

The Month In Review

September 2018

National Weather Service
Pendleton, Oregon

September, 2018 Climate Summary

The month of September was closer to normal than July or August and there were not any extremely hot days or cool days during the month. In fact, there was only 1 day that was above 90 degrees at the Pendleton Airport. Most days during the month were seasonal or near the seasonal normal. Overall the month turned out to be 2.0 degrees cooler than normal at the Pendleton Airport. This report will show other cities as well as Pendleton. The most notable characteristic of September in the region, was the dry conditions which continued from July and August. There was no measurable rainfall recorded at the Pendleton Airport for the month of September. Many other stations across the region had a very similar situation, reporting very little if any precipitation for the month.



Low visibility in smoke was still a concern at the start of the month.



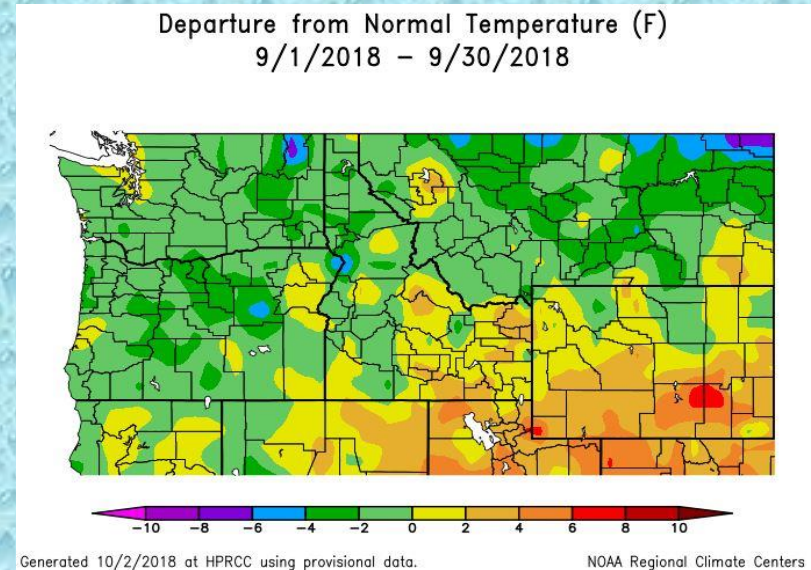
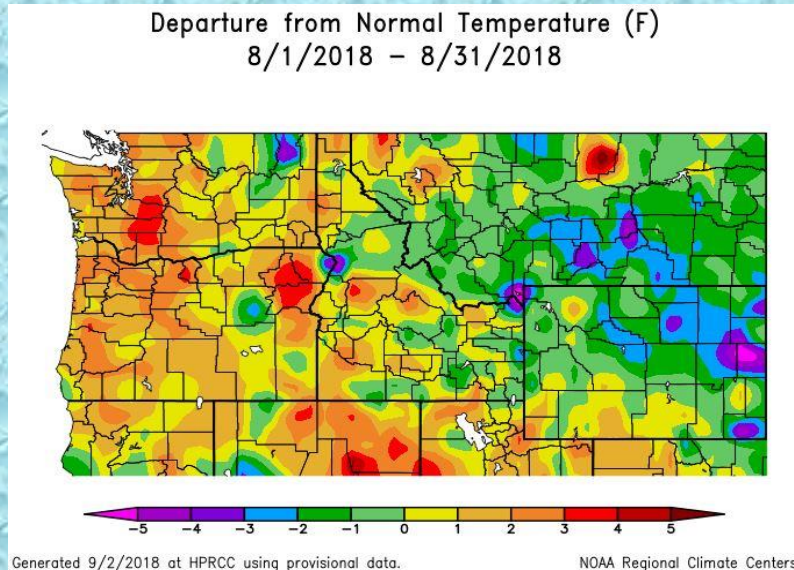
Due to the very dry summer of 2018, the vegetation was very parched and dry.



This was a typical day in September...sunny and dry. Some trees began to turn colors at the end of the month.

September, 2018 Departure from Normal Temperatures

Departure from normal for September, 2018



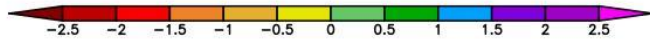
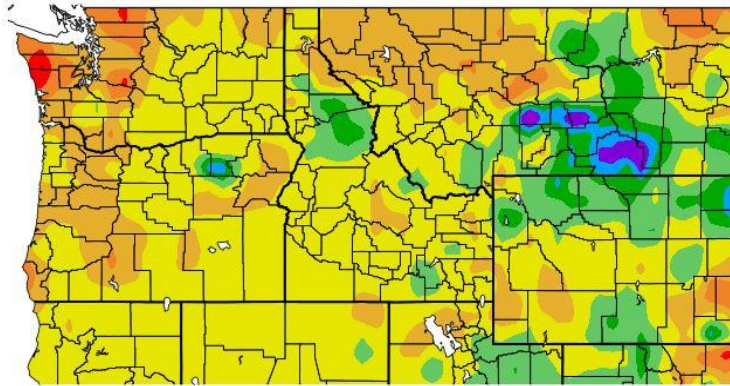
Departure from normal for August, 2018

The images above show a comparison of the departure from normal of the average temperature for September vs. August, 2018. As the images show, the September average temperatures (upper left) were for the most part, slightly below normal compared to August (lower right) which were mostly above to much above normal for Oregon and Washington.

