

The Month In Review

January 2021

**National Weather Service
Pendleton, Oregon**

Photo: Heavy snow accumulations at Tollgate, Oregon

January 2021, Climate Summary

January 2021 can be described as a very active month with frequent weather systems, especially during the first half of the month. These frequent weather systems, which brought abundant heavy snow to the mountains and abundant rain to the lower elevations was likely caused by an ongoing La Nina event that is expected to continue through the rest of the winter. The upper jet stream was nearly stationary during the first half of the month with a deep trough in the center of the USA, with upper ridges on both the west and east coasts. This kept the center of the country cold and snowy, while the western us (including the Pacific Northwest and the forecast area mild. Therefore, the lower elevations had very little snow, while the higher mountains had abundant snowfall. Though, it is not a record-breaking year for mountain snowfall, the frequency of the weather systems was unusual. Finally, during the latter half of the month, the upper jet stream shifted a bit to the west allowing colder air to be pulled into the Pacific Northwest, which brought some snow to the lower elevations. There was one event, which produced strong damaging winds over the lower elevations due to a strong cold front. Also, there were frequent fog episodes and a minor flooding event.



Ground fog observed in south central Washington. (Photo by Darlisa Black)



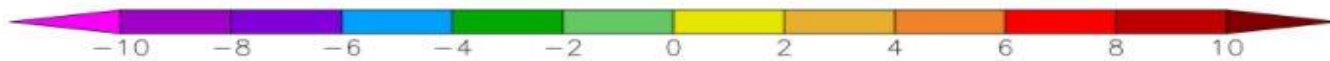
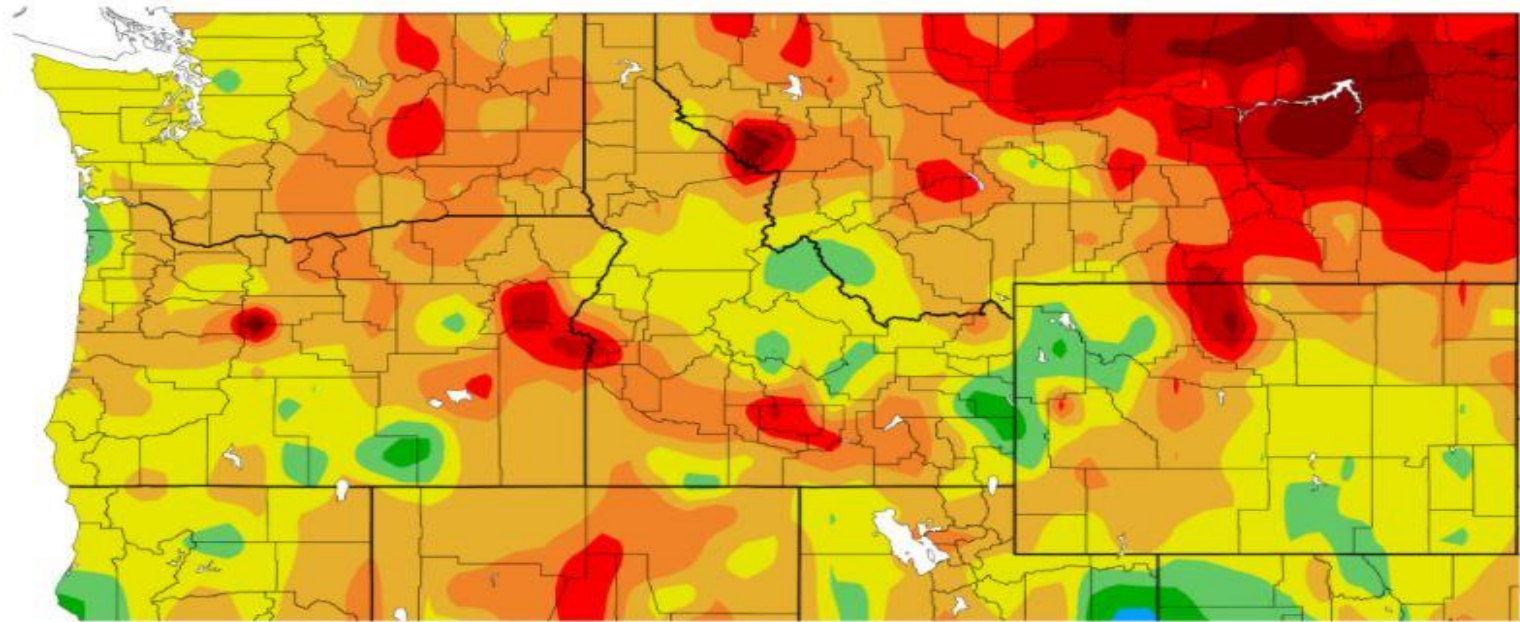
Wind damage near downtown Pendleton on January 13th due to a strong cold front.



A stream rises to its banks and overflows on January 13th.

