The Month In Review

September 2020

National Weather Service
Pendleton, Oregon

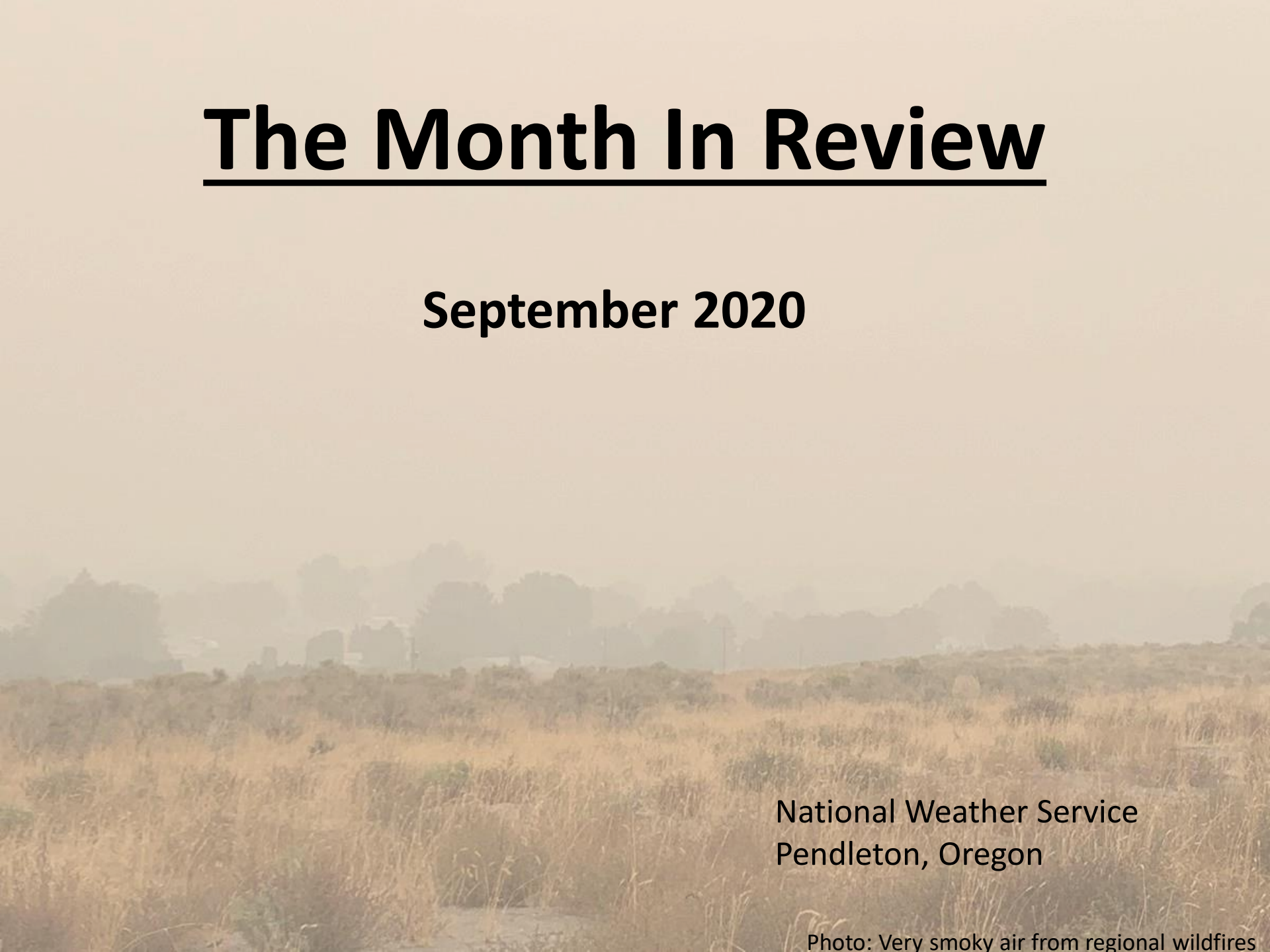


Photo: Very smoky air from regional wildfires

September 2020, Climate Summary

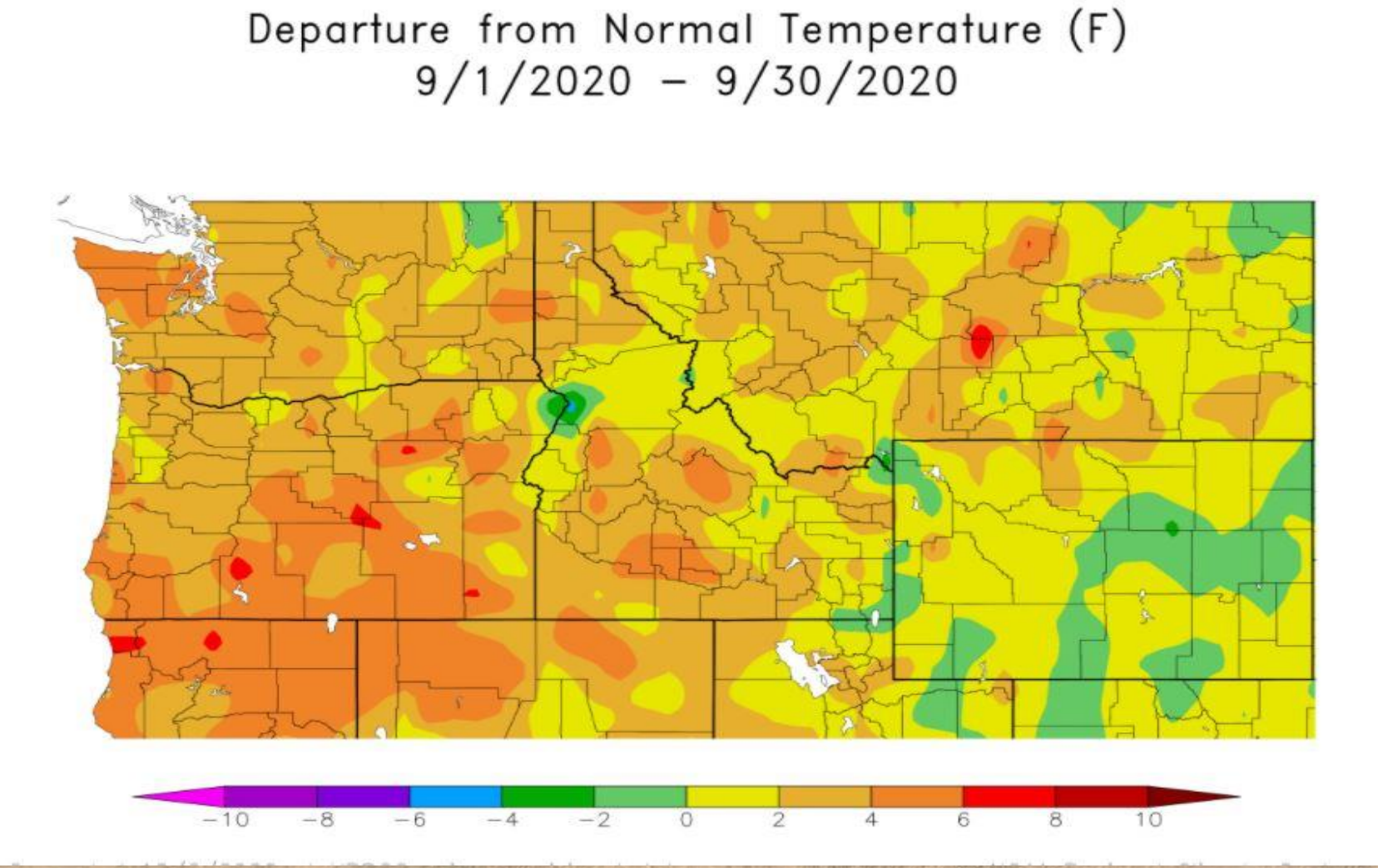
September 2020 had one of the most active wildfire seasons in history for the west coast states. There were several very large and intense wildfires in the forecast area, mainly in either the Cascades, central Oregon or north central Oregon. It is these areas that are also in an extreme drought. At the beginning of the month, there were fires developing all over the Pacific Northwest from lightning a week or two before. When it got hot and very dry again, these "holdover" fires begun to rapidly increase in intensity and spread, making this one of the worse fire seasons on record. On