

National Weather Service Medford

October 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 \(NCEI\)](#).

October 2019 Weather Review

The unseasonably cool temperatures that ended the month of September, continued during the first few days of October as upper level troughing lingered over the area. Shortwaves within this trough brought some light rain to the northwest portions of the area, but the more notable aspect of this trough was the cooler temperatures that marked the end of the growing season for many areas west of the Cascades. These were some of the coldest overnight temperatures since 2009.

After this trough moved east of the area, temperatures moderated and the weather remained relatively quiet. A few, weaker systems moved through before the middle of the month, bringing rain to mostly areas along the coast and north of the Umpqua Divide.

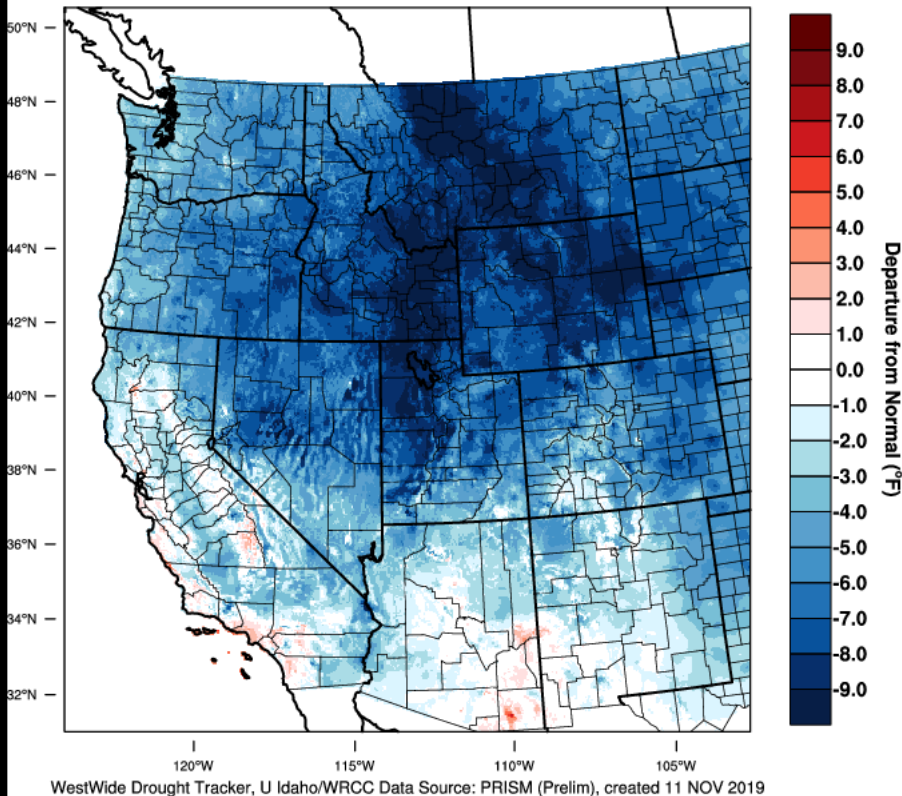
By mid-month, a strong upper level trough affected the area, bringing some much needed rainfall, gusty winds and snow down to around 5000 feet at times. Although there were no significant impacts from these systems, the area did receive at least half, if not all, of their monthly precipitation during this time frame. A few more fronts followed, each drier than the last, and this drying trend continued into the end of the month.

Two troughs moved by the area to the east, and with a strong thermal trough at the surface, the orientation of the troughs resulted in a deep layer of east to northeasterly flow. While these troughs were dry, the deep east to northeasterly flow brought strong winds to the area, especially to the higher terrain. These winds, along with a very dry air mass, dried fuels and resulted in heightened fire weather concerns. With the third driest air mass on record for October, per observed sounding climatology, in place, fog and low clouds were scarce to be found and the clear skies led to very cold nights across the forecast area. Single digits and teens were common across the east side while low to mid 20s were recorded in the valleys west of the Cascades. In addition to numerous new record lows being set, this brought a definitive end to the growing season west of the Cascades with even the coastal areas north of Cape Blanco experiencing freezing conditions.

