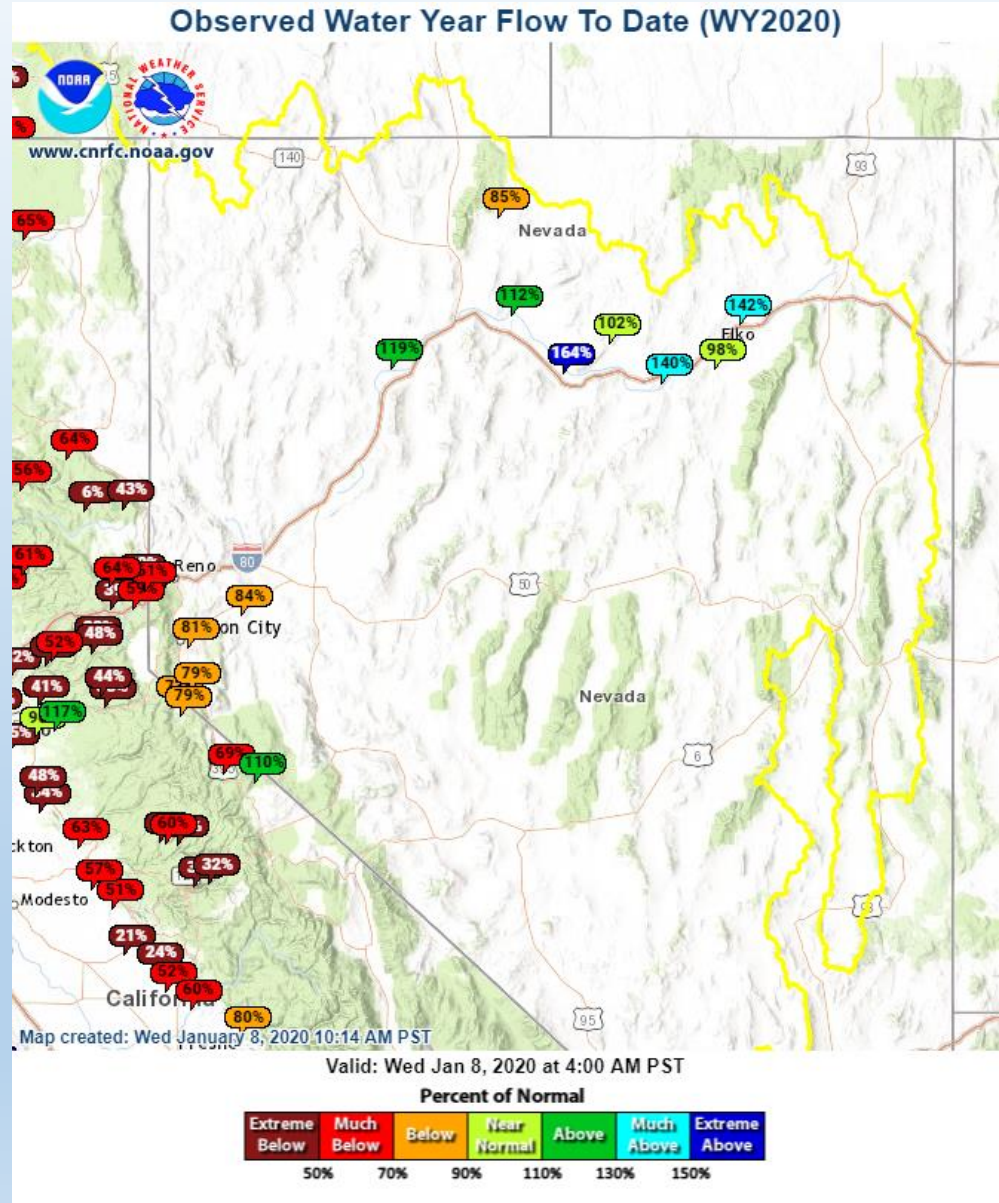


Seasonal Forecasting – Predictability

Seasonal (Lead 0.5 Months) Precipitation Heidke Skill Score
DJF Manual Forecasts From 1995 to 2019



Water Year 2020 So Far



October

November

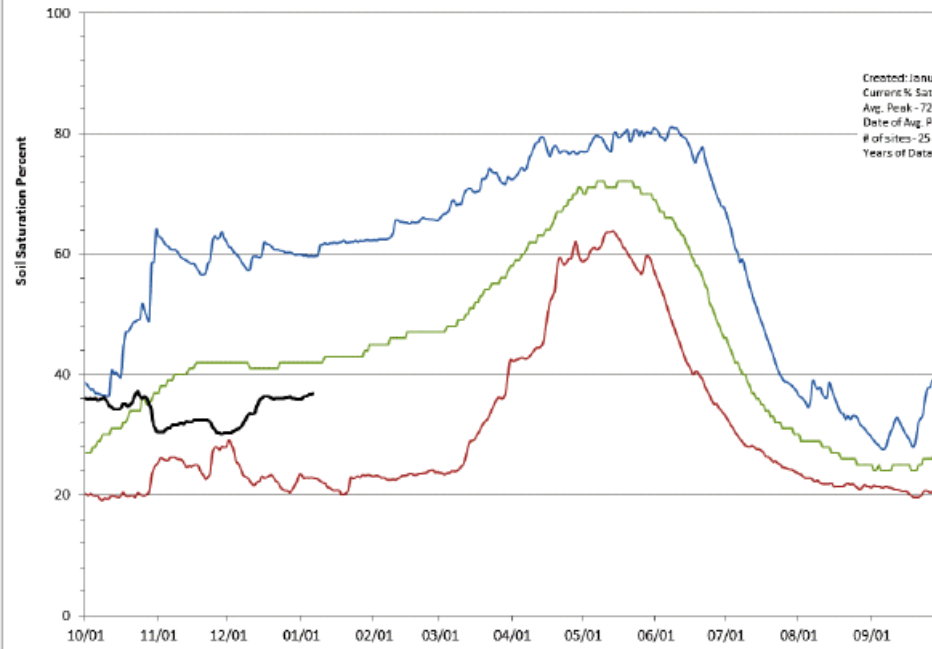
December

Reno National Weather Service
Forecasting for the Sierra and western Nevada since 1905

