

National Weather Service Medford

# February 2020 Climate Summary



\*These data are preliminary and have not undergone final QC by NCEI. Therefore, these data are subject to revision. Final and certified climate data can be accessed at the [National Centers for Environmental Information \(NCEI\)](#).



# February 2020 Weather Review

February 2020 was a stark contrast to February 2019. The previous February was a very active month with multiple periods of low elevation snow. This included one storm that crippled multiple counties in the CWA and led to a state of emergency declaration by the governor. This year, however, the pattern was largely dominated by a thermal trough at the surface and an upper level ridge aloft, and this kept the storm track well north of the forecast area. This pattern resulted in well below normal precipitation with cold mornings and warm sunny afternoons.

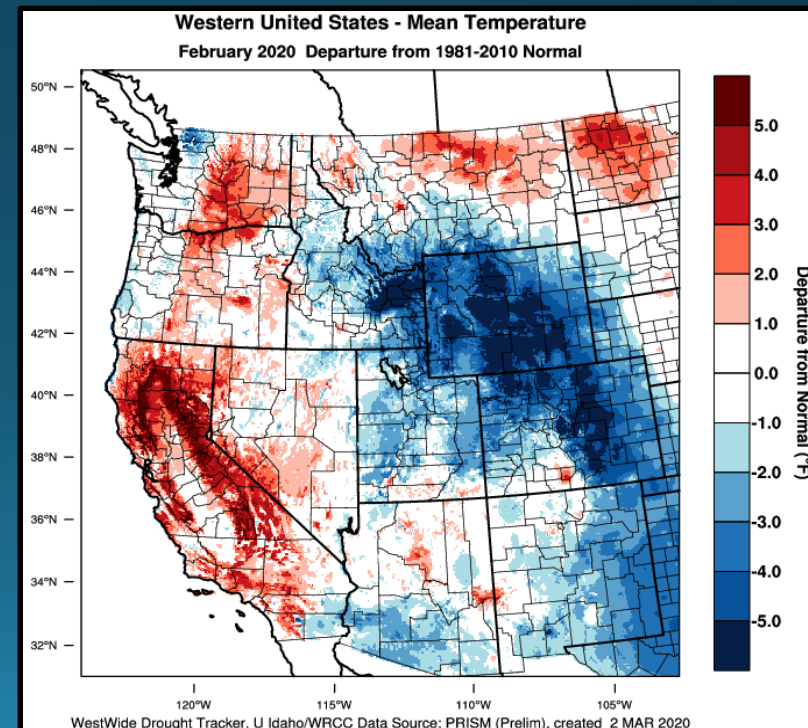
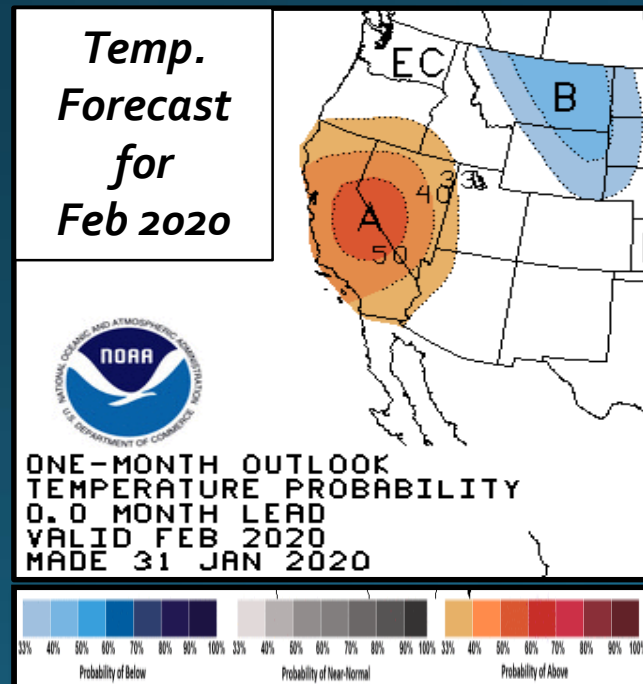
There were brief interruptions in this pattern, however, about once each week where the ridge broke down and a system passed through the area. Most of these systems, however, were weak or weakened as they moved inland, which left most areas east of the Cascades and in northern California dry. Snowpack dwindled to 60-80% of normal by the end of the month, and the water year to date (as of March 2<sup>nd</sup>) was only 40-60% of normal across the forecast area. The thermal trough along the coast maintained easterly flow and a fairly dry air mass. This led to cold crisp nights with below normal minimum temperatures. Cold mornings gave way to warm sunny afternoons which led to above normal maximum temperatures. The lack of moisture precluded fog development for many areas, except for those in Umpqua Basin, who had to contend with low clouds for several mornings, which resulted in cooler than normal maximum temperatures.

With the lack of active weather, multiple climate sites recorded one of the driest, if not the driest, February on record. Montague, Mt Shasta City, and Alturas all recorded their driest February on record, while February 2020 was in the top ten driest for remainder of the climate sites.



# A Look Back at the February 2020 Temperature Outlook

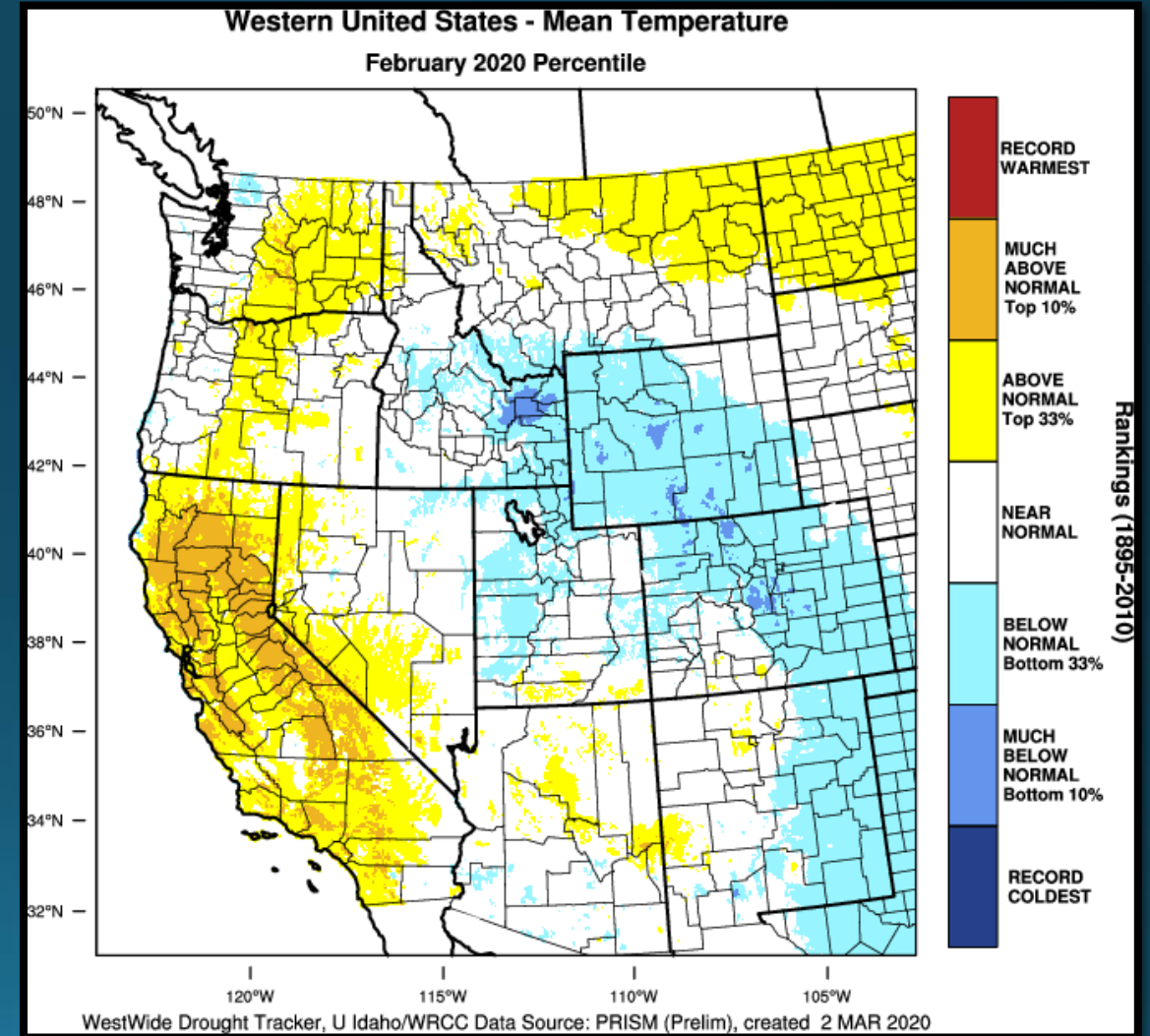
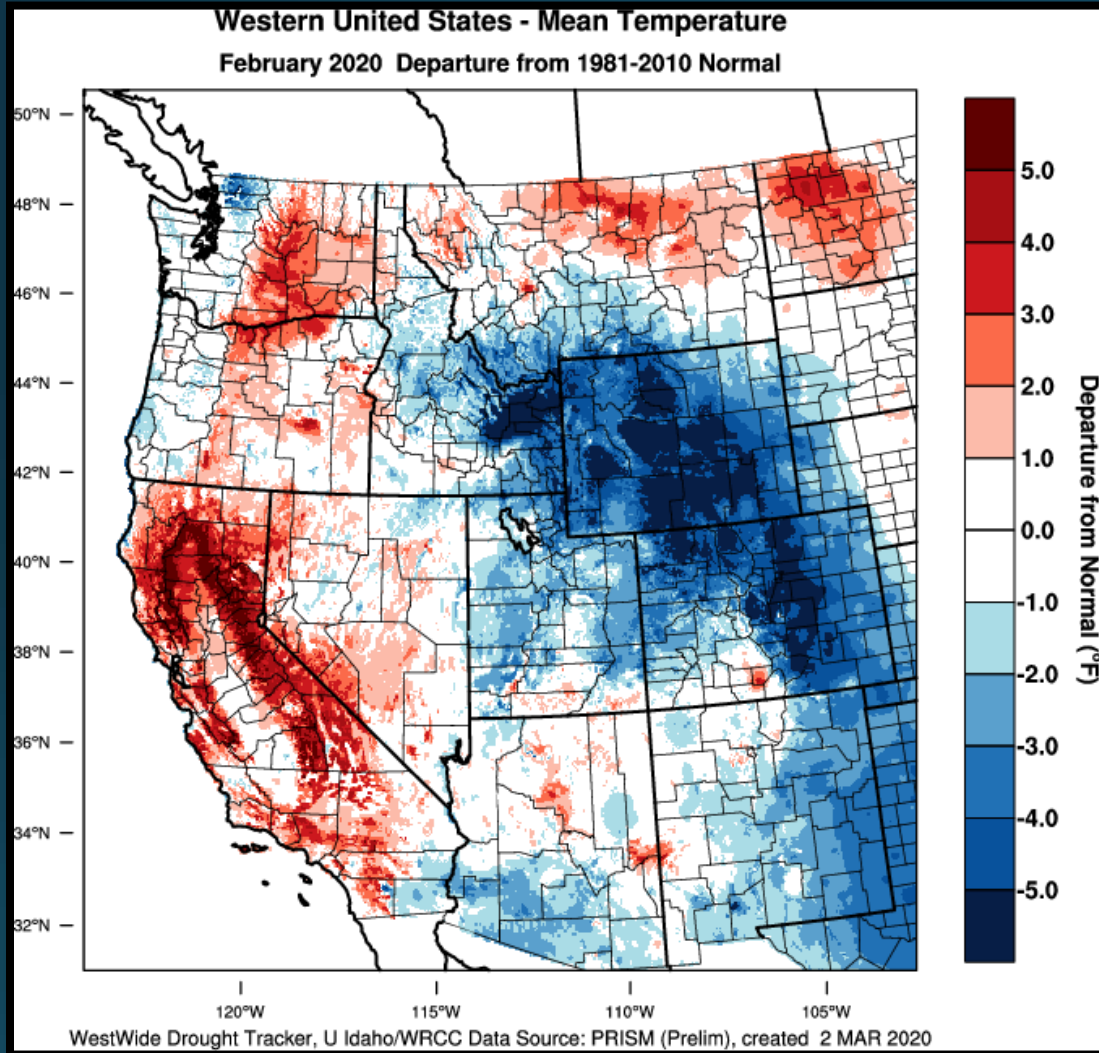
- **Was the forecast anomaly correct?** Generally speaking, the forecast anomaly in our localized forecast was **mostly not correct**. Our localized forecast indicated temperatures would be “between  $-1^{\circ}\text{F}$  and  $-8^{\circ}\text{F}$  of normal”, “likely to be coldest across the Oregon east side”, and “temperatures closest to climatology along the coast and across Siskiyou County.” The actual range, per the WRCC PRISM analysis, was  $-4^{\circ}\text{F}$  to  $+5^{\circ}\text{F}$ , with most locations  $-1^{\circ}\text{F}$  to  $+2^{\circ}\text{F}$  of normal. CPC’s forecast for our area was very good, spatially.
- **Was the expected impact correct?** **Yes and no, but mostly no**. The impacts indicated were “cold weather impacts throughout the month, with more snow at low and mid elevations than is typical”, and SWE to stay the same or grow in Oregon, but fall in California. While anomalously low overnight lows up to  $5^{\circ}\text{F}$  below normal per point data yielded cold weather impacts there, limited precipitation even under a generally northerly flow resulted in little impacting snowfall.
- **Did our forecast improve upon the CPC forecast?** **No**. CPC’s forecast was better than ours, except that our localized forecast did indicate colder temperatures that were observed in the morning hours at valley locations.