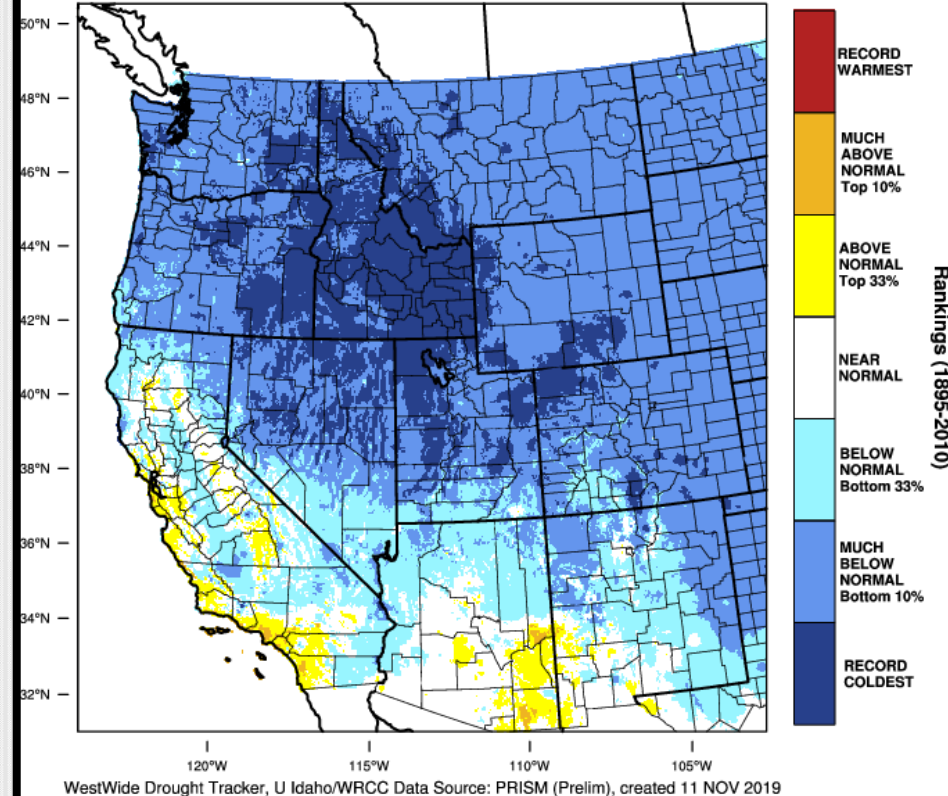
These cold temperatures at the end of the month helped to solidify colder than normal temperatures for the month of October. Also, the extended dry periods at the beginning and end of the month left the whole forecast area under drier than normal conditions with well below normal monthly precipitation totals.

October 2019 *Observed Temperatures*

Western United States - Mean Temperature
October 2019 Departure from 1981-2010 Normal



Western United States - Mean Temperature
October 2019 Percentile



Average Temperatures

	<i>Average (°F)</i>	<i>Departure from Normal</i>	<i>Average Max (°F)</i>	<i>Departure from Normal</i>	<i>Average Min (°F)</i>	<i>Departure from Normal</i>
<i>North Bend</i>	53.1	<i>-0.3°</i>	62.2	<i>1.3°</i>	44.0	<i>-2.0°</i>
<i>Roseburg</i>	52.5	<i>-3.0°</i>	64.1	<i>-2.2°</i>	40.9	<i>-3.9°</i>
<i>Medford</i>	52.0	<i>-4.0°</i>	66.8	<i>-3.1°</i>	37.2	<i>-4.8°</i>
<i>Klamath Falls</i>	42.6	<i>-4.4°</i>	59.6	<i>-3.3°</i>	25.6	<i>-5.4°</i>
<i>Montague, CA</i>	48.3	<i>-3.5°</i>	66.5	<i>-1.1°</i>	30.2	<i>-5.8°</i>
<i>Mt. Shasta City, CA</i>	47.5	<i>-3.7°</i>	63.8	<i>-2.2°</i>	31.3	<i>-5.2°</i>
<i>Alturas, CA</i>	42.1	<i>-4.6°</i>	61.4	<i>-3.8°</i>	22.7	<i>-5.6°</i>

