

The Month In Review

January 2020

National Weather Service
Pendleton, Oregon

January, 2020 Climate Summary

The month of January, 2020 had mostly near normal average precipitation, with mostly above normal temperatures on average through the month. There was a period at the middle to the end of the month when a series of wet weather systems brought heavy snow to the Cascade East Slopes and to the northeast and eastern mountains. There was a short lived intrusion of modified arctic air around the middle of the month, in which moderate amounts of snow fell even over the lowest elevations. This event began as wet snow and when the temperature quickly fell a layer of ice formed under the snow and caused widespread vehicle accidents across the forecast area. Several major highways across the forecast area were closed for a lengthy period of time that evening and during the next day. Then the winds increased a day later creating blizzard like conditions from blowing snow on the ground which caused more accidents and highway closures. The beginning of the month was relative benign. The pictures below are of typical scenes around the forecast area during the month.



Heavy snow over Pendleton, OR on January 14th, 2020.



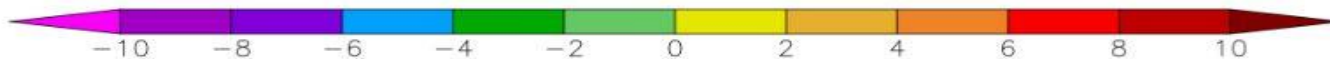
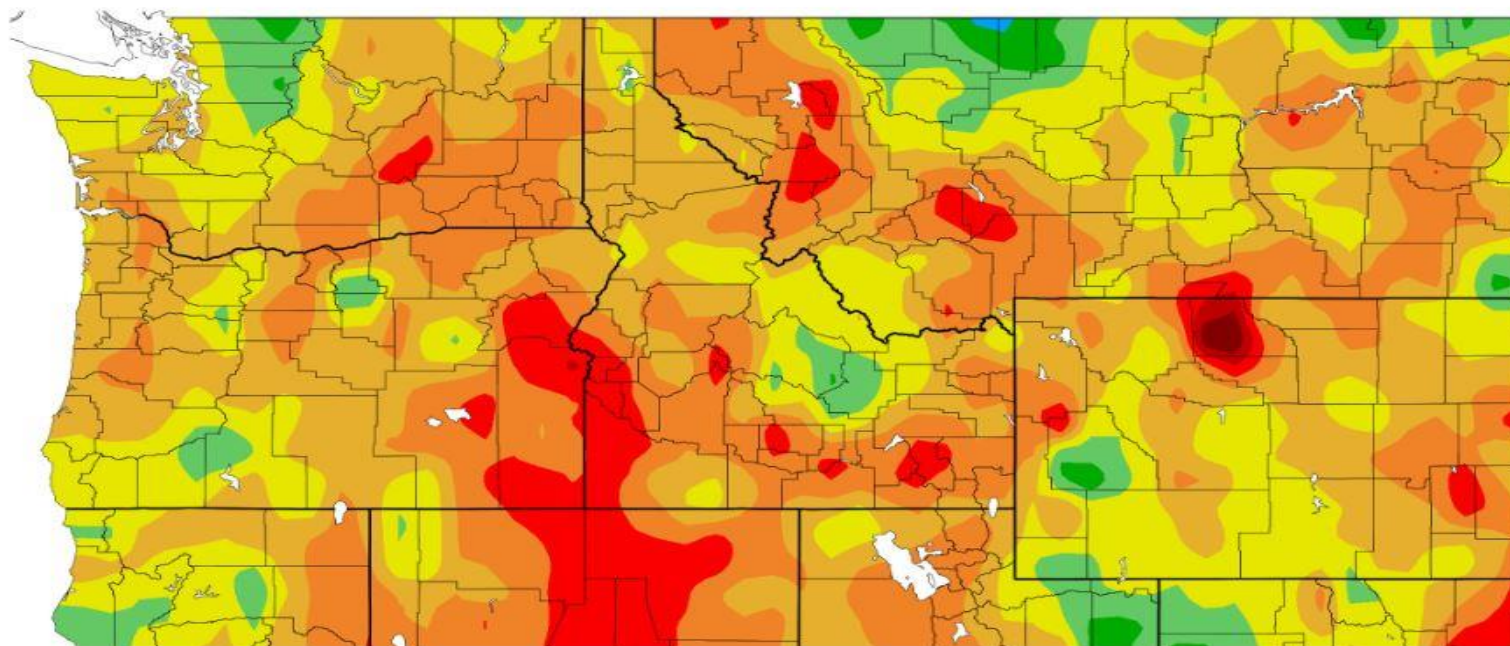
Plenty of fresh powder to ski with, on January 25th, 2020 (Anthony Lakes Ski Resort).



Double rainbow on the morning of January 19th over Pendleton, OR.

