



# Anyone Ready for Snow Yet?

## NWS Reno Winter Outlook

*Tim Bardsley*  
*NWS Reno Hydrologist*  
*Tim.Bardsley@noaa.gov*

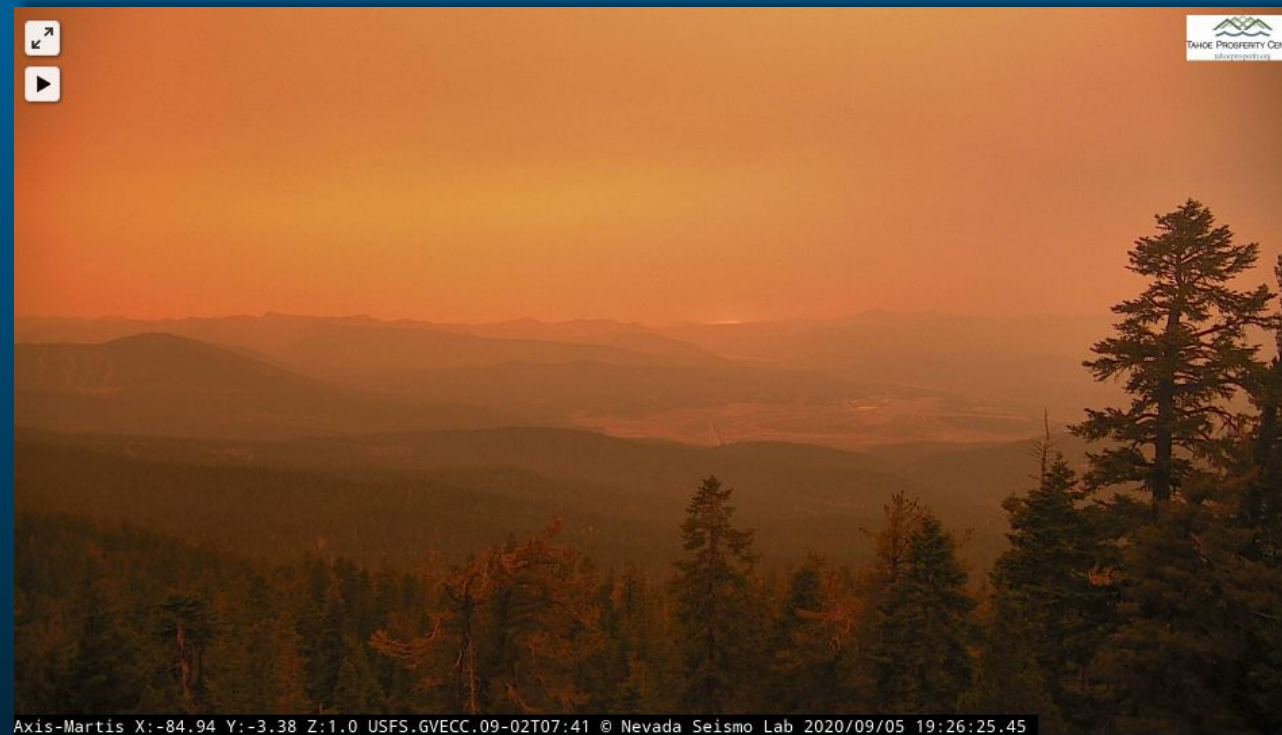
# Summer - Hot, Dry, and Smoky. Sounds Lovely.

5

*Good AQI Days in Reno  
August 15 - October 1*

1,297

*Peak PM2.5 AQI at  
Mammoth. Hazardous is 300.*



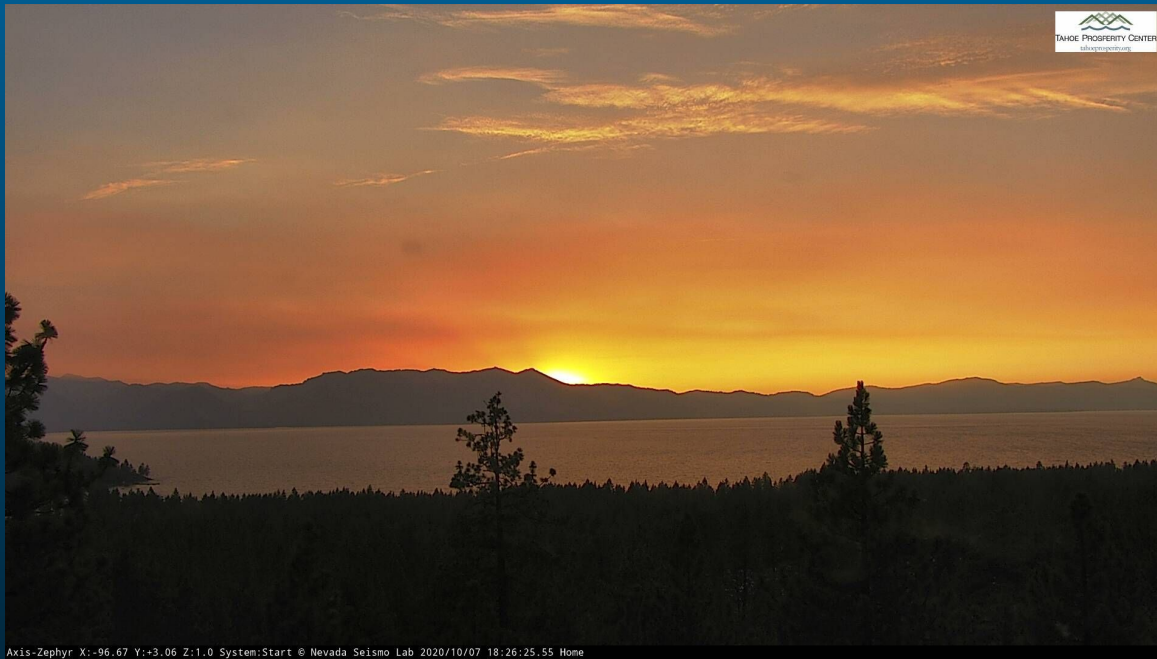
# Autumn So Far - More of the Same...

