

# **The Month In Review**

**May 2022**

**National Weather Service  
Pendleton, Oregon**

**Photo: Thunderstorm near Pendleton. Photo by Wade Earle.**

# May 2022, Climate Conditions Summary

May 2022 was another mostly wet and much cooler than normal month for this time of year. Some significant weather systems to note were mostly thunderstorm events, which produced large hail, a tornado, and also a heavy rain event which caused significant river rises to above their banks. Strong thunderstorm events occurred on the 6<sup>th</sup> and the 15<sup>th</sup>, while a heavy rain event occurred on the weekend of the 28<sup>th</sup> and 29<sup>th</sup>. This heavy rain event caused some minor flooding along small rivers and streams in the northern Blue Mountains as well as the Blue Mountain Foothills, and the Grande Ronde Valley. There were record rainfall amounts as well. As shown in a later slide, temperatures were mostly below normal, with some significantly below normal. The heavy rain virtually eliminated drought conditions over the Lower Columbia Basin and over the northern Blue Mountains. However, locations over central Oregon and central Washington are still in drought conditions due to a lack of this heavy rain which mostly occurred over the Cascades, the Northern Blue Mountains and Foothills. Below are some images of some of the significant weather events. On the next slide are more images of some of the other weather phenomena that occurred during the month.



**Large 1.5 inch hail from a severe thunderstorm near Meacham, OR.**



**A drenching rain over northeast OR. This photo is of Pendleton, OR.**



**Severe thunderstorm tree damage near between Weston and Tollgate, OR.**

# More Images Representing March 2022 Climate Conditions



Interesting roll clouds during a pretty sunset.



Thunderstorms moving closer to the NWS office.



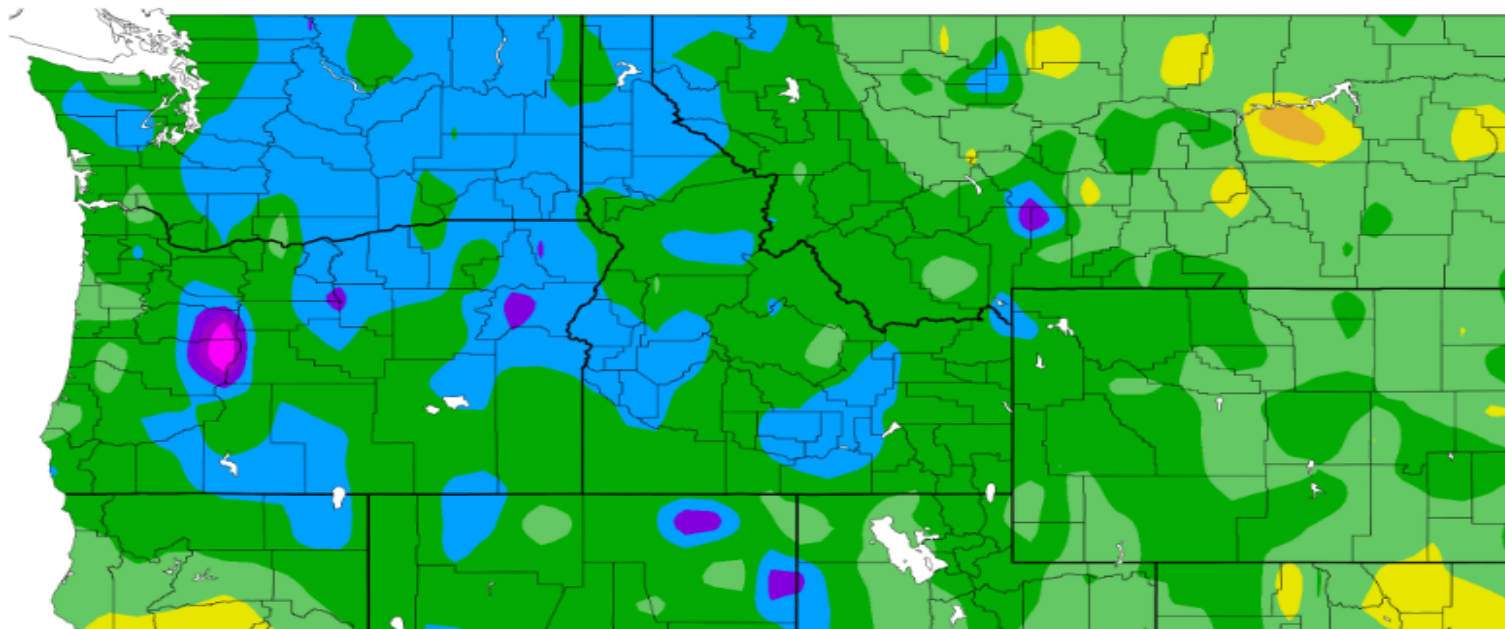
A beautiful spring day in the park in Pendleton.



Flooded road along Birch Creek near Pilot Rock.

