

The Month In Review

March 2019

National Weather Service
Pendleton, Oregon

March, 2019 Climate Summary

March 2019, like February, was cold and snowy, at the start of the month. In fact, during the first 6 days in March, the official high temperature at the Pendleton Airport never got above 27 degrees F. The lowest temperature for the entire winter season occurred on March 5th, with a shattering record low temperature of 1 degree F. This was about 32 degrees below normal. The previous record for March 5th was 9 degrees warmer at 10 degrees F. Many other locations also had record low temperatures during the first 6 days of March. Snow was more than an inch deep at the Pendleton Airport all the way until March 13th, which is almost half way through the month. The weather finally warmed up to normal or above normal by March 17th, with long standing piles of snow finally all melted by the last week of the month. Below are a few images during the month to show how the month looked like.



Snowy view of Pendleton, OR on March 7th before the first thaw of March (temp > 32 F).



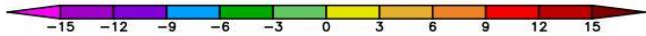
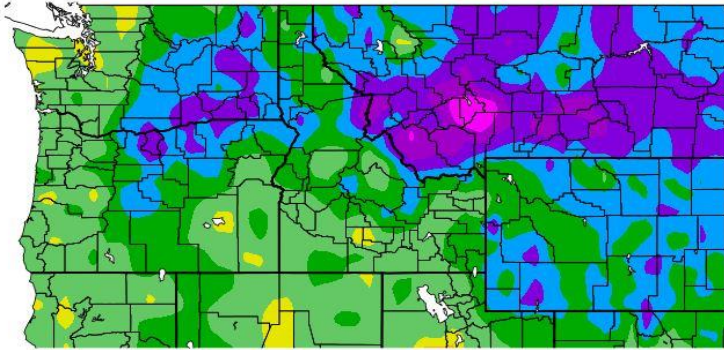
Last heavy burst of snow of the season on March 12th, 2019.



Interesting stratus clouds hanging over the Pendleton Airport at night on March 28th.

March, 2019 Departure from Normal Temperatures

Departure from Normal Temperature (F)
3/1/2019 – 3/31/2019

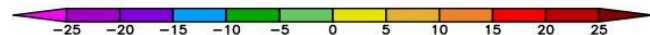
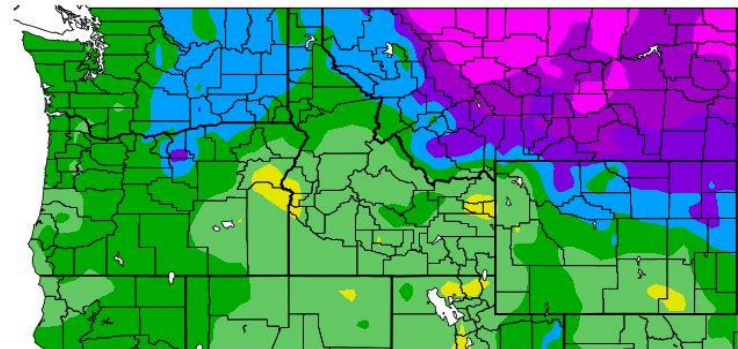


Generated 4/2/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from normal for March, 2019

Departure from Normal Temperature (F)
2/1/2019 – 2/28/2019



Generated 3/2/2019 at HPRCC using provisional data.

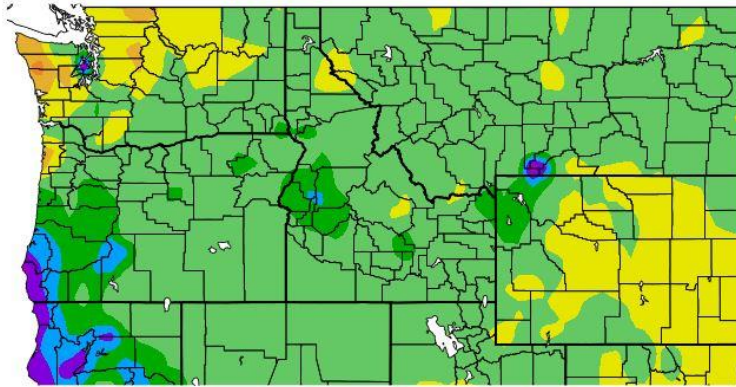
NOAA Regional Climate Centers

Departure from normal for February, 2019

The images above show that there was not much difference between March and February. There is more area of blue and purple on the map for March, however, indicating it to be colder than normal more so than February was. In this case, the first two weeks of March were much colder than normal, which makes this data valid.