September, 2018 Departure from Normal Precipitation

Departure from normal precipitation for September

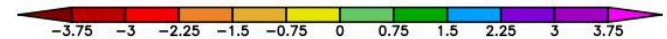
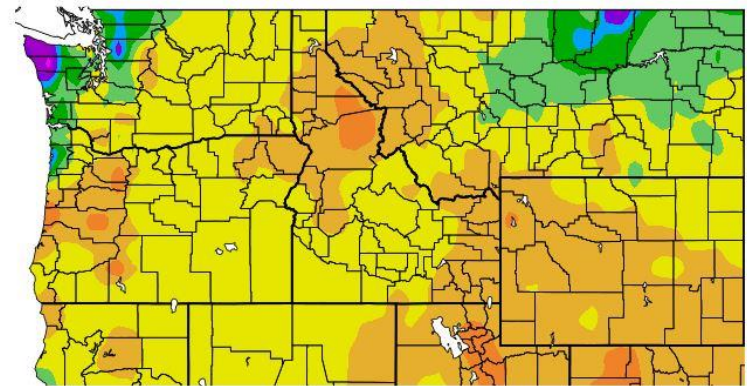
Departure from Normal Precipitation (in)
8/1/2018 – 8/31/2018



Generated 9/2/2018 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from Normal Precipitation (in)
9/1/2018 – 9/30/2018



Generated 10/2/2018 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from normal precipitation for August

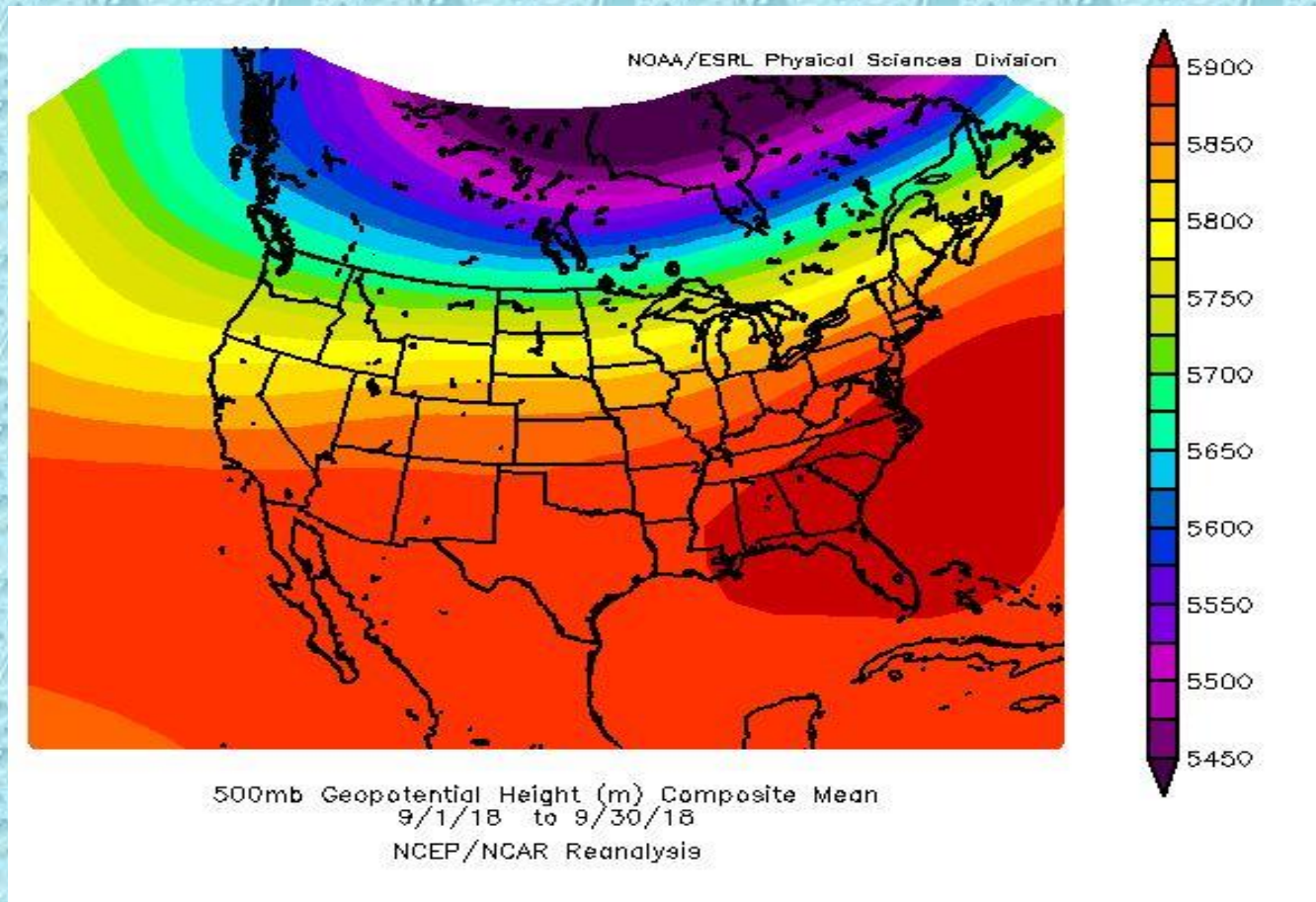
The above images show a comparison of September vs. August 2018 average precipitation departure from normal. The two months were very similar with below normal precipitation for both months. The only difference is that there was a small area with above normal precipitation for August over the Southern Blue Mountains (Southern Umatilla and northern Grant Counties), otherwise September had below normal precipitation everywhere.