January 2020, Departure from Normal of Average Temperatures

Departure from Normal Temperature (F)
1/1/2020 – 1/31/2020



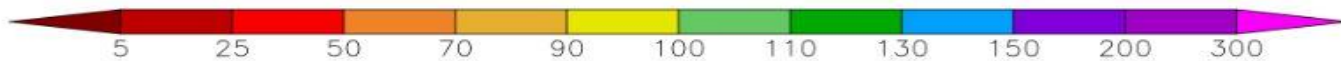
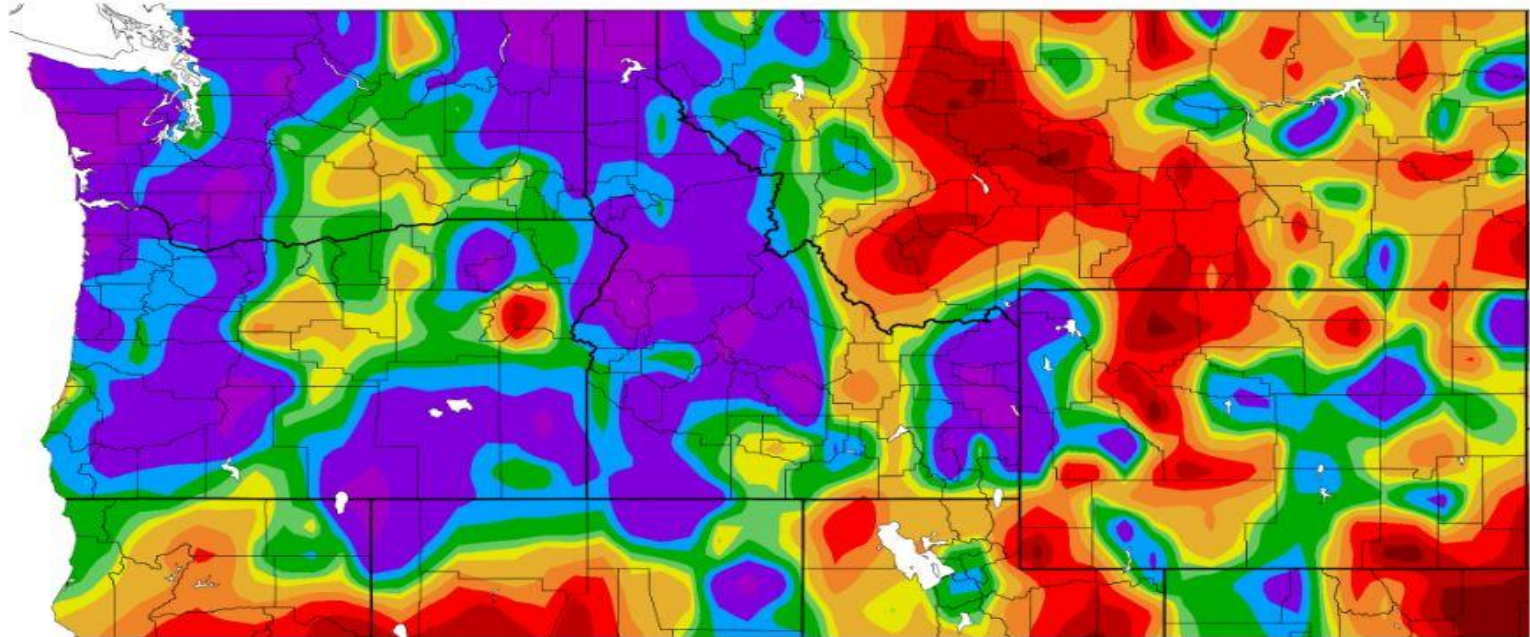
Generated 2/6/2020 at HPRCC using provisional data.

NOAA Regional Climate Centers

The image above shows that most of the forecast area, except for small portions of north central Oregon, that were slightly below normal for the month. The temperature departure from normal ranged mostly from 2 - 6 degrees F. above normal, with some isolated location of 8 degrees F. above normal.

January 2020, Percent of Normal of the Average Precipitation

Percent of Normal Precipitation (%)
1/1/2020 – 1/31/2020



Generated 2/6/2020 at HPRCC using provisional data.

NOAA Regional Climate Centers

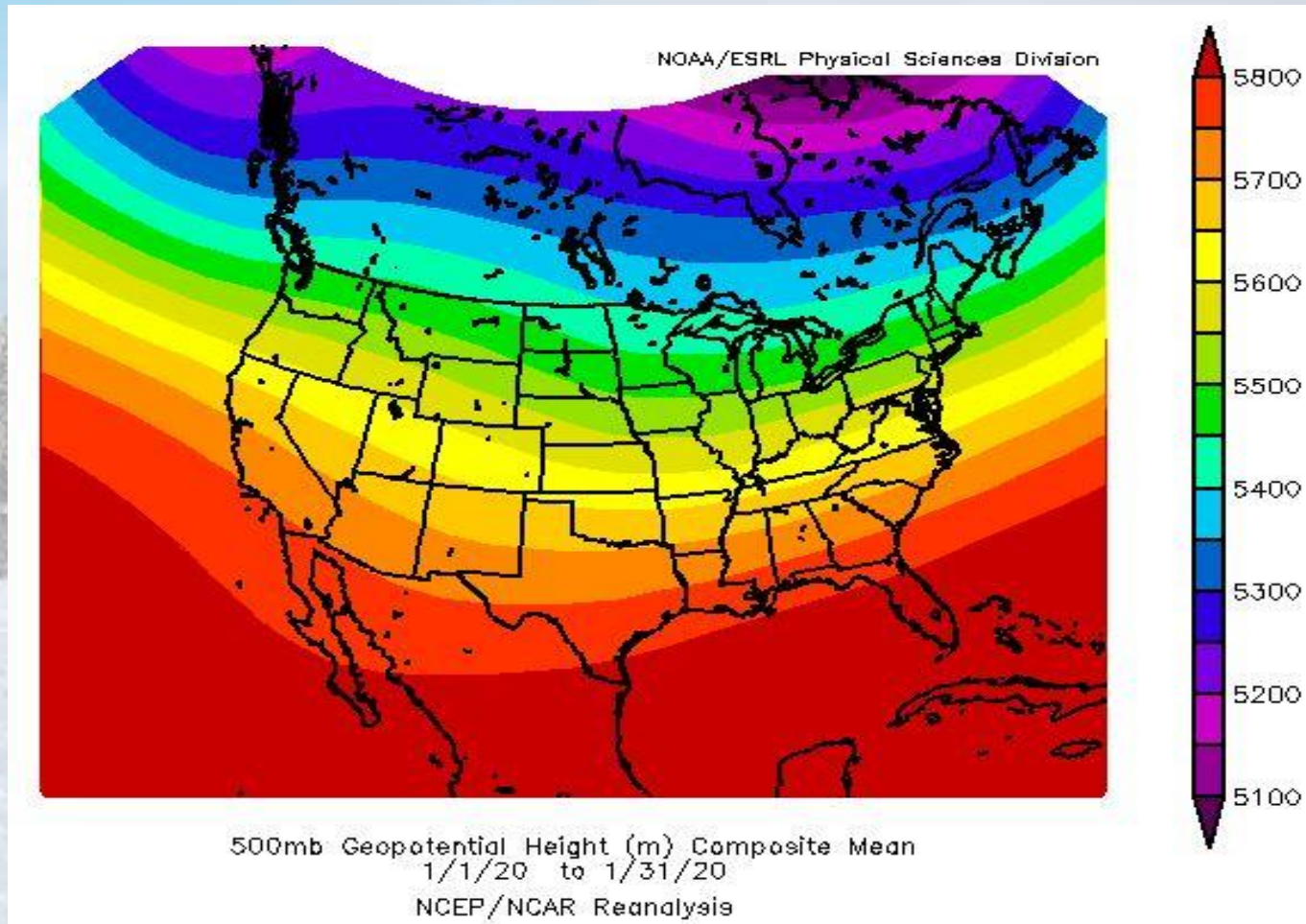
At first glance, you may think that the forecast area (Pacific Northwest) was significantly above normal for the average precipitation for the month. However, there are areas in southeast Washington and northeast Oregon, in the forecast area, that had less than 100% of the normal average Precipitation for the month. The overall distribution was about equal.