March, 2019 Departure from Normal Precipitation

Departure from Normal Precipitation (in)
2/1/2019 - 2/28/2019

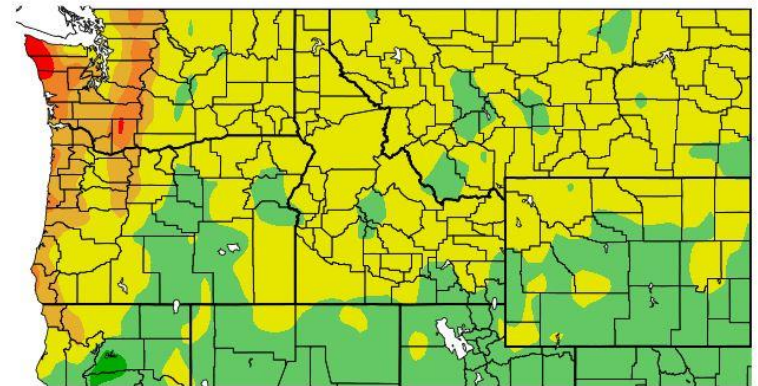


Generated 3/2/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from normal precipitation for February

Departure from Normal Precipitation (in)
3/1/2019 - 3/31/2019



Generated 4/2/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from normal precipitation for March

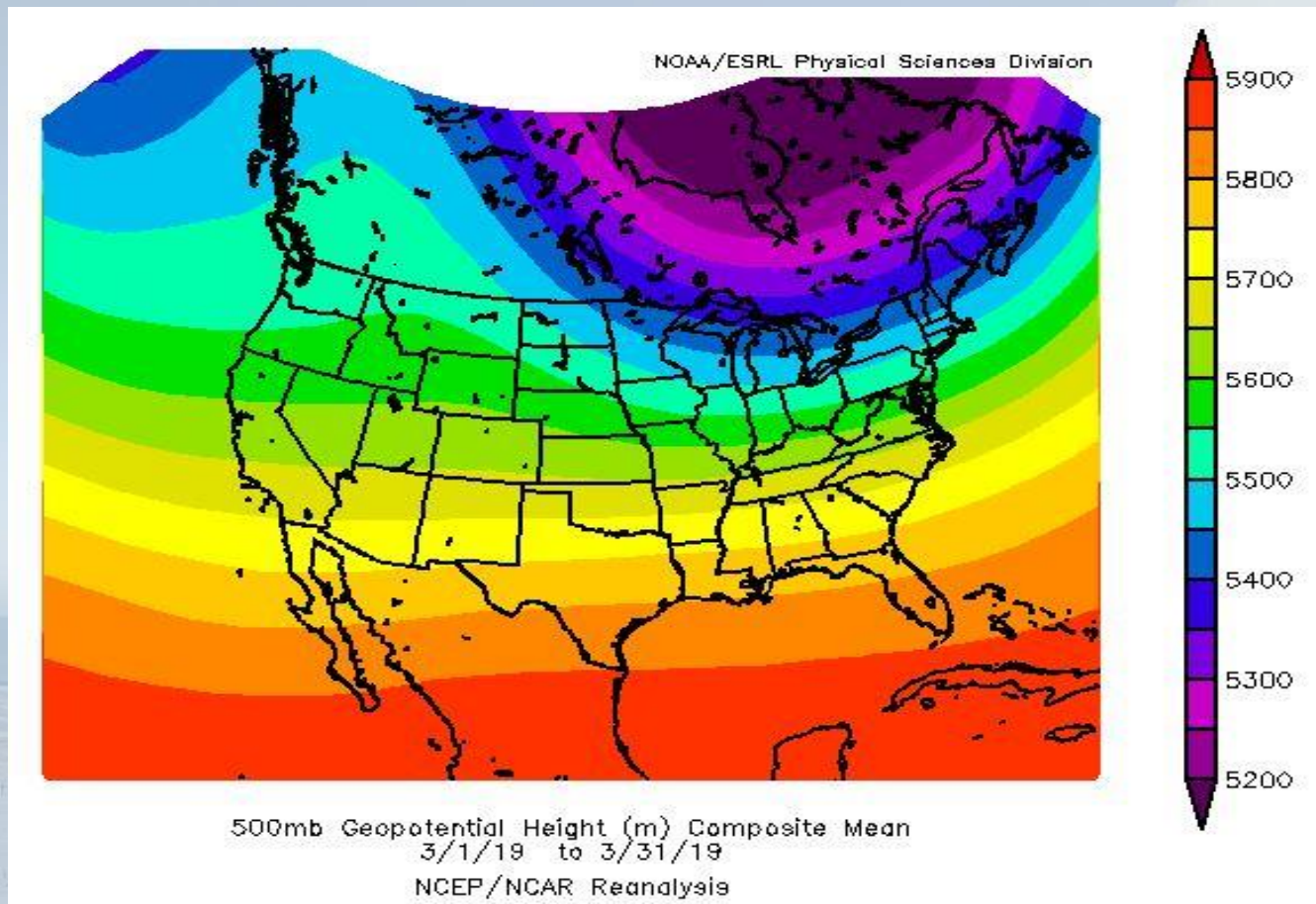
The above images show a comparison of March vs. February, 2019 departure from normal precipitation. As can be seen March was drier with less areas of green on the map than February. This indicates that while there may have been rain events in March, the departure from normal was not as much as February for precipitation.