January 2021, Departure from Normal of Average Temperatures

Departure from Normal Temperature (F)
1/1/2021 – 1/31/2021



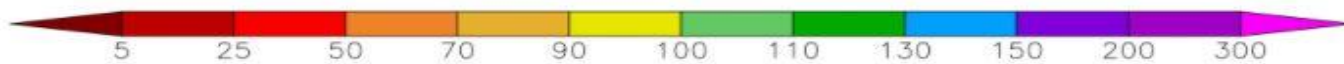
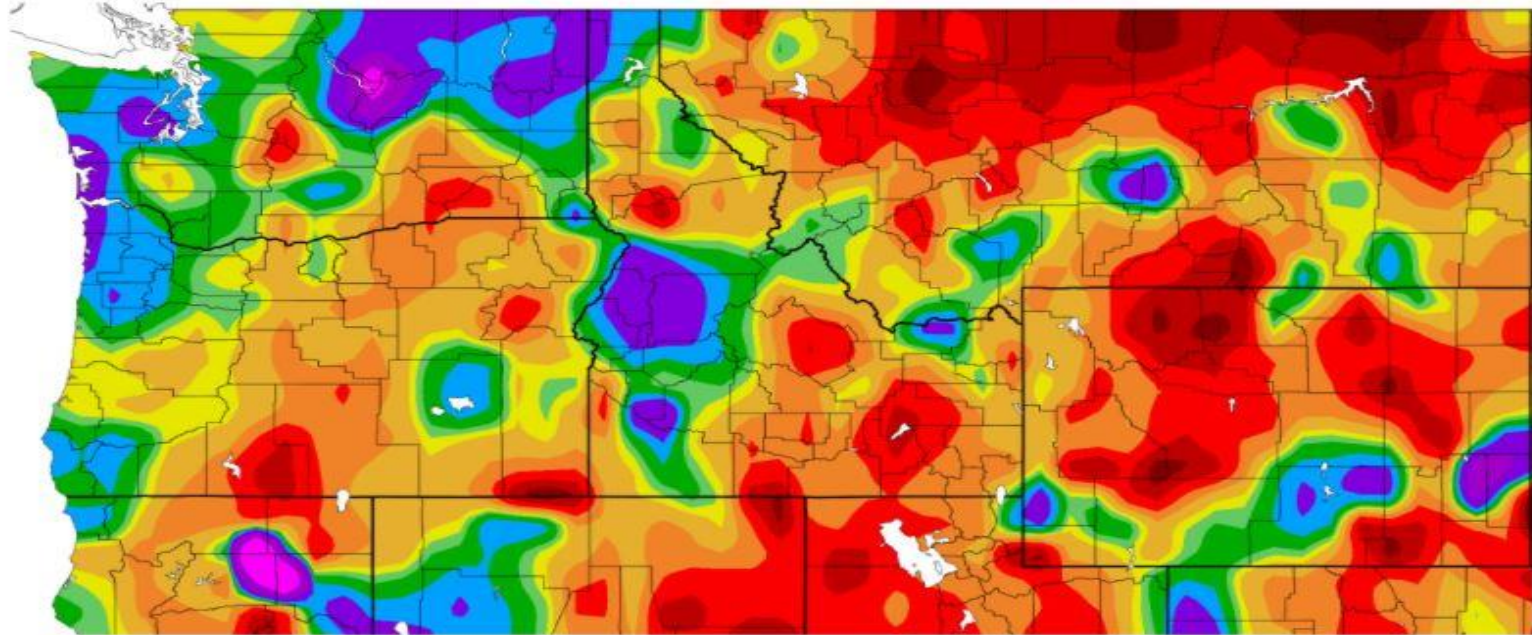
Generated 2/20/2021 at HPRCC using provisional data.

NOAA Regional Climate Centers

Just about all of the forecast area (NE Oregon/SE Washington) had above normal temperatures, overall, for January. The warmest locations were over the Columbia Basin as well as central and north central OR, and the Blue Mountain Foothills. The coolest locations were over the John Day Basin.

January 2021, Percent of Normal of the Average Precipitation

Percent of Normal Precipitation (%)
1/1/2021 – 1/31/2021



Generated 2/2/2021 at HPRCC using provisional data.

NOAA Regional Climate Centers

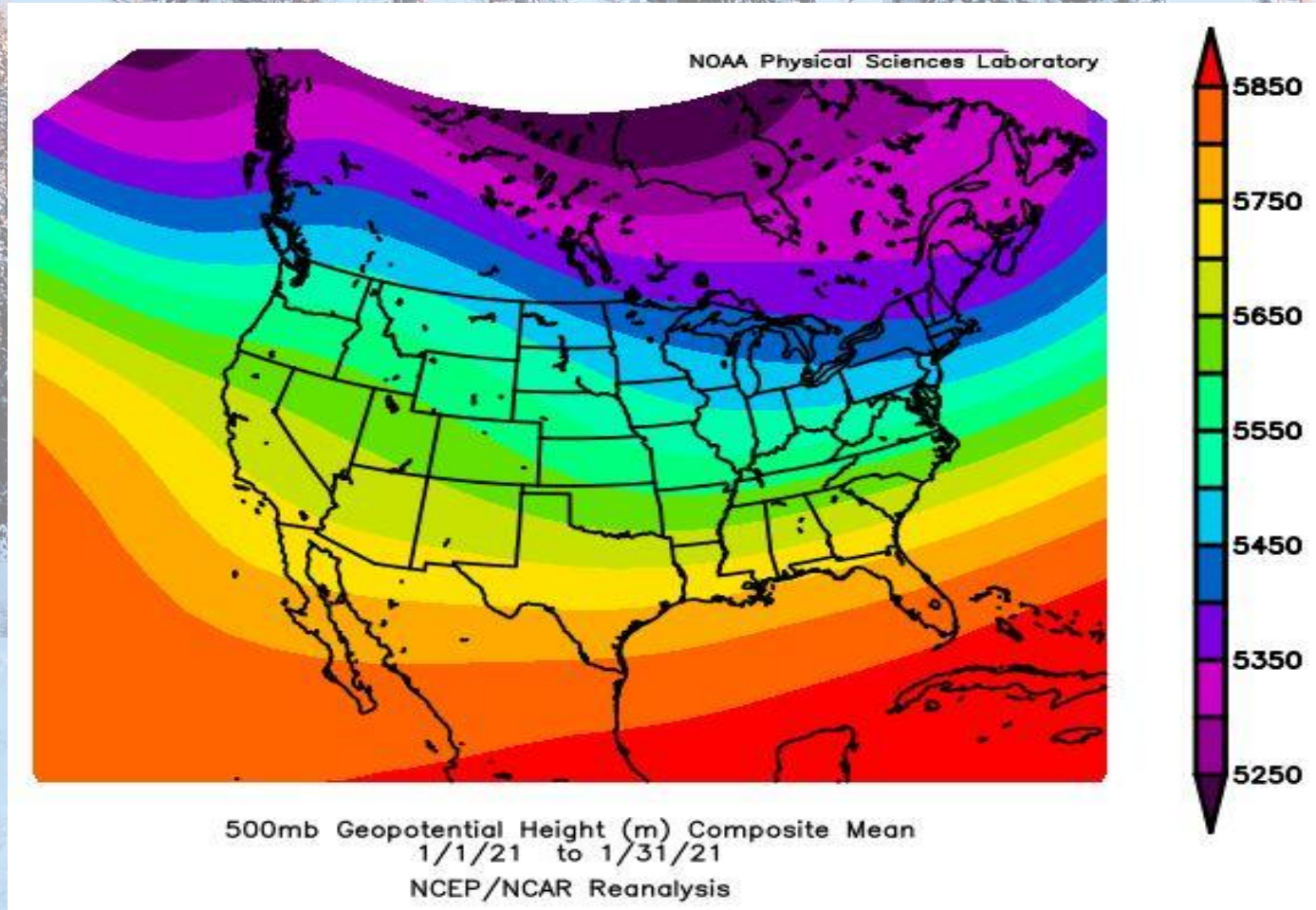
January was drier than normal over most of the forecast area. The wettest areas were over the Yakima Valley, and a small piece over north central OR as well as the John Day Highlands. The driest areas were over the Columbia Basin to the Northeast Mountains and to central Oregon.