Labor Day, there was a rare "arctic-like" cold front which moved across the region (the whole country in fact). It brought high winds, blowing dust and it fanned these fires out of control. Smoke built up along the coastal areas and in the valleys west of the Cascade crest due to a northeast to east wind. When the wind shifted back to a more normal prevailing westerly wind, all that smoke was pushed back east of the Cascades and covered most of Oregon and Washington. At one point, the visibility was down to less than a quarter of a mile. Below are a few photos of the September fire conditions.

Smoke poors out of a wildfire in the Cascade Mountains.

Helicopter dropping water on brush fire in Oregon.

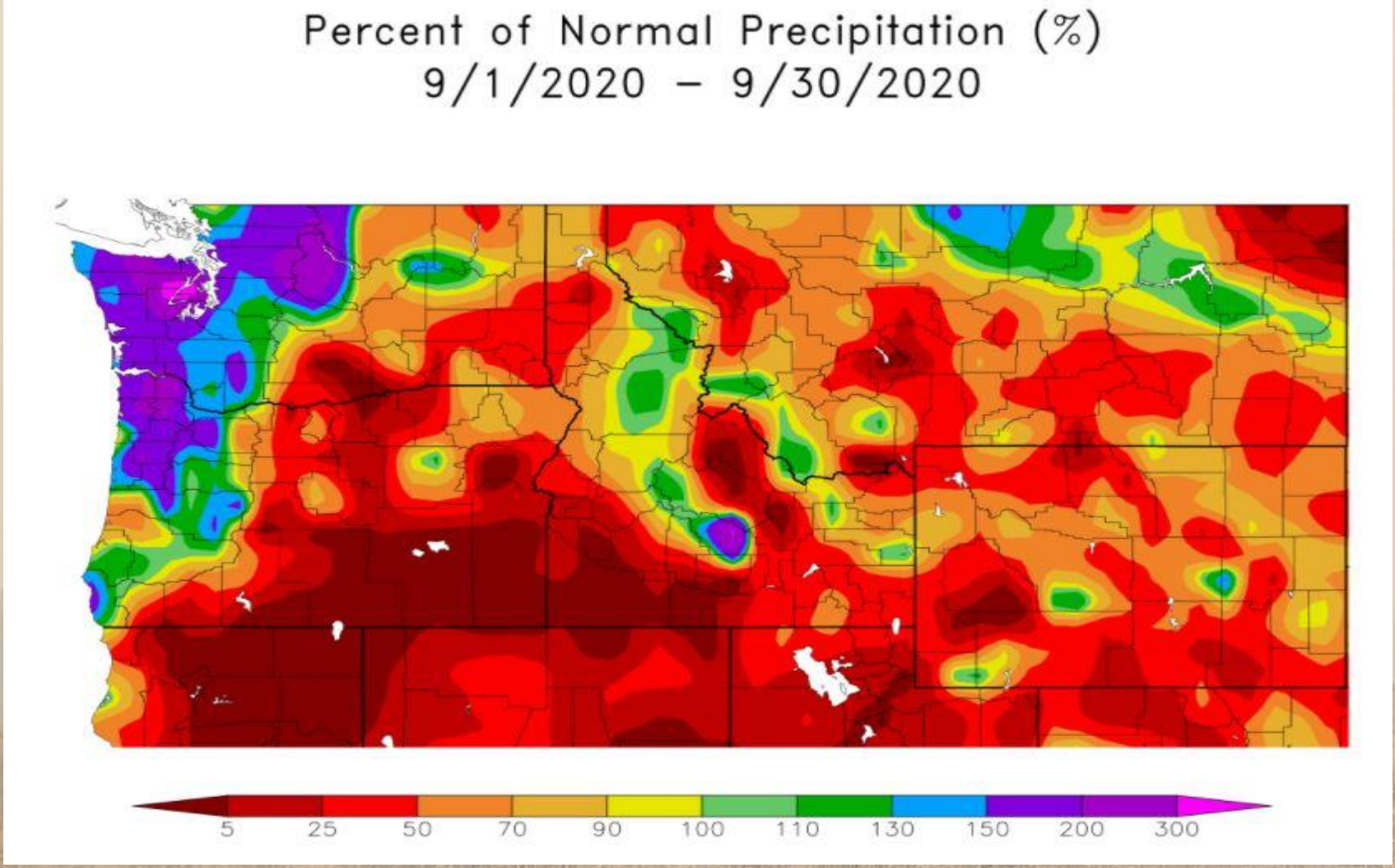
Dense smoke over Pendleton, OR. Visibility was about a quarter of a mile.