Monthly Max & Min Temperatures

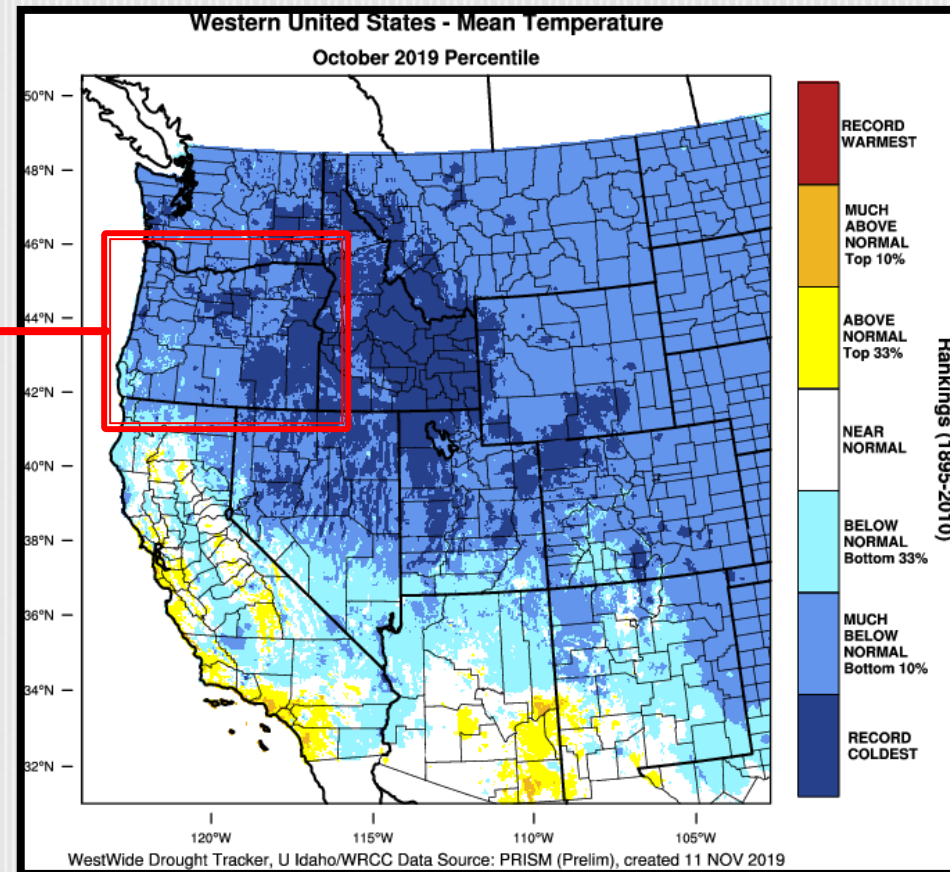
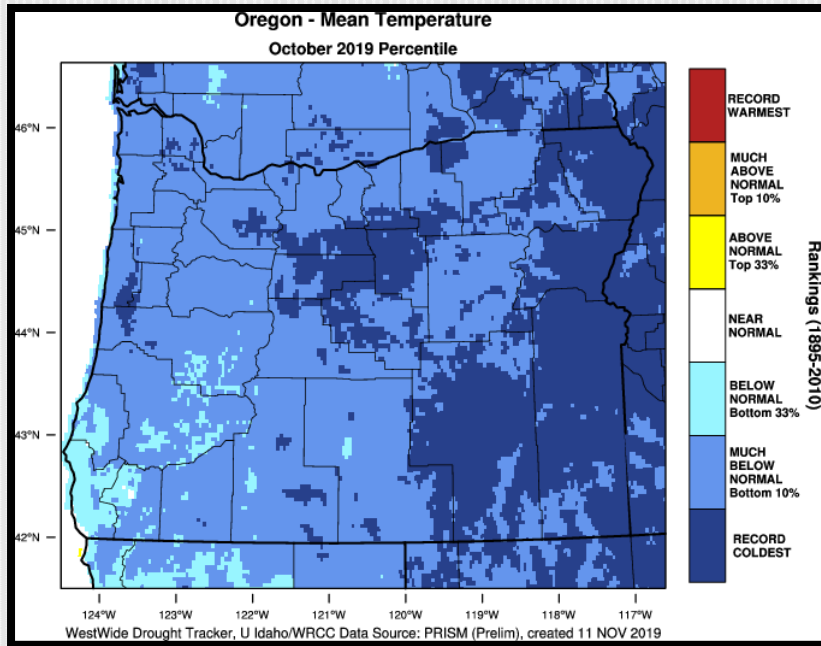
	<i>Max (°F)</i>	<i>Date(s)</i>	<i>Min (°F)</i>	<i>Date(s)</i>
<i>North Bend</i>	<i>71°</i>	<i>24th</i>	<i>34°</i>	<i>29th</i>
<i>Roseburg</i>	<i>74°</i>	<i>7th</i>	<i>26°</i>	<i>30th</i>
<i>Medford</i>	<i>79°</i>	<i>7th</i>	<i>26°</i>	<i>30th & 31st</i>
<i>Klamath Falls</i>	<i>74°</i>	<i>7th</i>	<i>11°</i>	<i>30th</i>
<i>Montague, CA</i>	<i>78°</i>	<i>7th</i>	<i>13°</i>	<i>30th</i>
<i>Mt. Shasta City, CA</i>	<i>78°</i>	<i>7th</i>	<i>17°</i>	<i>30th</i>
<i>Alturas, CA</i>	<i>76°</i>	<i>7th</i>	<i>5°</i>	<i>30th</i>

Record Low Temperatures

	Date	Record Low	Old Record/Year
<u>Alturas</u>	11 th	16°	18° / 1990
	28 th	8°	13° / 1948
	30 th	5°	9° / 2002
<u>Klamath Falls</u>	11 th	19°	Ties w/1924
	28 th	12°	18° / 1946
	30 th	11°	14° / 1912
<u>Roseburg</u>	29 th	29°	30° / 1936
	30 th	26°	28° / 2002

	Date	Record Low	Old Record/Year
<u>Montague</u>	11 th	23°	25° / 2008
	28 th	18°	19° / 1971
	30 th	13°	19° / 1971
<u>Mt. Shasta City</u>	9 th	27°	Ties w/1968
	10 th	26°	31° / 2006
	11 th	26°	Ties w/1990
	28 th	20°	23° / 1971
	30 th	17°	20° / 1991

