

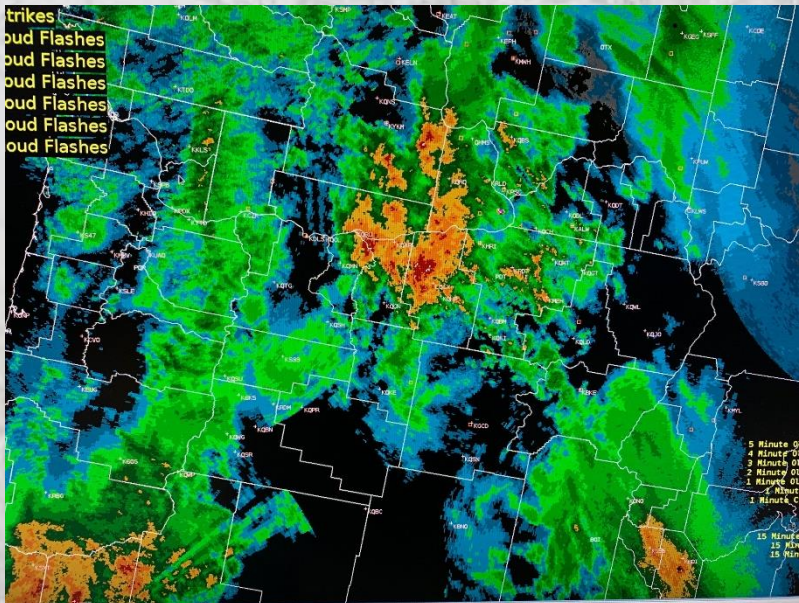
The Month In Review

January, 2019

National Weather Service
Pendleton, Oregon

January, 2019 Climate Summary

The month of January, 2019 can be summarized as a typical El-nino month with a continuous strong influence of marine air keeping temperatures cool, but not too cold and not too warm. Temperatures were a little above normal. There was not any snow during the month at many lower elevation locations, but there were a couple of storms that brought moderate snow to the mountains and only light amounts on the foothills. There were also a couple wind events during the month as well. Rainfall amounts were substantial and in some cases above normal. Below is a photo of a rainy night at the Pendleton Airport on January 18-19th, 2019 and the radar image.



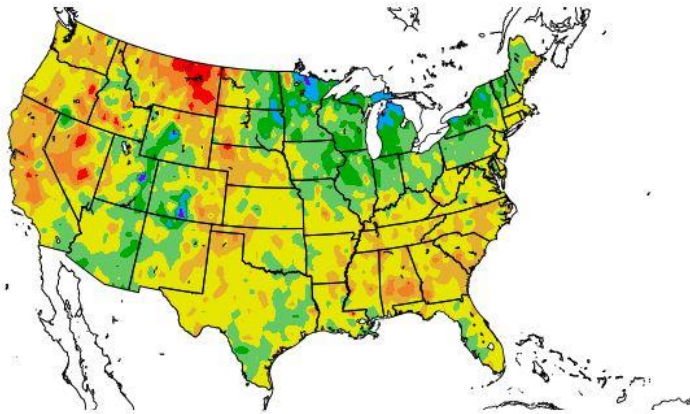
National Weather Service Doppler Radar of a rain storm on January 18 – 19th, 2019.



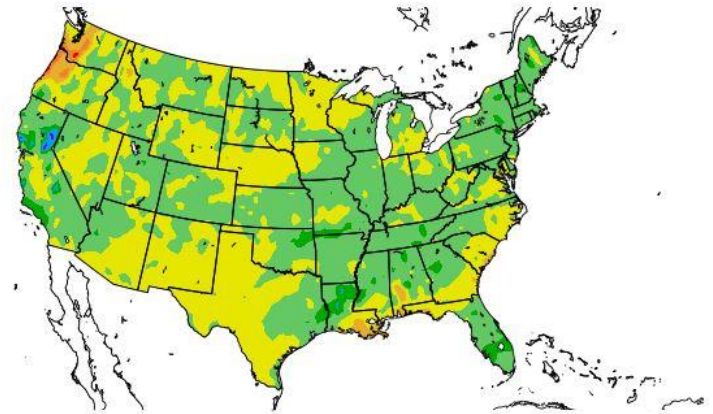
Heavy rain on January 18 - 19th, 2019 at the Pendleton National Weather Service Office.