# #3

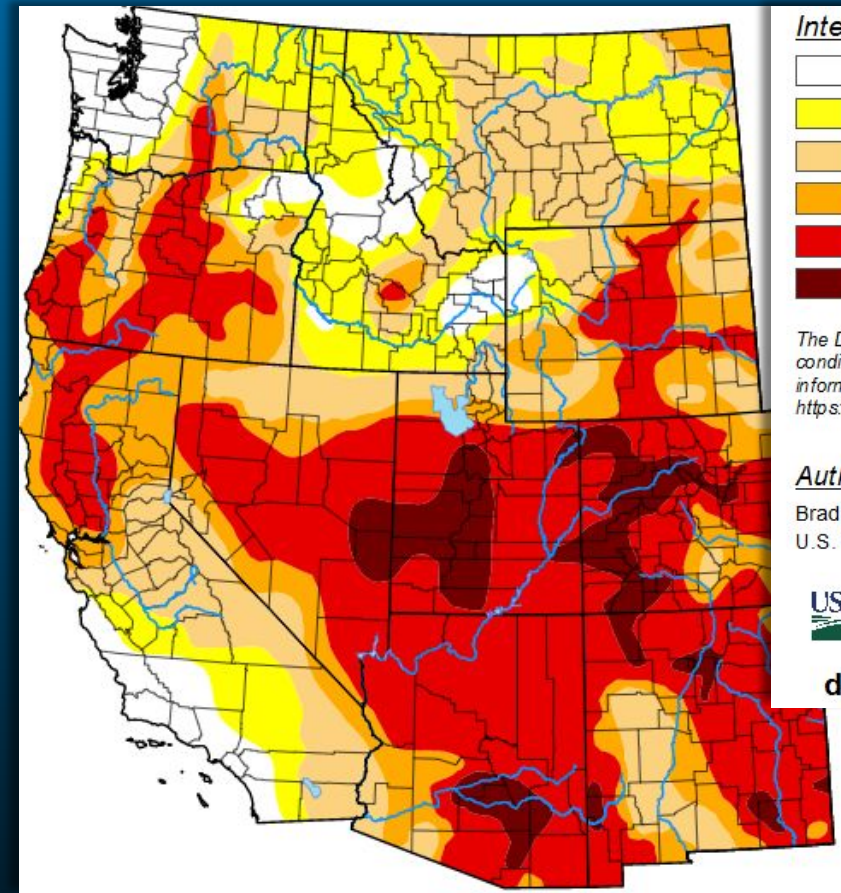
*Warmest September 1  
through October 25th at  
Reno and Tahoe City (Tied  
for 1st)*

# 0"

*September - to date Rainfall at  
Reno so far. Possibly to become  
the first totally dry recorded  
September + October.*



# After a Few Years Break, Drought is Now Back



**Intensity:**

- None
- D0 Abnormal
- D1 Moderate
- D2 Severe D
- D3 Extreme D
- D4 Exception

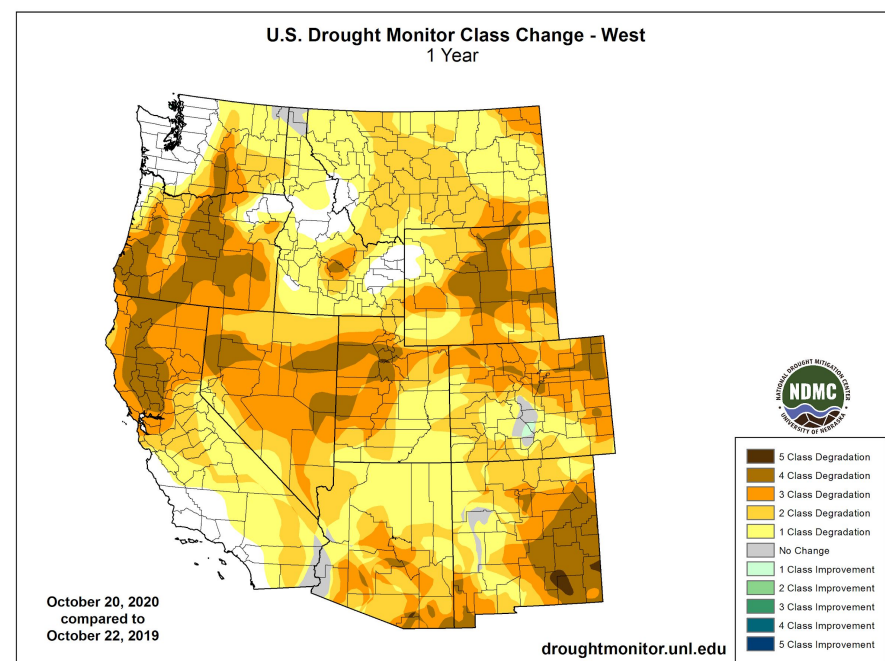
The Drought Monitor fo  
conditions. Local condit  
information on the Drou  
<https://droughtmonitor.u>

