National Weather Service Medford

December 2017 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 2017 Weather Review

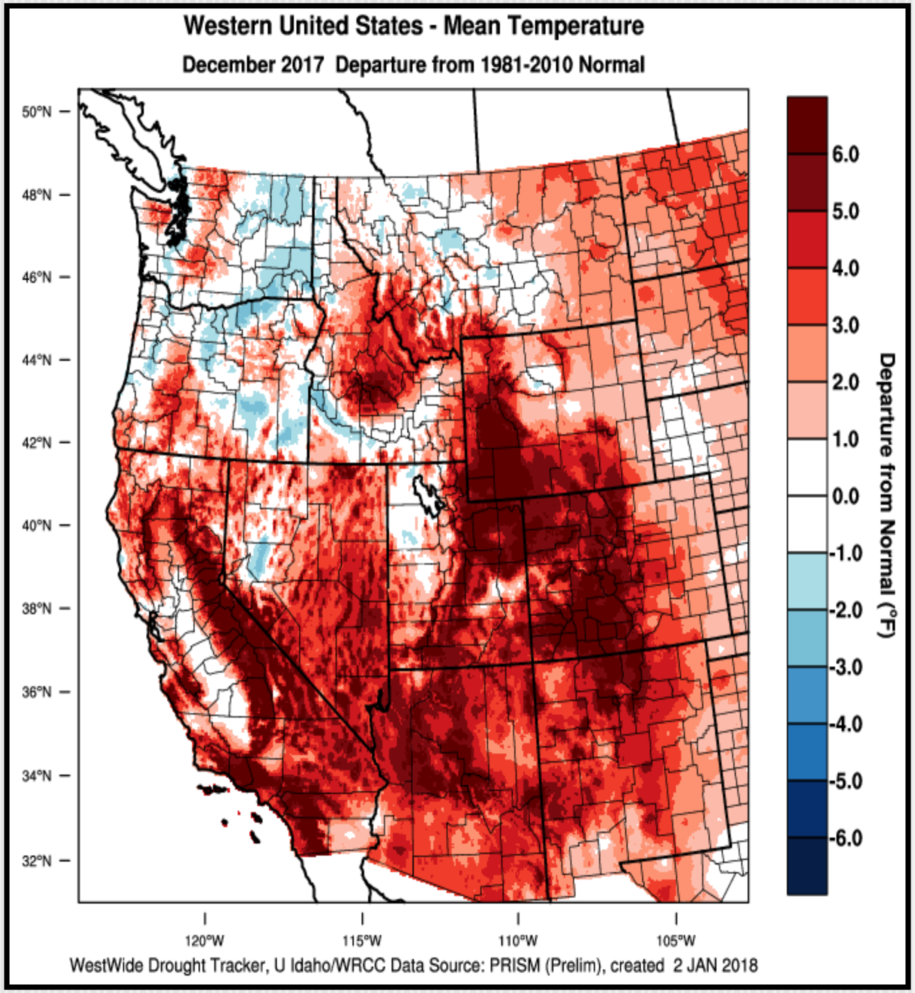
With high pressure in control for a significant portion of the month, December 2017 was dominated by a stagnant weather pattern that resulted in record dry precipitation values. Temperatures in the valleys west of the Cascades, which were dominated persistent fog and low clouds, ended up colder than normal for December while higher elevations were much warmer than normal.

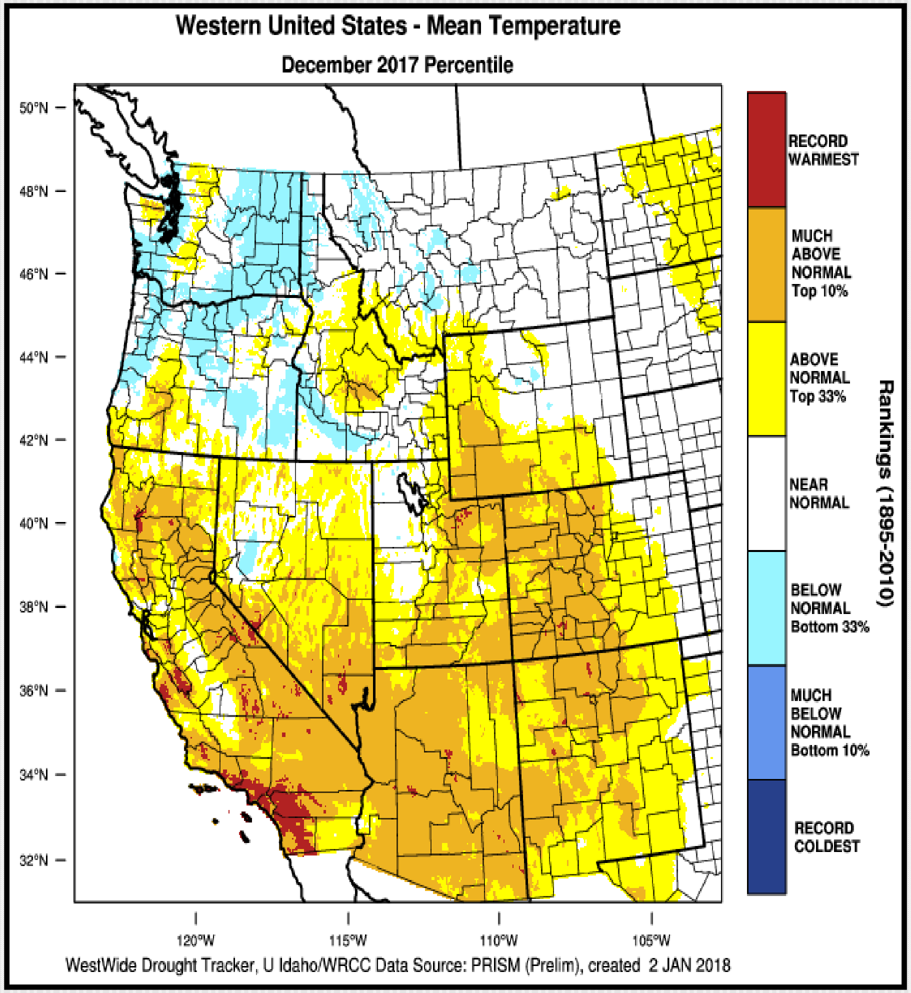
A weak front moved through the area during the beginning of the month. This front delivered over half of the total month's precipitation for many locations away from the coast and south of the Umpqua Divide. After this front passed through, a strong ridge built in over the Pacific Northwest and remained parked over the West Coast for an extended period of time. Moderate easterly flow developed over the area as the ridge built, and it was strong enough to flush out fog and low clouds from the Rogue Valley. The warming effects of the downsloping winds led to a record high temperature for Medford on the 6th. Easterly flow diminished a few days later, and conditions became stagnant in valleys both east and west of the Cascades for an extended period of time. This led to a long duration Air Stagnation Advisory for much of the area from the 5th through the 15th.

