

The Month In Review

March 2022

**National Weather Service
Pendleton, Oregon**

Photo: Great Horned Owl resting in a tree on a spring day

March 2022, Climate Conditions Summary

March of 2022 was somewhat of a benign month as far as the weather goes. There were a couple significant weather events, but overall, the month was quieter than normal for typical climatology conditions for the month of March. There was a heavy snow event on the 9th of the month, which mostly affected the eastern and northeast mountains, especially the northern Blue Mountains. Then a few days later, there was a wind event, in which strong wind gusts were reported in the Foothills of the Northern Blue Mountains of Oregon. There was also a weak thunderstorm event later in the month, but none of the thunderstorms were strong or severe enough to warrant any warnings, significant weather statements, or LSRs. Mean temperatures were above normal at most locations, as will be shown in a few slides later in this presentation. The highest temperatures reported were in the lower to mid 70s, mainly in the Lower Columbia Basin, adjacent lower valleys, and the Blue Mountain Foothills. The coldest temperatures reported were mostly in the teens to near 20, except -10 at Meacham, OR, which occurred during a cold snap in the early to mid part of the month. Below, and on the next slide, are some images showing some of the weather conditions that occurred during the month.



Late season snowstorm in the Northern Blue Mountains of Oregon.



Sun shining over the snow covered Blue Mountains just before sunset.



Early spring thunderstorms off in the distance over the Southern Blue Mountains.

More Images Representing March 2022 Climate Conditions



AC Lenticular Clouds over Mt Adams



Heavy snow-covered trees in the Blue Mtns.



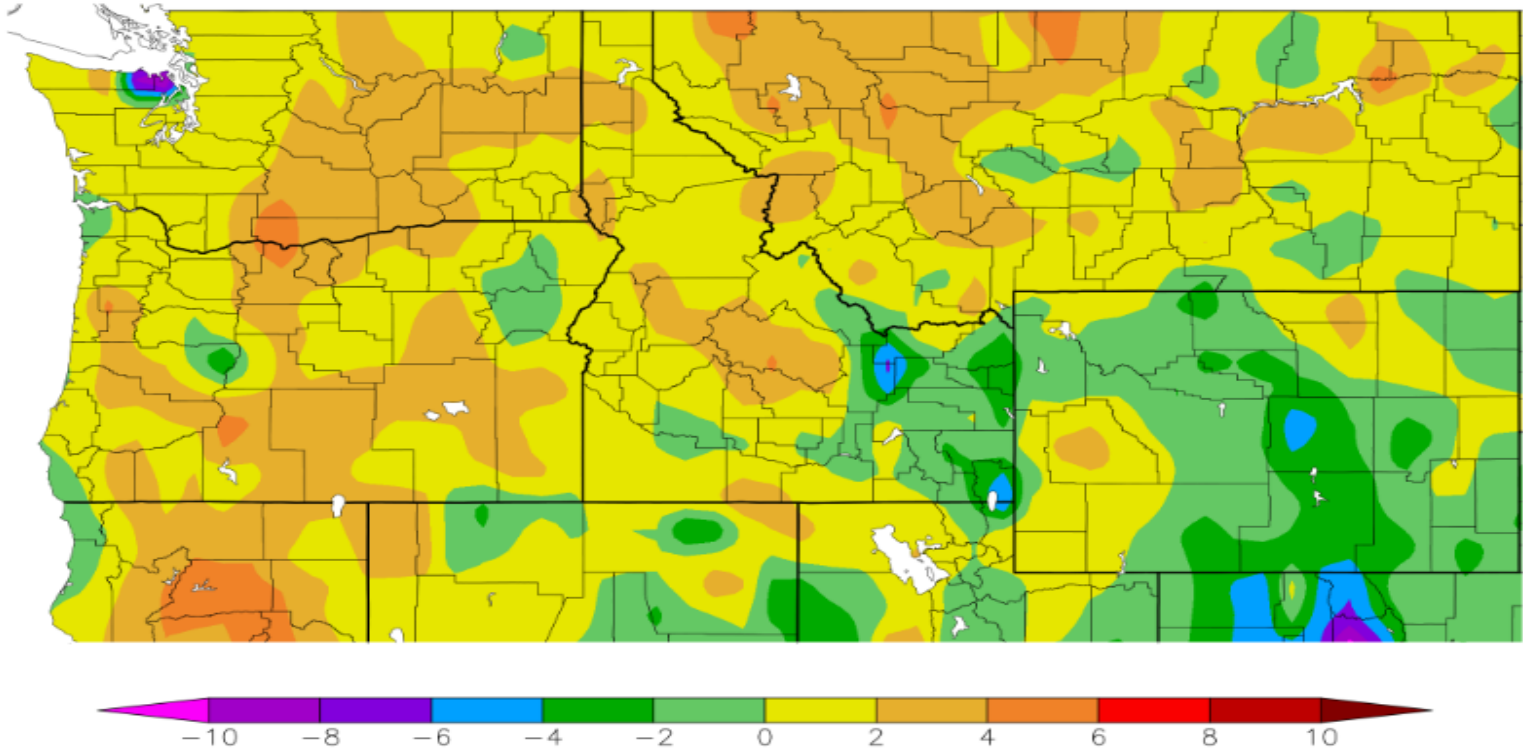
A soaking rain event in northeast Oregon