September, 2018 departures from normal for select cities

	Max T	Max T D	Min T	Min T D	Ave T	Ave T D	PCPN	PCPN D
Yakima	76.4	-1.6	43.1	-0.4	59.7	-1.1	0.01	-0.35
Kennewick	78.9	-1.0	52.5	0.2	65.7	-0.4	0.00	-0.30
Walla Walla	76.7	-1.2	52.1	-0.5	64.4	-0.8	Trace	-0.75
The Dalles	78.4	-1.7	46.4	-5.2	62.4	-3.4	0.04	-0.43
Redmond	76.3	0.1	36.2	-2.0	56.3	-0.9	0.04	-0.37
Pendleton Airport	76.3	-1.1	46.6	-2.8	61.5	-1.9	0.00	-0.57
La Grande	77.2	1.0	43.1	-0.6	60.2	0.2	0.06	-0.61

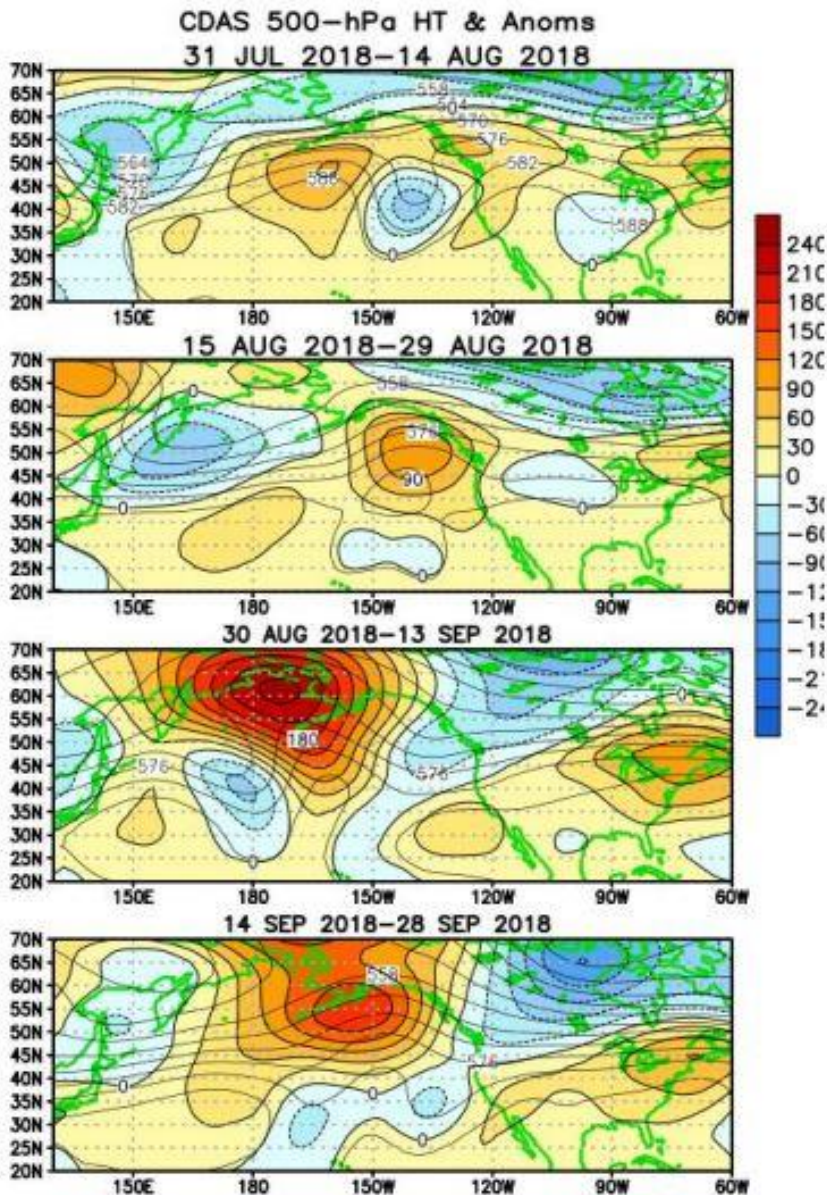
The data above shows that most locations had below normal average high and low temperatures. The exceptions were Redmond for average highs, Kennewick for average lows and La Grande for average mean temperatures. All stations had below normal precipitation, with Kennewick, Pendleton and Walla Walla all having either no measurable precipitation at all for the month. The data in September and August were similar except for below normal precipitation. Average temperatures on the other hand were mostly the opposite when comparing the 2 months. The difference comes from August's mostly above normal average temperatures, contrasted by the mostly below normal average temperatures recorded during September.