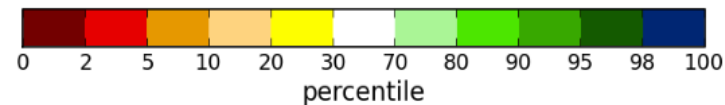
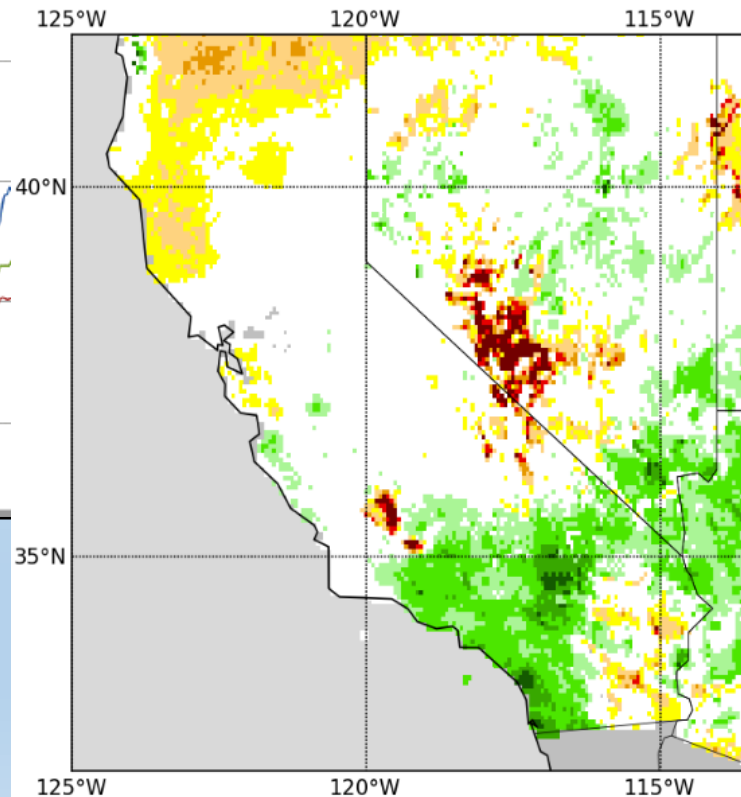


Soil Moisture Mountain vs. Valleys?

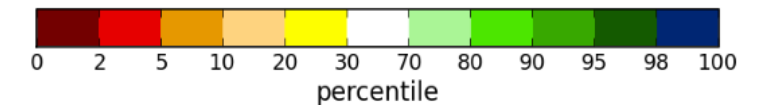
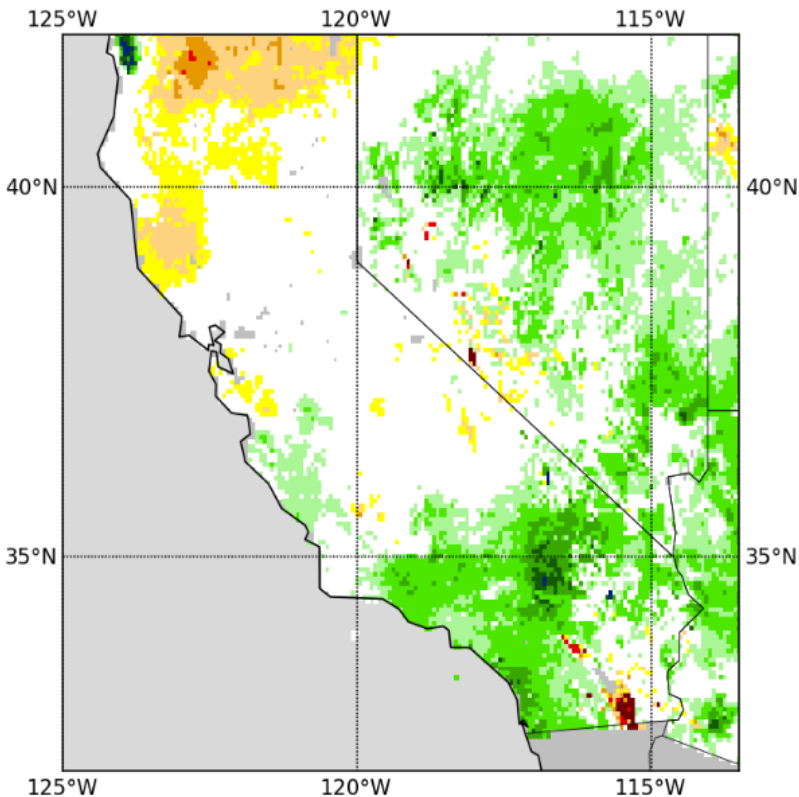
18. Humboldt River above Imlay - Soil Saturation