September 2020, Departure from Normal of Average Temperatures



Most of the forecast area had slightly above normal mean temperatures for September 2020. The locations closest to normal were SE Grant County, the Northern Blue Mountains of Oregon, and near The Dalles, OR along the Columbia River. The warmest spot was SE Crook County, Oregon and a small area in north central Grant County.

September 2020, Percent of Normal of Precipitation



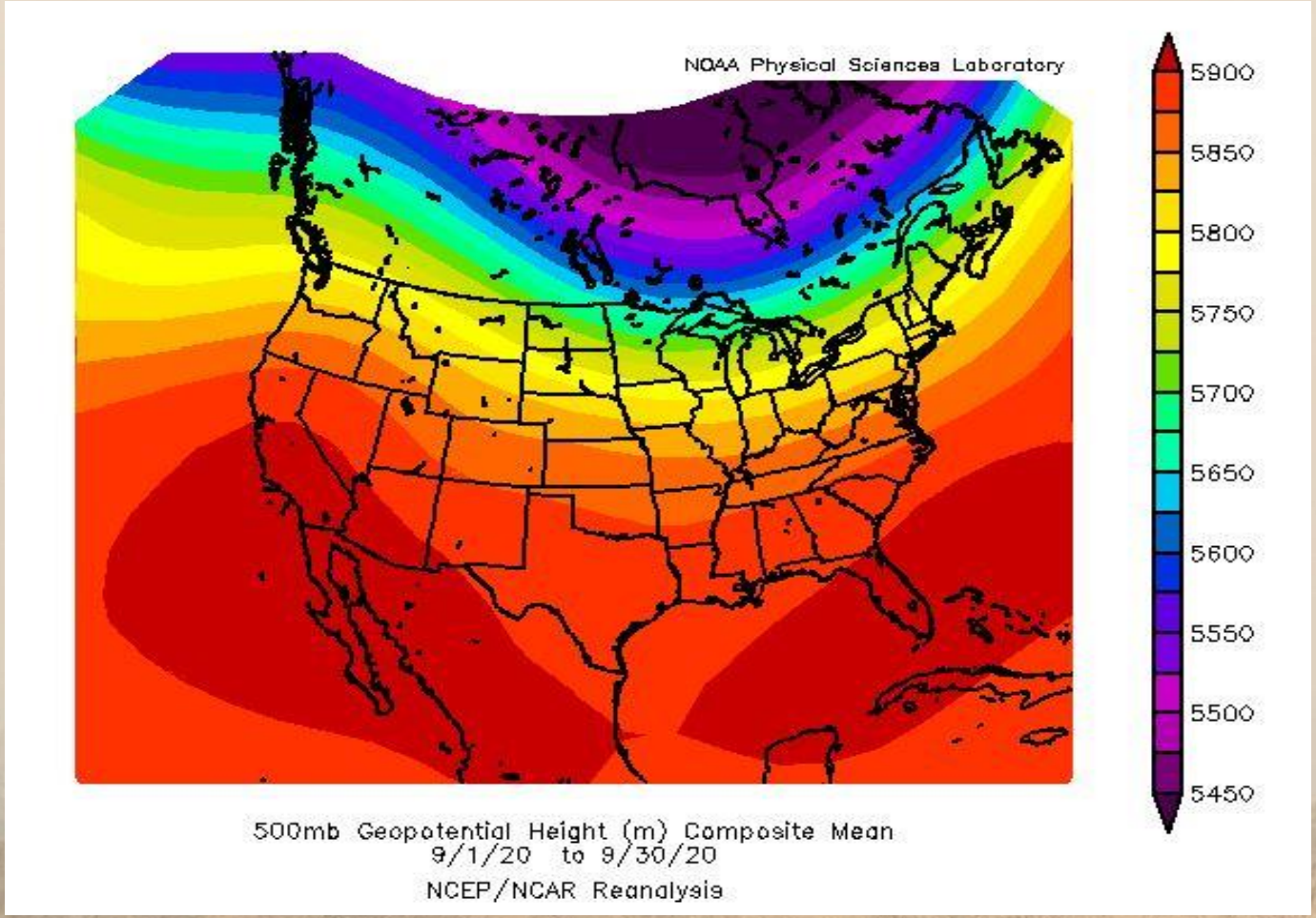
Like July and August, September also had below normal precipitation in most areas, especially along the Cascades and North Central Oregon/South central Washington, as well as portions of the Lower Columbia Basin.

August 2020, Departures from Normal Averages/Sum for Select Cites

	Max T	Max T D	Min T	Min T D	Ave T	Ave T D	PCPN	PCPN D
Yakima	89.7	2.9	55.2	3.4	72.5	3.2	0.01	-0.26
Kennewick	92.2	2.9	62.1	1.3	77.2	2.2	0.02	-0.16
Walla Walla	88.3	0.2	61.7	1.3	75	0.8	0.04	-0.53
The Dalles	89.5	2.2	60.4	0.9	74.9	1.5	Trace	-0.23
Redmond	88.8	4	48	2.8	68.4	3.4	0.01	-0.49
Pendleton Airport	88.4	1.6	57.2	0.4	72.8	1.0	0.05	-0.33
La Grande	87.3	1.6	49.3	-3	68.3	-0.7	0.04	-0.81

All of the mean maximum temperatures were above normal. All of the mean minimum and mean average temperatures were also above normal except for La Grande, which had below normal mean minimums and mean averages. All of these stations reported below normal precipitation for the month of September.

