

The Month In Review

January 2022

National Weather Service
Pendleton, Oregon

Photo: A sea of stratus clouds over the valleys (photo by: Matthew Callihan)

January 2022, Climate Summary

January 2022 began with stormy winter weather with frequent weather systems that brought heavy snow and strong winds at times. An upper high pressure system over the northeast Pacific remained nearly stationary from late December, with a long wave upper trough downstream, over the Pacific Northwest. This resulted in frequent weather systems, with heavy snow, and high wind events. New Years Day was the coldest day of the winter season so far, with an overnight low temperature at the Pendleton NWS station of -7 degrees (however the official low was -5 for January 1st, which was the lowest temperature after midnight on New Years Eve). Then on the 3rd of the month there was a high wind event which caused widespread ground blizzards and blowing snow, causing deep snow drifts and near zero visibility. Many highways were closed, and many vehicles became stuck, and in some cases buried in deep snow drifts. Then the upper high pressure off the coast shifted eastward and more over the region, resulting in calm and rather mild conditions for the rest of the month. There were prolonged periods of low stratus and fog in the lower elevations, while the mountains had mostly fair weather. Below, and on the next slide are some images of weather conditions or impacts experienced during the first month of 2022.



Large tree limb fell partially on a house in Pendleton, OR during a windstorm on the 3rd of the month. It caused some damage.



A car is buried in a deep snow drift, with dirt that was also blown with the snow, during the January 3rd windstorm.



Long periods of valley stratus and fog formed with inversions, due to strong upper high pressure during the latter part of the month.

More Images Representing January 2022 Climate Conditions



A very cold and white New Years Day



A ground blizzard during the Jan 3rd windstorm



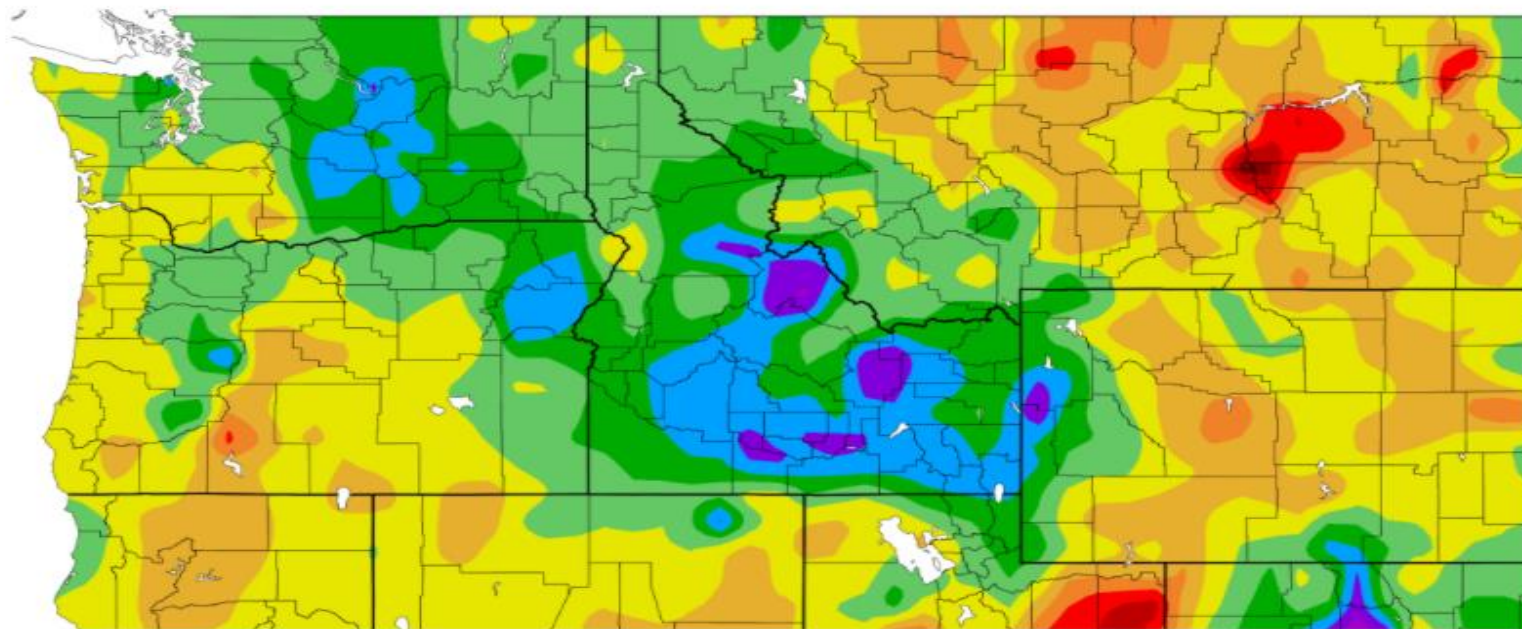
Heavy wet snow covering the trees at the NWS



