

The Month In Review

October 2019

National Weather Service
Pendleton, Oregon

October, 2019 Climate Summary

The month of October, 2019 can be remembered most by the much colder than normal temperatures and episodes of snow in the mountains. There were several significant cold spells during the month with the coldest one being at the end of the month which began just before Halloween. On the 1st and 2nd an upper trough brought colder than normal temperatures to the region, and then again from the 9th until the 12th. Lastly, an arctic cold front with strong winds brought record or near record breaking cold weather to the region and forecast area beginning on the 29th through 31st, which was preceded by a less significant cold spell on the 26th through the 28th. Significant snowfall was reported in the mountains on the 19th and 20th. Overall the month was drier than normal for most locations despite the unusual cold snaps with deep upper level troughs. Below are some photos of typical scenes from the month around the forecast area.



Autumn foliage in central OR.



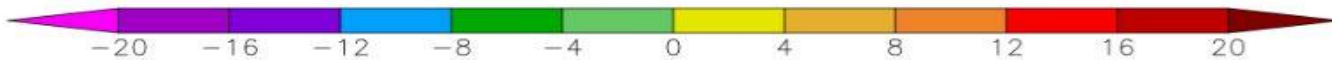
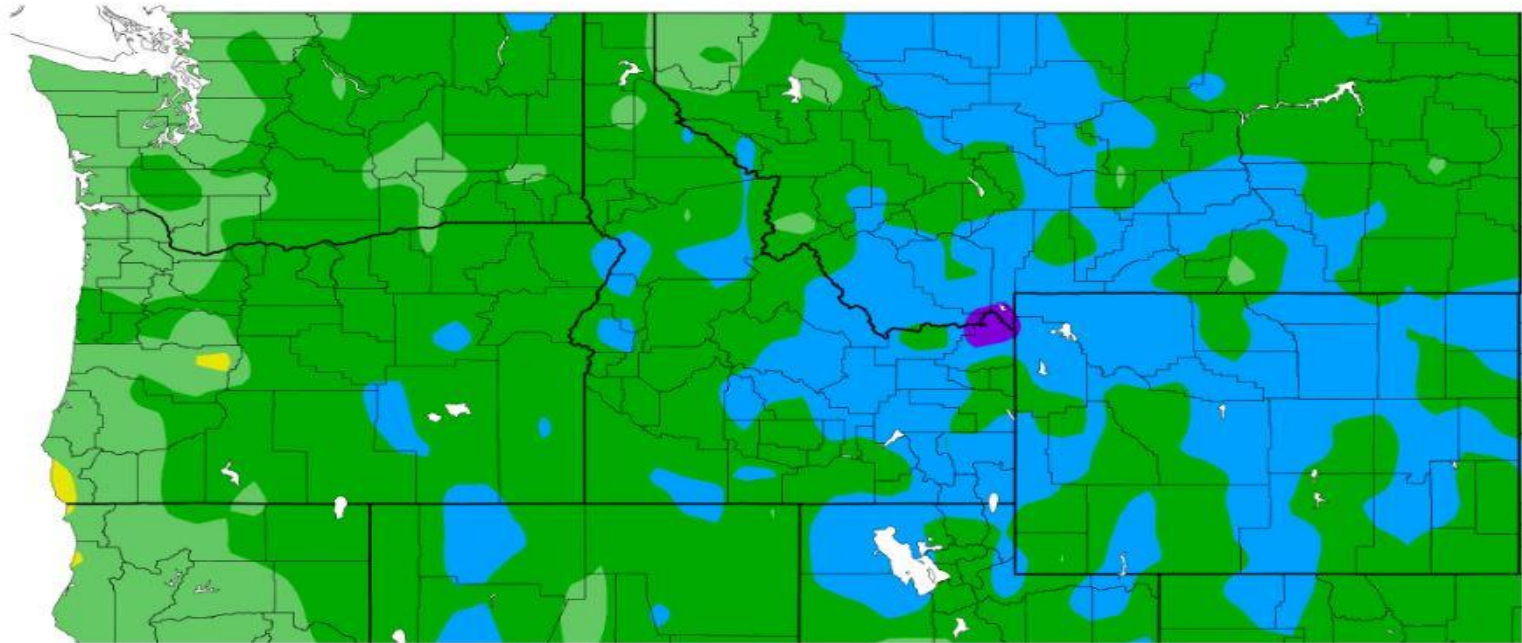
A cold, rainy, windy day in Pendleton, OR. The strong winds and cold caused the leaves to fall off the trees early.



Early season snowfall on top of the pass over the Cascades west of Bend, OR.