VIC
Total Moisture Percentile
2020--01--06

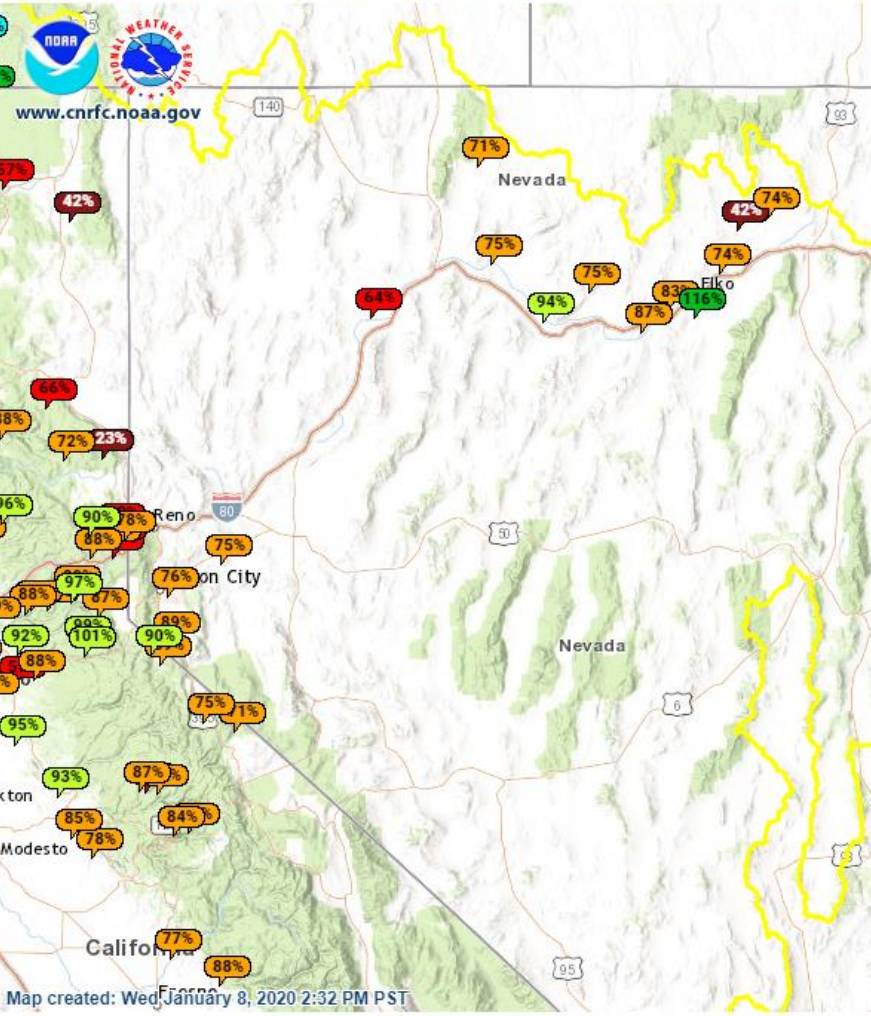


Noah-MP
Total Moisture Percentile
2020--01--06



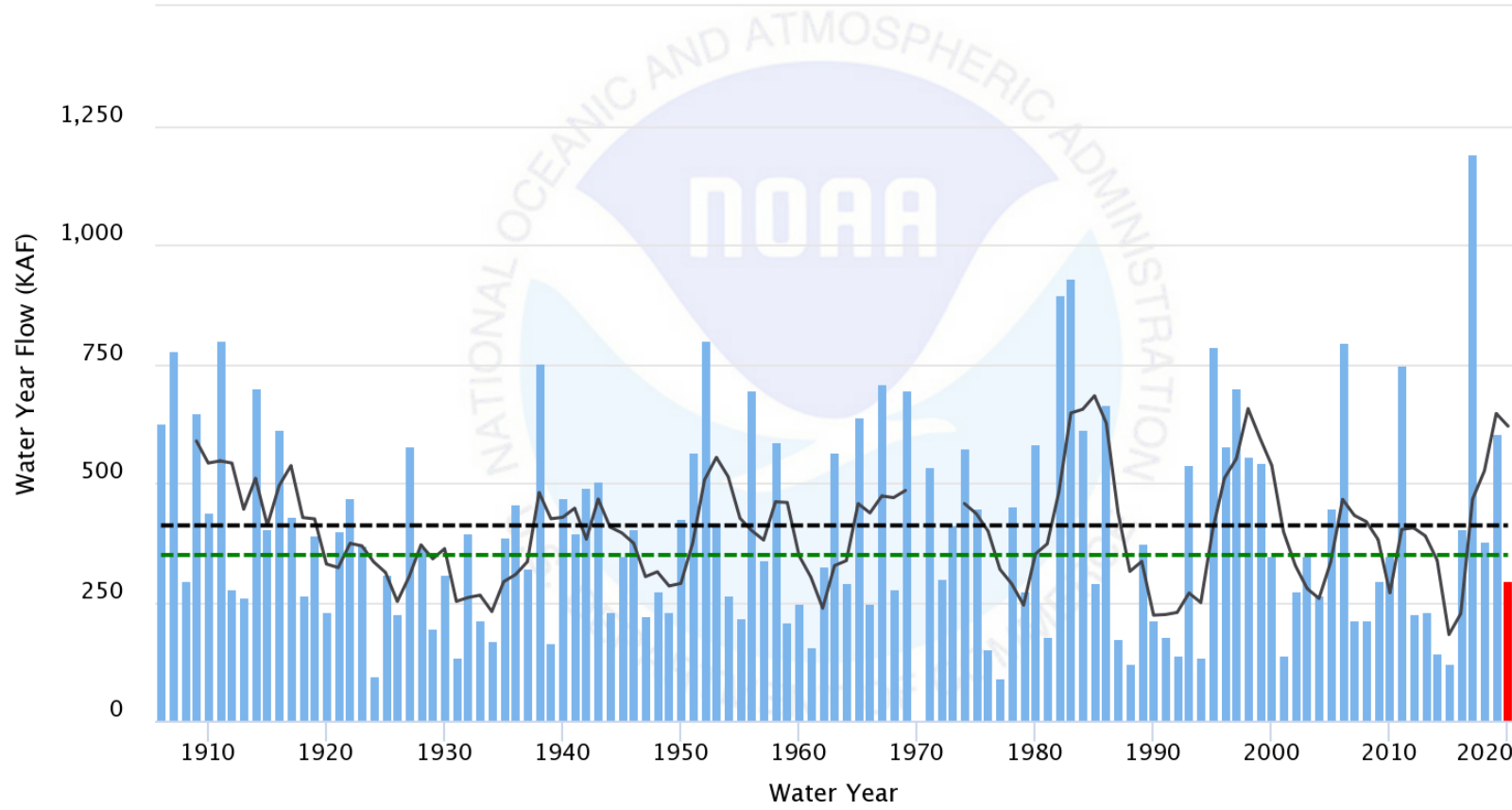
Water Year 2020 Water Supply Outlook

Forecast ESP Water Supply Seasonal Volume (WY202)