Around the middle of the month, the area finally saw some relief from the stagnant conditions. The strong ridge broke down, and a low pressure system from the north moved through the area. This brought the lowest snow levels of the season thus far (1500-2000 feet) during the week before Christmas, resulting in snow concerns for early holiday travel; even for the lower passes of the forecast area. Snow amounts were light, however, and no major impacts occurred with this system.

Relatively active weather continued for the rest of December, especially compared to the stagnant conditions during the first half of the month. Although multiple weak systems brought much needed precipitation, even if it was minimal at best, they weren't anything to write home about, and this left the area with a meager snowpack status and a record dry December.

December 2017 Observed Temperatures





Average Temperatures

	Average (°F)	*Departure from Normal*	*Average Max (°F)*	*Departure from Normal*	*Average Min (°F)*	*Departure from Normal*
North Bend	46.6	**+1.3°**	54.6	**+3.6°**	38.7	**-1.0°**
Roseburg	40.1	**-2.0°**	45.4	**-2.3°**	34.9	**-1.5°**
Medford	38.1	**-1.2°**	46.7	**+0.8°**	29.5	**-3.2°**
Klamath Falls	29.9	**+0.3°**	41.2	**+2.8°**	18.7	**-2.0°**
Montague, CA	32.3	**-2.8°**	42.8	**-1.4°**	21.9	**-4.1°**
Mt. Shasta City, CA	37.2	**+2.1°**	48.1	**+3.8°**	26.2	**+0.2°**
Alturas, CA	30.9	**+1.4°**	46.5	**+6.3°**	15.4	**-3.4°**

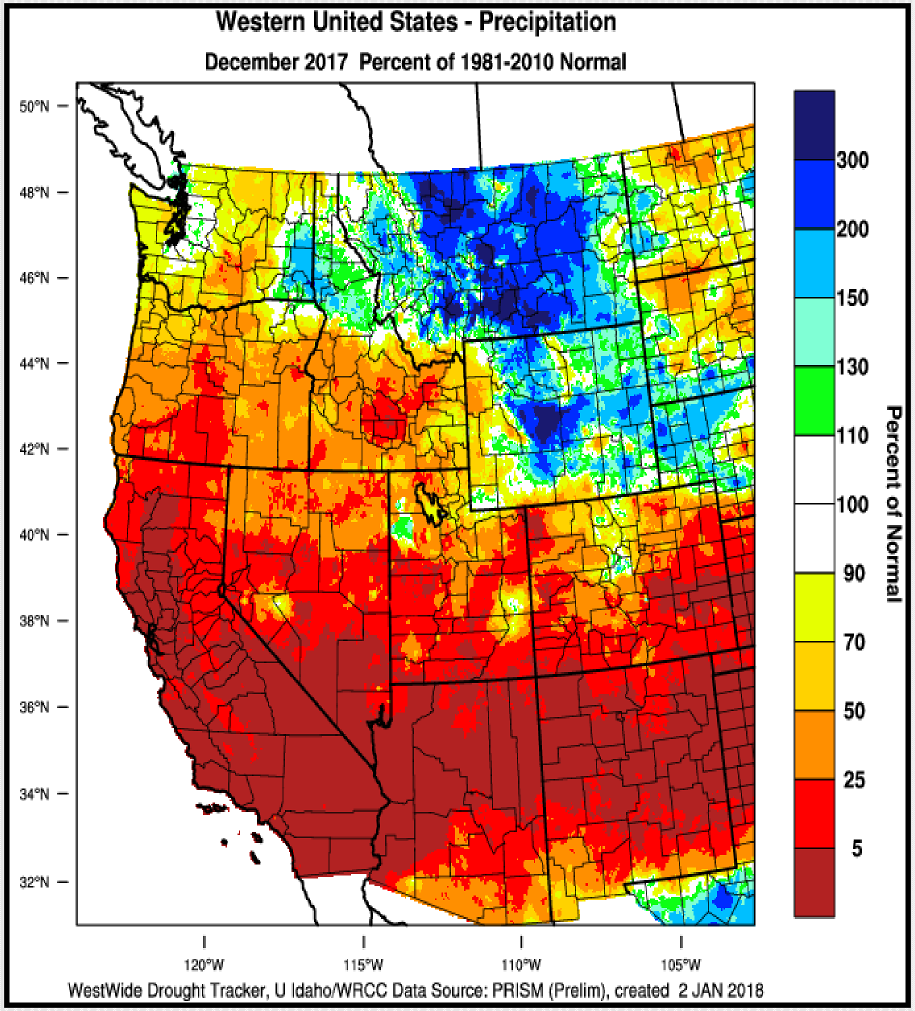
Monthly Max & Min Temperatures

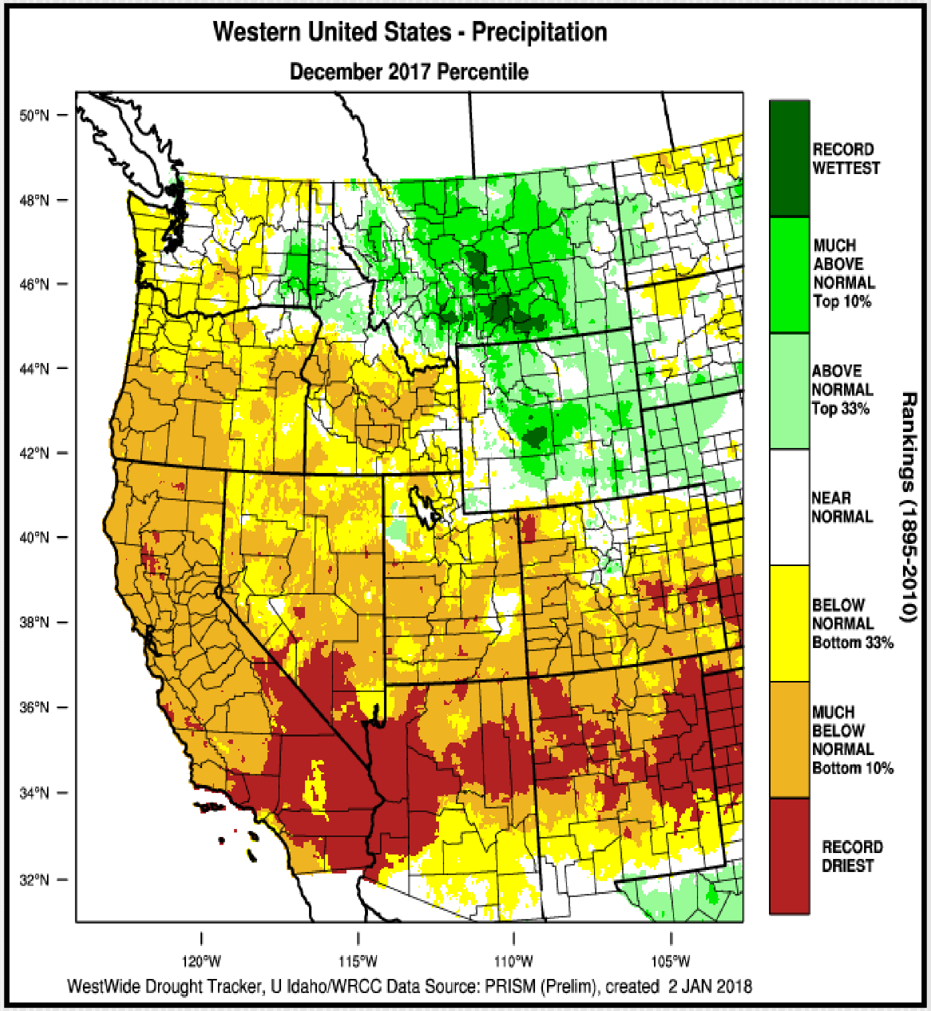
	Max (°F)	Date(s)	Min (°F)	Date(s)
North Bend	66°	6th	33°	14th
Roseburg	63°	29th	30°	11th & 12th
Medford	64°	6th	20°	12th
Klamath Falls	51°	19th & 30th	9°	21st
Montague, CA	54°	19th	15°	12th
Mt. Shasta City, CA	58°	29th & 31st	20°	21st
Alturas, CA	58°	29th	1°	21st