A Great Horned Owl sitting in spring tree buds

March 2022, Departure from Normal of Average Temperatures

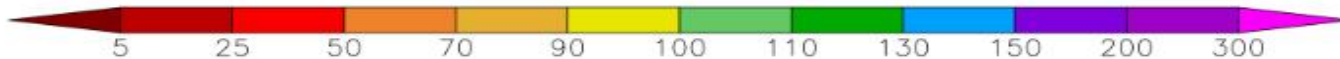
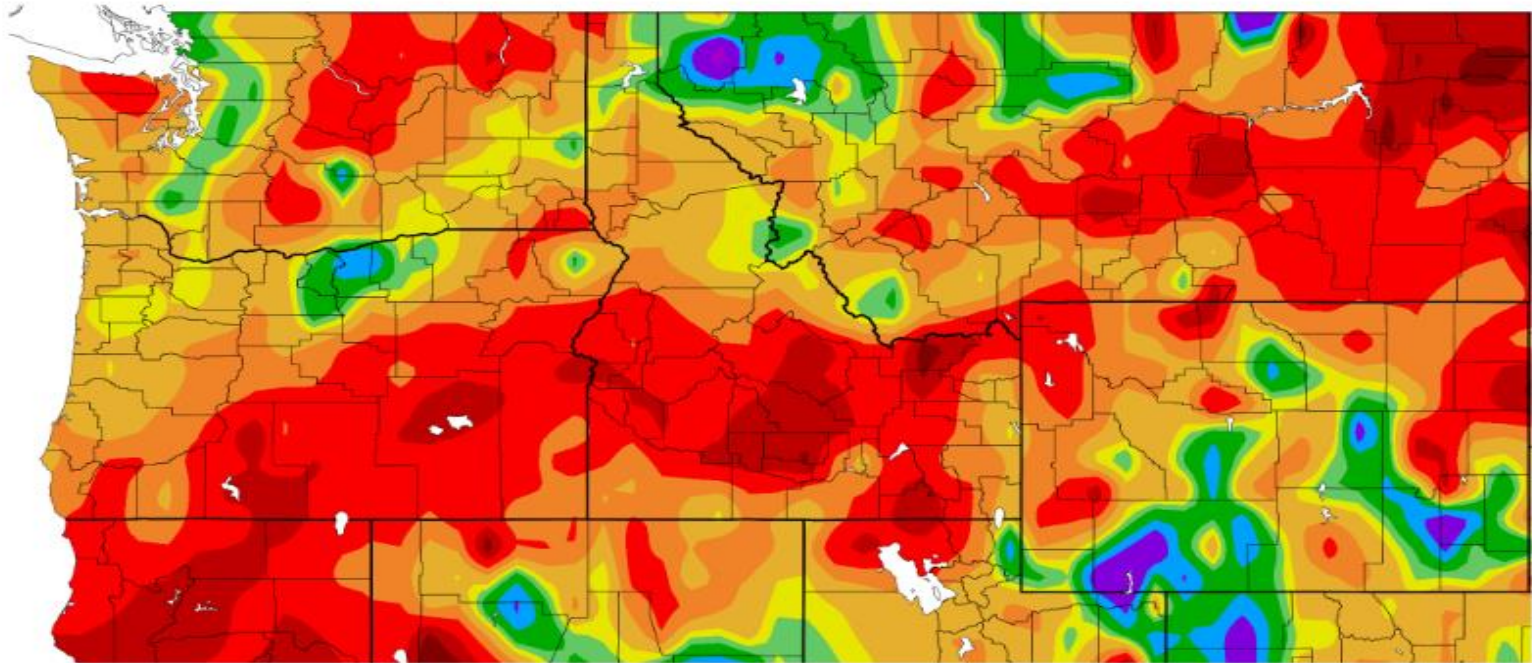
Departure from Normal Temperature (F)
3/1/2022 – 3/31/2022



The departure from normal of the average temperatures were nearly all above normal, except for an area over the northeast Oregon mountains and in the Cascades in western Deschutes County in central Oregon. The warmest areas were in central and south-central Washington, portions of north central Oregon, and in east central Oregon. Departure from normal values ranged from about -2 degrees to +6 degrees.