January 2020, Departures from Normal of Averages for Select Cites

	Max T	Max T D	Min T	Min T D	Ave T	Ave T D	PCPN	PCPN D
Yakima	45.3	6.7	26.3	3	35.8	4.8	1.05	-0.09
Kennewick	47.7	6.2	33.7	4.2	40.7	5.2	1.01	-0.07
Walla Walla	48.3	7.4	33.5	3.4	40.9	5.4	2.18	-0.35
The Dalles	45.9	3.7	33.5	2.5	39.7	3.1	2.76	0.26
Redmond	48.4	6	29.5	6.4	39.0	6.3	0.74	-0.23
Pendleton Airport	49.8	8	33.6	4.8	41.7	6.4	2.02	0.59
La Grande	42.5	4.1	27.8	3.3	35.1	3.7	2.28	0.65

The data above shows that every single average temperature data departure from normal (mean high, mean low, & mean averages) were all above normal for the month. This is likely due to the lack of arctic air mass intrusions (except for a very short lived modified arctic push in the middle of the month), and the persistent westerly progressive flow with Pacific Storms moving in off the relatively warmer waters of the Pacific. The amount of precipitation for the month was nearly split equal, with about half being a little above average and half a little below average.

January 2020 Average 500 MB Weather Pattern



The average 500 mb pattern over the Pacific Northwest was mostly zonal (westerly) over the Pacific Northwest for the month. This meant that there were frequent weather systems moving across the region in the fast westerly flow aloft (a progressive pattern). As a result, the region experienced more than the normal number of storm systems. This resulted in more than normal precipitation in upslope areas, but also less than normal in downslope areas due to a rain shadow effect in the westerly flow. The slide that shows the Percent Normal of Precipitation showed about an equal distribution on average.

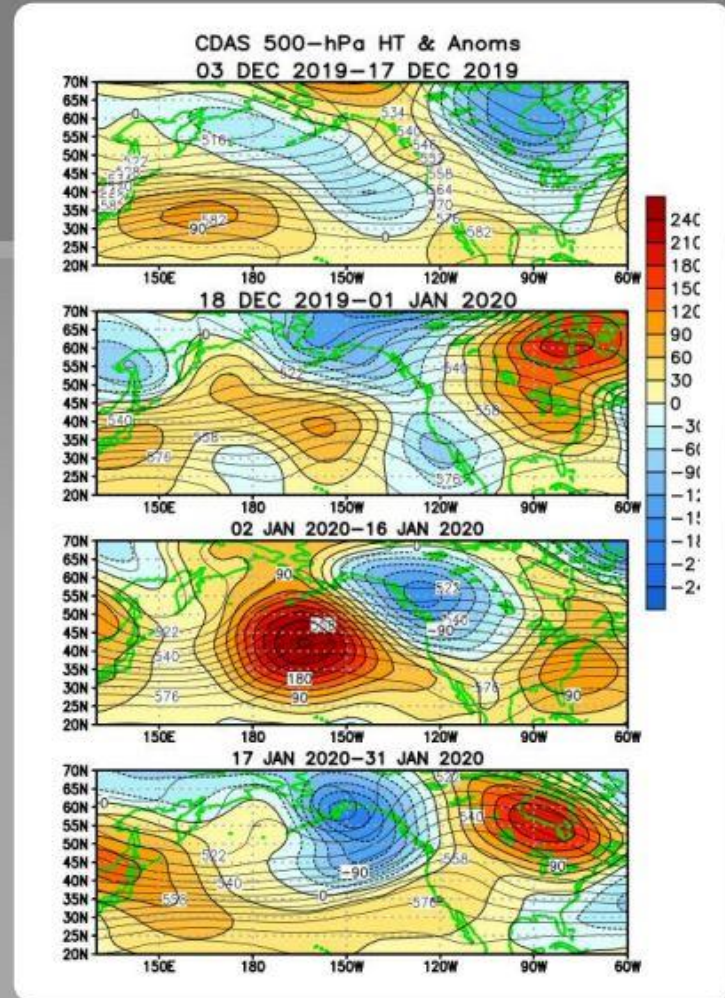
More Detailed 500 MB Plots for January, 2020

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

From early December 2019 through late January 2020, above-average heights and temperatures were evident over eastern North America.

From late December 2019 through late January 2020, below-average heights and temperatures were evident over Alaska.