**Author:**

Brad Rippey  
U.S. Department of A



droughtmon



October 20, 2020  
compared to  
October 22, 2019

droughtmonitor.unl.edu



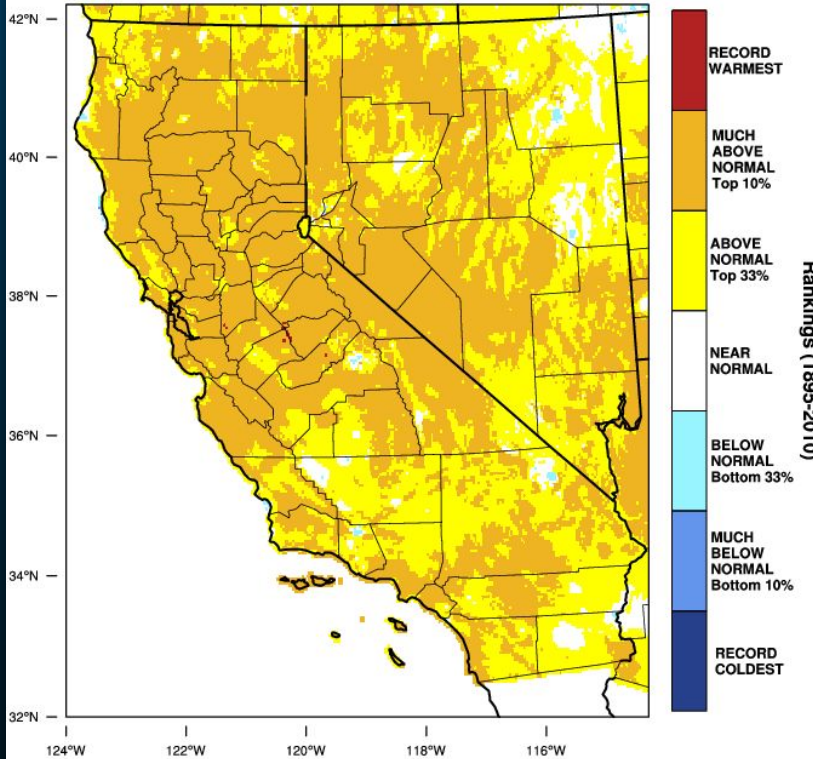
- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

## October 20



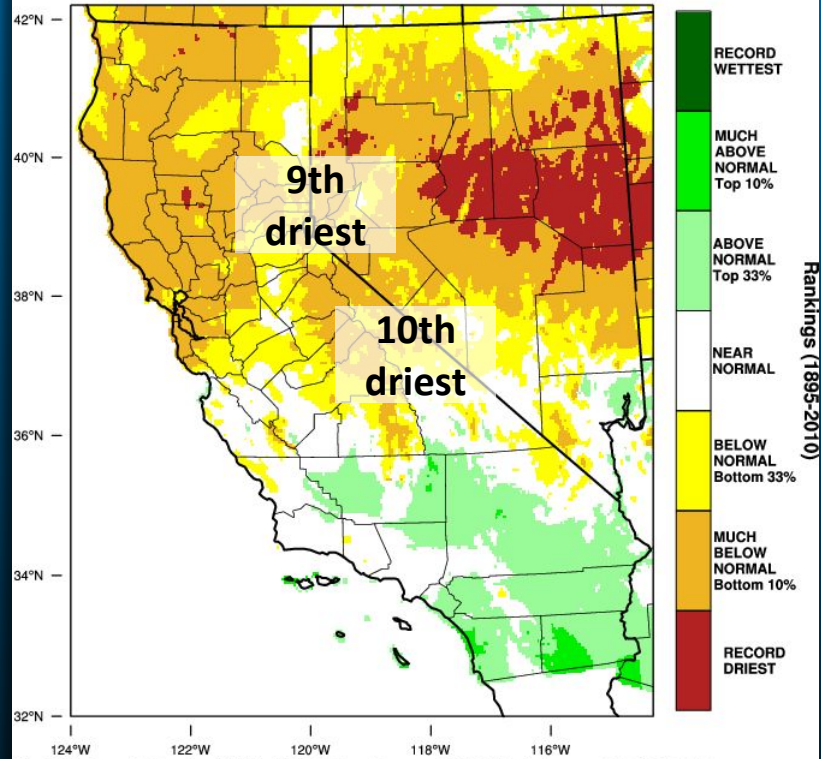
# Why? Warm and Dry Water Year 2019-20

California - Mean Temperature  
October-September 2020 Percentile



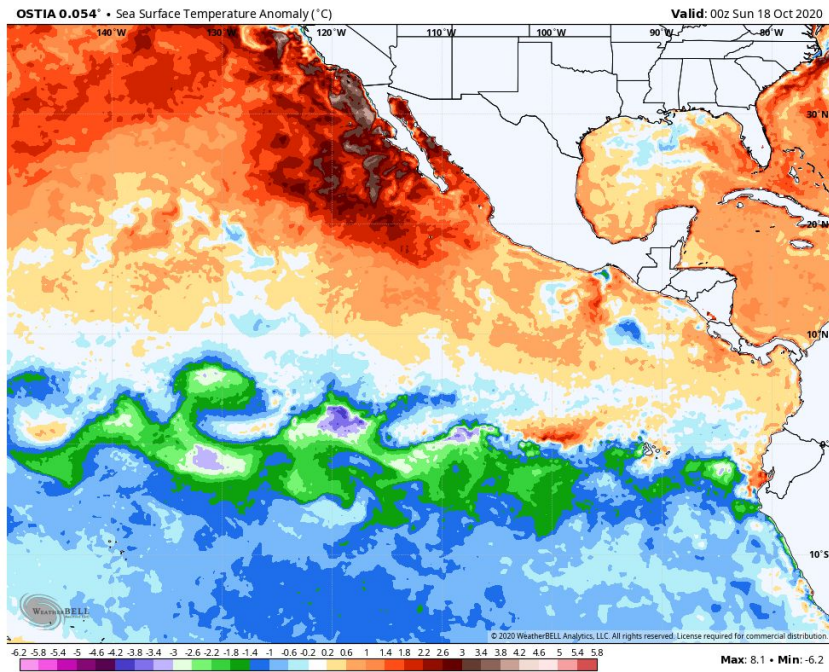
WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 16 OCT 2020