March 2022, Percent of Normal of Precipitation

Percent of Normal Precipitation (%)
3/1/2022 – 3/31/2022



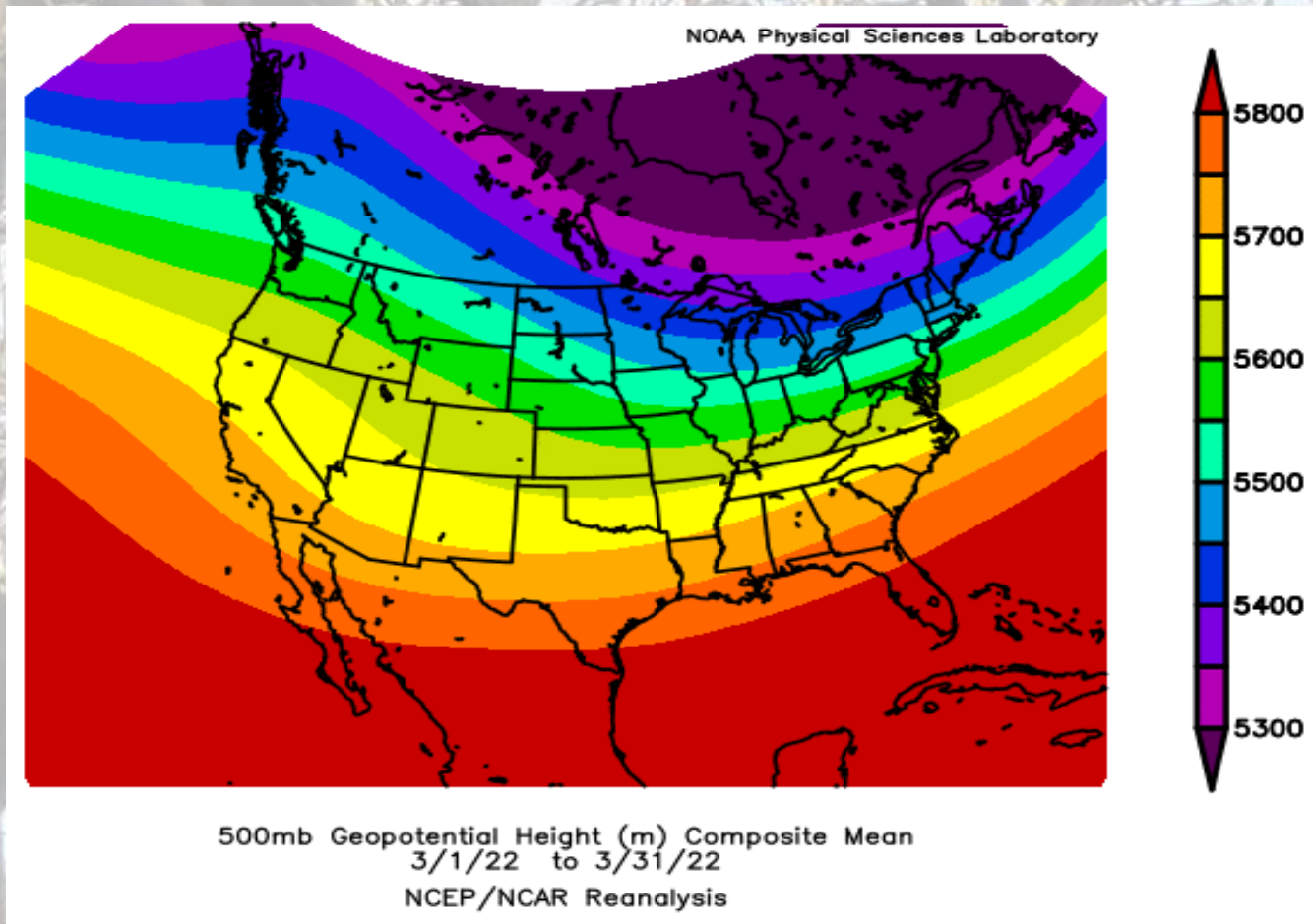
Almost all of the forecast area had below normal precipitation as represented by the percent of normal precipitation in the above image. The exception was over the western OR Lower Columbia Basin and north central OR, which had above normal precipitation. Values ranged from as low as 25 percent of normal in the driest areas to as high as 150 percent of normal in the wettest areas.

March 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	59.6	3.4	32.4	2.3	46.0	2.8	0.11	-0.51
Kennewick	61.0	2.6	39.3	2.9	50.2	2.8	0.66	-0.07
Walla Walla	56.1	0.9	38.5	1.1	47.3	1.0	1.69	-0.61
The Dalles	62.5	5.5	41.9	5.3	52.2	5.4	1.01	-0.15
Redmond	57.9	4.1	29.6	3.6	43.8	3.9	0.41	-0.25
Pendleton Airport	57.2	2.0	36.7	1.7	47.0	1.9	1.16	-0.16
La Grande Airport	51.5	0.3	31.2	0.8	41.1	0.3	0.52	-0.94
John Day	58.0	3.7	34.0	4.9	46.0	4.3	0.44	-0.83

The table above shows that every station listed had above normal temperatures for the mean maximum, mean minimum and mean average temperatures for the month. Values ranged 0.3 to 5.5 degrees for the mean maximums, 0.8 to 4.9 degrees for the mean minimums, and 0.3 to 5.4 degrees for the mean average temperatures. Precipitation amounts were all below normal for every station listed above, with values ranging from -0.94 inch at the La Grande Airport to -0.07 inch at Kennewick, WA (which happened to be in the wettest location of the forecast area).

March 2022, Average 500 MB Pattern

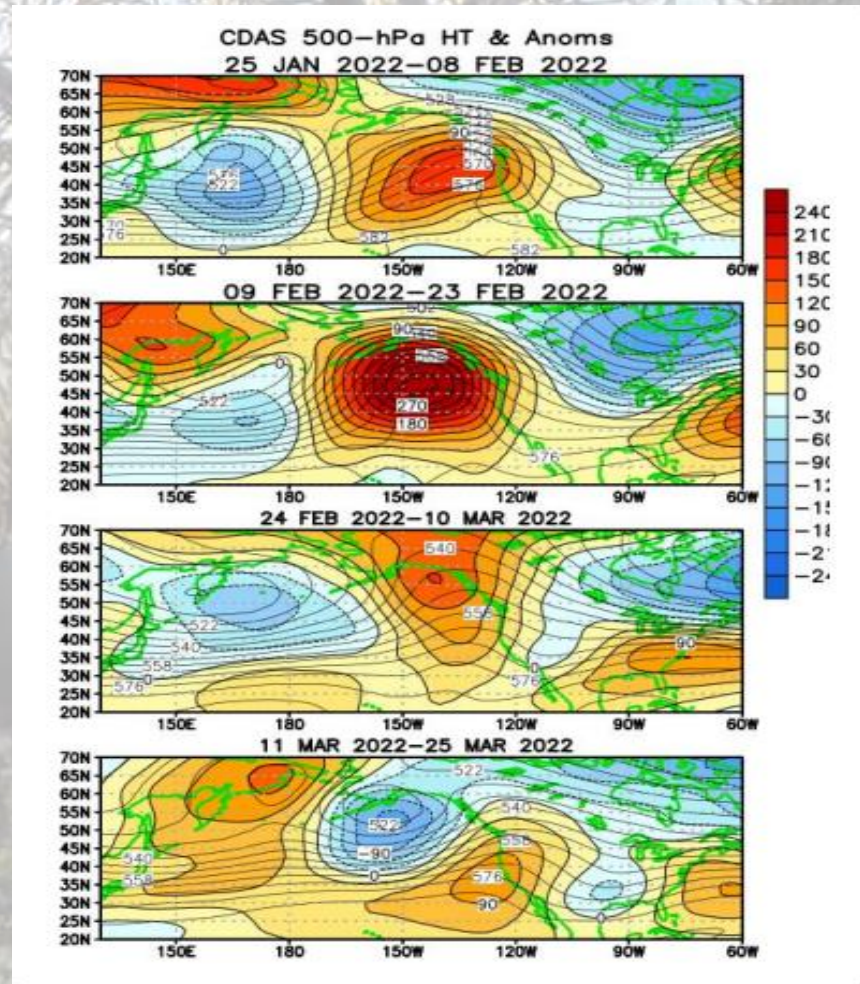


The average 500 MB flow pattern for March was a combination of a subtle upper ridging pattern to a zonal westerly flow pattern. The upper ridging was likely the cause of the above normal temperatures and below normal precipitation, shown on the previous slide. However, the westerly zonal component was likely the cause of the couple of rainfall events and the wind event. As previously mentioned earlier, the month was rather benign for extreme weather, and this type of pattern fits that well.