Valley fog up against the northern Blue Mtns

January 2022, Departure from Normal of Average Temperatures

Departure from Normal Temperature (F)
1/1/2022 – 1/31/2022



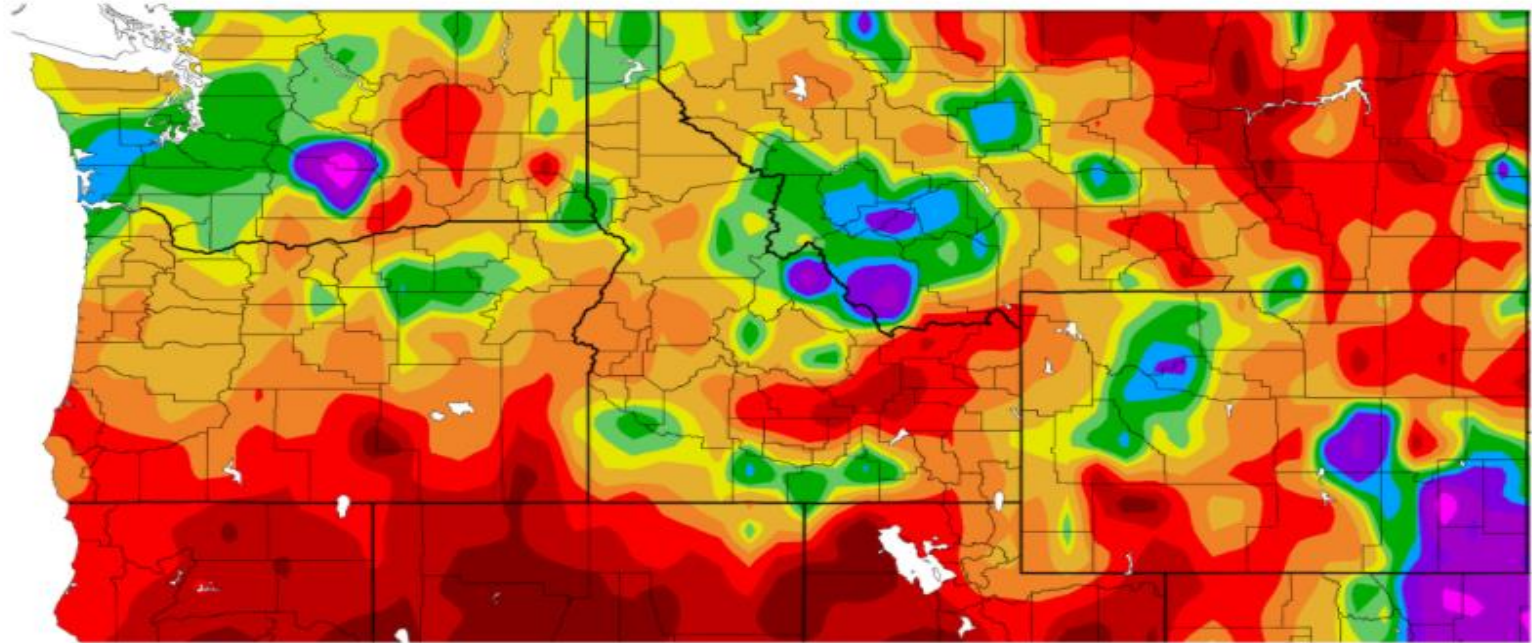
Generated 2/4/2022 at HPRCC using provisional data.

NOAA Regional Climate Centers

The departure from normal of the average temperatures ranged from 4-6 degrees below normal to 2-4 degrees above normal. The coldest areas were east of the central WA Cascades, in the Lower Columbia Basin, and over NE Oregon. The warmest areas were in central OR, the John Day Highlands, and in a small area in the southern WA Cascades.

January 2022, Percent of Normal of Precipitation

Percent of Normal Precipitation (%)
1/1/2022 – 1/31/2022



Generated 2/4/2022 at HPRCC using provisional data.

NOAA Regional Climate Centers

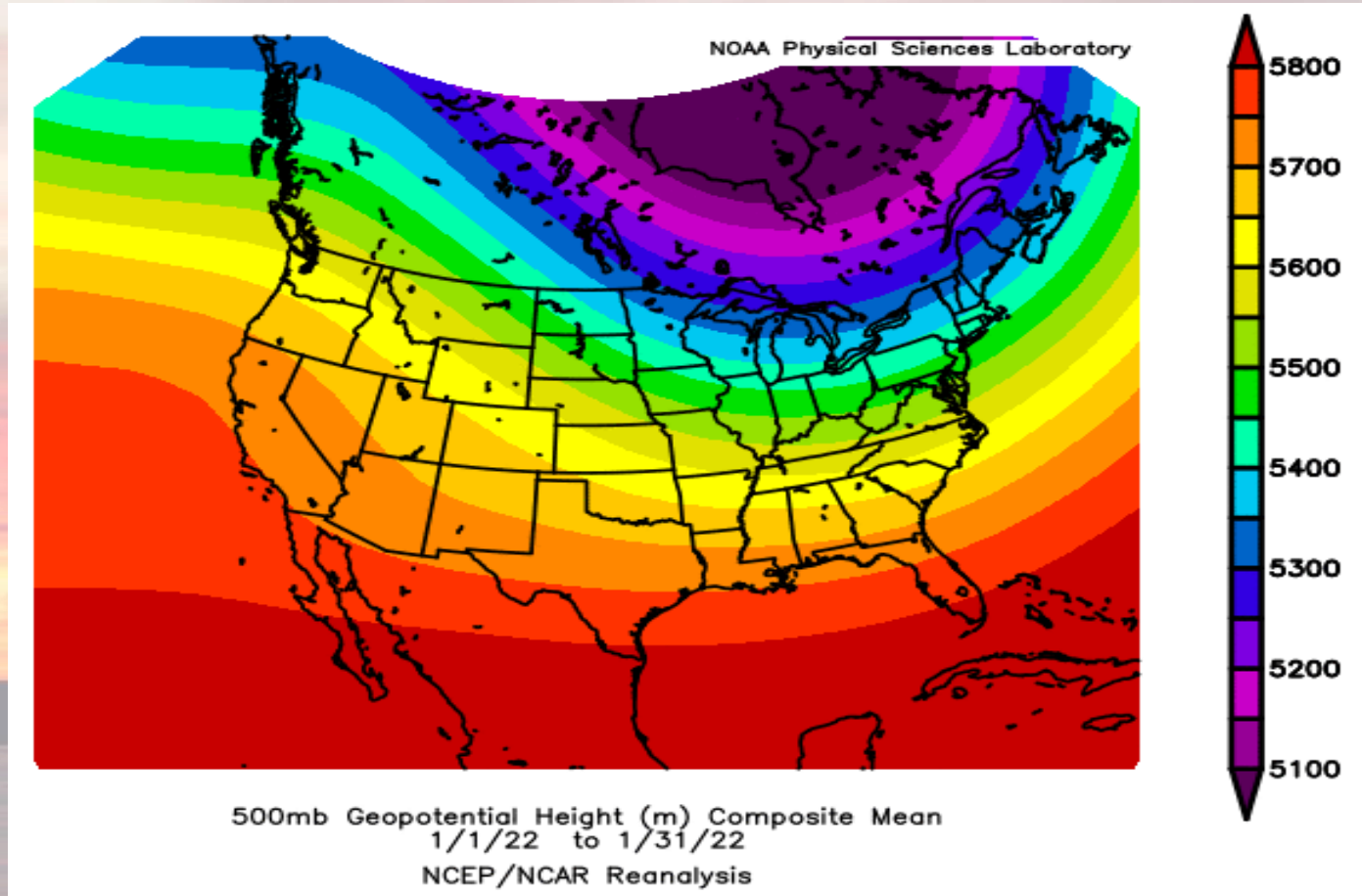
Most of the forecast area had precipitation amounts that were below normal. The driest areas had values as low as 25-50 percent of normal. However, there was an area to the east of the central WA Cascades, in the Yakima/Kittitas Valleys, which had as much as 300 percent of normal precipitation. The southern Blue Mountains had precipitation amounts that were 100-130 percent of normal.