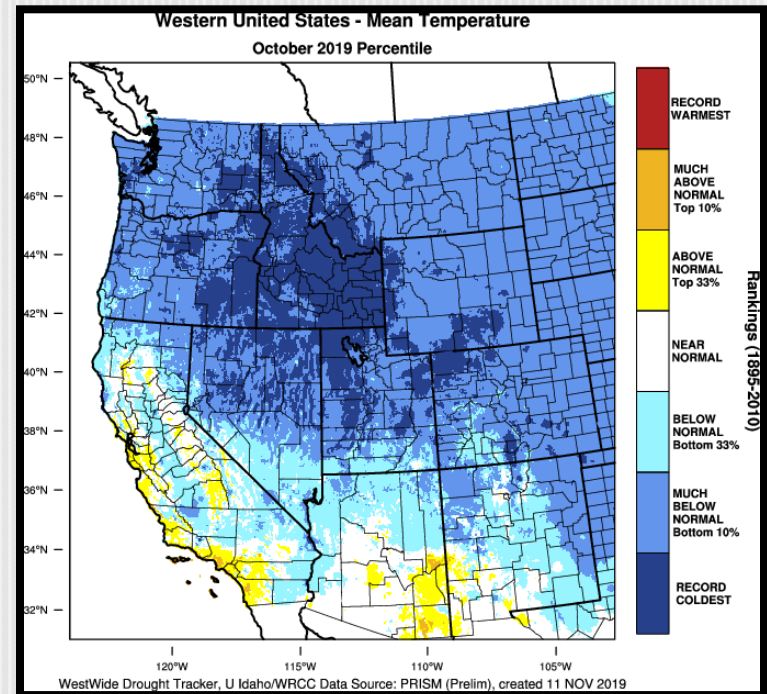
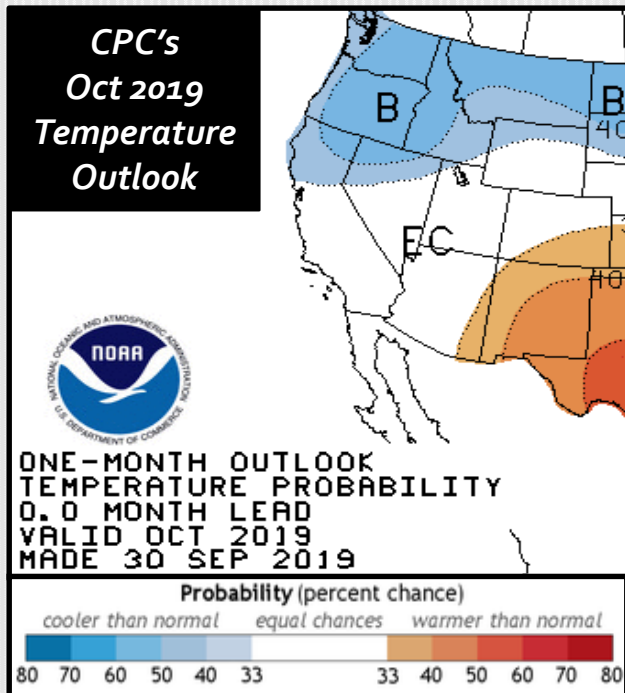
A Look Back at the Unusually Cold October of 2019



- Even when compared to the historical climate record from 1895-2010, October 2019 was unusually cold across much of the western U.S.
- Monthly mean temperature across most of Oregon ranked in the lowest 10% of the 1895-2010 period.
- The dark blue area experienced the coldest monthly mean temperature in the climate record.

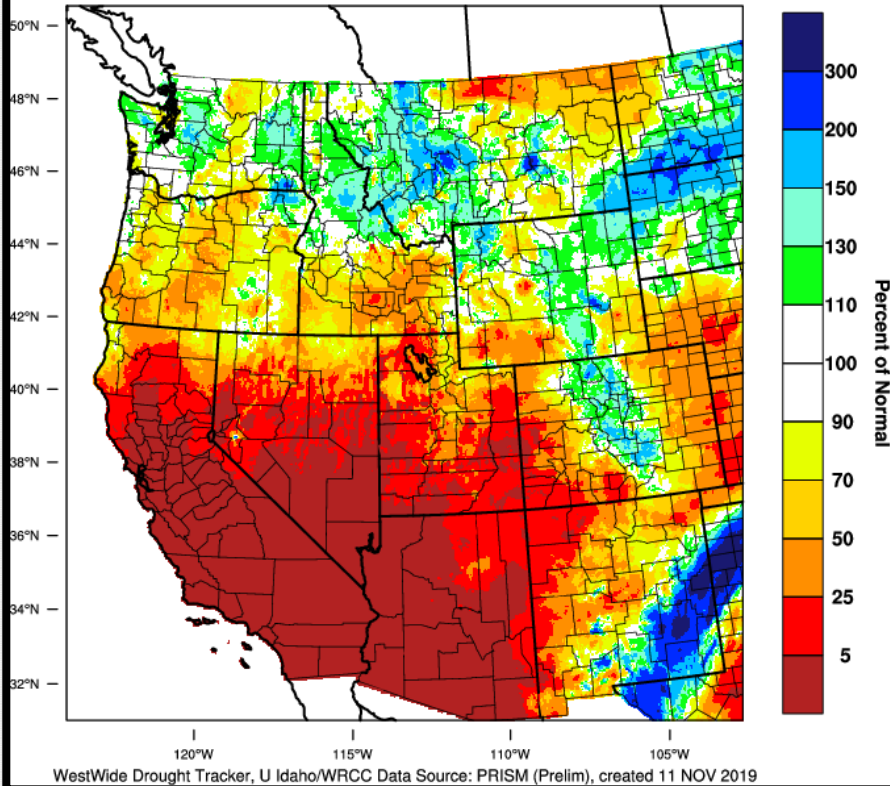
A Look Back at the October 2019 Temperature Outlook

- **Was the forecast anomaly correct?** Yes – Observed temperatures were below normal, as was expected.
- **Did our "Localized Forecast" improve upon the CPC forecast?** Yes. Our localized forecast, updated on October 10th, called for temperature anomalies of 3-8 degrees below normal. Temperatures were within a degree of normal on the immediate coast, but up to 9 degrees below normal in Klamath County. We did not realize, at the time of the update, that forecast temperatures would result in a record cold Oct for parts of the forecast area. Additional graphics showing how this October compared to the historical record are included in this presentation.
- **Was the expected impact correct?** Yes. The expectation that the summer growing season would nearly certainly end for all areas, except along and near the coast, that there would be increased frosts and freezes, and some impacting snowfall was mostly correct. However it did get down to < or = to 32°F on the Coos County coast. Very dry east winds did increase fire danger, which we did not highlight.