Two Month, Bi-weekly 500 MB Plots for February & March 2022

These are more detailed bi-weekly average 500 mb pattern plots, which was sampled from the following period: 25th of Jan through the 25th of March 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.



During the period from late January through late February, a strong upper ridge persisted just off the Pacific Northwest coast, which resulted in lengthy period of a stable northwest flow over the forecast area. While this type of pattern would normally result in dry and stable conditions (which was the case for the mountains), the lower elevations had lengthy periods of moist fog and stratus. Then by March, the ridging pattern shifted eastward, and it had also weakened. This caused a continuation of the dry and warmer than normal conditions, but the fact that it was weaker allowed for more weather systems.

Significant/Record Weather Events for March 2022

Significant Weather Events				
Event	Date	Report	Where	Source
Heavy Snow	March 9, 2022	M 12.0 inches	9 SW Ski Bluewood, WA	Mesonet
Heavy Snow	March 9, 2022	M 9.0 inches	10 NNE Ukiah, OR	Mesonet
Heavy Snow	March 9, 2022	M 7.0 inches	3 NNW Meacham, OR	Mesonet
Heavy Snow	March 9, 2022	M 5.4 inches	Joseph, OR	Co-Op Observer
Heavy Snow	March 9, 2022	M 7.0 inches	5 SSW Spout Springs, OR	Mesonet
Heavy Snow	March 9, 2022	M 11.0 inches	16 WNW Ukiah, OR	Mesonet
Non-TSTM Wind Gust	March 13, 2022	E 51 mph	Pendleton, OR	Dept Of Highways
Non-TSTM Wind Gust	March 13, 2022	E 53 mph	Cayuse, OR	Mesonet

Most of the significant weather events were heavy snow, which occurred on the 9th of the month, which mainly impacted the northeast mountains. The other significant weather event was a wind Event on the 13th of the month, which mainly impacted the Oregon Foothills of the Northern Blue Mountains.

Record Weather Reports					
Event	Date	Where	Previous Record	New Record	Records Began
High Temp	March 1, 2022	Dallesport, WA	66 / 1986	66 (tie)	1929
High Temp	March 1, 2022	Hermiston, OR	69 / 1959	69 (tie)	1906
Rainfall	March 3, 2022	Walla Walla, WA	0.45 inches / 1982	0.50 inches	1930
Low Temp	March 9, 2022	Redmond, OR	13 / 2009	12	1941
Low Temp	March 10, 2022	Redmond, OR	9 / 2019	5	1941
Low Temp	March 10, 2022	Walla Walla, WA	24 / 1958	21	1930
High Temp	March 12, 2022	Walla Walla, WA	69 / 2003	69 (tie)	1930
High Temp	March 23, 2022	Ellensburg, WA	65 / 2001	65 (tie)	1934

Record weather events were mostly either record high temperatures or record low. The only other record report was of a high rainfall event on the 3rd. It is interesting to note that there was a record low and then a record high that were only 3 days apart from the 10th – 12th, which were both at Walla Walla, WA.

March 2022, Observed Monthly Max & Min Temperatures

Location	Highest Maximum	Lowest Minimum
Pendleton, OR	72	20
Redmond, OR	74	5
Pasco, WA	73	17
Yakima, WA	73	14
Walla Walla, WA	69	21
Bend, OR	64	12
Ellensburg, WA	70	18
Hermiston, OR	71	17
John Day, OR	75	13
La Grande, OR	70	11
The Dalles, OR	75	23
Meacham, OR	63	-10
MT Adams RS, WA	65	13

The highest maximum temperatures ranged from 63 degrees at Meacham, OR to 75 degrees at The Dalles, OR. The lowest minimum temperatures ranged from -10 degrees at Meacham, OR to 23 degrees above zero, again at The Dalles, OR. The cold lowest minimums were caused by an early month arctic outbreak.