Record High Temperatures

	Date	Record *High*	Old Record/Year
Roseburg	29th	63°	Ties w/1937
Medford	6th	64°	62° / 1981

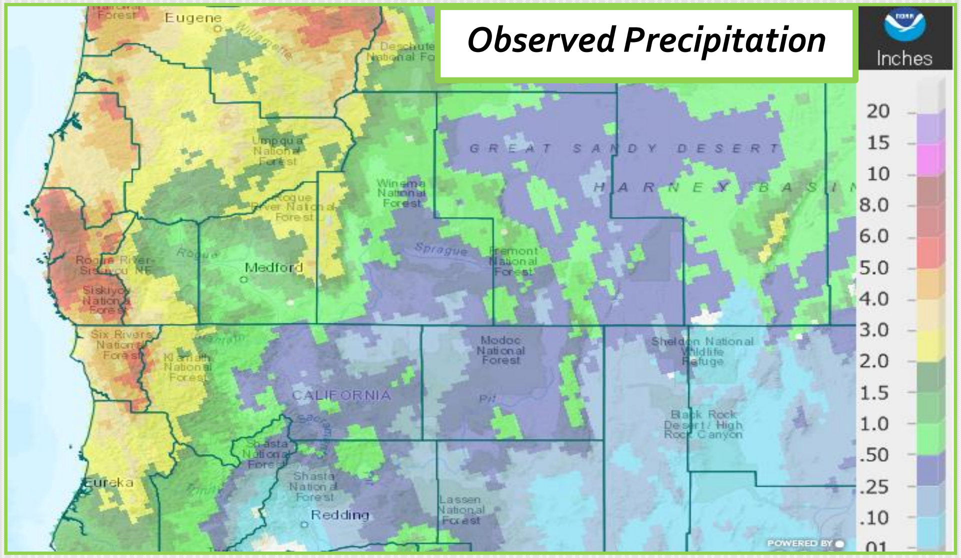
December 2017 Observed Precipitation

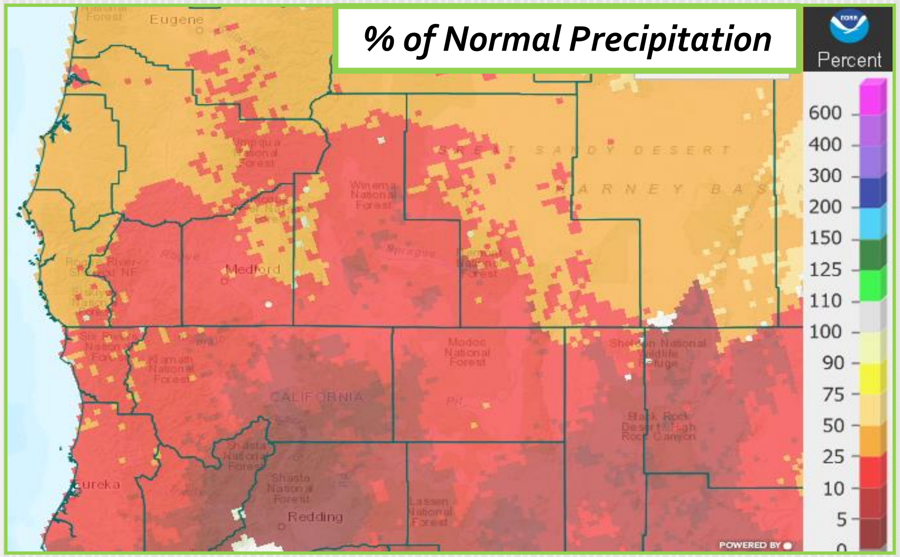




Precipitation

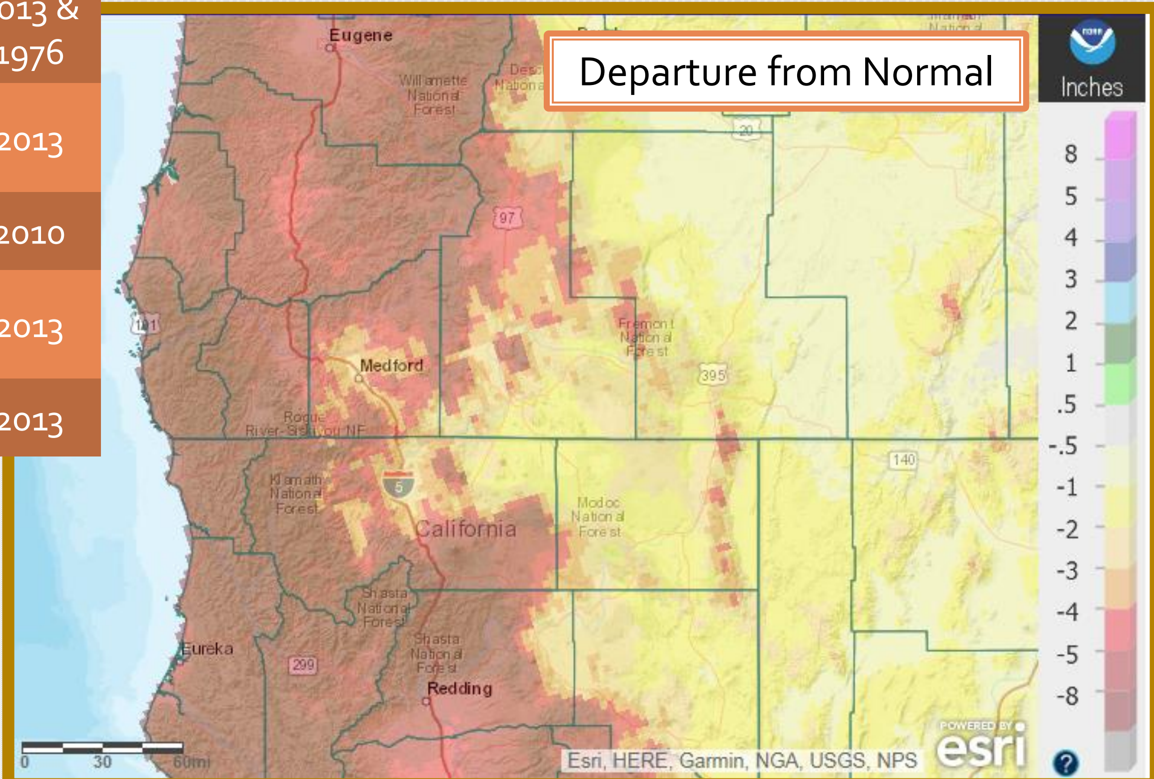
	Total	Departure from Normal	Greatest 24-hr Total	Date(s)
North Bend	3.07″	-8.06″	0.96″	2nd
Roseburg	1.40″	-5.12″	0.66″	19th
Medford	0.85″	-2.64″	0.23″	19th
Klamath Falls	0.33″	-1.12″	0.21″	2nd
Montague, CA	0.26″	-2.40″	0.17″	2nd
Mt. Shasta City, CA	0.29″	-7.56″	0.18″	2nd
Alturas, CA	0.38″	-1.33″	0.11″	15th