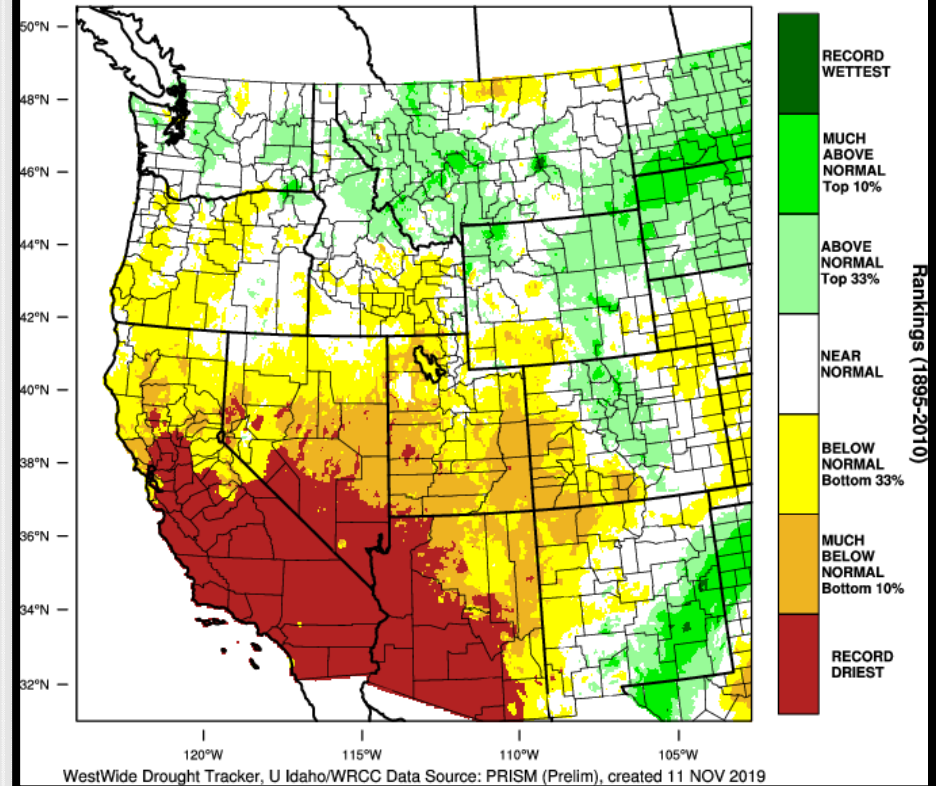


October 2019 *Observed Precipitation*

Western United States - Precipitation
October 2019 Percent of 1981-2010 Normal

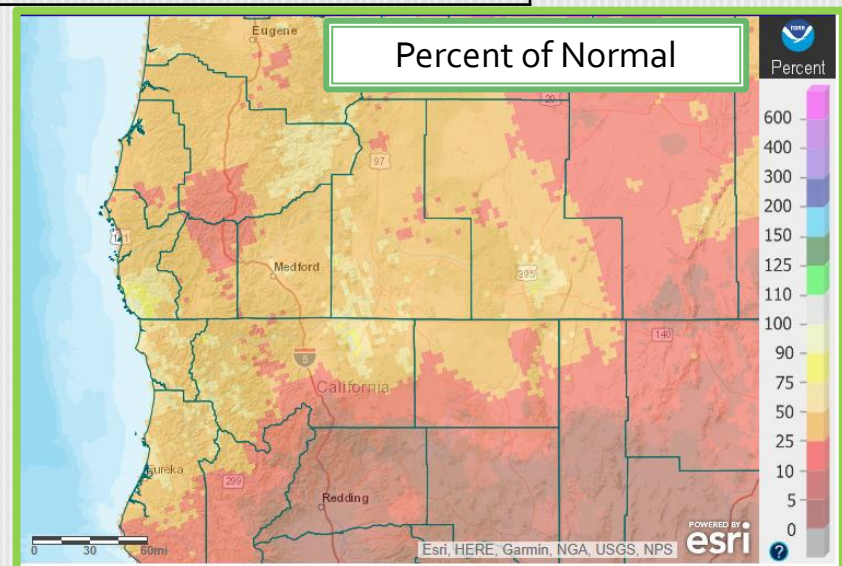
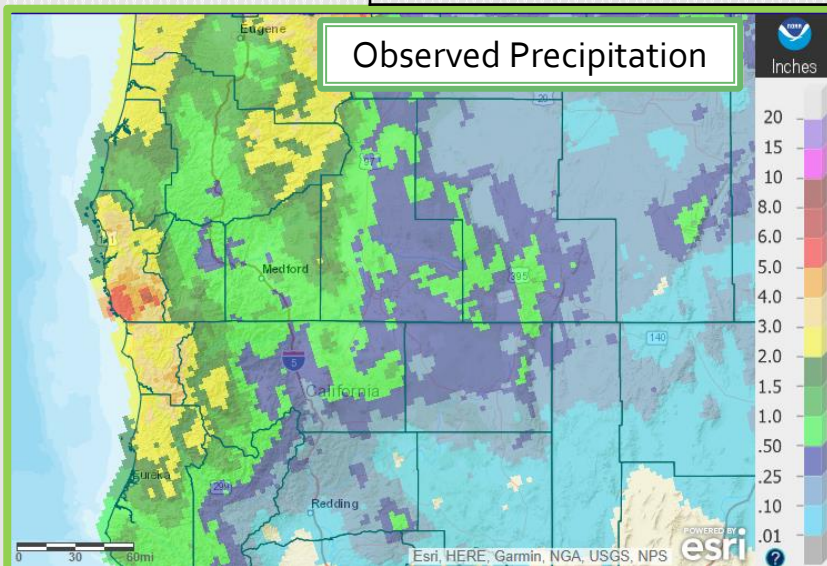