March 2022 Observed Total Precipitation and Total Snowfall/Hail

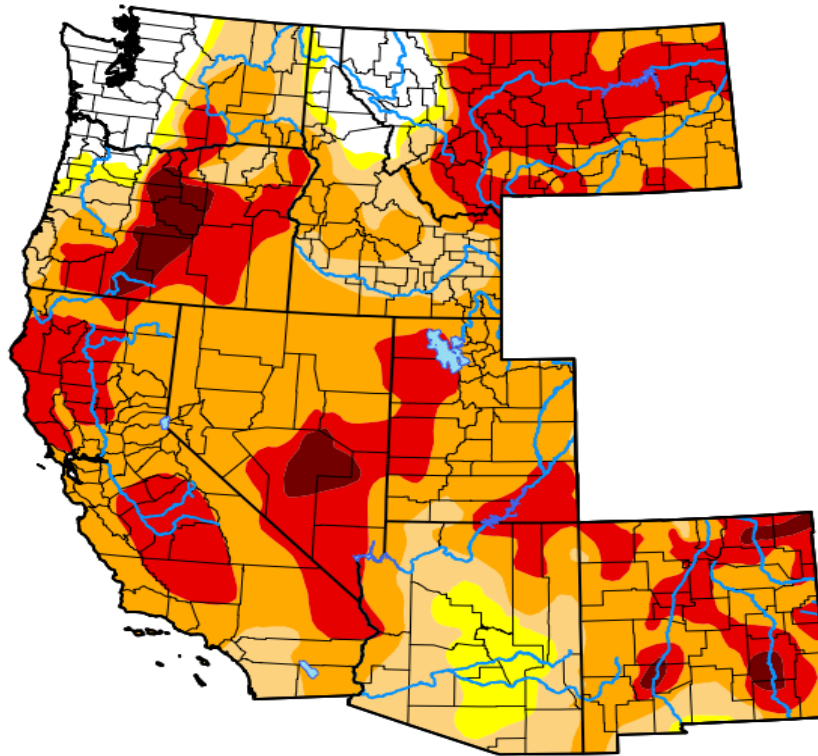
Location	Total Precipitation (inches)	Total Snow/Hail (inches)
Pendleton, OR	1.16	T
Redmond, OR	0.41	M
Pasco, WA	0.60	M
Yakima, WA	0.11	M
Walla Walla, WA	1.69	M
Bend, OR	0.49	M
Ellensburg, WA	0.23	M
Hermiston, OR	0.89	M
John Day, OR	0.44	M
La Grande, OR	0.52	M
The Dalles, OR	1.01	M
Meacham, OR	2.77	M
MT Adams RS, WA	2.06	0.5

Precipitation amounts ranged from a minimum of 0.11 inch at Yakima, WA to a maximum of 2.77 inches at Meacham, OR. However, most precipitation amounts were below an inch. The only available snow reports were a trace at Pendleton, OR and 0.5 inch at the Mt Adams Ranger Station.

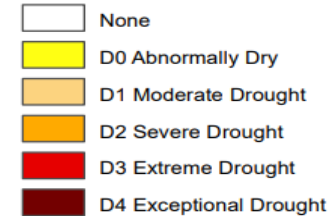
March 2022 - Drought Monitor - West

U.S. Drought Monitor West

March 22, 2022
(Released Thursday, Mar. 24, 2022)
Valid 8 a.m. EDT



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:

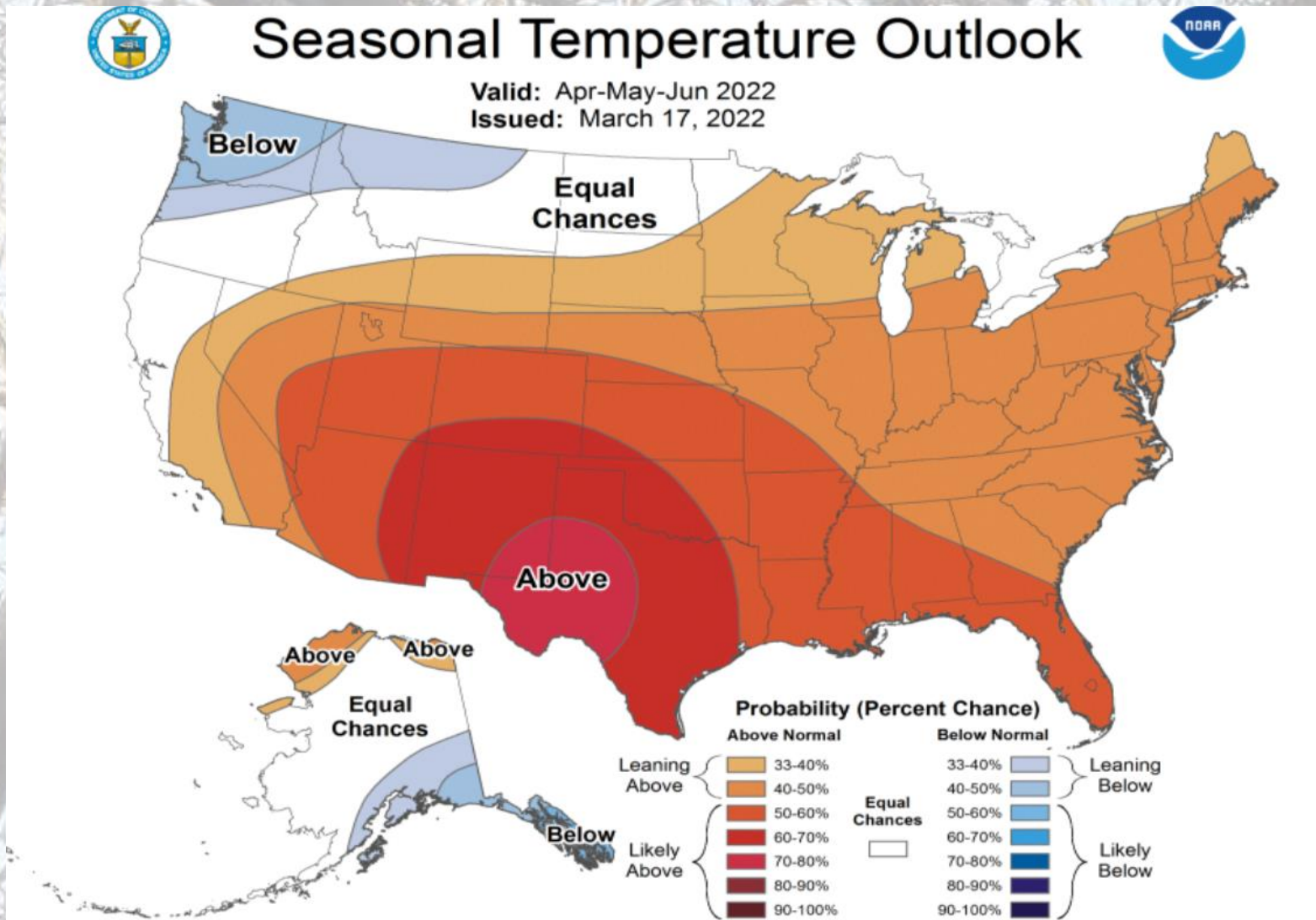
Adam Hartman
NOAA/NWS/NCEP/CPC



droughtmonitor.unl.edu

There continued to be an “Exceptional” (D4) drought just east of the OR Cascades, with a patch of “Extreme” drought conditions (D3) extending to the southern WA Cascades. The rest of the forecast area had mostly “Severe” to “extreme” drought conditions. There was just a small patch of “Moderate” drought conditions (D1) over the Oregon Lower Columbia Basin and the Foothills of the Northern Blue Mountains of Oregon.