January 2021, Departures from Normal Averages/Sums for Select Cites

	Max T	Max T D	Min T	Min T D	Ave T	Ave T D	PCPN	PCPN D
Yakima	43.3	3.4	28.8	0.0	36.1	1.8	1.52	0.39
Kennewick	46.4	7.9	32.8	4.4	39.6	6.2	0.54	-1.93
Walla Walla	46.5	6.2	33.1	2.9	39.8	4.6	1.36	-1.37
The Dalles	46.2	5.7	33.9	13.2	40.1	9.5	1.56	0.40
Redmond	47.5	8.0	25.4	-1.6	36.4	3.2	0.61	-0.86
Pendleton Airport	47.2	9.6	32.4	8.7	39.8	9.1	0.91	-0.75

All of the mean temperatures (Max, Min, and Avg mean temperatures) were above normal except. Redmond, OR with a departure of -1.6 degrees. Yakima and The Dalles both had Greater than normal precipitation, while the other stations had less than normal.

January 2021 Average 500 MB Weather Pattern

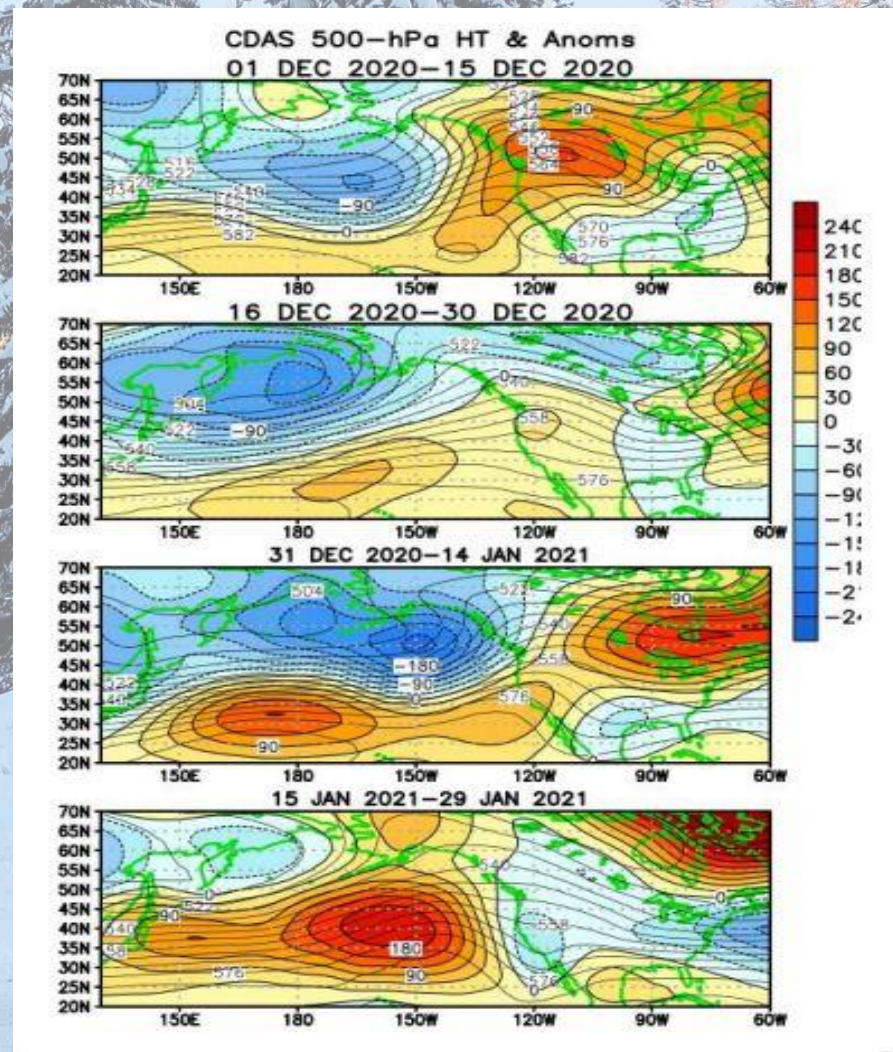


The average 500 MB pattern was an overall broad upper ridge in January. However, the pattern resembled more of a southwest flow. This southwest flow resulted in warmer temperatures over the region as well as slightly drier precipitation.