January 2022 Departures from Normal Means/Sums for Select Cities

	Max T	Max T D	Min T	Min T D	Ave T	Ave T D	PCPN	PCPN D
Yakima	34.0	-4.6	20.7	-2.6	27.4	-3.6	1.39	0.25
Kennewick	37.9	-3.6	26.7	-2.8	32.3	-3.2	0.79	-0.29
Walla Walla	39.3	-1.6	27.0	-3.1	33.1	-2.4	1.63	-0.90
The Dalles	40.7	-1.5	31.3	0.3	36.0	-0.6	1.69	-0.81
Redmond	49.4	7.0	25.7	2.6	37.6	4.9	0.73	-0.24
Pendleton Airport	40.9	-0.9	27.4	-1.4	34.1	-1.2	1.53	0.10
La Grande Airport	36.8	-1.6	24.0	-0.5	30.4	-1.0	1.32	-0.31
John Day	46.2	3.7	26.8	3.4	36.5	3.6	1.08	0.10

The table above shows that most of the cities listed had below normal means of the average high, low and average monthly temperatures. The exceptions were mainly the two central OR cities in the list (Redmond, OR and John Day, OR). The Dalles, OR had slightly above normal mean average low temperatures, but below normal mean average high and mean average monthly temperatures. Five of these eight cities had below normal precipitation. The wettest locations were at Yakima, WA, Pendleton, OR, and John Day, OR. The greatest absolute value of departures from normal was 0.90 inch, below normal, at Walla Walla, WA. The low amounts were mainly due to a nearly stationery high pressure system over the region after January 7th.

January 2022, Average 500 MB Pattern

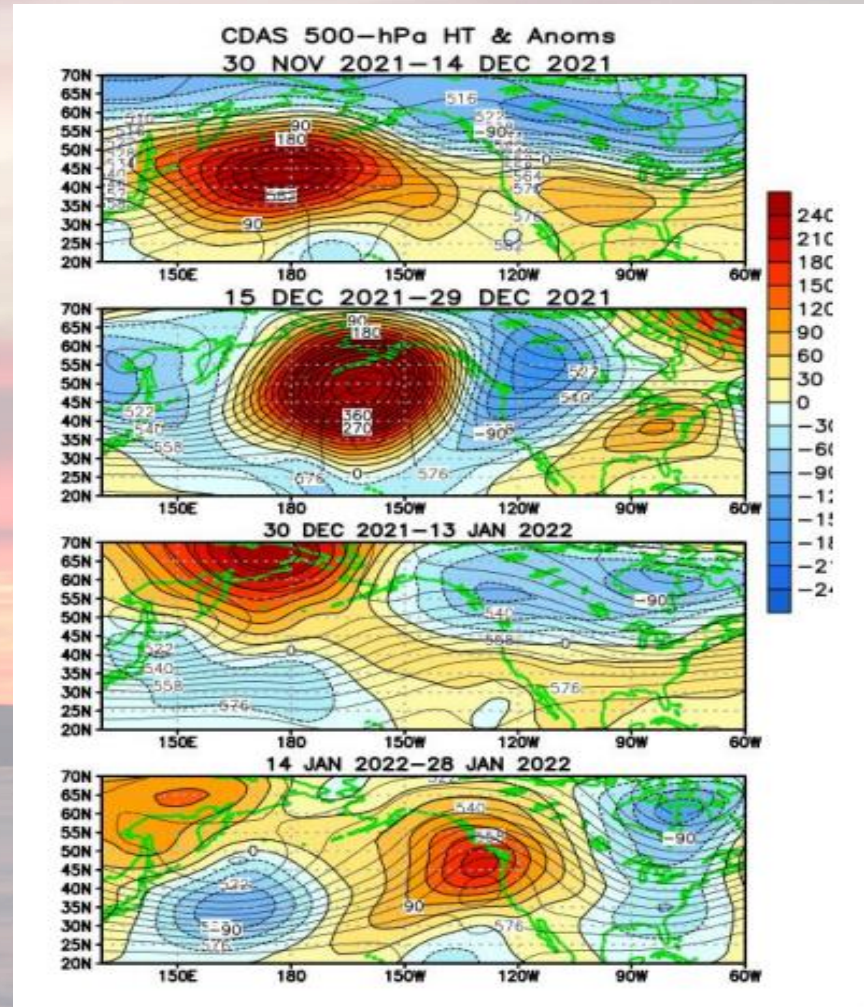


The average 500 MB pattern for January was an upper ridge pattern over the western USA, including the Pacific Northwest. With the exception of the first 7 days of the month, a nearly stationary upper high pressure system was over the forecast area, which resulted in long dry periods with benign conditions. However, as is usually the case for January, when there is prolonged high pressure aloft, there was prolonged stratus and fog in the valleys and the Lower Columbia Basin. This was the case for most of January 2022, after a stormy beginning.

Two Month, Bi-weekly 500 MB Plots for December & January 2022

These are more detailed semi-monthly average 500 mb pattern plots, which was sampled from the following period: 30th Nov 2021 through 28th Jan 2022).

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



The strong upper ridge that was over the northeast Pacific in December retrograded at the end of December and in early January, and then it shifted east and settled along the Pacific Northwest coast by the middle to the end of January. The retrograding of the ridge to the northwest in early January resulted in frequent storms with heavy snow and wind. Then the ridge shifted east and settled along the coast, which resulted in dry and stable conditions with long periods of stratus/fog in the valleys and basins.