# May 2022, Departure from Normal of Average Temperatures

Departure from Normal Temperature (F)  
5/1/2022 – 5/31/2022



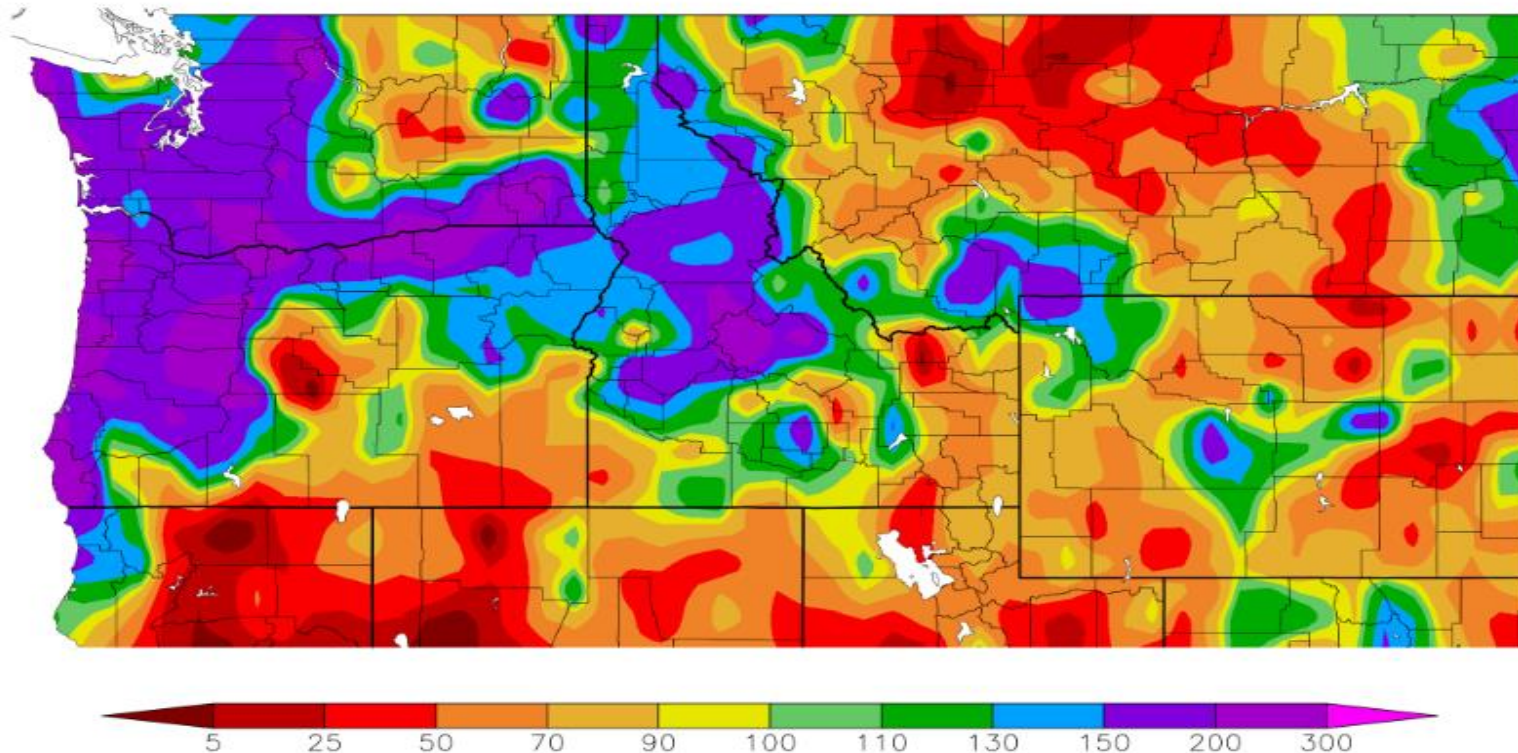
Generated 6/1/2022 at HPRCC using provisional data.

NOAA Regional Climate Centers

The departure from normal of the average temperatures were all below normal for the entire forecast area (central to northeast OR and south central to southeast WA). These departures ranged from -6 to -8 degrees in the coolest locations, and around -2 over a very small portion of the eastern Columbia River Gorge. The coldest locations were mainly over the northern Blue Mountains and the lower elevations of the Lower Columbia Basin and areas east of the Cascades from northern OR to southern WA.

# May 2022, Percent of Normal of Precipitation

Percent of Normal Precipitation (%)  
5/1/2022 – 5/31/2022



Generated 6/1/2022 at HPRCC using provisional data.