More Detailed 500 MB Plots for January 2021

These are more detailed semi-monthly average 500 mb pattern plots, which were from the following periods: 1st Dec2020 through 29th of January 2021.

The land boundaries are shown in green. Yellow and orange colors represent areas of high pressure at 500 mb and the cooler shades of blue color show areas of low pressure at 500 mb.



An upper high-pressure ridge prevailed during each period, except for the fourth image which showed a more zonal flow aloft. This accounts for the warmer than average January.

Significant Weather Events for January 2021

Significant Weather Events				
Event	Date	Report	Where	Source
Heavy Snow	1/12/2021	E 8.0 inches	4 WSW Elgin, OR	Trained Spotter
None TSTM Wind Dmg	1/13/2021	Shingles ripped off house.	1 N Ellensburg, WA	Public
None TSTM Wind Dmg	1/13/2021	Power lines/poles down.	10 N Pasco, WA	Public
None TSTM Wind Gst	1/13/2021	M 76.0 mph	19 N West Richland, WA	Meso-net
None TSTM Wind Gst	1/13/2021	M 74.0 mph	8 SSE Goldendale, WA	Meso-net
None TSTM Wind Gst	1/13/2021	M 70.0 mph	3 NNE Walla Walla, WA	ASOS
None TSTM Wind Gst	1/13/2021	M 68.0 mph	2 NNW Pendleton, OR	ASOS
None TSTM Wind Gst	1/13/2021	M 67.0 mph	25 ESE Deschutes R., OR	Meso-net
None TSTM Wind Gst	1/13/2021	M 64.0 mph	8 NW West Richland, WA	Meso-net
None TSTM Wind Gst	1/13/2021	M 64.0 mph	2 S Joseph, OR	Meso-net
None TSTM Wind Gst	1/13/2021	M 63.0 mph	1 SSE Moro, OR	Meso-net
None TSTM Wind Gst	1/13/2021	M 63.0 mph	3 N Helix	Meso-net
None TSTM Wind Gst	1/13/2021	M 62.0 mph	8 WSW Echo, OR	Meso-net
None TSTM Wind Gst	1/13/2021	M 60.0 mph	1 SW Kahlotus, WA	Meso-net
None TSTM Wind Gst	1/13/2021	M 59.0 mph	12 E Bingen, WA	Meso-net
None TSTM Wind Gst	1/13/2021	M 59.0 mph	2 NW Kennewick, WA	Meso-net
None TSTM Wind Gst	1/13/2021	M 59.0 mph	1 SSW Long Creek, OR	Meso-net
None TSTM Wind Gst	1/13/2021	M 52.0 mph	3 N Joseph, OR	Trained Spotter
TSTM Wind Gst	1/13/2021	M 61.0 mph	10 ENE Grandview, WA	Trained Spotter
None TSTM Wind Dmg	1/13/2021	Roof Damage.	N Prosser, WA	Public
None TSTM Wind Dmg	1/13/2021	Roof Blown Off Building.	Pendleton, OR	Public
None TSTM Wind Dmg	1/13/2021	Siding Completely Blown Off.	Pilot, Rock, OR	Trained Spotter
None TSTM Wind Dmg	1/13/2021	1 Inch Tree Limbs Down.	1 N Ellensburg, WA	Public
Snow	1/22/2021	M 3.0 inches	2 SE Bend, OR	Trained Spotter
Snow	1/22/2021	M 3.0 inches	7 ENE Paulina, OR	Trained Spotter
Snow	1/22/2021	E 4.0 inches	NW Bend, OR	Public
Snow	1/22/2021	M 3.3 inches	3 ENE Bend, OR	Trained Spotter
Snow	1/22/2021	M 3.8 inches	SW Bend, OR	Public
Snow	1/22/2021	M 4.0 inches	7 NE Bend, OR	Co-Op Observer
Snow	1/22/2021	E 5.0 inches	N Redmond, OR	Public
Snow	1/22/2021	U 4.0 inches	NE Bend, OR	Public
Snow	1/22/2021	M 4.8 inches	3 ENE Bend, OR	Trained Spotter
Heavy Snow	1/22/2021	M 7.0 inches	2 WSW Redmond, OR	Trained Spotter
Snow	1/25/2021	E 5.0 inches	7 ENE Paulina, OR	Trained Spotter

Significant Weather Events for January 2021 (Continued)

Significant Weather Events (continued)				
Event	Date	Report	Where	Source
Snow	1/26/2021	E 6.0 inches	17 WSW Pine Grove, OR	Dept of Highways
Snow	1/26/2021	E 3.0 inches	12 W Pine Grove, OR	Dept of Highways
Snow	1/26/2021	M 6.0 inches	2 SSW Camp Sherman, OR	Trained Spotter
Snow	1/26/2021	M 1.5 inches	3 ENE Bend, OR	Trained Spotter
Snow	1/26/2021	E 4.0 inches	9 S Hardman, OR	Dept of Highways
Snow	1/26/2021	M 1.5 inches	3 E Bend, OR	Media
Snow	1/26/2021	M 2.0 inches	3 N Bend, OR	Media
Snow	1/27/2021	M 5.0 inches	Selah, WA	Public
Snow	1/27/2021	M 3.5 inches	1 N Ellensburg, WA	Trained Spotter
Snow	1/27/2021	M 7.0 inches	1 NNW Glenwood, WA	Trained Spotter
Snow	1/27/2021	E 5.0 inches	Selah, WA	Public
Heavy Snow	1/27/2021	M 6.5 inches	17 WSW Yakima, WA	Public