# February 2020 Observed Temperatures





# Average Temperatures

	Average (°F)	Departure from Normal	Average Max (°F)	Departure from Normal	Average Min (°F)	Departure from Normal
North Bend	44.7	-1.7°	52.7	0.0°	36.6	-3.6°
Roseburg	44.5	-0.8°	53.2	-0.3°	35.7	-1.5°
Medford	43.0	-1.2°	55.0	0.7°	31.0	-3.1°
Klamath Falls	35.2	1.0°	50.7	5.9°	19.7	-4.0°
Montague, CA	39.3	0.2°	55.9	5.4°	22.8	-4.9°
Mt. Shasta City, CA	41.2	3.0°	54.4	5.8°	27.9	0.0°
Alturas, CA	34.0	0.1°	50.4	4.3°	17.5	-4.3°



# Monthly Max & Min Temperatures

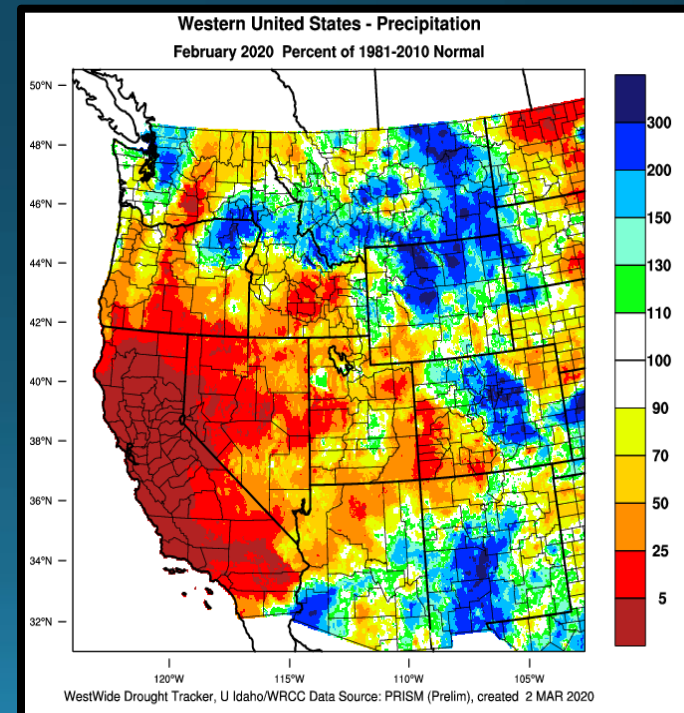
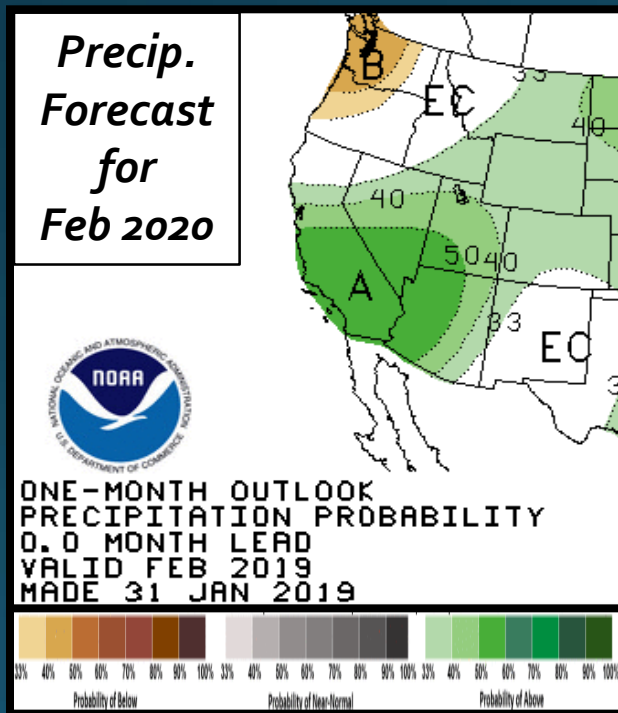
	<b>Max (°F)</b>	<b>Date(s)</b>	<b>Min (°F)</b>	<b>Date(s)</b>
<i>North Bend</i>	<b>64°</b>	<b>19<sup>th</sup></b>	<b>30°</b>	<b>18<sup>th</sup></b>
<i>Roseburg</i>	<b>65°</b>	<b>20<sup>th</sup></b>	<b>28°</b>	<b>18<sup>th</sup></b>
<i>Medford</i>	<b>67°</b>	<b>27<sup>th</sup> &amp; 28<sup>th</sup></b>	<b>23°</b>	<b>4<sup>th</sup></b>
<i>Klamath Falls</i>	<b>63°</b>	<b>27<sup>th</sup></b>	<b>3°</b>	<b>3<sup>rd</sup></b>
<i>Montague, CA</i>	<b>68°</b>	<b>26<sup>th</sup> &amp; 28<sup>th</sup></b>	<b>16°</b>	<b>18<sup>th</sup> &amp; 19<sup>th</sup></b>
<i>Mt. Shasta City, CA</i>	<b>65°</b>	<b>26<sup>th</sup> &amp; 27<sup>th</sup></b>	<b>20°</b>	<b>19<sup>th</sup></b>
<i>Alturas, CA</i>	<b>64°</b>	<b>27<sup>th</sup></b>	<b>9°</b>	<b>18<sup>th</sup></b>

	<i>Date</i>	<i>Record High</i>	<i>Old Record/Year</i>
<b>Alturas</b>	1 <sup>st</sup>	62°	Ties w/1953
<b>Roseburg</b>	20 <sup>th</sup>	65°	64° / 1958