Significant Weather Events for January 2022

Significant Weather Events				
Event	Date	Report	Where	Source
Non-TSTM wnd gst	January 2, 2022	E 80 mph	Mission, OR	Amateur Radio
Non-TSTM wnd gst	January 2, 2022	E 53 mph	E Pendleton, OR	Dept of Highways
Non-TSTM wnd gst	January 3, 2022	M 61 mph	10 SSE Ashwood, OR	Mesonet
Non-TSTM wnd gst	January 3, 2022	E 66 mph	Pendleton, OR	Mesonet
Non-TSTM wnd gst	January 3, 2022	E 73 mph	4 W Adams, OR	Mesonet
Non-TSTM wnd gst	January 3, 2022	E 42 mph. Deep snow drifts	3 S Walla Walla, WA	Public
Non-TSTM wnd gst	January 3, 2022	E 54 mph	Walla Walla, WA Airport	ASOS
Non-TSTM wnd dmg	January 3, 2022	8 inch tree limb fell on house	Pendleton, OR	NWS Employee
Non-TSTM wnd gst	January 3, 2022	E 66 mph	10 SE Pendleton, OR	Dept of Highways
Heavy Snow	January 3, 2022	M 7.4 inches	2 WNW Yakima, WA	COCORAHS
Heavy Snow	January 3, 2022	M 7.0 inches	Fruitvale, WA	COCORAHS
Heavy Snow	January 3, 2022	M 15.0 inches	1 NW White Salmon, WA	COCORAHS
Snow	January 3, 2022	M 3.0 inches	Goldendale, WA	Co-Op Observer
Heavy Snow	January 3, 2022	E 17.0 inches	2 SSE Snoqualmie Pass	COCORAHS
Heavy Snow	January 3, 2022	M 19.8 inches	SSW Trout Lake, WA	COCORAHS
Snow	January 3, 2022	M 3.0 inches	2 NE Granger, WA	COCORAHS
Snow	January 3, 2022	E 3.0 inches	Ellensburg, WA	Trained Spotter
Snow	January 3, 2022	E 3.0 inches	The Dalles, OR	Public
Heavy Snow	January 3, 2022	M 5.0 inches	1 SE Ellensburg, WA	Trained Spotter
Snow	January 3, 2022	E 2.0 inches	White Salmon, WA	Public
Snow	January 3, 2022	E 2.5 inches	Yakima, WA	Public
Heavy Snow	January 3, 2022	M 7.0 inches	2 NW Yakima, WA	Trained Spotter
Snow	January 3, 2022	E 2.0 inches	Yakima, WA	Public
Heavy Snow	January 3, 2022	M 5.0 inches	5 NNE Yakima, WA	Trained Spotter
Heavy Snow	January 3, 2022	M 18.0 inches	4 E Ellensburg, WA	Trained Spotter
Heavy Snow	January 3, 2022	M 12.0 inches	11 SE Cliffdell, WA	Public
Heavy Snow	January 3, 2022	M 11.0 inches	10 NE Goldendale, WA	Trained Spotter

These significant weather events occurred during a stormy period at the beginning of the month, which brought mainly heavy snow and high winds to the region and forecast area.

Significant Weather Events for January 2022 (continued)

Significant Weather Events				
Event	Date	Report	Where	Source
Heavy Snow	January 3, 2022	M 3.0 inches	8 SE Pilot Rock, OR	Trained Spotter
Heavy Snow	January 3, 2022	M 12.0 inches	5 NNW La Pine, OR	Trained Spotter
Heavy Snow	January 3, 2022	9 NNE of The Dalles, OR...in WA	M 7.0 inches	Trained Spotter
Heavy Snow	January 3, 2022	M 13.0 inches	5 N La Pine, OR	Trained Spotter
Heavy Snow	January 3, 2022	M 20.0 inches	11 WNW Black Butte Ranch, OR	Federal Official
Heavy Snow	January 3, 2022	M 4.0 inches	3 N Bend, OR	Public
Heavy Snow	January 3, 2022	M 5.0 inches	2 ESE Bend, OR	Public
Heavy Snow	January 3, 2022	M 12.0 inches	Three Rivers, OR	Public
Heavy Snow	January 3, 2022	M 12.0 inches	2 NW Bend, OR	Public
Heavy Snow	January 3, 2022	M 14.0 inches	Three Rivers, OR	Public
Heavy Snow	January 3, 2022	M 11.5 inches	4 W Meacham, OR	NWS Employee
Heavy Snow	January 4, 2022	M 14.0 inches	5 NNW La Pine, OR	Trained Spotter
Heavy Snow	January 4, 2022	M 19.0 inches	5 N La Pine, OR	Trained Spotter
Heavy Snow	January 4, 2022	E 24.0 inches	4 N Bingham Springs, OR	Trained Spotter
Heavy Snow	January 5, 2022	M 14.0 inches	Ski Bluewood, WA	Public
Heavy Snow	January 5, 2022	E 5.0 inches	Union, OR	Co-Op Observer
Heavy Snow	January 5, 2022	M 5.0 inches	5 NNE La Grande, OR	Trained Spotter
Heavy Snow	January 5, 2022	M 10.0 inches	6 SW Kamela, OR	Mesonet
Heavy Snow	January 5, 2022	E 6.0 inches	11 SE Seneca, OR	Mesonet
Snow	January 5, 2022	E 4.0 inches	11 SSW John Day, OR	Mesonet
Heavy Snow	January 5, 2022	M 9.0 inches	10 NNE Ukiah, OR	Mesonet
Heavy Snow	January 5, 2022	M 5.0 inches	2 SE Cove, OR	Public
Heavy Snow	January 5, 2022	U 5.0 inches	1 SE Cove, OR	Public
Heavy Snow	January 5, 2022	E 5.0 inches	10 NW Goldendale, WA	Public
Snow	January 5, 2022	M 3.0 inches	2 SE The Dalles, OR	Amateur Radio
Heavy Snow	January 5, 2022	U 7.0 inches	SE Joseph, OR	Public
Heavy Snow	January 5, 2022	U 15.0 inches	5 NE White Salmon, WA	Public

Snow/heavy snow events continued through the 5th across the forecast area.

Significant Weather Events for January 2022 (continued)

Significant Weather Events				
Event	Date	Report	Where	Source
Snow	January 5, 2022	U 3.0 inches	Ellensburg, WA	Public
Heavy Snow	January 5, 2022	U 4.0 inches	1 S Grass Valley, OR	Public
Snow	January 5, 2022	M 2.5 inches	9 WSW Kennewick, WA	Public
Heavy Snow	January 5, 2022	U 5.0 inches	Goldendale, WA	Public
Heavy Snow	January 5, 2022	U 3.4 inches	Moro, OR	Public
Heavy Snow	January 5, 2022	U 4.0 inches	Wishram, WA	Public
Snow	January 5, 2022	M 4.9 inches	9 NW Seneca, OR	Trained Spotter
Snow	January 5, 2022	U 2.0 inches	Irrigon, OR	Public
Heavy Snow	January 5, 2022	U 6.0 inches	Benton City, WA	Public
Heavy Snow	January 5, 2022	M 11.0 inches	Summerville, OR	Public
Heavy Snow	January 5, 2022	M 5.0 inches	5 SSW Chenoweth, OR	Trained Spotter
Heavy Snow	January 5, 2022	M 11.0 inches	1 NNW Glenwood, WA	Trained Spotter
Heavy Snow	January 5, 2022	M 10.0 inches	4 SSW Spout Springs, OR	Mesonet
Heavy Snow	January 6, 2022	M 5.0 inches	Kennewick, WA	Broadcast Media
Heavy Snow	January 6, 2022	M 4.0 inches	Moro, OR	Public
Heavy Snow	January 6, 2022	M 10.0 inches	Ski Bluewood, WA	Public
Heavy Snow	January 6, 2022	M 14.0 inches	Meacham, OR	Broadcast Media
Heavy Snow	January 6, 2022	M 7.0 inches	Yakima, WA	Broadcast Media
Heavy Snow	January 6, 2022	M 4.5 inches	West Pasco, WA	Broadcast Media
Heavy Snow	January 6, 2022	M 5.0 inches	Richland, WA	Broadcast Media
Heavy Snow	January 6, 2022	M 11.0 inches	Selah, WA	Public
Heavy Snow	January 6, 2022	M 15.0 inches	5 WSW Ellensburg, WA	Broadcast Media
Heavy Snow	January 6, 2022	M 8.0 inches	2 WNW Yakima, WA	COCORAHS
Heavy Snow	January 6, 2022	M 6.0 inches	4 SSW Enterprise, OR	COCORAHS
Heavy Snow	January 6, 2022	M 5.5 inches	2 ESE Lostine, OR	COCORAHS
Heavy Snow	January 6, 2022	M 18.5 inches	9 E Cle Elum, WA	COCORAHS
Heavy Snow	January 6, 2022	M 4.4 inches	1 SE Kennewick, WA	Public