California - Precipitation  
October-September 2020 Percentile



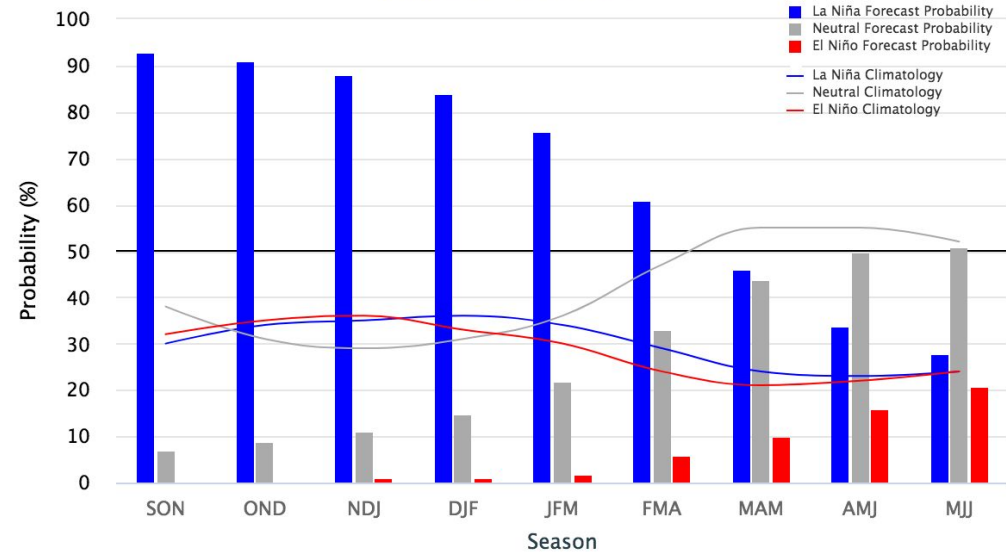
WestWide Drought Tracker, U Idaho/WRCC Data Source: PRISM (Prelim), created 16 OCT 2020

# What's Going On With La Niña?



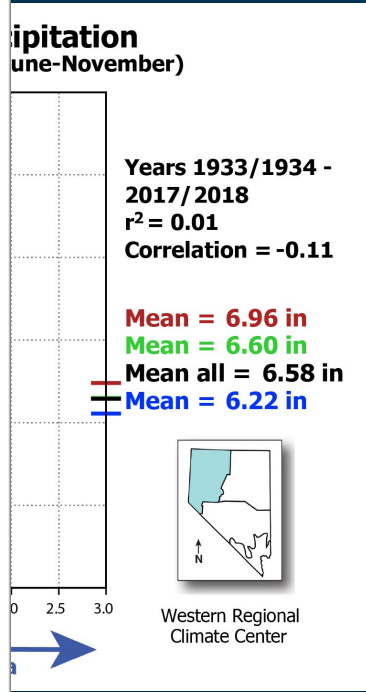
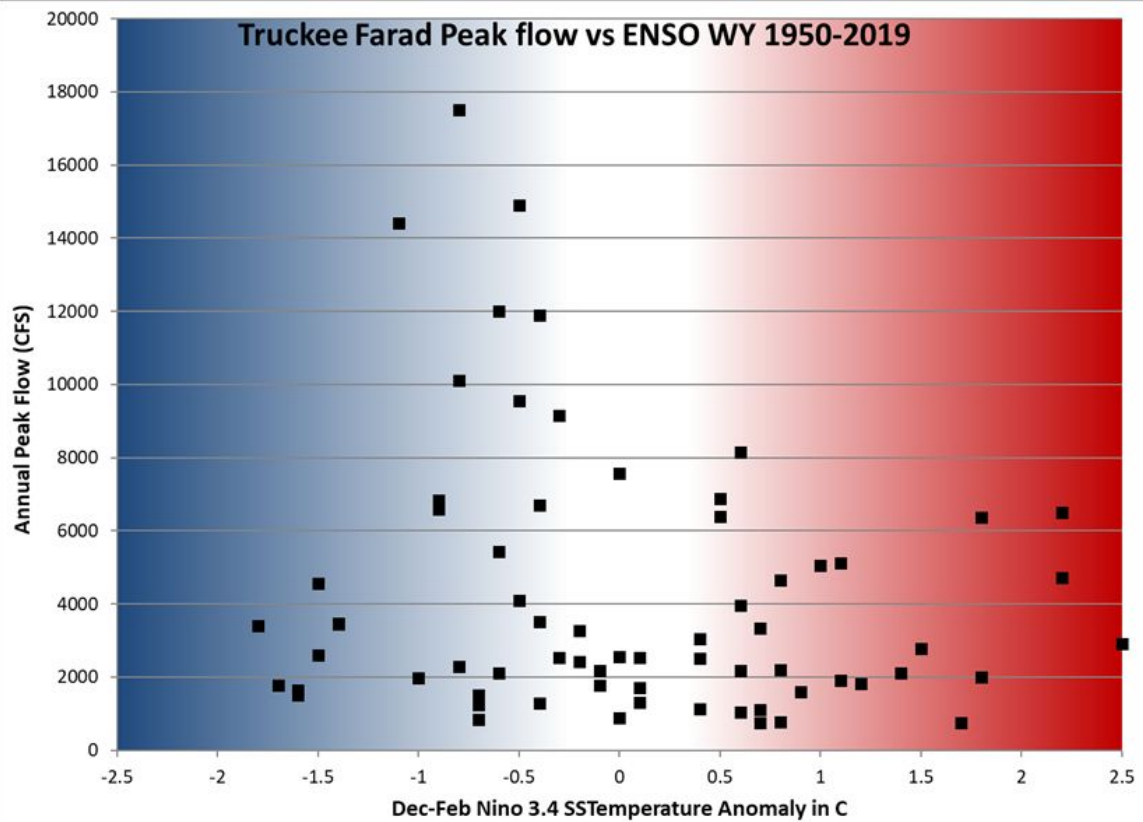
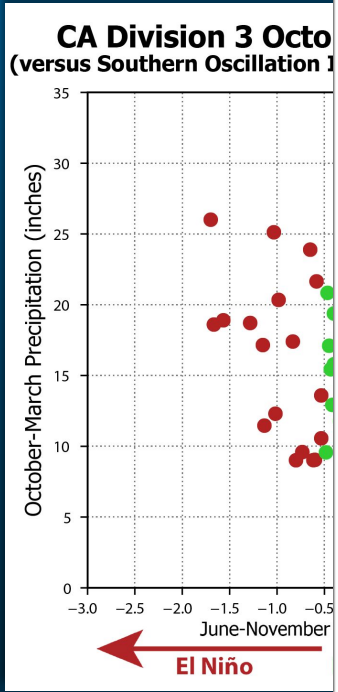
## Early-October 2020 CPC/IRI Official Probabilistic ENSO Forecasts

