National Weather Service Medford

December 2019 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).

December 2019 Weather Review

Although the first week of December was rather benign, active weather persisted through the month, which helped to lessen the precipitation deficit created by the dry start to Fall. High pressure remained in control during the first week, leading to dry conditions with morning valley fog. Once high pressure moved to the east, a series of systems moved through the region culminating with an atmospheric river that arrived on the 13th.

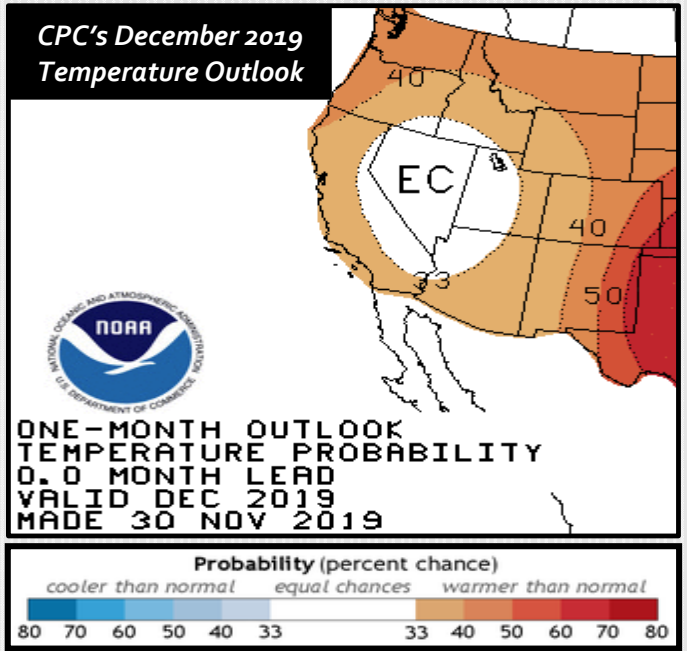
The first system to move through the area brought copious amounts of precipitation to the Mt. Shasta City area. While no major flooding was reported, there was extensive ponding on roadways due to the heavy rain and a new daily precipitation record was set on the 7th for Mt. Shasta City. A few more systems moved through during the next few days which delivered more beneficial rain and mountain snow. Then, an atmospheric river brought more even more rain to the region with most climate sites receiving their greatest 24-hour precipitation total with this system. Afterwards, there was a brief break in the weather during the following week.

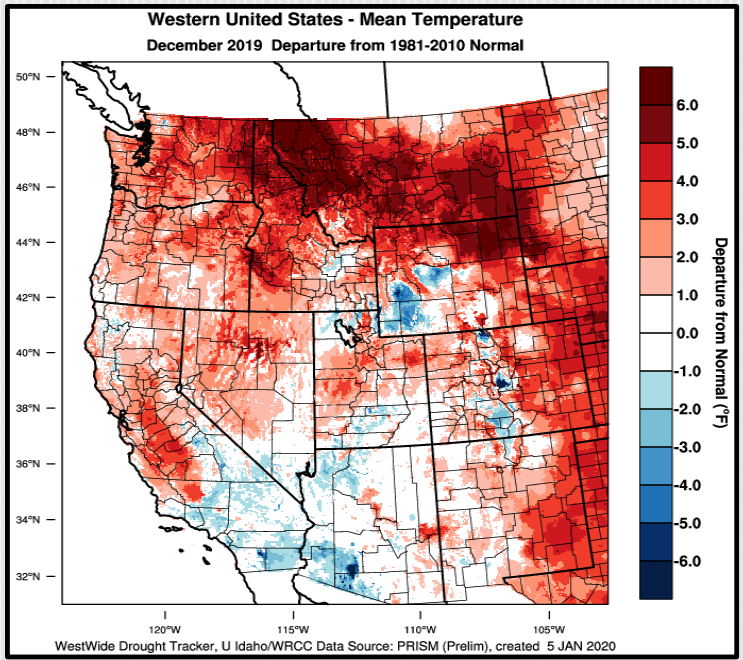
The weather turned active again and remained so for the last portion of the month. A strong system affected the area on the 20th and 21st. This system brought strong winds and heavy rain. Initially with this system, snow levels were around 5000 feet, but lowered to around 3500 feet behind the cold front, which brought more travel impacts to the Mt. Shasta City area as well as Siskiyou Summit. Although most of the area received a generous amount of rain, the Rogue Valley remained dry due to persistent and extensive downsloping winds. These winds, along with the warmer air mass ahead of the associated front, pushed temperatures well above normal, and as a result, Medford reached a high of 63 degrees, setting a new daily high temperature record. Roseburg also recorded a warm high temperature that day, which tied a daily record high on the 20th.

Several more systems passed through the area during the last week of the month, producing periods of rain and slightly below normal temperatures. This included a system on Christmas morning that brought the hope of a White Christmas. However, snow levels were only as low as 2000 feet, so those in the valleys west of the Cascades missed a White Christmas this year. Despite the active weather during the month, it was not enough to make up for the preceding weeks and mostly dry and warmer conditions.

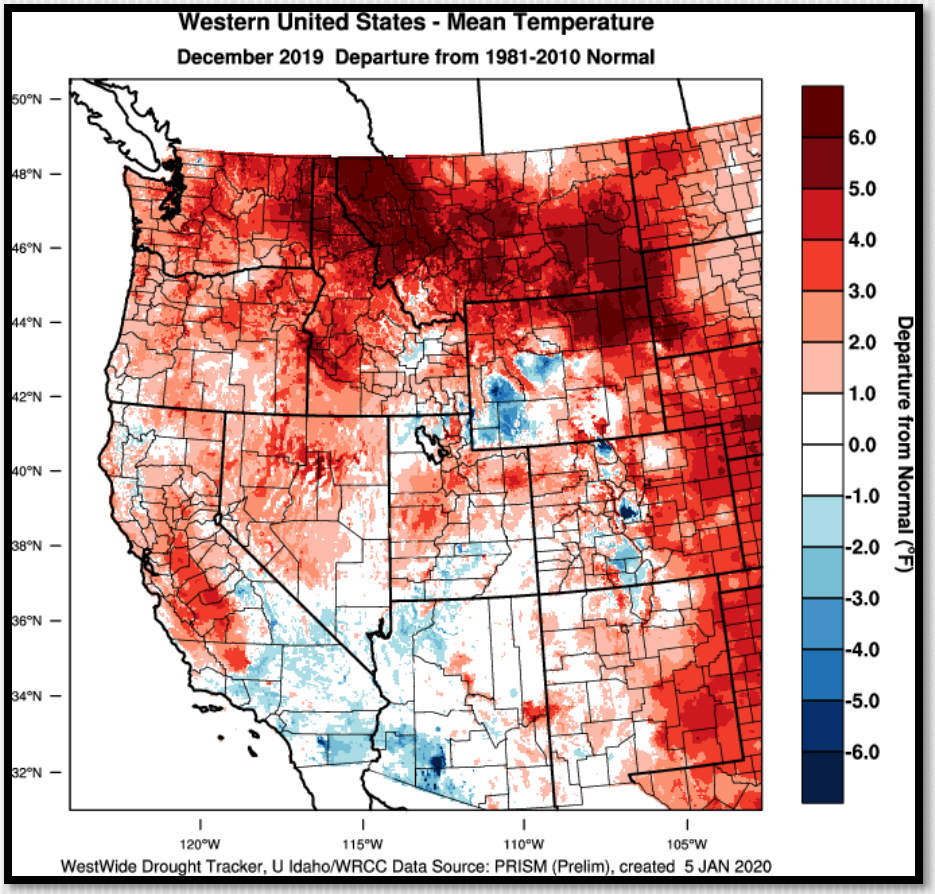
A Look Back at the Dec 2019 Temperature Outlook