Snow/heavy snow events continued through the 6th across the forecast area.

Significant Weather Events for January 2022 (continued)

Significant Weather Events				
Event	Date	Report	Where	Source
Heavy Snow	January 6, 2022	M 6.0 inches	Sunnyside, WA	Co-Op Observer
Heavy Snow	January 6, 2022	M 7.0 inches	1 WNW White Salmon, WA	COCORAHS
Heavy Snow	January 6, 2022	M 6.9 inches	9 N Elgin, OR	COCORAHS
Heavy Snow	January 6, 2022	M 4.5 inches	4 ESE Mosier, OR	COCORAHS
Heavy Snow	January 6, 2022	M 9.5 inches	Selah, WA	Public
Heavy Snow	January 6, 2022	E 5.0 inches	Kennewick, WA	Public
Heavy Snow	January 6, 2022	M 6.0 inches	Benton City, WA	Public
Heavy Snow	January 6, 2022	M 4.5 inches	3 SE Pasco, WA	Co-Op Observer
Heavy Snow	January 6, 2022	M 18.0 inches	1 E Ellensburg, WA	Public
Heavy Snow	January 6, 2022	E 15.0 inches	Snoqualmie Pass, WA	Public
Heavy Snow	January 6, 2022	M 27.0 inches	NW Easton, WA	Co-Op Observer
Heavy Snow	January 6, 2022	M 13.0 inches	5 NNE Yakima, WA	Trained Spotter
Heavy Snow	January 6, 2022	M 5.0 inches	1 E Cove, OR	Co-Op Observer
Heavy Snow	January 6, 2022	M 6.0 inches	1 SW Goldendale, WA	Co-Op Observer
Heavy Snow	January 6, 2022	M 7.5 inches	3 SSW Richland, WA	COCORAHS
Heavy Snow	January 6, 2022	M 6.0 inches	SW Richland, WA	COCORAHS
Heavy Snow	January 6, 2022	M 3.0 inches	NW John Day, OR	COCORAHS
Heavy Snow	January 6, 2022	M 4.0 inches	SE Prosser, WA	Co-Op Observer
Heavy Snow	January 6, 2022	M 6.4 inches	12 SSW Canyon City, OR	COCORAHS
Heavy Snow	January 6, 2022	M 10.0 inches	7 NE White Salmon, WA	COCORAHS
Heavy Snow	January 6, 2022	M 7.6 inches	5 ENE Yakima, WA	Trained Spotter
Heavy Snow	January 6, 2022	M 15.0 inches	ENE Kittitas, WA	Trained Spotter
Heavy Snow	January 6, 2022	U 10.0 inches	1 SSE Kooskooskie, WA	Public
Heavy Snow	January 7, 2022	M 10.0 inches	2 S Snoqualmie Pass, WA	COCORAHS
Non-TSTM wnd gst	January 7, 2022	M 65 mph	2 SE Kennewick, WA	Trained Spotter

Snow/heavy snow events, and one high wind event continued through the 6th – 7th across the forecast area. After that, conditions became benign, except for areas of stratus and fog.

Record Weather Event Reports for January 2022

Record Weather Reports					
Event	Date	Where	Previous Record	New Record	Records Began
Low Temp	January 2, 2022	Pasco, WA	-5 / 1942	-7	1942
Precipitation	January 3, 2022	Yakima, WA	0.60 / 1966	0.63	1909
Precipitation	January 3, 2022	Redmond, OR	0.56 / 1982	0.61	1941
Precipitation	January 4, 2022	Dallesport, WA	0.52 / 2003	0.59	1929
Precipitation	January 5, 2022	Ellensburg, WA	0.15 / 1959	0.38	1934
Precipitation	January 6, 2022	Ellensburg, WA	0.62 / 1948	0.75	1934
High Temp	January 23, 2022	Redmond, OR	63 / 1953	63 (tie)	1941

There were not many record weather reports during January 2022. Most of the record reports were of record precipitation amounts for a day. There was also one event of a record low temperature, while another was for a record high temperature. The record low temperature and all of the record precipitation events occurred during the first six days of the month. The record high temperature occurred near the end of the month, when a strong high pressure system aloft was nearly stationery over the forecast area. However, during that time, much of the forecast area was under strong valley and basin inversions with stratus and fog. As a result, there were not more record high temperatures reported. The record low temperature that occurred was at the beginning of the month, on the 2nd, during an arctic outbreak.

January 2022, Observed Monthly Max & Min Temperatures

Location	Highest Maximum	Lowest Minimum
Pendleton, OR	58	-5
Redmond, OR	63	0
Pasco, WA	59	-7
Yakima, WA	51	7
Walla Walla, WA	63	-3
Bend, OR	62	13
Ellensburg, WA	45	1
Hermiston, OR	60	-10
John Day, OR	56	-3
La Grande, OR	50	-22
The Dalles, OR	61	4
Meacham, OR	45	-24
MT Adams RS, WA	48	18

The highest maximum temperatures ranged from 45 degrees at both Meacham, OR and Ellensburg, WA to 63 degrees at Walla Walla, WA. The lowest minimum temperatures ranged from -24 degrees at Meacham, OR to 18 degrees above zero at the Mt. Adams Ranger Station.