ENSO state based on NINO3.4 SST Anomaly  
Neutral ENSO:  $-0.5^{\circ}\text{C}$  to  $0.5^{\circ}\text{C}$



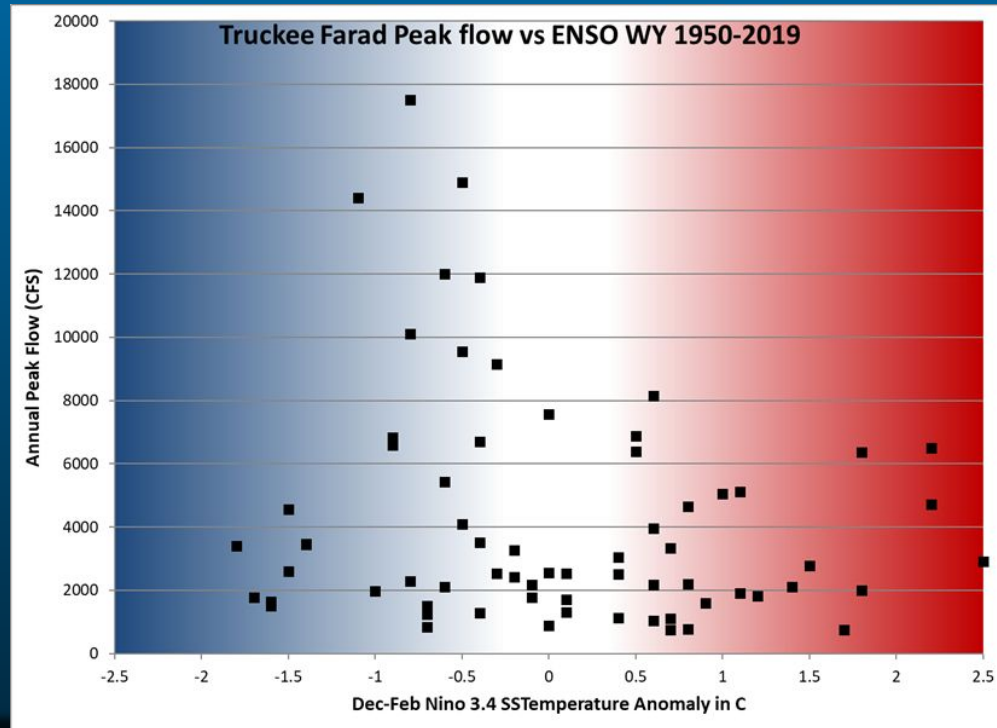
- Weak to moderate La Niña event heavily favored in tropical Pacific for this winter.
- Cooler than normal water over a large area = alterations to global weather patterns.

# La Niña: What Does That Mean for Our Winter?



- El Niño or La Niña
- There's been some correlation with floods and weak La Niña's but not perfect rule of thumb.

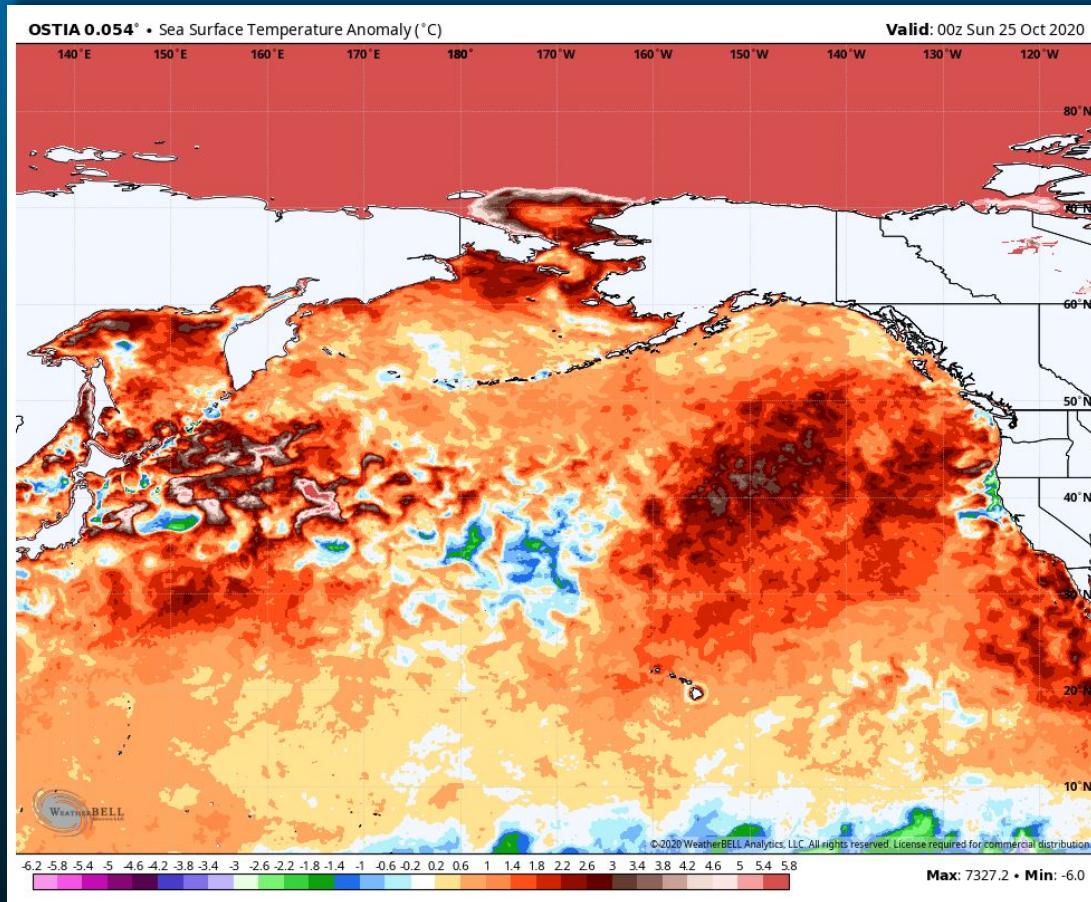
# La Niña: What Does That Mean for Our Winter?