March, 2019 Averages and Departures from normal For Select Cities

	Max T	Max T D	Min T	Min T D	Ave T	Ave T D	PCPN	PCPN D	SNOW
Yakima	48.2	-8.0	23.5	-6.6	35.9	-7.3	0.61	-0.01	0
Kennewick	47.7	-10.7	27.5	-8.9	37.6	-9.8	0.49	-0.24	3.7
Walla Walla	48.2	-7.0	23.5	-13.9	35.9	-10.4	0.61	-1.69	0
The Dalles	48.6	-8.4	28.5	-8.1	38.6	-8.2	0.35	-0.81	M
Redmond	46.5	-7.3	22.4	-3.6	34.4	-5.5	0.59	-0.07	0
Pendleton Airport	44.9	-10.3	26.3	-8.7	35.6	-9.5	1.23	-0.09	3.1
La Grande	47.5	-3.7	23.9	-6.5	35.7	-5.1	1.19	-0.27	0.5

The data above shows that all locations had below normal average maximum temperatures and average minimum temperatures. Overall the **average** temperatures were below normal too. Precipitation ranged from 0.35 (at The Dalles) to 1.23 inches at the Pendleton Airport. There was some snow at Kennewick, Pendleton and La Grande, However amounts were very light.

March, 2019 Average 500 MB Weather Pattern



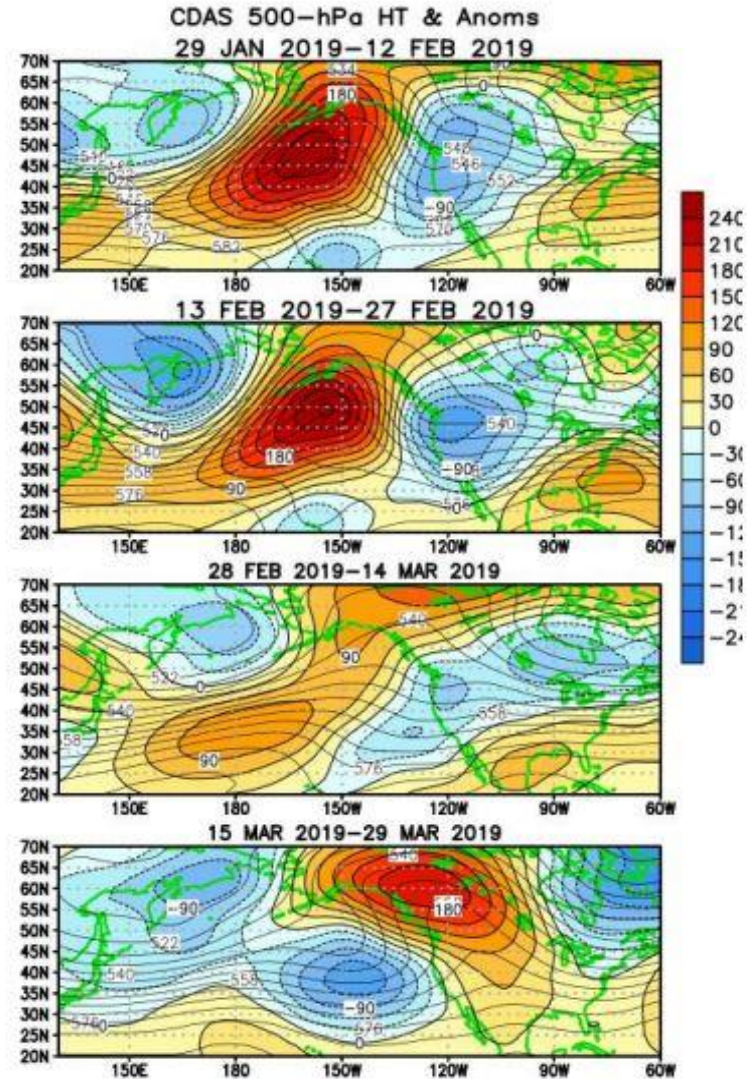
The flow over the Pacific Northwest was mostly west to southwest on average for the month. However, the more detailed analysis of the 500 mb heights will show that the beginning of the month there was more of a trough pattern with colder and wetter than normal conditions. The second half of the month warmed up and was drier in which when most of the ridging took place.