# A Look Back at the Feb 2020 Precip Outlook

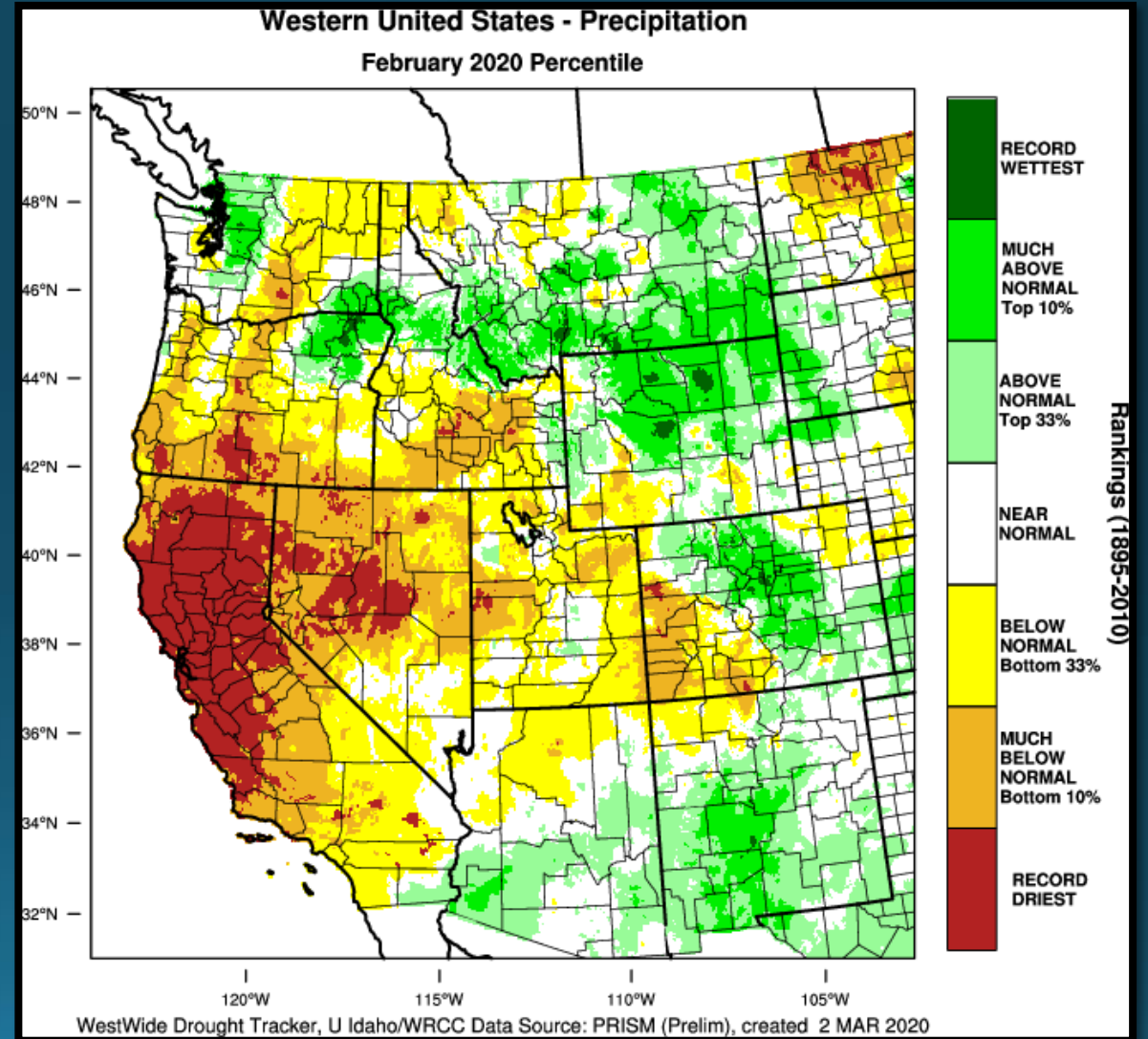
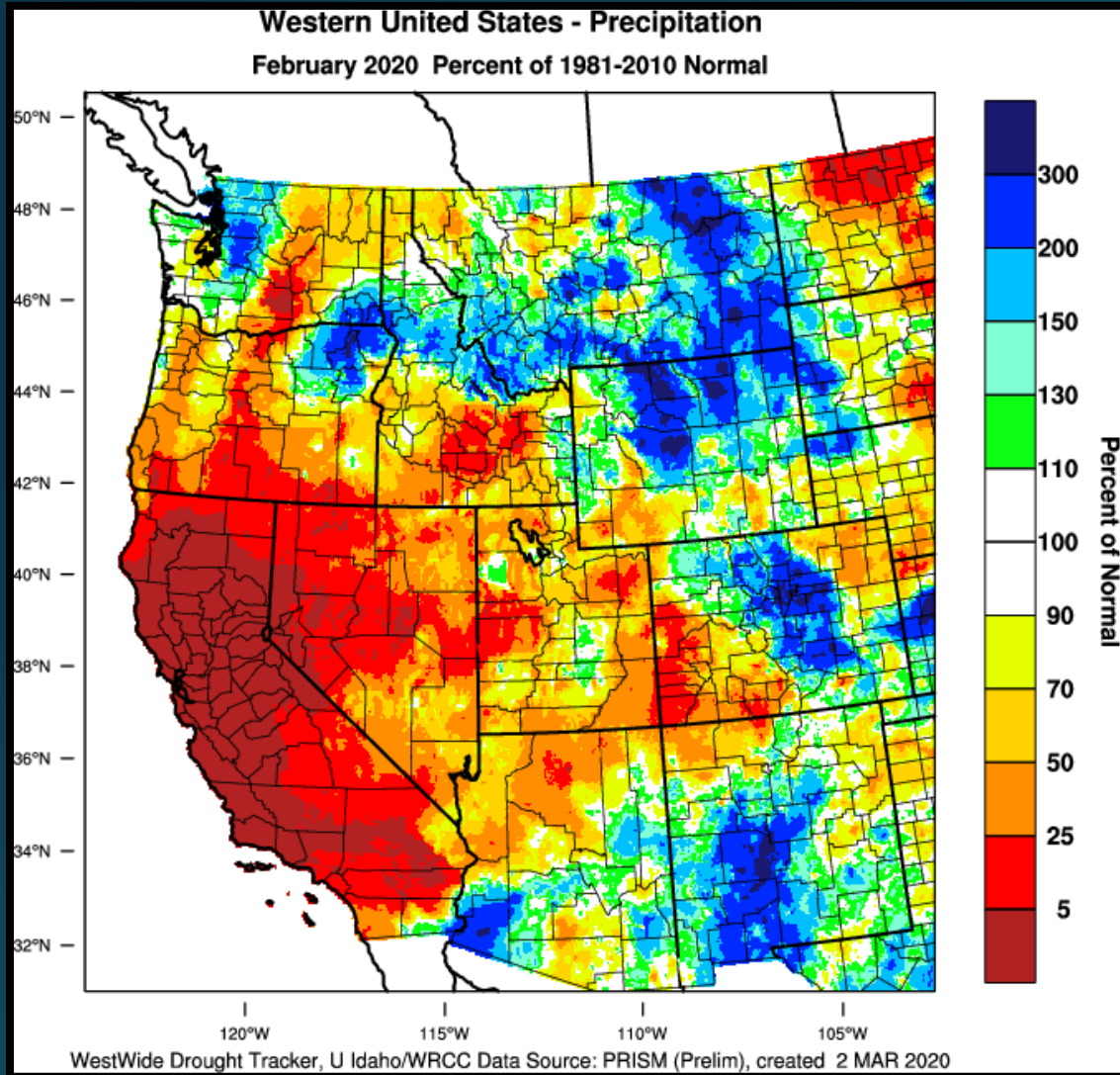
- **Was the forecast anomaly correct? Mostly yes.** Our localized forecast indicated “precipitation is likely to be 30% to 80% of normal and driest areas are likely to be Siskiyou County in NorCal and wettest should be in the Oregon Cascades.” Actual precipitation anomalies were 0% of climatology to around 80% of normal. About one-third of the forecast area was the driest on record and about one-eighth in the lowest 10 percent of climatology. Thus, while we did a great job with the spatial distribution and sign of the anomaly, it was even drier than was expected.
- **Was the expected impact correct? Mostly no.** Snow Water Equivalent % of normal fell by about 20% across the area due to a combination of lesser than expected snowfall and temperatures substantially warmer than expected.
- **Did our forecast improve upon the CPC forecast? Yes.** We definitely said precipitation would be below normal and where anomalies would be greatest.





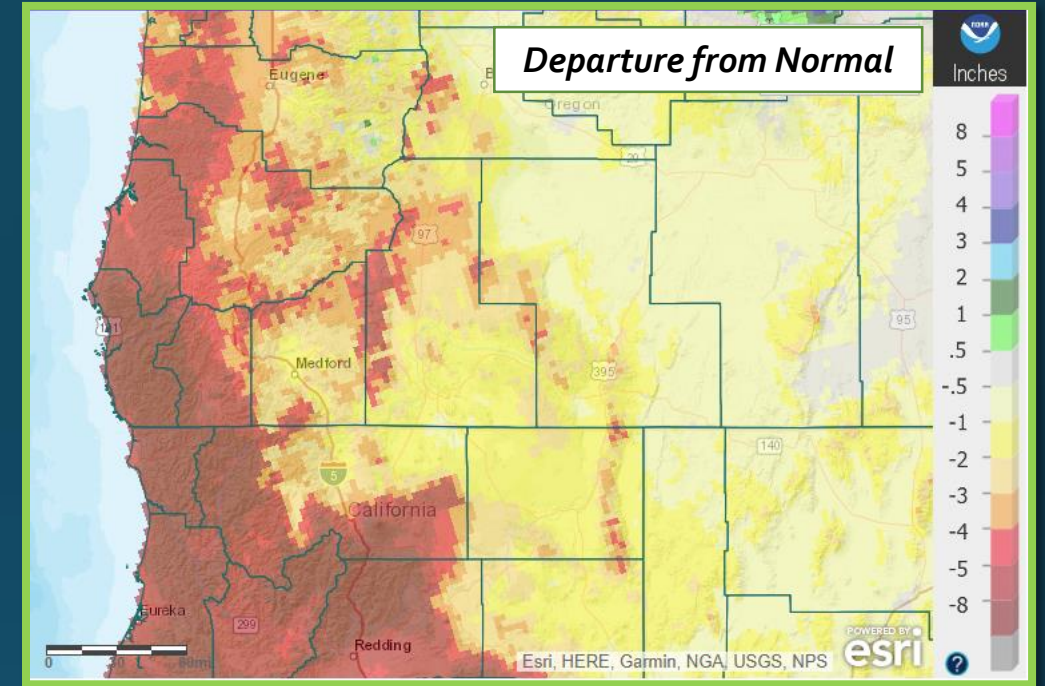
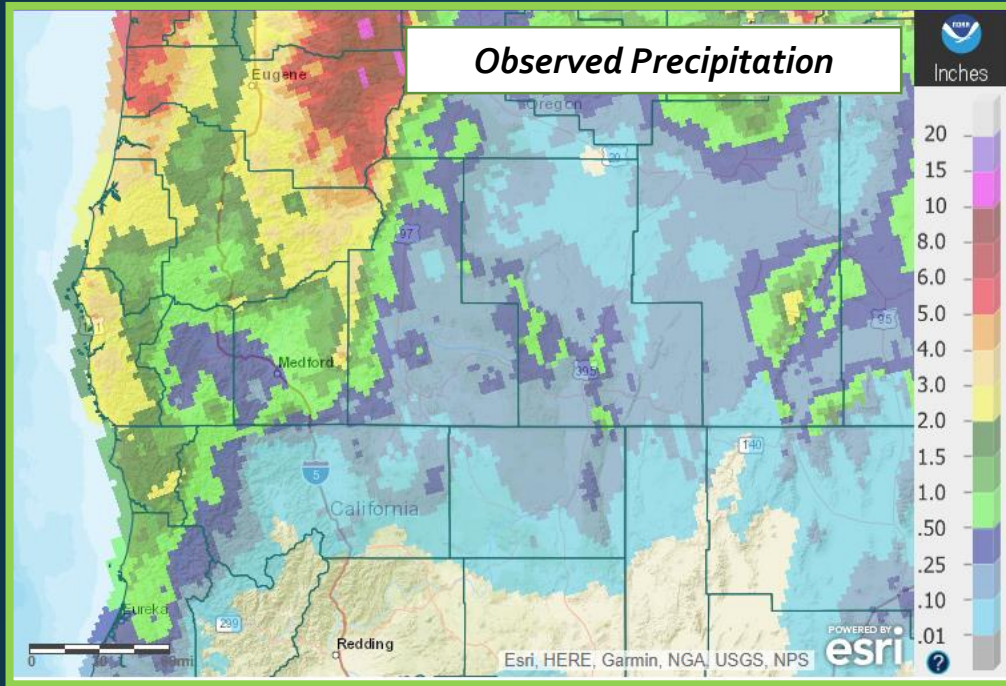