October 2019 Departure from Normal Average Temperatures

Departure from Normal Temperature (F)
10/1/2019 – 10/31/2019



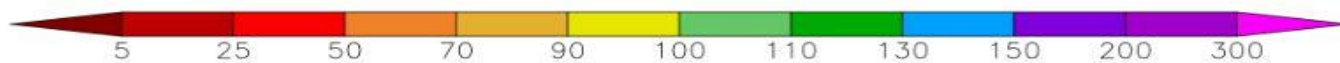
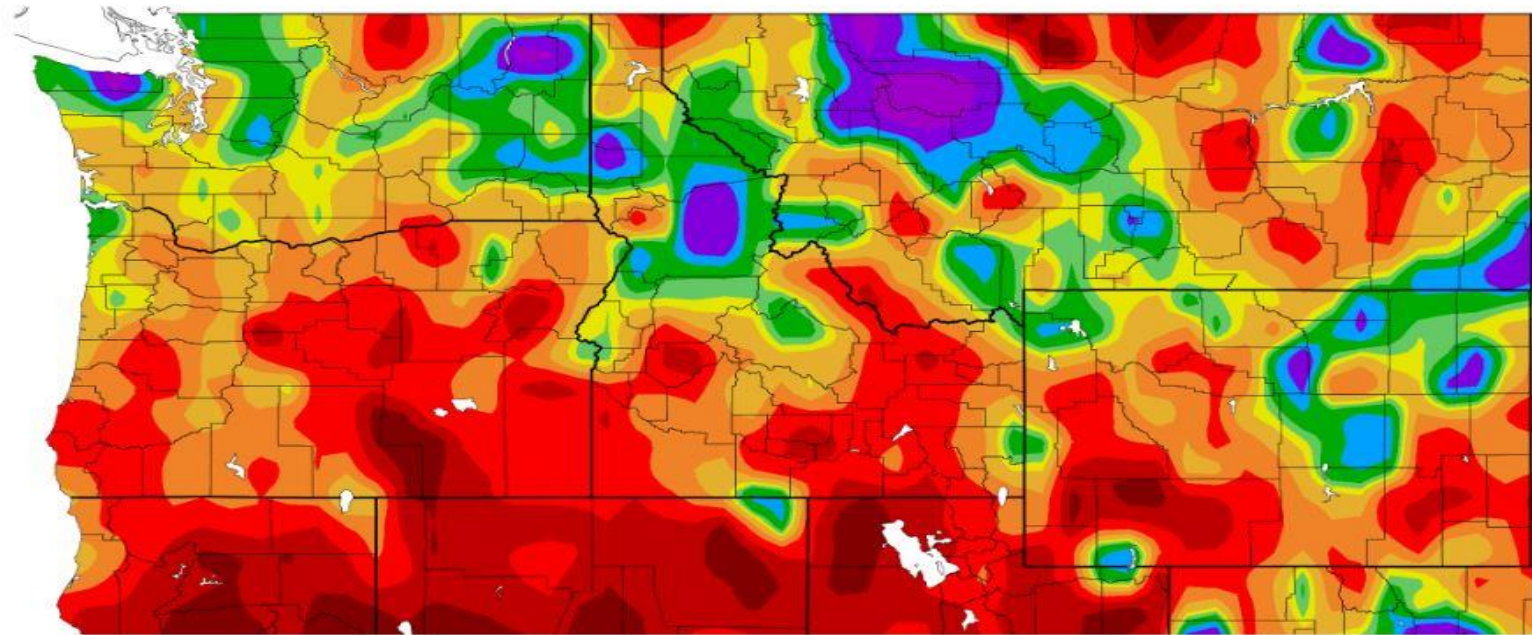
Generated 11/2/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

The image above shows that the forecast area and Pacific Northwest had mostly from -4 to -8 degrees below normal average temperatures for the month (note: the color table has changed since the previous month).

October 2019 Percent of Normal Precipitation

Percent of Normal Precipitation (%)
10/1/2019 – 10/31/2019



Generated 11/2/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

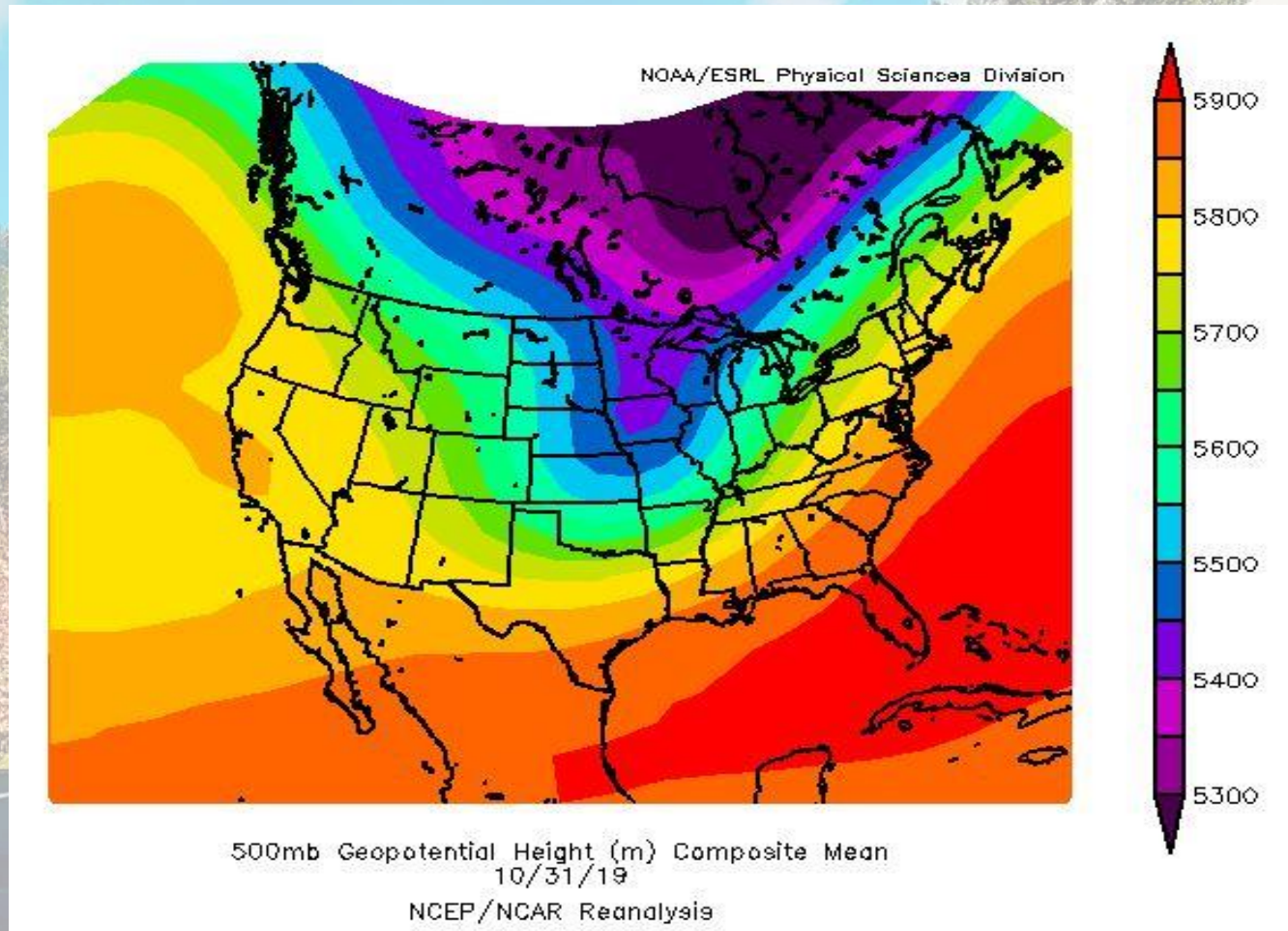
The above image shows that most of the forecast area had below normal precipitation with values of mostly 25% to 70% of normal. The driest areas were in the southern portions of the forecast area (note: the color table has changed since the previous month).