USA Three Month Temperature Outlook



The temperature outlook for the next 3 months (April - June) is for a greater chance of mostly below normal temperatures for the Pacific Northwest. This is still consistent with the La Nina event that is continuing to taking place.

USA Three Month Precipitation Outlook

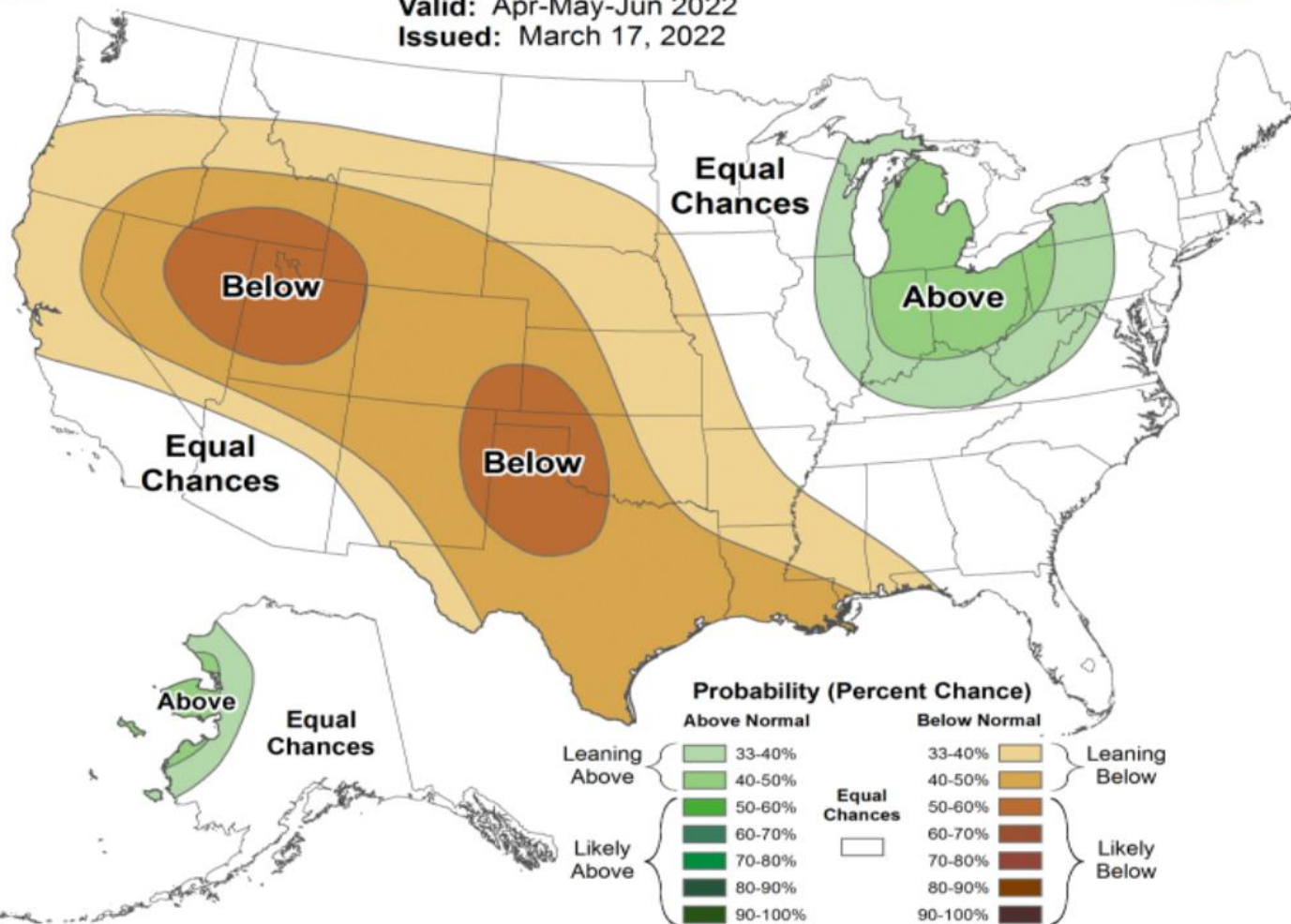


Seasonal Precipitation Outlook



Valid: Apr-May-Jun 2022

Issued: March 17, 2022

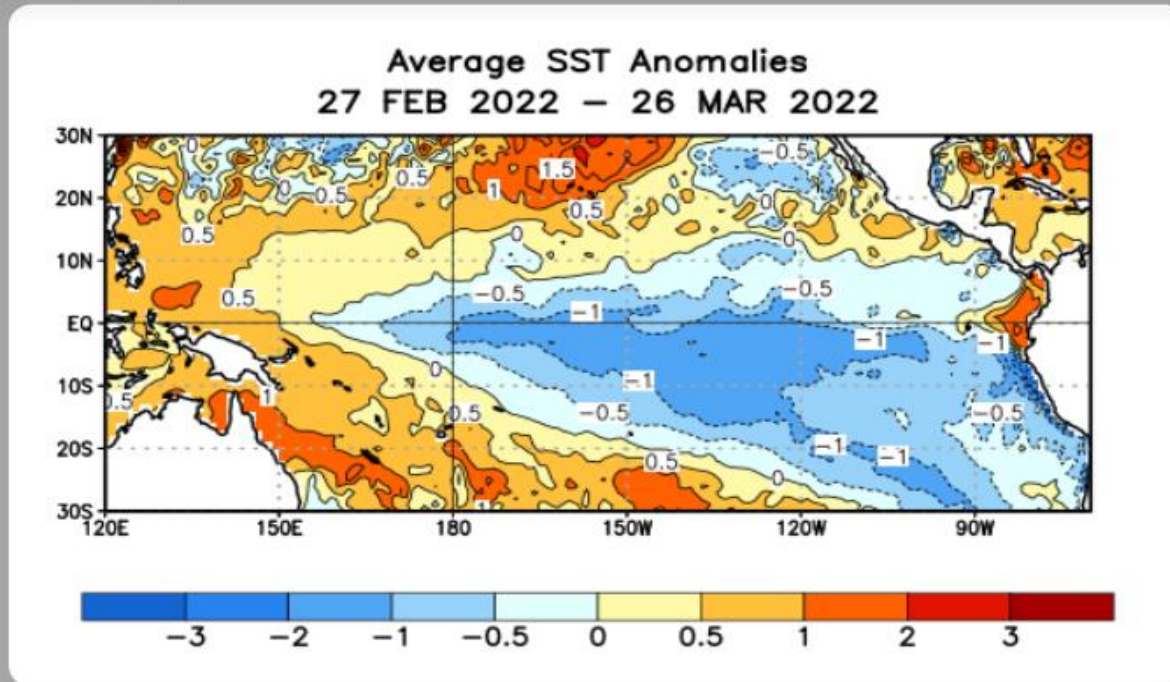


The precipitation outlook for the next 3 months (April - June) is for a greater chance of near to below normal precipitation over the Pacific Northwest. This is NOT consistent with the current La Nina event, but weather conditions can vary more as the current La Nina weakens.