# February 2020 Observed Precipitation





# Precipitation



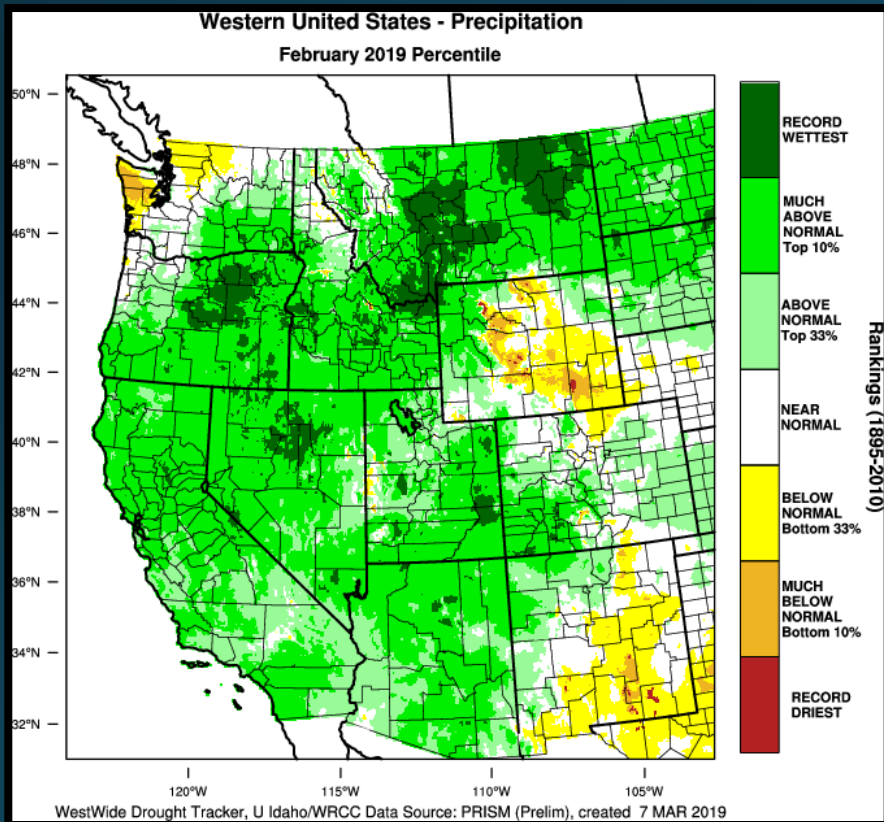
	Total	Departure from Normal	Greatest 24-hr Total	Date(s)
North Bend	2.85"	-4.74"	0.89	5 <sup>th</sup>
Roseburg	1.43"	-2.52"	0.35"	29 <sup>th</sup>
Medford	0.51"	-1.50"	0.18"	16 <sup>th</sup>
Klamath Falls	0.12"	-1.80"	0.11"	16 <sup>th</sup>
Montague, CA	0.04"	-1.97"	0.02"	1 <sup>st</sup>
Mt. Shasta City, CA	0.12"	-7.11"	0.12"	2 <sup>nd</sup>
Alturas, CA	0.14"	-1.31"	0.11"	16 <sup>th</sup>



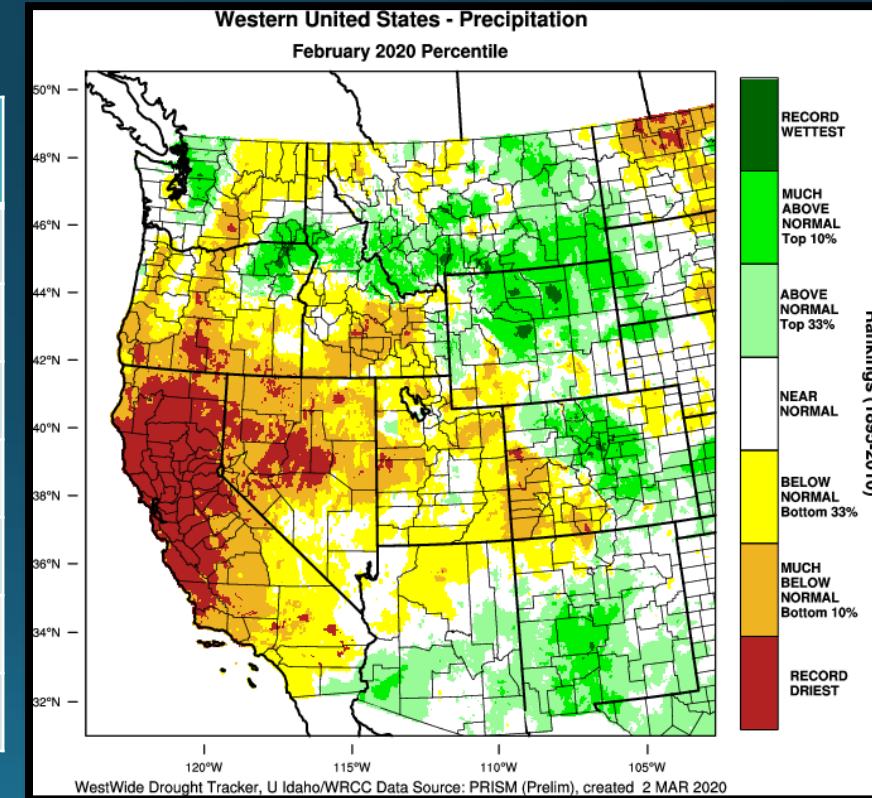
# A Tale of Two Februarys: From Record Wet to Record Dry

## 2019

## 2020



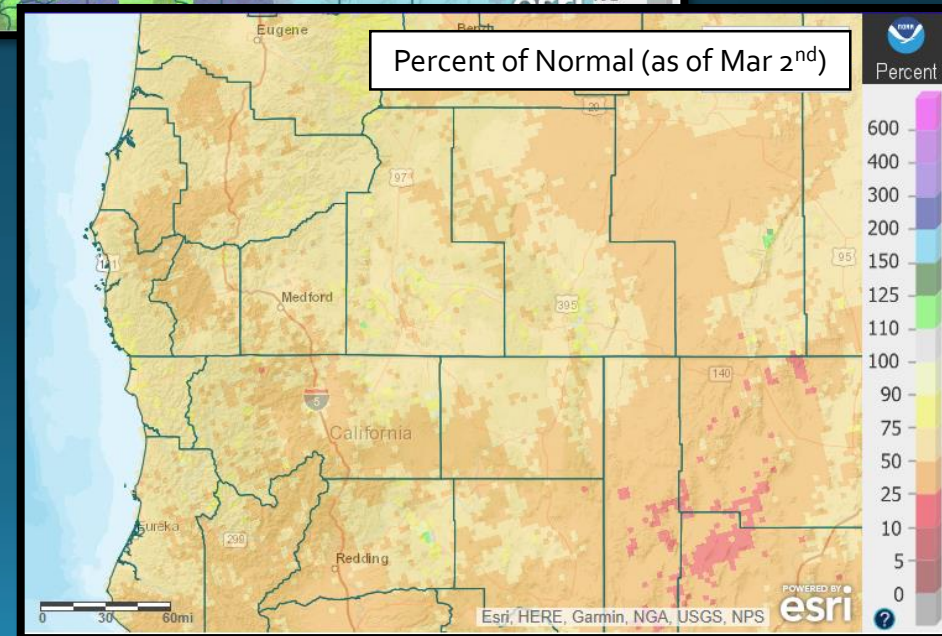
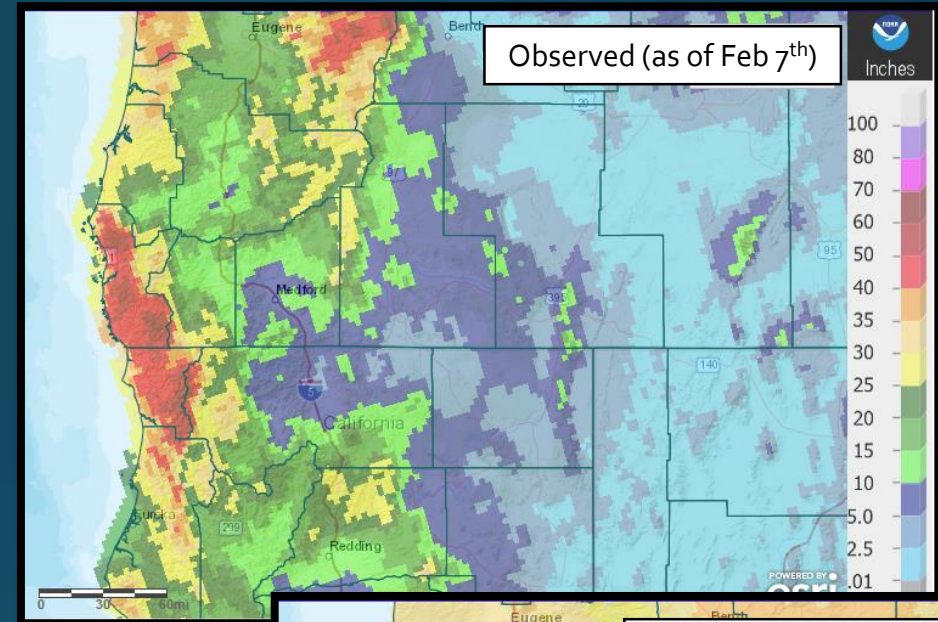
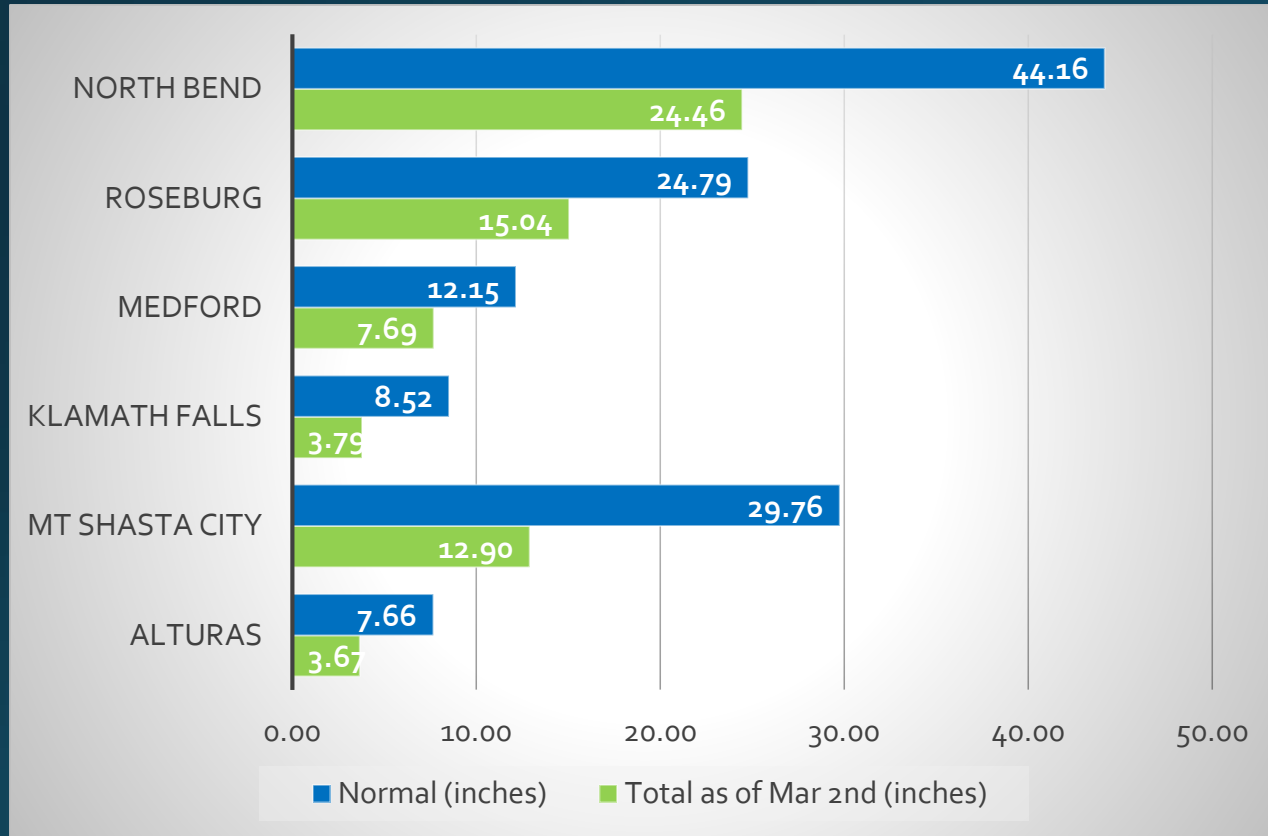
	2019 Rank (Wettest)	2020 Rank (Driest)
North Bend	5 <sup>th</sup>	9 <sup>th</sup>
Roseburg	5 <sup>th</sup>	8 <sup>th</sup>
Medford	7 <sup>th</sup>	12 <sup>th</sup>
Klamath Falls	27 <sup>th</sup>	6 <sup>th</sup>
Montague	1 <sup>st</sup>	1 <sup>st</sup>
Mt Shasta City	2 <sup>nd</sup>	1 <sup>st</sup>
Alturas	5 <sup>th</sup>	1 <sup>st</sup>





