The Month In Review

July 2020

National Weather Service
Pendleton, Oregon

Photo: Hot July day in the northern Blue Mountains

July, 2020 Climate Summary

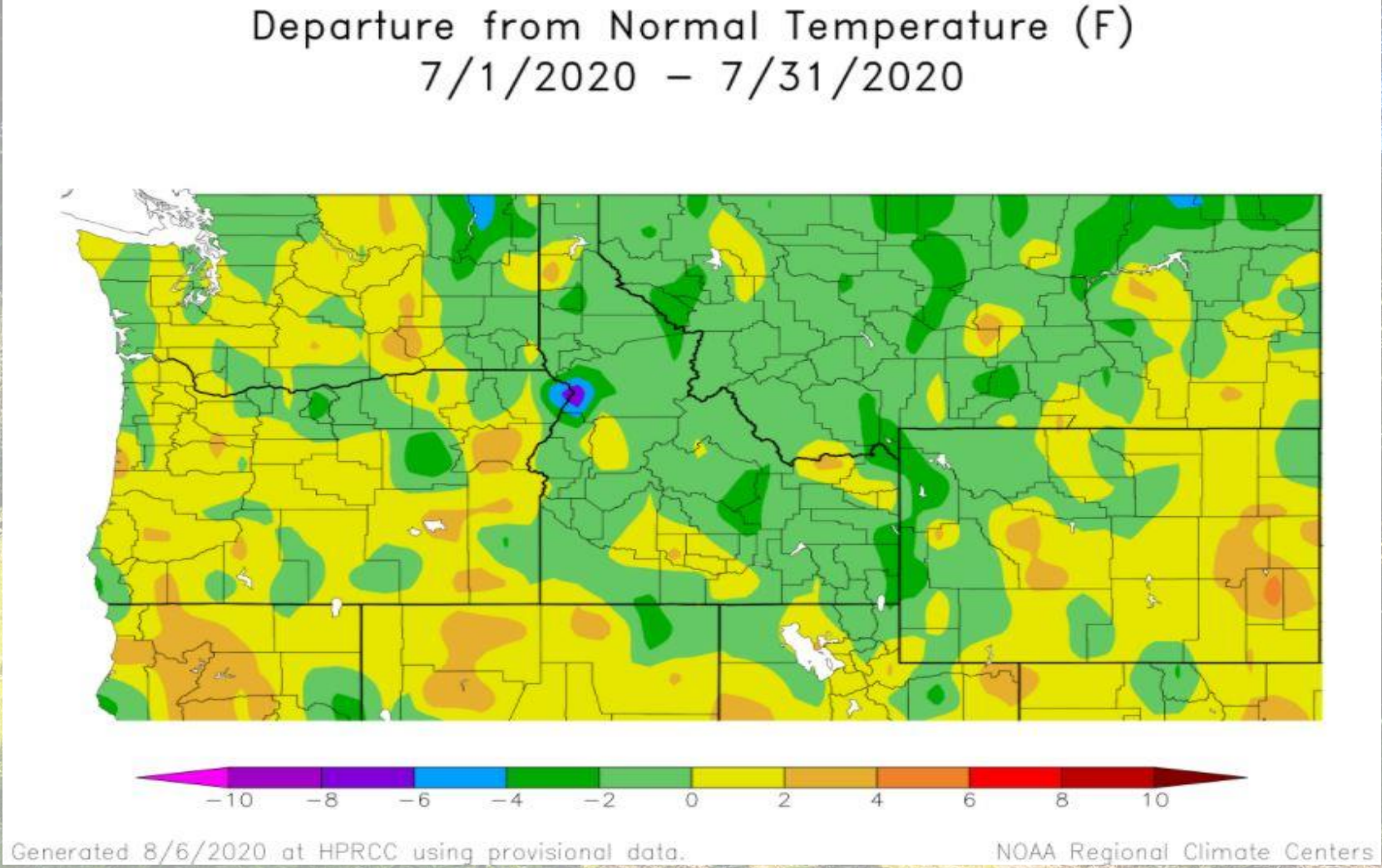
July was a very dry month with periods of very hot temperatures in the forecast area. There was not much in the way of severe weather during the month, and very little if any precipitation in most locations. There were a couple of periods of hot, dry and windy conditions or thunderstorms which caused abundant lightning, but little precipitation, which have started new wildfires. None of these new fires grew into large significant project fires due to the higher elevations still being quite green late in the season due to a mostly cool and/or wet winter and spring. These new fire starts were mainly in the lower elevations where the fine fuels have cured and was able to carry a fire. These lower elevation fires were mostly quickly contained and controlled. The highest temperature reported during the month was 111 degrees at Pasco, WA, which did not set a new record. However, 111 degrees was also reported at Hermiston, OR and 113 degrees at Richland, WA. These two highest temperatures did set a new record.

Cumulonimbus Clouds over the Wallowa Mountains, Oregon.

A bright and hot July summer day in the northern Blue Mountains.