More Detailed 500 MB Plots for February & March, 2019

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

From early February to mid March, an anomalous ridge strengthened over the Gulf of Alaska, and a downstream amplified trough was present over Canada and the northern U.S. These conditions have contributed to well above-average temperatures in Alaska, and to below-average temperatures across much of Canada and the U.S.

Since mid March, anomalous ridging has been strongest over western Canada, resulting in above-average temperatures over this region.



Local Storm Reports of Significant Weather Events

PRELIMINARY LOCAL STORM REPORTS

NATIONAL WEATHER SERVICE PENDLETON OR
516 PM PST WED MAR 6 2019

..TIME... ..EVENT... ..CITY LOCATION... ..LAT.LON...
..DATE... ..MAG.... ..COUNTY LOCATION..ST.. ..SOURCE....
..REMARKS..

0500 PM SNOW 5 ENE YAKIMA 46.61N 120.43W
03/06/2019 M2.2 INCH YAKIMA WA TRAINED SPOTTER

SPOTTER REPORTED 2.2 INCHES OF NEW SNOW AND 8 INCHES OF
SNOW DEPTH. CURRENTLY FLURRIES.

4.0 INCHES NEW SNOW IN 12 HOURS. CURRENTLY 35 DEG WITH
VERY LIGHT FINE SNOW.

129 PM PST SAT MAR 9 2019

..TIME... ..EVENT... ..CITY LOCATION... ..LAT.LON...
..DATE... ..MAG.... ..COUNTY LOCATION..ST.. ..SOURCE....
..REMARKS..

0850 AM HEAVY SNOW 2 SSW GRASS VALLEY 45.34N 120.79W
03/09/2019 M7.0 INCH SHERMAN OR TRAINED SPOTTER

629 AM PDT SUN MAR 24 2019

..TIME... ..EVENT... ..CITY LOCATION... ..LAT.LON...
..DATE... ..MAG.... ..COUNTY LOCATION..ST.. ..SOURCE....
..REMARKS..

0626 AM HEAVY RAIN 4 ESE PILOT ROCK 45.46N 118.75W
03/24/2019 M0.80 INCH UMATILLA OR TRAINED SPOTTER

0.8 OF AN INCH THE PAST 12 HOURS

There were 3 events which required a Local Storm Reports in March, 2019. The first was a snow event on the 6th, then another snow event on the 9th, and finally a rain event on March 24th.

Record Weather Events During March, 2019

	STATION	PREVIOUS RECORD/YEAR	NEW RECORD	RECORDS BEGAN
March 16th	...NEW DAILY RECORD LOW TEMPERATURES FOR MARCH 16TH...			
	PENDLETON(ARPT), OR	26 / 1955	26 (TIED)	1934
March 15th	...NEW DAILY RECORD LOW TEMPERATURES FOR MARCH 15TH...			
	*LA GRANDE(CITY), OR	22 / 1985	21	1887
	*LONG CREEK, OR	14 / 1988	11	1908
	*SISTERS, OR	15 / 2002	11	1958
March 8th	...NEW DAILY RECORD LOW TEMPERATURES FOR MARCH 8TH...			
	PASCO, WA	20 / 1931	18	1948
	*PELTON DAM, OR	17 / 1974	16	1958
	*SISTERS, OR	9 / 1974	8	1958
	*GOLDENDALE, WA	20 / 1969	15	1905
	*SATUS PASS, WA	13 / 2009	9	1967
	WALLA WALLA, WA	27 / 2002	25 (TIED)	1930
	YAKIMA,WA	7 / 1951	7 (TIED)	1909
March 9th	...NEW DAILY RECORD LOW TEMPERATURES FOR MARCH 9TH...			
	MEACHAM, OR	6 / 2009	6 (TIED)	1929
	PENDLETON(ARPT), OR	23 / 1948	19	1934
	*GOLDENDALE, WA	16 / 1951	16 (TIED)	1905
	*SATUS PASS, WA	14 / 2009	11	1967
	WALLA WALLA, WA	28 / 1951	24	1930
	*WHITMAN MISSION, WA	21 / 2012	20	1962

Record Weather Events During March, 2019 (continued)

