The Month In Review

November 2018

National Weather Service
Pendleton, Oregon

November, 2018 Climate Summary

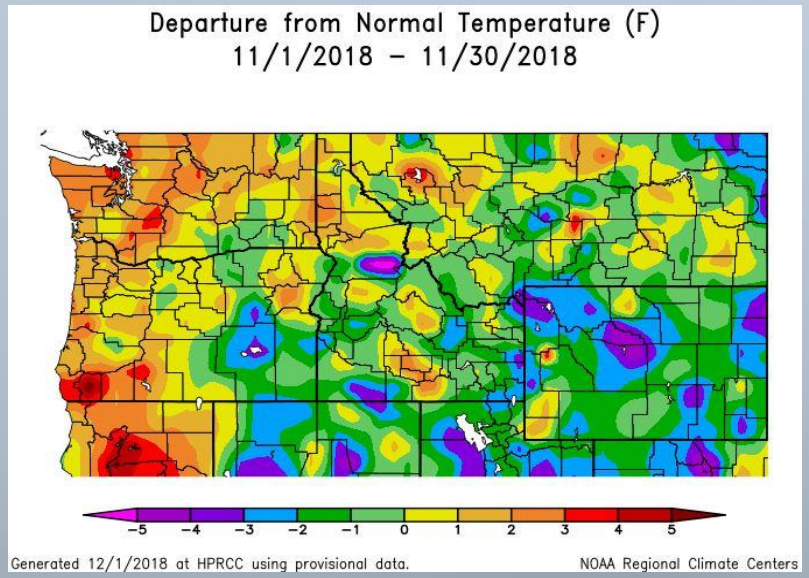
The month of November, 2018 can be summarized as another fairly normal month for temperatures, but with drier than normal precipitation amounts. Temperatures continued to cool as the cold season drew near, with foggy days and frosty mornings as would be expected. For example, the Pendleton Airport averaged only -0.8 degrees below normal temperature for the month. The highest temperature at Pendleton was 65 on the 1st and the lowest recorded temperature was 20, on the 19th and 20th. Precipitation amounts for the month were -0.80 inches which is about half of normal. The following are images taken during the month of November.

Rhime ice from freezing fog at the Pendleton NWS Weather Forecast Office.

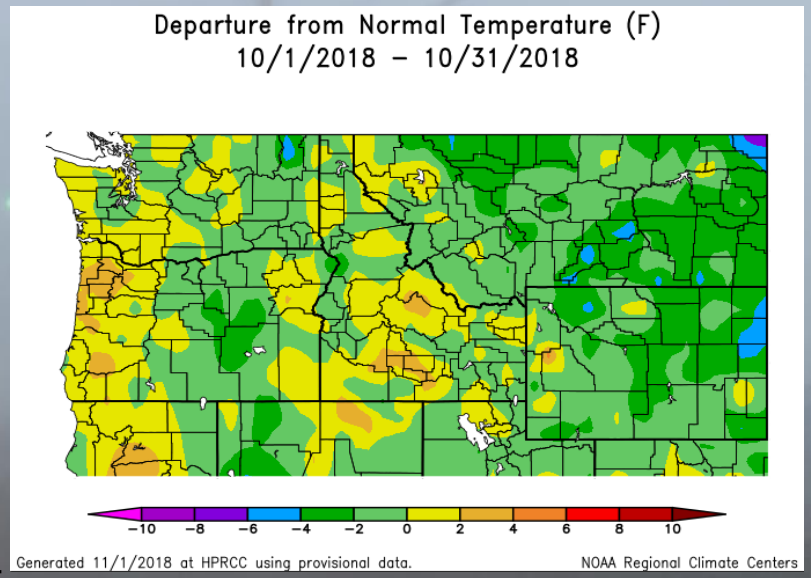
A brilliant sunset at the start of the month over Pendleton.

Shallow ground fog on top of the hill near the Pendleton Airport. The lights, signs and towers poked up above the Fog. Note the frost on the ground.