January, 2019 Departure from Normal of the Average Temperatures and precipitation

Departure from Normal Temperature (F)
1/2/2019 - 1/31/2019



Departure from Normal Precipitation (in)
1/2/2019 - 1/31/2019



Generated 2/1/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

Generated 2/1/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from normal Temperature for January, 2019

Departure from normal Precipitation for January, 2019

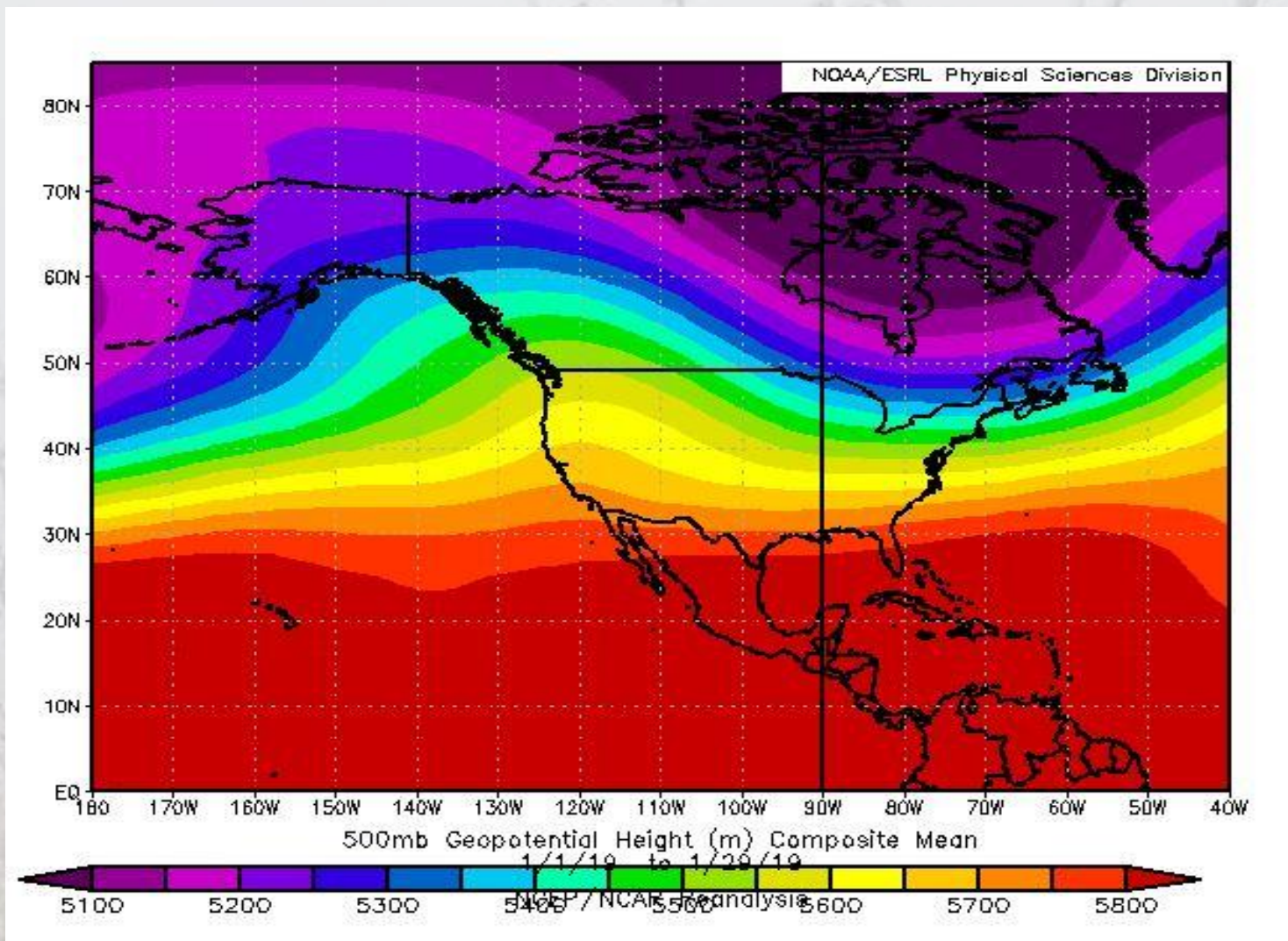
The images above show the departure from normal Average temperatures and precipitation for the month of January, 2019. As can be seen the Pacific Northwest had mostly above normal temperatures for the Pacific Northwest and the image on the right shows an overall near to above normal precipitation for the month of January, 2019.

January, 2019 departures from normal for select cites

	Max T	Max T D	Min T	Min T D	Ave T	Ave T D	PCPN	PCPN D	Snow	Avg Snow	Snow Fall Departure
Yakima	41.3	2.7	26.3	3	33.8	2.8	1.42	0.28	2.2	7.6	-5.4
Kennewick	43.3	1.8	32.5	3	37.9	2.4	1.62	0.54	0.0	4.0	-4.0
Walla Walla	43.5	2.6	32.9	2.8	38.2	2.7	2.11	-0.42	1.5	5.2	-3.7
The Dalles	43.5	1.3	32.9	1.9	38.2	1.6	1.73	-0.77	M	M	M
Redmond	46.9	4.5	26.4	3.3	36.6	3.9	1.03	0.06	0.0	5.5	-5.5
Pendleton Airport	42.4	0.6	31.0	2.2	36.7	1.4	2.07	0.64	T	6.1	-6.1
La Grande	41.0	2.6	25.6	1.1	33.3	1.9	2.16	0.53	3.5	6.5	-3.0

The data above shows that all average maximum temperatures were above normal. All minimum temperatures were also above normal and the mean average temperatures for the month were also all above normal. Precipitation amounts were also above normal for the month. However, the snowfall amounts were all below normal. This is typical for the Pacific Northwest in an El Nino year (or evolving El Nino Year).