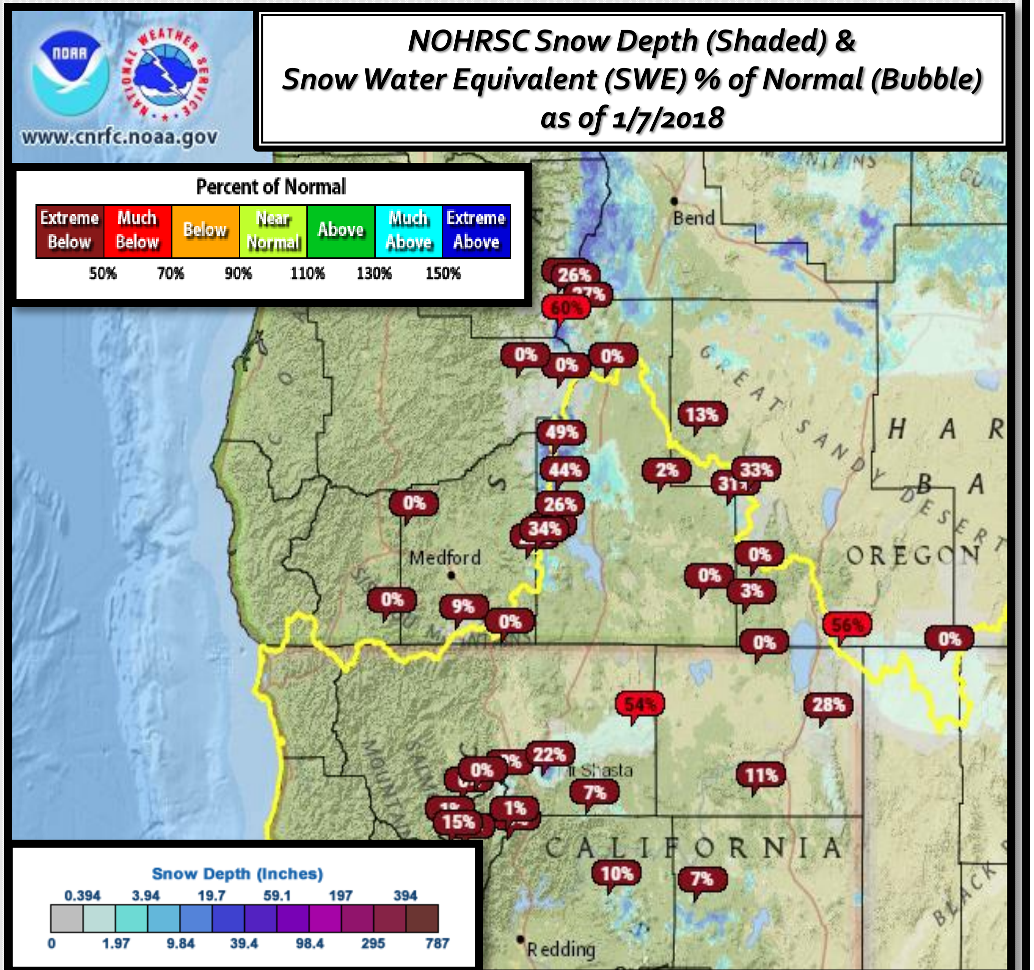


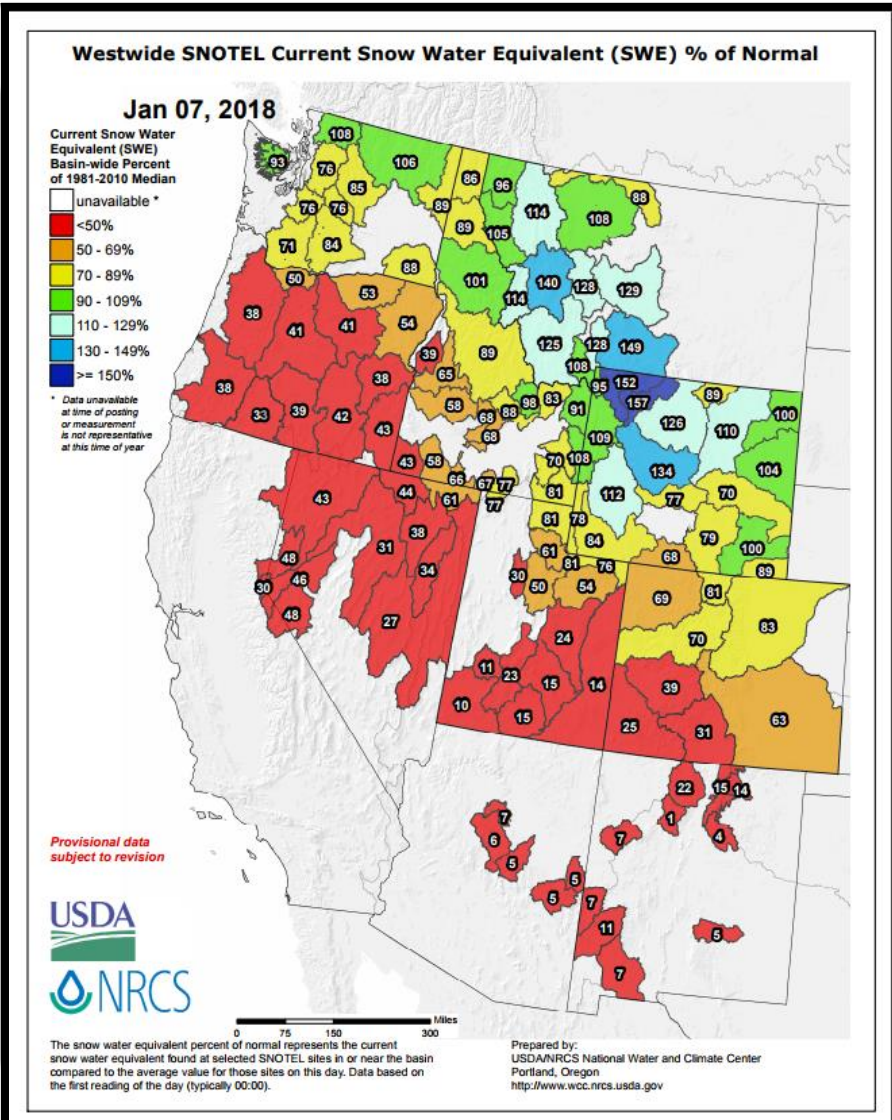
Record Dry December

	Dec `17 Total	Rank	Driest Dec Total	Driest Year
North Bend	3.07"	5th	1.70"	1989
Roseburg	1.40"	2nd	0.69"	2013
Medford	0.85"	9th	0.36"	2013 & 1976
Klamath Falls	0.33"	2nd	0.28"	2013
Alturas	0.38"	3rd	0.10"	2010
Mt Shasta City	0.29"	2nd	0.24"	2013
Montague	0.26"	2nd	0.09"	2013