NOAA Regional Climate Centers

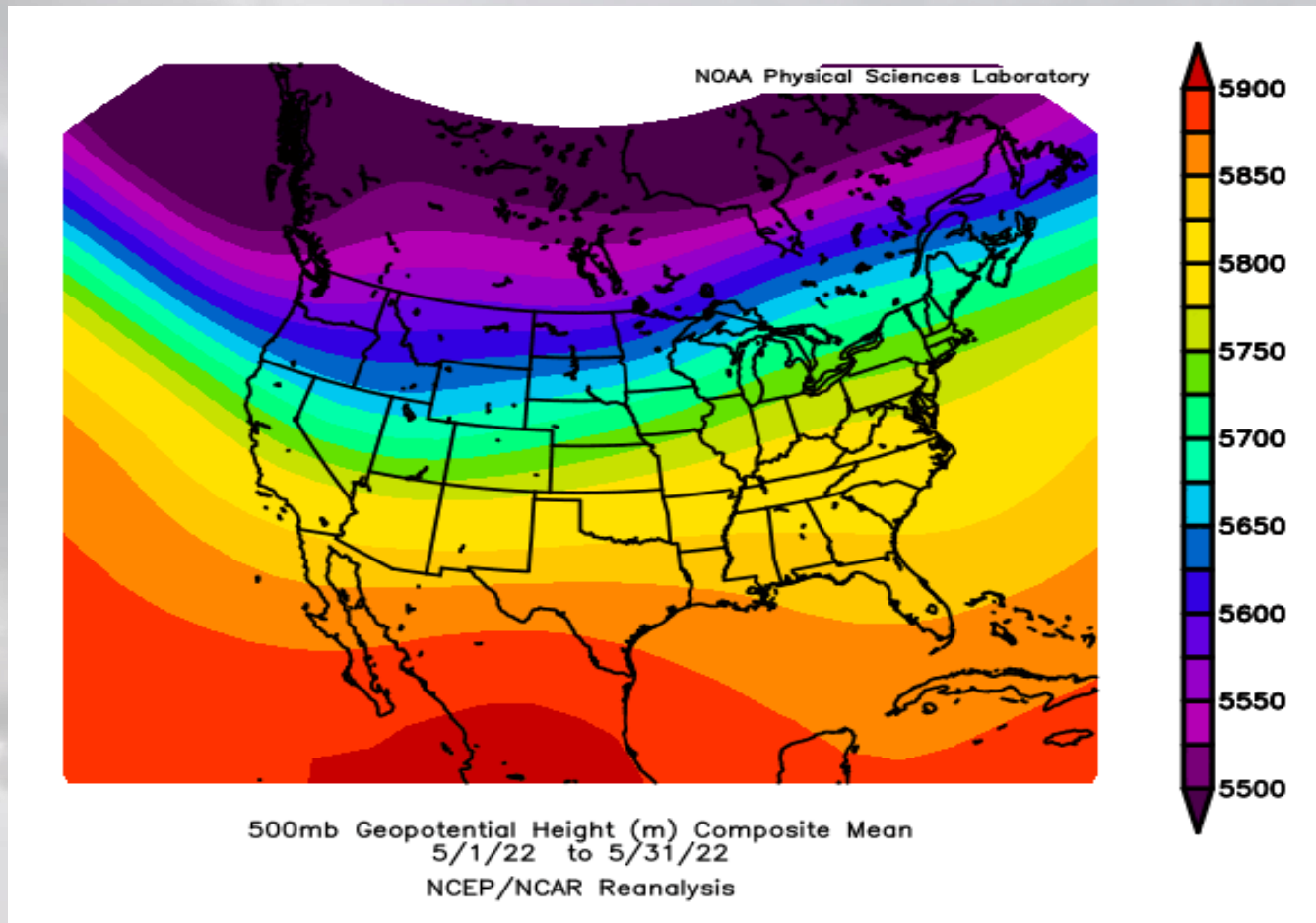
There was a much greater variability in the percent of normal precipitation across forecast area than temperatures. The Cascades, Columbia River Gorge, Lower Columbia Basin and adjacent valleys/foothills received as much as 200-300 percent of normal precipitation. On the other hand, areas in central OR and the valleys east of the WA Cascades received as low as only 5-25 percent of normal precipitation.

# May 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
<b>Yakima</b>	67.8	-4.6	40.3	-1.6	54.1	-3.0	0.85	0.27
<b>Kennewick</b>	68.9	-5.6	48.3	-1.2	58.6	-3.4	1.70	1.06
<b>Walla Walla</b>	64.0	-6.4	45.1	-3.2	54.5	-4.9	3.66	1.53
<b>The Dalles</b>	69.8	-3.1	48.5	-0.1	59.1	-1.7	1.66	0.97
<b>Redmond</b>	66.3	-1.2	35.3	-0.1	50.8	-0.6	0.47	-0.56
<b>Pendleton Airport</b>	65.8	-4.2	44.6	-1.0	55.2	-2.6	3.04	1.69
<b>La Grande Airport</b>	61.7	-6.1	38.4	-4.1	50.0	-5.2	2.58	0.34
<b>John Day</b>	66.0	-0.4	41.3	4.2	53.7	1.9	1.00	-0.83

The table above shows that every station listed had below normal mean maximum temperatures (note: the greatest absolute values are highlighted in a black box). The greatest departure from normal of the mean maximum temperature was at Walla Walla, WA (-6.4 degrees F). All, but John Day, OR had below normal mean minimum and mean average temperatures, with the greatest being -4.1 and -5.2 degrees F respectively, at the La Grande, OR Airport. All, but two, stations had above normal precipitation, with greatest departure being at the Pendleton, OR Airport, with 1.69 inches above normal precipitation.