January had a few significant winter weather events. The most notable ones were first, a High Wind Event which occurred on the 12th and 13th of the month. This event caused numerous damages to buildings, trees and power lines/poles. The second most notable event was a Snow/Heavy Snow Event which occurred from January 22nd through the 27th , mainly in Central Oregon.

Record Weather Events for January 2021

Record Weather Reports					
Event	Date	Where	Previous Record	New Record	Records Began

There Were No Record Reports Available for January

Unfortunately, record weather reports were not able to be retrieved for January.

January 2021, Observed Monthly Max & Min Temperatures

Location	Highest Maximum Temperature	Lowest Minimum Temperature
Pendleton, OR	63	22
Redmond, OR	58	2
Pasco, WA	66	16
Yakima, WA	54	16
Walla Walla, WA	63	23
Bend, OR	54	10
Ellensburg, WA	53	17
Hermiston, OR	68	20
John Day, OR	60	16
La Grande, OR	48	12
The Dalles, OR	58	24
MT Adams RS, WA	52	20

Every station in the list had a monthly maximum temperature in the 50s or 60s, except for La Grande, OR, which had a monthly maximum temperature of 48 degrees. Every station in the list has monthly minimum temperatures in the teens and 20s, except for Redmond, OR, which reported a monthly minimum of 2 degrees

January 2021, Observed Monthly Precipitation and Snowfall/Hail Totals

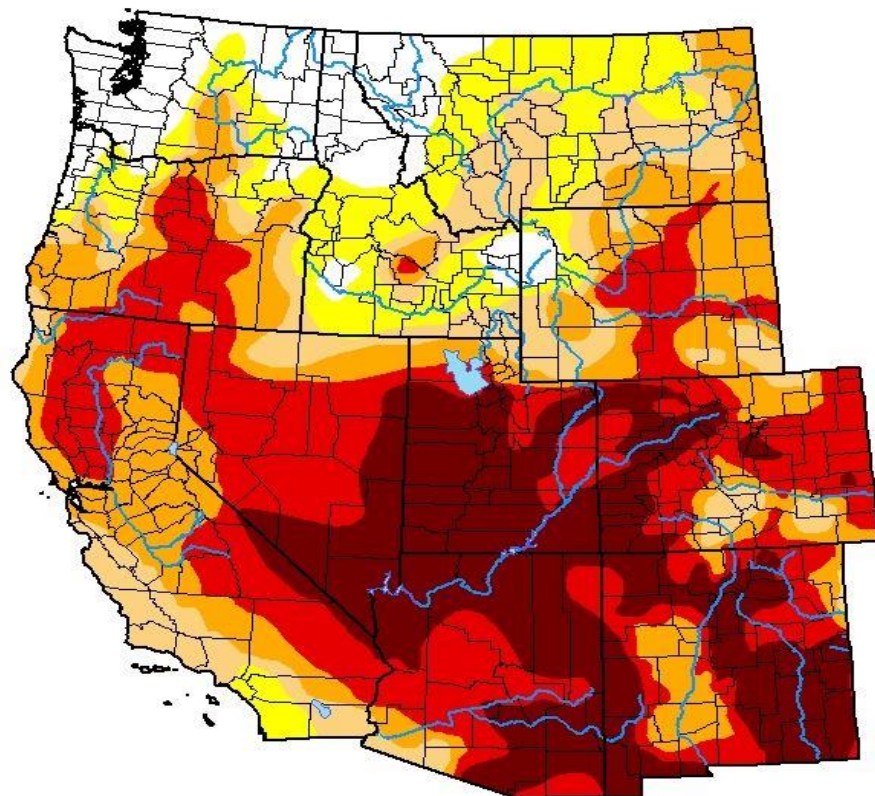
Location	Total Monthly Precipitation (inches)	Total Snowfall/Hail (inches)
Pendleton, OR	0.91	1.9
Redmond, OR	0.61	M
Pasco, WA	0.51	M
Yakima, WA	1.52	M
Walla Walla, WA	1.36	M
Bend, OR	0.97	3.8
Ellensburg, WA	1.33	M
Hermiston, OR	0.59	M
John Day, OR (RAWS)	0.91	M
La Grande, OR	0.04	M
The Dalles, OR	1.56	M
Mt Adams RS, WA	5.60	7.5

Precipitation amounts were mostly between a half inch to an inch and a half. However, the highest amount was at the Mt. Adams Ranger Station, with a report of 5.60 inches of liquid equivalent precipitation. The lowest was at La Grande, OR, with a monthly report of only 0.04 inches. Snowfall amounts were mostly not available. However, Pendleton OR received 1.9 inches for the month, Bend, OR with 3.8 inches and the Mt Adams Ranger Station with 7.5 inches. These values are all not surprising, except for the very low precipitation amount at La Grande, OR.