Western United States - Precipitation
October 2019 Percentile



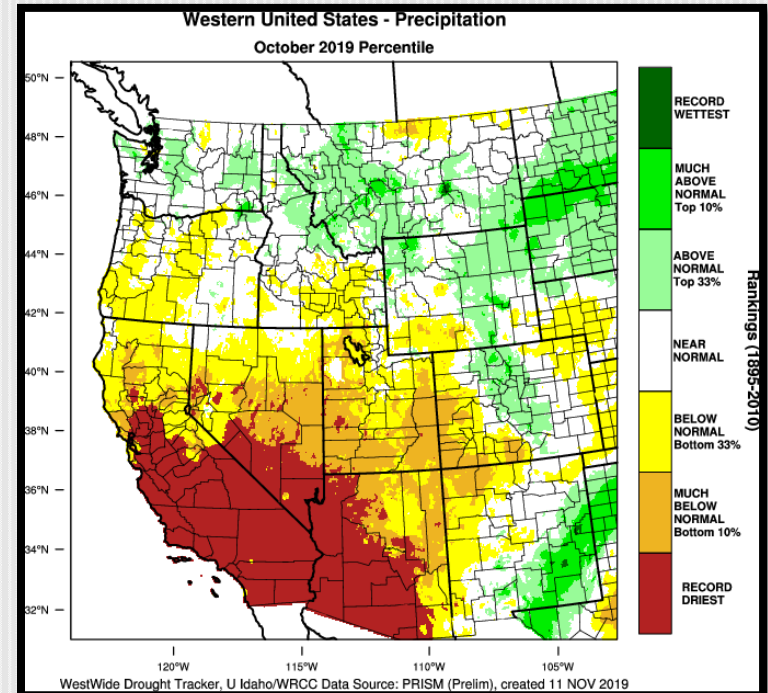
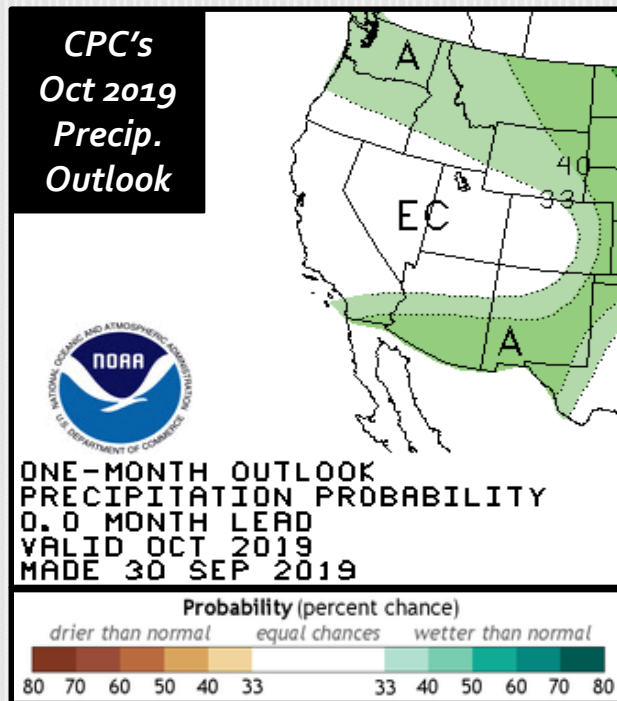
October Precipitation

	<i>Total</i>	<i>Departure from Normal</i>	<i>Greatest 24-hr Total</i>	<i>Date(s)</i>
North Bend	2.43"	-2.30"	0.65"	17 th
Roseburg	0.79"	-1.88"	0.20"	19 th
Medford	0.65"	-0.48"	0.33"	19 th
Klamath Falls	0.39"	-0.66"	0.14"	19 th
Montague, CA	0.36"	-0.84"	0.18"	19 th
Mt. Shasta City, CA	0.21"	-2.07"	0.15"	19 th
Alturas, CA	0.31"	-0.70"	0.23"	19 th



A Look Back at the October 2019 Precipitation Outlook

- **Was the forecast anomaly correct?** A forecast of equal chances for precipitation is never exactly incorrect. However, based on what occurred, a forecast for increased probabilities of below normal precipitation would have been more correct.
- **Did our forecast improve upon the CPC forecast?** Yes, noting that our forecast was not made until 10/10/2019 – so we had an advantage. Monthly precipitation across the Medford forecast area varied between 5% and 130% of normal, mostly falling between 25% and 70% of normal. Since our localized forecast was for 50%-100% of normal, we were a bit on the high side with our forecast. It should be noted that there are some differences, once again the AHPS versus WWDT analysis of observed precipitation that needs some investigation.
- **Was the expected impact correct?** Our localized forecast indicated little impact from the expected 50%-100% of normal precipitation. While this appears to have generally been true, there were some impacts. This included increased fire danger and some small wildfires toward the end of the month and a couple of red flag warnings. Also, there were likely some negative effects to fish in non-regulated waterways.