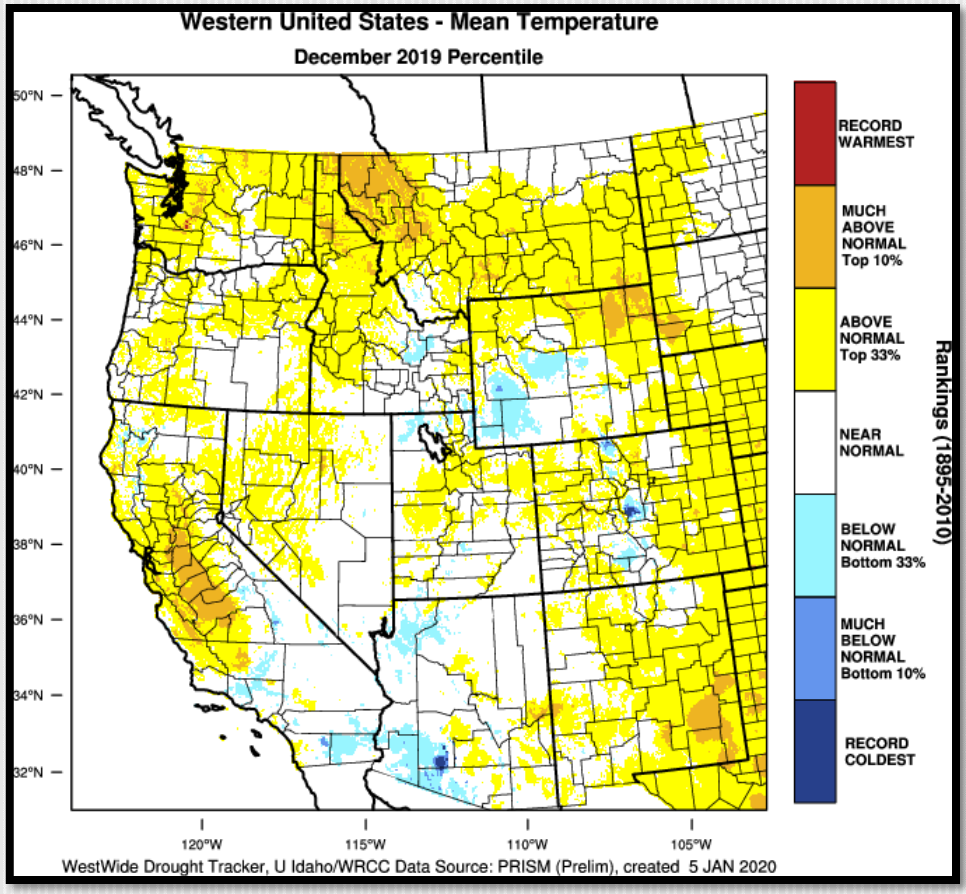
- ***Was the forecast anomaly correct?*** CPC's forecast for increased probabilities of warmer than normal temperatures centered west of the Cascades was a bit off spatially and in terms of sign. Temperatures across the Medford CWA ranged between -3F and +4F, with most of the area between -1F and +3F. The overall forecast was generally correct, though EC or lower warm temp probabilities would have been better.
- ***Was the expected impact correct?*** Generally, 'yes'. Our localized forecast indicated, "With temperatures turning colder for the *2nd half of the month, expect snow impacts to increase to mid and, possibly, lower elevations."* In reality, while temperatures were cooler for the 2nd half of the month than the 1st , they were not as cold as expected. In fact, one un-expected wrinkle was downslope winds that induced record highs on the 20th.
- ***Did our forecast improve upon the CPC forecast?*** Yes. Our localized forecast called for "**near normal temperatures (-2F to +3F)"** and "coolest in Curry County and Northern California and warmer NW as compared to climo". Altogether, our localized forecast was about a degree too low, Curry County and NorCal were cooler than the rest of the CWA, and it was a little warmer over NW portions of the area, though the most positive anomalies were in NE Siskiyou, Klamath, and Modoc counties. Thus, we did improve upon the CPC forecast.





December 2019 Observed Temperatures





Average Temperatures

	Average (°F)	Departure from Normal	Average Max (°F)	Departure from Normal	Average Min (°F)	Departure from Normal
North Bend	47.2	***1.9°***	52.9	***1.9°***	41.4	***1.7°***
Roseburg	44.8	***2.7°***	50.8	***3.1°***	38.8	***2.4°***
Medford	41.3	***2.0°***	47.8	***1.9°***	34.7	***2.0°***
Klamath Falls	34.3	***4.7°***	41.5	***3.1°***	27.1	***6.4°***
Montague, CA	38.4	***3.3°***	46.6	***2.4°***	30.2	***4.2°***
Mt. Shasta City, CA	36.7	***1.6°***	42.8	***-1.5°***	30.5	***4.5°***
Alturas, CA	34.2	***4.7°***	43.2	***3.0°***	25.2	***6.4°***

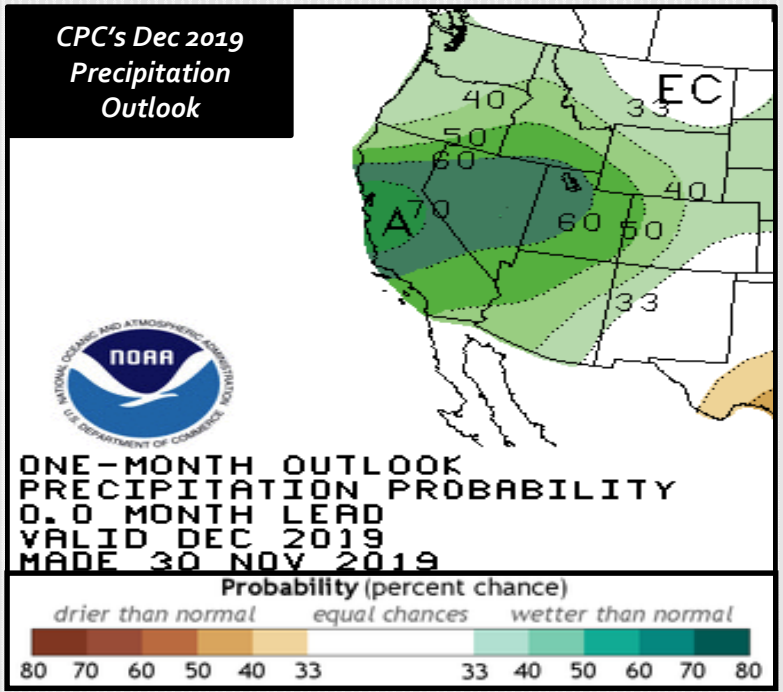
Monthly Max & Min Temperatures

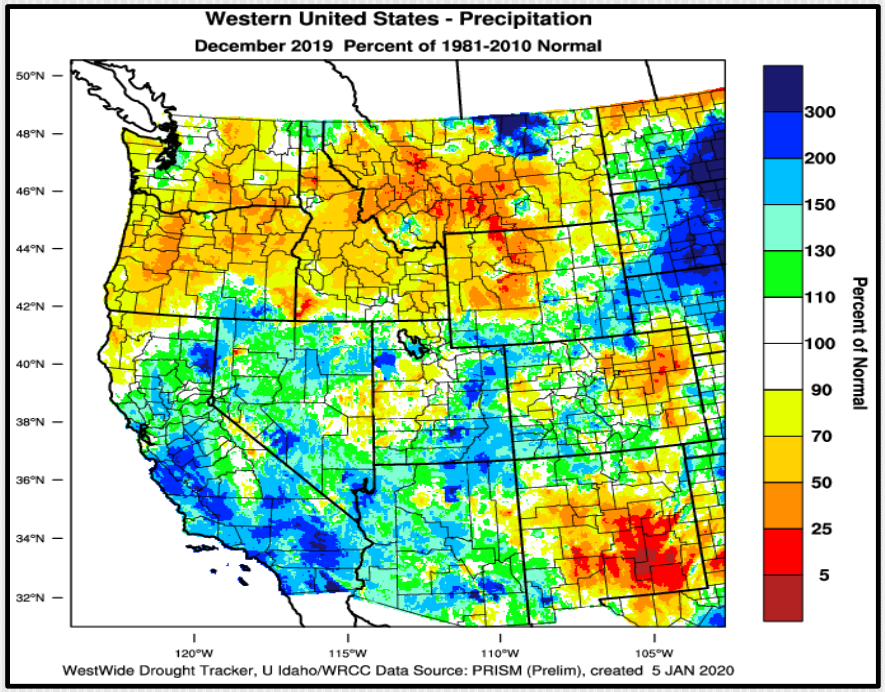
	Max (°F)	Date(s)	Min (°F)	Date(s)
North Bend	62°	20th	31°	26th
Roseburg	64°	20th	31°	26th & 27th
Medford	63°	20th	25°	26th
Klamath Falls	51°	21st	14°	24th
Montague, CA	57°	6th	18°	26th & 27th
Mt. Shasta City, CA	48°	28th & 31st	20°	24th
Alturas, CA	58°	21st	9°	27th

	Date	Record *High*	Old Record/Year
Medford	20th	63°	61° / 2005
Montague	6th	57°	Ties with 1988
Roseburg	20th	64	Ties with 2005

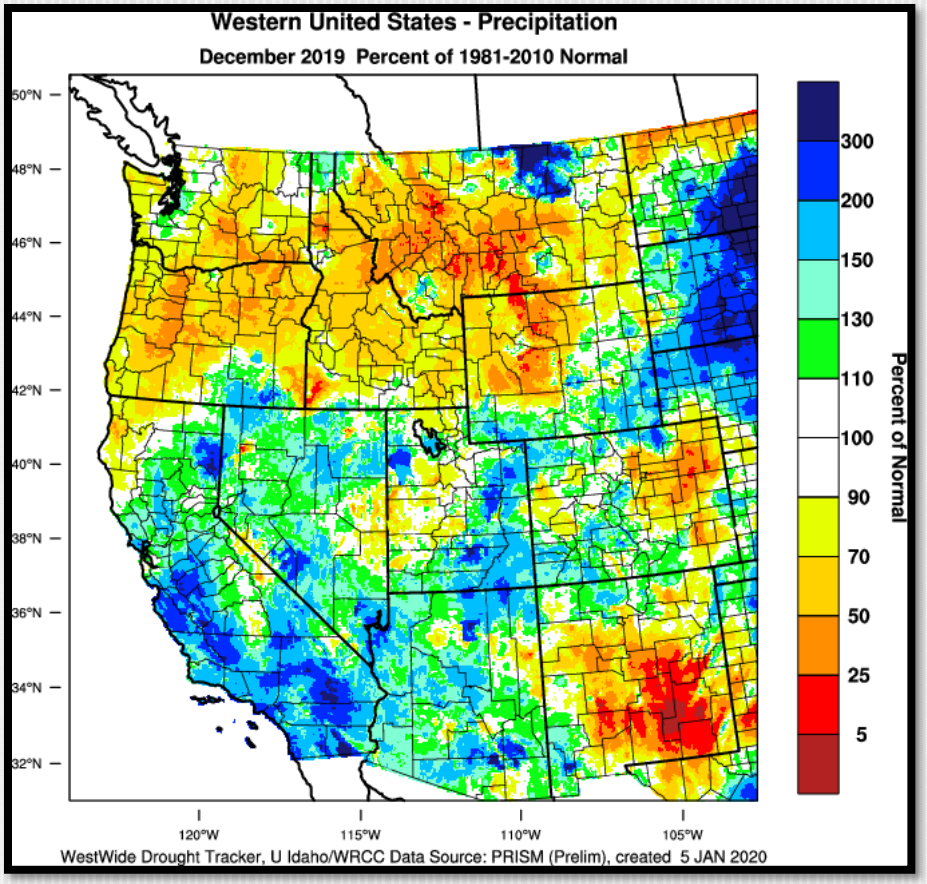
A Look Back at the Dec 2019 Precipitation Outlook