# May 2022, Average 500 MB Pattern

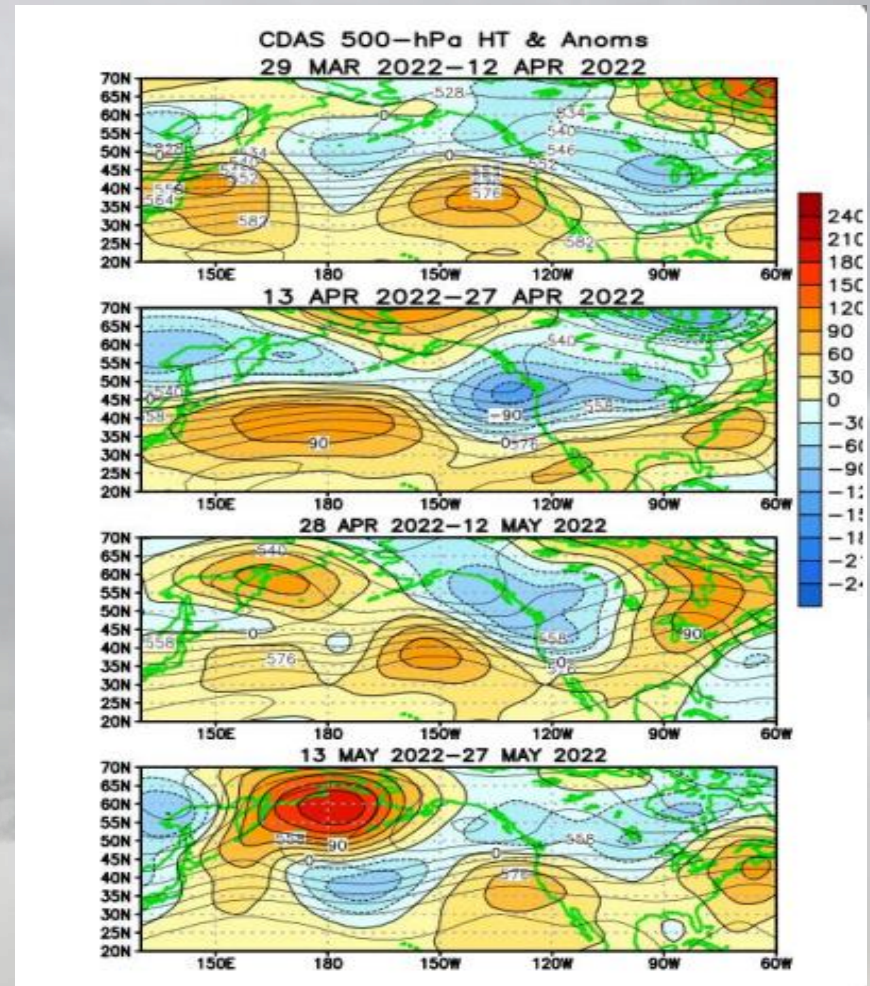


The average 500 MB flow pattern for May was a broad upper trough pattern over the Pacific Northwest. This led to more storms which moved into the region from off the Pacific, bringing frequent moderate to heavy rain events, thunderstorm events and cooler than normal temperatures in most of the forecast area. This persistent upper trough pattern, which has been the case over the last several months, leading to the continued cooler and wetter conditions, is likely due to the ongoing La-Nina event.

# Two Month, Bi-weekly 500 MB Plots for April & May 2022

These are more detailed bi-weekly average 500 mb pattern plots, which was sampled from the following period: 29<sup>th</sup> of March through the 27<sup>th</sup> of May 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 very late March through mid April, there has been an upper ridge pattern off the west coast. Then, from mid April through mid May, there was an average upper trough along the west coast, leading to cooler and wetter than normal conditions. Then an upper ridge pattern returned by the latter half of May along the southwest coast, but there was still a weak upper trough to a zonal westerly flow over the Pacific Northwest coast. The result of the upper trough pattern most of the time during the last two months resulted in mostly cooler and wetter than normal conditions, which is consistent with the ongoing La-Nina.



# Significant/Record Weather Events for May 2022

Significant Weather Events				
Event	Date	Report	Where	Source
Hail	May 6, 2022	E 0.88 inch	NNW Spray, OR	Trained Spotter
Hail	May 6, 2022	E 1.25 inch	9 S Pendleton, OR	Public
Hail	May 6, 2022	E 1.00 inch	11 S Pendleton, OR	Public
Hail	May 15, 2022	M 1.00 inch	6 SSW Thorn Hollow, OR	Trained Spotter
Hail	May 15, 2022	M 1.50 inch	4 NNW Meacham, OR	Public
Flood	May 29, 2022	Water covered roadway	9 W Meacham, OR	Trained Spotter
Flood	May 29, 2022	Popcorn LN flooded	8 ENE Pilot Rock, OR	Public
Flood	May 29, 2022	Lloyd RD flooded	4 S Mission, OR	NWS Employee
Flood	May 29, 2022	Steward Crk RD flooded	4 ESE Pilot Rock, OR	Trained Spotter
Heavy Rain	May 29, 2022	M 2.47 inches	8 SE Pilot Rock, OR	Trained Spotter

Most of the significant weather events were either from heavy rain, causing flooding, or hail from severe thunderstorms. There were severe thunderstorms which produced large hail on the 6<sup>th</sup> and again on the 15<sup>th</sup> of the month. There was also a tornado over the northern Blue Mountains on the 6<sup>th</sup>, but due to the need to verify if it was actually a tornado or not, a Local Storm Report for it was not issued at the time.