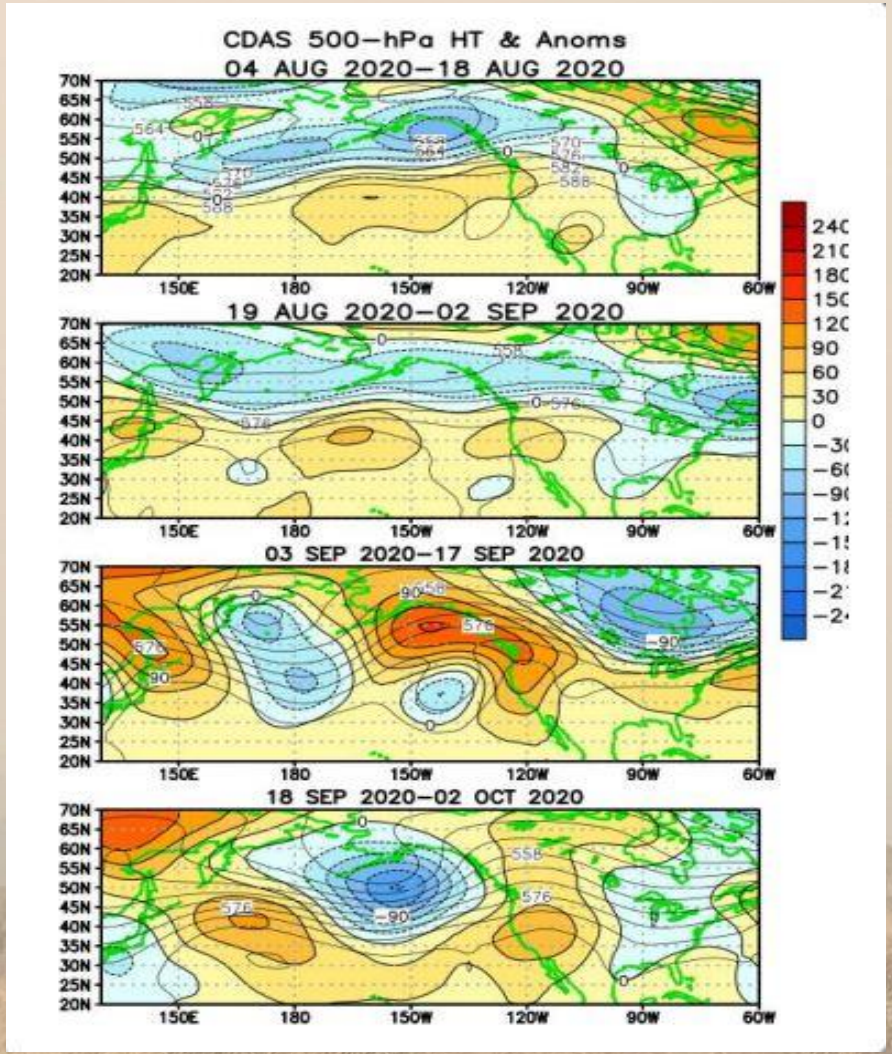
August 2020 Average 500 MB Weather Pattern



The average 500 MB pattern was an overall broad upper ridge, with the ridge axis over the Pacific Northwest. This is likely the reason for the below normal precipitation again this month, and also for the mostly above normal mean temperatures.

More Detailed 500 MB Plots for August-September 2020

These are more detailed semi-monthly average 500 mb pattern plots, which were from the following periods: Aug 4th, 2020 through October 2nd, 2020. 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.



During the months of August and September, an upper ridge dominated the region and forecast area through the entire period. This is again, likely the reason for the above normal temperatures and below normal precipitation for this period.

Significant Weather Events for September 2020

Significant Weather Events				
Event	**Date**	**Report**	**Where**	**Source**
Non TS Wind Gust	September 7, 2020	M 53 mph	8 SSE Goldendale, WA	mesonet
Non-TS Wind Damage	September 7, 2020	Limb on powerline, roof	Kennewick, WA	public
Non TS Wind Gust	September 7, 2020	M 50 mph	1 WSW Umatilla, OR	mesonet
Non TS Wind Gust	September 7, 2020	M 49 mph	3 N Helix, OR	mesonet
Non TS Wind Gust	September 7, 2020	M 59 mph	8 SSE Goldendale, WA	mesonet
Non TS Wind Gust	September 7, 2020	M 52 mph	4 E Selah, WA	AWOS
Non TS Wind Gust	September 7, 2020	M 43 mph	2 ENE Sunnyside, WA	AWOS
Non TS Wind Gust	September 7, 2020	M 45 mph	1 NNE Pasco, WA	ASOS
Non TS Wind Gust	September 7, 2020	M 46 mph	3 NNE Ellensburg, WA	ASOS
Non TS Wind Gust	September 7, 2020	M 48 mph	3 NNE Walla Walla, WA	ASOS
Non TS Wind Gust	September 7, 2020	M 52 mph	4 E Selah, WA	AWOS
Non TS Wind Gust	September 7, 2020	M 43 mph	2 ENE Sunnyside, WA	AWOS
Dust Storm	September 7, 2020	1/4 mile visibility or less	1 NNE Pasco, WA	ASOS
Dust Storm	September 7, 2020	1/4 mile visibility or less	2 NNW Pendleton, OR	ASOS
Wildfire	September 7, 2020	I-82 closed due to wildfire	Umatilla, OR	Dept of Highways
Wildfire	September 7, 2020	I-82 closed due to wildfire	6 E Prosser, WA	Dept of Highways
Non TS Wind Damage	September 7, 2020	45 ft antenna down	5 WSW Plymouth, WA	Trained Spotter
Non TS Wind Gust	September 7, 2020	M 62 mph	1 WSW Umatilla, OR	Trained Spotter
Non TS Wind Gust	September 7, 2020	M 54 mph	5 WSW Plymouth, WA	Trained Spotter
Non TS Wind Damage	September 7, 2020	1 Death, Tree on a person	10 S Mitchell, OR	public

Record Weather Reports					
Event	**Date**	**Where**	**Previous Record**	**New Record**	**Records Began**
High Temp	September 4, 2020	Redmond, OR	101 / 1998	100 (tie)	1941
High Temp	September 4, 2020	Walla Walla, WA	98 / 2006	99	1930
High Temp	September 4, 2020	Meacham, OR	89 / 2019	97	1929
High Temp	September 4, 2020	Yakima, WA	97 / 2006	97 (tie)	1909
Low Temp	September 10, 2020	La Grande City	36 / 1983	36 (tie)	1887
High Temp	September 29, 2020	Meacham, OR	81 / 2008	82	1929
High Temp	September 29, 2020	Redmond, OR	91 / 2006	91 (tie)	1941

There was a significant wind event on the 7th of the month, which caused damage, and out of control wildfires, and a dust storm. The rest of the month was relatively quiet. There were high temperature records on the 4th, and 29th, and one low temperature record on September 10th.