October 2019 Departures from Normals of Averages for Select Cites

	Max T	Max T D	Min T	Min T D	Ave T	Ave T D	PCPN	PCPN D
Yakima	59.2	-4.7	30.4	-3.7	44.8	-4.2	0.51	-0.03
Kennewick	62.3	-3.5	39.1	-3.0	50.7	-3.2	0.31	-0.29
Walla Walla	58.8	-4.7	39.1	-4.0	49.1	-4.2	1.05	-0.63
The Dalles	61.2	-4.5	37.1	-5.2	49.2	-4.8	0.52	-0.47
Redmond	60.8	-2.7	26.5	-4.8	43.7	-3.7	0.28	-0.37
Pendleton Airport	59.1	-4.6	34.2	-5.9	46.7	-5.2	0.46	-0.55
La Grande	58.6	-3.7	29.0	-6.2	43.8	-4.9	1.42	0.13

The data above show that all stations in the list had below normal average maximum temperatures, average minimum temperatures, and average mean temperatures for all the stations in the list. Precipitation was below normal for all stations in the list, except for La Grande, which had only 0.13 inch above normal precipitation.

October 2019 Average 500 MB Weather Pattern



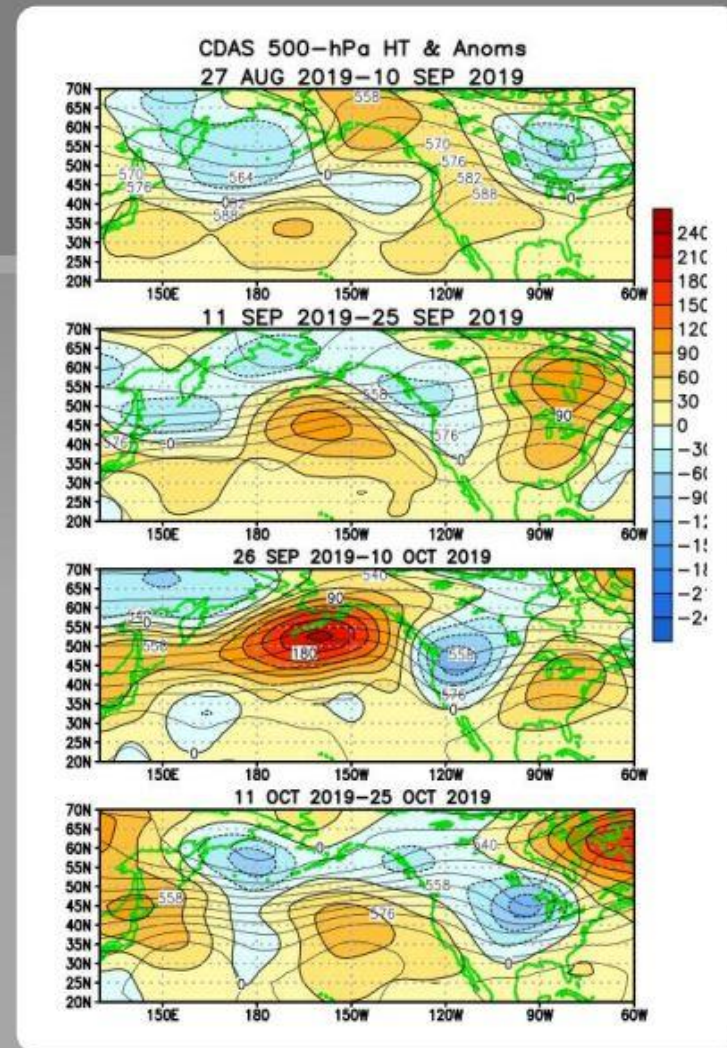
The image above shows a mean upper ridge over the eastern Pacific, which resulted in an overall northwest flow over the Pacific Northwest and the forecast area. This northwest flow resulted in a dry, but cooler than normal regime during the month. There were “back door” cold fronts from time to time which brought in much colder than normal air for October. However, with the flow being from the northwest, it was a dry pattern, resulting in lower than normal precipitation.