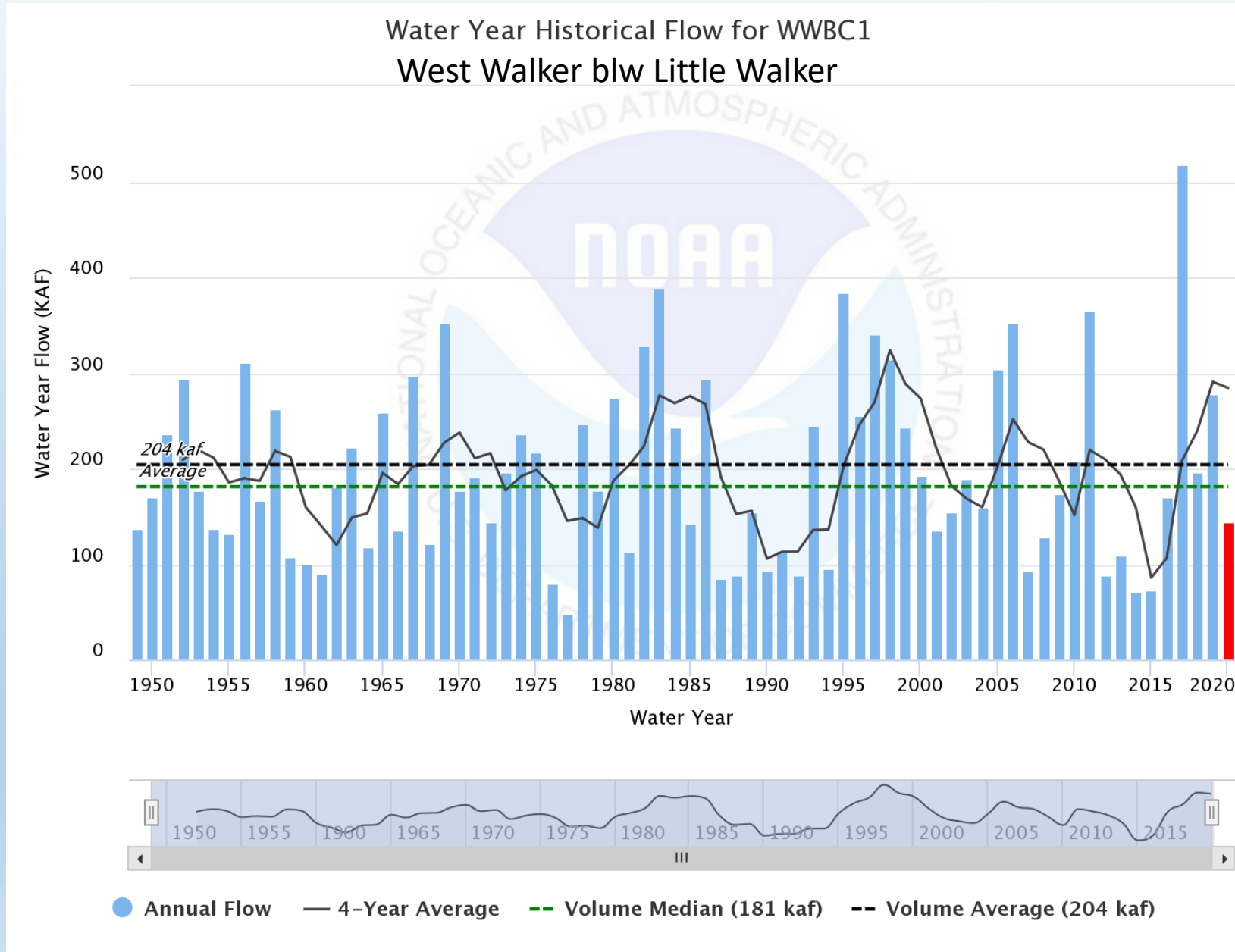
Percent of Normal					
Extreme Below	Much Below	Below	Near Normal	Much Above	Extreme Above
50%	70%	90%	110%	130%	150%