January 2022 Observed Total Precipitation and Total Snowfall/Hail

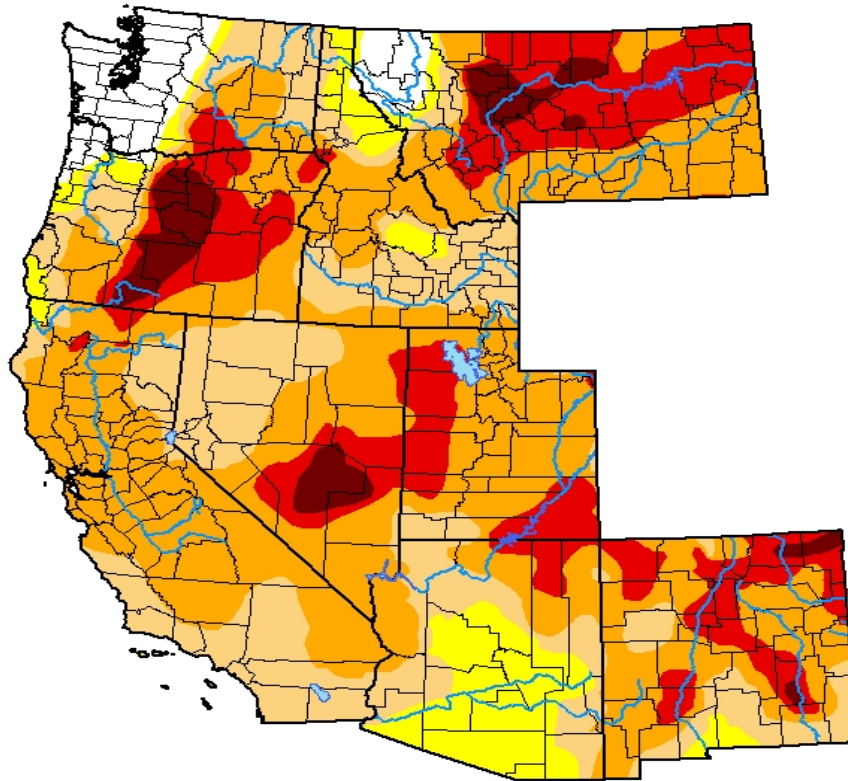
Location	Total Precipitation (inches)	Total Snow/Hail (inches)
Pendleton, OR	1.53	6.9
Redmond, OR	0.73	M
Pasco, WA	0.53	M
Yakima, WA	1.39	M
Walla Walla, WA	1.63	M
Bend, OR	0.20	M
Ellensburg, WA	1.44	M
Hermiston, OR	0.93	M
John Day, OR	1.08	M
La Grande, OR	1.32	M
The Dalles, OR	1.69	M
Meacham, OR	3.96	M
MT Adams RS, WA	0.54	0.0

Precipitation amounts ranged from 0.20 of an inch at Bend, OR to 3.96 inches at Meacham, OR. Of the three stations that usually have snowfall reports, snowfall reports were only available at Pendleton, OR and the MT Adams Ranger Station, with 6.9 inches and 0.0 inches respectively.

January 2022 - Drought Monitor - West

U.S. Drought Monitor West

February 1, 2022
(Released Thursday, Feb. 3, 2022)
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	4.75	95.25	87.08	63.93	21.08	3.89
Last Week <i>01-25-2022</i>	4.60	95.40	87.09	63.93	21.12	3.81
3 Months Ago <i>11-02-2021</i>	2.49	97.51	91.69	80.41	51.41	17.55
Start of Calendar Year <i>01-04-2022</i>	4.43	95.57	87.78	64.63	25.30	4.75
Start of Water Year <i>09-28-2021</i>	1.32	98.68	93.35	81.07	58.72	21.77
One Year Ago <i>02-02-2021</i>	7.92	92.08	76.44	60.36	43.97	22.72

Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate 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:

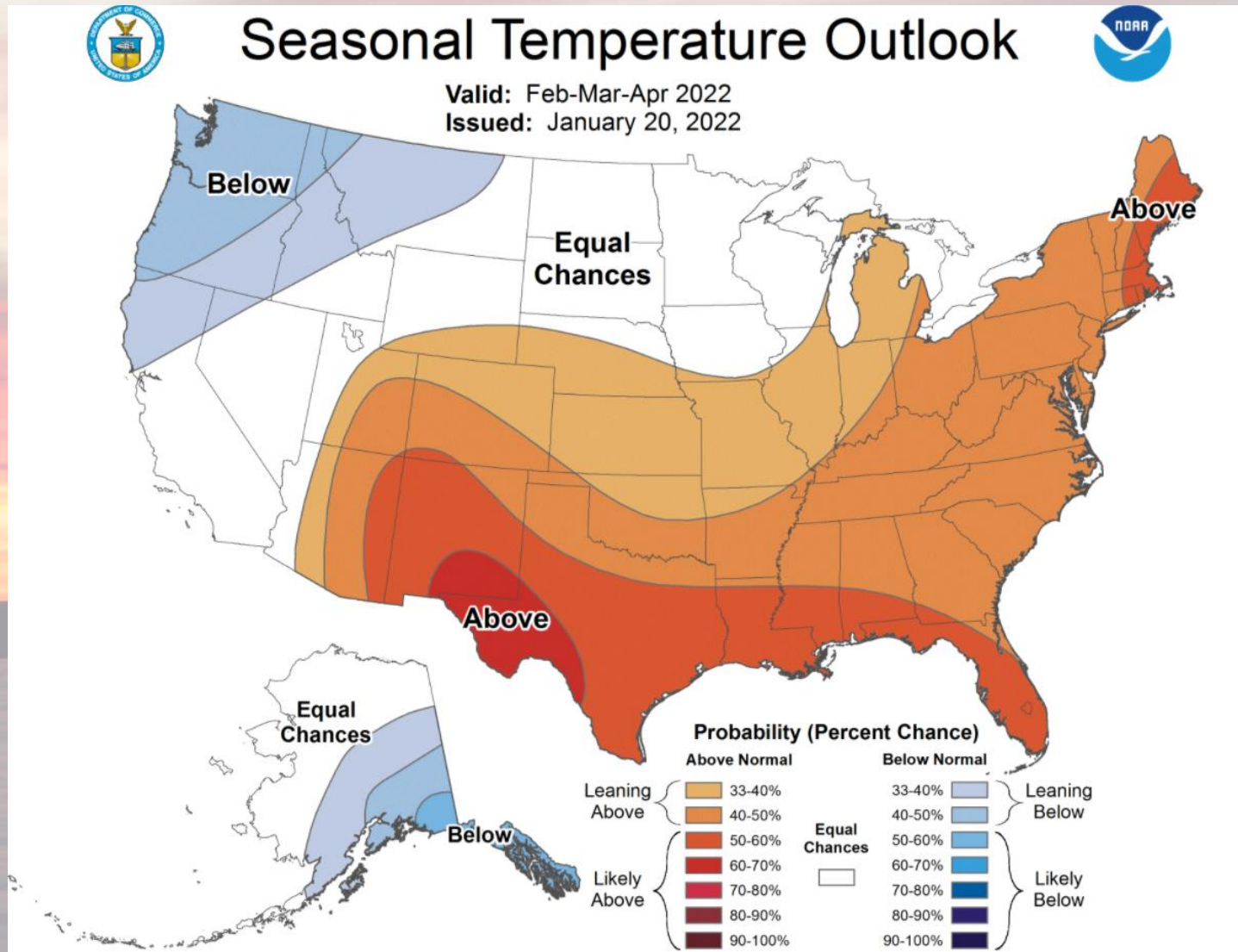
Curtis Riganti
National Drought Mitigation Center