In the Pacific Northwest the flow was mostly zonal (westerly) from 18th December – 16th January. Before and after that there was mostly a ridge pattern over the west. These more detailed mean 500 mb pattern plots shows more variability in the pattern through the period.



In the Pacific Northwest, one can see that the flow was mostly zonal (westerly) from 18th December – 16th January. Before and after that there was mostly a ridge pattern.

Significant Weather Events for January, 2020

Significant Weather Events				
Event	Date	Report	Where	Source
Non TSTM wind gust	Jan 4, 2020	M 58 mph	3 N Joseph, OR	meso-net
Non TSTM wind gust	Jan 3, 2020	M 64 mph	4 ENE Joseph, OR	meso-net
Heavy Snow	Jan 6, 2020	M 8.0 inches	SE Easton, WA	Trained Spotter
Moderate Snow	Jan 6, 2020	E 4.0 inches	South Summerville, OR	Trained Spotter
Moderate Snow	Jan 6, 2020	E 2.0 inches	3 N Elgin, OR	Trained Spotter
Moderate Snow	Jan 6, 2020	M 3.0 inches	1 WSW Cle Elum, WA	Trained Spotter
Heavy Snow	Jan 6, 2020	M 11.0 inches	4 SE Cle Elum, WA	Amateur Radio
Heavy Snow	Jan 9, 2020	M 8.0 inches	1 WSW Ski Bluewood	Trained Spotter
Moderate Snow	Jan 9, 2020	M 2.0 Inches	9 N Elgin, OR	CoCoRaHS
Moderate Snow	Jan 9, 2020	M 5.0 inches	4 NW Meacham, OR	CoCoRaHS
Moderate Snow	Jan 9, 2020	M 7.0 inches	2 SSE Snoqualmie Pass, WA	CoCoRaHS
Moderate Snow	Jan 9, 2020	M 3.0 inches	5 NNE La Grande, OR	Trained Spotter
Moderate Snow	Jan 9, 2020	M 3.0 inches	5 NNW La Pine, OR	Trained Spotter
Moderate Snow	Jan 9, 2020	M 4.0 inches	Long Creek, OR	Co-Op Observer
Heavy Snow	Jan 9, 2020	M 8.0 inches	Meacham, OR	Public Report
Non TSTM wind gust	Jan 10, 2020	M 62 mph	7 SSE La Grande, OR	meso-net
Heavy Snow	Jan 11, 2020	M 5.0 inches	5 NNE La Grande, OR	Trained Spotter
Moderate Snow	Jan 11, 2020	M 4.0 inches	2 NW Bend, OR	CoCoRaHS
Heavy Snow	Jan 11, 2020	M 23.0 inches	2 SSE Snoqualmie Pass, WA	CoCoRaHS
Heavy Snow	Jan 11, 2020	M 12.0 inches	3 NNW Ski Bluewood	meso-net
Heavy Snow	Jan 11, 2020	M 10.0 inches	Sunriver, OR	Co-Op Observer
Heavy Snow	Jan 11, 2020	M 24.0 inches	5 E Easton, WA	Trained Spotter
Heavy Snow	Jan 11, 2020	M 12.0 inches	Easton, WA	Co-Op Observer
Heavy Snow	Jan 11, 2020	M 11.0 inches	5 SW Spout Springs, OR	meso-net
Heavy Snow	Jan 11, 2020	M 12.0 inches	1 WSW Ski Bluewood	Trained Spotter
Heavy Snow	Jan 11, 2020	M 6.0 inches	1 SE Flora, OR	CoCoRaHS
Heavy Snow	Jan 11, 2020	E 8.0 inches	1 S Long Creek, OR	Dept of Highways
Heavy Snow	Jan 11, 2020	M 9.0 inches	5 N La Pine, OR	Trained Spotter
Heavy Snow	Jan 11, 2020	E 8.0 inches	11 NNE Spray, OR	Dept of Highways
Heavy Snow	Jan 11, 2020	M 11.5 inches	Summerville, OR	Public Report
Heavy Snow	Jan 11, 2020	E 6.0 inches	10 ENE Union, OR	meso-net
Heavy Snow	Jan 12, 2020	M 9.0 inches	5 NNE La Grande, OR	Trained Spotter
Heavy Snow	Jan 12, 2020	M 14.0 inches	8 WSW Cle Elum, WA	Public Report
Heavy Snow	Jan 12, 2020	M 20.0 inches	Easton, WA	Co-Op Observer

The table above show that most of the events were either moderate to heavy snow, and a few non-thunderstorm wind gusts.