January, 2019 Average 500 MB Weather Pattern



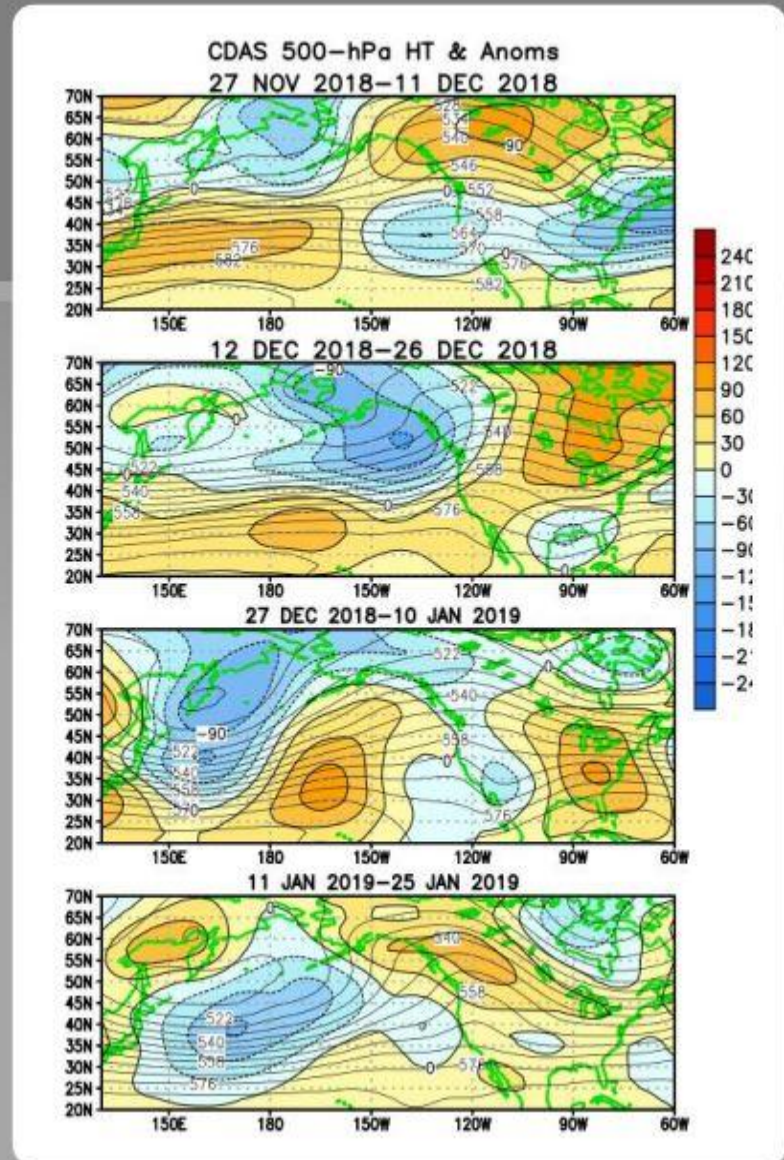
The image above shows an overall upper ridge over the western USA. The ridge over the western USA is the reason for the mild weather with little snow. The pattern is split with one jet to the north and one to the south of the Pacific Northwest. This is typical of an El Niño pattern, or evolving El Niño scenario.

500 MB Plots – 27th November, 2018 through 25th January, 2019

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

During late November to early December, below-average heights (and temperatures) were present across most of the contiguous U.S.

From mid December to mid January, anomalous ridging (and above-average temperatures) were evident over the central/eastern U.S., while the pattern in the western U.S. reversed from anomalous troughing (and below-average temperatures) in late December - early January to above-average temperatures since early January.



Significant Weather Events for the month of January, 2019

The next series of slides show Local Storm Reports (LSR's) for significant weather events which occurred in the forecast area during December. Most significant weather events were either strong wind or moderate to heavy mountain snow events.