More Detailed 500 MB Plots for October, 2019

Atmospheric anomalies over the North Pacific and North America During the Last 60 Days

From early September to early October, above-average heights and temperatures were observed over most of the eastern U.S., while below-average heights and temperatures were located over the western U.S.

Since early October, below-average heights and temperatures have dominated the central U.S.



The Pacific Northwest had an upper trough through the end of September and all of October resulting in a colder than normal month of October.

Significant Weather Events/Records for October, 2019

Significant Weather Events

Event	Date	Report	Where	Misc
Mountain Snow	Oct 8-9, 2019	E 5.0"	Ski Bluewood, WA	Milk Shakes Snotel
Mountain Snow	Oct 8-9, 2019	2.0"	3 NNW Meacham, OR	Spotter
Mountain Snow	Oct 8-9, 2019	E 4.0"	SW of Tollgate, OR	Spotter
Mountain Snow	Oct 8-9, 2019	E 2.0"	10 NNW Ukiah, OR	Spotter
High Wind	Oct 19, 2019	M 55 mph	4 W Adams, OR	Spotter
Heavy Snow	Oct 19-20, 2019	E 12.0"	9 SW Ski Bluewood	Milk Shakes Snotel
Heavy Snow	Oct 19-20, 2019	E 10.2"	2 NNW Ski Bluewood	Touchet Snotel
Heavy Snow	Oct 19-20, 2019	E 15.0"	SW of Tollgate, OR	Spotter
High Wind Dmg	Oct 25-26, 2019		2 NW Yakima, WA	Twigs & Branches
High Wind Dmg	Oct 25-26, 2019		2 SSE Yakima, WA	Tree Fell on Home
High Wind Gust	Oct 25-26, 2019	M 62 mph	3 NNE Ellensburg, WA	ASOS
High Sustained Wind	Oct 25-26, 2019	M 55 mph	10 W Vantage, WA	Meso-net
High Wind Gust	Oct 25-26, 2019	M 62 mph	2 NNE Ellensburg, WA	ASOS
High Wind Dmg	Oct 28, 2019		Prosser, WA	Power Lines Down, Started Wildfire. Law Enforcement
High Wind Gust	Oct 28, 2019	M 50 mph	10 SE Eltopia, WA	Juniper Dunes RAWS
High Wind Dmg	Oct 28, 2019	E 40 mph	3 N Toppenish, WA	Trees Down. Spotter in Zillah area.

Record Weather Reports

Event	Date	Where	Previous Record	New Record	Records Began
Low Min T	Oct 2, 1019	John Day (city), OR	25 / 2013	21	1891
Low Min T	Oct 2, 1019	Pelton Dam, OR	29 / 1973	28	1958
Low Min T	Oct 2, 1019	Pendleton (airport), OR	29 / 1999	29 Tie	1934
Low Min T	Oct 2, 1019	Redmond, OR	21 / 1973	20	1941
Low Min T	Oct 2, 1019	Whitman Misssion, WA	27 / 2002	26	1962
Low Min T	Oct 2, 1019	Yakima, WA	28 / 1954	27	1909
Low Min T	Oct 10, 2019	Heppner, OR	29 / 2008	25	1889
Low Min T	Oct 10, 2019	John Day (city), OR	19 / 1985	16	1891
Low Min T	Oct 10, 2019	Long Creek, OR	23 / 2017	14	1908
Low Min T	Oct 10, 2019	Meacham, OR	16 / 2006	10	1929
Low Min T	Oct 10, 2019	Pelton Dam, OR	27 / 1985	24	1958
Low Min T	Oct 10, 2019	Pendleton (airport), OR	30 / 2009	22	1934
Low Min T	Oct 10, 2019	Sisters, OR	17 / 20019	14	1958
Low Min T	Oct 10, 2019	Redmond, OR	22 / 2009	13	1941
Low Min T	Oct 10, 2019	The Dalles, OR	29 / 1960	27	1929
Low Min T	Oct 10, 2019	Goldendale, WA	24 / 2006	20	1905
Low Min T	Oct 10, 2019	Walla Walla, WA	32 / 2009	30	1930
Low Min T	Oct 10, 2019	Whitman Misssion, WA	25 / 2006	21	1962
Low Min T	Oct 10, 2019	Yakima, WA	24 / 2009	21	1909

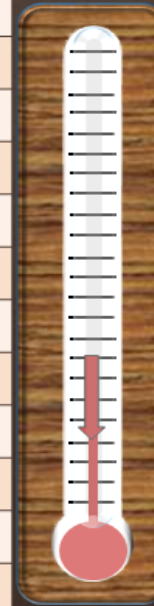
Record Weather for October, 2019 (continued)