Significant Weather Events / Records for January, 2020

Significant Weather Events (continued)				
Event	Date	Report	Where	Source
Heavy Snow	Jan 12, 2020	E 7.5 inches	1 WNW Joseph, OR	Public Report
Heavy Snow	Jan 13, 2020	M 6.0 inches	1 SE Flora, OR	CoCoRaHS
Heavy Snow	Jan 13, 2020	M 4.0 inches	4 SW Enterprise, OR	CoCoRaHS
Heavy Snow	Jan 13, 2020	M 4.0 inches	5 N La Pine, OR	Trained Spotter
Heavy Snow	Jan 13, 2020	M 5.0 inches	10 NE Service Creek, OR	Amateur Radio
Moderate Snow	Jan 13, 2020	M 7.0 inches	4 N Bingham Springs, OR	Amateur Radio
Moderate Snow	Jan 14, 2020	M 2.0 inches	1 SE Ellensburg, WA	Trained Spotter
Heavy Snow	Jan 14, 2020	M 7.0 inches	5 NNW La Pine, OR	Trained Spotter
Heavy Snow	Jan 14, 2020	M 23.0 inches	1 WSW Ski Bluewood, WA	Trained Spotter
Non TSTM wind gust	Jan 15, 2020	M 67 mph	3 S Mission, OR	NWS Employee
Non TSTM wind gust	Jan 15, 2020	M 82 mph	2 SSW Pendleton, OR	Trained Spotter
Non TSTM wind gust	Jan 15, 2020	M 79 mph	4 ENE Mission, OR	meso-net
Non TSTM wind gust	Jan 15, 2020	M 68 mph	4 W Adams, OR	meso-net
Non TSTM wind gust	Jan 15, 2020	M 67 mph	4 SSW Mission, OR	meso-net
Non TSTM wind gust	Jan 15, 2020	M 58 mph	7 SSE La Grande, OR	meso-net
Heavy Snow	Jan 16, 2020	M 9.3 inches	1 SSW Trout Lake	CoCoRaHS
Moderate Snow	Jan 16, 2020	E 4.0 inches	Helix, OR	Public Report
Moderate Snow	Jan 16, 2020	E 2.5 inches	Pendleton, OR	NWS Employee
Moderate Snow	Jan 16, 2020	E 3.0 inches	Athena, OR	Public Report
Moderate Snow	Jan 16, 2020	E 3.0 inches	Walla Walla, WA	Amateur Radio
Heavy Snow	Jan 18, 2020	M 9.7 inches	1 SSW Trout Lake	CoCoRaHS
Moderate Snow	Jan 18, 2020	M 2.3 inches	4 ENE Thorp, WA	Trained Spotter
Moderate Snow	Jan 28, 2020	M 8.0 inches	7 NNW Easton, WA	Trained Spotter

Record Weather Reports					
Event	Date	Where	Previous Record	New Record	Records Began
High Temp	Jan 3, 2020	Pendleton Airport, OR	60 / 1989	61	1934
High Temp	Jan 3, 2020	Redmond, OR	56 / 2012	62	1941
High Temp	Jan 3, 2020	Walla Walla, WA	59 / 1962	61	1930
High Temp	Jan 6, 2020	The Dalles, OR	59 / 2009	59 (tied)	1929
High Temp	Jan 6, 2020	Yakima, WA	59 / 2009	59 (tied)	1909
High Temp	Jan 25, 2020	Hermiston Airport, OR	60 / 1968	60 (tied)	1906
High Temp	Jan 31, 2020	Yakima, WA	65 / 1971	65 (tied)	1909

The tables above show that most of the events were mostly snow, and a few non-thunderstorm wind gusts. All of the record reports were of record high temperatures.

January, 2020 Observed Monthly Max & Min Temperatures

Location	Highest Maximum Temperature	Lowest Minimum Temperature
Pendleton, OR	69	12
Redmond, OR	62	14
Pasco, WA	66	8
Yakima, WA	65	4
Walla Walla, WA	65	14
Bend, OR	58	17
Ellensburg, WA	61	15
Hermiston, OR	68	12
John Day, OR	60	17
La Grande, OR	49	9
The Dalles, OR	61	15
MT Adams RS, WA	54	15

The highest maximum temperatures were mostly in the 50s and 60s, with the warmest being at Pendleton, OR with a maximum high of 69 degrees. These are not unusual for the Pacific Northwest. However, the minimum low temperatures could be much colder for January, such as 0 to -10 or even colder. This year they were all above zero, with the coldest being 4 degrees at Yakima, WA.

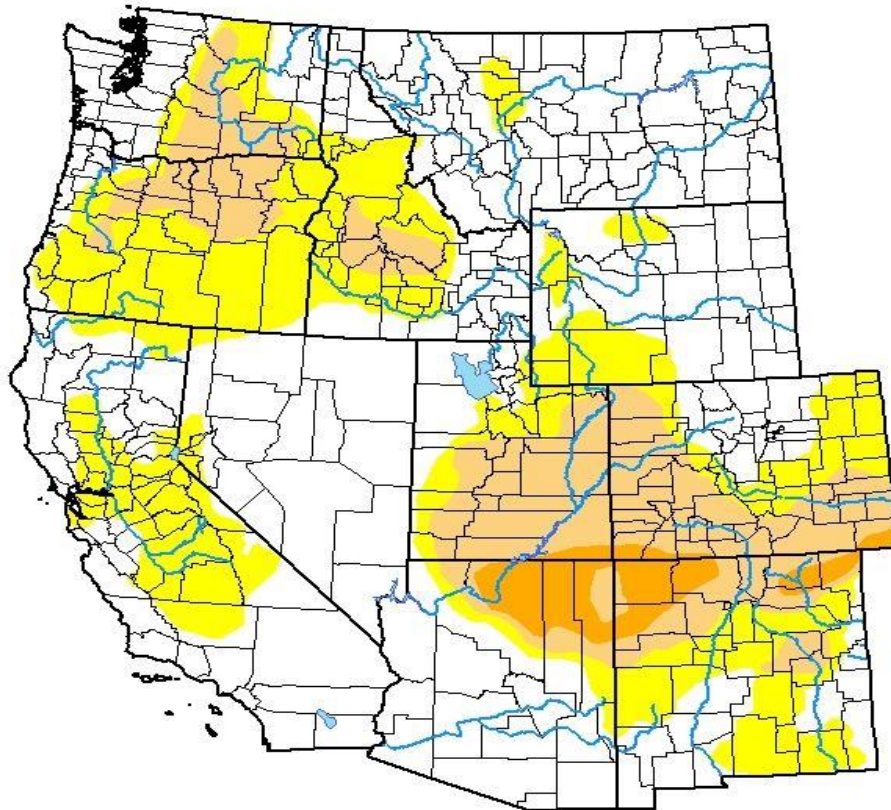
January 2020, Monthly Precipitation and Snowfall Totals

Location	Total Monthly Precip (inches)	Total Snowfall (inches)
Pendleton, OR	2.02	8.3
Redmond, OR	0.74	Missing
Pasco, WA	1.00	Missing
Yakima, WA	1.05	Missing
Walla Walla, WA	2.18	Missing
Bend, OR	1.48	2.8
Ellensburg, WA	2.76	Missing
Hermiston, OR	Missing	Missing
John Day, OR	1.14	Missing
La Grande, OR	2.28	8.4
The Dalles, OR	2.76	Missing
Mt Adams RS, WA	7.31	22.5

Most stations reported greater than an inch of liquid equivalent precipitation for the month, except for Redmond, OR, which only had 0.74 inches. These are typical values for January. Most snowfall data was missing. The stations which did have an account of measurable snowfall were on the low side for January and less than 10 inches for the month, except for the Mt. Adams Ranger Station, which only had 22.5 inches.