PRELIMINARY LOCAL STORM REPORT				
NATIONAL WEATHER SERVICE PENDLETON OR				
1041 AM PST THU JAN 3 2019				
..TIME...	...EVENT...	...CITY LOCATION...	...LAT.LON...	
..DATE...	....MAG....	..COUNTY LOCATION..ST..	....SOURCE....	
..REMARKS..				
1000 AM	NON-TSTM WND GST 8 SSE	LA GRANDE	45.23N 118.01W	
01/03/2019	M58 MPH	UNION OR	MESONET	
58 MPH PEAK GUST AT MP 269 I-84 LADD CANYON. ALSO REPORTS OF POWER OUTAGES AFFECTING UNION IN THE SOUTHERN GRANDE RONDE VALLEY.				
1159 PM	NON-TSTM WND GST 1 WNW	CAYUSE	45.68N 118.58W	
01/02/2019	M63 MPH	UMATILLA OR	MESONET	
AS881 CWOP AT 1550 FEET ELEVATION				

These data show a significant wind event on January 3, 2019.



A significant wind event on January 3rd

Significant Weather Events for the month of January, 2019

These data shows LSR's for a moderate snow event on January 6, 2019.

PRELIMINARY LOCAL STORM REPORT				
NATIONAL WEATHER SERVICE PENDLETON OR				
150 PM PST SUN JAN 6 2019				
..TIME...	...EVENT...	...CITY LOCATION...	...LAT.LON...	
..DATE...	...MAG....	..COUNTY LOCATION..ST..	...SOURCE....	
..REMARKS..				
0148 PM	SNOW	5 N LA PINE	43.74N 121.52W	
01/06/2019	E3.0 INCH	DESCHUTES	OR	TRAINED SPOTTER
3 INCHES OF NEW SNOW SINCE 9AM. ELEVATION 4240 FEET.				
0430 PM	SNOW	5 NNW LA PINE	43.74N 121.54W	
01/06/2019	M3.0 INCH	DESCHUTES	OR	TRAINED SPOTTER
3.0 INCHES SF SINCE 8 AM.				



Significant Weather Events for the month of January, 2019

PRELIMINARY LOCAL STORM REPORT				
NATIONAL WEATHER SERVICE PENDLETON OR				
215 AM PST THU JAN 17 2019				
..TIME...	...EVENT...	...CITY LOCATION...	...LAT.LON...	
..DATE...	....MAG....	..COUNTY LOCATION..	..ST..	...SOURCE....
..REMARKS..				
1015 PM	SNOW	6 NNE WHITE SALMON	45.81N 121.44W	
01/16/2019	M3.0 INCH	KLICKITAT	WA	TRAINED SPOTTER
2.75 INCHES OF SNOW SINCE 4 PM AT 1.5 MILES NNE OF HUSUM. ELEVATION 900 FEET.				
0415 AM	SNOW	TIETON	46.70N 120.75W	
01/17/2019	E3.0 INCH	YAKIMA	WA	PUBLIC
SOCIAL MEDIA REPORT OF 3 INCHES IN THE PAST 12 HOURS.				
0730 AM	HEAVY SNOW	1 N TROUT LAKE	46.01N 121.53W	
01/17/2019	M6.0 INCH	KLICKITAT	WA	TRAINED SPOTTER

These data shows LSR's for a moderate snow event on January 17th, 2019.



Significant Weather Events for the month of January, 2019

PRELIMINARY LOCAL STORM REPORT				
NATIONAL WEATHER SERVICE PENDLETON OR				
1043 AM PST SUN JAN 20 2019				
..TIME...	...EVENT...	...CITY LOCATION...	...LAT.LON...	
..DATE...	....MAG....	..COUNTY LOCATION..ST..	...SOURCE....	
..REMARKS..				
0800 AM	SNOW	2 SSW CAMP SHERMAN	44.44N 121.66W	
01/20/2019	M4.0 INCH	JEFFERSON	OR	TRAINED SPOTTER
RECEIVED 4.0 INCHES OVERNIGHT IN 12 HRS...8 INCHES ON				
GROUND...CURRENTLY 35 DEG CLOUDY.				

These data shows LSR's for a moderate snow event on January 20, 2019.



Significant Weather Events for the month of January, 2019

PRELIMINARY LOCAL STORM REPORT				
NATIONAL WEATHER SERVICE PENDLETON OR				
420 AM PST WED JAN 23 2019				
..TIME...	...EVENT...	...CITY LOCATION...	...LAT.LON...	
..DATE...	...MAG....	..COUNTY LOCATION..ST..	...SOURCE....	
..REMARKS..				
0356 AM	NON-TSTM WND GST 13 WNW	BICKLETON	46.08N 120.54W	
01/23/2019	M64 MPH	YAKIMA WA	MESONET	
HIGHBRIDGE RAW'S SITE.				
0100 AM	HEAVY SNOW	5 SSW SPOUT SPRINGS	45.69N 118.10W	
01/23/2019	E8.0 INCH	UMATILLA OR	MESONET	
HIGH RIDGE SNOTEL. RECORDED BETWEEN 4 PM TUESDAY AND 1 AM WEDNESDAY.				
0200 AM	HEAVY SNOW	9 SW SKI BLUEWOOD	45.98N 117.94W	
01/23/2019	E9.0 INCH	WALLOWA OR	MESONET	
MILK SHAKES SNOTEL. RECORDED BETWEEN 6 PM TUESDAY AND 2 AM WEDNESDAY.				
0300 AM	HEAVY SNOW	2 NNW SKI BLUEWOOD	46.11N 117.85W	
01/23/2019	E9.0 INCH	COLUMBIA WA	MESONET	
TOUCHET SNOTEL. 4 PM TUESDAY UNTIL 3 AM WEDNESDAY.				
0456 AM	NON-TSTM WND GST 13 WNW	BICKLETON	46.08N 120.54W	
01/23/2019	M71 MPH	YAKIMA WA	MESONET	
HIGHBRIDGE RAW'S.				