Record Weather Reports (continued)					
Event	Date	Where	Previous Record	New Record	Records Began
Low Min T	Oct 11, 2019	Bend (city), OR	19 / 1969	17	1901
Low Min T	Oct 11, 2019	John Day (city), OR	21 / 2008	15	1891
Low Min T	Oct 11, 2019	Long Creek, OR	18 / 1969	16	1908
Low Min T	Oct 11, 2019	The Dalles, OR	32 / 2009	27	1929
Low Min T	Oct 11, 2019	Goldendale, WA	22 / 2009	19	1905
Low Min T	Oct 12, 2019	The Dalles, OR	32 / 2002	30	1929
Low Min T	Oct 12, 2019	Goldendale, WA	23 / 1930	20	1905
High Precip	Oct 20, 2019	Walla Walla, WA	0.53 / 1979	0.63	1930
High Max T	Oct 25, 2019	Yakima, WA	71 / 1984	75	1909
High Max T	Oct 25, 2019	Pasco, WA	75 / 1945	76	1942
High Max T	Oct 25, 2019	Hanford, WA	75 / 1955	75 Tie	1945
Low Min T	Oct 29, 2019	Heppner, OR	15 / 1971	12	1889
Low Min T	Oct 29, 2019	Meacham, OR	9 / 1971	8	1929
Low Min T	Oct 29, 2019	Pendleton (airport), OR	19 / 1971	15	1934
Low Min T	Oct 29, 2019	Walla Walla, WA	21 / 1971	19	1930
Low Max T	Oct 29, 2019	Yakima, WA	40 / 1991	39	1909
Low Max T	Oct 29, 2019	Pasco, WA	47 / 2001	43	1942
Low Max T	Oct 29, 2019	Hanford, WA	42 / 1991	39	1945
Low Max T	Oct 29, 2019	Walla Walla, WA	36 / 1991	36 Tie	1949
Low Max T	Oct 29, 2019	Ellensburg, WA	41 / 1946	37	1934
Low Min T	Oct 30, 2019	Meacham, OR	9 / 1971	5	1929
Low Min T	Oct 30, 2019	La Grande (city), OR	20 / 1991	9	1887
Low Min T	Oct 30, 2019	Pelton Dam, OR	15 / 2002	15 Tie	1958
Low Min T	Oct 30, 2019	Redmond, OR	3 / 2002	3 Tie	1941
Low Min T	Oct 30, 2019	Goldendale, WA	12 / 2002	12 Tie	1905
Low Min T	Oct 30, 2019	Whitman Mission, WA	17 / 2002	10	1962
Low Min T	Oct 30, 2019	Walla Walla, WA	16 / 2002	16 Tie	1930
Low Min T	Oct 30, 2019	Hanford, WA	16 / 2002	15	1945
Low Min T	Oct 31, 2019	Kennewick, WA	9 / 2019	9 Tie	1884

Record Coldest Average Temperatures for October, 2019

New Records for Coldest Average Temperature in October

Location	2019 Average	Previous Record Average/Year
Heppner, OR	45.4	45.8(1949)
Hermiston, OR	48.1	48.4(1916)
John Day, OR	40.5	43.3(2013)
La Grande, OR	43.8	43.9(1984)
Mitchell, OR	43	44.8(2009)
Moro, OR	44	45.3(1984)
Pendleton, OR	46.7	47.4(1970)
Sisters, OR	38.8	41.9(2002)
The Dalles, OR	49.2	49.8(1961)
Yakima, WA	44.8	45.8(1946)
Richland, WA	48.2	49.6(1969)
Selah, WA	43	45.3(2009)
Whitman Mission, WA	45.7	45.9(2013)
Easton, WA	41.4	42.4(2009)



NATIONAL WEATHER SERVICE
OCEANIC AND ATMOSPHERIC ADMINISTRATION

Pendleton, OR
Weather Forecast Office

October, 2019 Observed Monthly Max & Min Temperatures

Location	Highest Maximum Temperature	Lowest Minimum Temperature
Pendleton, OR	77	12
Redmond, OR	77	3
Pasco, WA	80	13
Yakima, WA	75	12
Walla Walla, WA	77	16
Bend, OR	73	7
Ellensburg, WA	72	14
Hermiston, OR	80	10
John Day, OR	71	8
La Grande, OR	72	9
The Dalles, OR	74	18
MT Adams RS, WA	63	13

All stations, except for Pasco, WA and Hermiston, OR had maximum temperatures for the month below 80 degrees, with MT Adams RS, WA below 70. The lowest minimum temperatures were all in the single digits and teens.

October, 2019, Monthly Total Precipitation and Snowfall Totals

Location	Total Monthly Precip	Total Snowfall
Pendleton, OR	0.46	0
Redmond, OR	0.28	0
Pasco, WA	0.48	0
Yakima, WA	0.51	0
Walla Walla, WA	1.05	0
Bend, OR	0.46	0
Ellensburg, WA	0.69	0
Hermiston, OR	0.18	0
John Day, OR	0.44	0
La Grande, OR	1.42	0
The Dalles, OR	0.52	0
Mt Adams RS, WA	3.67	M

All stations, except for Walla Walla, WA and La Grande, OR had total precipitation for the month less than an inch. All stations reported zero snow. However, since the MT Adams RS had a missing snowfall report, it is unknown how much, if any, snow fell there.