September 2020 Observed Monthly Max & Min Temperatures

Location	Highest Maximum Temperature	Lowest Minimum Temperature
Pendleton, OR	98	38
Redmond, OR	101	30
Pasco, WA	99	40
Yakima, WA	97	38
Walla Walla, WA	99	44
Bend, OR	100	34
Ellensburg, WA	94	38
Hermiston, OR	98	37
John Day, OR	100	31
La Grande, OR	97	31
The Dalles, OR	101	43
MT Adams RS, WA	94	31

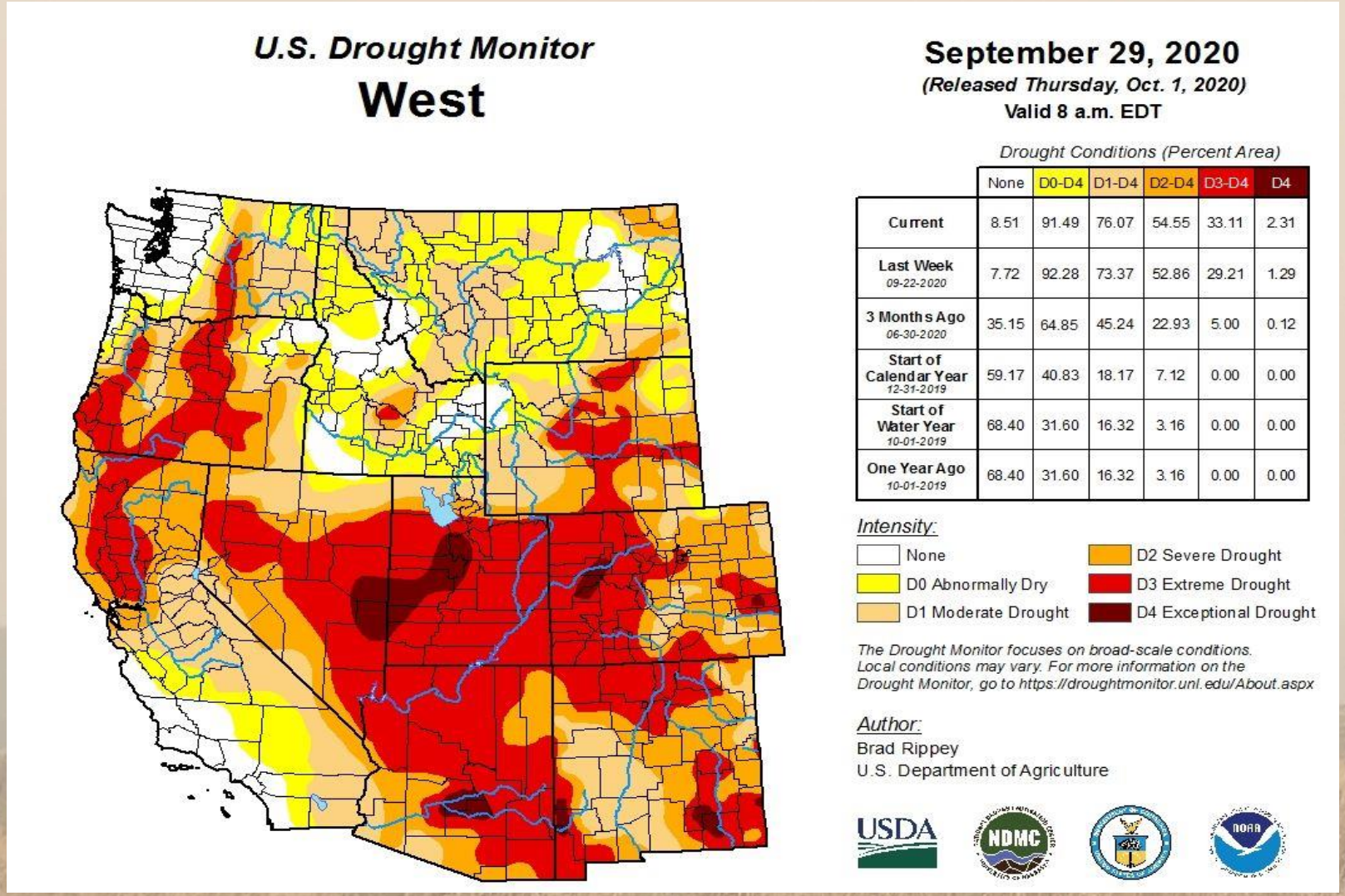
It is not uncommon at the beginning of September for the maximum temperature to reach 100 degrees, or at least reach the mid to upper 90s. That was the case for September, 2020. Four stations reached or exceeded 100 degrees F, and 8 stations reporting maximum temperatures in the mid to upper 90s.

September 2020, Monthly Precipitation and Snowfall/Hail Totals

Location	Total Monthly Precip (inches)	Total Snowfall/Hail (inches)
Pendleton. OR	0.14	0.0
Redmond, OR	0.16	0.0
Pasco, WA	0.05	0.0
Yakima, WA	0.06	0.0
Walla Walla, WA	0.60	0.0
Bend, OR	0.05	0.0
Ellensburg, WA	0.48	M
Hermiston, OR	0.07	0.0
John Day, OR (RAWS)	0.44	M
La Grande, OR	0.33	M
The Dalles, OR	0.05	M
Mt Adams RS, WA	1.09	0.0