Water Year Historical Flow for FARC1
Truckee Farad

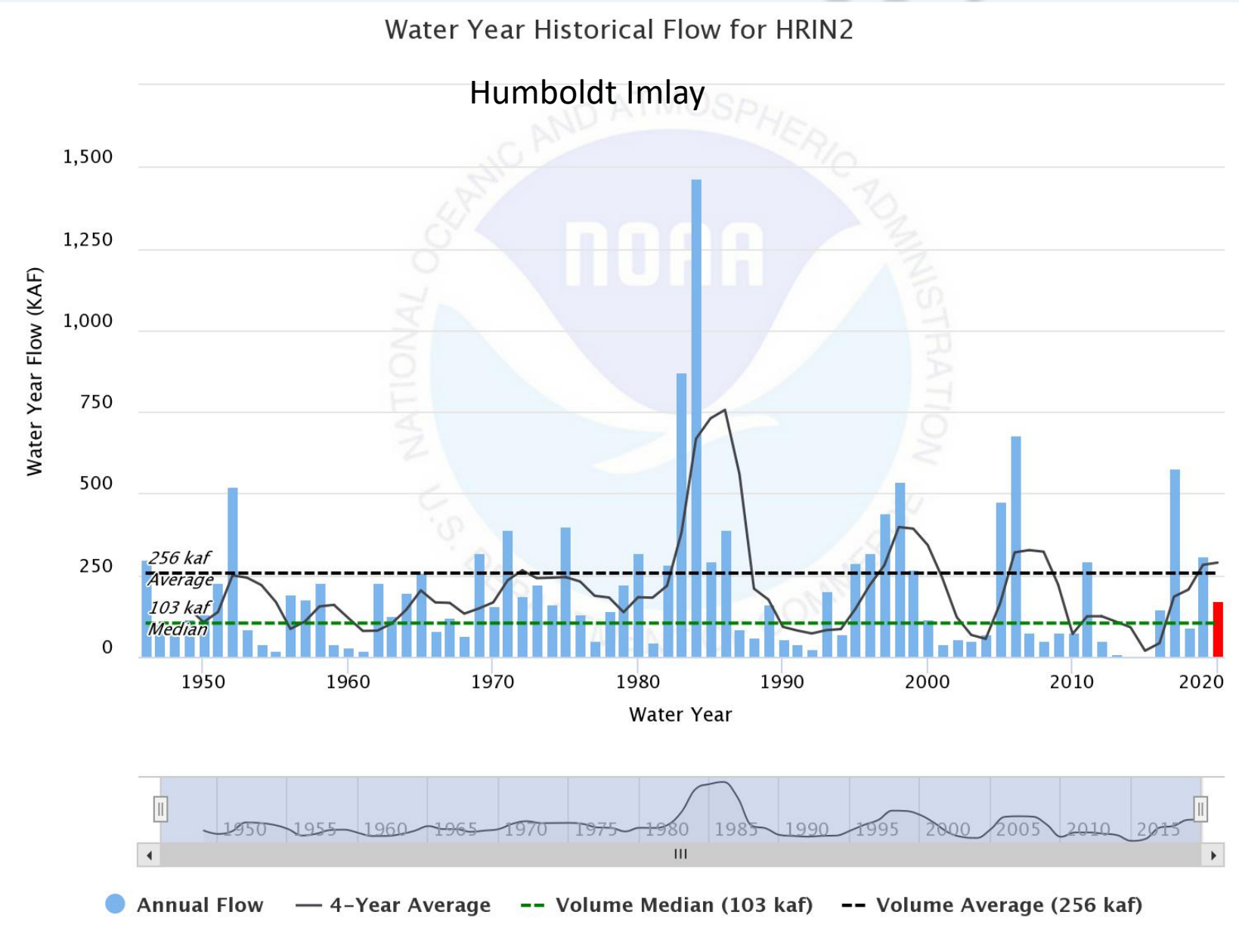


● Annual Flow — 4-Year Average --- Volume Median (348 kaf) --- Volume Average (410 kaf)

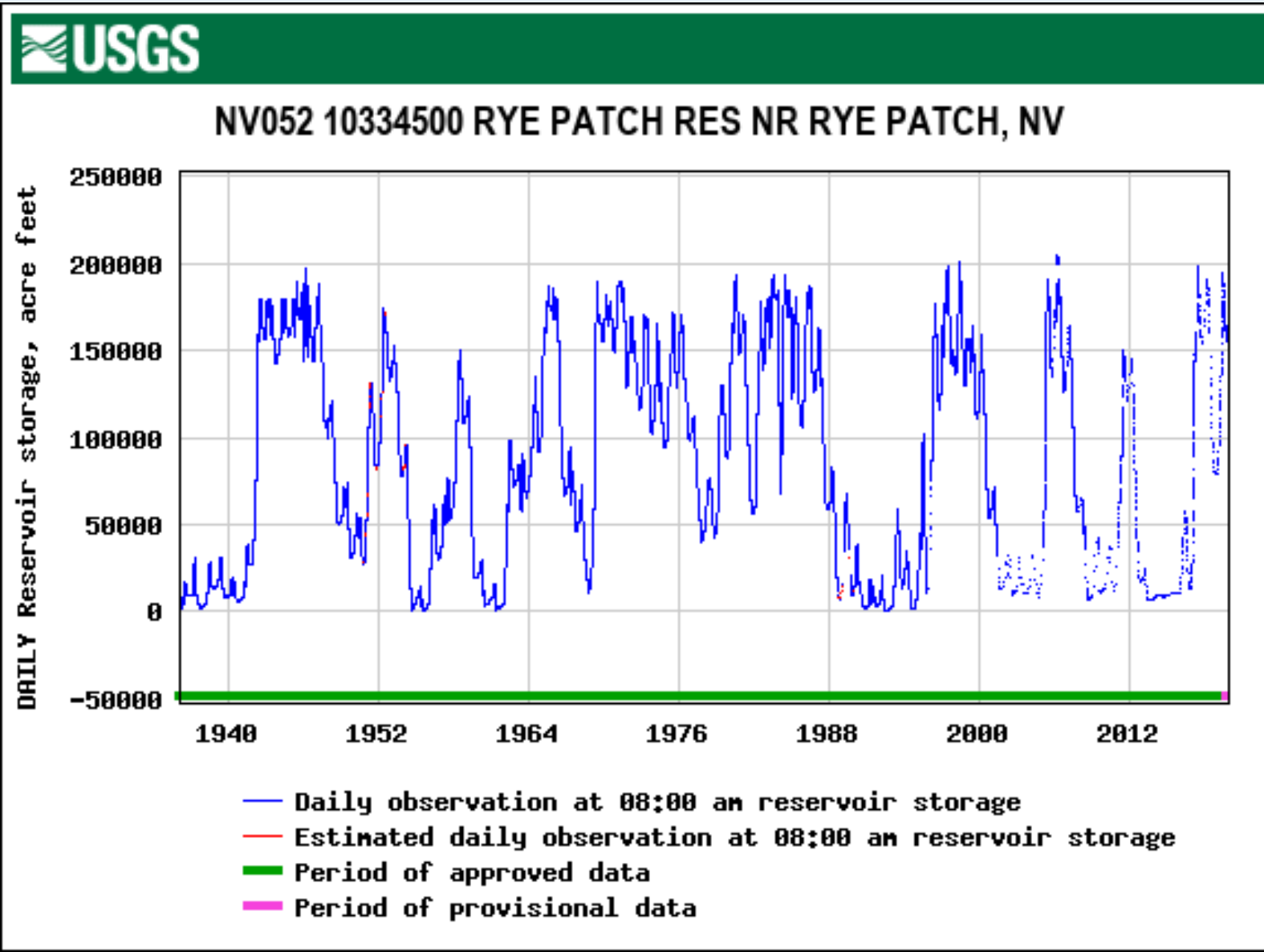
Water Year 2020 Water Supply Outlook



Water Year 2020 Water Supply Outlook



Lower Humboldt



- End of Dec 2019
175.4 KAF
- Years with Greater
or equal end of
December storage,
1946 and 1966