September, 2018 Average 500 MB Weather Pattern



The image above shows an overall mean broad trough over the Pacific Northwest for the month. This resulted in a mostly cooler than normal month for temperatures. However, precipitation amounts were still below normal for the month because the trough was broad and not amplified, which would have resulted in more precipitation. The rest of the country has an overall mean zonal westerly flow aloft for the month.

More Detailed 500 MB Plots for August & September, 2018



These graphics show roughly a bi-weekly comparison of the 500 MB weather patterns beginning on July 31st and ending on September 28th, 2018. This represents generally bi-weekly weather patterns for August and September, 2018. Land boundaries are in green.

In the first image, there was and overall upper ridge over the Pacific Northwest which kept the first half of August hot and dry. The upper ridge then retrograded a bit off the coast during the second part of August which allowed some cooling, but temperatures were still mostly above normal, with below normal precipitation.

The last two images show bi-weekly 500 mb patterns for September. During the first half of September there was a zonal flow with a slight trough over the Pacific Northwest. This allowed for better cooling, but still quite dry. Then the trough became more prominent during the second half of September. (bottom image) This action kept the weather over the Pacific Northwest slightly cooler than normal, while remaining drier than normal.

Three Month Precipitation Totals For Select Cities

The table below shows how dry it was during the last 3 and 4 months, which also shows the rank of the driest period on record for each city. This table was taken from a weather story that was recently posted on social media.

Incredible Run of Dry Weather!

Location	3 Month Precip July –September	All-time Driest Rank for Any 3 Month Span	4 Month Precip (Driest Rank)
Pendleton	0.03"	Driest	0.45" (5 th Driest)
Yakima	0.01"	Driest	
Tri-Cities	Trace	Driest	0.11" (4 th Driest)
Walla Walla	0.09"	Driest	0.20" (Driest)
The Dalles	0.02"	3 rd Driest	
Ellensburg	0.10"	Tied 3 rd Driest	
Hermiston	0.05"	3 rd Driest	0.19" (2 nd Driest)
Redmond	0.04"	2 nd Driest	
John Day	0.22"	3 rd Driest	

Record Weather for the month of September, 2018

During the month of September, 2018, there was only one instance where a record was set. It was a record low temperature at Meacham, OR on September 15th.

RECORD EVENT REPORT							
NATIONAL WEATHER SERVICE PENDLETON OR							
1134 AM PDT SAT SEP 15 2018							
...NEW DAILY RECORD LOW TEMPERATURES FOR SEPTEMBER 15TH...							
NOTE: STATIONS MARKED WITH * INDICATE THAT THE STATION REPORTS ONCE PER DAY. FOR CONSISTENCY...THESE VALUES ARE CONSIDERED TO HAVE OCCURRED ON THE DAY THE OBSERVATION WAS TAKEN BUT MAY HAVE ACTUALLY OCCURRED (ESPECIALLY FOR MAX TEMPERATURE) ON THE PREVIOUS DAY.							
STATION	PREVIOUS	NEW	RECORDS				
	RECORD/YEAR	RECORD	BEGAN				
MEACHAM, OR	27 / 2008	27 (TIED)	1929				

September, 2018 Observed Monthly Max & Min Temperatures

Location	Highest Maximum Temperature	Lowest Minimum Temperature
Pendleton, OR	94	37
Redmond, OR	92	26
Pasco, WA	94	38
Yakima, WA	90	36
Walla Walla, WA	93	45
Bend, OR	87	29
Ellensburg, WA	92	36
Hermiston, OR	93	35
John Day, OR	87	28
La Grande, OR	90	33
The Dalles, OR	92	39
MT Adams RS, WA	86	29

These data are fairly typical for September with most maximum temperatures in the 90s and most minimums in the 20s and 30s.