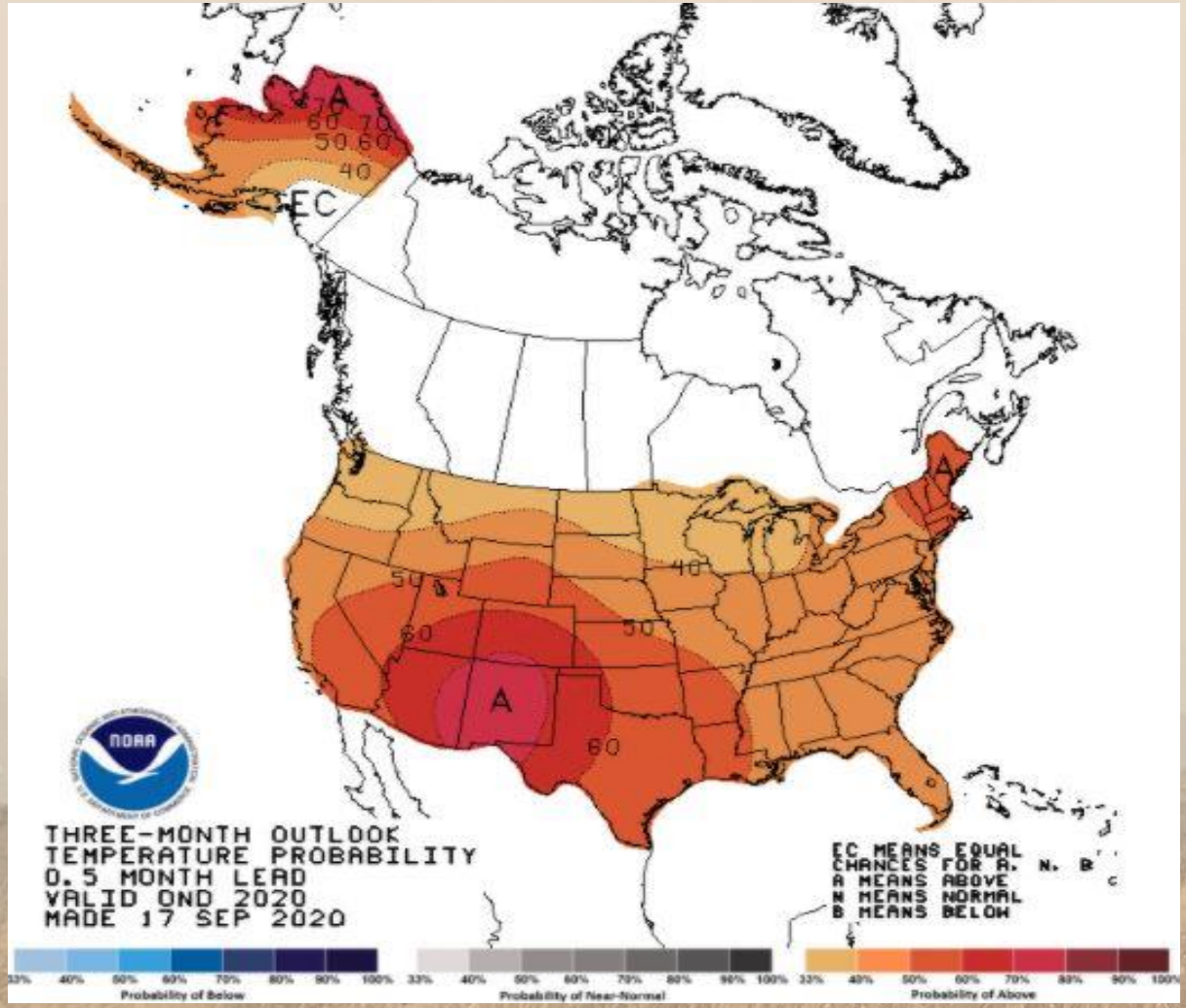
Precipitation amounts were light, however all stations reported greater than a Trace of precipitation. The highest amount was at the Mt Adams Ranger Station, however, the other stations had common values of less than a tenth up to several tenths of an inch for the month. None of the stations reported snow or hail.

September 2020 - Drought Monitor



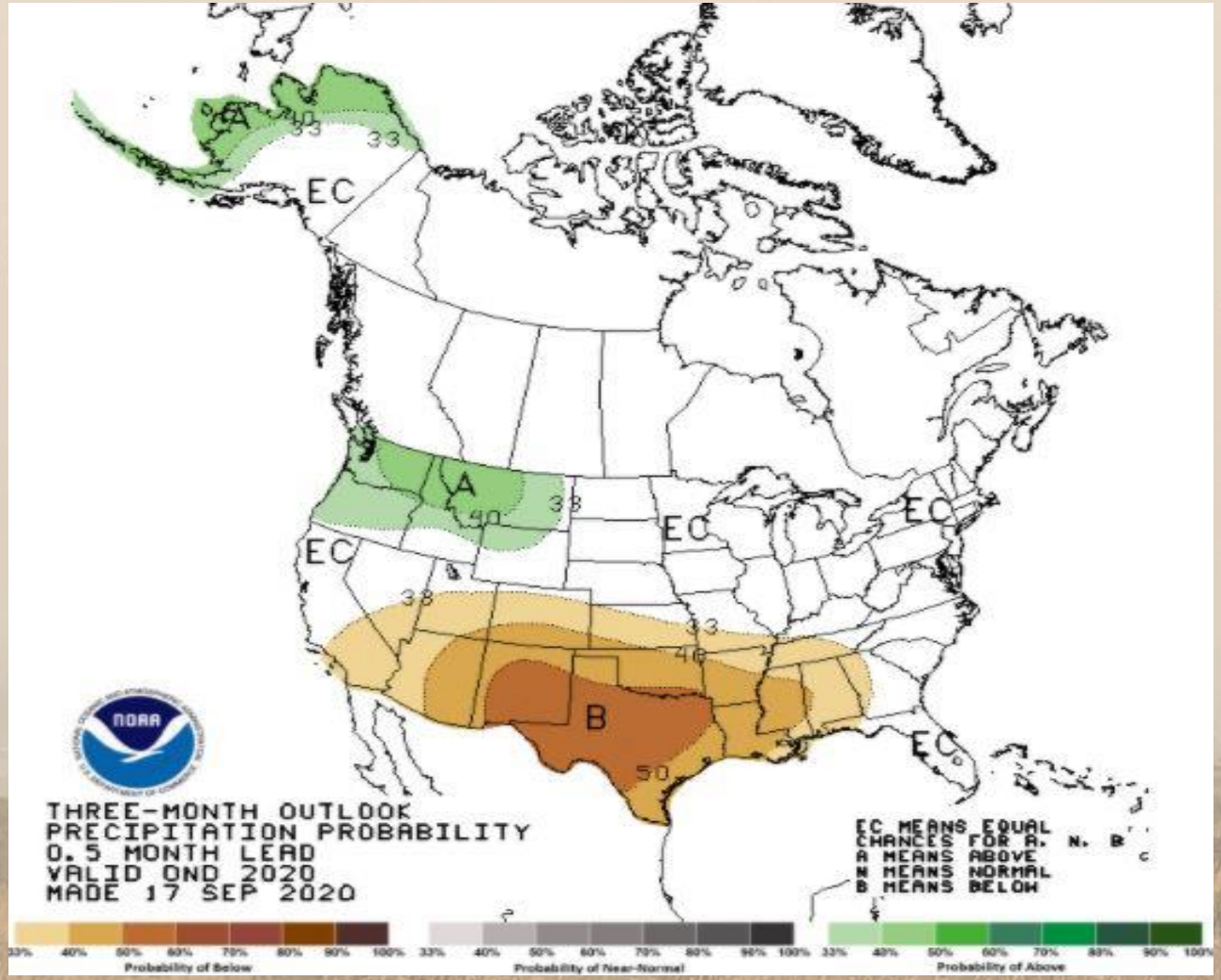
As of August 29th, there was an “Extreme Drought” (D3) over the Cascades, with a lesser drought (D0 – D2) over most of the rest of the forecast area. The exception was extreme northeast Oregon, where drought conditions were “NONE”, or neutral.