March 10th	...NEW DAILY RECORD LOW TEMPERATURES FOR MARCH 10TH...			
	*LONG CREEK, OR	10 / 1969	10 (TIED)	1908
	MEACHAM, OR	0 / 2009	-2	1929
	YAKIMA,WA	4 / 1951	4 (TIED)	1909
	PENDLETON(ARPT), OR	16 / 1950	11	1934
	*PRINEVILLE, OR	11 / 1956	9	1897
	REDMOND, OR	10 / 2009	7	1941
	THE DALLES, OR	22 / 1958	19	1929
	*DAYTON(CITY), WA	15 / 2009	15 (TIED)	1879
	*GOLDENDALE, WA	16 / 1906	8	1905
	HANFORD (HMS), WA	19 / 2009	15	1945
	WALLA WALLA, WA	20 / 1950	17	1930
	*WHITMAN MISSION, WA	19 / 2009	16	1962
	YAKIMA,WA	13 / 1951	7	1909
March 12th	...NEW DAILY RECORD LOW TEMPERATURES FOR MARCH 12TH...			
	*SISTERS, OR	8 / 1967	0	1958
	*GOLDENDALE, WA	11 / 1906	8	1905
	*WHITMAN MISSION, WA	16 / 2009	14	1962
March 8th	...NEW DAILY RECORD LOW TEMPERATURES FOR MARCH 8TH...			
	PASCO, WA	20 / 1931	18	1948
	*PELTON DAM, OR	17 / 1974	16	1958
	*SISTERS, OR	9 / 1974	8	1958
	*GOLDENDALE, WA	20 / 1969	15	1905
	*SATIS PASS, WA	13 / 2009	9	1967
	WALLA WALLA, WA	27 / 2002	25 (TIED)	1930
	YAKIMA,WA	7 / 1951	7 (TIED)	1909
March 6th	...NEW DAILY RECORD LOW TEMPERATURES FOR MARCH 6TH			
	PENDLETON(ARPT), OR	19 / 1943	18	1934
	THE DALLES, OR	22 / 1976	22 (TIED)	1929
	WALLA WALLA, WA	24 / 2009	20	1930

Record Weather Events During March, 2019 (Continued)

March 5th	...NEW DAILY RECORD LOW TEMPERATURES FOR MARCH 5TH...			
	*LONG CREEK, OR	11 / 1998	3	1908
	MEACHAM, OR	-4 / 1955	-6	1929
	*PELTON DAM, OR	16 / 1976	16 (TIED)	1958
	PENDLETON DTWN, OR	12 / 1955	1	1916
	HERMISTON (ARPT), OR	8 / 1955	0	1906
	PENDLETON (ARPT), OR	10 / 1955	1	1934
	THE DALLES, OR	14 / 1955	6	1929
	*DAYTON(CITY), WA	6 / 1955	4	1879
	*GOLDENDALE, WA	-3 / 1955	-4	1905
	*KENNEWICK, WA	10 / 1955	9	1884
	HANFORD (HMS), WA	6 / 1955	5	1945
	WALLA WALLA, WA	10 / 1955	7	1930
	*WHITMAN MISSION, WA	11 / 1976	0	1962
	YAKIMA, WA	7 / 1955	5	1909
March 4th	*LONG CREEK, OR	12 / 2015	12 (TIED)	1908
	*MORO, OR	10 / 1960	8	1897
	*PELTON DAM, OR	17 / 1960	16	1958
	*SISTERS, OR	12 / 1967	9	1958
	THE DALLES, OR	15 / 1960	8	1929
	*GOLDENDALE, WA	7 / 1955	1	1905
	*KENNEWICK, WA	14 / 1896	8	1884
March 3rd	...NEW DAILY RECORD LOW TEMPERATURES FOR MARCH 3RD...			
	THE DALLES, OR	18 / 1960	16	1929
	*GOLDENDALE, WA	12 / 1960	12 (TIED)	1905
March 1st	...NEW DAILY RECORD LOW TEMPERATURES FOR MARCH 1ST...			
	*PELTON DAM, OR	10 / 1993	9	1958
	*SISTERS, OR	-1 / 1996	-9	1958
	*GOLDENDALE, WA	10 / 1922	4	1905
	*KENNEWICK, WA	13 / 1917	13 (TIED)	1884



March 2019 Observed Monthly Highest Max & Min Temperatures

Location	Highest Maximum Temperature	Lowest Minimum Temperature
Pendleton, OR	66	1
Redmond, OR	69	7
Pasco, WA	71	-1
Yakima, WA	69	4
Walla Walla, WA	67	7
Bend, OR	63	8
Ellensburg, WA	68	0
Hermiston, OR	72	0
John Day, OR	63	12
La Grande, OR	63	9
The Dalles, OR	69	6
MT Adams RS, WA	63	-3

Every station had a maximum temperature of 60 or greater. The lowest minimum temperature were all below 10 degrees F, except 12 F at John Day.

March, 2019, Monthly Total Precipitation Totals

Location	Total Monthly Precip	Total Snowfall or Hail
Pendleton, OR	1.23	3.1
Redmond, OR	0.59	0
Pasco, WA	0.47	0
Yakima, WA	0.61	0
Walla Walla, WA	1.27	0
Bend, OR	0.50	M
Ellensburg, WA	0.37	M
Hermiston, OR	0.20	0
John Day, OR	0.54	T
La Grande, OR	1.19	0.5
The Dalles, OR	0.35	M
Mt Adams RS, WA	0.72	6.5

All stations, except 3, had less than an inch for precipitation. Pendleton, John Day, La Grande, and the Mt Adams Ranger Station all had snow in March. However, most reported either zero snow or missing.