Sea Surface Temperature (SST) Anomalies for March 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 central Pacific Ocean and were above average in the western Pacific Ocean and near South America.



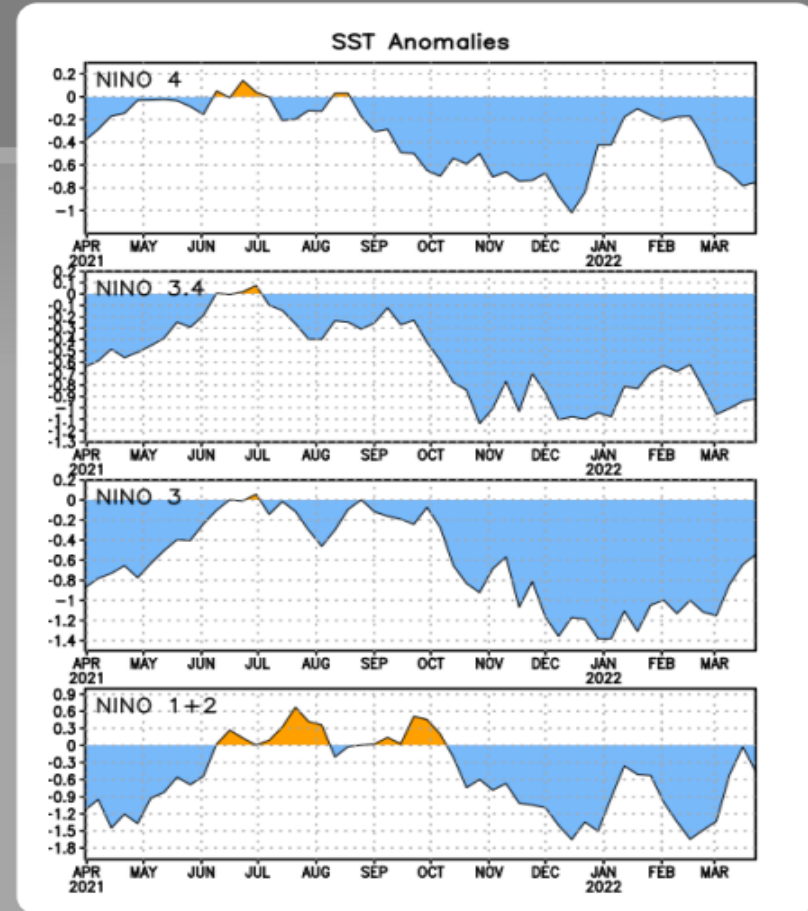
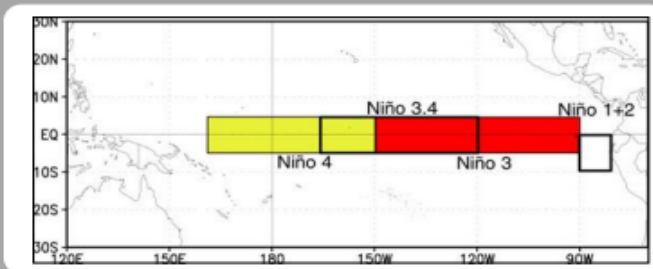
SSTs were again mostly below average over the central and eastern equatorial Pacific from late February through late March, by as much as -1 to -2 degrees C. This is slightly warmer than in February, which is consistent with the weakening of the current La Nina event. There also continued to be small areas of warmer than normal SSTs just off the coasts of Mexico, Central and northern South 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	-0.8°C
Niño 3.4	-0.9°C
Niño 3	-0.5°C
Niño 1+2	-0.5°C