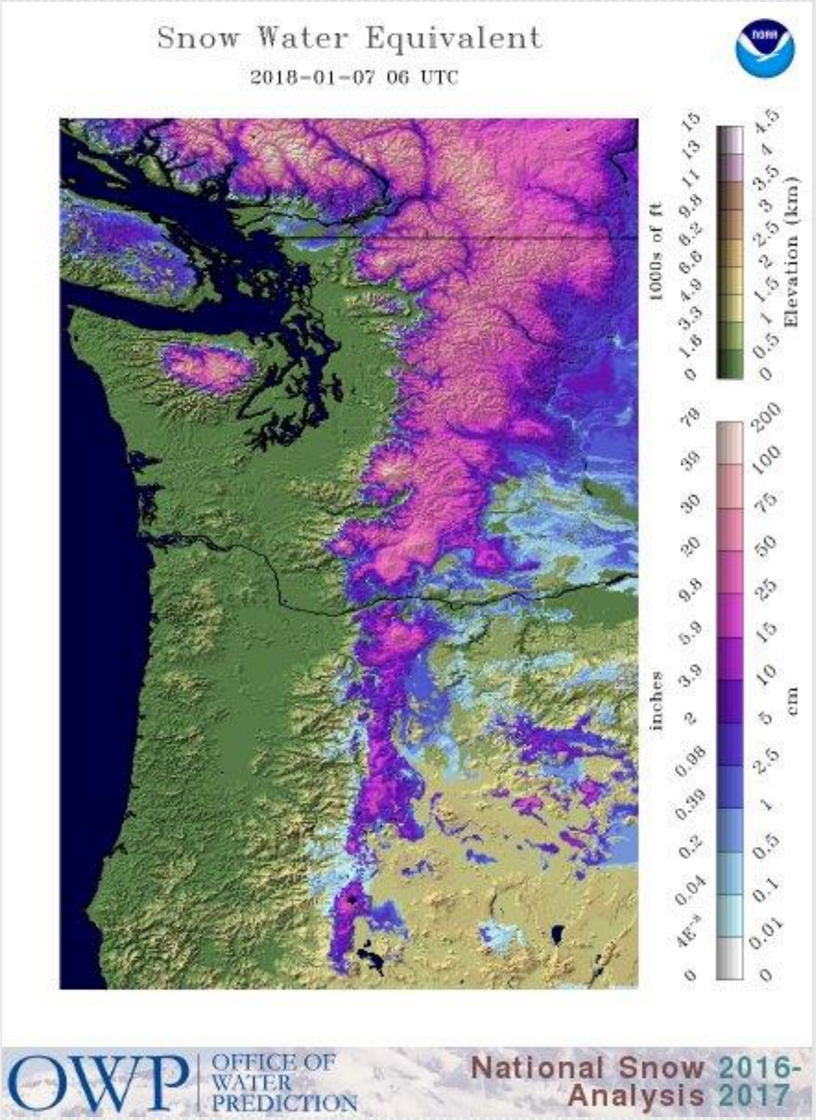


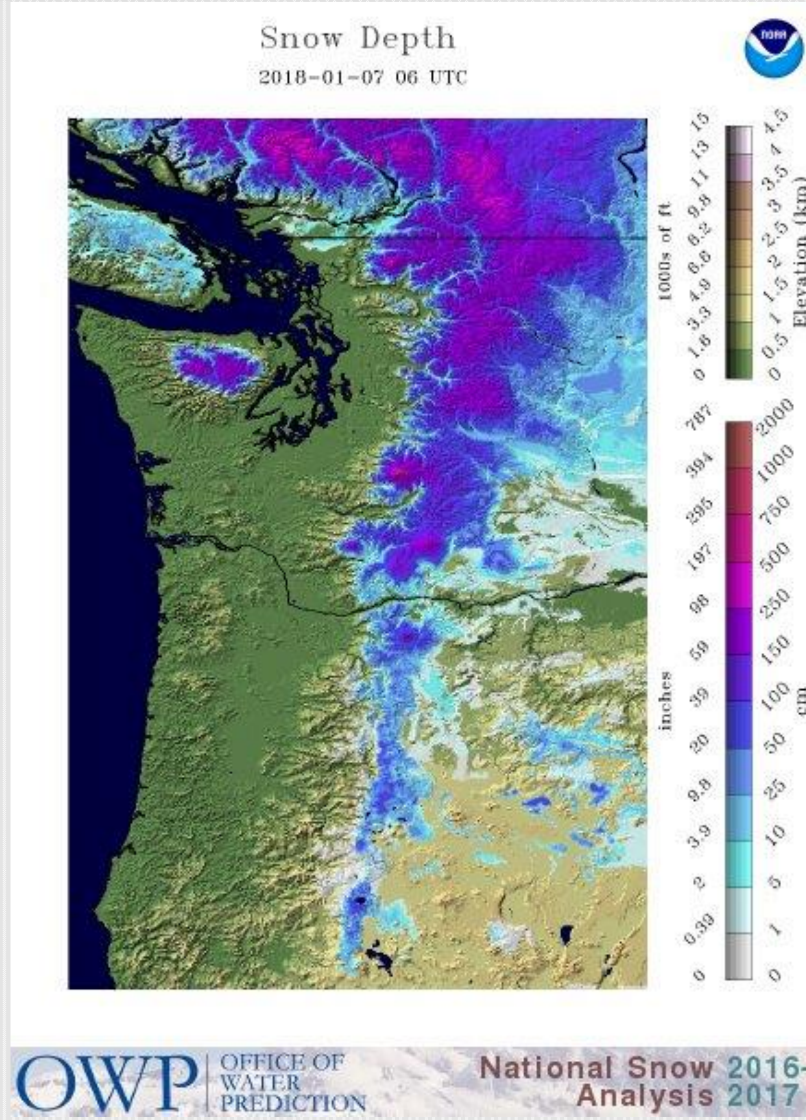
Snowpack Status



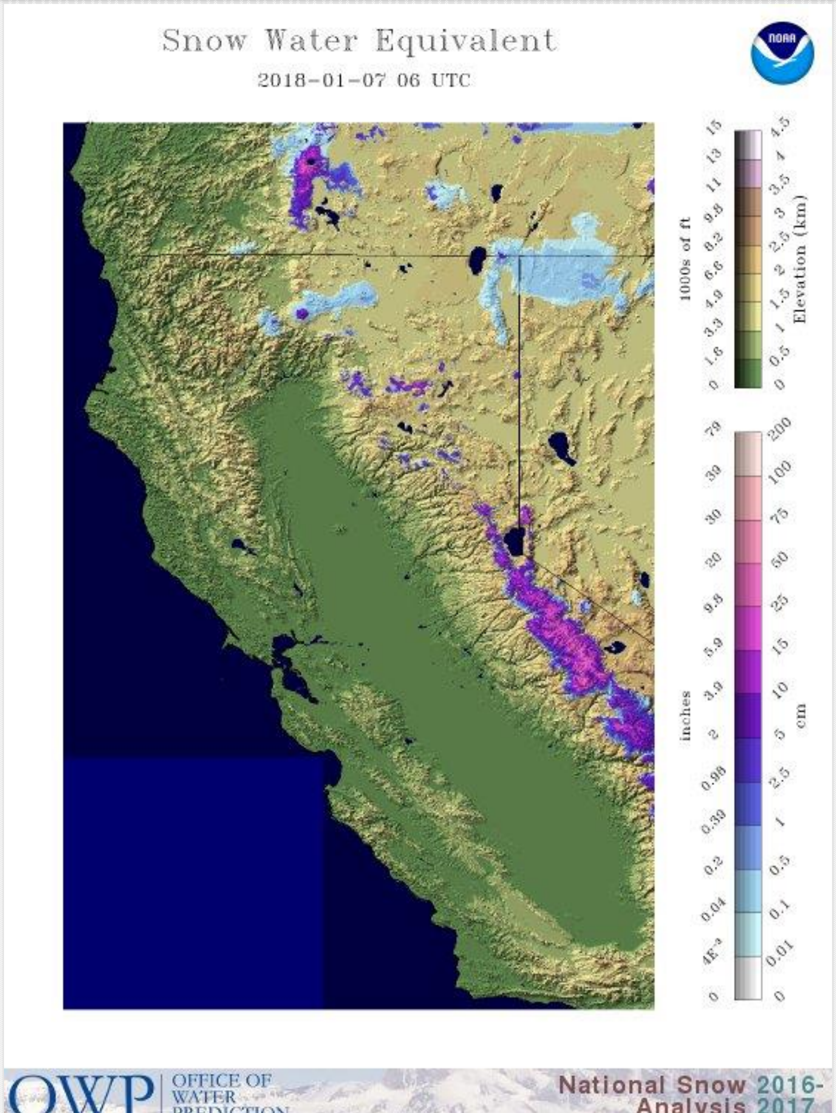


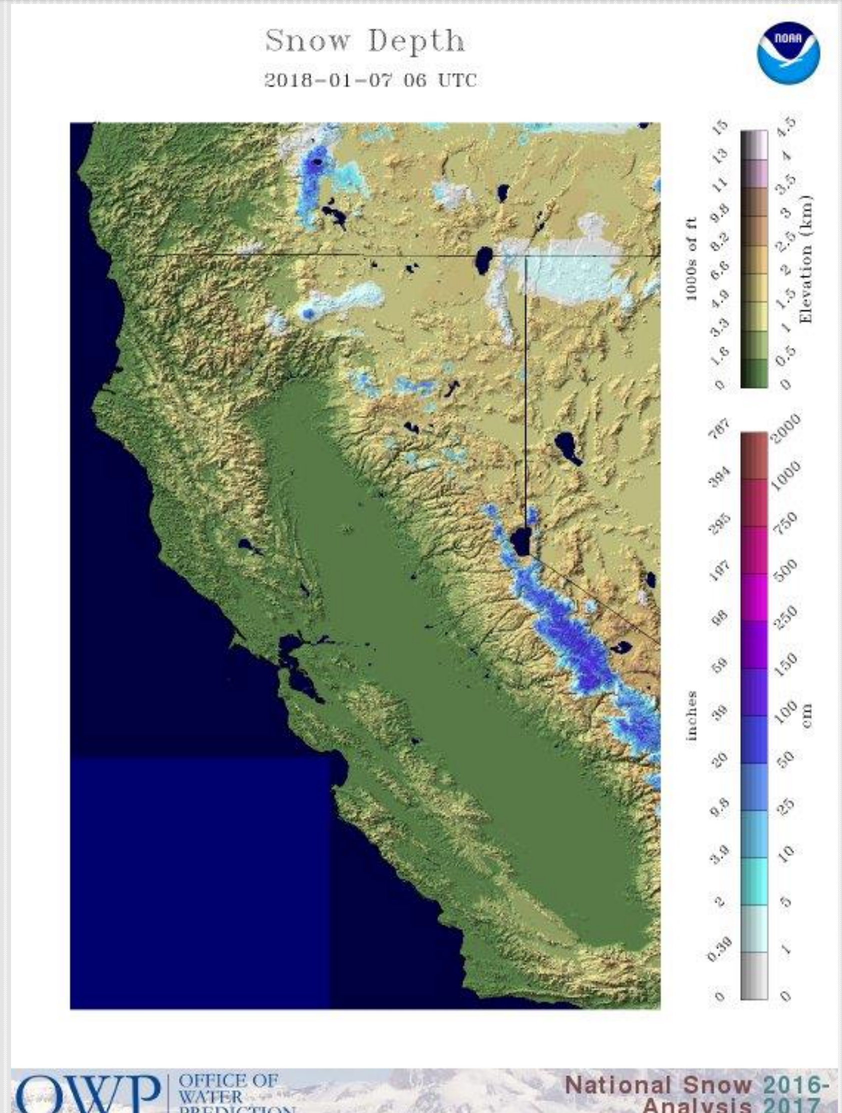
PacNW SWE & SD as of 1/7/18





California SWE & SD
as of 1/7/18





Crater Lake

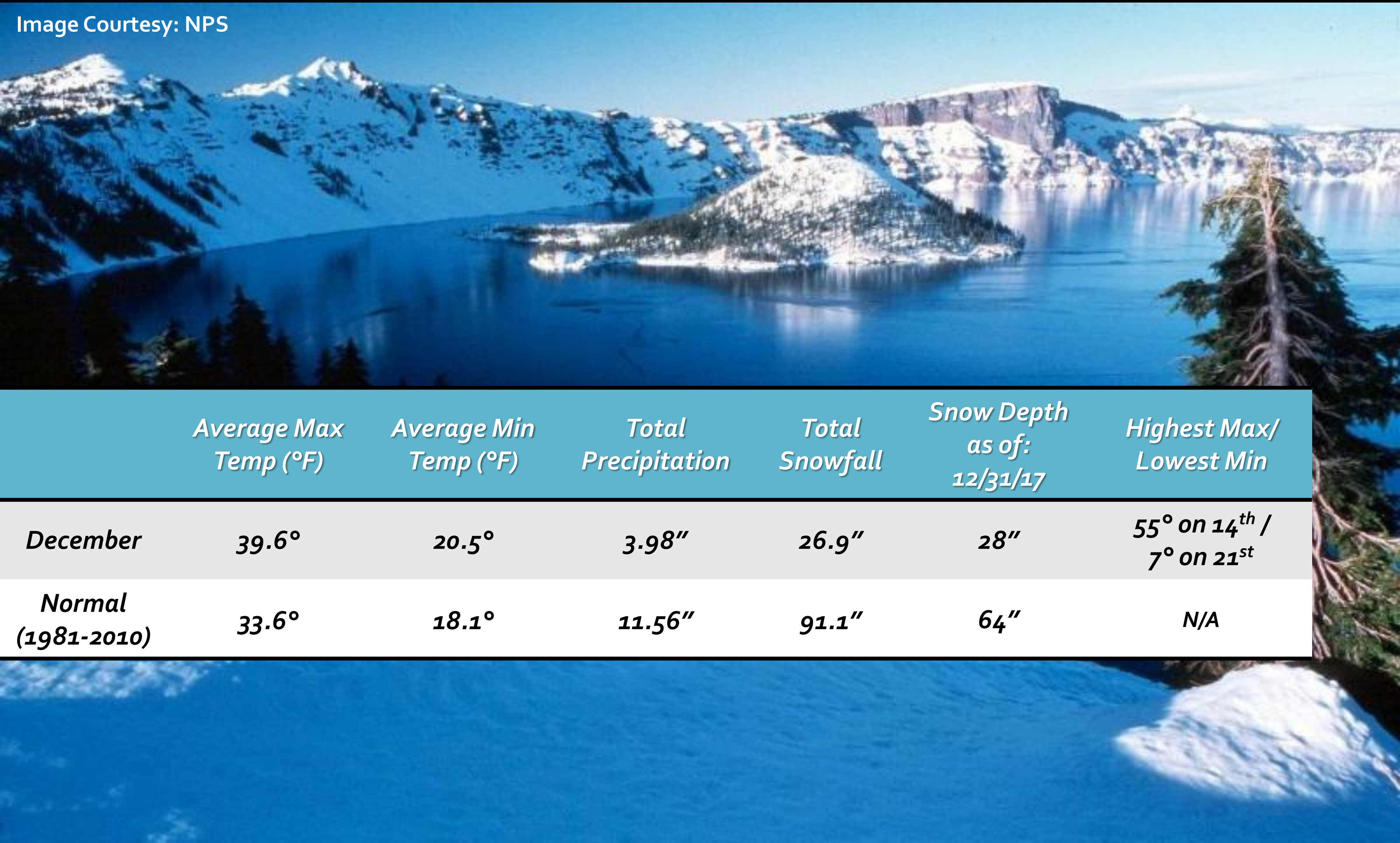