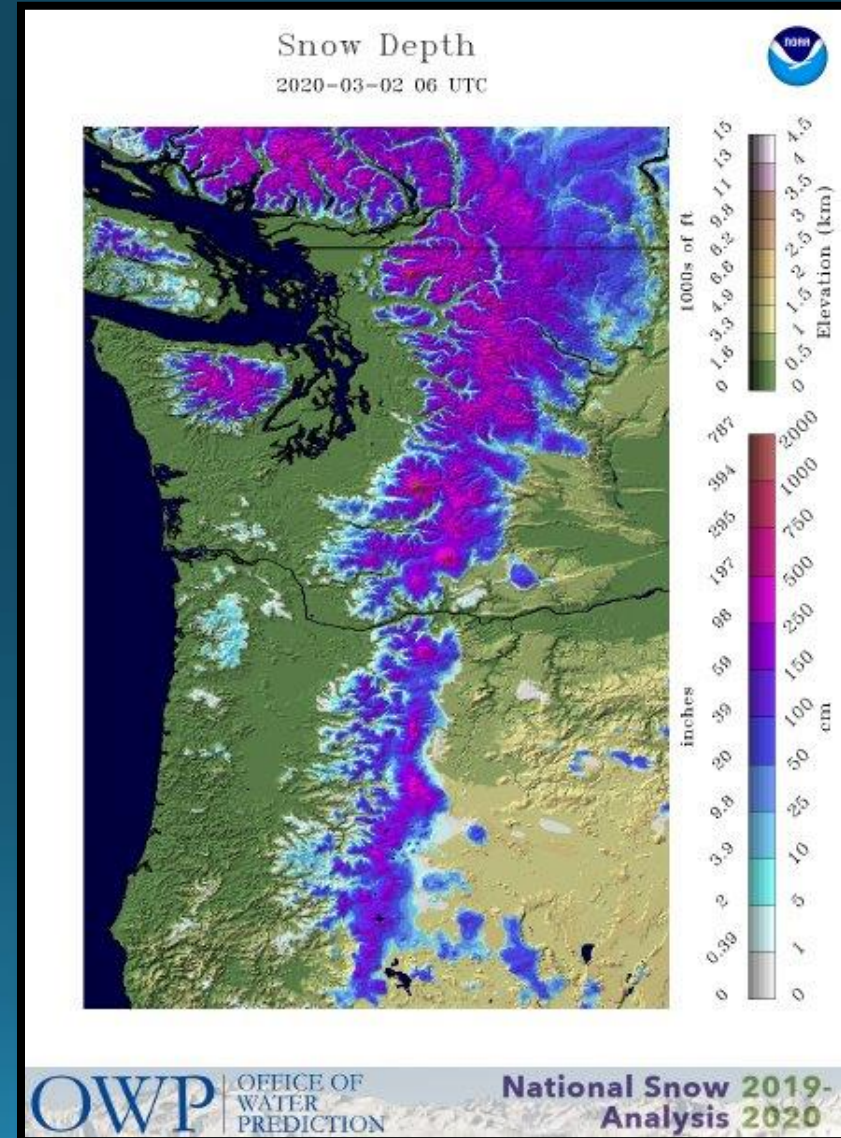
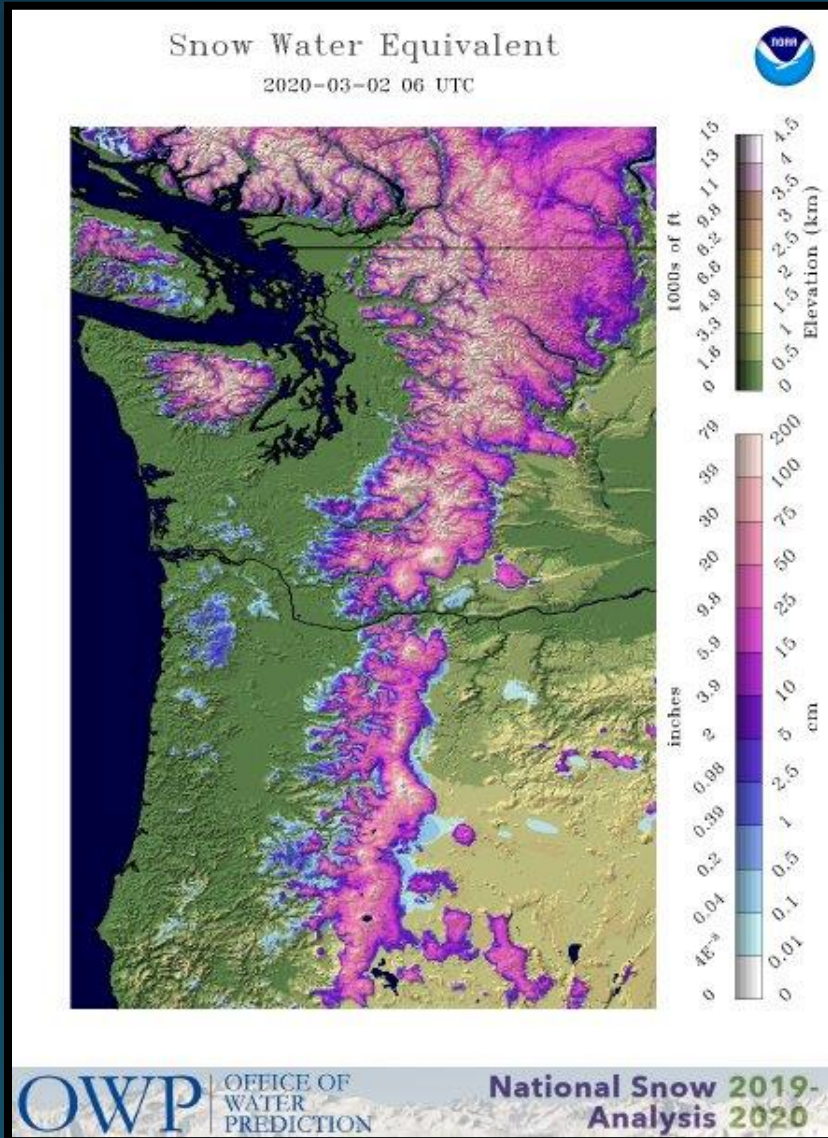