USA Three Month Temperature Outlook



The temperature outlook for the next 3 months (October – December) are above normal with about a 35 - 45 percent greater chance. The warmest will be in the southern forecast area.

USA Three Month Precipitation Outlook

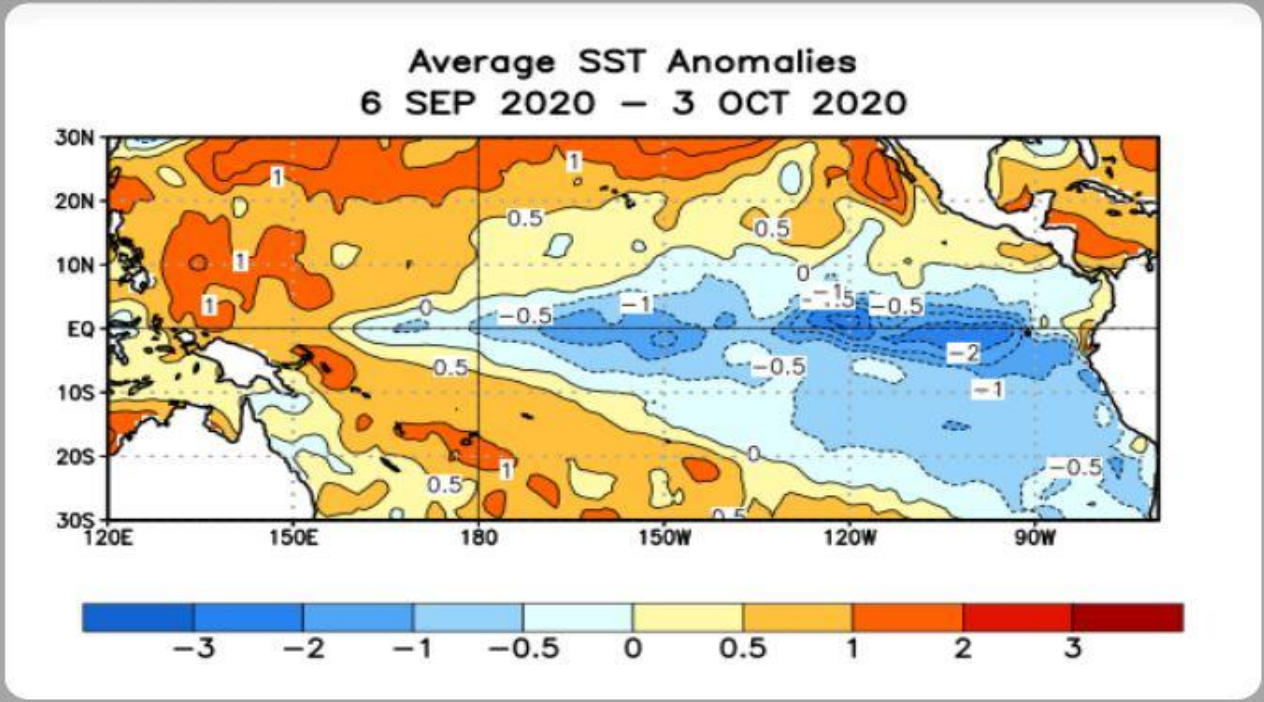


The precipitation outlook for the next 3 months (October – December) looks to be above normal (about a 33 - 40 percent greater chance) over the entire forecast area and the Pacific Northwest.

Average Sea Surface Temperature (SST) Anomalies for September 2020

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

During the last four weeks, equatorial SSTs were below average from just west of the Date Line to the eastern Pacific Ocean, and were above average in the far western Pacific Ocean.



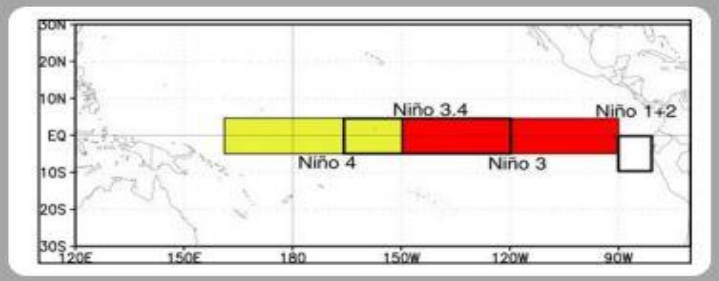
SSTs were below average again in September over the central and eastern tropical Pacific by about -0.5 to -2.0 degrees. This month, like the previous few months, are consistent with an expected La Nina event, in which there is a La Nina Advisory already in effect for this coming winter of 2020 – 2021.