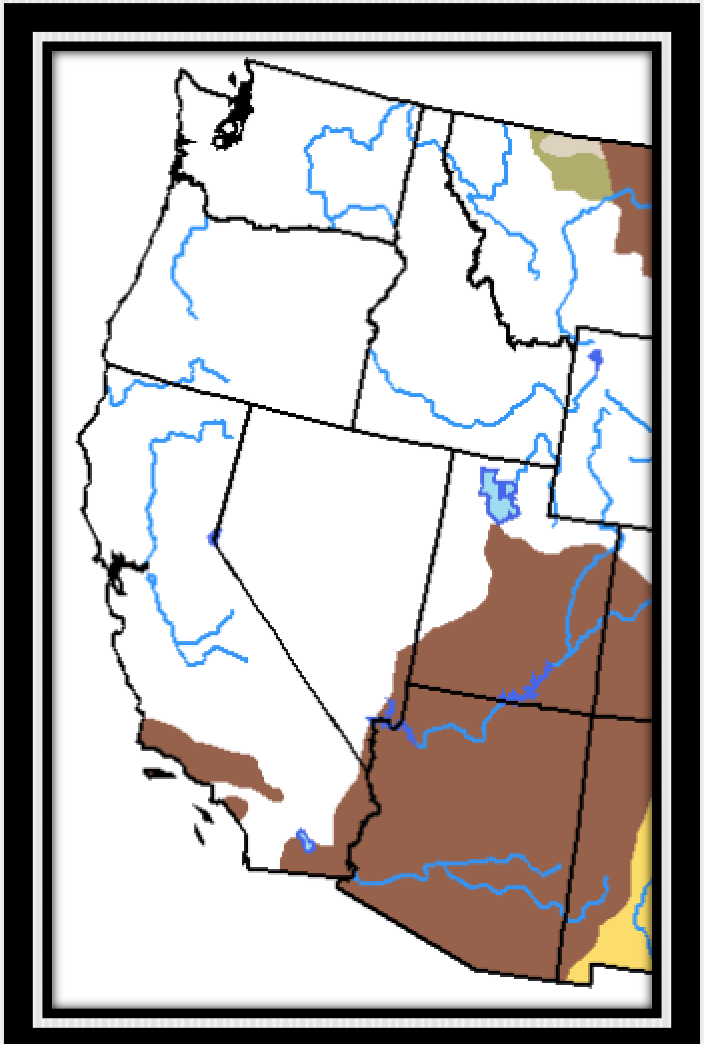


Image Courtesy: NPS

	Average Max Temp (°F)	Average Min Temp (°F)	Total Precipitation	Total Snowfall	Snow Depth as of: 12/31/17	Highest Max/ Lowest Min
December	39.6°	20.5°	3.98″	26.9″	28″	55° on 14th / 7° on 21st