droughtmonitor.unl.edu

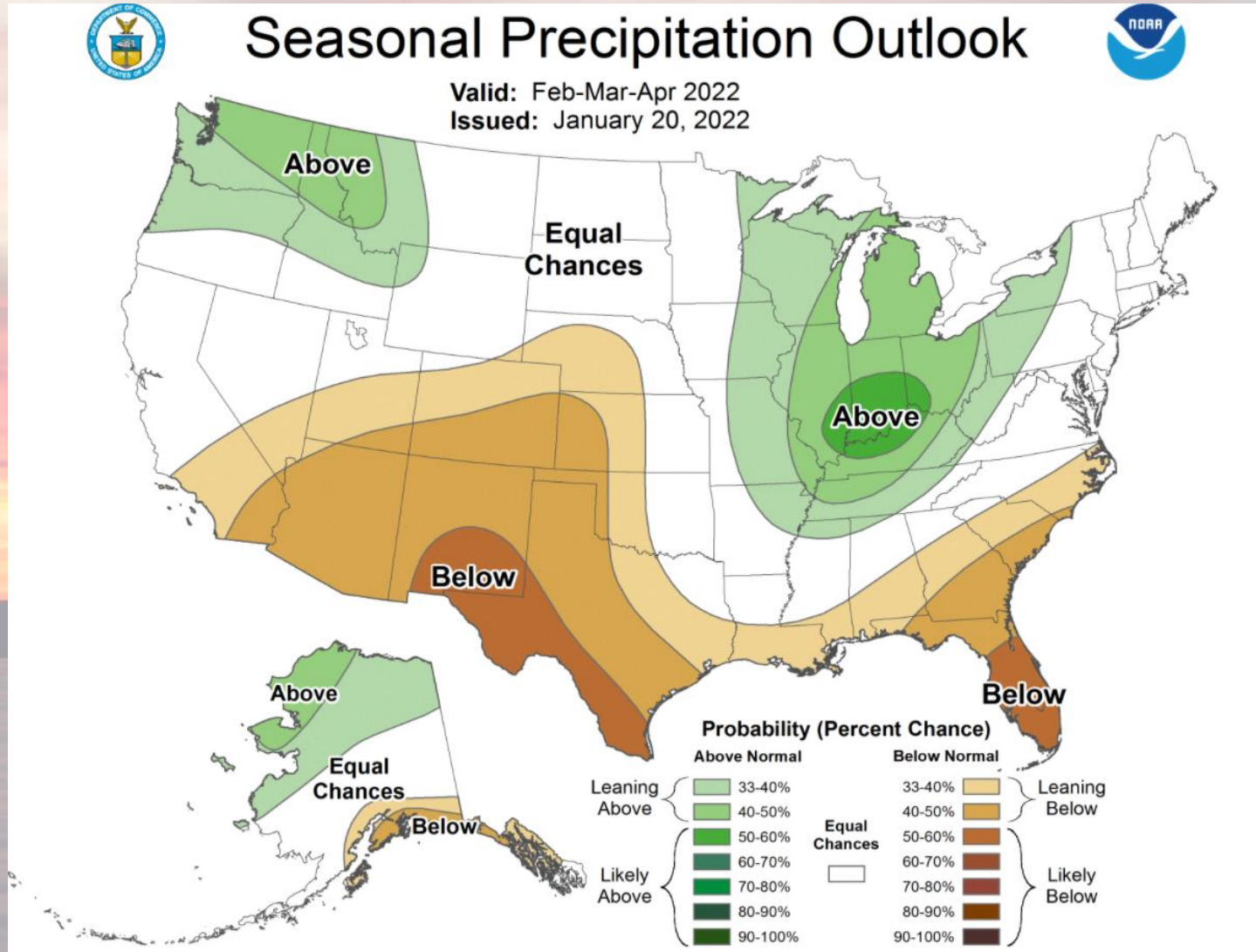
Areas east of the OR Cascades remained in an “Exceptional Drought” (D4) category, with a large area of “Extreme Drought” category (D3) over eastern OR and south central WA. The remainder of the forecast area was in a “Severe Drought” category (D2), except over the crest of the WA Cascades where a “None” to “Abnormally Dry” (None – D0) category drought existed.

USA Three Month Temperature Outlook



The temperature outlook for the next 3 months (February - April) is for a greater chance of below normal temperatures over the Pacific Northwest. This is consistent with the on-going La Nina event this winter.