September, 2018, Monthly Total Precipitation Totals

Location	Total Monthly Precip	Total Snowfall or Hail
Pendleton, OR	0.00	0
Redmond, OR	0.04	0
Pasco, WA	Trace	0
Yakima, WA	0.01	0
Walla Walla, WA	Trace	0
Bend, OR	0.01	0
Ellensburg, WA	0.10	0
Hermiston, OR	Trace	0
John Day, OR	0.04	0
La Grande, OR	0.06	0
The Dalles, OR	0.02	0
Mt Adams RS, WA	0.70	0

All stations had very little or no precipitation for the month, except for Mt Adams Ranger Station which had a more significant 0.70 inches for the month, which is still below normal for that station.

End of September, 2018 - Drought Monitor

U.S. Drought Monitor West

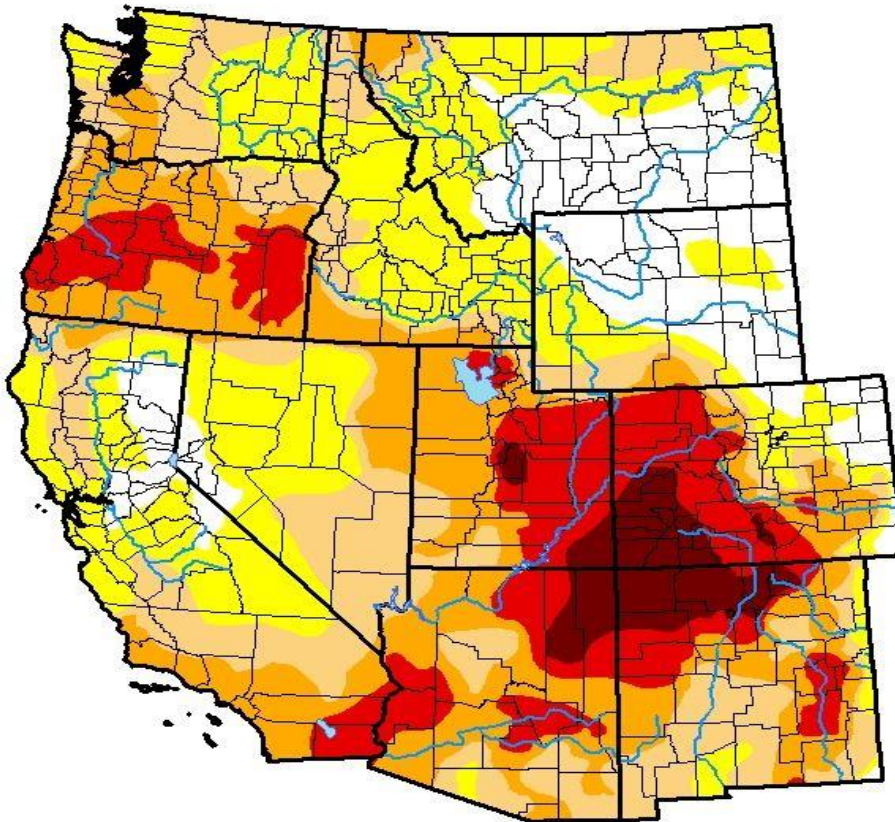
October 2, 2018

(Released Thursday, Oct. 4, 2018)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	14.15	85.85	59.29	38.88	17.58	4.36
Last Week <i>09-25-2018</i>	13.91	86.09	59.57	39.68	18.15	4.36
3 Months Ago <i>07-03-2018</i>	30.32	69.68	48.13	31.39	18.70	4.65
Start of Calendar Year <i>01-02-2018</i>	48.76	51.24	29.03	8.60	1.52	0.00
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>10-03-2017</i>	55.65	44.35	19.71	8.24	2.90	1.26



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:

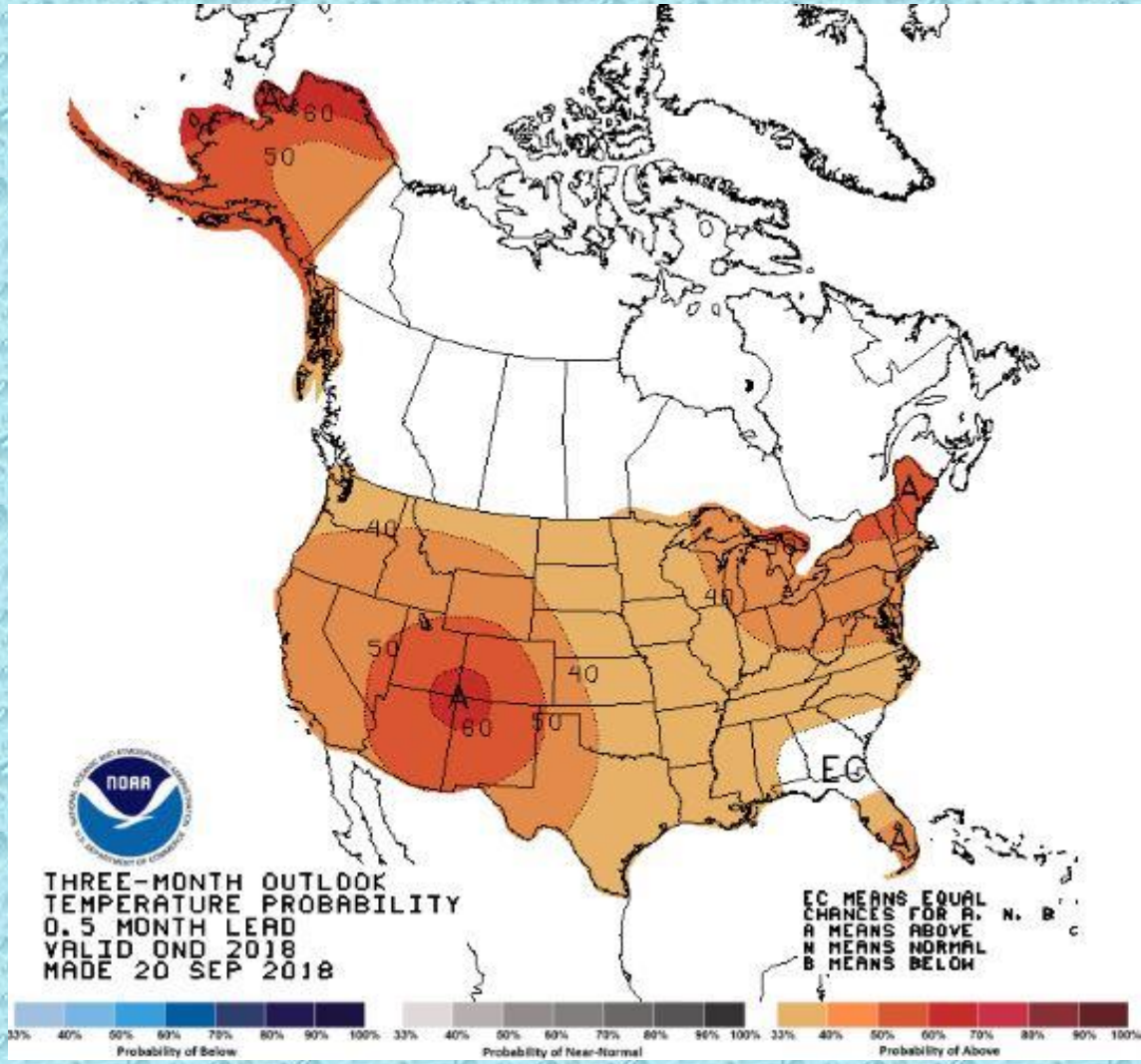
David Miskus
NOAA/NWS/NCEP/CPC



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

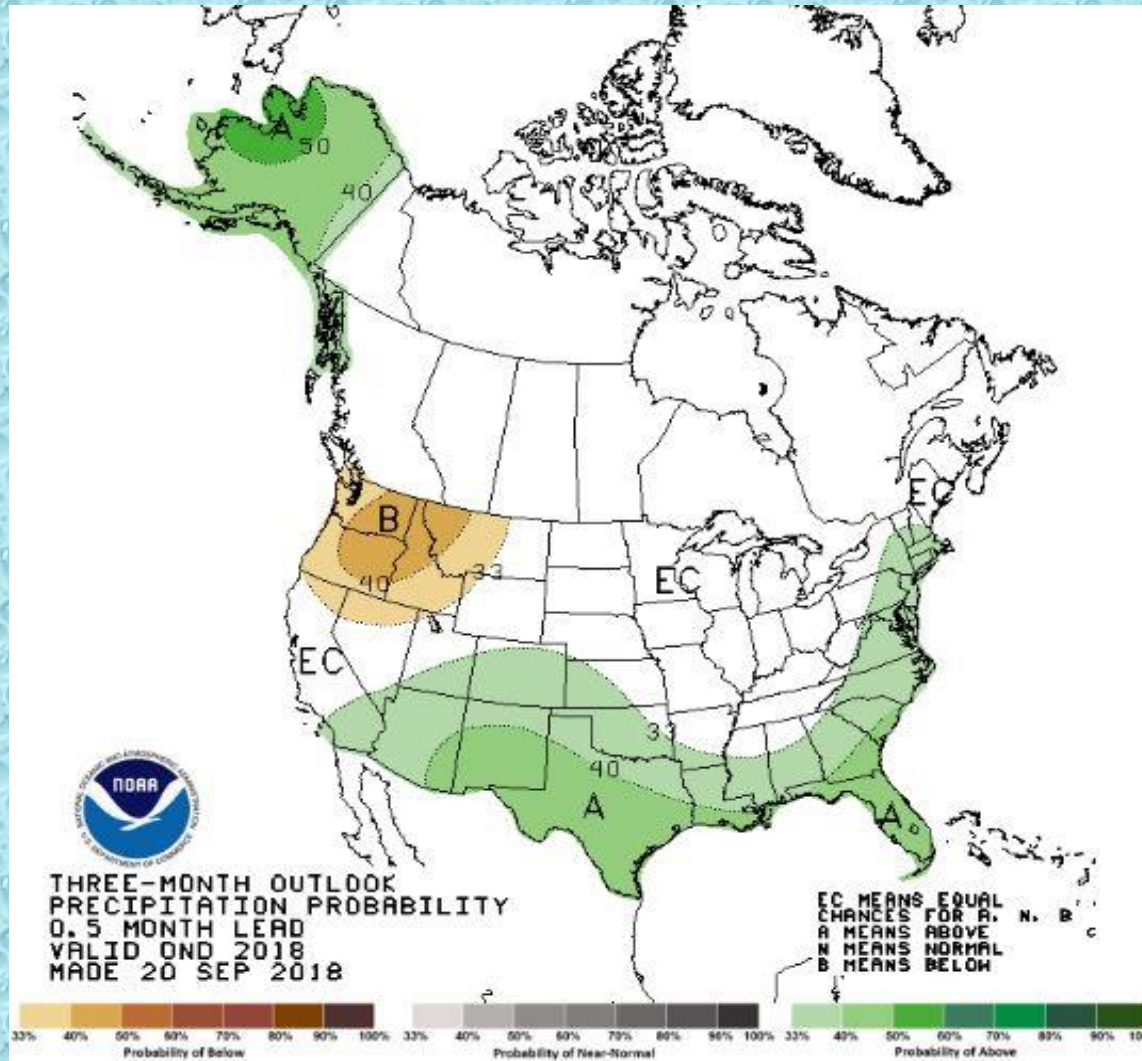
At the end of September, 2018, as of October 2nd the drought conditions ranged from abnormally dry (D0) in the north to Extreme Drought (D3) in southern areas.