- El Niño or La Niña (ENSO) basically mean nothing for winter precipitation at our latitude.
- There's been some correlation with floods and weak La Niña's but not perfect rule of thumb.



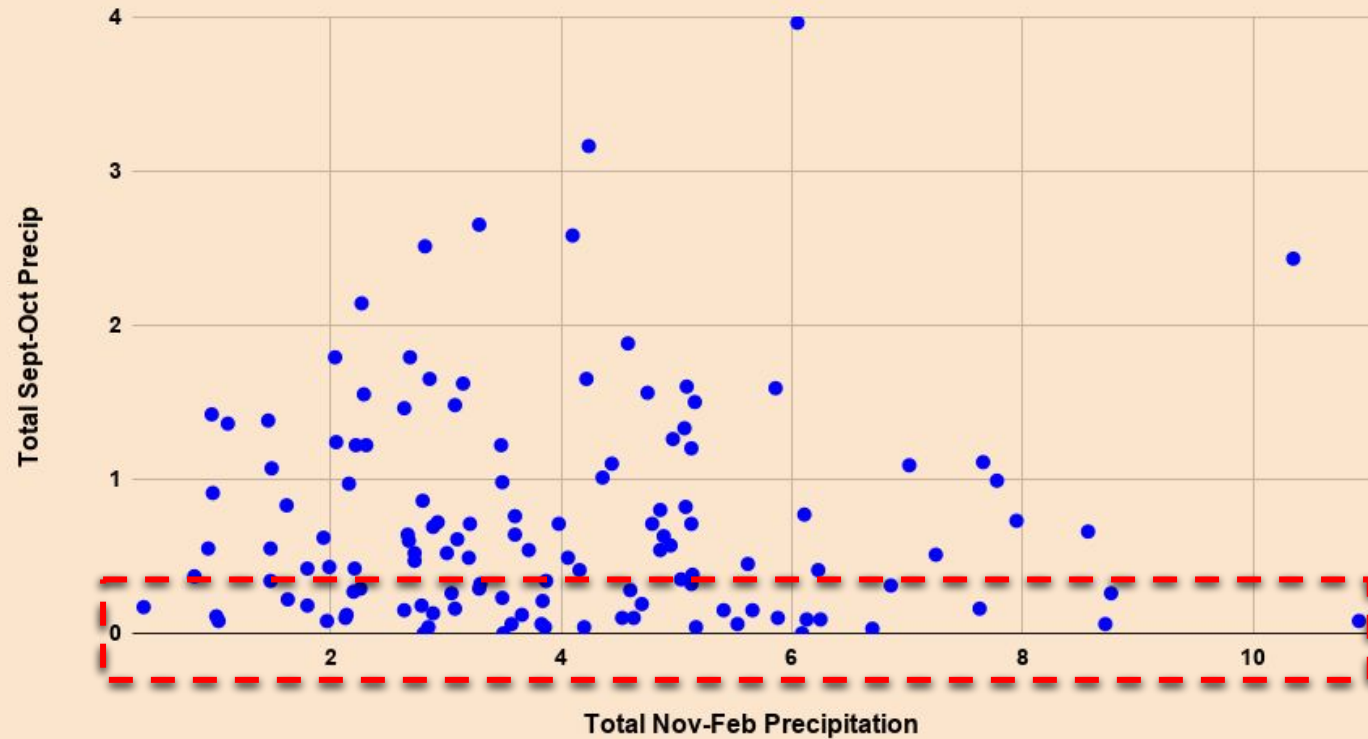
# Our Friend "The Blob" is Back



- Highly unusual warmth in NE Pacific ocean much of this year.
- Not connected to ENSO.
- Has been informally associated with drier than normal weather in CA/NV but no physical link yet established. Not perfect either - September 2016 was similar...
- More likely: Could help storms we do get to become **warmer** (higher snow lines) and/or **wetter** (warmer ocean water produces more humidity)

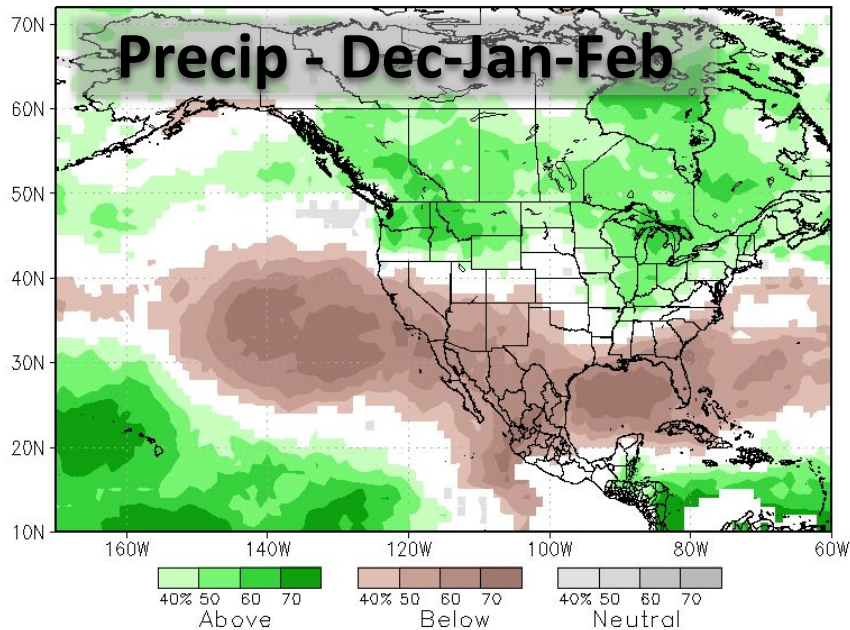
# Correlation Between Fall and Winter Weather?