November, 2018 Departure from Normal Temperatures



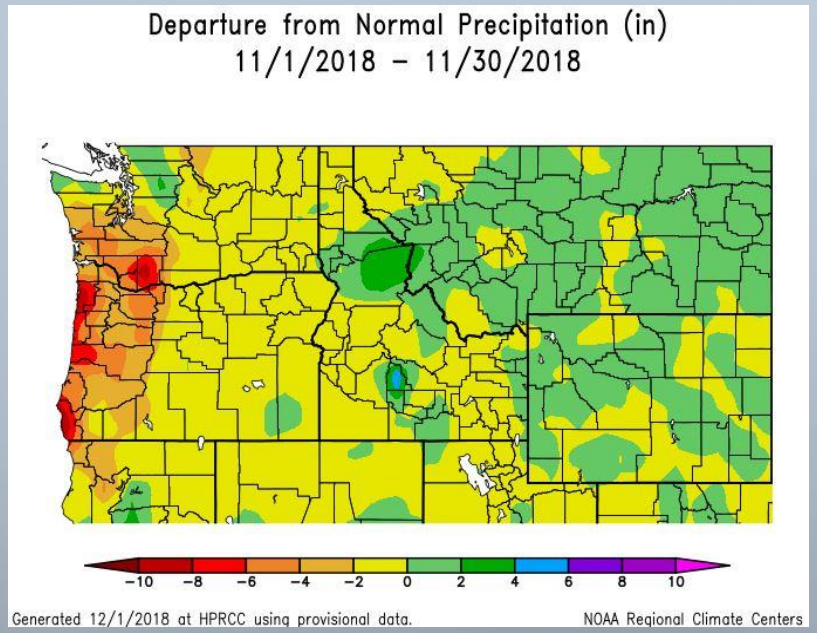
Departure from normal for November, 2018



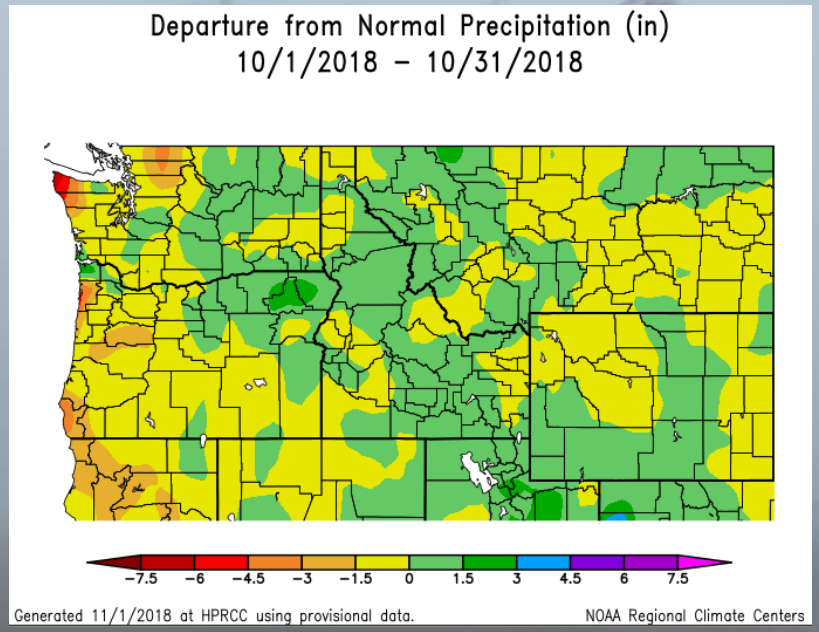
Departure from normal for October, 2018

The images above show a comparison of the departure from normal of the average temperature for November vs. October, 2018. These images show that most of the forecast area had near or slightly above normal temperatures, except slightly below normal only in portions of central Oregon and the Lower Columbia Basin area. In comparison to October, it had less of a departure from normal than October overall.