These data shows LSR's for a strong wind event and heavy snow event on January 23rd



Significant Weather Events for the month of January, 2019

PRELIMINARY LOCAL STORM REPORT

NATIONAL WEATHER SERVICE PENDLETON OR

641 AM PST WED JAN 23 2019

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

0454 AM HEAVY SNOW SKI BLUEWOOD 46.08N 117.84W
 01/23/2019 M9.0 INCH COLUMBIA WA PUBLIC

9 INCHES NEW SNOW SINCE YESTERDAY AFTERNOON.

1201 AM SNOW SNOQUALMIE PASS 47.42N 121.41W
 01/23/2019 M6.5 INCH KITTITAS WA COCORAHS

6.5 INCHES OF NEW SNOW FELL BETWEEN 12PM TUESDAY AND 12AM
 WEDNESDAY. ELEVATION 2654 FEET.

0729 AM HEAVY SNOW 5 NNE LA GRANDE 45.39N 118.07W
 01/23/2019 M5.8 INCH UNION OR TRAINED SPOTTER

5.8 INCHES OF NEW SNOW SINCE 4PM WEDNESDAY. ELEVATION
 2835 FEET.

These data shows LSR's for a strong wind and heavy snow event on January 23rd (cont).



Significant Weather Events for the month of January, 2019

PRELIMINARY LOCAL STORM REPORT				
NATIONAL WEATHER SERVICE PENDLETON OR				
807 AM PST WED JAN 23 2019				
..TIME...	...EVENT...	...CITY LOCATION...	...LAT.LON...	
..DATE...	...MAG....	..COUNTY LOCATION..ST..	...SOURCE....	
..REMARKS..				
0800 AM	NON-TSTM WND GST 5 NE SISTERS		44.34N 121.49W	
01/23/2019	M60 MPH	DESCHUTES	OR	TRAINED SPOTTER
PEAK WIND GUST OF 60 MPH AT 8 AM. SUSTAINED WINDS OF 40 MPH.				
0833 AM	NON-TSTM WND DMG SUNRIVER		43.88N 121.44W	
01/23/2019		DESCHUTES	OR	UTILITY COMPANY
SMALL TREES DOWN AND POWER OUTAGES.				
0515 AM	NON-TSTM WND GST 5 W SHANIKO		45.00N 120.85W	
01/23/2019	M63 MPH	WASCO	OR	MESONET

These data shows LSR's for a strong wind and snow event on January 23rd (cont).



Significant Weather Events for the month of January, 2019

PRELIMINARY LOCAL STORM REPORT

NATIONAL WEATHER SERVICE PENDLETON OR

1041 AM PST WED JAN 23 2019

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

0915 AM	NON-TSTM WND GST 1 NNE SISTERS		44.30N 121.54W
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01/23/2019	M74.00 MPH	DESCHUTES	OR MESONET
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1039 AM	NON-TSTM WND GST 1 W THREE RIVERS		43.82N 121.49W
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01/23/2019	M70.00 MPH	DESCHUTES	OR TRAINED SPOTTER
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0300 AM	HEAVY SNOW	UKIAH	45.13N 118.93W
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01/23/2019	M6.6 INCH	UMATILLA	OR CO-OP OBSERVER
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6.6 INCHES OF NEW SNOW BETWEEN 3PM AND 3AM. ELEVATION
3401 FEET.

These data shows LSR's for a heavy snow and strong wind event on January 23rd (cont).