Do Dry Autumns in Reno Mean More of the Same in Winter?

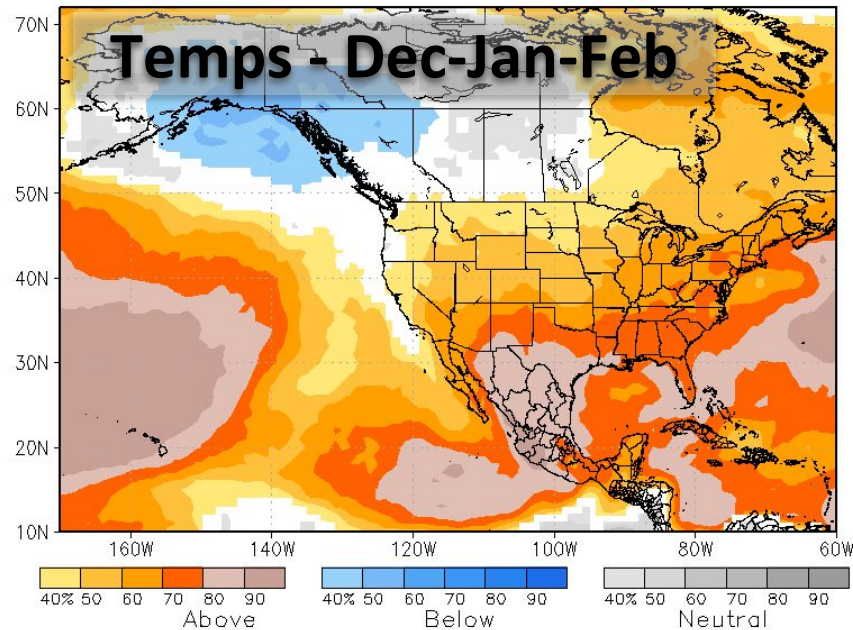


# OK, What Do The Models Actually Show?

NMME prob fcst Prate IC=202010 for lead 2 2020 DJF



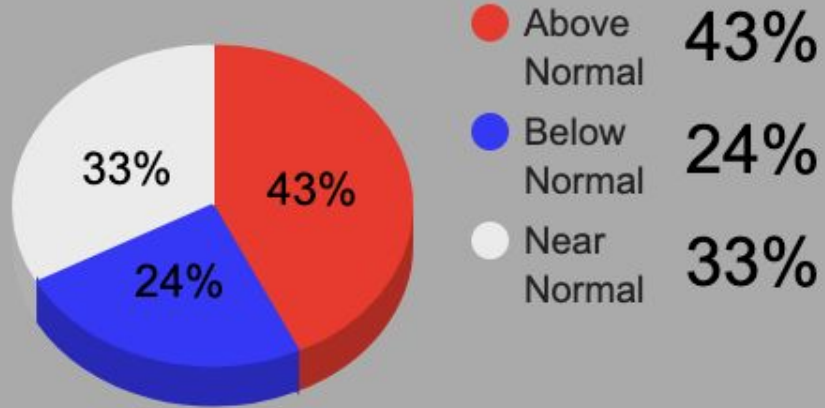
NMME prob fcst TMP2m IC=202010 for lead 2 2020 DJF



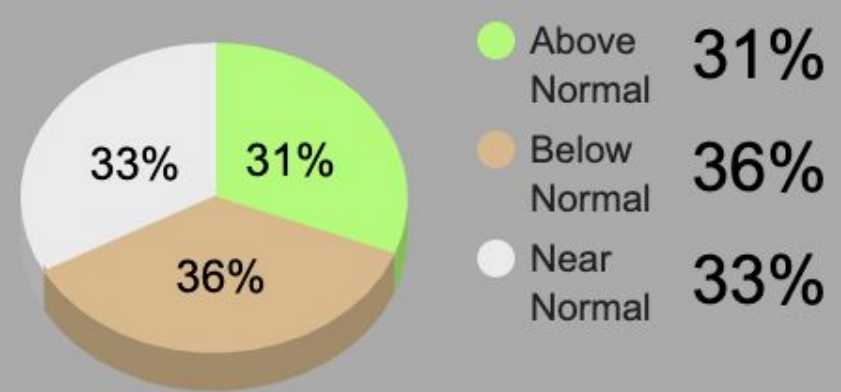
- **Seasonal forecasts struggle in the Sierra and much of Nevada. Lack of ENSO relationship.**
- **Multi-model projections: lean dry and warm but it's only a soft signal for our region. [\[data\]](#)**

# NOAA CPC Pie Charts

## Temperature - DJF



## Precipitation - DJF



- These pie charts clearly show any scenario is still on the table.
- The slight lean is toward a drier and warmer than normal winter. But again, it's a slight lean.

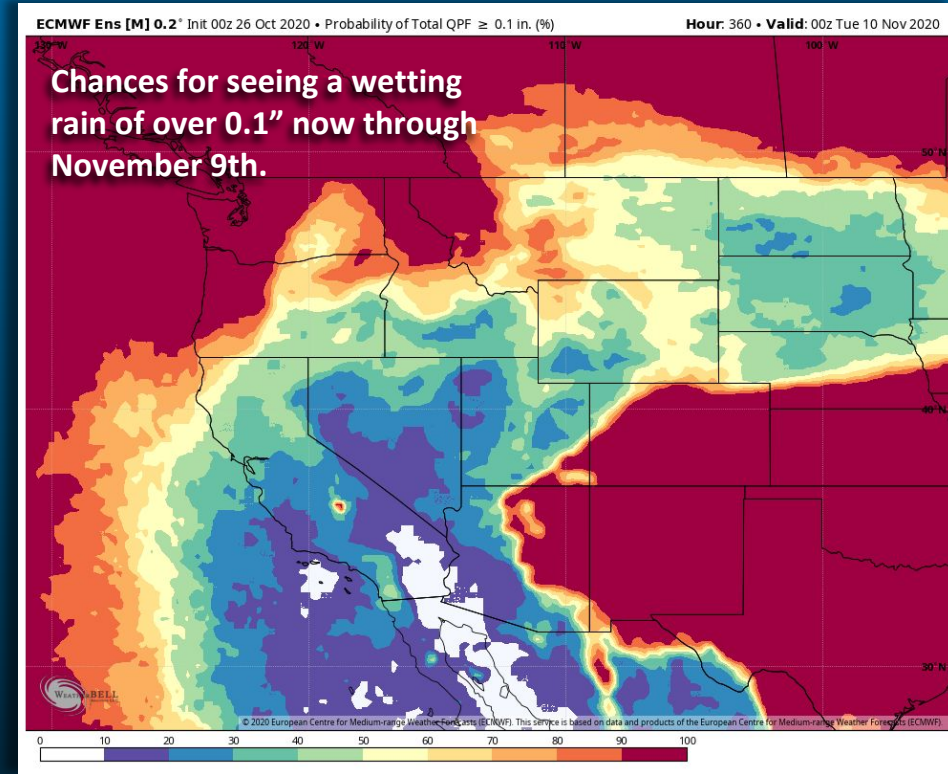
# Typical First Wetting Rains - Coming Up??