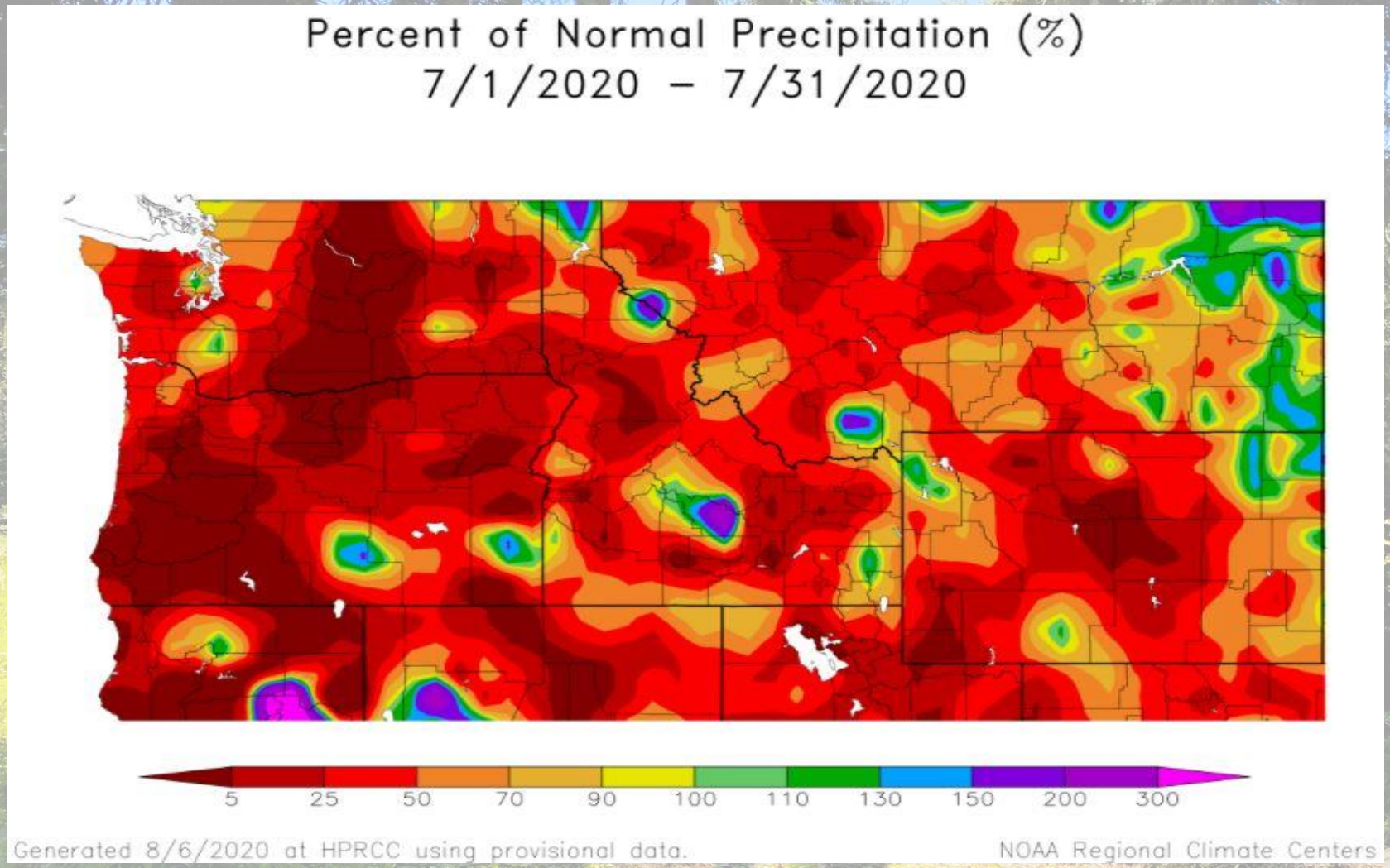
Lenticular clouds over the Cascades mountain range.

July 2020, Departure from Normal of Average Temperatures



Even though there were periods of very hot weather, NE Oregon and SE Washington experienced near normal average temperatures for July. This was likely caused by the cooler periods which offset the hot periods, which resulted in an overall average for the month.