Significant Weather Events for the month of January, 2019

PRELIMINARY LOCAL STORM REPORT...SUMMARY				
NATIONAL WEATHER SERVICE PENDLETON OR				
246 PM PST WED JAN 23 2019				
..TIME...	...EVENT...	...CITY LOCATION...	...LAT.LON...	
..DATE...	....MAG....	..COUNTY LOCATION..ST...	....SOURCE....	
..REMARKS..				
0356 AM	NON-TSTM WND GST 13 WNW	BICKLETON	46.08N 120.54W	
01/23/2019	M64.00 MPH	YAKIMA WA	MESONET	
HIGHBRIDGE RAW'S SITE.				
0456 AM	NON-TSTM WND GST 13 WNW	BICKLETON	46.08N 120.54W	
01/23/2019	M71.00 MPH	YAKIMA WA	MESONET	
HIGHBRIDGE RAW'S.				
0515 AM	NON-TSTM WND GST 5 W	SHANIKO	45.00N 120.85W	
01/23/2019	M63.00 MPH	WASCO OR	MESONET	
0800 AM	NON-TSTM WND GST 5 NE	SISTERS	44.34N 121.49W	
01/23/2019	M60.00 MPH	DESCHUTES OR	TRAINED SPOTTER	
PEAK WIND GUST OF 60 MPH AT 8 AM. SUSTAINED WINDS OF 40 MPH.				
0833 AM	NON-TSTM WND DMG	SUNRIVER	43.88N 121.44W	
01/23/2019		DESCHUTES OR	UTILITY COMPANY	
SMALL TREES DOWN AND POWER OUTAGES.				
0915 AM	NON-TSTM WND GST 1 NNE	SISTERS	44.30N 121.54W	
01/23/2019	M74.00 MPH	DESCHUTES OR	MESONET	
1039 AM	NON-TSTM WND GST 1 W	THREE RIVERS	43.82N 121.49W	
01/23/2019	M70.00 MPH	DESCHUTES OR	TRAINED SPOTTER	

These data shows LSR's for a wind and heavy snow event on January 23rd (continued).



January, 2019 Observed Monthly Max & Min Temperatures

Location	Highest Maximum Temperature	Lowest Minimum Temperature
Pendleton, OR	56	22
Redmond, OR	67	12
Pasco, WA	54	18
Yakima, WA	59	18
Walla Walla, WA	58	24
Bend, OR	64	14
Ellensburg, WA	62	18
Hermiston, OR	57	20
John Day, OR	53	2
La Grande, OR	54	9
The Dalles, OR	57	23
MT Adams RS, WA	62	19

These data show that temperatures were not real cold and not real warm either. It is interesting that Mt Adams RS, WA had a maximum temperature of 62 for the month, which shows how strong the valley inversions were during times of the month.

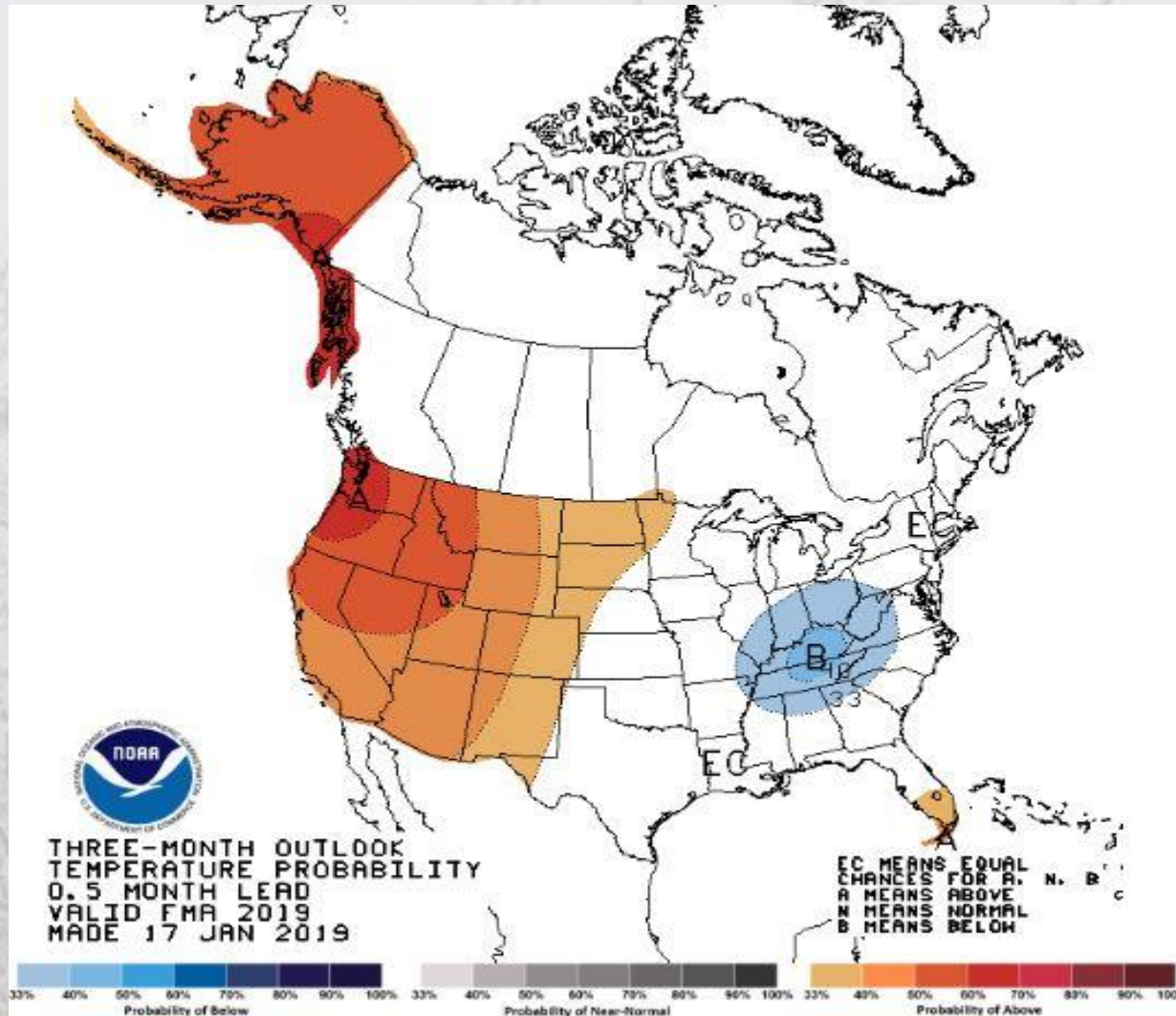
January 2019, Monthly Total Precipitation Totals