November, 2018 Departure from Normal Precipitation



Departure from normal precipitation for November



Departure from normal precipitation for October

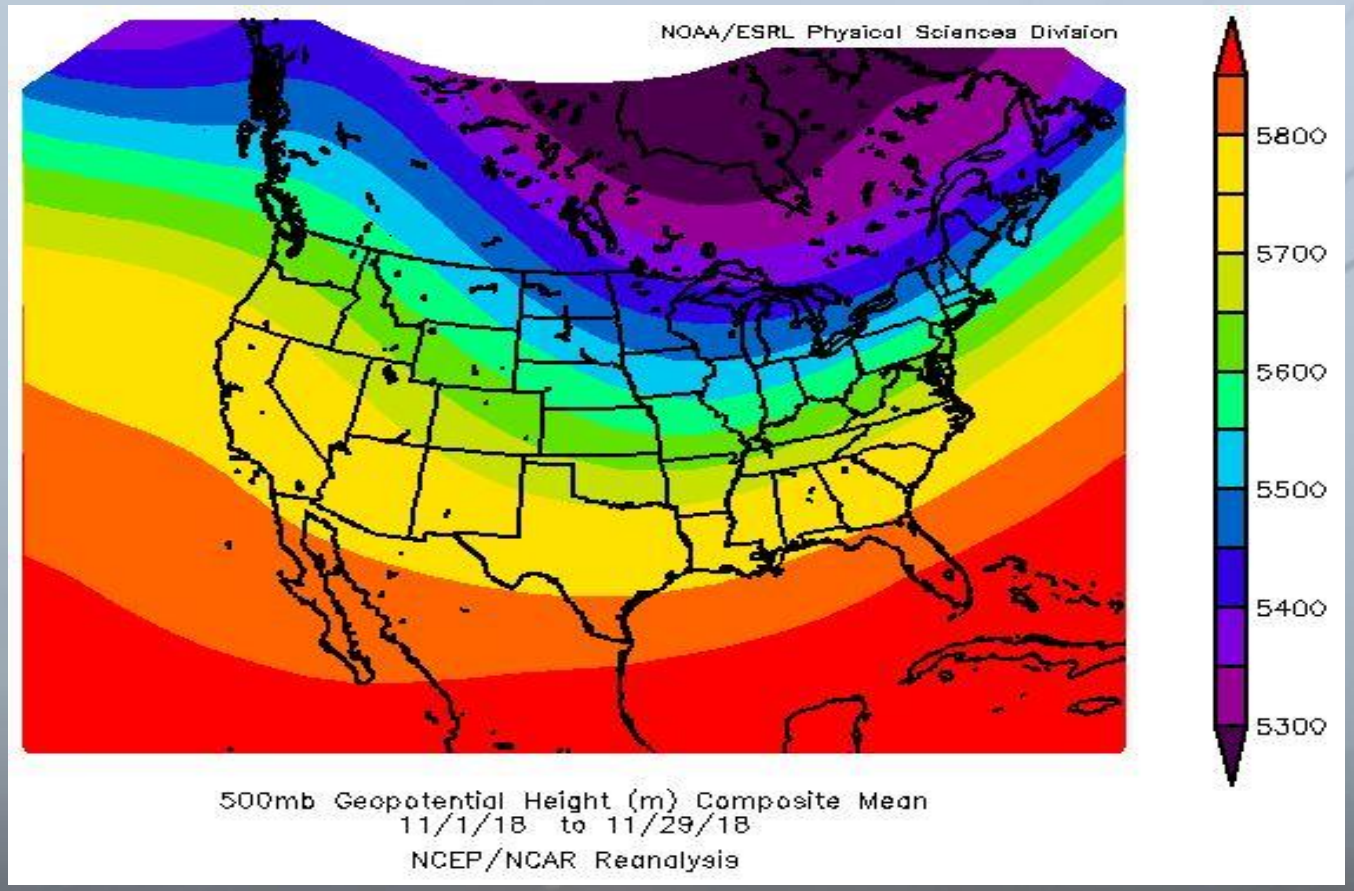
The above images show that for the month of November, 2018, the precipitation was below normal for the entire forecast area (Central, Northeast Oregon and Southeast Washington. There was a greater departure from normal for November than for October. Most of the precipitation for November fell during the latter portion of the month.

November, 2018 departures from normal for select cites

	Max T	Max T D	Min T	Min T D	Ave T	Ave T D	PCPN	PCPN D
Yakima	48.5	0.6	26.7	-0.1	37.6	0.3	0.42	-0.63
Kennewick	50.3	-0.3	34.9	-0.6	42.6	-0.5	0.69	-0.31
Walla Walla	49.0	0.5	35.3	0.1	42.2	0.4	1.45	-1.42
The Dalles	50.4	0.4	34.7	-0.6	42.6	-0.1	1.07	-1.07
Redmond	53.8	4.9	22.8	-3.0	38.3	0.9	0.43	-0.53
Pendleton Airport	49.2	0.0	31.9	-1.5	40.6	-0.8	0.72	-0.80
La Grande	47.7	1.5	29.5	-0.4	38.6	0.6	1.29	-0.74