July 2020, Percent of Normal of the Average Precipitation



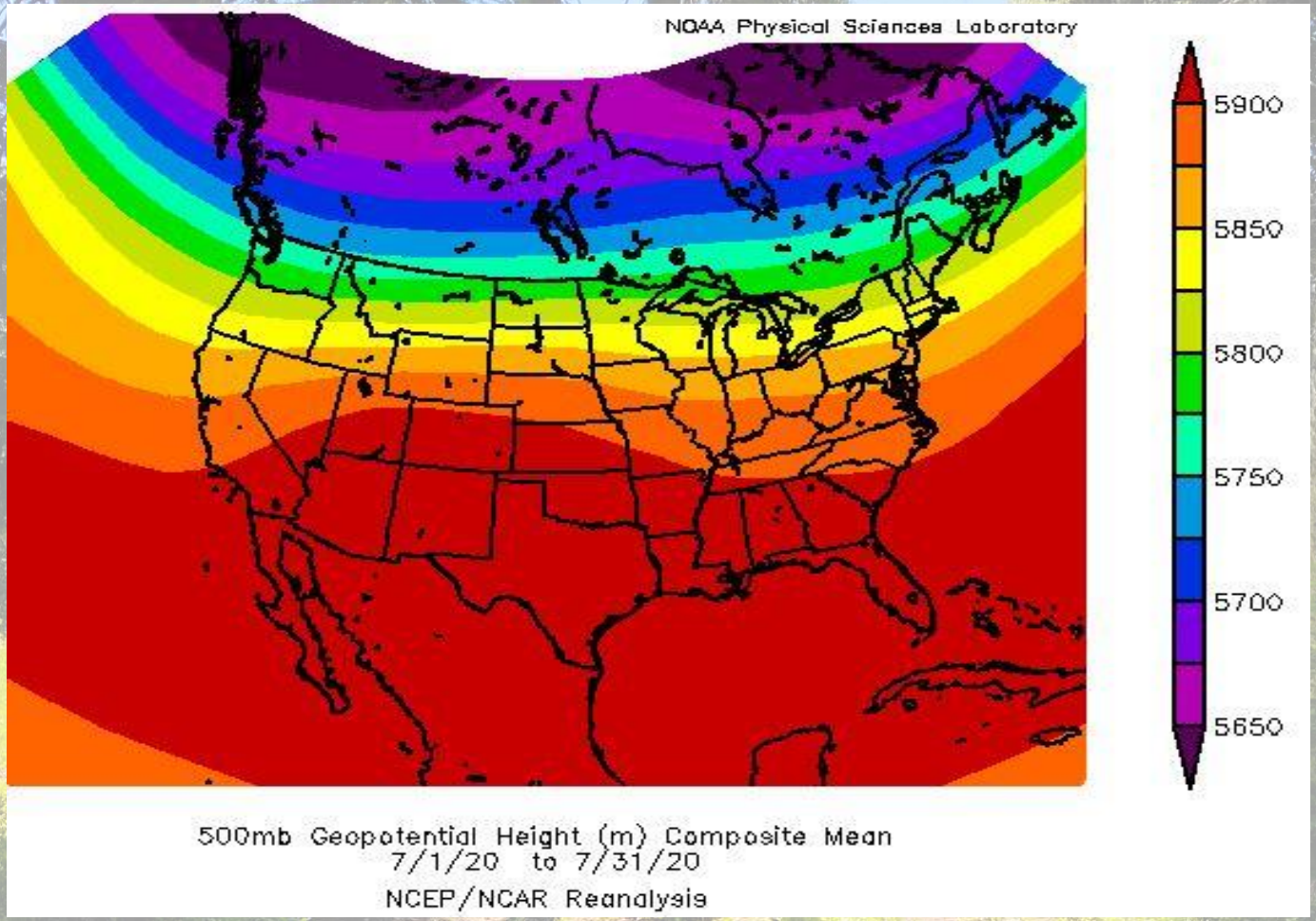
Nearly all of the Pacific Northwest, and all of the forecast area had a very low percent of normal precipitation for July. The percent of normal ranged from 5 to 50 percent below normal.

July 2020, Departures from Normal of the Averages for Select Cites

	Max T	Max T D	Min T	Min T D	Ave T	Ave T D	PCPN	PCPN D
Yakima	90.2	2.3	55.7	2.4	73.0	2.4	Trace	-0.22
Kennewick	91.5	1.2	61.9	0.2	76.7	0.7	0.03	-0.19
Walla Walla	89.2	0.0	60.1	-0.8	74.6	-0.4	0.05	-0.54
The Dalles	88.7	1.2	60.5	0.1	74.6	0.6	Trace	-0.16
Redmond	88.5	2.9	47.4	1.2	68.0	2.1	Trace	-0.53
Pendleton Airport	89.9	1.9	56.6	-0.6	73.3	0.7	0.06	-0.26
La Grande	86.2	0.8	48.6	-5.2	67.4	-2.2	0.05	-0.63

The mean maximum temperatures were all above normal by up to 2-3 degrees as shown in (the orange color). The mean minimum temperatures had almost an even split between above or below normal (orange vs. blue color). The mean average temperatures were mostly above normal (orange color), except for Walla Walla, WA and La Grande, OR which were slightly below normal (blue color). All of the precipitation totals for the month were below normal (orange color) by as much as 0.53 of an inch at Redmond, OR.