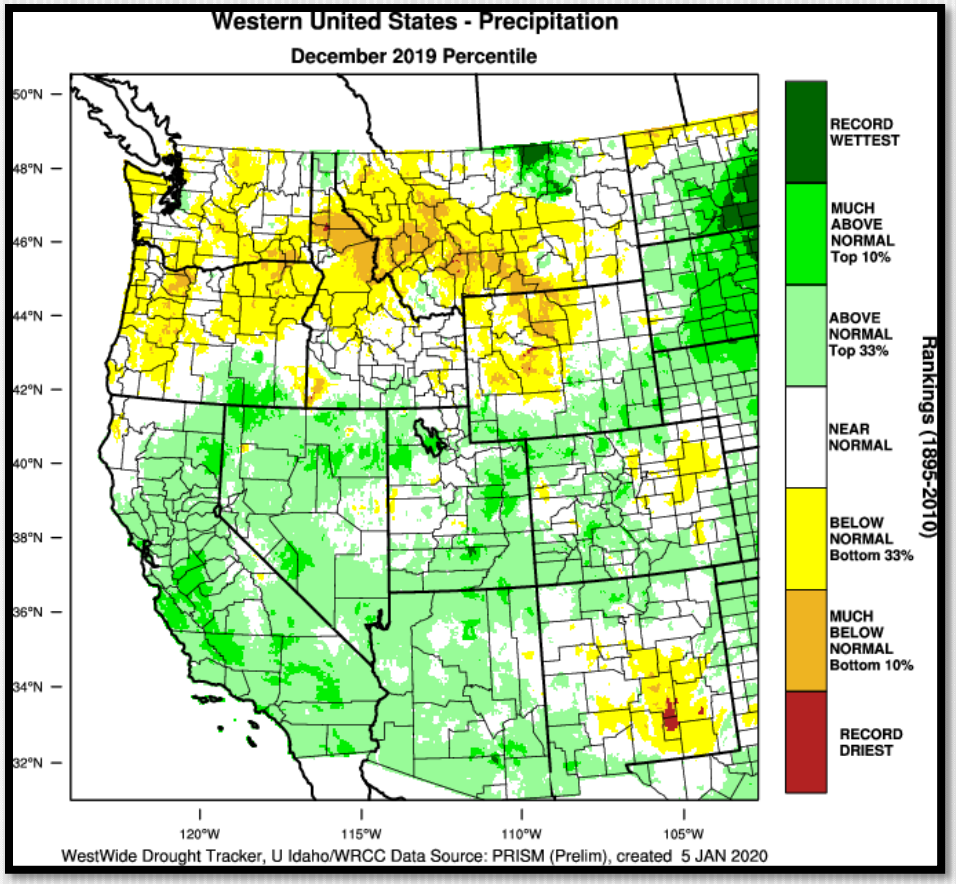
- ***Was the forecast anomaly correct?*** CPC's forecast for increased probabilities of above normal precipitation was good for SE Siskiyou, Modoc, and much of Lake County, but leaned too wet for the rest of the forecast area. Spatially, the CPC forecast was good, but too optimistic for wet weather in the PacNW and northern Rockies.
- ***Was the expected impact correct?*** Generally, 'yes', but it was not as wet as expected. The snowpack did not grow compared to % of climo due to lesser cold and, mostly, lesser precip. We were able accurately indicate periods of storm activity such as, "If we're going to see a major storm with major rain, snow, and wind impacts, it's likely to be in the 2nd half of the month, probably after the 20th." We saw a major Atmospheric River(AR) during the 20th-21st, but this front put on the brakes just west of Medford. We did have additional storms through month's end further inland, but these mostly stayed west of the Cascades. The east side got most of it's precip early in the month.
- ***Did our forecast for our CWA improve upon the CPC forecast?*** Yes. Our Dec 6th outlook caused us to be less confident in precip, expecting 75-125% of normal. We got 25-150% of normal, but mostly 50-130%. So, our range was too low, up to 50% too high and 25% too low.





December 2019 Observed Precipitation



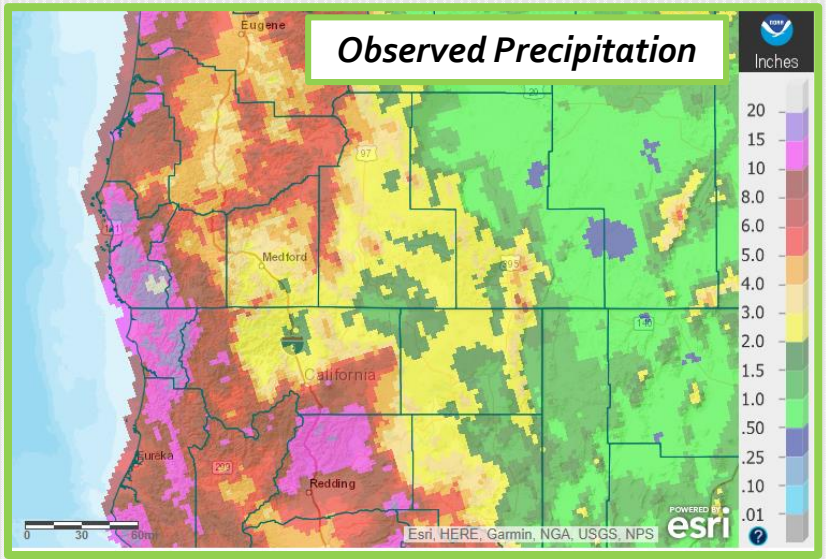


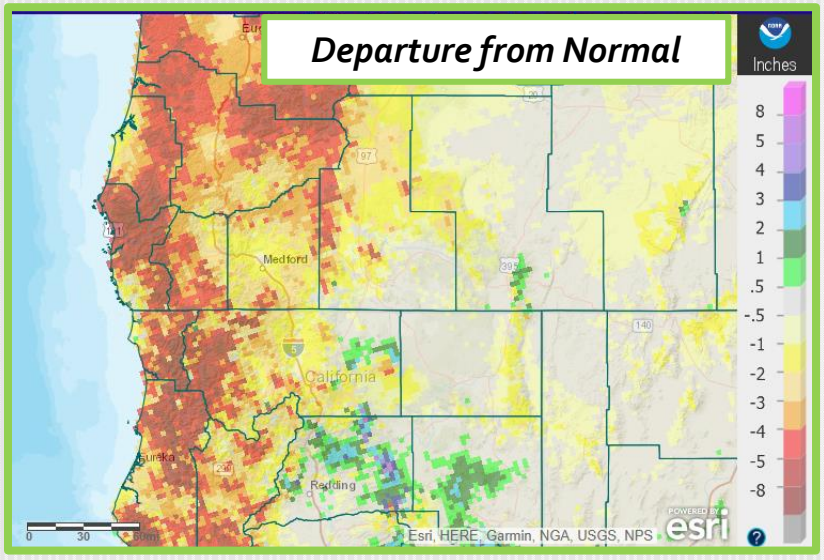
Precipitation

	Total	Departure from Normal	Greatest 24-hr Total	Date(s)
North Bend	9.16"	-1.97"	2.25"	21st
Roseburg	4.09"	-2.43"	0.85"	13th
Medford	2.86"	-0.63"	1.15"	13th
Klamath Falls	1.67"	0.22"	0.50"	7th
Montague, CA	1.64"	-1.02"	0.54"	13th
Mt. Shasta City, CA	6.25"	-1.60"	2.22"	7th
Alturas, CA	1.33"	-0.38"	0.33"	7th

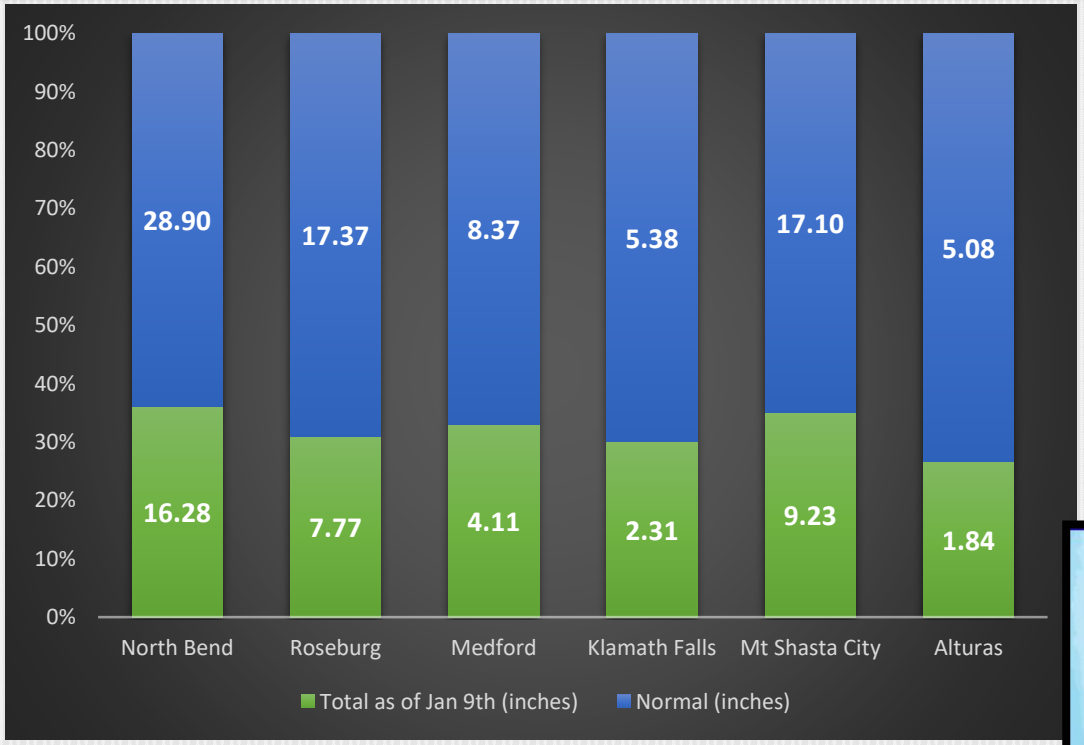
Record Daily Precipitation

	New Record	Date	Old Record	Year
Alturas	0.33"	7th	Ties	1997
Mt Shasta City	2.22"	7th	1.54"	2004
North Bend	2.25"	21st	2.14"	1964