January 2021 - Drought Monitor

U.S. Drought Monitor West

January 26, 2021
(Released Thursday, Jan. 28, 2021)
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	8.98	91.02	79.56	66.44	47.16	21.54
Last Week <i>01-19-2021</i>	9.65	90.35	77.69	64.73	46.84	22.38
3 Months Ago <i>10-27-2020</i>	8.02	91.98	77.68	57.88	40.66	6.10
Start of Calendar Year <i>12-29-2020</i>	11.57	88.43	78.63	65.18	46.49	22.16
Start of Water Year <i>09-29-2020</i>	8.51	91.49	76.07	54.55	33.11	2.31
One Year Ago <i>01-28-2020</i>	55.43	44.57	18.96	3.08	0.00	0.00

Intensity:

- None
- 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. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

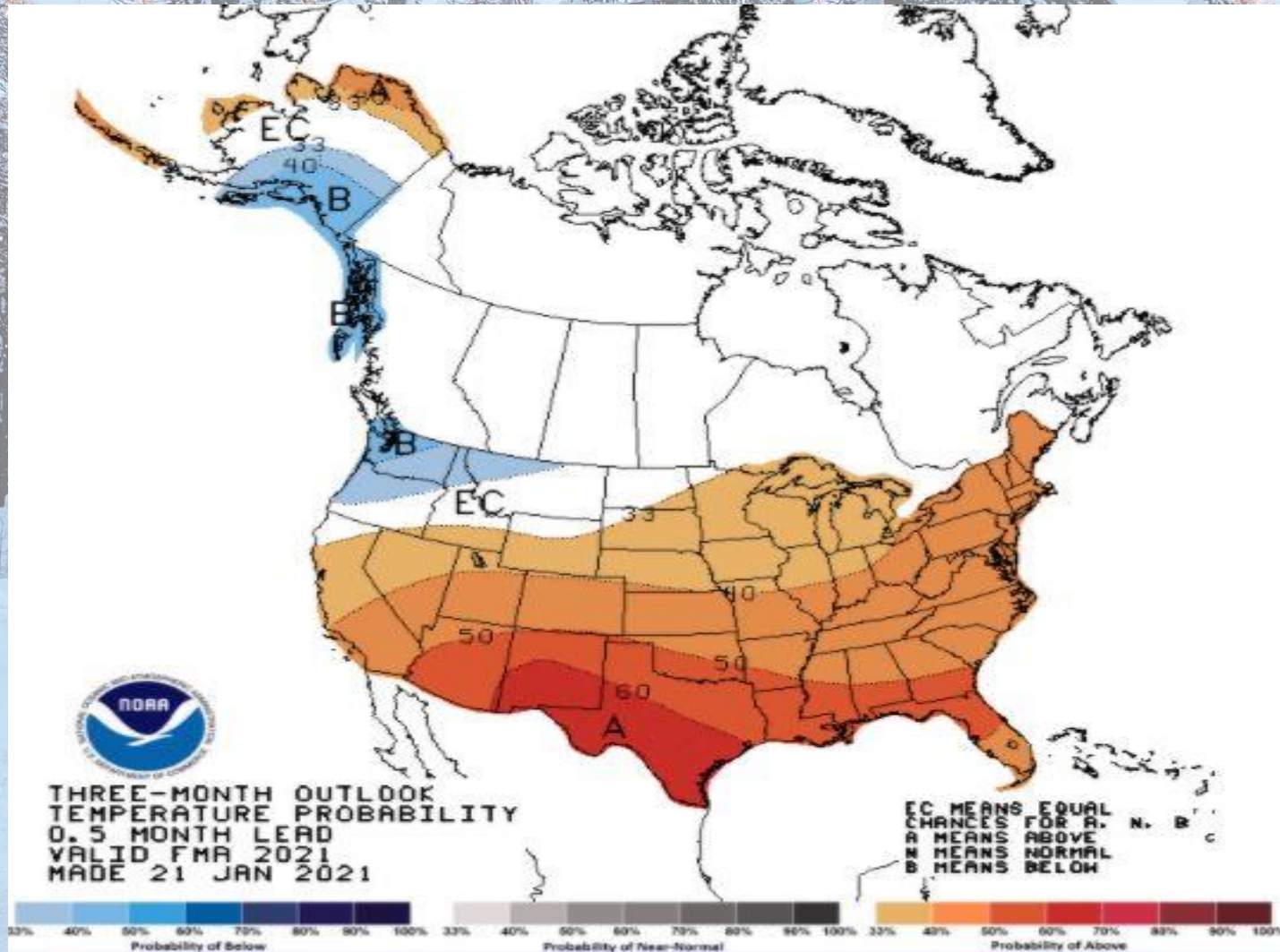
Richard Tinker
CPC/NOAA/NWS/NCEP



droughtmonitor.unl.edu