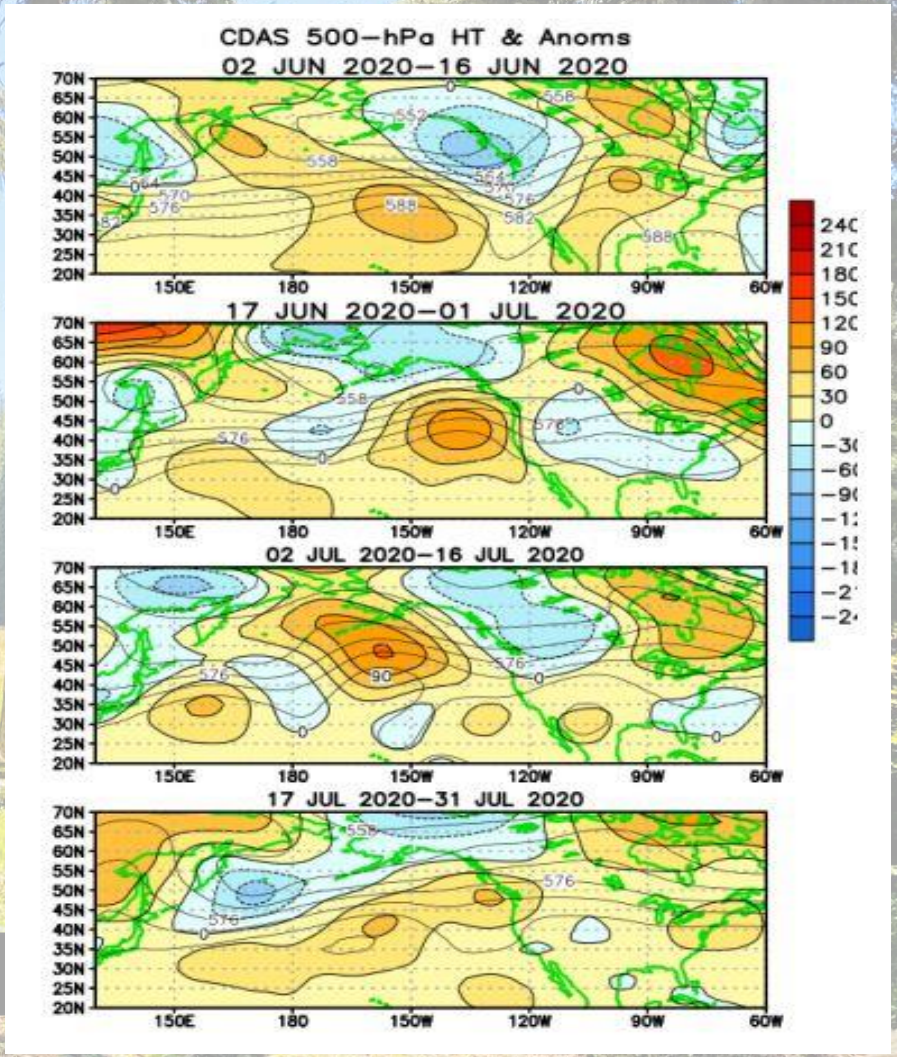
July 2020 Average 500 MB Weather Pattern



The average 500 MB pattern was an overall broad upper trough pattern. Despite the hot periods during the month, it is likely this overall dry westerly flow at the base of a broad upper trough in the summer which caused the much below normal percent of precipitation and the near normal temperatures for the month as shown in previous slides.

More Detailed 500 MB Plots for July 2020

These are more detailed semi-Monthly average 500 mb pattern plots, which were from the following periods: June 2 – 16, June 17- July 1, July 2 – 16, and July 17 – 31. 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.



At the beginning of June the forecast area/Pacific Northwest was dominated by upper low pressure at 500 mb, which continued through the latter half of June into the first half of July. Then in late July (the bottom most image) the average 500 mb pattern became more zonal to a slight ridge. It was during this last period which the very hot temperatures mostly occurred.

Significant/Record Weather Events for July, 2020

Significant Weather Events				
Event	**Date**	**Report**	**Where**	**Source**
There Were No Significant Weather Events This Month				

There were no significant weather events this month which resulted in a local storm report to be issued.

Record Weather Reports					
Event	**Date**	**Where**	**Previous Record**	**New Record**	**Records Began**
High Temp	July 29th	Meacham, OR	94 / 2003	94 (tied)	1929
High Temp	July 29th	Meacham, OR	94 / 2003	97 (later same day)	1929
High Temp	July 29th	Pendleton Air Pt.	106 / 1971	109	1934
High Temp	July 29th	Redmond, OR	102 / 2003	104	1941
High Temp	July 29th	The Dalles, OR	107 / 2015	108	1929
High Temp	July 29th	Walla Walla, WA	108 / 1971	108 (tied)	1930
High Temp	July 29th	Yakima, WA	104 / 2014	104 (tied)	1909
High Temp	July 29th	Arlington, OR	107 / 2003	108	1891
High Temp	July 29th	Pendleton Exp. Stn.	106 / 2003	107	1932
High Temp	July 29th	Pendleton WFO co-op	104 / 2016	110	2002
High Temp	July 29th	Easton, WA	93 / 2003	99	1905
High Temp	July 29th	Goldendale, WA	103 / 2003	104	1905
High Temp	July 29th	Kennewick, WA	105 / 2014	108	1884
High Temp	July 29th	Richland, WA	105 / 1952	113	1944
High Temp	July 29th	Selah, WA	103 / 2003	105	1998
High Temp	July 29th	Hermiston, OR	108 / 2014	111	1945
High Temp	July 29th	Yakima, WA	104 / 2014	105 (later same day)	1909
High Temp	July 29th	Whitman Mission, WA	107 / 1971	109	1962

Every record event for this month was a high temperature record, which all occurred on the same day (July 29th).

July 2020 Observed Monthly Max & Min Temperatures

Location	Highest Maximum Temperature	Lowest Minimum Temperature
Pendleton, OR	109	45
Redmond, OR	104	38
Pasco, WA	111	48
Yakima, WA	105	45
Walla Walla, WA	108	50
Bend, OR	99	39
Ellensburg, WA	104	43
Hermiston, OR	110	46
John Day, OR	107	46
La Grande, OR	102	41
The Dalles, OR	108	52
MT Adams RS, WA	100	39