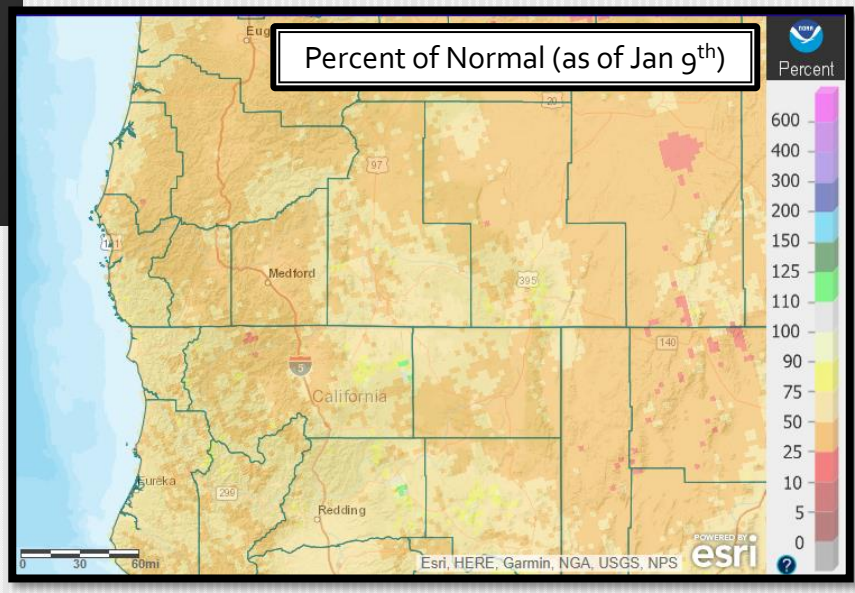




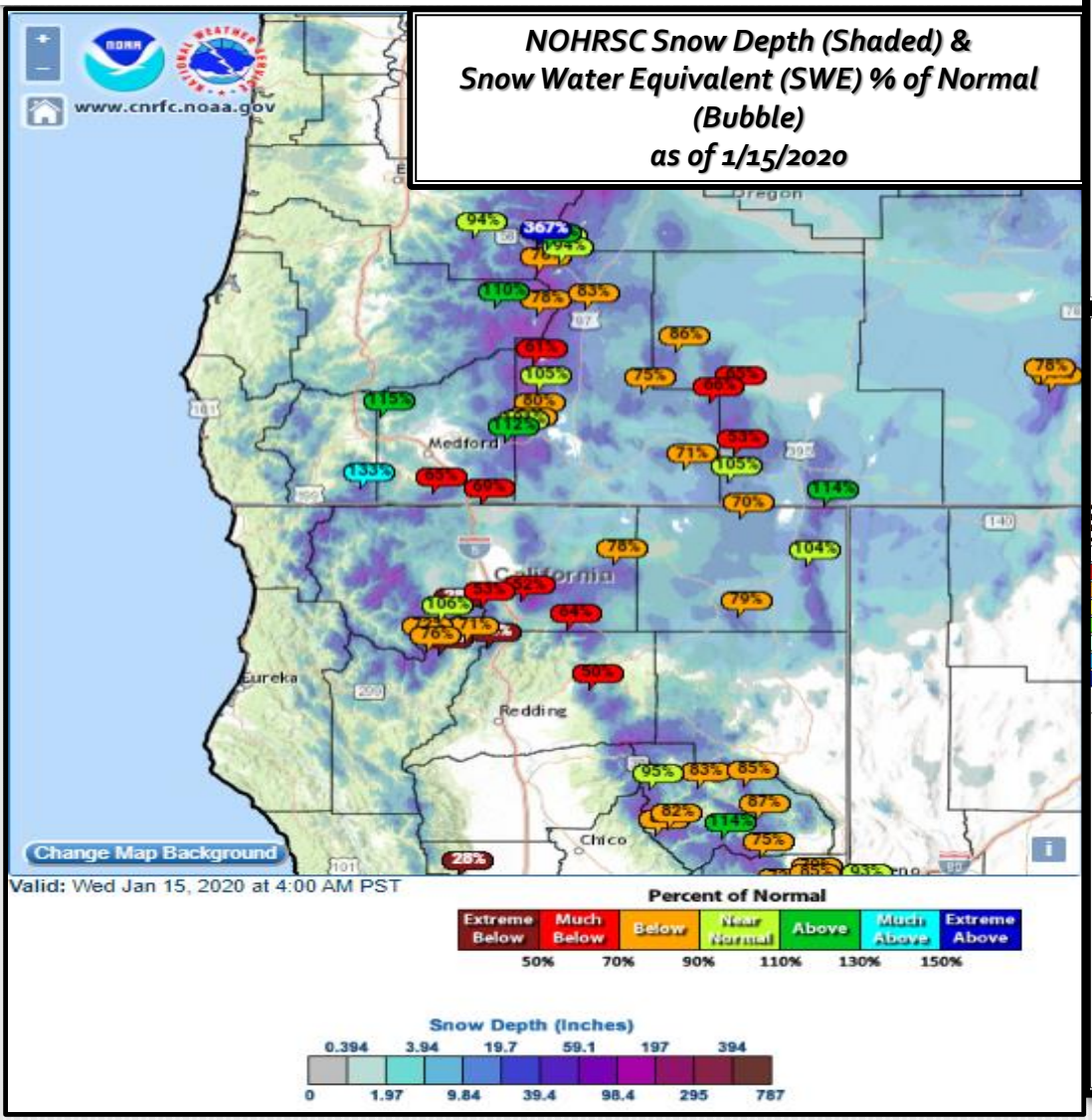
Water Year Status (As of Jan 9th)

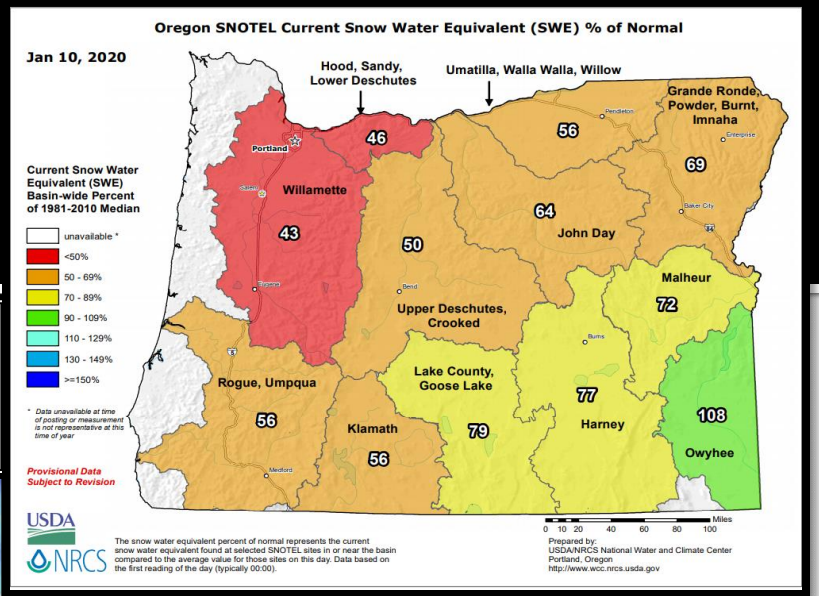


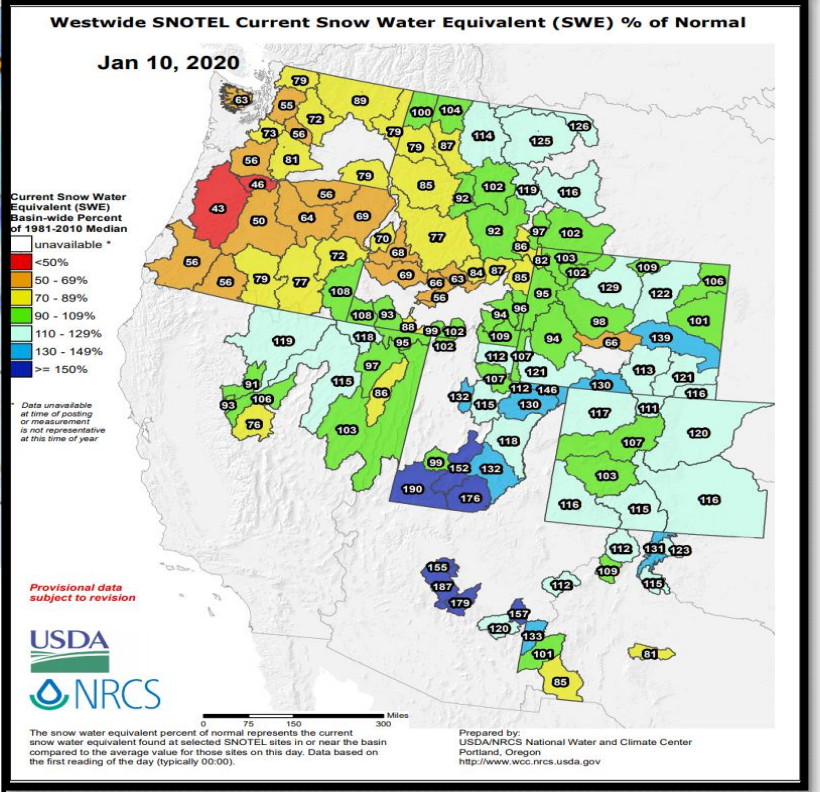
Given the dry start to the water year, it's no surprise to see all areas only 15-40% of normal for the water year to date.