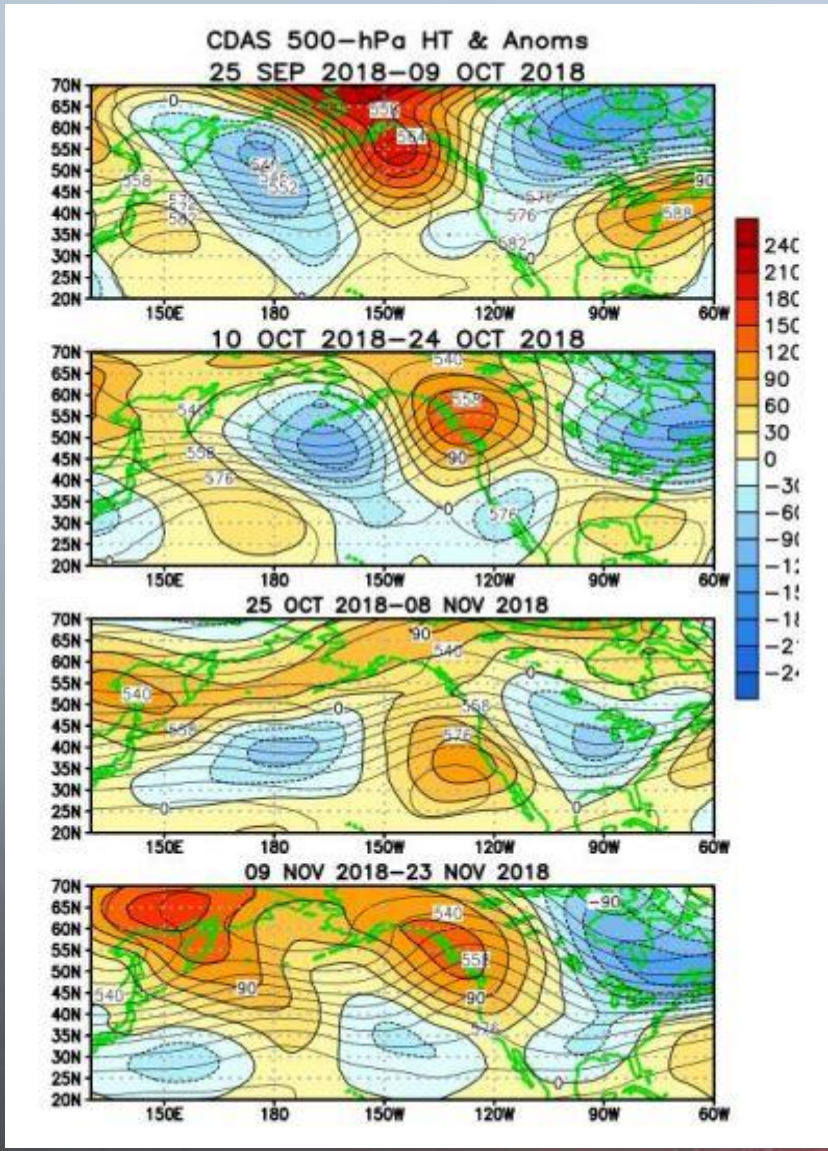
The data above shows that all stations except for Kennewick and Pendleton had above normal average maximum temperatures. For the average minimum temperatures, every station was below normal, except for Walla Walla, WA. Average temperatures for the month was about half above and half below normal. Total precipitation amounts for the month were all below normal. The greatest departure from normal readings of avg maximum temperature was +4.9 temperature at Redmond and -3.0 for average minimum temperatures was at Redmond. The greatest departure from normal average temperatures for the month was at only +0.9 degrees at Redmond, and for the total Precipitation, -1.42 inches at Walla Walla, WA, was the greatest departure from normal.

November, 2018 Average 500 MB Weather Pattern



The image above shows an overall upper high pressure ridge over the western USA and an upper trough over the Great Lakes region / Midwest portion of the USA. The upper ridge over the west caused low level inversions to form over much of the forecast area (Northeast Oregon / Southeast Washington). This resulted in a cold pool and fog / freezing fog resulting and only near normal temperatures despite the upper ridge. The upper ridge was likely the reason that November was drier than normal over the forecast area, and colder than normal in and around the Lower Columbia Basin.

500 MB Plots – 25 September through most of November, 2018



These graphics show roughly a bi-weekly comparison of the 500 MB weather patterns beginning on September 25th through November 23rd. Land boundaries are in green.

In the first image (top) there was a slight upper trough over the western USA. The Second image shows an amplified upper ridge over the Pacific Northwest. The third image also shows an upper ridge pattern along the west coast of the USA. Finally the 4th (bottom) image continues to show an upper ridge over the Pacific Northwest.

The latter 3 images show why there was below normal precipitation due to an upper ridge over the Pacific Northwest. The same is true for the near normal to slightly cooler temperatures as a result of the upper ridge causing strong surface based inversions, which resulted in trapped cold air in the lower valleys, and the Lower Columbia Basin of the forecast area.

Significant Weather Events for the Month of November, 2018

The next 3 slides show Local Storm Reports (LSR's) for Significant weather events which occurred in the forecast area during November.

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

1200 AM     NON-TSTM WND GST 10 NNW BENTON CITY      46.39N 119.59W
11/02/2018  M64 MPH          BENTON COUNTY           WA   MESONET

          MESONET STATION HRMTN, 10 NW BENTON CITY.

1248 PM     NON-TSTM WND GST 11 E SHANIKO            45.03N 120.54W
11/02/2018  M63 MPH          WASCO COUNTY            OR   MESONET

          MESONET STATION NPFO3, NORTH POLE RIDGE.

1209 PM     NON-TSTM WND GST 16 WNW WHITE SWAN       46.49N 121.01W
11/02/2018  M68 MPH          YAKIMA COUNTY           WA   MESONET

          MESONET STATION PIFW1, SEDGE RIDGE.