# Water Year Status (As of Mar 2<sup>nd</sup>)



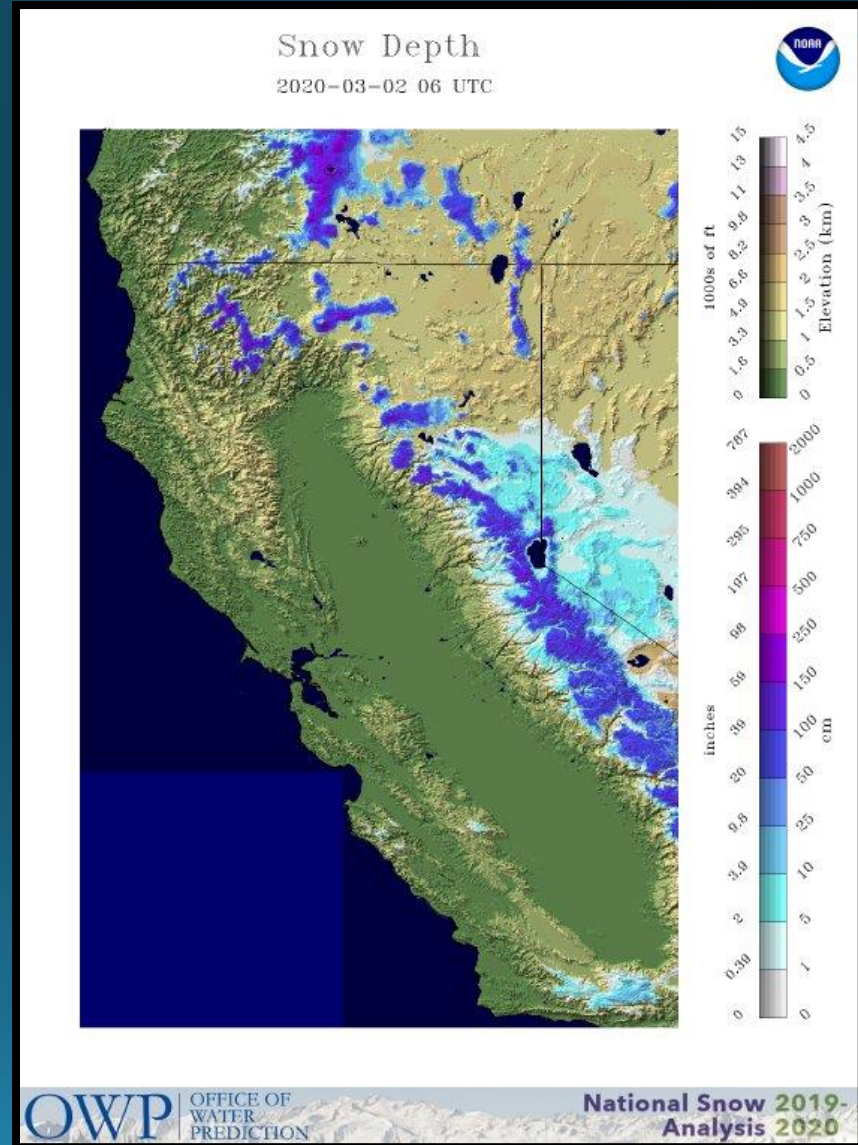
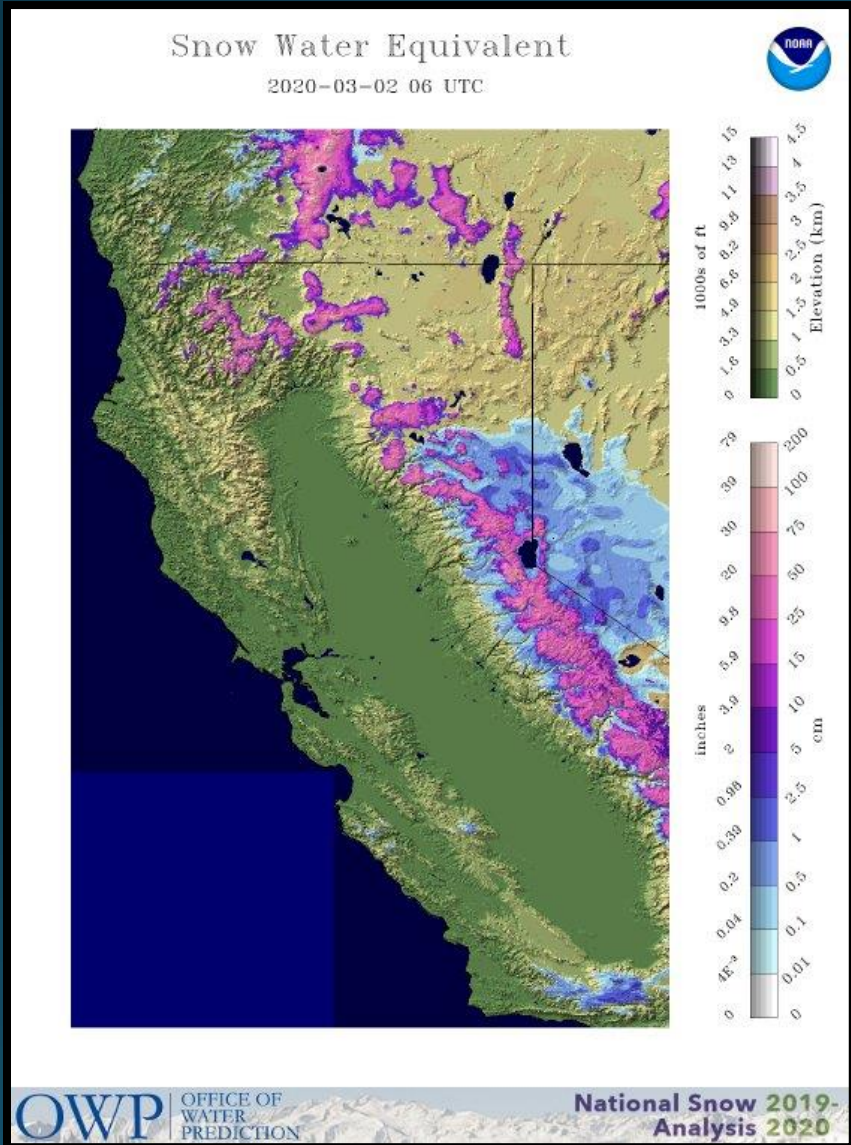


# PacNW SWE & Snow Depth as of 3/2/20





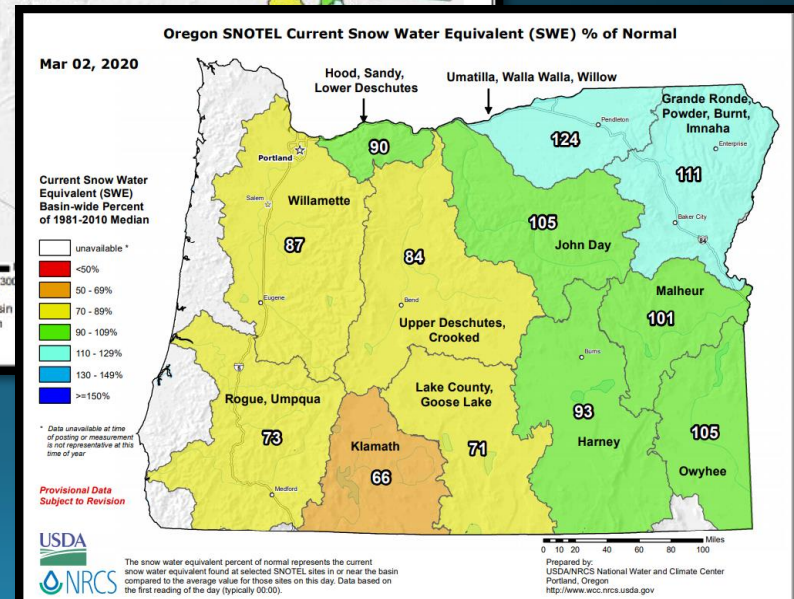
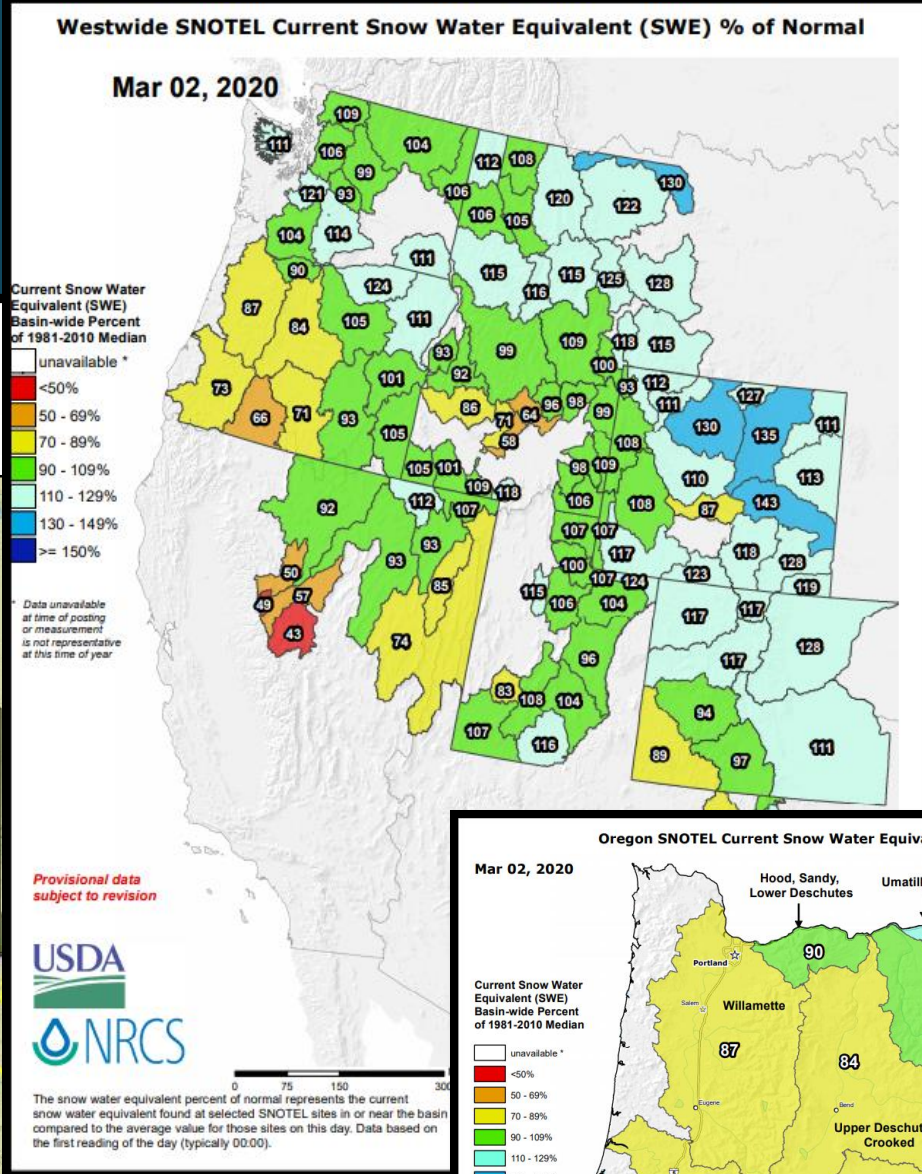
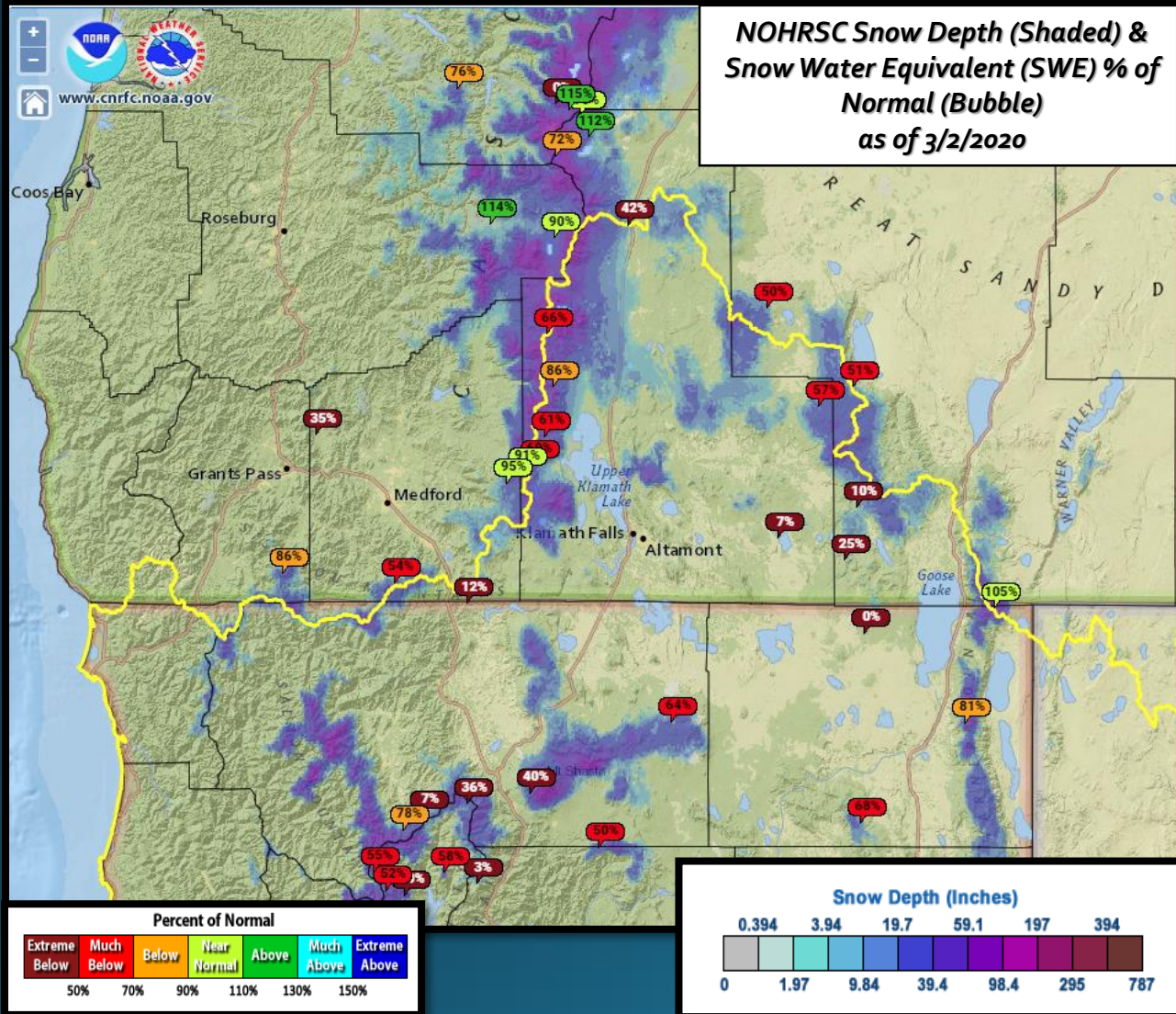
# California SWE & Snow Depth as of 3/2/20