Location	Total Monthly Precip	Total Snowfall or Hail
Pendleton, OR	2.07	T
Redmond, OR	1.03	0
Pasco, WA	1.59	T
Yakima, WA	1.42	2.2
Walla Walla, WA	2.11	1.5
Bend, OR	2.41	M
Ellensburg, WA	1.11	M
Hermiston, OR	1.53	M
John Day, OR	0.93	4.0
La Grande, OR	2.16	3.5
The Dalles, OR	1.73	M
Mt Adams RS, WA*	M	M

*Incomplete precipitation data

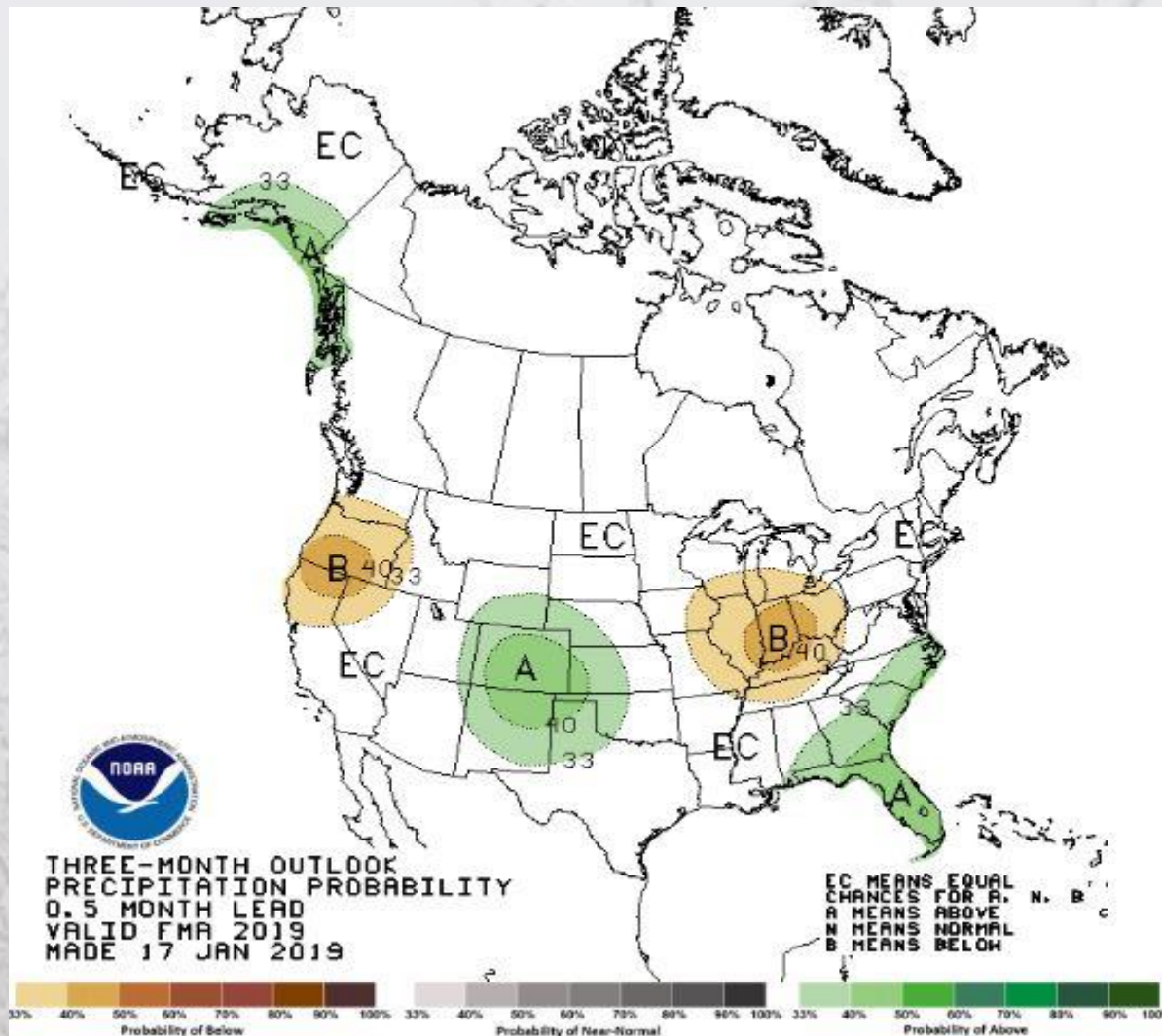
All stations had a substantial amount of precipitation with the greatest being 2.51 inches at Bend, OR. All stations had more than an inch, except for John Day, which was 0.93.