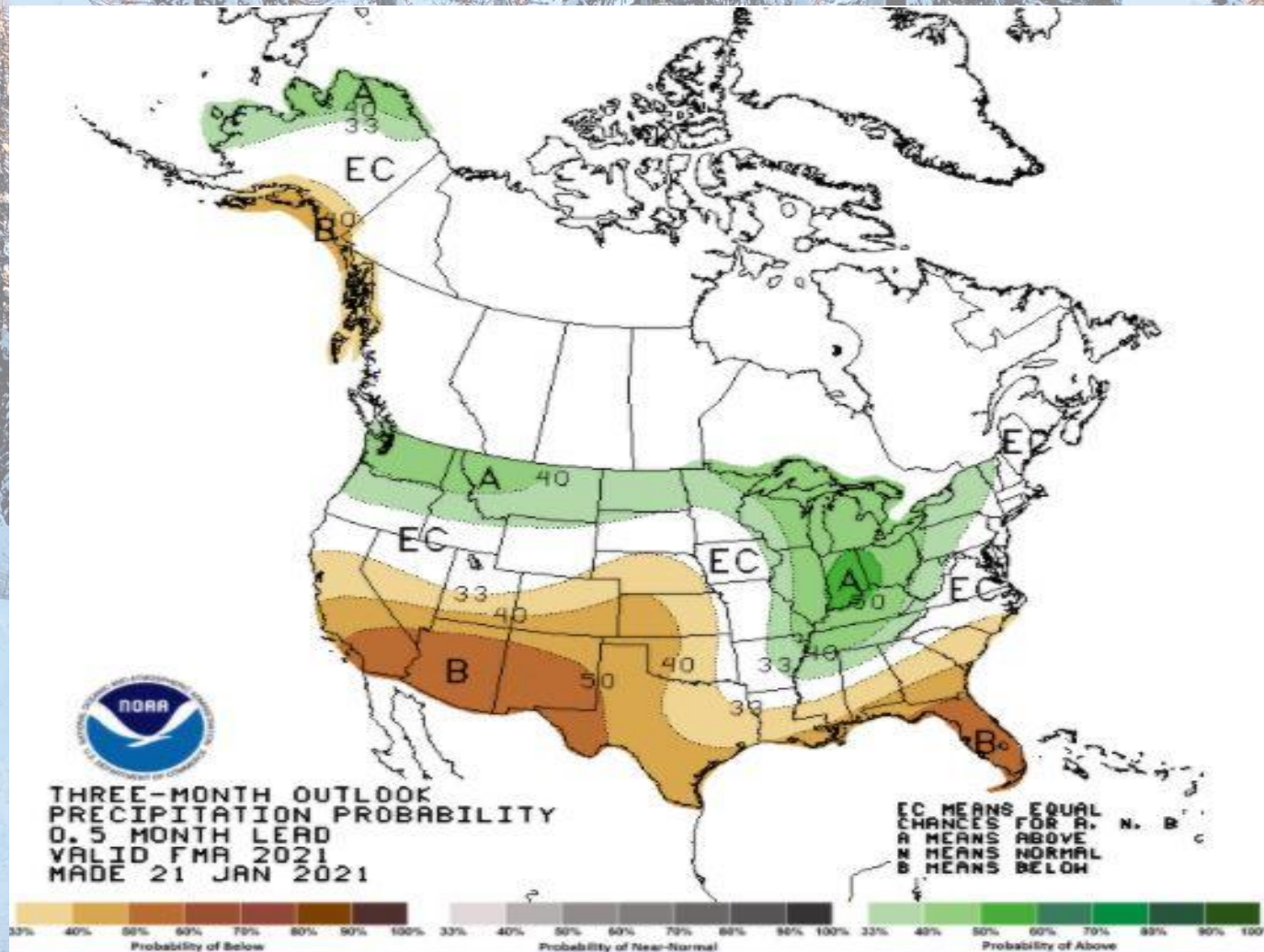
As of January 26th, there continued to be an “Extreme Drought” (D3) over the OR Cascades and in south-central Oregon. Elsewhere, drought conditions ranged from “None” (D0) in the northeast mountains, to “Severe Drought” (D3) in other areas that were near a “Extreme Drought” area already.

USA Three Month Temperature Outlook



The temperature outlook for the next 3 months (February - April) are near to below Normal over NE Oregon and SE Washington.

USA Three Month Precipitation Outlook

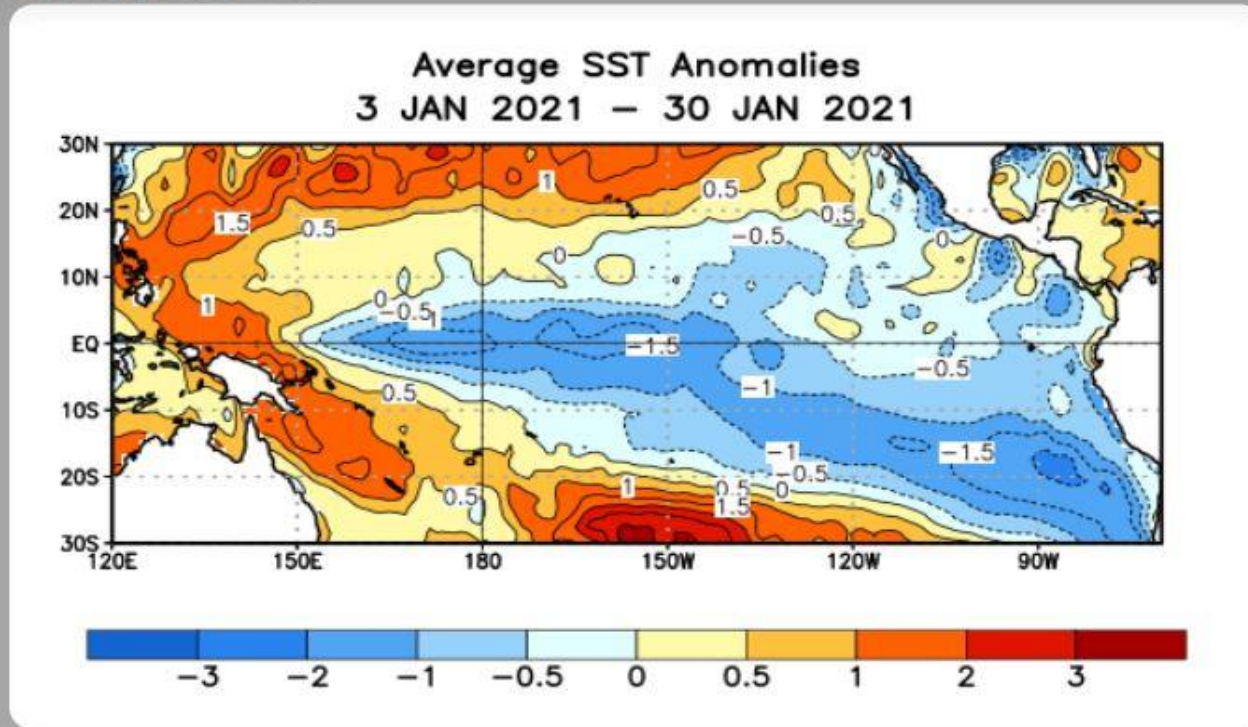


The precipitation outlook for the next 3 months (February - April) shows the Pacific northwest having mostly, a 33 – 40 percent greater chance of being above normal, with a small portion of central Oregon having an equal chance.