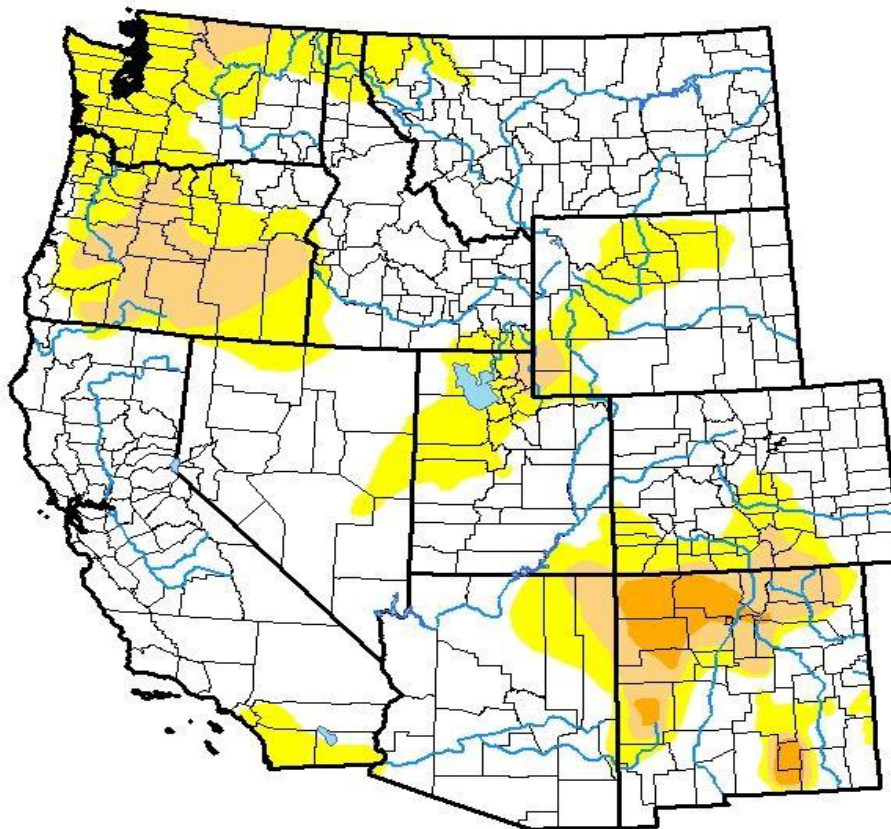
End of March, 2019 - Drought Monitor

U.S. Drought Monitor West

March 26, 2019

(Released Thursday, Mar. 28, 2019)

Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	70.71	29.29	9.03	1.65	0.00	0.00
Last Week <i>03-19-2019</i>	62.87	37.13	9.83	2.77	0.83	0.00
3 Months Ago <i>12-25-2018</i>	25.32	74.68	54.37	27.84	8.48	2.92
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>09-25-2018</i>	13.91	86.09	59.57	39.68	18.15	4.36
One Year Ago <i>03-27-2018</i>	34.17	65.83	43.34	27.02	11.53	0.00

Intensity:

- 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:

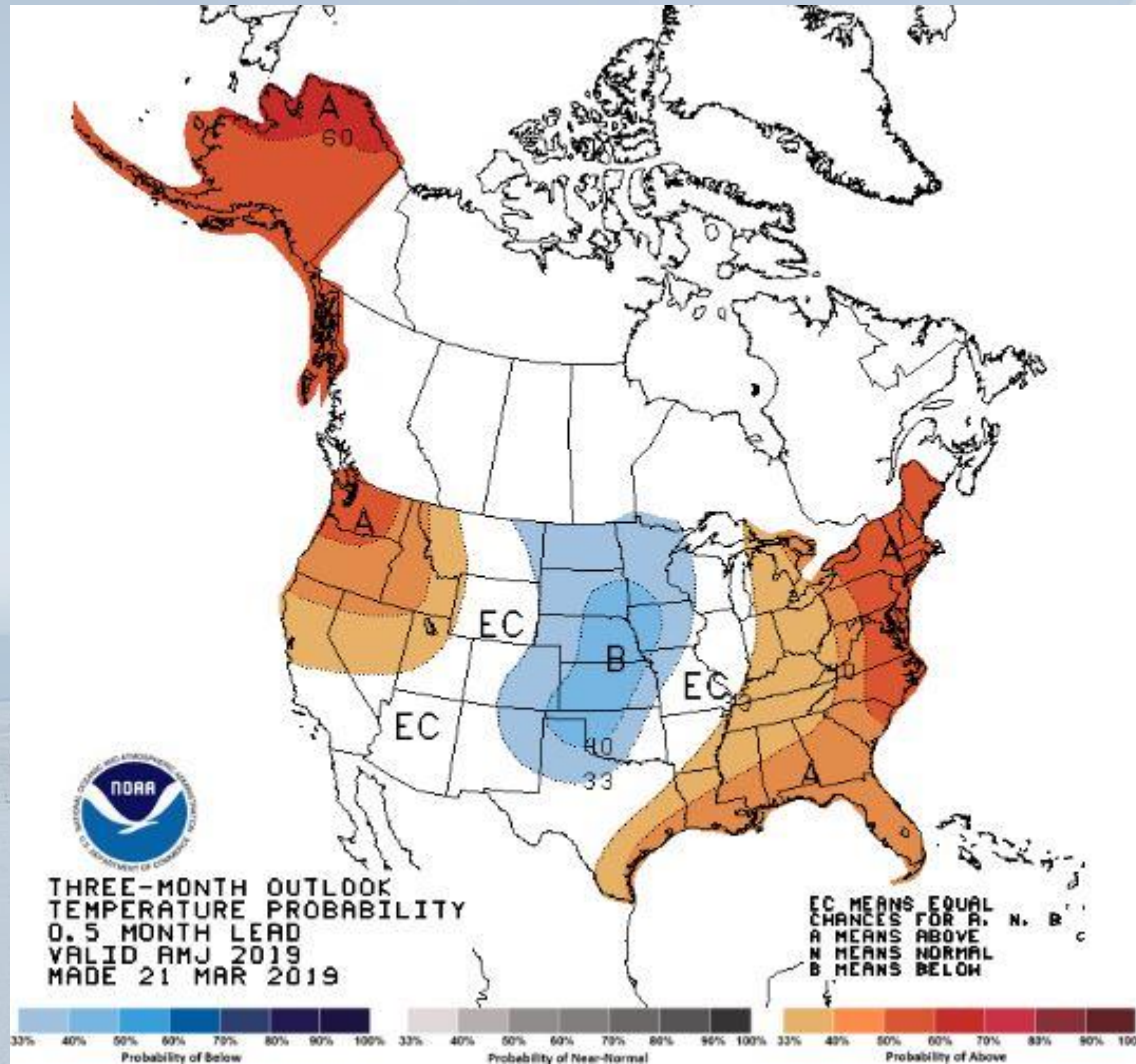
Eric Luebehusen
U.S. Department of Agriculture



<http://droughtmonitor.unl.edu/>

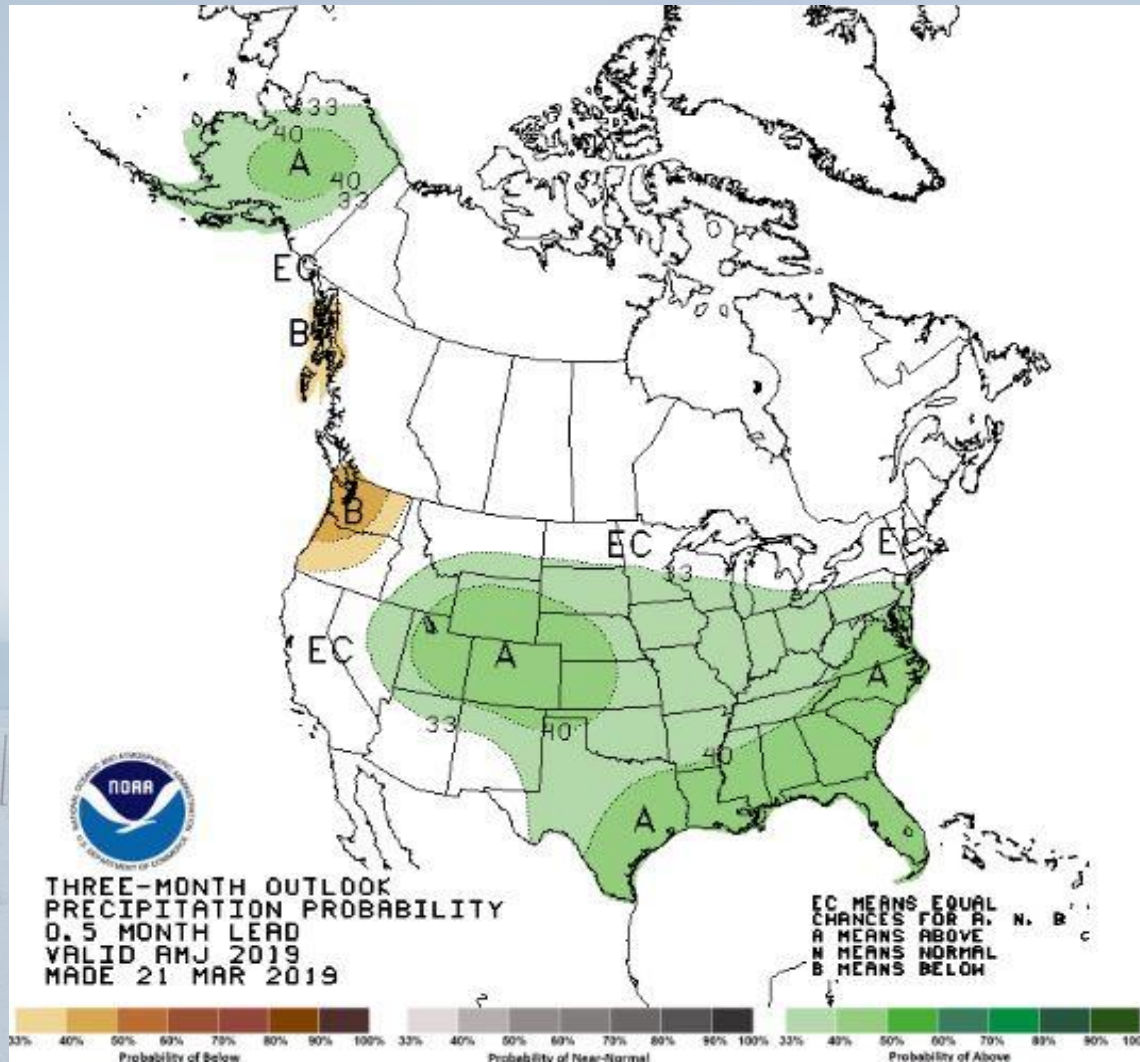
At the end of March, 2019, the drought monitor shows that the Forecast Area was mostly in a non-drought in the northeast Forecast Area, to a moderate drought in south and central Forecast Area.