## October 8

*Reno (0.1" or more)*

## October 4

*Tahoe City (0.25" or more)*



# Spectrum of Predictability for Winter Weather

SUN	MON	TUE	WED	THU	FRI	SAT
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

**2-3 Weeks:** general regional trends (e.g. turning wet in the west towards Christmas)

**5-8 Days:** storm pattern taking shape (e.g. winter storm possible Christmas travel week)

**2-4 Days:** severity, character, locations affected (e.g. heavy snow pattern likely for Sierra, W Nevada)

**1-2 Days:** details on timing, rain vs snow, historic? (e.g. severe and prolonged travel disruptions for Sierra)



# Scenarios We Freakout About - Atmospheric Rivers



January 2017 – Sparks PD



## The Easy Forecasting Parts

- Can usually see these coming 5+ days in advance.
- Moderate-strong events almost always produce hazardous flooding, wind, and/or snow in our region.

## The Tricky Forecasting Parts

- Rain-snow line elevation!! Can get quite high (9,000+) or stay really low (4,000-). Big impact to flood vs snow.
- How much moisture makes it past Sierra? How long it stays? Spillover impacts getting floods vs getting major wind storm.

# Scenarios We Freakout About - Burn Scar Floods/Debris Flows

## The Easy Forecasting Parts

- We know where the fire was and typically how “cooked” the soil is.
- Usually takes high intensity rainfall to cause problems. Typically more of a summer t-storm issue, **but Narrow Cold Frontal Rainbands can trigger in winter.**

## The Tricky Forecasting Parts

- Anticipating that brief high intensity rainfall with any meaningful lead time.
- Often debris flows & mudslides occur **within minutes of rainfall - so little or no warning is the norm.**





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# NWS Reno Winter Decision Support Services

**1:** Check the latest forecast and Forecast Discussion - [weather.gov/reno](http://weather.gov/reno) or [mobile.weather.gov](http://mobile.weather.gov) (we don't have an app - don't get me started)

This Afternoon: Sunny and Breezy, High: 82 °F

Tonight: [Moon icon]

Thursday: [Sun icon]

Thursday Night: [Moon icon]

Friday: [Sun icon]

Friday Night: [Moon icon]

**Area Forecast Discussion**  
National Weather Service Reno NV  
307 AM PDT Thu Sep 24 2020

.SYNOPSIS...

**Detailed Forecast**

This Afternoon: Sunny, Wind: W 10-15 mph

Tonight: Widespread light showers possible at times

Thursday: Sunny

Thursday Night: Clear

Friday: Sunny

Friday Night: Mostly clear

Saturday: Sunny

Saturday Night: Mostly clear

**.DISCUSSION...**

No significant changes were made to the current forecast, which features one more breezy day today, with continued dry conditions and a warmup to well above average daytime temperatures next week.

### Situational Awareness - When Should I Freak Out?

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

	Fri 9/25	Sat 9/26	Sun 9/27	Mon 9/28	Tues 9/29	Wed 9/30	Thurs 10/1	W2 10/2-26
<b>Wind</b>	SW winds increase Friday PM, becoming strong Fri night thru Sat. Appreciable impacts to travel, aviation, lakes (subleak) damage in wind prone areas.	Continued breezy. Stronger winds for E Sierra, Hwy 95 communities.		Lighter but cool N/W breezes.			Light winds.	
<b>Snow</b>	Take advantage of last dry day for a bit.	Snow starting Sat AM in Sierra. Big travel impacts in mountains. W New snow mainly Sunday but less certain on road impacts due to "warm" temps. Storm could catch "fury off guard with recent dryness.		Sierra snow a good bet, mix of rain and valley snow for W New cities. <b>HEADS UP for Mon &amp; Tue AM commutes.</b>		Scattered rain/snow showers continue.	Trending drier.	No large storm signals right now, but some simulations show light showers possible at times.
<b>Flooding</b>	No concerns here.							
<b>Unusual Cold or Heat</b>	Warm but breezier.	Transition day, cooler.		Much colder! Daytime temps 10-15 degrees below normal. Nights quite cold for mid-March. Protect new vegetation.			Trending warmer, slowly.	Near normal temps.
<b>Ventilation, Fog</b>	No worries here with good mixing and winds.			Morning valley inversions but PM mixing should be good.				
<b>Fire Weather</b>	Concerns lower elev grassy areas with low RH. Sat. risk shifts mainly to E Sierra.			Cool and damp, no issues for a while.				Unlikely
<b>What Does This Mean?</b> <small>(Impacts on road conditions)</small>	No worries 😊	Low freakoutness 😊	Moderate freakoutness 😐	High freakoutness 😞	Really bad 😡			

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

**2:** Read latest Freakout briefing, with probability and scenario info. Usually emailed by 10 AM ahead of storms.



**3:** Still have specific questions? Call us 24/7 - 775.673.8107