Record Weather Reports					
Event	Date	Where	Previous Record	New Record	Records Began
Maximum Rainfall	May 2, 2022	Yakima, WA	0.11 / 2007	0.29 inch	1909
Maximum Rainfall	May 2, 2022	Ellensburg, WA	0.28 / 2007	0.45 inch	1934
Maximum Rainfall	May 6, 2022	Pendleton, OR	0.34 / 1999	0.45 inch	1934
Maximum Rainfall	May 13, 2022	Dallesport, WA	0.19 / 1955	0.20 inch	1929
Low Temperature	May 13, 2022	Walla Walla, WA	38 / 1955	37 degrees	1930
Maximum Rainfall	May 28, 2022	Hermiston, OR	0.33 / 1988	0.51 inch	1906

Record weather events were mostly record maximum rainfall amounts, which occurred on the 2<sup>nd</sup>, 6<sup>th</sup>, 13<sup>th</sup>, and on the 28<sup>th</sup>. Some of these were due to thunderstorms, and some were due to longer duration heavy rain events. There was one record low temperature report on the 13<sup>th</sup>, during an unusually cold night.

# May 2022, Observed Monthly Max & Min Temperatures

Location	Highest Maximum	Lowest Minimum
Pendleton, OR	80	36
Redmond, OR	86	23
Pasco, WA	83	39
Yakima, WA	78	28
Walla Walla, WA	78	37
Bend, OR	81	24
Ellensburg, WA	77	34
Hermiston, OR	83	32
John Day, OR	84	28
La Grande, OR	77	28
The Dalles, OR	81	38
Meacham, OR	73	23
MT Adams RS, WA	74	28

The highest maximum temperatures ranged from 73 degrees at Meacham, OR to 86 degrees at Redmond, OR. The lowest minimum temperatures ranged from 23 degrees at Meacham, OR to 39 degrees at Pasco, WA. For the month of May, these are mostly lower than typical maximum and minimum temperatures for the month of May.

# May 2022 Observed Total Precipitation and Total Snowfall/Hail

Location	Total Precipitation (inches)	Total Snow/Hail (inches)
Pendleton, OR	3.04	0.0
Redmond, OR	0.47	M
Pasco, WA	0.96	M
Yakima, WA	0.85	M
Walla Walla, WA	3.66	M
Bend, OR	0.25	M
Ellensburg, WA	0.91	M
Hermiston, OR	1.85	M
John Day, OR	1.00	M
La Grande, OR	2.58	M
The Dalles, OR	1.66	M
Meacham, OR	6.62	M
MT Adams RS, WA	5.46	0.0

Precipitation amounts ranged from a minimum of 0.25 inch at Bend, OR to a maximum of 6.62 inches at Meacham, OR. However, most precipitation amounts ranged between a half inch to 2-3 inches. These are mostly above normal for typical May precipitation amounts. The only available snow reports were 0.0 at Pendleton, OR and the Mt. Adams Ranger Station.

# May 2022 - Drought Monitor - West

## U.S. Drought Monitor West

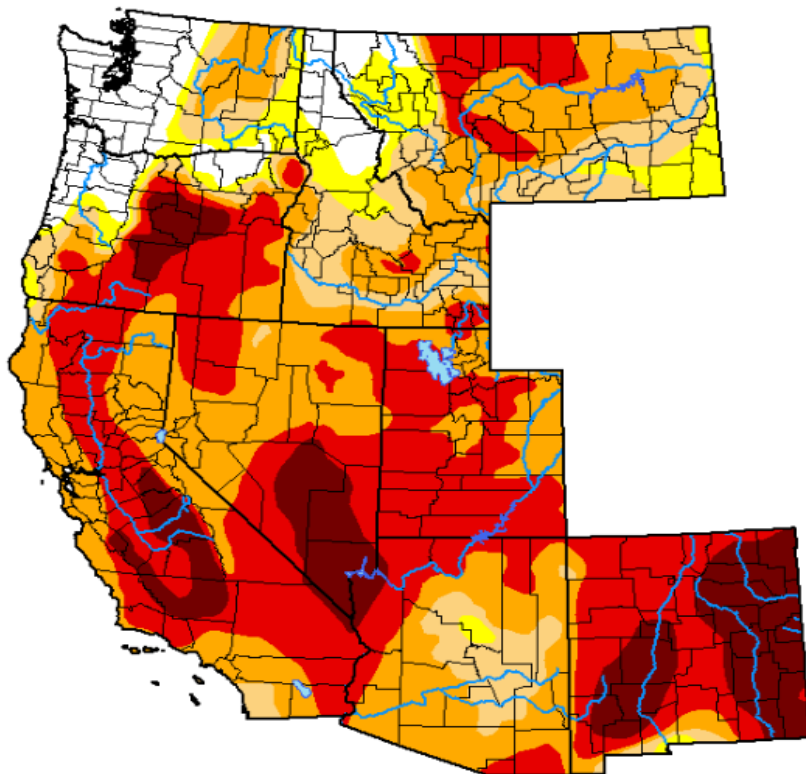
**May 31, 2022**

(Released Thursday, Jun. 2, 2022)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	7.44	92.56	86.49	74.43	43.63	11.43
<b>Last Week</b> 05-24-2022	7.31	92.69	87.62	76.46	44.06	11.43
<b>3 Months Ago</b> 03-01-2022	4.76	95.24	89.56	71.83	26.25	3.36
<b>Start of Calendar Year</b> 01-04-2022	4.43	95.57	87.78	64.63	25.30	4.75
<b>Start of Water Year</b> 09-28-2021	1.32	98.68	93.35	81.07	58.72	21.77
<b>One Year Ago</b> 06-01-2021	3.99	96.01	87.24	71.98	52.79	26.18



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>

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National Drought Mitigation Center



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

There continued to be an “Exceptional” (D4) drought over central OR east of the Cascades, but south of the southern Blue Mountain Foothills, and areas of “Extreme Drought” (D3) surrounding that, and also over Wallowa County. The Lower Columbia Basin and the Foothills of the Northern Blue Mountains had “None” (no drought) due to heavy rains. The rest of the forecast area was in an “Abnormally Dry” (D0) to a “Severe Drought” (D2) category.