0101 PM     NON-TSTM WND GST 3 WSW RUFUS             45.68N 120.80W
11/04/2018  M58 MPH          SHERMAN COUNTY          OR   MESONET

          MESONET STATION XMRH, 3 W RUFUS.
```

These data show a significant high wind event which resulted in multiple wind advisories for November 2nd and 4th.

Significant Weather Events for the Month of November, 2018 (cont)

1255 PM NON-TSTM WND GST 1 NNE SISTERS 44.30N 121.54W
11/04/2018 M58 MPH DESCHUTES COUNTY OR MESONET

MESONET STATION K6K5, 1 NE SISTERS.

1248 PM NON-TSTM WND GST 11 E SHANIKO 45.03N 120.54W
11/04/2018 M59 MPH WASCO COUNTY OR MESONET

MESONET STATION NPFO3, NORTH POLE RIDGE.

0409 PM NON-TSTM WND GST 17 NW GOLDENDALE 45.99N 121.08W
11/04/2018 M63 MPH KLICKITAT COUNTY WA MESONET

MESONET STATION GRFW1, GRAYBACK.

0429 PM NON-TSTM WND GST 23 WSW WHITE SWAN 46.23N 121.14W
11/04/2018 M59 MPH YAKIMA COUNTY WA MESONET

MESONET STATION SGNW1, SIGNAL PEAK.

0116 AM NON-TSTM WND GST 1 WNW CAYUSE 45.68N 118.58W
11/27/2018 M65 MPH UMATILLA COUNTY OR MESONET

CWOP STATION. ELEVATION 1550 FT.

These data shows LSR's for high wind events again on November 4th and also on the 27th.

Significant Weather Events for the Month of November, 2018 (cont)

PRELIMINARY LOCAL STORM REPORT