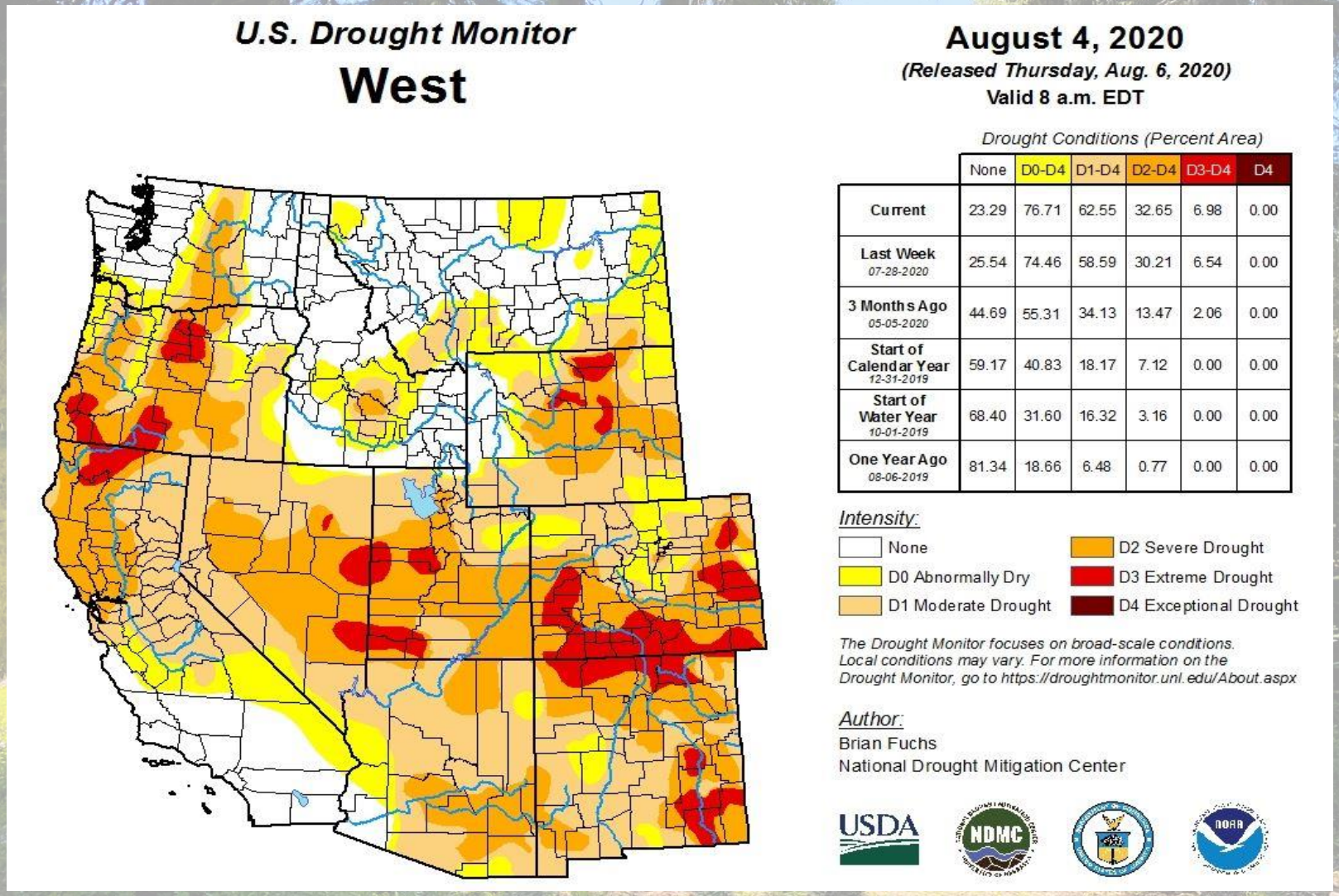
Every station in the list had a monthly maximum temperature of 100 or higher, except for Bend, OR which reached only 99. Even the Mt. Adams Ranger Station had a monthly maximum of 100 degrees. The monthly minimum temperatures were mostly in the 40s, with a few 30s, and two 50+ degree monthly minimums. This shows that it can still get chilly at night, even in July.

July 2020, Monthly Precipitation and Snowfall Totals

Location	Total Monthly Precip (inches)	Total Snowfall (inches)
Pendleton. OR	0.06	0
Redmond, OR	T	0
Pasco, WA	0.04	M
Yakima, WA	T	0
Walla Walla, WA	0.05	0
Bend, OR	0.00	0
Ellensburg, WA	T	M
Hermiston, OR	0.01	M
John Day, OR (RAWS)	0.05	M
La Grande, OR	0.05	M
The Dalles, OR	T	M
Mt Adams RS, WA	0.00	0