Normal (1981-2010)	33.6°	18.1°	11.56″	91.1″	64″	N/A

Drought Outlook: January



- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely

Valid for January 2018
Released December 31, 2017

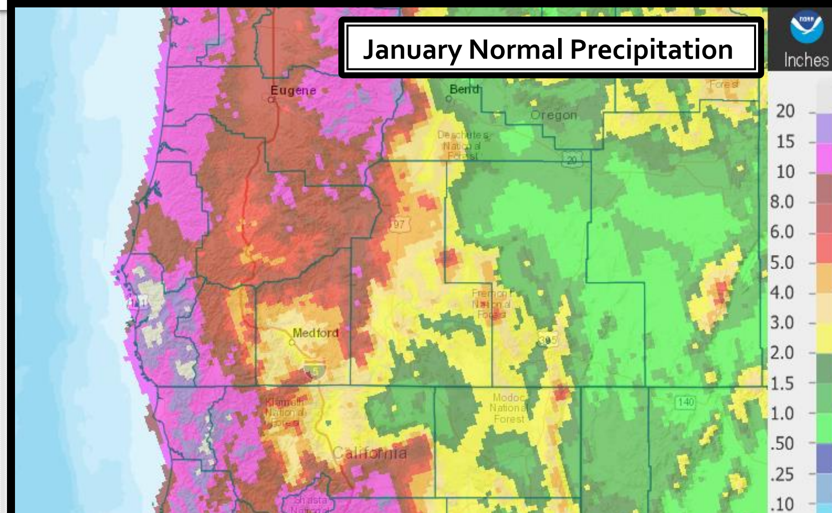
http://www.cpc.ncep.noaa.gov/products/expert_assessment/month_drought.png