# Snowpack Status





# Crater Lake

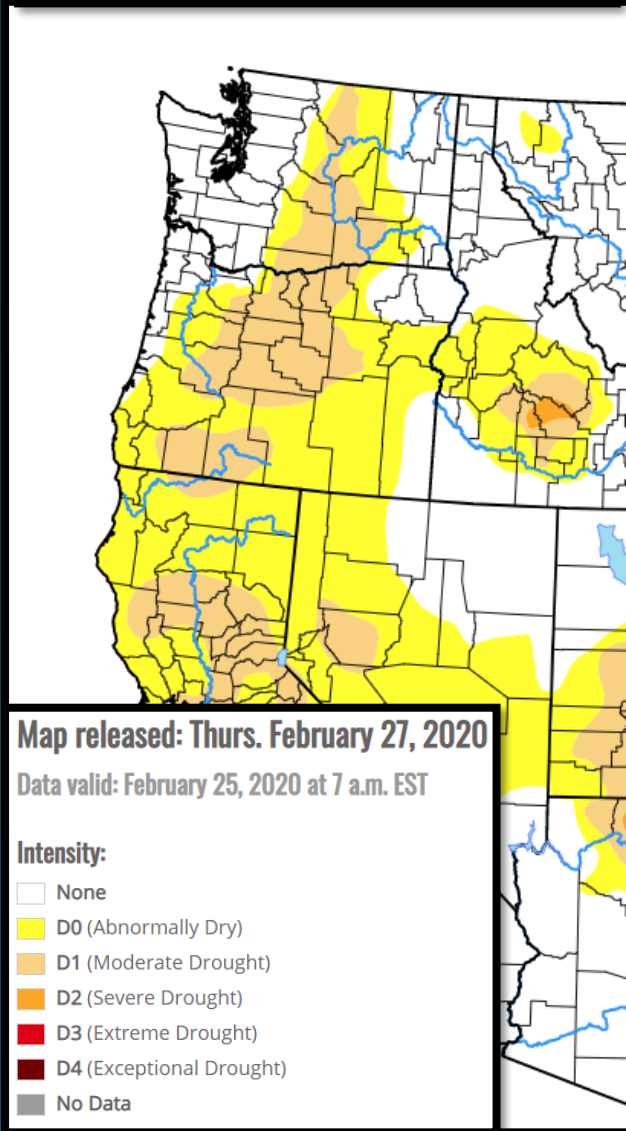
Image Courtesy: NPS



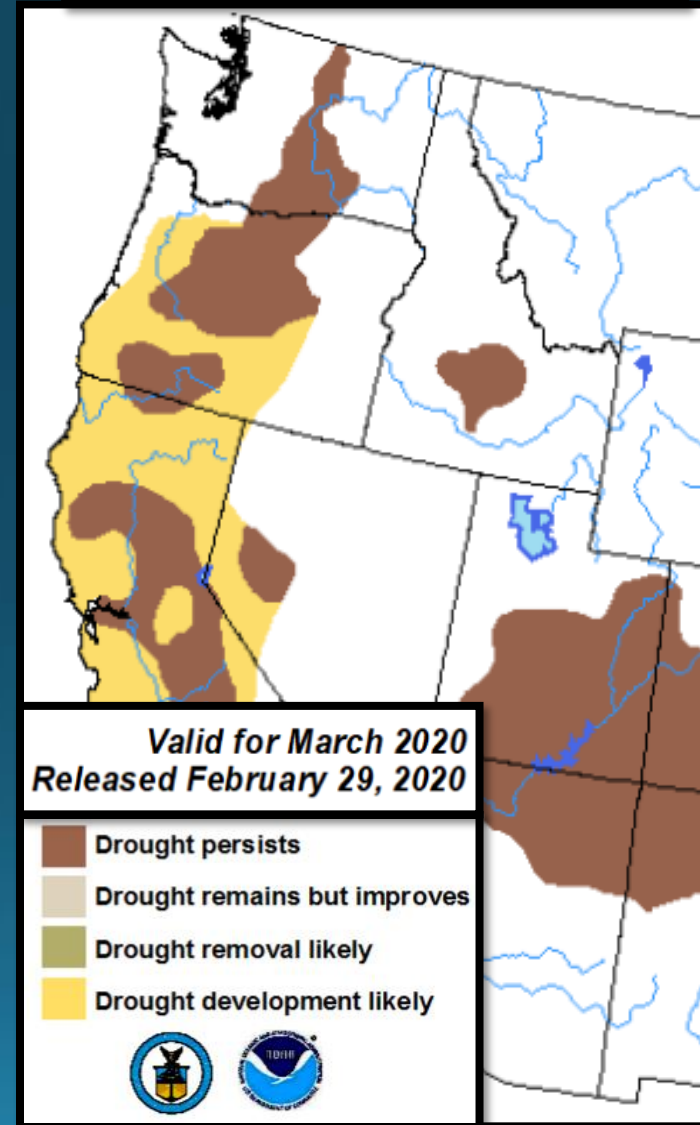
	Average Max Temp (°F)	Average Min Temp (°F)	Total Precipitation	Total Snowfall	Snow Depth as of: 02/29/20	Highest Max/ Lowest Min
February	37.1°	18.3°	3.20"	22.8"	72"	50° on 26 <sup>th</sup> / 5° on 3 <sup>rd</sup> & 5 <sup>th</sup>
Normal (1981-2010)	34.8°	17.8°	7.72"	71.3"	109"	N/A

# Drought Monitor (Current) & Outlook (March)

## United States Drought Monitor



## U.S. Monthly Drought Outlook Drought Tendency During the Valid Period







# Normals for March (1981-2010)

## Temperatures:

Along the coast, lows are typically in 40s with highs in the 50s to near 60F. The Interior West Side usually experiences average lows in the lower 30s to lower 40s and highs in the 50s to near 60 in the lower valleys. Lows in the upper teens to mid 20s occur across the higher, most typically snow packed mountains, and the East Side. Highs in those mountains and across the East Side are typically in the mid 30s to the lower 50s.

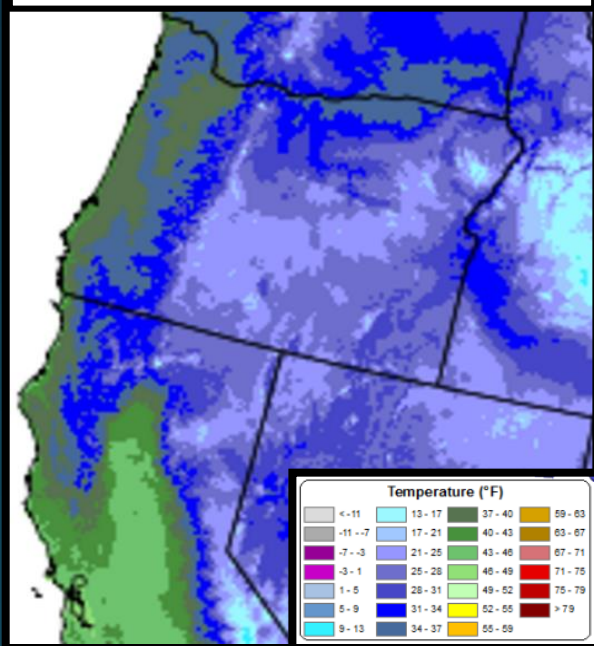
## Precipitation:

On the high side for March, Curry County usually gets 10 to 20 inches of water. South and southwest flow favored areas of west of the Cascades, the Mount Shasta area, and the Cascade and Siskiyou Mountains typically receive 5 to 10 inches. The remainder of the West Side has a wide range in normals, ranging from 1 to 5 inches. East of the Cascades, the drier portions of Lake County typically receive about a half an inch, while the rest of the area gets 1 to 3 inches of water, except up to around 5 inches in the some of the mountains.