USA Three Month Temperature Outlook (October, November & December)



The temperature outlook for the next three months shows about a 33-40% chance of above normal temperatures for the Pacific Northwest and the Forecast Area.

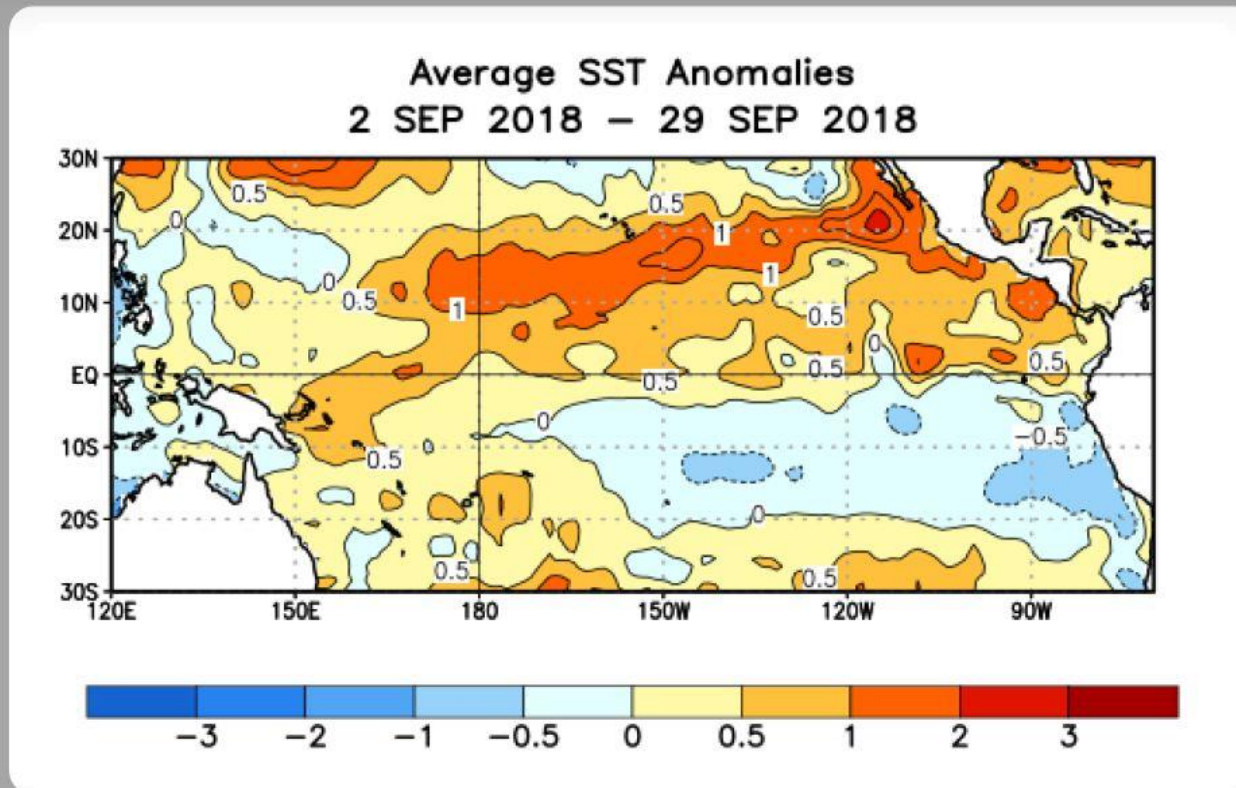
USA Three Month Precipitation Outlook (October, November & December)