Three Month Temperature Outlook (February, March & April)



The temperature outlook for the next three months shows a 60-70% chance of having warmer than normal conditions for the next 3 months in the Pacific Northwest.

Three Month Precipitation Outlook (February, March & April)

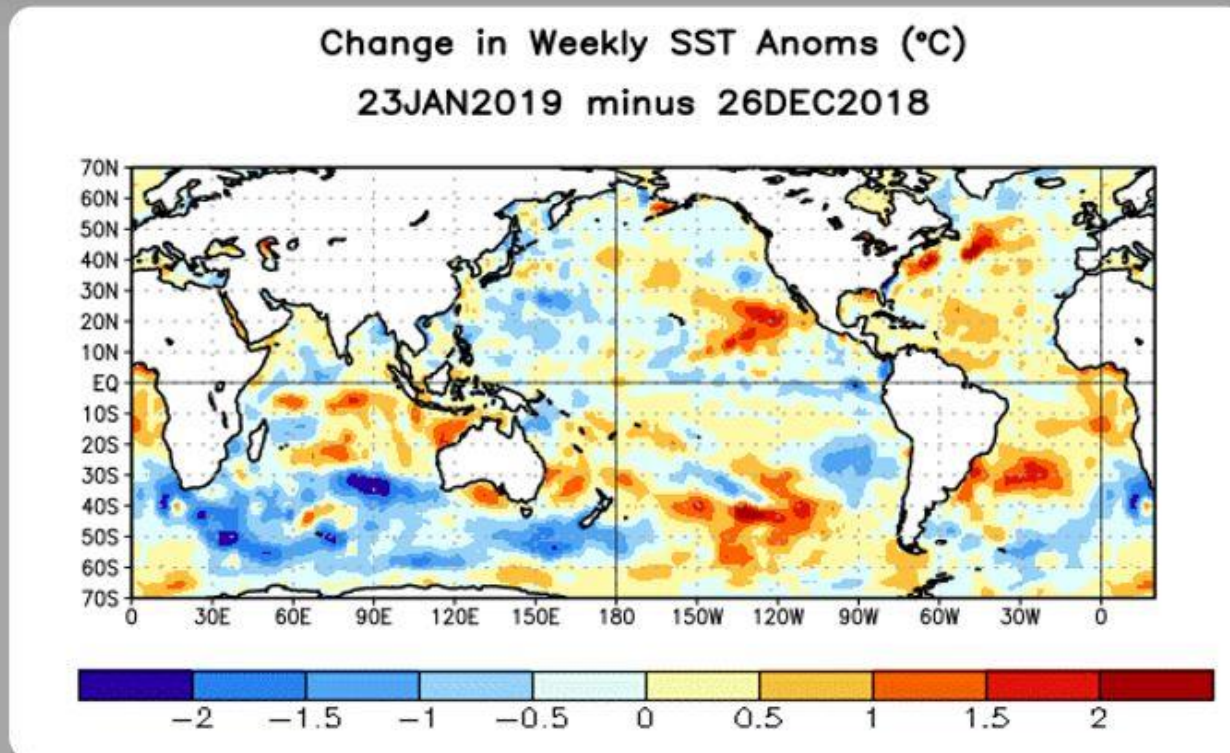


The precipitation outlook for the next three months shows that the Pacific Northwest will have near to slightly below normal precipitation during the next 3 months (about a 33 - 40 % chance).

El Nino/La Nina Index as of the 23rd of January, 2019 (Sea Surface Temps)

Change in Weekly SST Departures over the Last Four Weeks

During the last four weeks, negative changes were observed across most of the equatorial Pacific Ocean.



This could indicate that an evolving El Nino event has weakened with Cooling Sea Surface Temperatures at the equatorial Pacific.



Thank You!