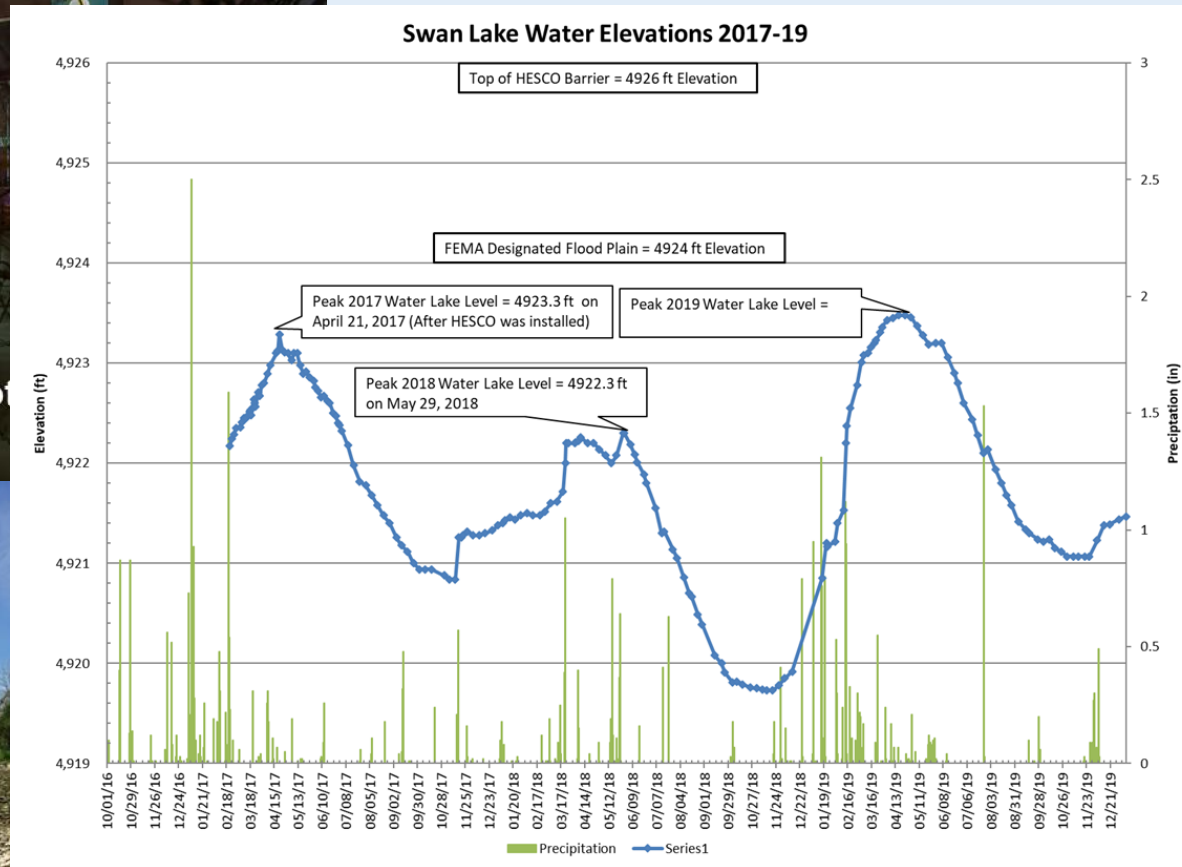
2020 Flood Potential?