USA Three Month Precipitation Outlook

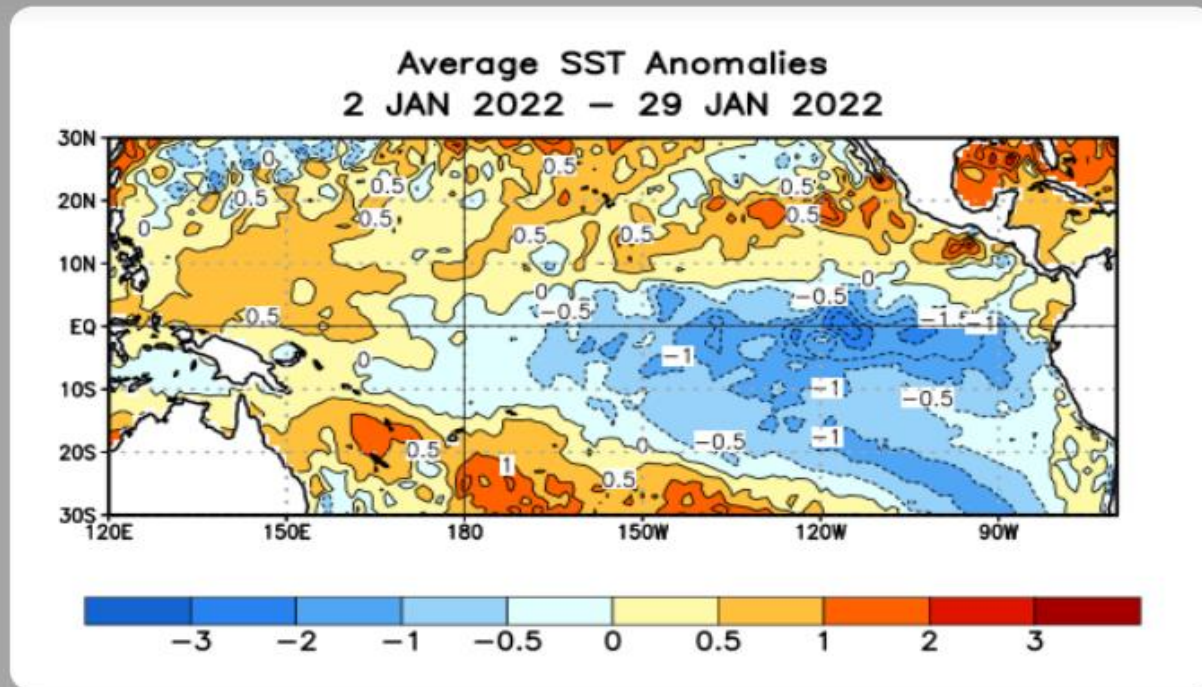


The precipitation outlook for the next 3 months (February - April) is for a greater chance of near to above normal precipitation over the Pacific Northwest. This is also consistent with the on-going La Nina event this winter.

Sea Surface Temperature (SST) Anomalies for January 2022

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

In the last four weeks, equatorial SSTs were below average across the east-central and eastern Pacific Ocean and were above average in the western Pacific Ocean.



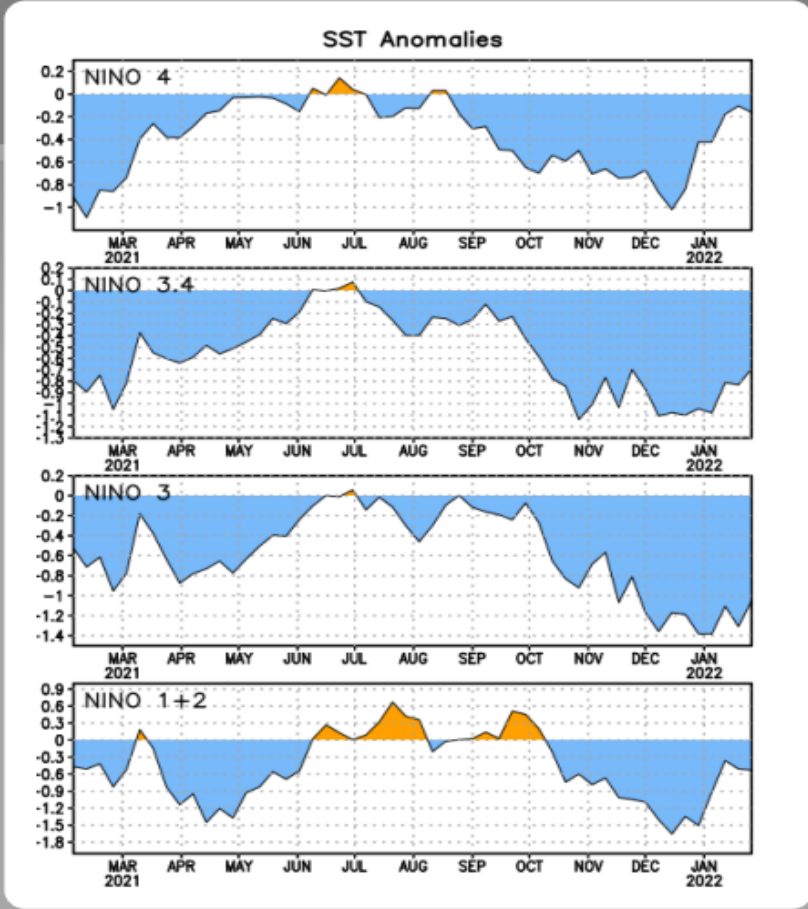
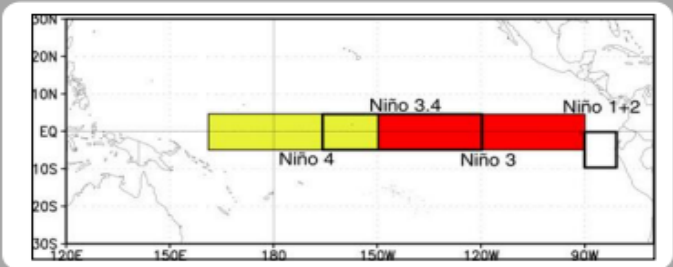
Equatorial SSTs were mostly below average from the 2nd of January to the 29th of January. The coolest waters were over the central and eastern equatorial Pacific, and more so south of the equator, south of Mexico and central America. However, there were many areas of warmer than normal SSTs over the eastern North Pacific off the coast of North America.

ENSO NINO Regions SST Anomalies for Each Nino Region

Niño Region SST Departures (°C) Recent Evolution

The latest weekly SST departures are:

Niño 4	-0.2°C
Niño 3.4	-0.7°C
Niño 3	-1.0°C
Niño 1+2	-0.5°C



Niño Regions 1+2, and 4 had lesser departure from normal SSTs than in the previous few months. Niño Regions 3 and 3.4 had much greater negative departures of normal, however, these 2 Niño Regions also had less of a departure from normal than the previous few months. These could be reasons that the effects of La Niña have seemed to end over the Pacific NW.

Current ENSO (El Nino Southern Oscillation) Alert System Status

Summary

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

La Niña is present.*

Equatorial sea surface temperatures (SSTs) are below average across the east-central and eastern Pacific Ocean.

The tropical Pacific atmosphere is consistent with La Niña.

La Niña is likely to continue into the Northern Hemisphere spring (67% chance during March-May 2022) and then transition to ENSO-neutral (51% chance during April-June 2022).*

The current ENSO Alert System Status is still **“La Nina Advisory”**. La Nina conditions are favored to continue through the spring, with a 67% chance from March – May 2022, and then transition to ENSO-neutral conditions with a 51% chance during the period April through June 2022. There will be an overlap period from April through May during the transition, in which La Nina conditions will still be dominant.



Thank You!