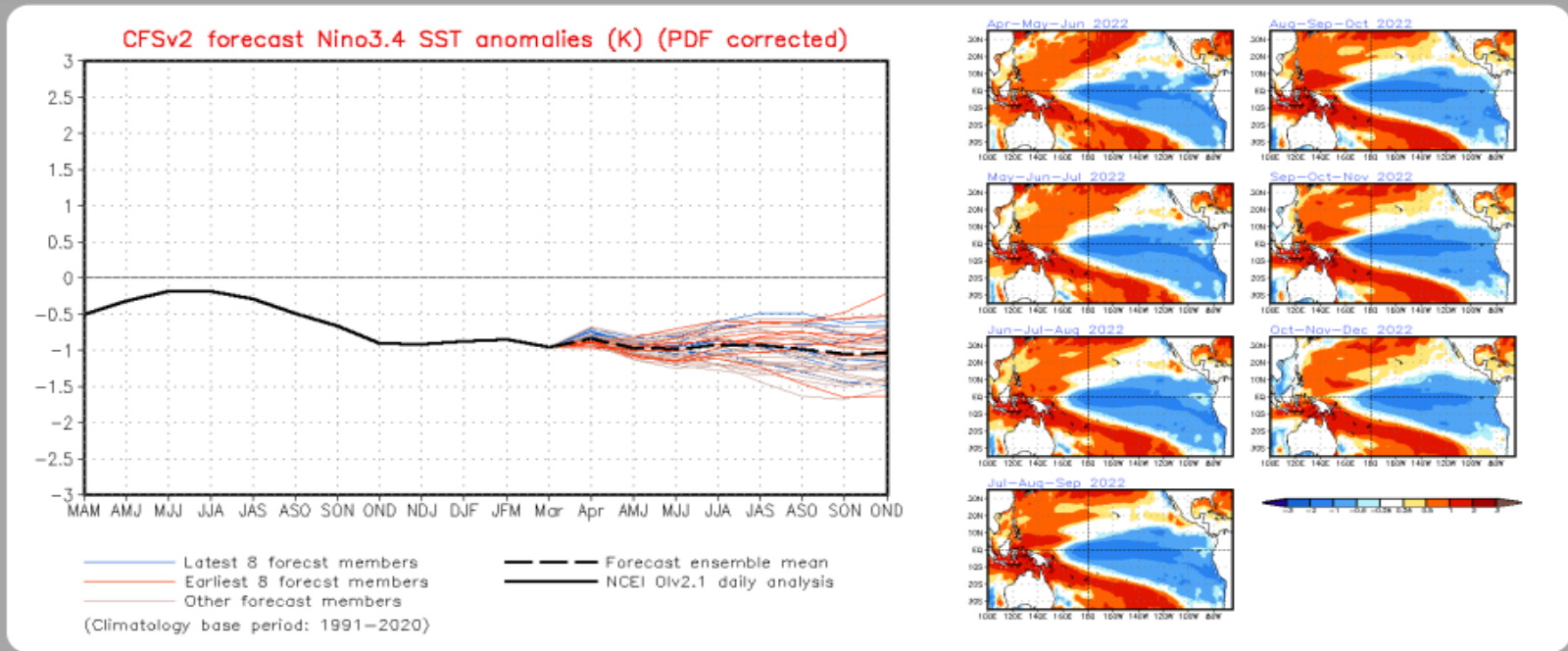
All Niño Regions continued to have SST anomalies less than zero degrees C. However, there continued to be some slight warming taking place during the month, overall. The greatest warming was in Niño Regions 1 + 2, and 3, and less warming in Niño Regions 3.4 and 4 during March. This warming is consistent with the weakening of the current La Niña event, especially in Niño Regions 3 and 3.4, which have the greatest ENSO affects on weather conditions over the Pacific Northwest.

Sea Surface Temperature (SST) NCEP CFS.v2 Ensemble Mean Outlook

SST Outlook: NCEP CFS.v2 Forecast (PDF corrected)

Issued: 28 March 2022

The CFS.v2 ensemble mean (black dashed line) predicts La Niña to continue through the end of the year.



The SST CFS.v2 ensemble mean outlook shows that SSTs are forecast to remain below the zero (neutral) line through the rest of 2022. This would result in the current La-Niña event to persist throughout this time frame. The Graphics on the right show that the equatorial Pacific SSTs are to remain below normal for each of the 3-month periods through end of the year.

Current ENSO (El Niño Southern Oscillation) Alert System Status

Summary

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

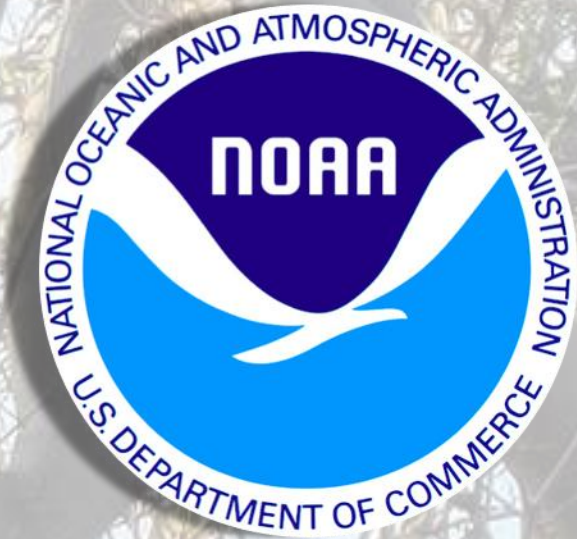
La Niña is present.*

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 favored to continue into the Northern Hemisphere summer (53% chance during June-August 2022), with a 40-50% chance of La Niña or ENSO-neutral thereafter.*

The current ENSO Alert System Status is still **“La Nina Advisory”**. La Nina conditions are now favored to continue through the summer, with a 53 percent chance from June – August 2022. Then there will be a 40-50 percent chance of a transition to ENSO-neutral conditions after August. The timing of the transition to ENSO neutral conditions has become even later than previously expected in late February.



Thank You!