January, 2020 - Drought Monitor

U.S. Drought Monitor West



February 4, 2020
(Released Thursday, Feb. 6, 2020)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	56.75	43.25	18.15	3.08	0.00	0.00
Last Week <i>01-28-2020</i>	55.43	44.57	18.96	3.08	0.00	0.00
3 Months Ago <i>11-05-2019</i>	62.16	37.84	21.73	9.81	0.00	0.00
Start of Calendar Year <i>12-31-2019</i>	59.17	40.83	18.17	7.12	0.00	0.00
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>02-05-2019</i>	30.71	69.29	39.28	17.08	4.86	0.41

Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

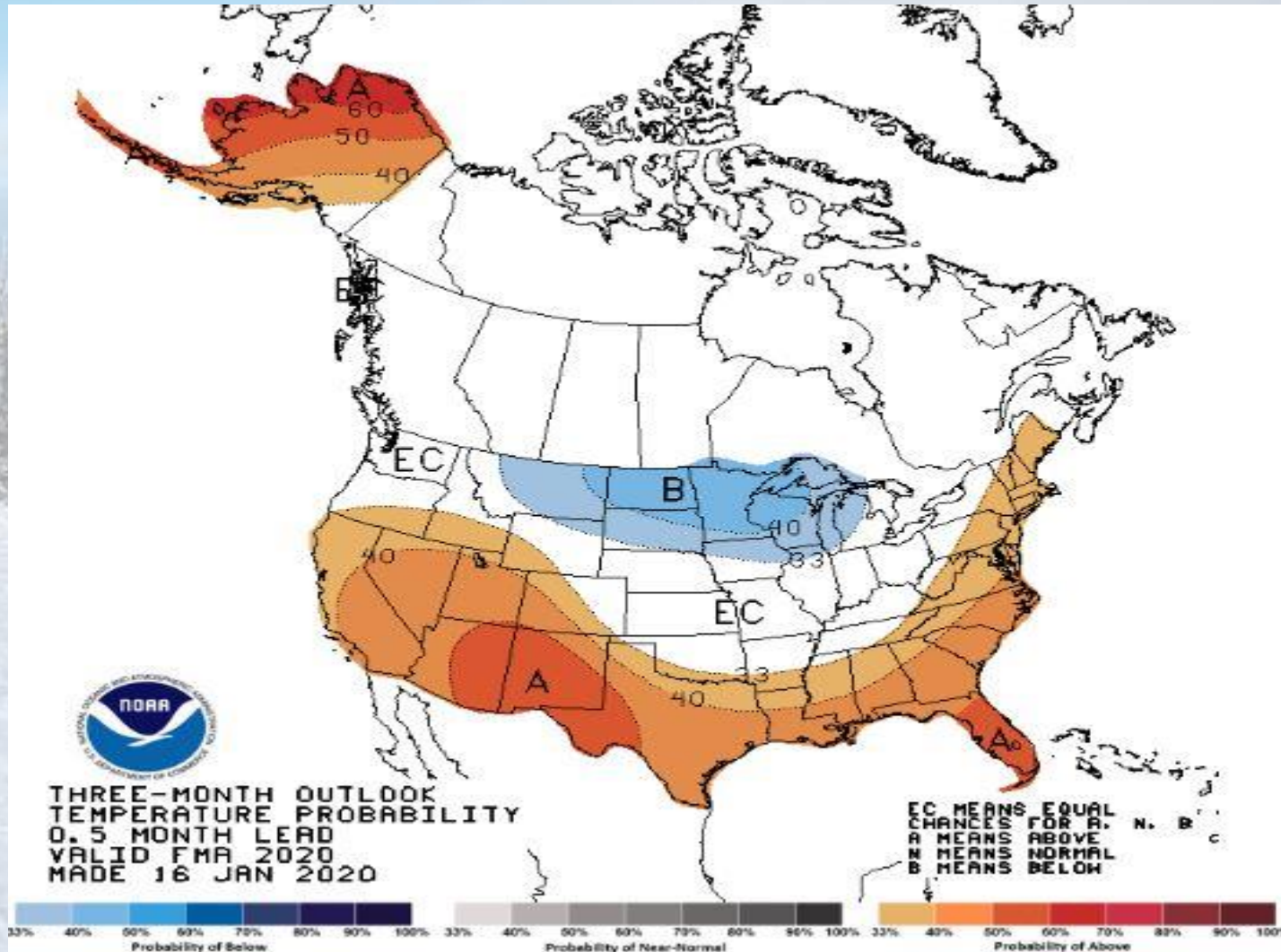
Richard Tinker
CPC/NOAA/NWS/NCEP



droughtmonitor.unl.edu

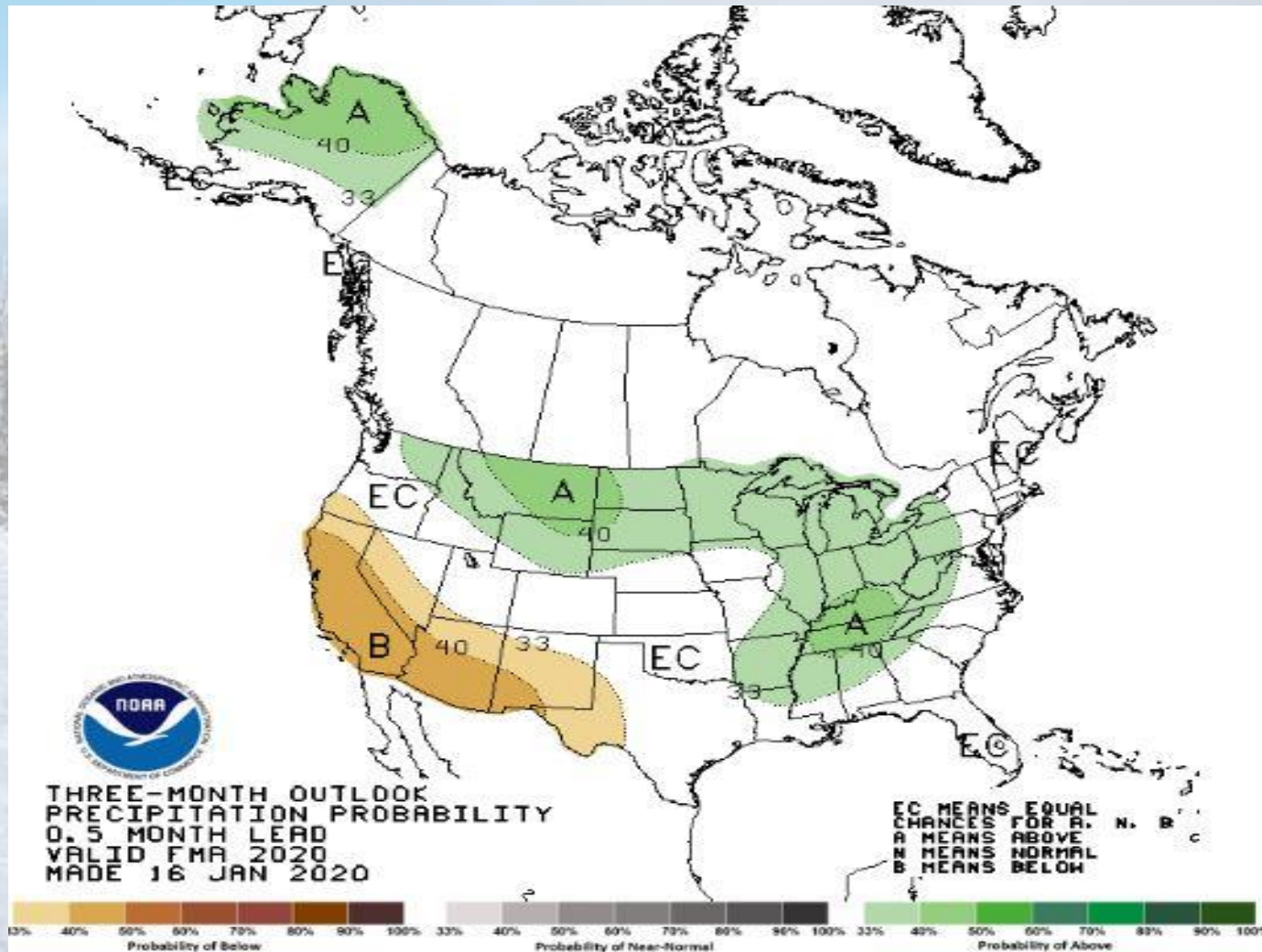
As of early February (the 4th) the entire forecast area (south central WA and northern and northeast OR) showed a drought index of D0 (abnormally dry) to D1-D4 (a Moderate drought).

USA Three Month Temperature Outlook



The temperature outlook for the next three months (February, March & April) shows equal chances of above or below normal temperatures throughout the forecast area (most of the Pacific Northwest).