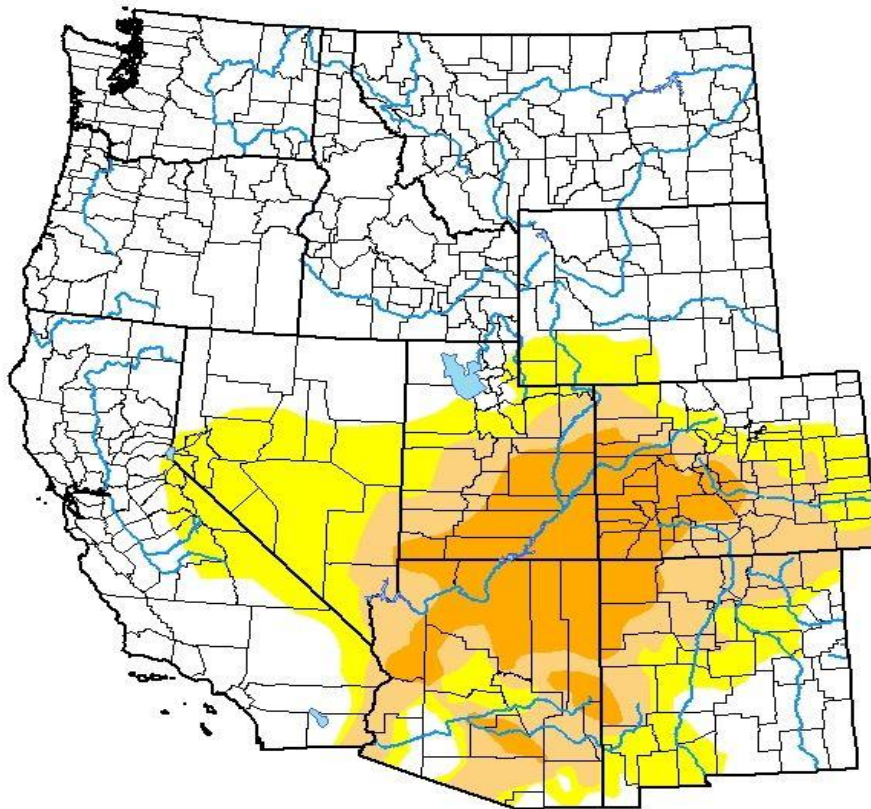
October, 2019 - Drought Monitor

U.S. Drought Monitor West

October 29, 2019

(Released Thursday, Oct. 31, 2019)

Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	62.16	37.84	21.73	9.81	0.00	0.00
Last Week <i>10-22-2019</i>	61.18	38.82	21.95	9.81	0.00	0.00
3 Months Ago <i>07-30-2019</i>	83.42	16.58	6.01	0.77	0.00	0.00
Start of Calendar Year <i>01-01-2019</i>	28.03	71.97	53.25	27.22	8.35	2.88
Start of Water Year <i>10-01-2019</i>	68.40	31.60	16.32	3.16	0.00	0.00
One Year Ago <i>10-30-2018</i>	21.83	78.17	52.75	31.31	11.80	3.42

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

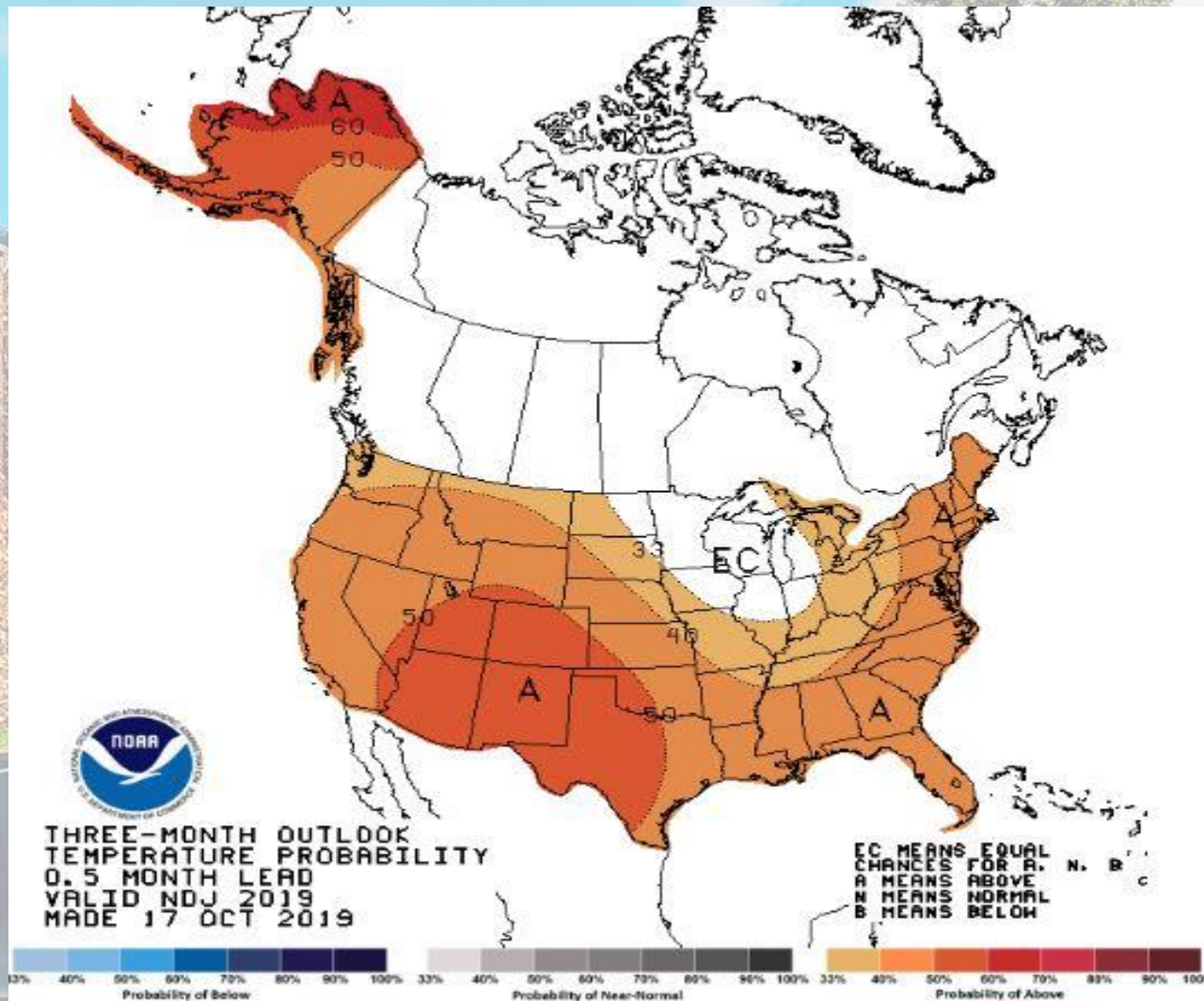
David Simeral
Western Regional Climate Center