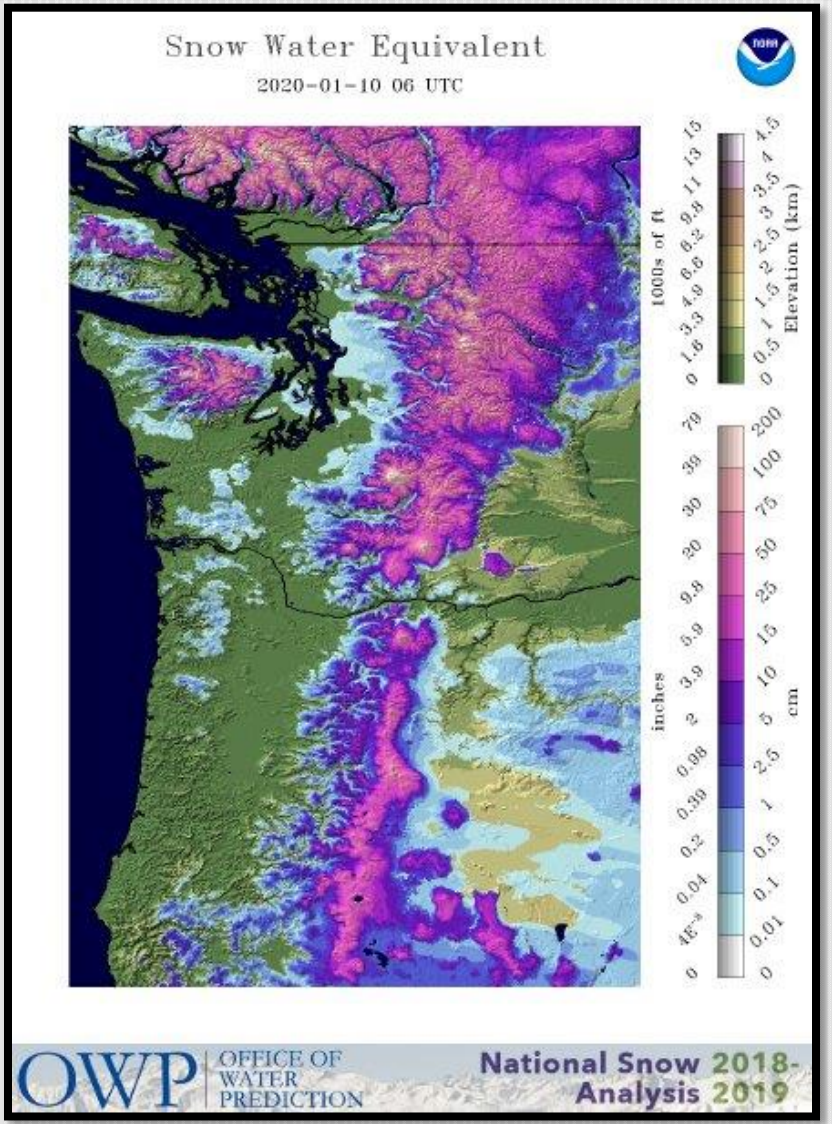
Snowpack Status

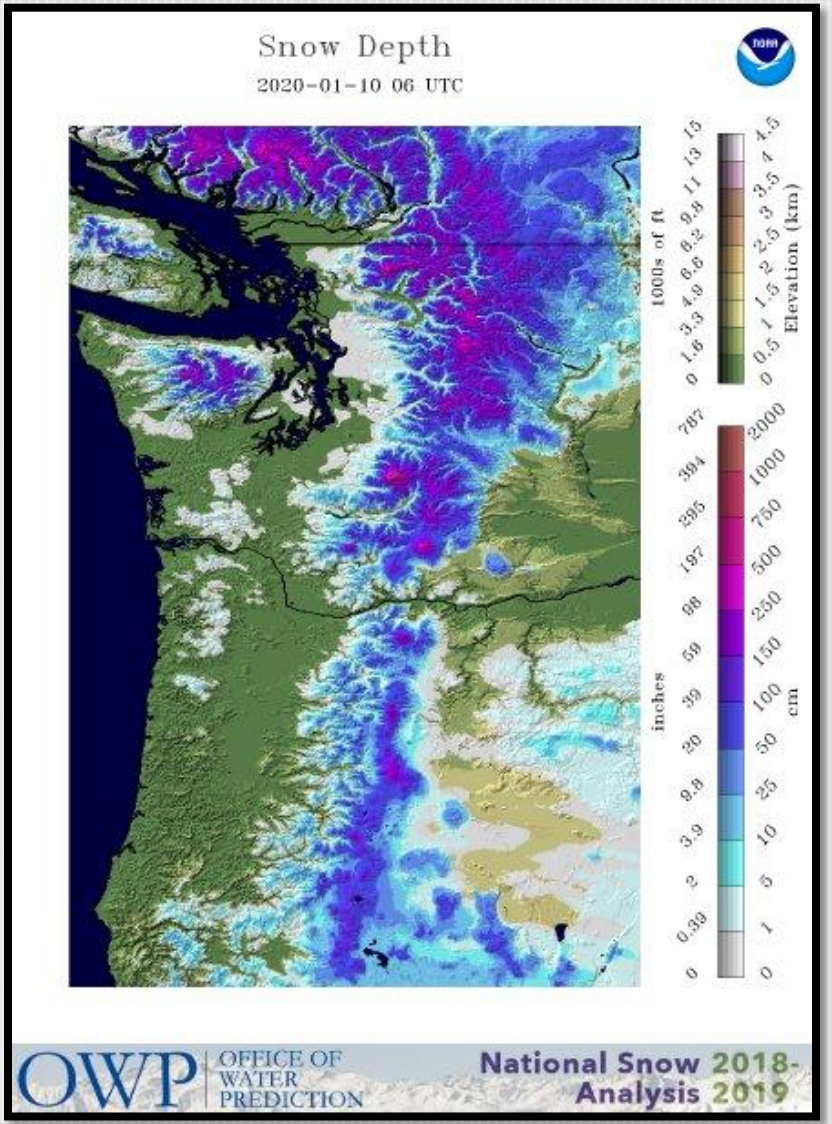




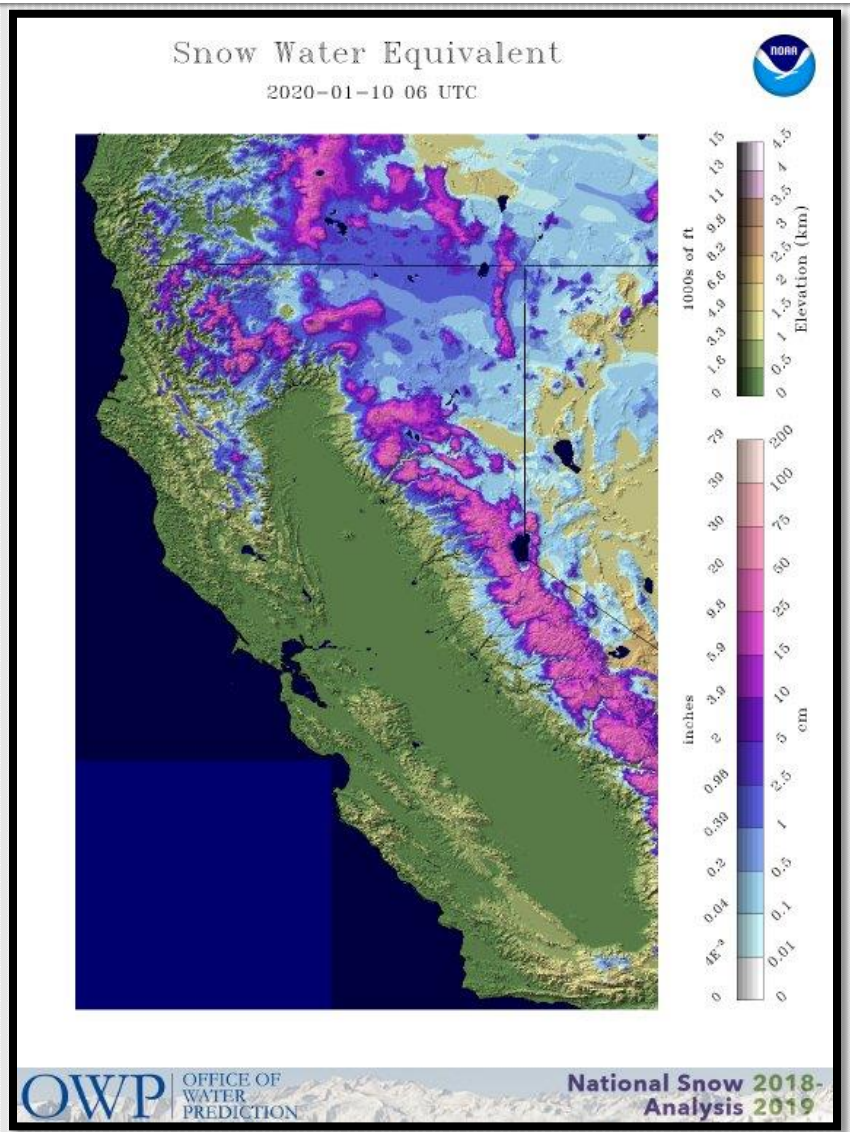


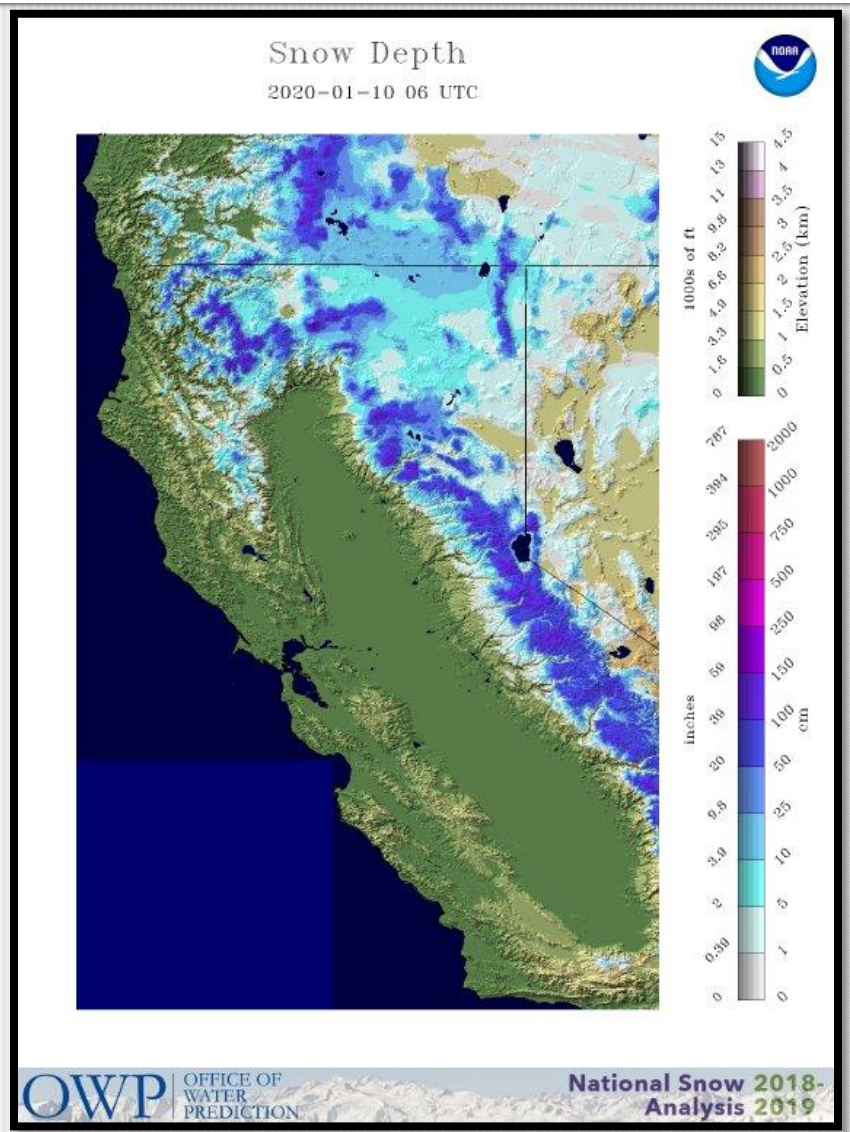
PacNW SWE & SD as of 1/10/2020



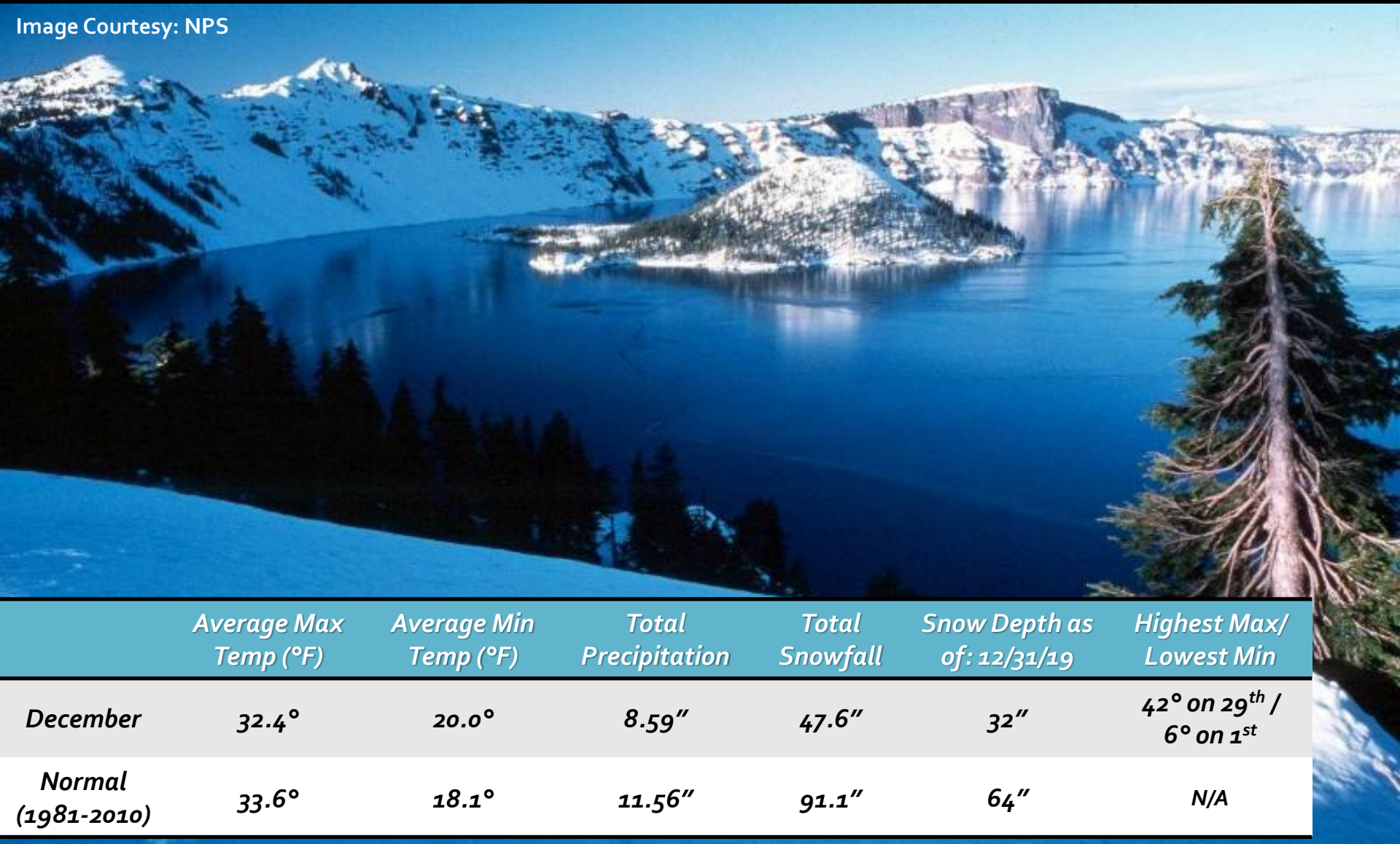


California SWE & SD as of 1/10/2020



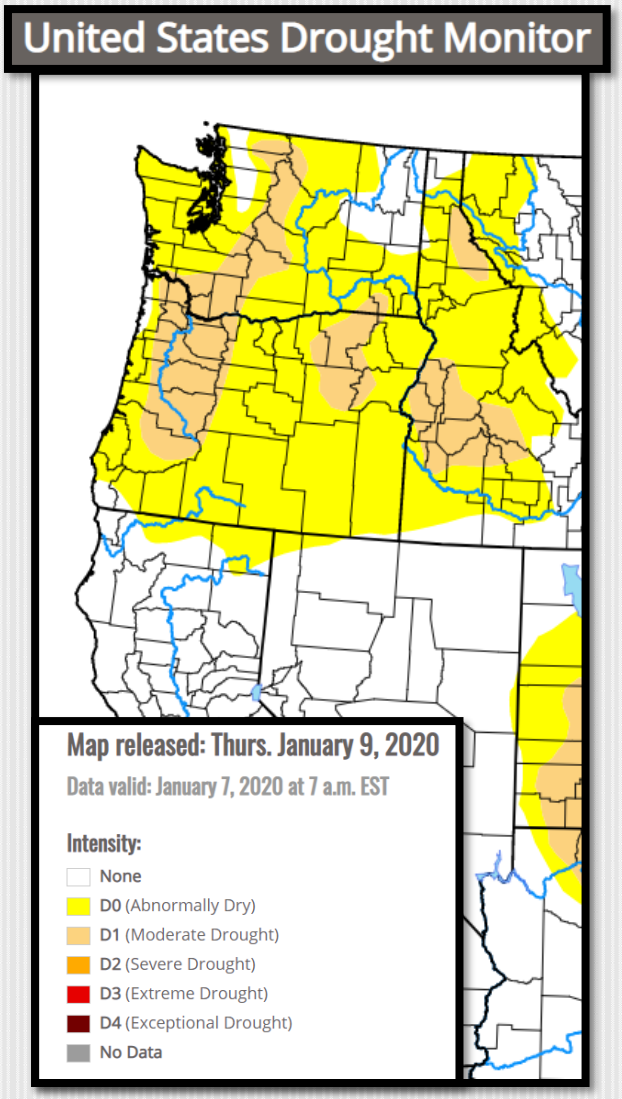


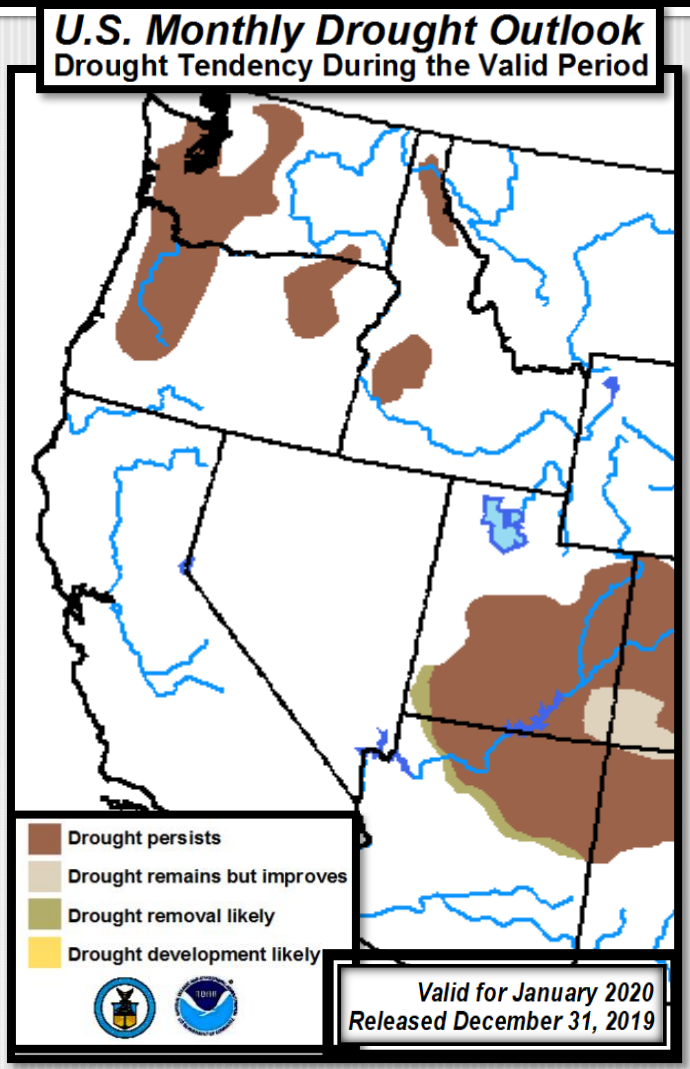
Crater Lake



	Average Max Temp (°F)	Average Min Temp (°F)	Total Precipitation	Total Snowfall	Snow Depth as of: 12/31/19	Highest Max/ Lowest Min
December	32.4°	20.0°	8.59"	47.6"	32"	42° on 29th / 6° on 1st
Normal (1981-2010)	33.6°	18.1°	11.56"	91.1"	64"	N/A

Drought Monitor (Current) & Outlook (January)





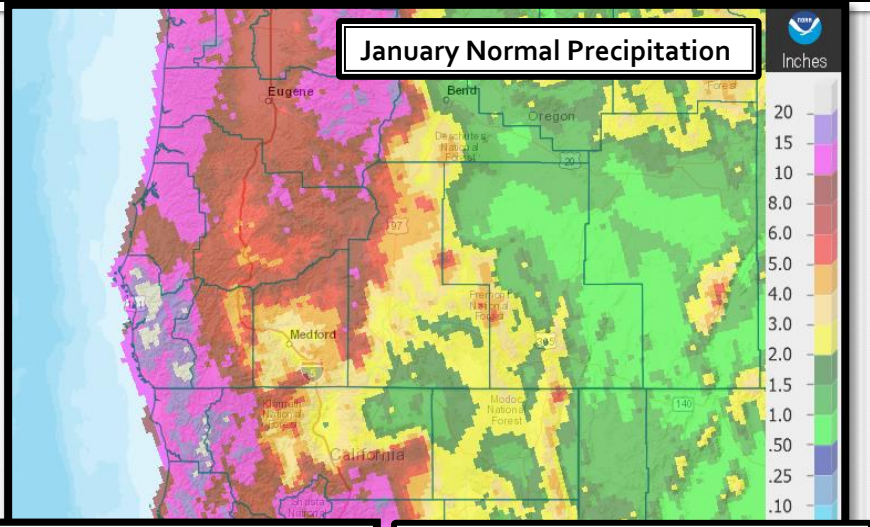
http://www.cpc.ncep.noaa.gov/products/expert_assessment/month_drought.png