USA Three Month Precipitation Outlook

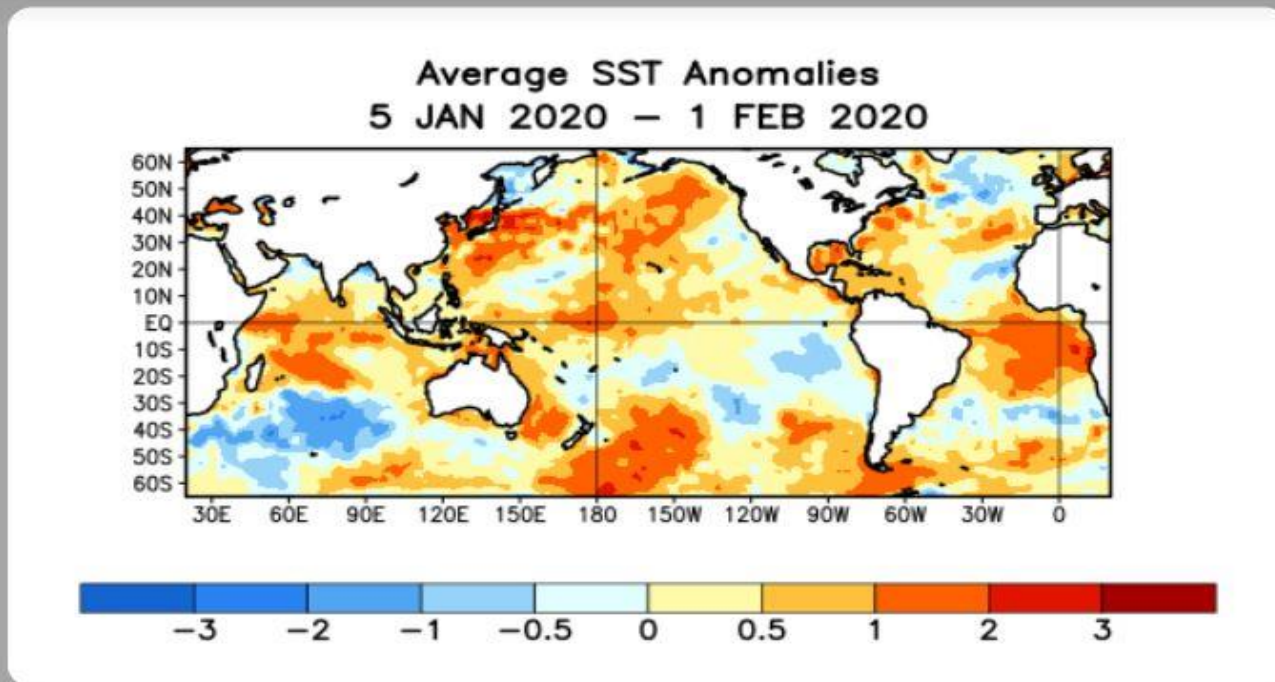


The percent of normal precipitation outlook for the next three months (February, March & April) shows mostly equal chances that the forecast area (most of the Pacific Northwest) will have equal chances of above or below normal precipitation.

Sea Surface Temperature (SST) analysis for January, 2020

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

During the last four weeks, equatorial SSTs were above average across the west-central Pacific, the Atlantic Ocean, and the Indian Ocean.



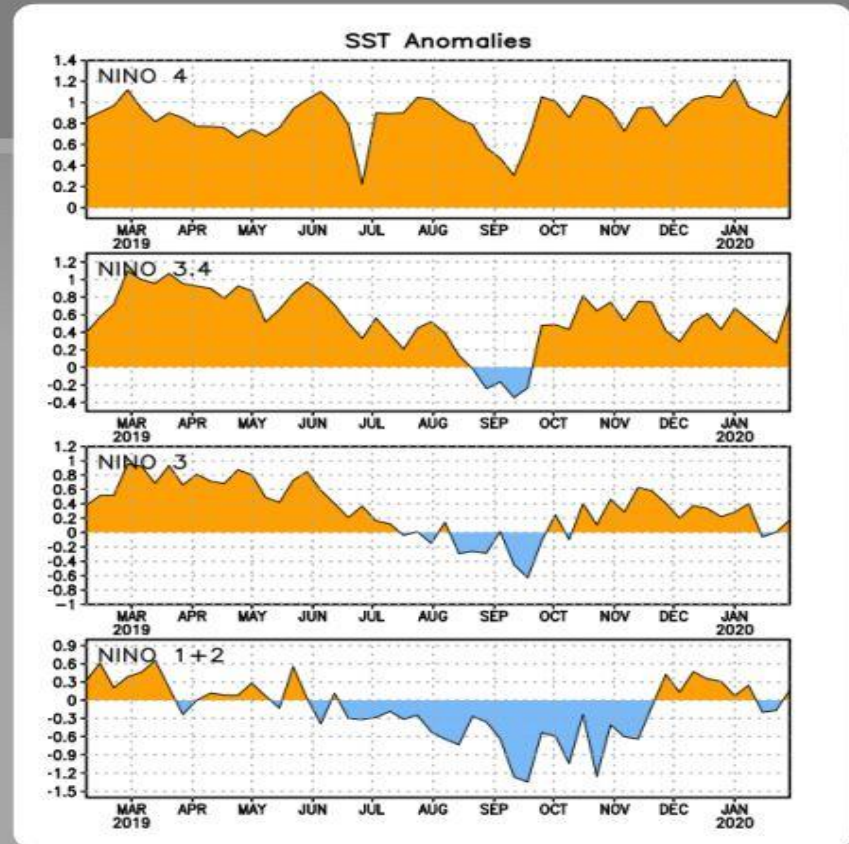
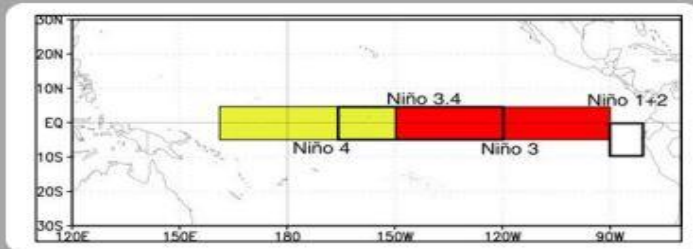
This indicates that the tropical Pacific continued to have mostly above normal Sea Surface Temperatures (SSTs). While this alone does not indicate El-Nino conditions, it does indicate an anomaly that supports an El-Nino. However, in December, El-Nino conditions were neutral, yet the tropical Pacific had mostly above normal SSTs as well as January.

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	1.1°C
Niño 3.4	0.8°C
Niño 3	0.2°C
Niño 1+2	0.2°C



The above images shows that Niño regions 1 + 2 (eastern tropical Pacific) had Above SSTs most of the time from December through January, after a period of cooling from June through November. Again, this alone does not indicate El-Nino conditions, however, it would support returning El-Nino conditions...if this trend continues into the spring and summer. The warmest SST anomalies were in Niño regions 3.4 and 4 (the western tropical Pacific).

Current ENSO (El Nino Southern Oscillation) Alert System Status

Summary

ENSO Alert System Status: Not Active

ENSO-neutral conditions are present.*

Equatorial sea surface temperatures (SSTs) are near-to-above average across the Pacific Ocean.

The tropical atmospheric circulation is generally consistent with ENSO-neutral.

ENSO-neutral is favored through Northern Hemisphere spring 2020 (~60% chance), continuing through summer 2020 (~50% chance).

In the previous two slides, both showed warmer than normal SSTs. However, the ENSO Alert System Status is still shown as “Not Active”, meaning that we are not in El-Nino status, but rather in a “Neutral” ENSO status. These neutral conditions are forecast to continue through the spring and summer of 2020 (about a 50 – 60 percent chance). Despite the above normal SSTs, the atmospheric circulation is more consistent with neutral ENSO conditions.



Thank You!