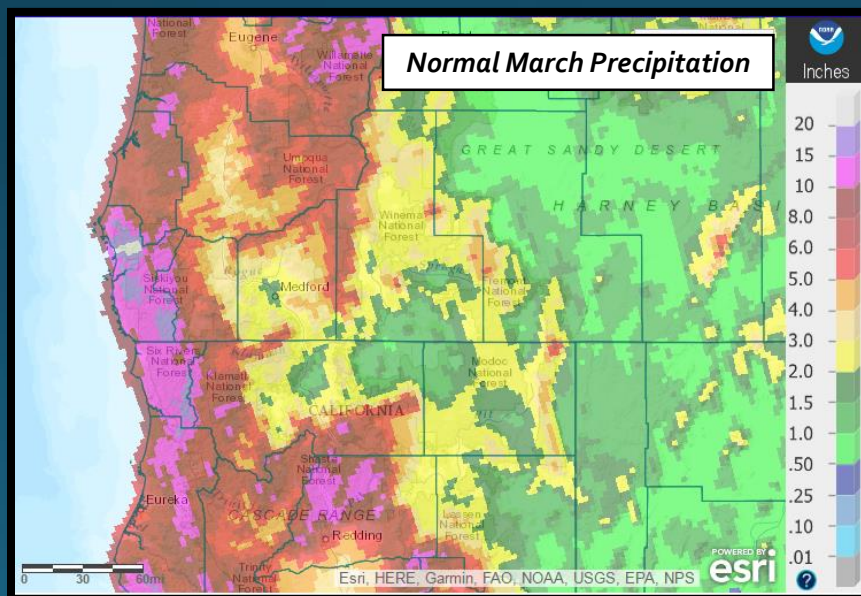
## Snow:

Peak snowpack, in terms of snow water equivalent, for the forecast area occurs in the mid-March to mid-April time frame. Thus, in early March, we usually continue to add more water to the snowpack than is lost from melting and sublimation and, sometimes, this lasts through mid-April. Our maritime snowpack usually yields depths of 5-10 feet above 6000 feet elevation in mid-March. Crater Lake's snowpack has historically peaked around 125 inches on March 31<sup>st</sup>. Average March snowfall for Crater Lake Park Headquarters is 73 inches.

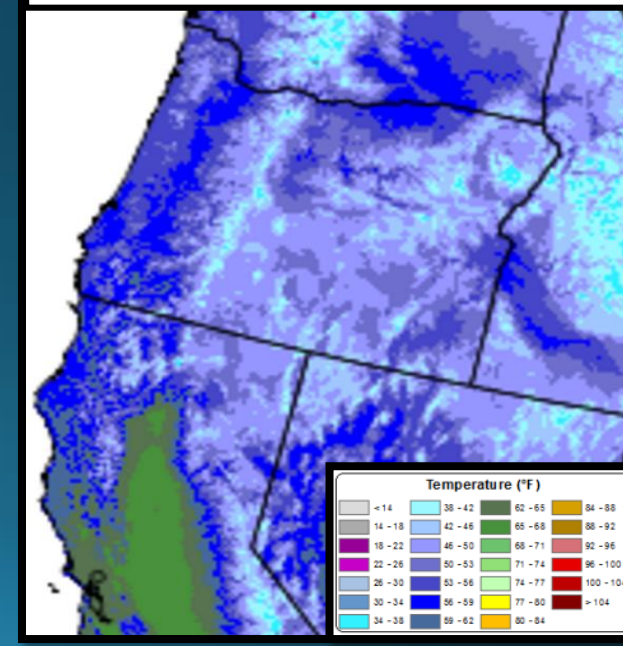
### Average Minimum Temperatures



### Normal March Precipitation



### Average Maximum Temperatures





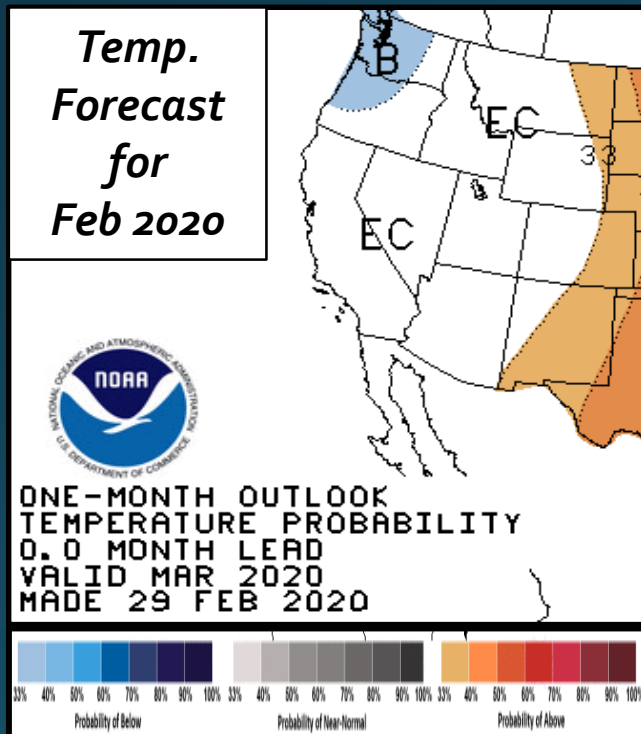
# March 2020 Outlook

(Written March 3<sup>rd</sup>)

The official Climate Prediction Center forecast for February 2020 predicts equal chances of below, near, and above normal temperatures across the Medford NWS forecast area.

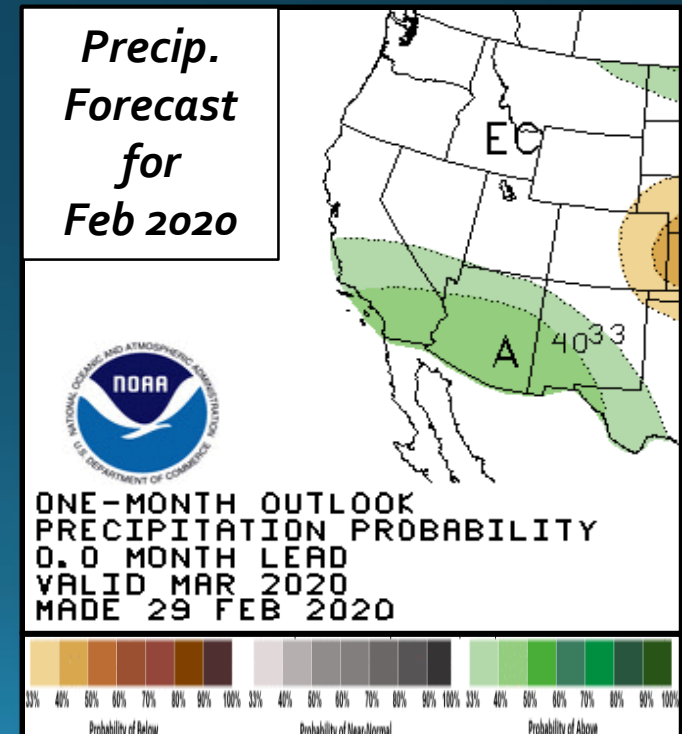
- Our localized **March temperature** forecast is for **near to slightly below normal temperatures, most likely between -3°F and +3°F of climatology.**
- Our localized **March precipitation** forecast is for **below normal precipitation across the forecast area (in the 25-75% range), except from the Mount Shasta area eastward into Modoc County, where it's likely to be close to normal (80-120% of normal).** Precipitation is most likely to be below normal for Oregon areas from the Cascades westward minus Curry County.

Overall, there continues to be much anticipation regarding a change to a wetter pattern across the forecast area. However, ensemble models have generally been delaying that pattern change with time. The current general northerly flow pattern with one frontal system coming in on northwest flow per week looks as if it will continue until about mid-month. However, the frontal system that will move through Mar 6-8<sup>th</sup> does look modest and stronger than those we've seen since mid-Feb in that it's likely to make it across the entire forecast area with at least some precipitation. Thereafter, low pressure is expected to move into California. This low has yielded much uncertainty in terms of how far north it will make it, how much moisture it will have with it, and then what kind of pattern we'll see after that. Most guidance suggests precipitation will be significant from Mount Shasta south and eastward for a one to two week period mid-late month. Confidence is low in the mid-late month forecast, but the models do suggest it will be generally wetter from the 15-25<sup>th</sup>, then waning after that.



**Expected Impact, March 2020:**

With our localized forecast indicating near normal temperatures and below normal precipitation, except from the Mount Shasta area eastward into Modoc County, most of the area is likely to see snowpack SWE % of normal decline. However, a lot depends on precipitation in the mid-late month time period because SWE generally peaks in our forecast area mid-March. Altogether, precip and snowpack deficiencies will increase through about mid-month before improving some, likely ending the month close to where they started it. It should be noted that we should expect road related snow impacts in the Mount Shasta area mid-month, and then across mid-upper elevations of the rest of the area mid-late month, AND with the Mar 6-8<sup>th</sup> storm. Precipitation and snowpack deficiencies this month are likely to increase the areal coverage of "Moderate" drought.





# \*A note about Period of Record (POR)

When looking at record setting events, it's important to consider the length and completeness of the site's period of record (POR). For example, a site may have records back to the early 1900's, but if there is a significant portion of the record missing, it's possible that the POR is not encompassing another significant event that may have surpassed the event in question. Therefore, "record setting" should be considered relative to the completeness/length of POR. To help keep records in context, the POR for each climate site is listed below:

- **North Bend: 01/1902 – Present**
- **Roseburg: 04/1900 – Present**
  - ❖ *Missing:*
    - 05/1900-01/1901
    - 03/1901-06/1902
    - 08/1902-12/1930
    - 10/1965-06/1997
- **Medford: 03/11/1911 – Present**
- **Klamath Falls: 12/1897 – Present**
- **Montague, CA: 07/1948 – Present**
  - ❖ *Missing:*
    - 08-09/1952
    - 02/1953-06/2000
- **Mount Shasta City, CA: 04/1948 – Present**
- **Alturas, CA: 05/1935 – Present**