droughtmonitor.unl.edu

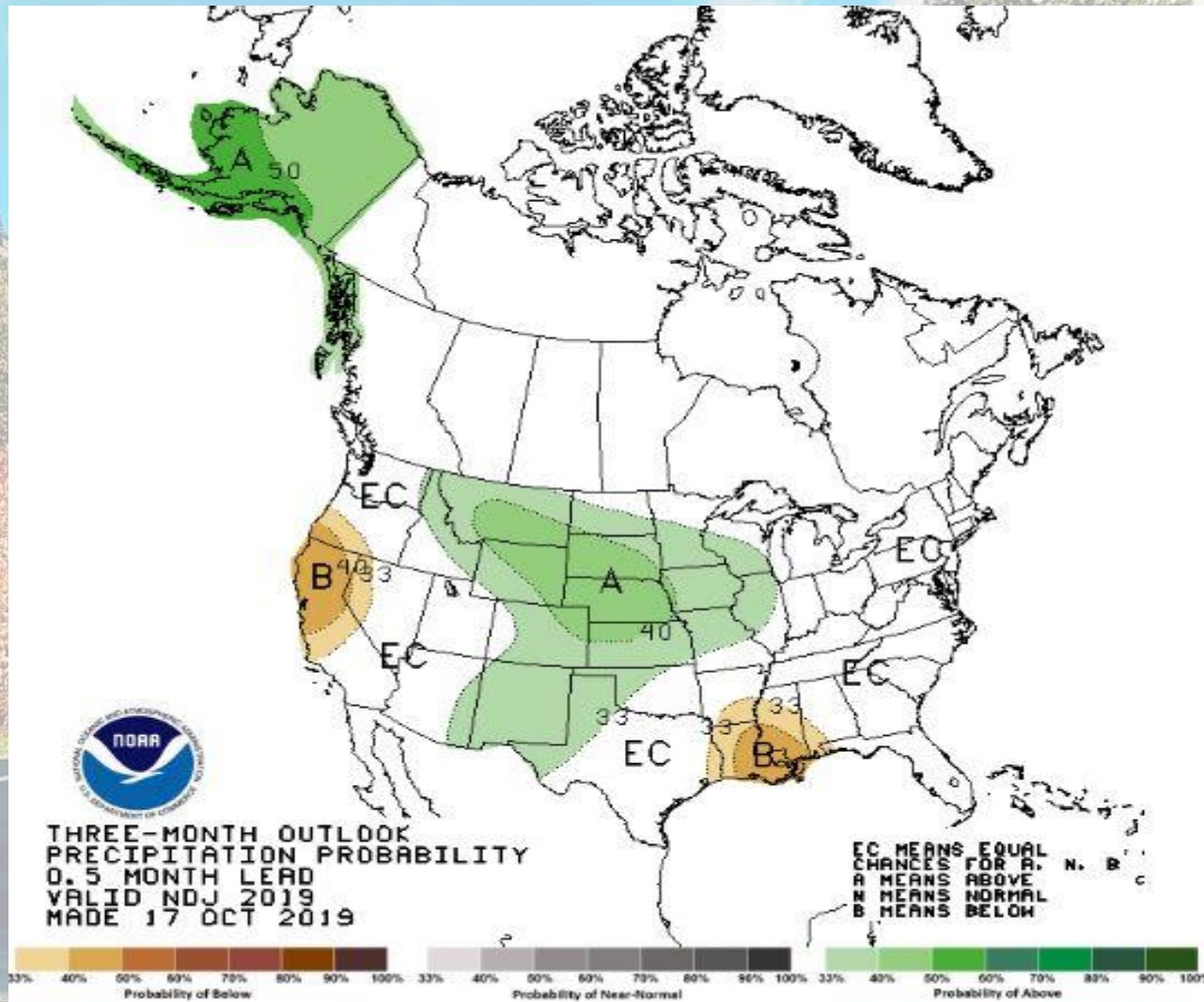
All of the forecast area and the Pacific Northwest was classified as “none” or “neutral” (no drought) by the end of October. This was likely the result of the above normal precipitation from September, and colder than normal temperatures, which reduced evaporation.

USA Three Month Temperature Outlook



The temperature outlook for the next three months shows a greater chance of having above normal temperatures from the four corners area to the Pacific Northwest, including the forecast area.