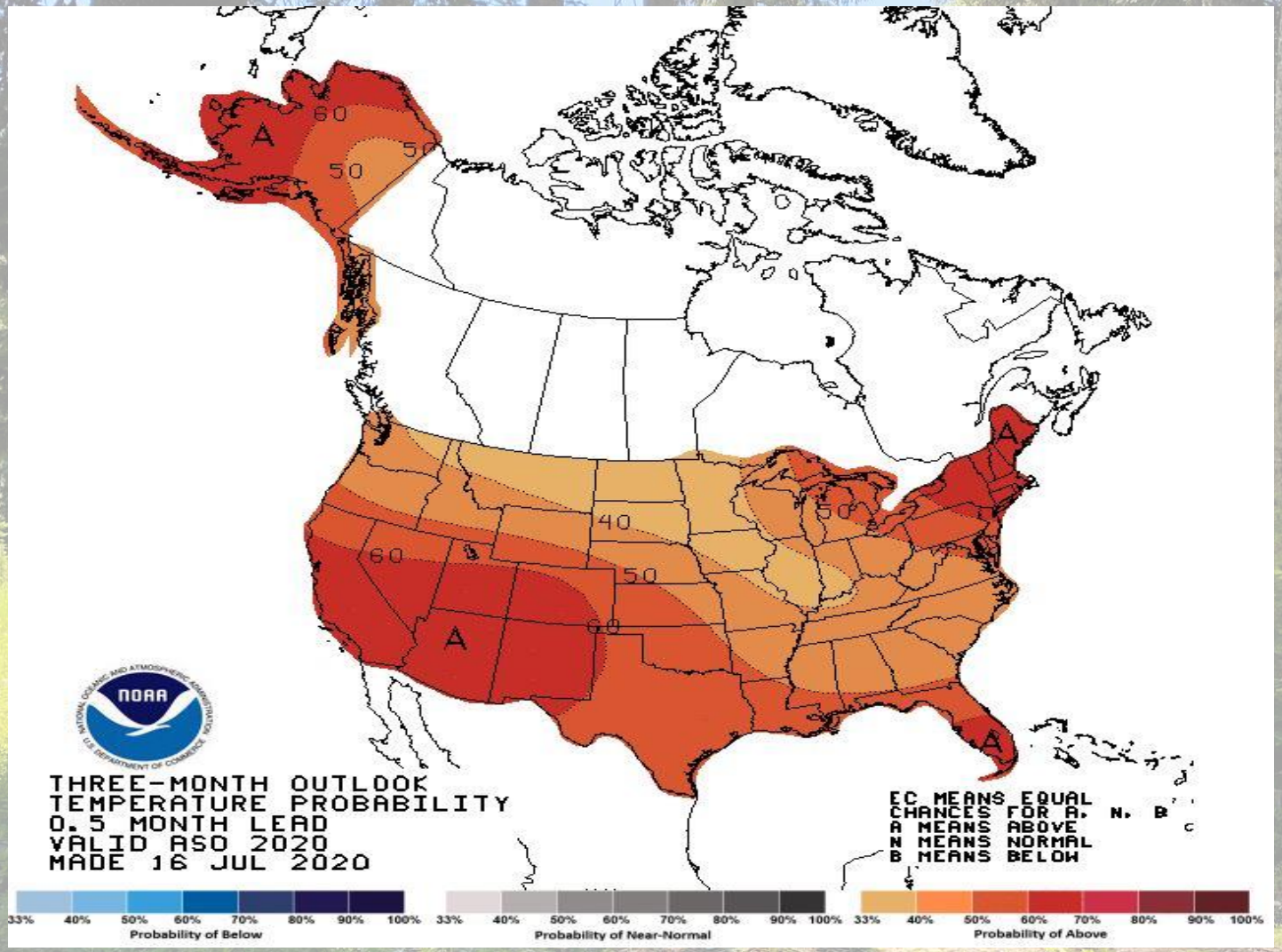
Precipitation amounts were very light for all stations, or no precipitation at all. None of the stations had more than a tenth of an inch total for the month. In July, snow is normally considered to be hail with thunderstorms. However, there are rare occasions which snow can be reported at the higher elevations, such as at the Mt. Adams Ranger Station. For July 2020, every station had neither any snow nor hail during the month.