January 2017, photo: Scott

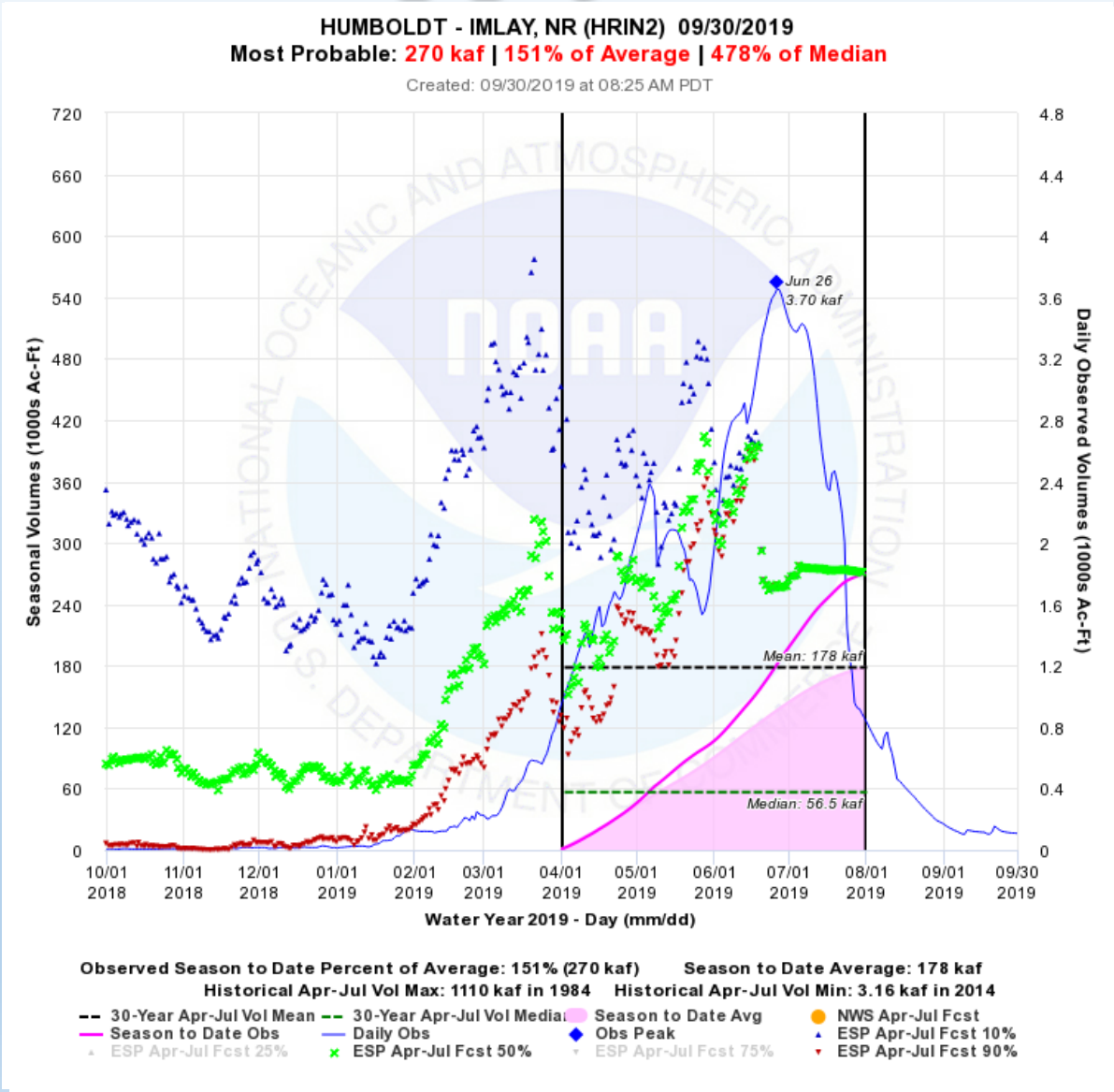
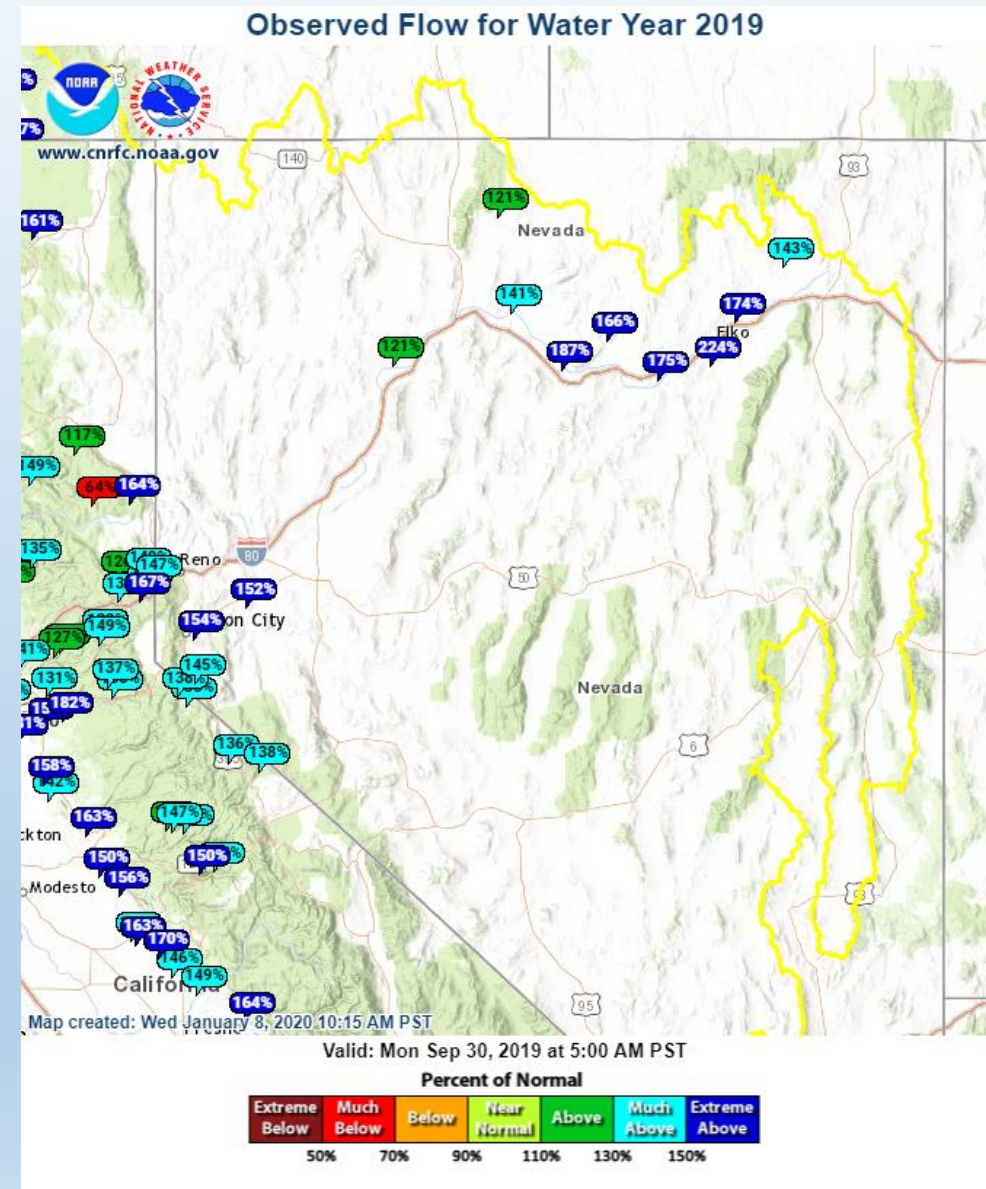