# USA Three Month Temperature Outlook

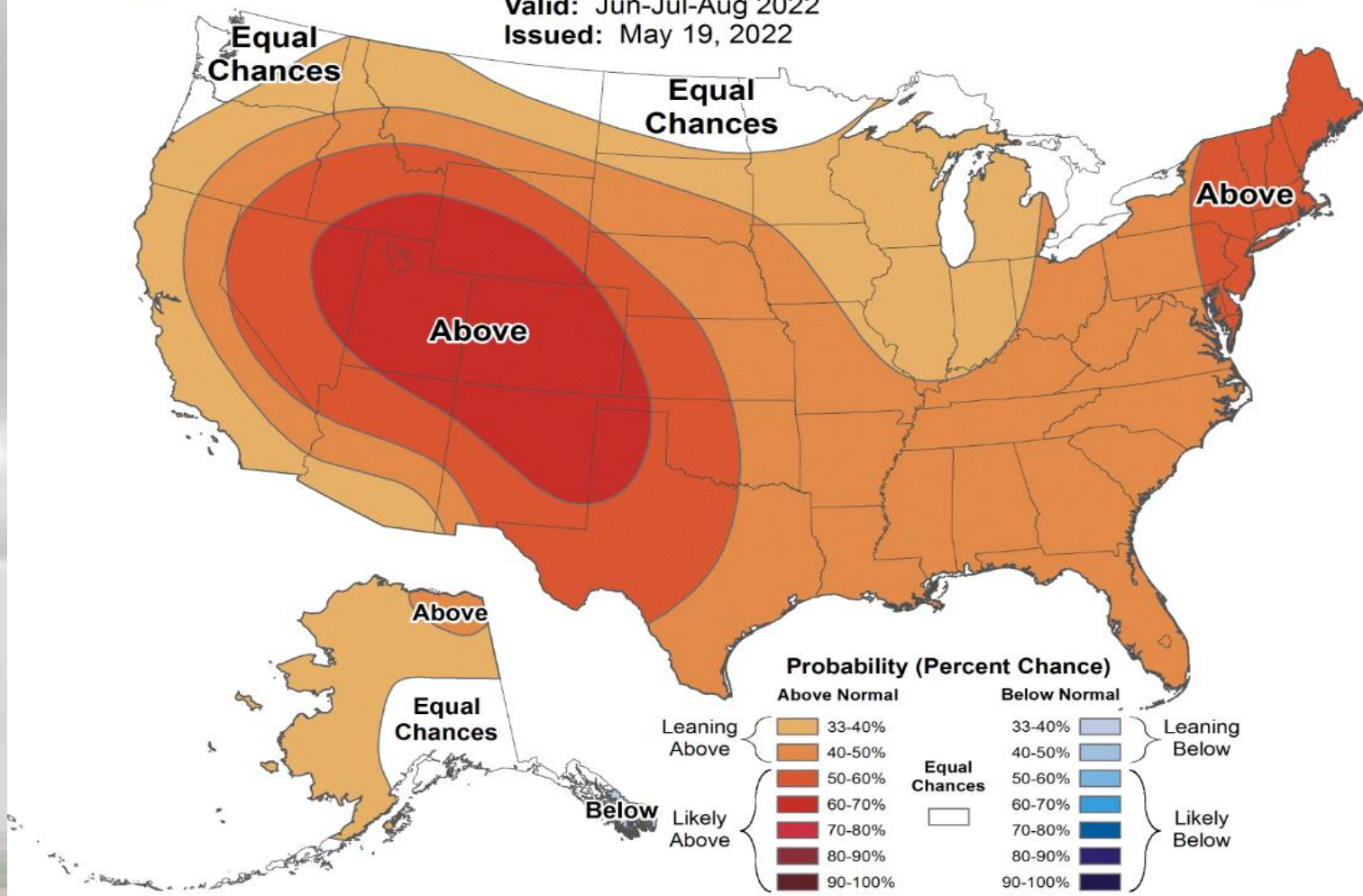


## Seasonal Temperature Outlook



Valid: Jun-Jul-Aug 2022

Issued: May 19, 2022



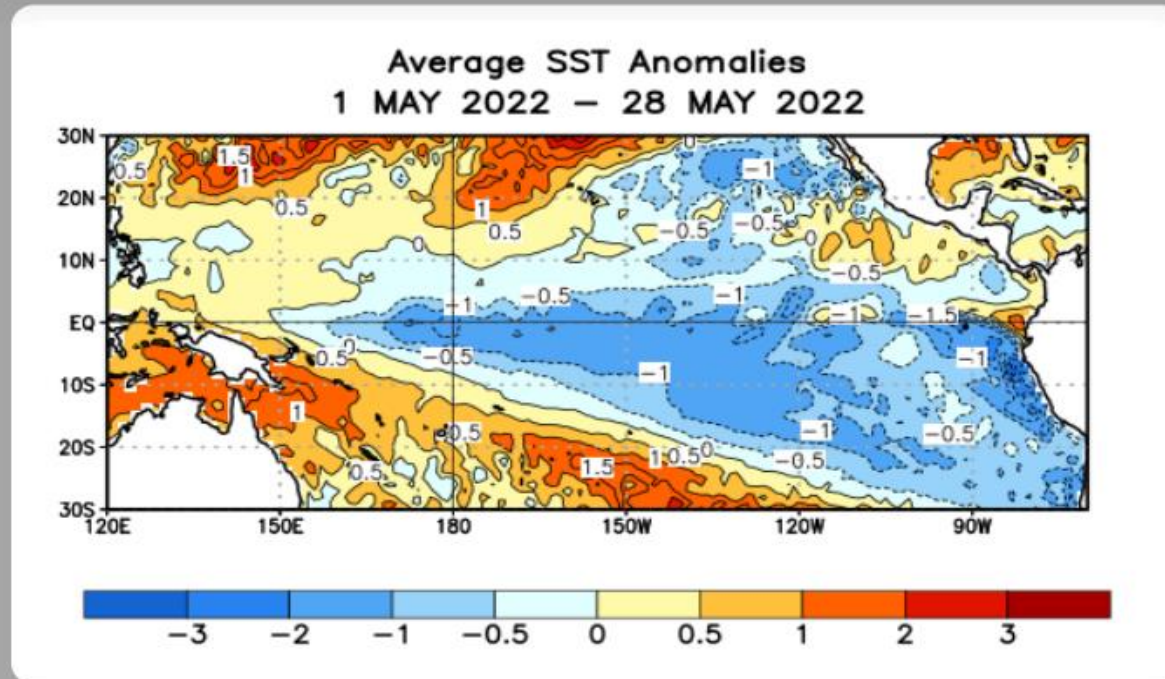
The temperature outlook for the next 3 months (June - August) is for a greater chance of equal chances to above normal temperatures for the Pacific Northwest. While this may depart some from typical La-Nina conditions over the Pacific Northwest, this forecast is not unusual for a typical eastern OR summer.



# Sea Surface Temperature (SST) Anomalies for May 2022

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

In the last four weeks, equatorial SSTs were below average across most of the Pacific Ocean.



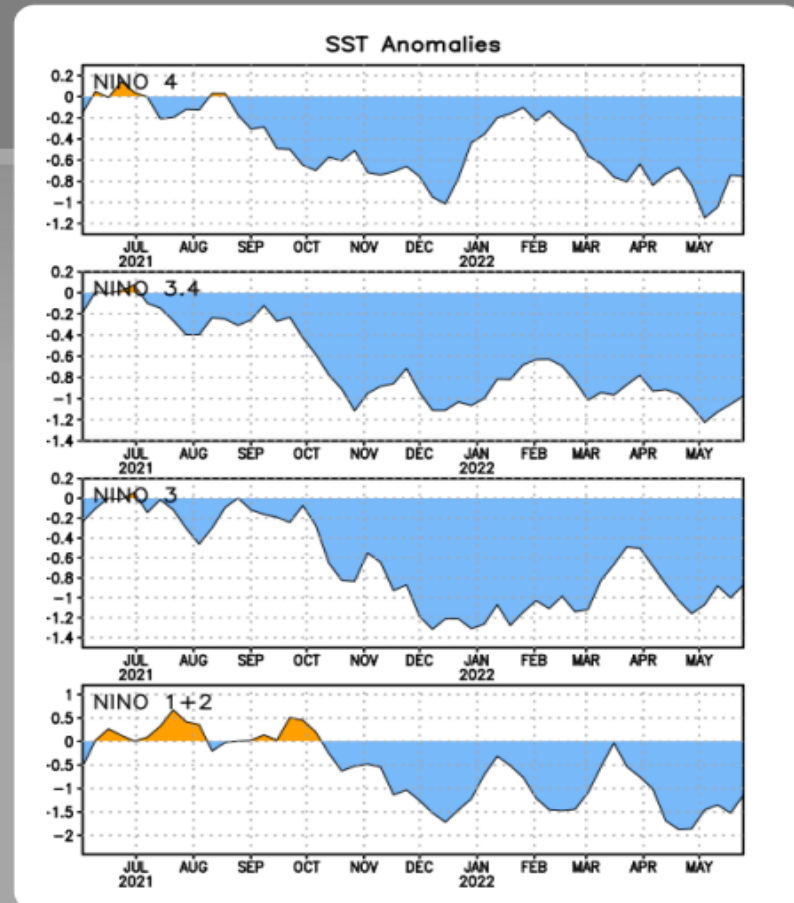
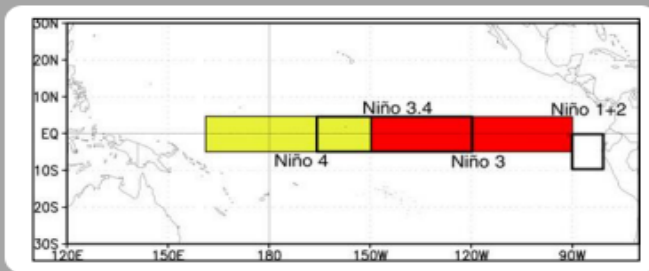
SSTs were again below average over the central and eastern equatorial Pacific during the month of May, by as much as -1 to -2 degrees C. This area has also expanded further into the western Pacific since April 2022 as well. This is consistent with the ongoing La-Nina event. There also continued to be 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	-1.0°C
Niño 3	-0.9°C
Niño 1+2	-1.1°C



All Niño Regions continued to have SST anomalies less than zero degrees C. However, there was some warming that took place at all four Niño Regions during the month of May. The greatest warming was in Niño Regions 3, 3.4, and 4. There was slightly less warming in Niño Region 1+2. This warming is consistent with a slight weakening of the current La Niña event, especially in Niño Regions 3 and 3.4, which have the greatest impacts on weather conditions over the Pacific Northwest.