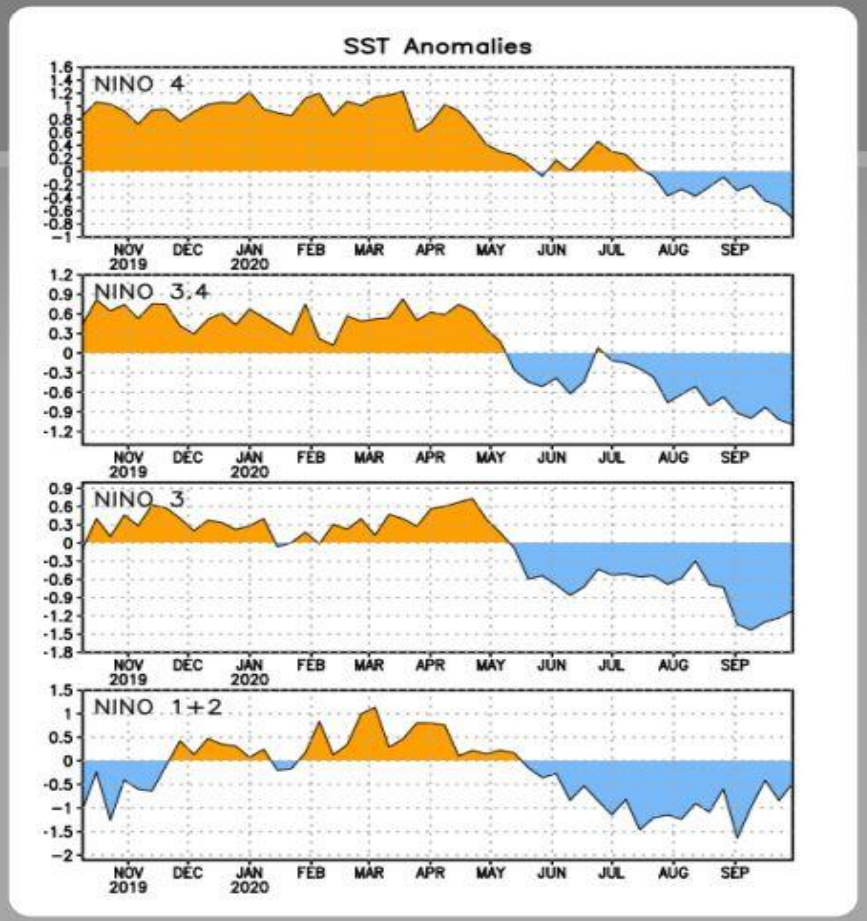
El Nino/ La Nina Regions, Showing SST Anomalies for Each Nino Region

Niño Region SST Departures (°C) Recent Evolution

The latest weekly SST departures are:

Niño 4	-0.7°C
Niño 3.4	-1.1°C
Niño 3	-1.1°C
Niño 1+2	-0.5°C

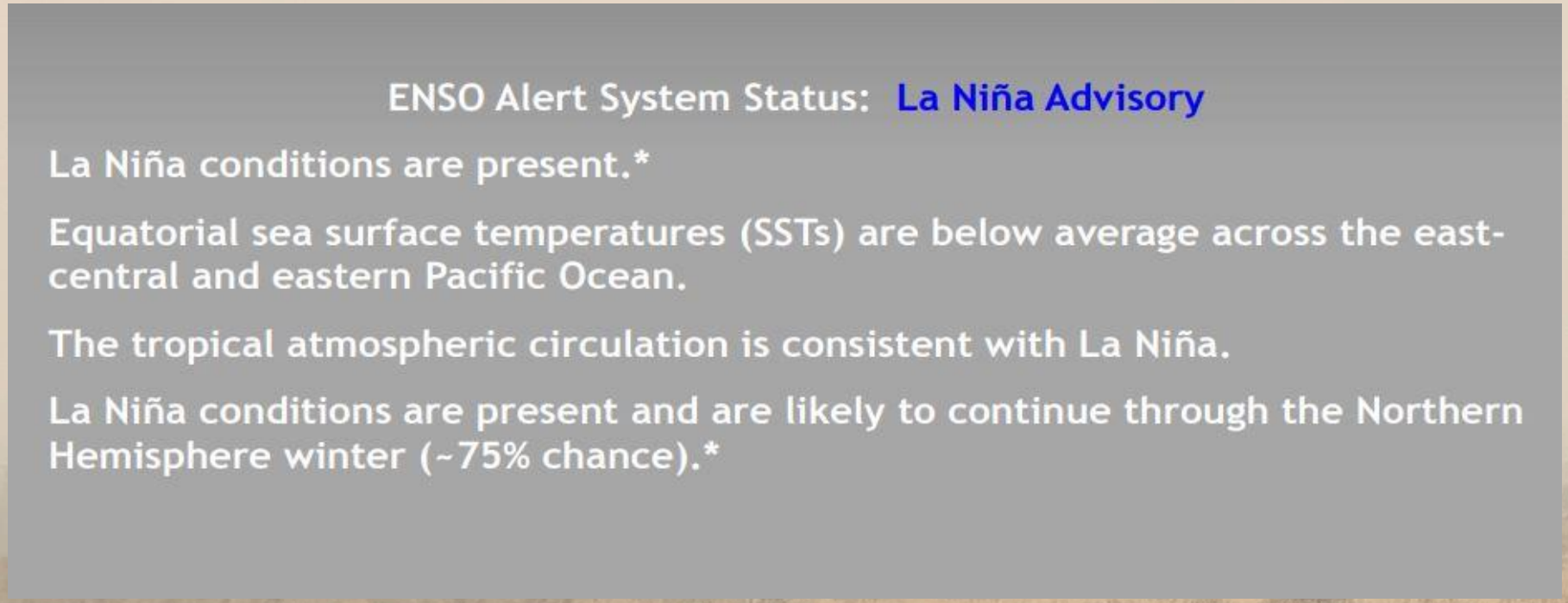




All Nino Regions are showing below normal SST's again for September. This continued cooling during the past 4 – 5 months is consistent with the La Nina event that is expected for this winter of 2020 – 2021.

Current ENSO (El Nino Southern Oscillation) Alert System Status

Goodbye ENSO Neutral and Hello ENSO La Nina



The current ENSO status is now: La Nina Advisory, expected for this coming winter of 2020 – 2021 (about a 75% chance, which is greater than last month).

Thank You!