NATIONAL WEATHER SERVICE PENDLETON OR
758 AM PST SAT NOV 24 2018

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

0338 AM SNOW 1 NW SPOUT SPRINGS 45.76N 118.06W
11/24/2018 E6.0 INCH UNION OR DEPT OF HIGHWAYS

6 INCHES OF NEW SNOW SINCE 1 PM FRIDAY. ELEVATION 5070 FT.

These LSR reports shows a heavy snow event which took place on the the 24th respectively.

November, 2018 Observed Monthly Max & Min Temperatures

Location	Highest Maximum Temperature	Lowest Minimum Temperature
Pendleton, OR	65	20
Redmond, OR	68	7
Pasco, WA	72	18
Yakima, WA	70	16
Walla Walla, WA	67	21
Bend, OR	63	14
Ellensburg, WA	63	17
Hermiston, OR	69	14
John Day, OR	63	14
La Grande, OR	61	17
The Dalles, OR	69	22
MT Adams RS, WA	68	26

These data show that the greatest extremes were in the lower elevations where either the temperature was higher due to the lower elevation in a well mixed atmosphere or cold temperatures under strong surface based inversions under high pressure aloft.

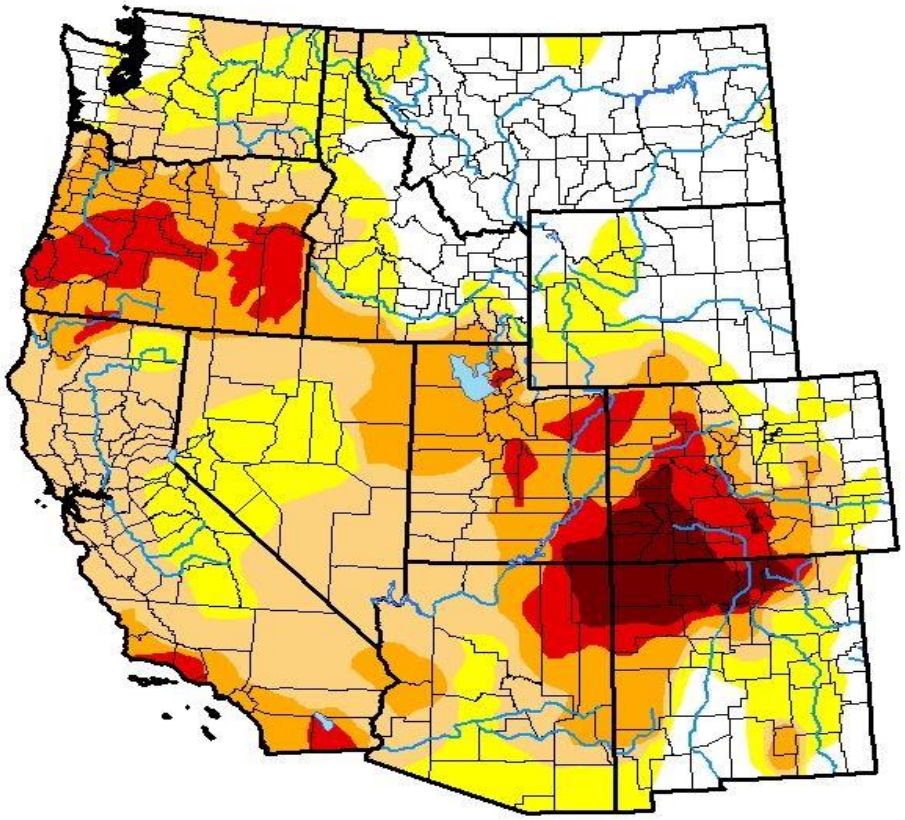
November, 2018, Monthly Total Precipitation Totals

Location	Total Monthly Precip	Total Snowfall or Hail
Pendleton. OR	0.72	0
Redmond, OR	0.43	T
Pasco, WA	0.85	T
Yakima, WA	0.42	T
Walla Walla, WA	1.45	T
Bend, OR	0.51	M