July 2020 - Drought Monitor



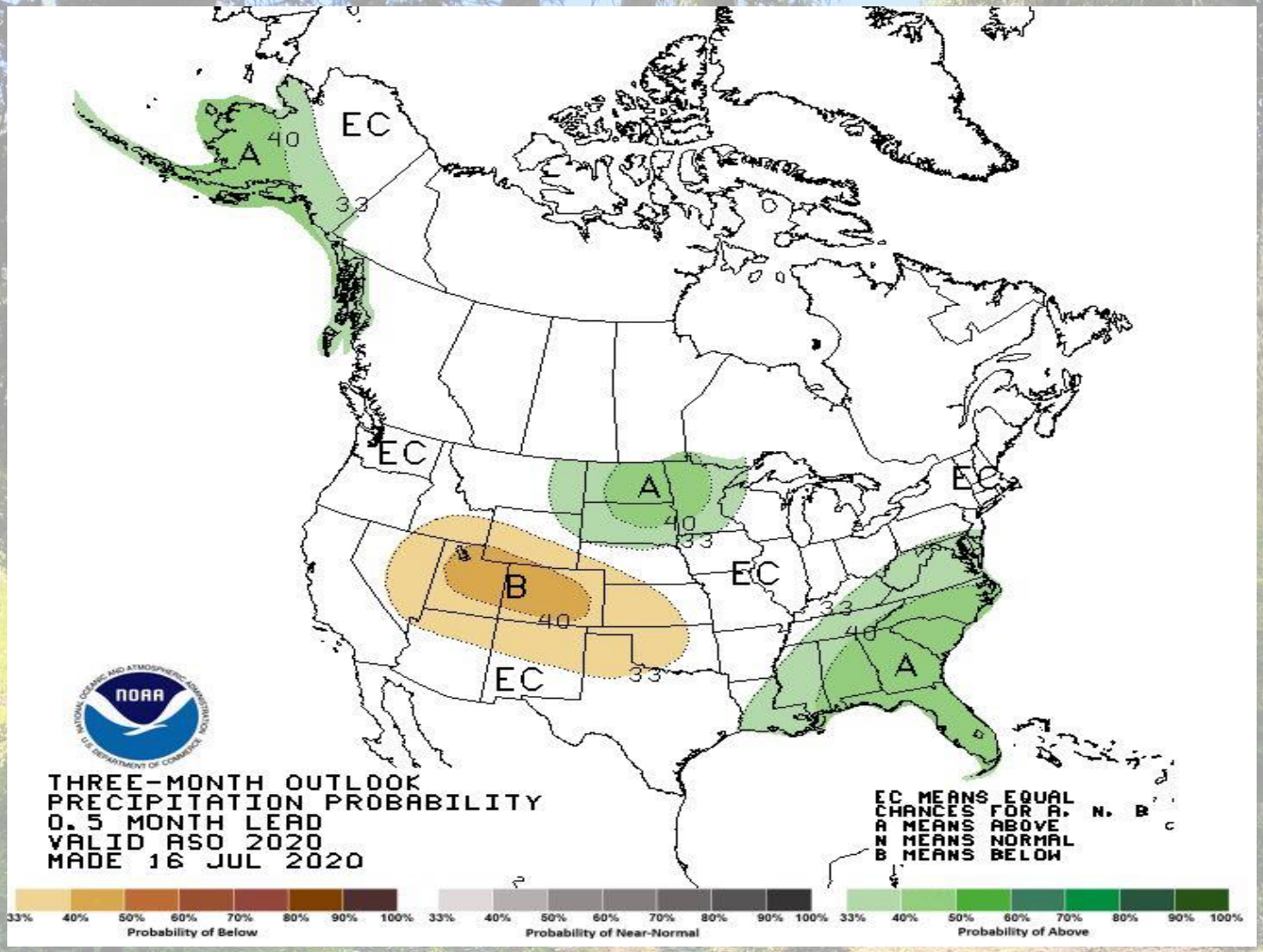
At the end of July (this image was created on August 4th, 2020), the northeast portion of Oregon and extreme southeast Washington were not in a drought ("none"). The rest of the forecast area (central and north central Oregon and south-central Washington) were all in a drought classification that ranged from D0 ("abnormally dry") to D3 ("extreme drought").

USA Three Month Temperature Outlook



The temperature outlook for the three months of August, September & October shows the Entire forecast area (NE Oregon & SE Washington) to have above normal temperatures.

USA Three Month Precipitation Outlook

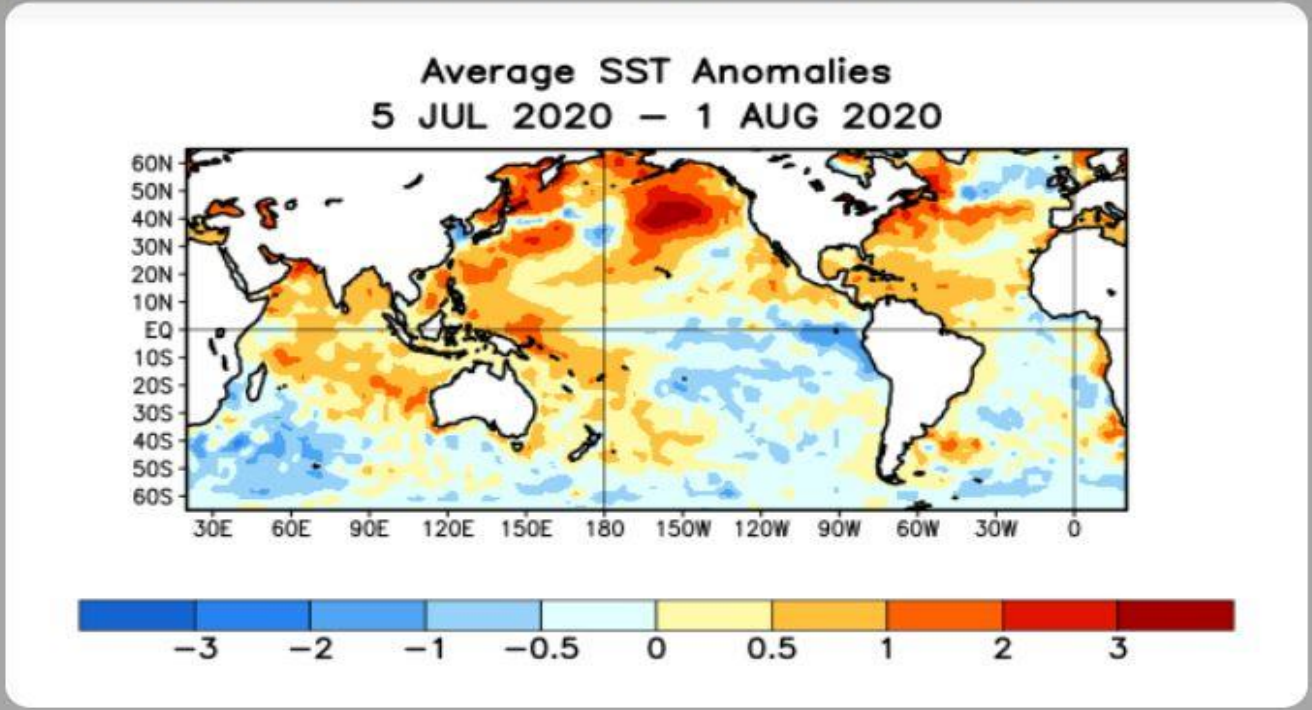


The precipitation outlook for the three months of August, September & October shows that the forecast area will equal chances of above or below normal precipitation.