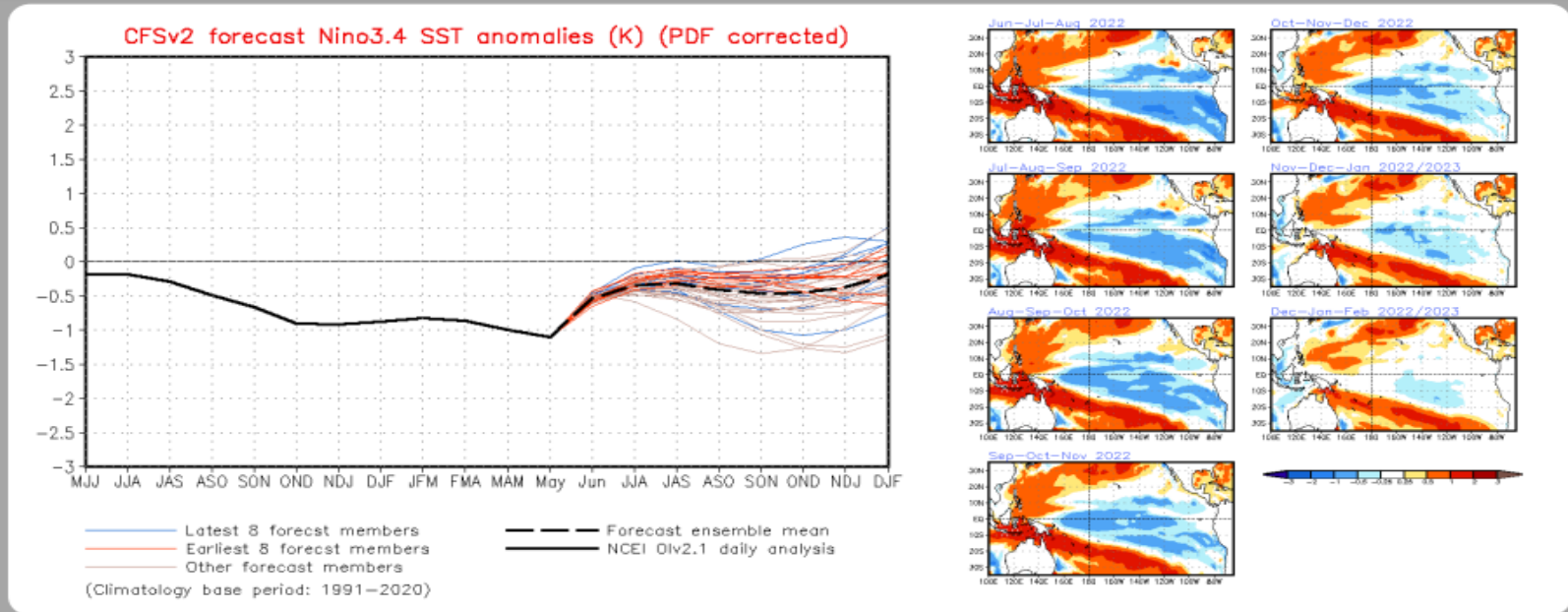


# Sea Surface Temperature (SST) NCEP CFS.v2 Ensemble Mean Outlook

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

Issued: 30 May 2022

The CFS.v2 ensemble mean (black dashed line) indicates a transition to ENSO-neutral during the Northern Hemisphere summer, with borderline La Niña conditions favored during the fall and winter.



The SST CFS.v2 ensemble mean outlook shows that SSTs are forecast to remain below the zero (neutral) line through the winter of 2022-2023. However, the increasing SSTs shown by the dashed black line (the ensemble SST forecast) indicates a transition to ENSO-neutral conditions during the Northern Hemisphere summer, with borderline La-Niña conditions favored during the fall and winter. This is also shown in the graphics on the right, which shows equatorial Pacific SSTs gradually become warmer during each of the 3 month periods through the winter of 2022-2023.

# 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 most of the Pacific Ocean.

The tropical Pacific atmosphere is consistent with La Niña.

Though La Niña is favored to continue, the odds for La Niña decrease into the late Northern Hemisphere summer (58% chance in August-October 2022) before slightly increasing through the Northern Hemisphere fall and early winter 2022 (61% chance).\*

The current ENSO Alert System Status is still “**La-Niña Advisory**”. Equatorial SSTs are below average over most of the Pacific Ocean, and the tropical Pacific atmosphere is consistent with La-Niña. La-Niña conditions are still favored to continue, however, the odds for La-Niña decrease into the late Northern Hemisphere summer (58 percent chance from August – October), and then slightly increasing again through the Northern Hemisphere fall and early winter 2022, with a 61 percent chance.



**Thank You!**