Ellensburg, WA	0.60	M
Hermiston, OR	0.49	M
John Day, OR	0.88	1.0
La Grande, OR	1.69	0
The Dalles, OR	1.07	M
Mt Adams RS, WA	0.64	M

Most stations had a considerable amount of precipitation for November, 2018. An inch of snow was reported at John day, OR. All other stations had either no snow or the snow amount was not available. These data are still below normal precipitation for the month.

End of November, 2018 - Drought Monitor

U.S. Drought Monitor
West



November 27, 2018
(Released Thursday, Nov. 29, 2018)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	24.52	75.48	55.06	28.95	10.84	3.35
Last Week 11-20-2018	24.27	75.73	54.02	29.05	10.90	3.35
3 Months Ago 08-28-2018	15.89	84.11	58.28	36.50	15.77	3.58
Start of Calendar Year 01-02-2018	48.76	51.24	29.03	8.60	1.52	0.00
Start of Water Year 09-25-2018	13.91	86.09	59.57	39.68	18.15	4.36
One Year Ago 11-28-2017	60.34	39.66	21.48	3.94	1.52	0.00

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

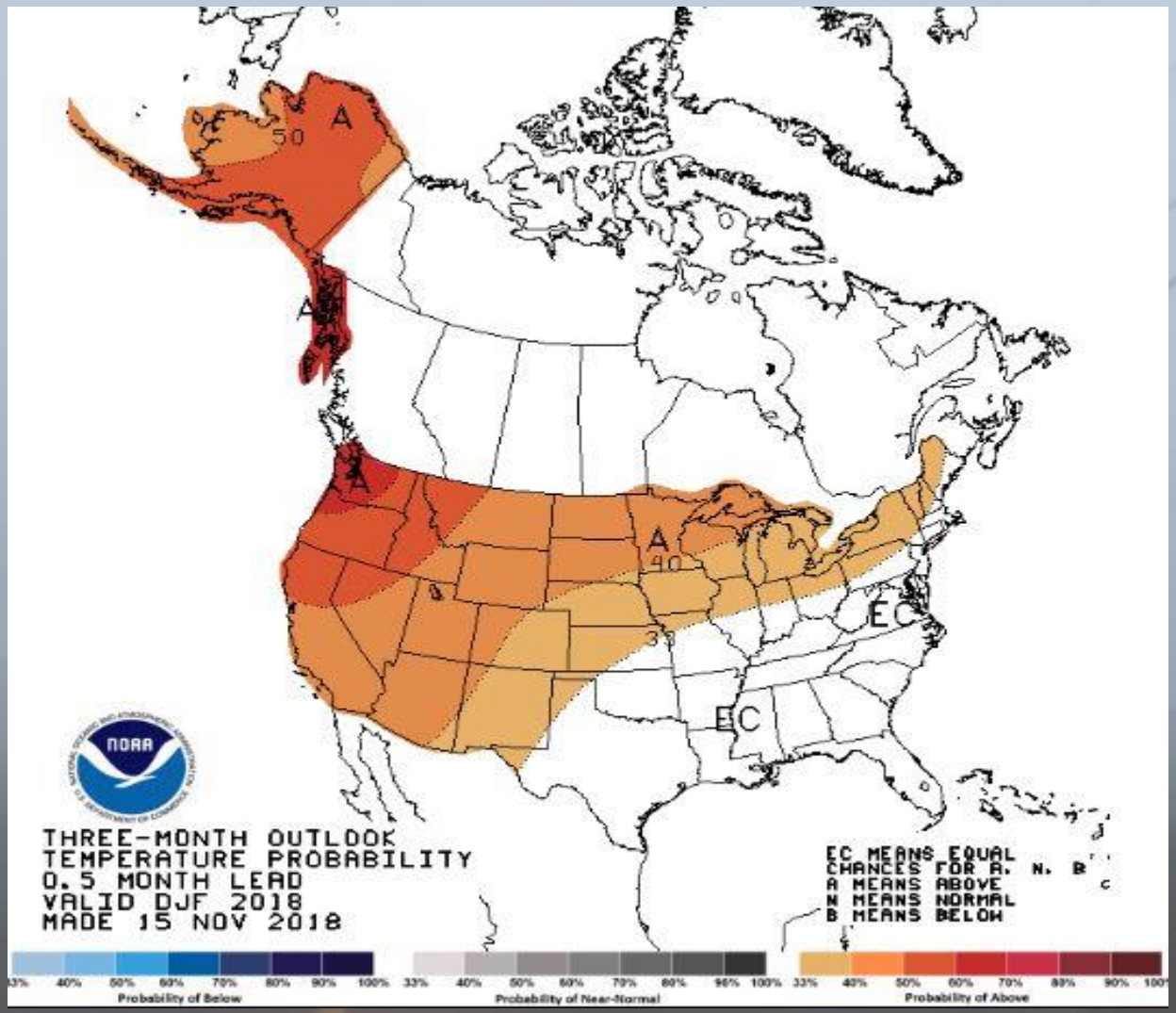
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Richard Heim
NCEI/NOAA

http://droughtmonitor.unl.edu/

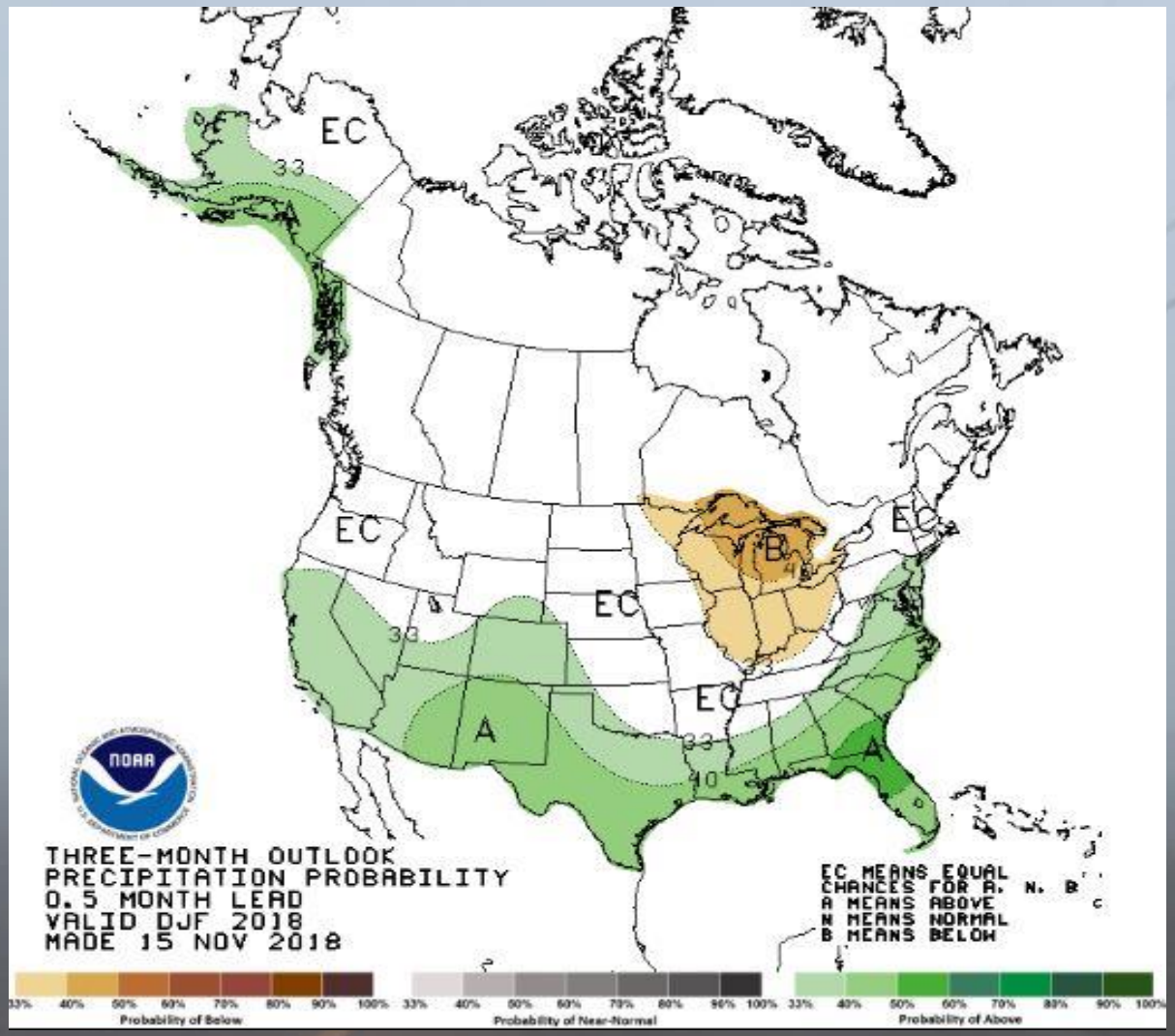