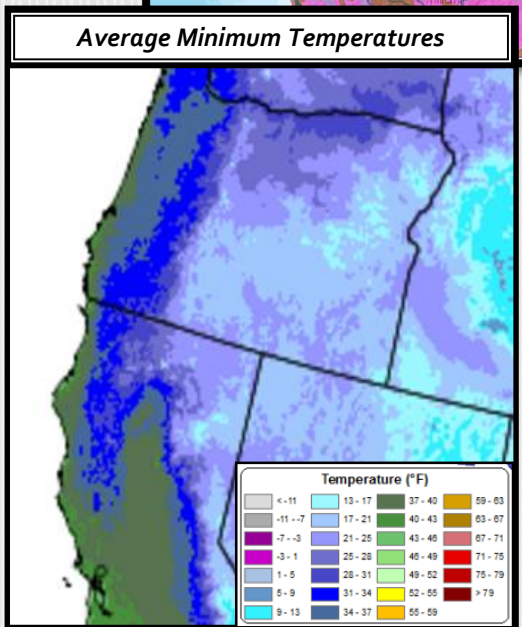
Looking Ahead: Normals for January (1981-2010)

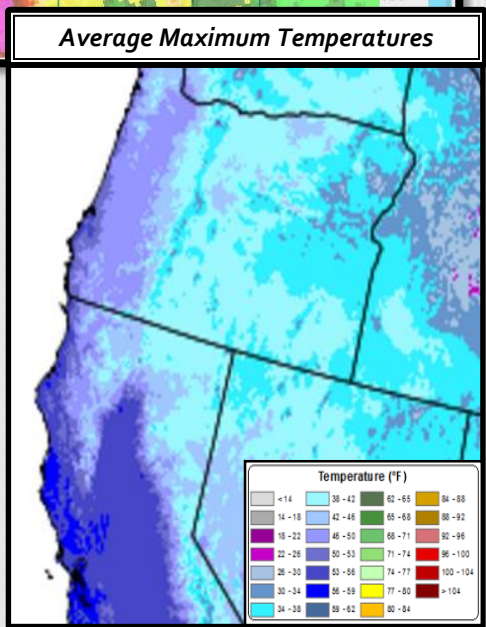
January is, on average, the second coldest and third wettest month of the year for southwestern Oregon and far northern California. Much of the lower terrain of Lake County, the Tule Lake Basin, and parts of the Sprague and Pitt River Basins average 1/2 inch to 2 inches of water, while higher elevations east of the Cascades receive 2-6 inches of water. The Cascades and Mount Shasta receive an average of 5-15 inches. The drier valleys west of the Cascades like the Bear Creek drainage of the Rogue Valley and the Shasta and Scott Valleys in California usually receive 2-5 inches. The remainder of the West Side gets 5-15 inches, except for the wettest portions of Curry County and far western Siskiyou County, which average 15-20+ inches.

Much of this water typically falls as snow above about 4,000 feet MSL. For instance, the 1981-2010 average snowfall for Crater Lake National Park Headquarters is 85.4 inches. Snow depth there averages 68 inches on January 1st and 87 inches on January 31st based on the same average period.

Average daily high temperatures are 30 to near 40 degrees in the mountains above 5000 feet and east of the Cascades and in the mid 40s to mid 50s west of the Cascades. Daily low temperatures are in the mid teens in the coldest locations east of the Cascades and on Mount Shasta, to the upper 20s in and near the Cascades. From the Cascades west to the coast, lower 30s to mid 40s are most typical from east to west.