Crater Lake

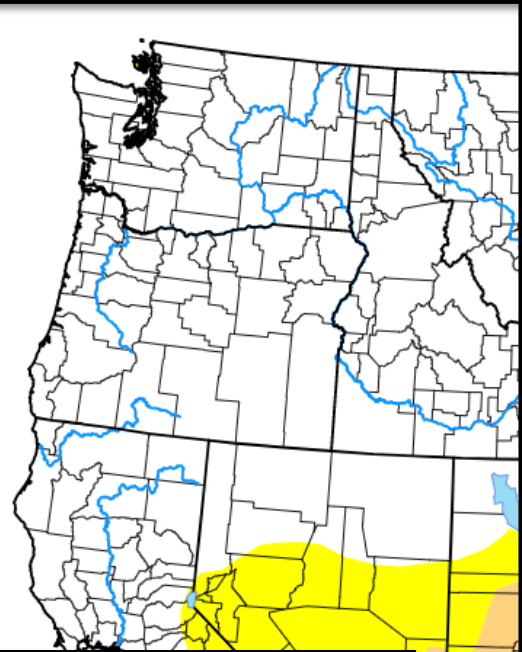
Image Courtesy: NPS



	Average Max Temp (°F)	Average Min Temp (°F)	Total Precipitation	Total Snowfall	Snow Depth as of: 10/31/18	Highest Max/ Lowest Min
<i>October</i>	45.4°	25.8°	3.04"	12.2"	0"	62° on 8 th & 10 th / 16° on 29 th
<i>Normal (1981-2010)</i>	52.0°	30.0°	4.42"	18.3"	7"	N/A

Drought Monitor (Current) & Outlook (October)

United States Drought Monitor



Map released: Thurs. October 31, 2019

Data valid: October 29, 2019 at 8 a.m. EDT

Intensity:

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

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



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

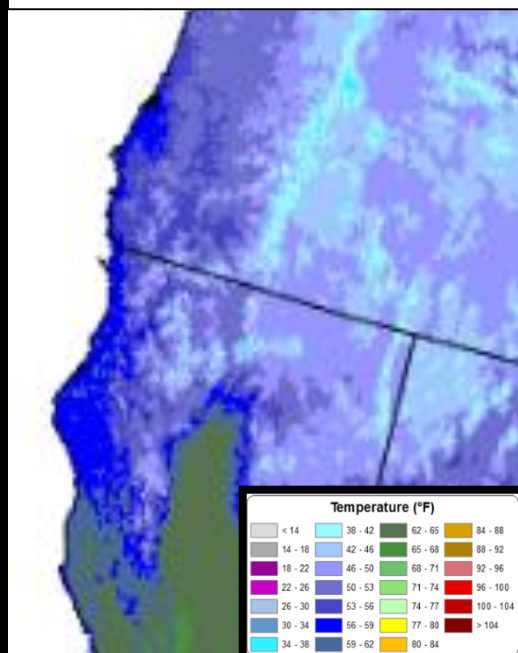


Valid for November 2019
Released October 31, 2019

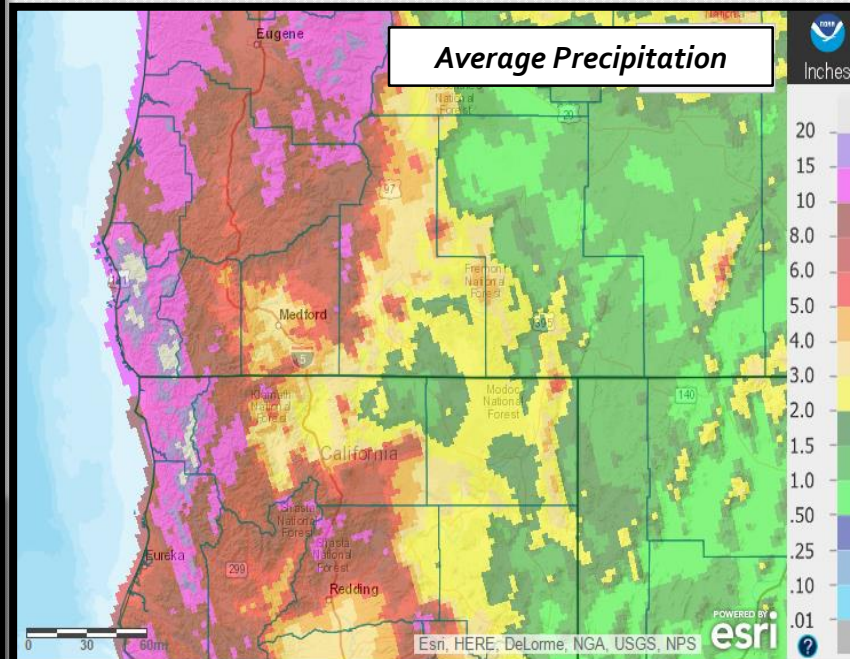
Looking Ahead: Normals for November (1981-2010)