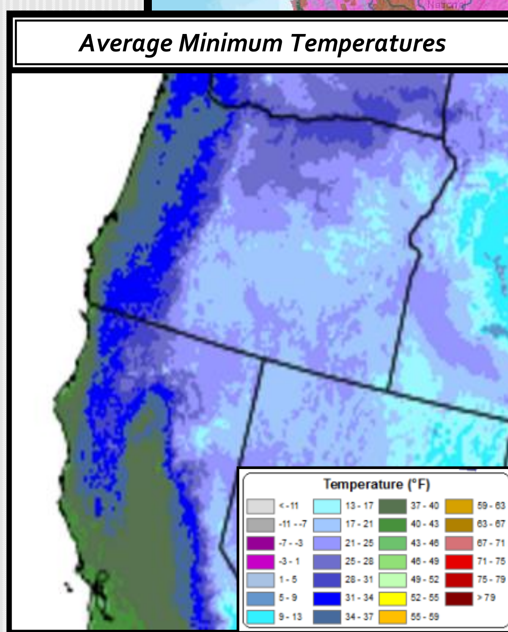
Looking Ahead: Normals for January (1981-2010)

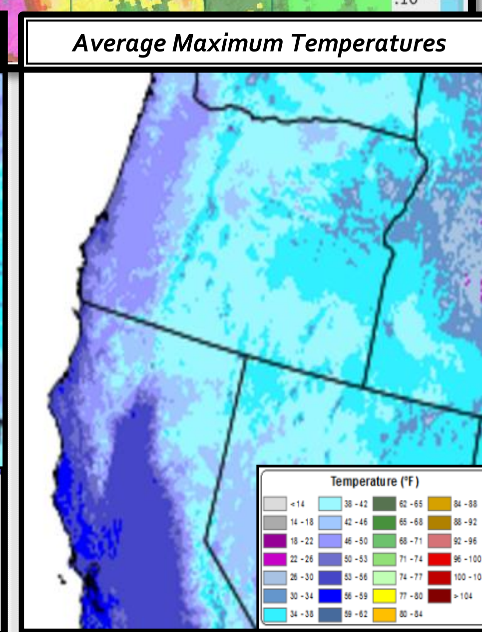
January is, in general, the second coldest and third wettest month of the year for southwestern Oregon and far northern California. Much of the lower terrain of Lake County, the Tule Lake Basin, and parts of the Sprague and Pitt River Basins receive 1/2 inch to 2 inches of water, while higher elevations east of the Cascades typically receive 2-6 inches of water. The Cascades and Mount Shasta typically receive 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 usually is 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.



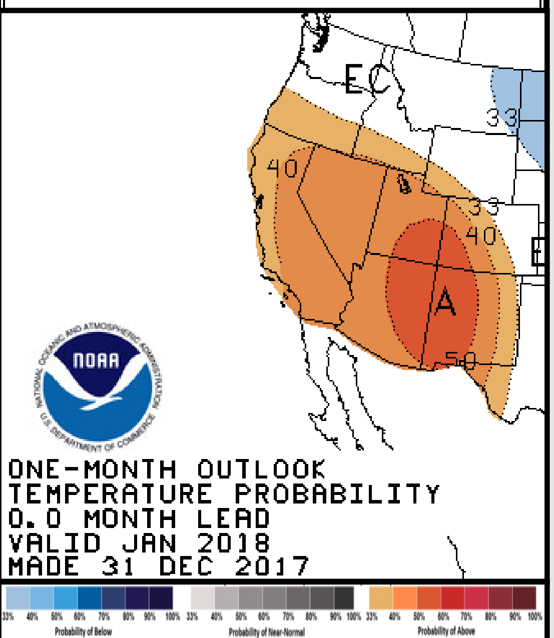




January 2018 Outlook

After what looked to be a good start to winter and our snowpack through the middle of November has since, turned much drier and generally warmer than normal across the forecast area. This has resulted in thin snowpack above 6,000 foot elevations with little snow below that. Predictability has been low for snow levels beyond 3-5 days, and has been generally low for projected pattern changes beyond the 7 and, especially, the 14 day time period. We continue to see hope on the horizon in model guidance for a return to more sustained wetness, stronger storm activity, and lower now levels in the long range outlooks, but such hope has been mostly out in the week 2 through week 4 time frame, where predictability has been low since mid-November. The official CPC forecast for January is weighted mainly on expectations of what will occur early in the month, when mild conditions and drier than normal conditions are expected, as well as the expectation of a dry period around mid-month. This forecast currently looks reasonable for temperatures, however, for precipitation, recent model runs indicate the possibility of a powerful jet stream reaching the West Coast between January 15th and 17th with a parade of storms likely to follow. Additionally, early in the month, it will not be dry, rather just not as wet as normal and also with higher snow levels than normal, generally between 7kft and 8kft. Thus, local expectations are that precipitation across the area will end up close to climatology (normal) for the month.

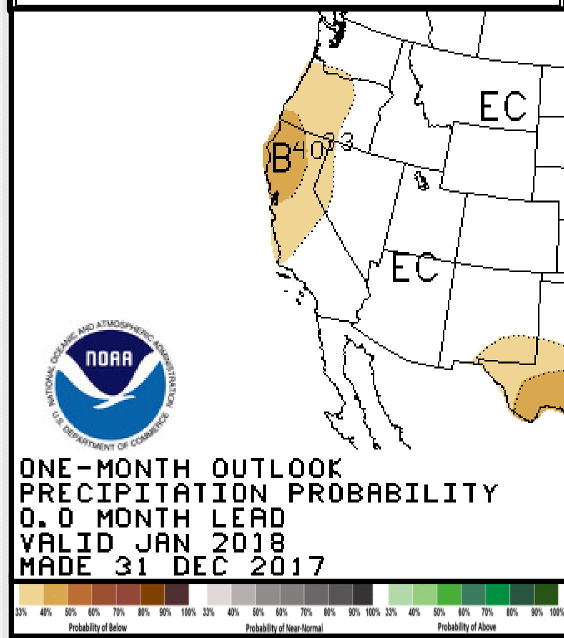
Temperatures



<u>Expected Impact, January 2018:</u>

Warmer and drier than normal conditions for December greatly diminishes our chances for a normal to above normal precipitation and snowpack Wet Season. Previous similar early Wet Season dry anomalies have been erased in Northern California only about 10% of the time that they've occurred, while odds across western Oregon are ~25%. That said, we expect a below normal snowpack by month's end. Quite a bit hinges on what happens during the 2nd half of January in terms of how much impact we'll see. If we see a return to the more typical active winter weather in the 2nd half of January into February then impacts will be minimal except to winter recreation from the Siskiyous southward. A continuation of mild and drier than normal conditions into late month would have more drastic effects on waterways and water storage, and many plants would likely go into spring mode.

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: 1/1/1948 – Present**
  - *Missing:*
    - *08-10/1970*
    - *1971-10/1997*
- **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*