Three Month Temperature Outlook (April, May & June)



The temperature outlook for the next three months shows that there is about a 40-60 % probability of having above normal temperatures over the Pacific Northwest and the entire Forecast Area (northeast OR, southeast WA).

Three Month Precipitation Outlook (April, May & June)



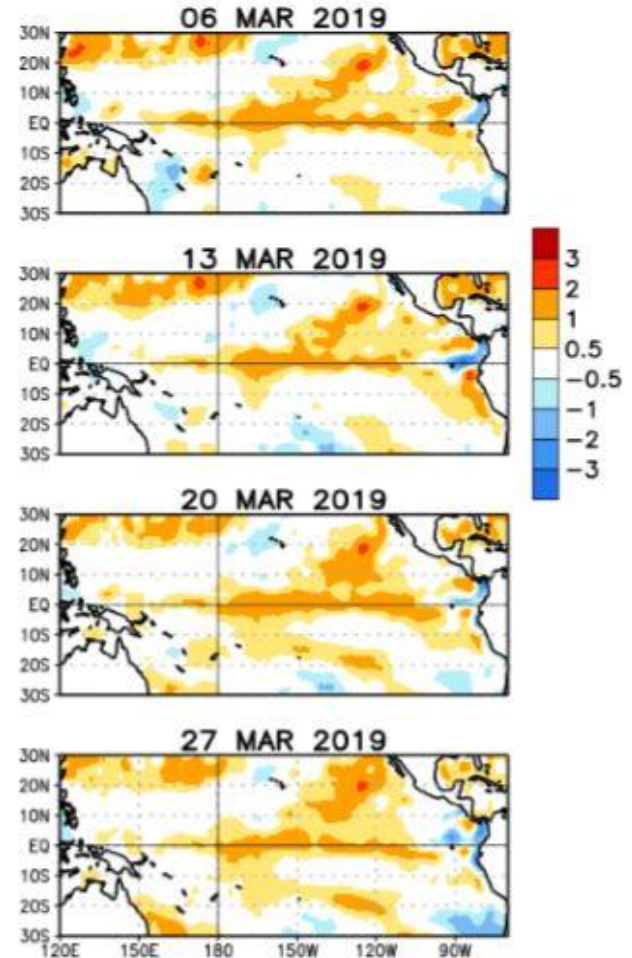
The precipitation outlook for the next three months shows that there is a 33-40 % probability of having below normal precipitation for the next 3 months. The driest areas will be the northwest Forecast Area.

Sea Surface Temperatures from March 6th until March 27th, 2019

Weekly SST Departures during the Last Four Weeks

During the last four weeks, above-average SSTs have persisted across most of the equatorial Pacific Ocean.

Weekly SST Anomalies (DEG C)



This would show that the region is still under an El-Mino pattern. The warmest Pacific Water temperatures were above normal along the equator and also off the California Baja.



Thank You!