At the end of November, 2018, as of November 27th the drought conditions ranged from abnormally dry (D0-D1) in the northern CWA to Extreme Drought (D3-D4) in the southwest portion of the CWA (mainly Deschutes, Jefferson and Crook Counties).

Three Month Temperature Outlook (December, January & February)



The temperature outlook for the next three months shows about a 50 - 70% chance of being above normal for all of the Pacific Northwest and the forecast area. Most of the forecast area was in the 50 - 60% range.

Three Month Precipitation Outlook (December, January & February)

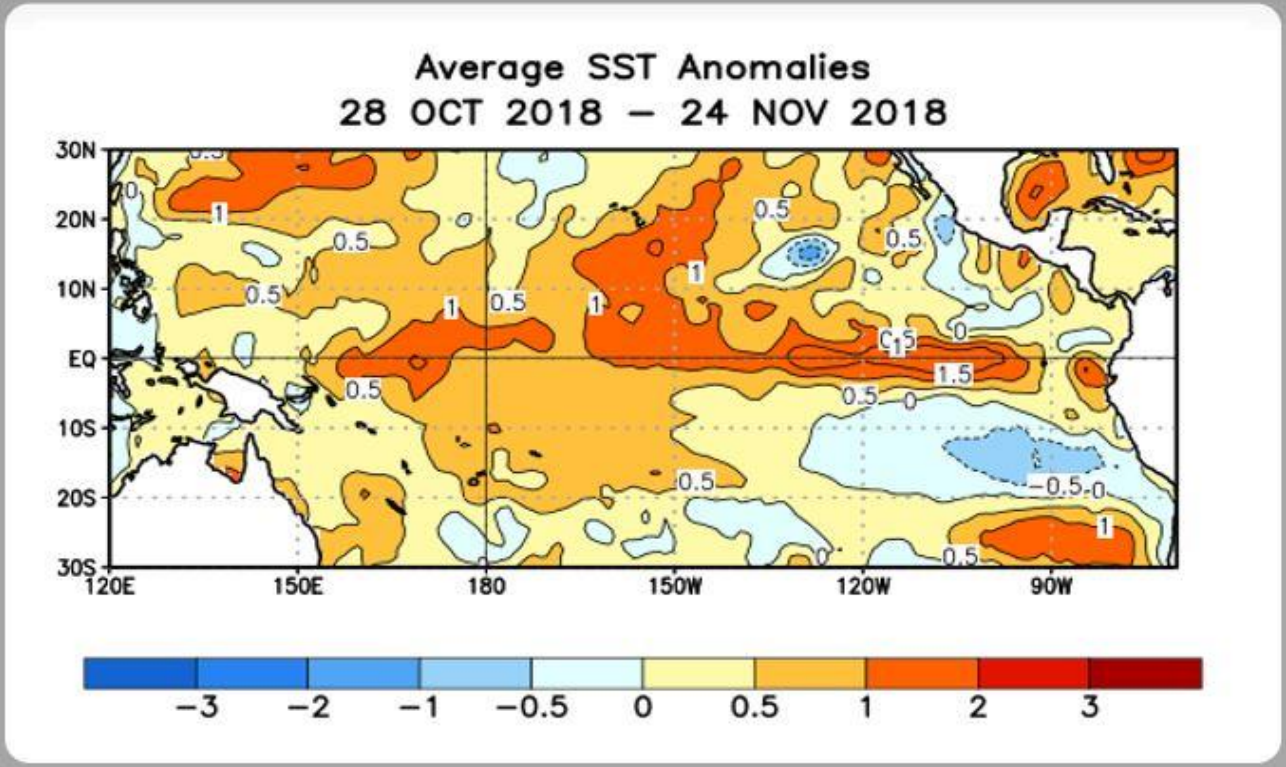


The precipitation outlook for the next three months shows the Pacific Northwest to have equal chances of having either above or below normal precipitation for the month.

El Nino/La Nina Index for 28th October, 2018 – 24th November, 2018

SST Departures (°C) in the Tropical Pacific During the Last Four Weeks

During the last four weeks, equatorial SSTs were above average across the Pacific Ocean.



Note that the SST's were above average for most of the tropical western and eastern Pacific from the equator north to about 25 degrees north latitude. This is indicative that an El-Nino pattern continues to evolve and will likely continue through the upcoming winter season.

Thank You!