Average Sea Surface Temperature (SST) Anomalies for January 2021

SST Departures ($^{\circ}\text{C}$) in the Tropical Pacific During the Last Four Weeks

In the last four weeks, equatorial SSTs were mostly below average from the west-central to the eastern Pacific Ocean. Below-average SSTs weakened in the eastern equatorial Pacific Ocean.



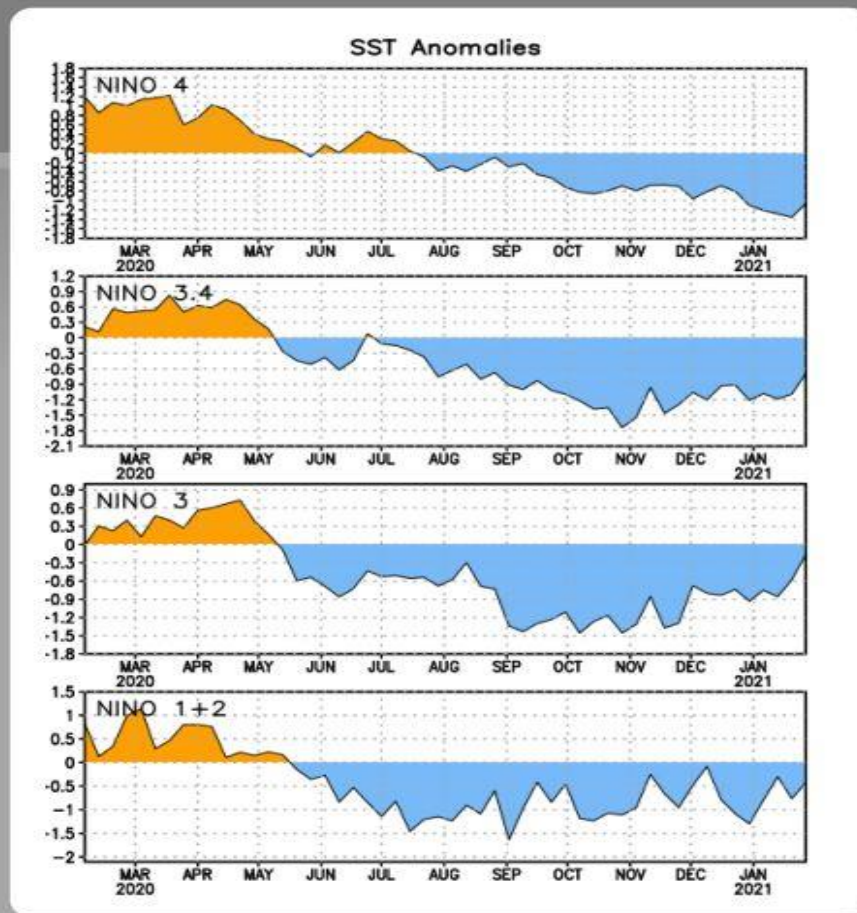
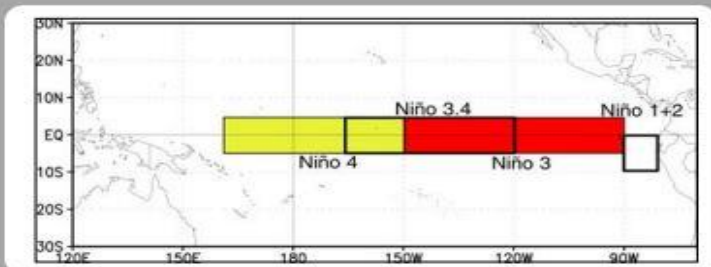
SSTs were below average again in January, over the central and eastern tropical Pacific by about -0.5 degrees to -2 degrees. These last several months of below normal SSTs are consistent with an ongoing La Nina event, which is likely to continue this winter, and persist through the early spring of 2021.

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	-0.7°C
Niño 3	-0.2°C
Niño 1+2	-0.4°C



All Niño Regions are showing below normal SST's again during this past month; however, temperatures are not as below normal than before January 2021. This warming of the tropical eastern pacific is consistent with a La Nina beginning to weaken.

Current ENSO (El Niño Southern Oscillation) Alert System Status

Summary

ENSO Alert System Status: **La Niña Advisory**

La Niña conditions are present.*

Equatorial sea surface temperatures (SSTs) are below average from the west-central to eastern Pacific Ocean.

The tropical atmospheric circulation is consistent with La Niña.

La Niña is expected to continue through the Northern Hemisphere winter 2020-21 (~95% chance during January-March), with a potential transition to ENSO-neutral during the spring 2021 (55% chance during April-June).*

The current ENSO status is: “**La Nina Advisory**”, which is in effect from through the winter of 2020-2021. The chances for a La Nina event continues to be about 95 percent through the end of January, and then about a 55 percent chance from February through April of 2021.



Thank You!