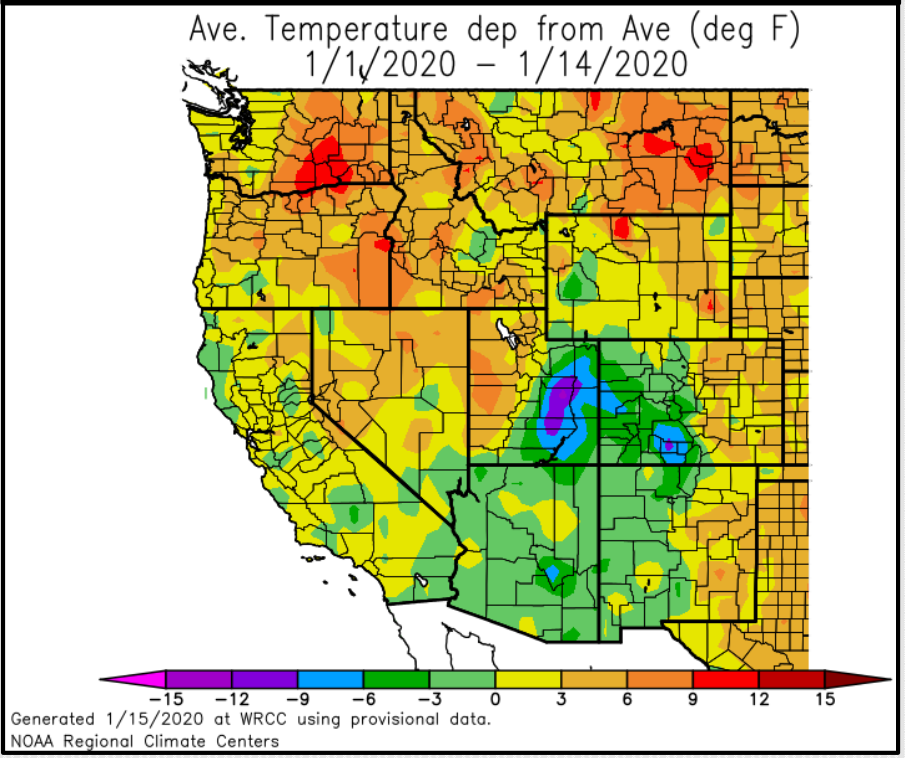




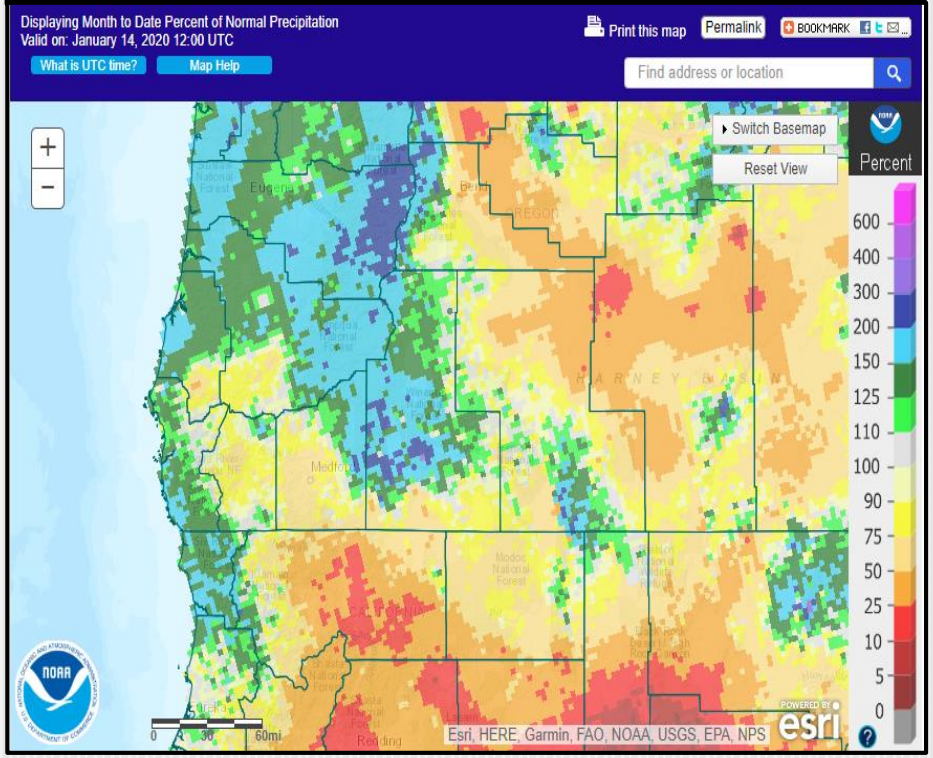
January 1st-14th 2020 Observed
(Written January 15th)

The official CPC forecast for January 2020, updated and issued on Dec 31st, 2019, calls for slightly increased chances for below average temperatures for most of the forecast area and equal chances of below, near, and above normal precipitation. With half of the month already behind us, temperatures have been near to above normal (-3F to +6F). Precipitation has been 100-300% of normal from the coastal mountain ranges westward and in and around the Oregon Cascades, but a mere 10% to 100% elsewhere, lowest in the Mount Shasta area. Snowpack has grown substantially in the Oregon Cascades, on the west side at mid-elevations, and in the mountains of Klamath and Lake counties. However, snowpack has fallen further behind the averages for the Mount Shasta area.

Preliminary Observed Temperatures



Preliminary Observed Precipitation

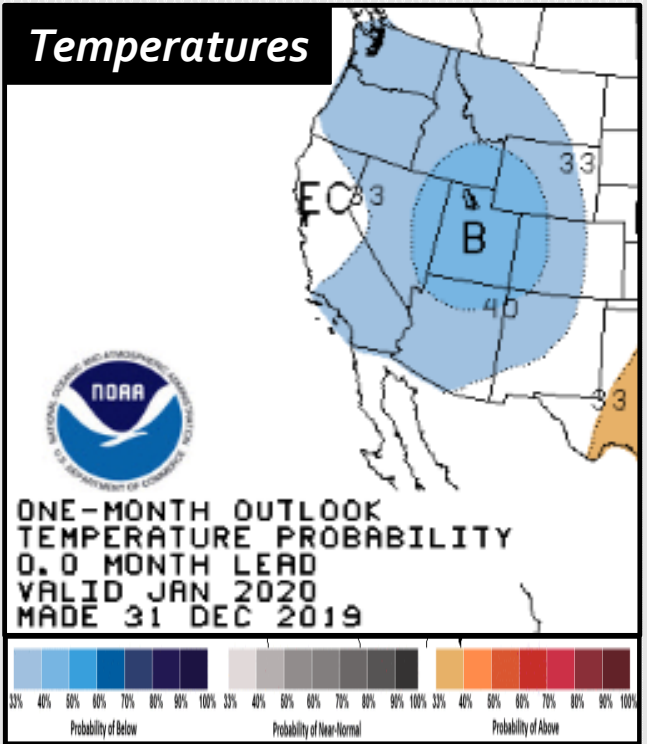


January 2020 Outlook

(Written January 15th)

The official CPC forecast for January 2020, updated and issued on Dec 31st, 2019, calls for slightly increased chances for below average temperatures for most of the forecast area and equal chances of below, near, and above normal precipitation. In other words, CPC has low confidence in this month's forecast over our area. Even at mid-month, the forecast for January is difficult. A very active MJO and shifts in the Polar Vortex are expected to occur during the week of the 21st-28th which means that a regime change is expected in the weather. For us, this means we have growing confidence that storm activity will shift more toward SW portions of the area over the next week. This will alleviate some of the precipitation deficit over our NorCal areas, but probably will not erase it. Colder than normal temperatures today through the 20th are then expected to go to at to above normal values for the 20-25th before cooling off again. A major winter storm is expected to affect the forecast area later today through the 17th with another in the 20th-22nd time frame hitting Siskiyou County hardest. Storm activity is expected to wane for the final week of the month. All in all, temperatures are likely to end up near to slightly above normal for the month, in the -2F to +4F range. Precipitation is likely to be 50% of normal to 200% of normal, lowest in the Mount Shasta area and highest in the Oregon Cascades.

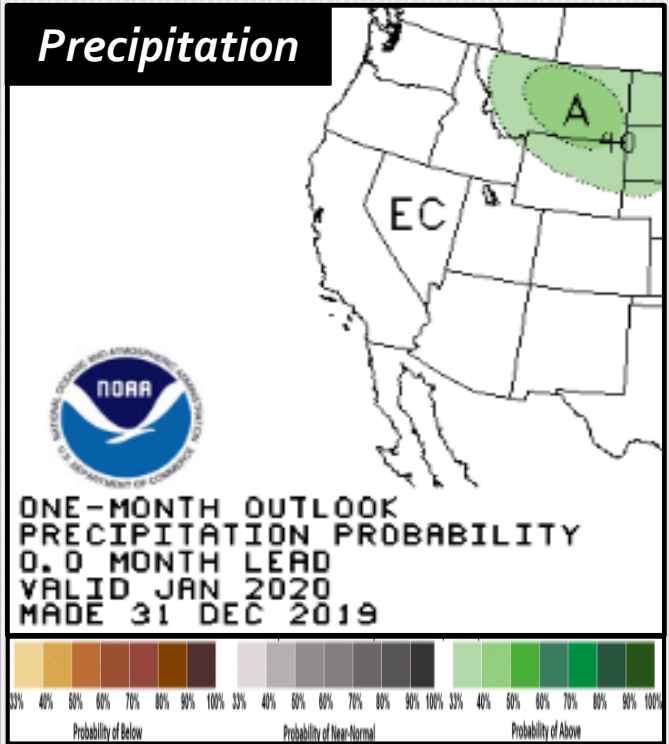
Temperatures



Expected Impact, Jan 2020:

Mountain snowpack is and will continue to have a great catch-up month for most of our Oregon areas likely reaching 75-150% of normal, but California areas are likely to hang in the 50-100% of normal range. Low elevation snow impacts are expected tonight through early on the 17th and are likely to affect the Mount Shasta area between the 16th and the 23rd. Large ocean swells will periodically affect fishing through at least the 23rd. Expect some wind impacts through about the 24th. The last week of the month is likely to be least active. Feb is currently looking drier than normal with increased inversions yielding above normal temps in the mountains and near to below normal in the valleys.

Precipitation



*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: 1/1/1902 – Present**
- **Roseburg: 4/1/1900 – Present**
  - *Missing:*
    - *05/1900-01/1901*
    - *03/1901-06/1902*
    - *08/1902-12/1930*
    - *10/1965-06/1997*
- **Medford: 3/11/1911 – Present**
- **Klamath Falls: 12/1/1897 – Present**
- **Montague, CA: 7/1/1948 – Present**
  - *Missing:*
    - *08-09/1952*
    - *02/1953-06/2000*
- **Mount Shasta City, CA: 4/15/1948 – Present**
  - *Missing:*
    - *10/1984-01/1985*
    - *10/1985-03/1986*
    - *09/1986-07/1997*
- **Alturas, CA: 6/1/1998 – Present**
  - *Missing:*
    - *08/1998*