Summer 2015, photo: Brian Johnson
Truckee River Keepers

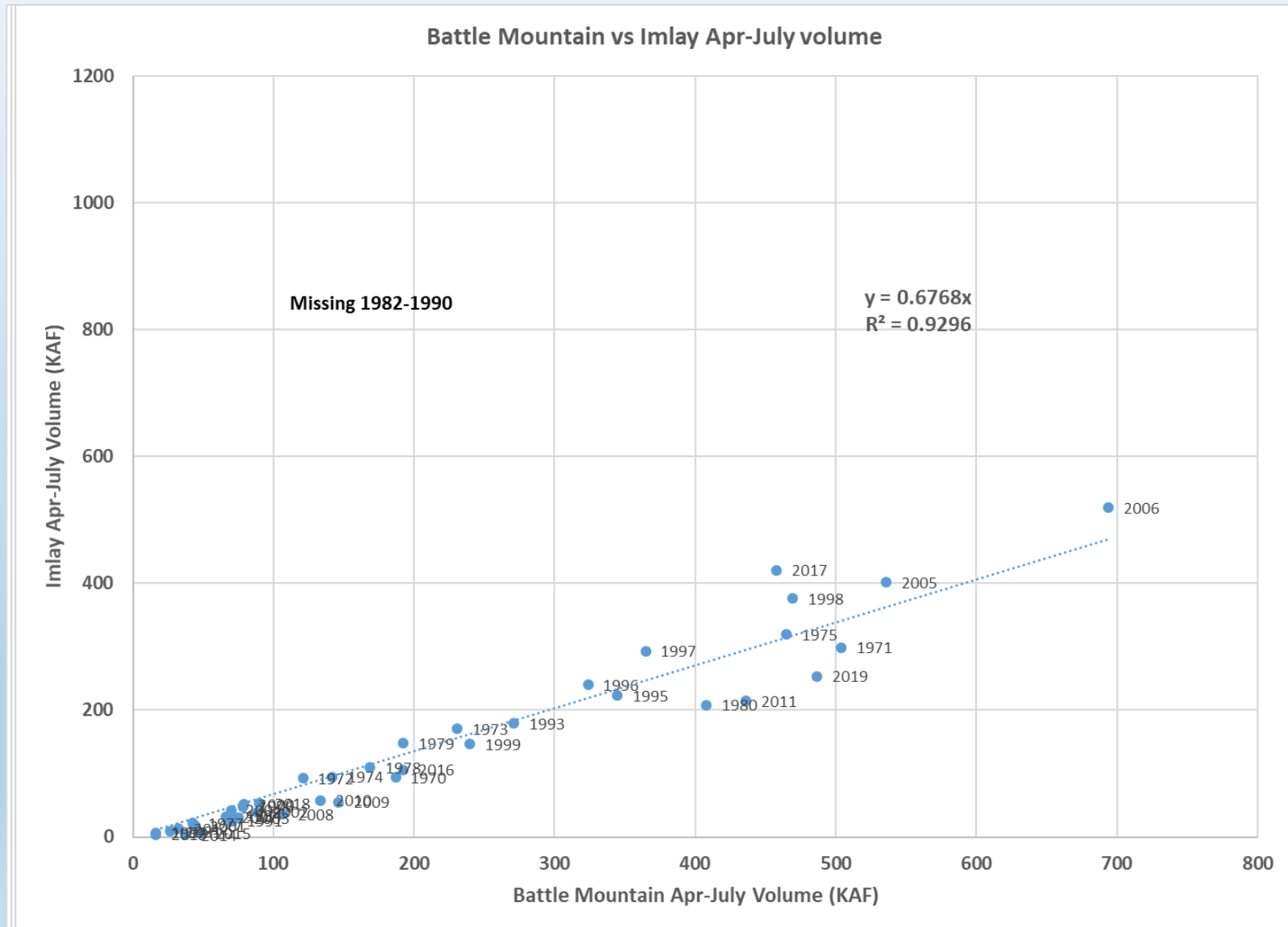


- Looks unlikely through much of January
- Watch sensitive Burn areas
- Terminal Lakes starting high
- Lower elevation soils and high base flows on lower Humboldt.
- Too early to tell for snowmelt

Water Year 2019 Water Supply Verification



More Lower Humboldt



Key Points



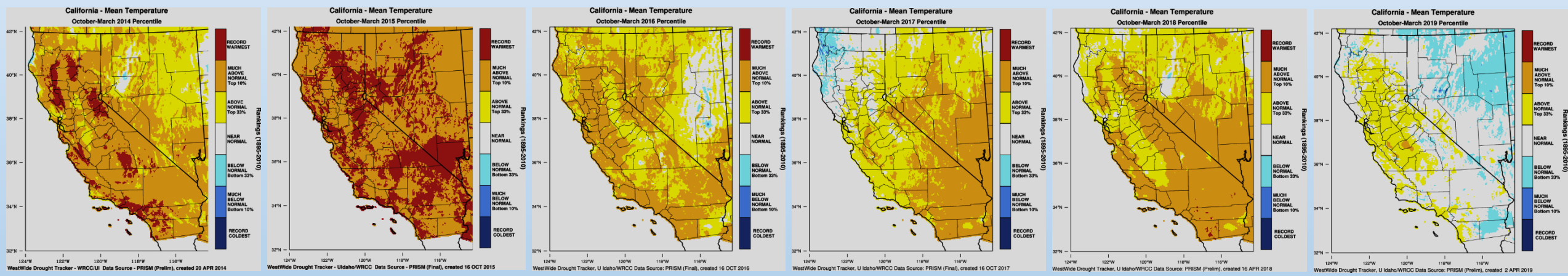
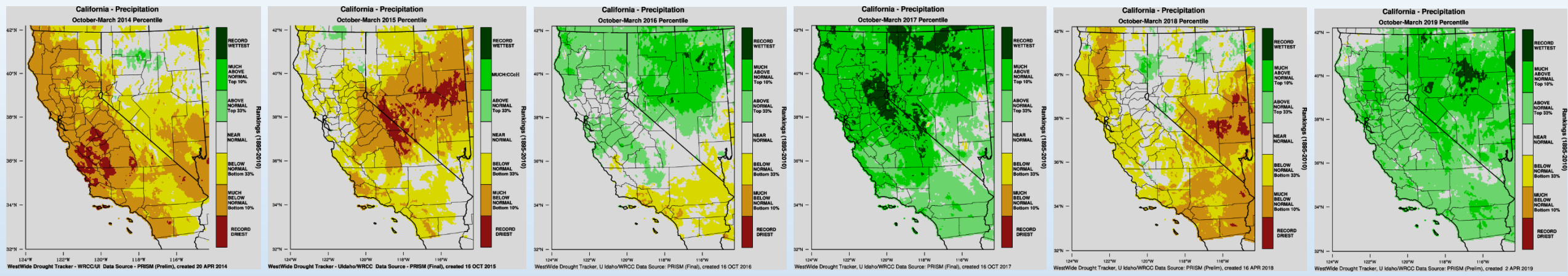
- Apr-July Water Supply somewhat below average, but trending up with active weather
- Humboldt likely more sensitive? Soil Moisture Contrast?
- No flood signal on short-medium term, but certainly not out of the woods for warm AR or series of Warm AR's
- Too early to tell for snowmelt

Contact Info

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Recent Winters – Big Variability! Is That Normal?



2013-14

2014-15

2015-16

2016-17

2017-18

2018-19