USA Three Month Precipitation Outlook

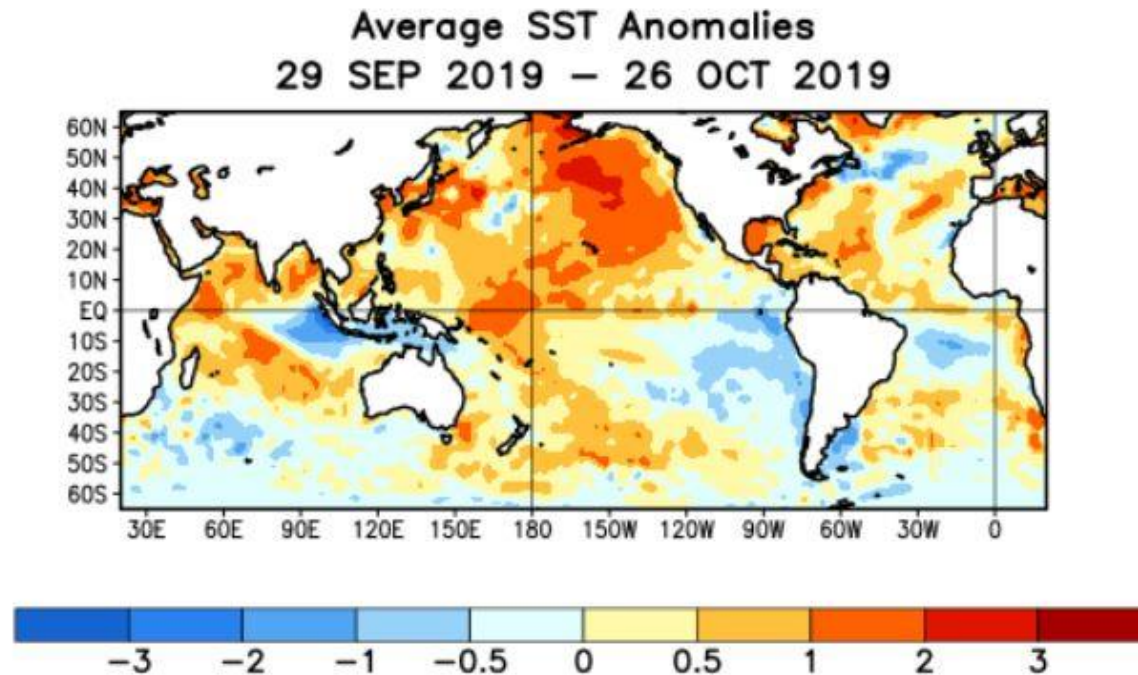


The precipitation outlook for the next three months shows an equal chance of above or below normal precipitation for most of the Pacific Northwest and the forecast area.

Sea Surface Temperature (SST) analysis for October, 2019

Global SST Departures (°C) During the Last Four Weeks

During the last four weeks, equatorial SSTs were above average across the western to east-central Pacific Ocean, the Atlantic Ocean, and the western Indian Ocean. SSTs were below average near Indonesia and in the far eastern Pacific.



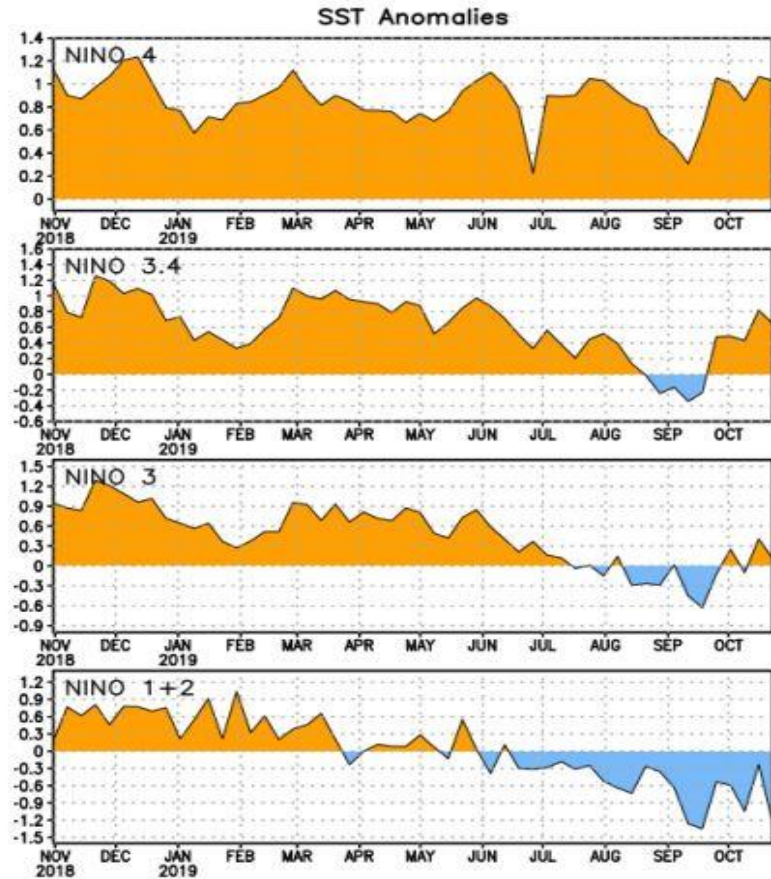
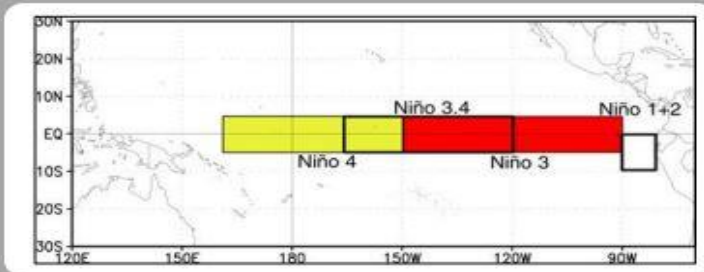
This indicates that El-Nino conditions are continuing to diminish in the tropical eastern Pacific as Sea Surface Temperatures (SST's) continue to cool.

El Nino/ La Nina Regions, Showing SST Anomalies for Each Nino Region

Niño Region SST Departures (°C) Recent Evolution

The latest weekly SST departures are:

Niño 4	1.0°C
Niño 3.4	0.6°C
Niño 3	0.1°C
Niño 1+2	-1.3°C



The above images show that Niño regions 3.4 and 4 have mostly all positive (warmer than normal) SSTs, while Niño 1 + 2, and 3 have some below normal SSTs for October. The image to the bottom left shows where the Niño regions are over the tropical Pacific. The continued cooling in Niño regions 1 + 2, and 3 during October indicates that El-Niño conditions continued to weaken.



Thank You!