Sea Surface Temperature (SST) analysis for July 2020

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

During the last four weeks, equatorial SSTs were above average across the western Pacific Ocean and most of the Indian Ocean. SSTs were below average in the east-central and eastern Pacific Ocean and in the central Atlantic Ocean.



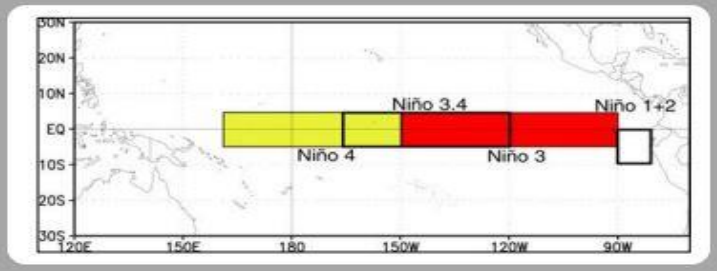
SSTs were below average over the eastern and central Pacific Ocean near the equator. This is consistent with last month which also showed the same. The north Pacific SSTs were above normal. This continuation, for several months in a row does suggest that a La Nina event is possible in the not too distant future.

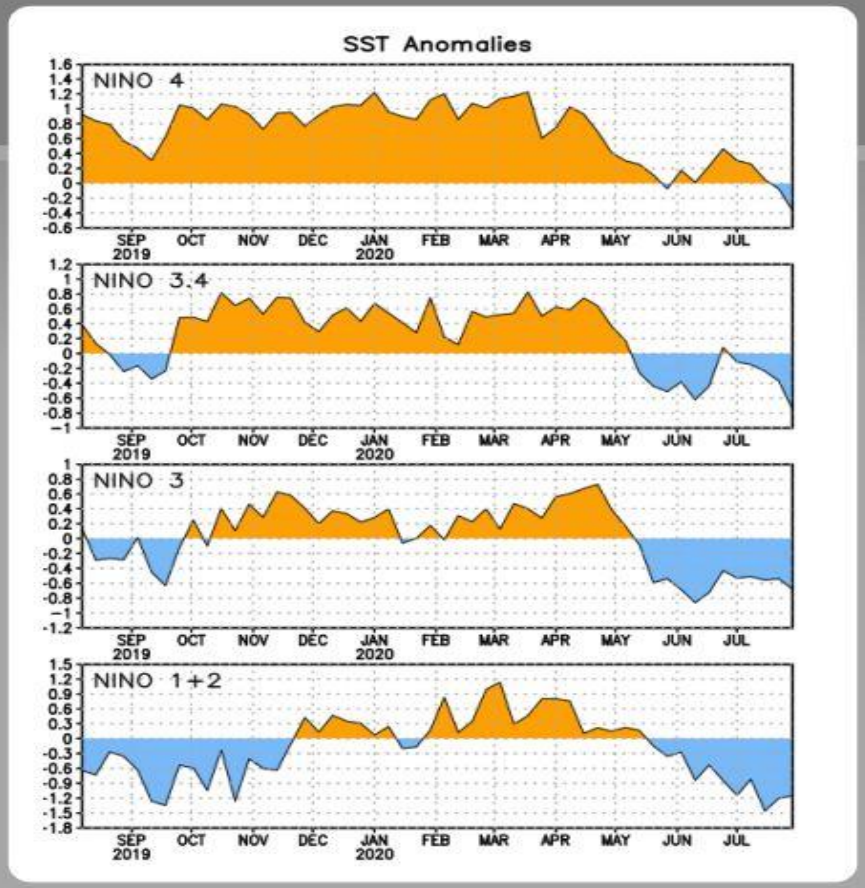
El Nino/ La Nina Regions, Showing SST Anomalies for Each Nino Region

Niño Region SST Departures (°C) Recent Evolution

The latest weekly SST departures are:

Niño 4	-0.4°C
Niño 3.4	-0.8°C
Niño 3	-0.7°C
Niño 1+2	-1.1°C





All Nino Regions are showing below normal SST's at this time. This continued cooling during the past few months is consistent with the possibility of a La Nina event which may occur in the not too distant future. In fact, there is now a La Nina Watch in effect.

Current ENSO (El Nino Southern Oscillation) Alert System Status

Summary

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

ENSO-neutral conditions are present.*

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

The tropical atmospheric circulation is consistent with ENSO-neutral.

ENSO-neutral is favored to continue through the summer, with a 50-55% chance of La Niña development during Northern Hemisphere fall 2020 and continuing through winter 2020-21 (~50% chance).*

The current ENSO status is now: La Nina Watch, and is no longer neutral. ENSO conditions are now present with near to below normal SSTs across the eastern and central Pacific Ocean. A La Nina event may develop during this coming fall and to continue through the winter of 2020 – 2021, with about a 50-55 percent chance of development.

Thank You!