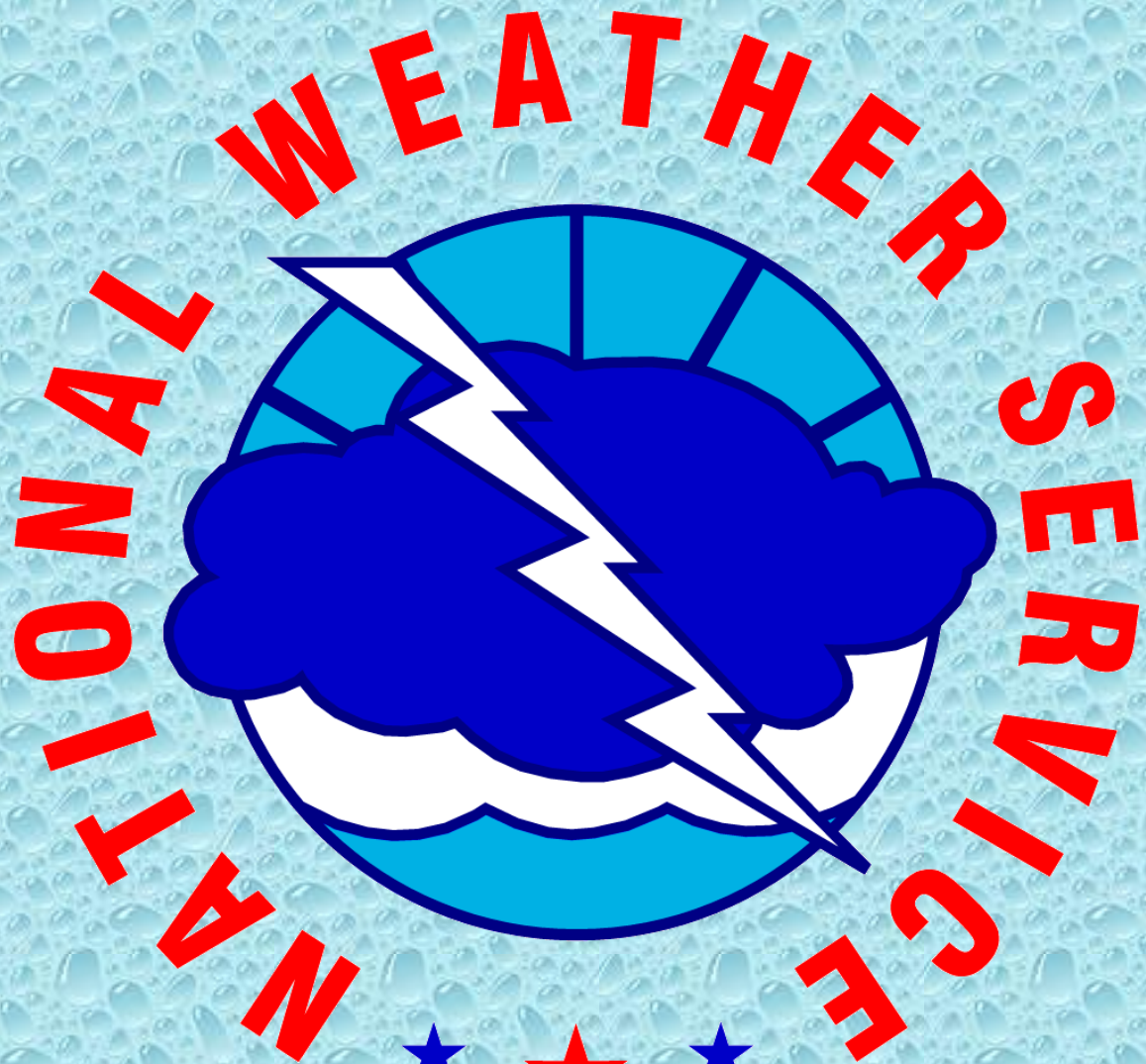
The precipitation outlook for the next three months shows the Pacific Northwest (and the Forecast Area) to have about a 33-40% chance of below normal precipitation.

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

During the last four weeks, equatorial SSTs were near-to-above average over most of the Pacific Ocean. Above-average SSTs were generally observed north of the equator, while below-average SSTs were present south of the equator.



Note that the SST's between 10N - 25N were well above normal. This is indicative of an El-Nino pattern that occurred during September.



Thank You!