November is a key month for the wet season, resulting in, on average, the second greatest single month precipitation totals across the area. Typically, this is the month when snowpack starts to build in the mountains. The historical average snow depth (1931-2000) at Crater Lake NP Headquarters is 7 inches on the Nov 1st and grows to 29 inches by the 30th. More appreciable snowpack is typical above 7,000 feet in the Cascades. Daily high temperatures are typically in the 30s to lower 40s in the mountains, in the 40s for valleys east of the Cascades, and in the 50 to 60 degree range in the valleys west of the Cascades. Daily low temperatures are in the 20s east of the Cascades, in the 30s and 40s from the Cascades westward, and in the lower 50s along the immediate coast. Precipitation is usually an inch or more for most of the forecast area, with 8 inches or more for all mountainous areas from the Cascades westward. Valleys west of the Cascades generally get 2-8 inches of water, while the valleys east of the Cascades get 1-3 inches. The Cascades typically receive 8 inches or more of water, with 10 to 20+ inches in the Coastal Mountains.

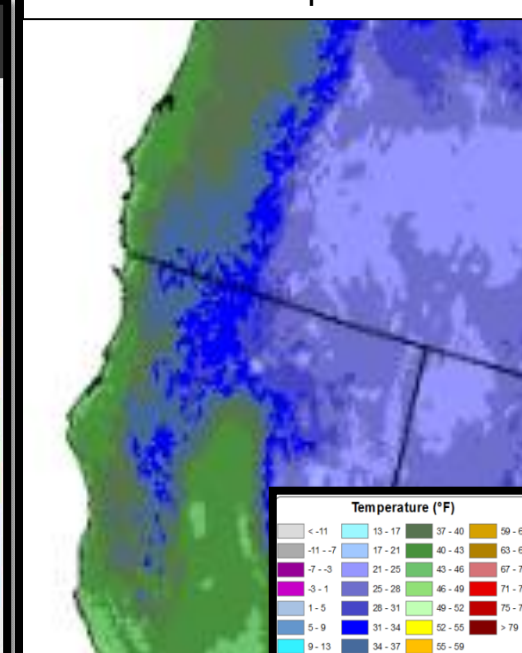
Maximum Temperatures



Average Precipitation



Minimum Temperatures

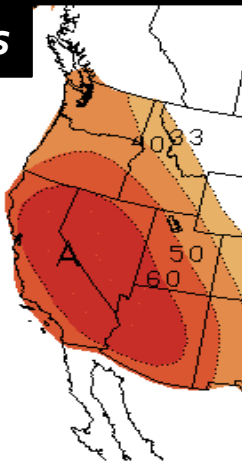


November 2019 Outlook

(As of 11/07/2019)

The official CPC outlook calls for enhanced probabilities of above normal temperatures (40-60%+), equal chances for above, near and below normal precipitation across the NW third of the forecast area, and enhanced probabilities (33-45%) of below normal precipitation over the remainder of the area. Our localized update is for **high confidence in the month ending above normal for temperatures and below normal for precipitation across the entire forecast area. Temperatures are expected to finish the month between 3 and 7 degrees above normal, most likely warmest across the ridges.** An active Madden Julian Oscillation (MJO) moving from the Western Pacific into the Western Hemisphere is likely to aid in breaking down ridging across the western U.S. We continue to vary greatly on timing and duration with the onset generally occurring between Nov 15th and 20th. **While confidence is low in the precipitation forecast, it appears that the forecast area will experience between 25%-75% of normal precipitation for the month of November by month's end.**

Temperatures



ONE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
0.0 MONTH LEAD
VALID NOV 2019
MADE 31 OCT 2019

Probability (percent chance)

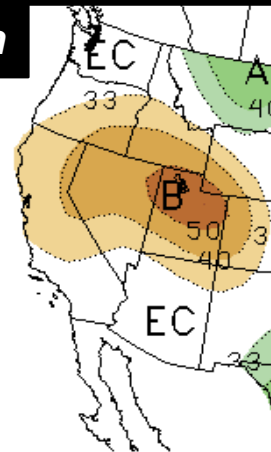
cooler than normal equal chances warmer than normal

80 70 60 50 40 33 33 40 50 60 70 80

Expected Impacts, Nov 2019:

Above normal temperatures and dry conditions will result in increased chances for pile and prescribed burns to escape, as well as some wildfire potential where slope and wind align and on southerly aspects. The warm and dry conditions could be harmful to fish in non-regulated waterways. Since Nov is, on average, the 2nd wettest month of the year for the forecast area, dryness this month means we'll, most likely, need a wetter than normal December to prevent drought development in the 2019-20 water year. Current indications are that December is likely to be at to above normal for precipitation with near normal temperatures, though confidence in that monthly forecast is still fairly low due to poor historical skill. For most of us, the warmer and drier conditions make it a great time to prepare homes and properties for the upcoming winter. Be advised that we could see another east wind event or two before the 20th.

Precipitation



ONE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.0 MONTH LEAD
VALID NOV 2019
MADE 31 OCT 2019

Probability (percent chance)

drier than normal equal chances wetter than normal

80 70 60 50 40 33 33 40 50 60 70 80

*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 September 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 September 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