The Month In Review

May 2020

National Weather Service
Pendleton, Oregon

Background Photo by Thomas Wade Earle

May, 2020 Climate Summary

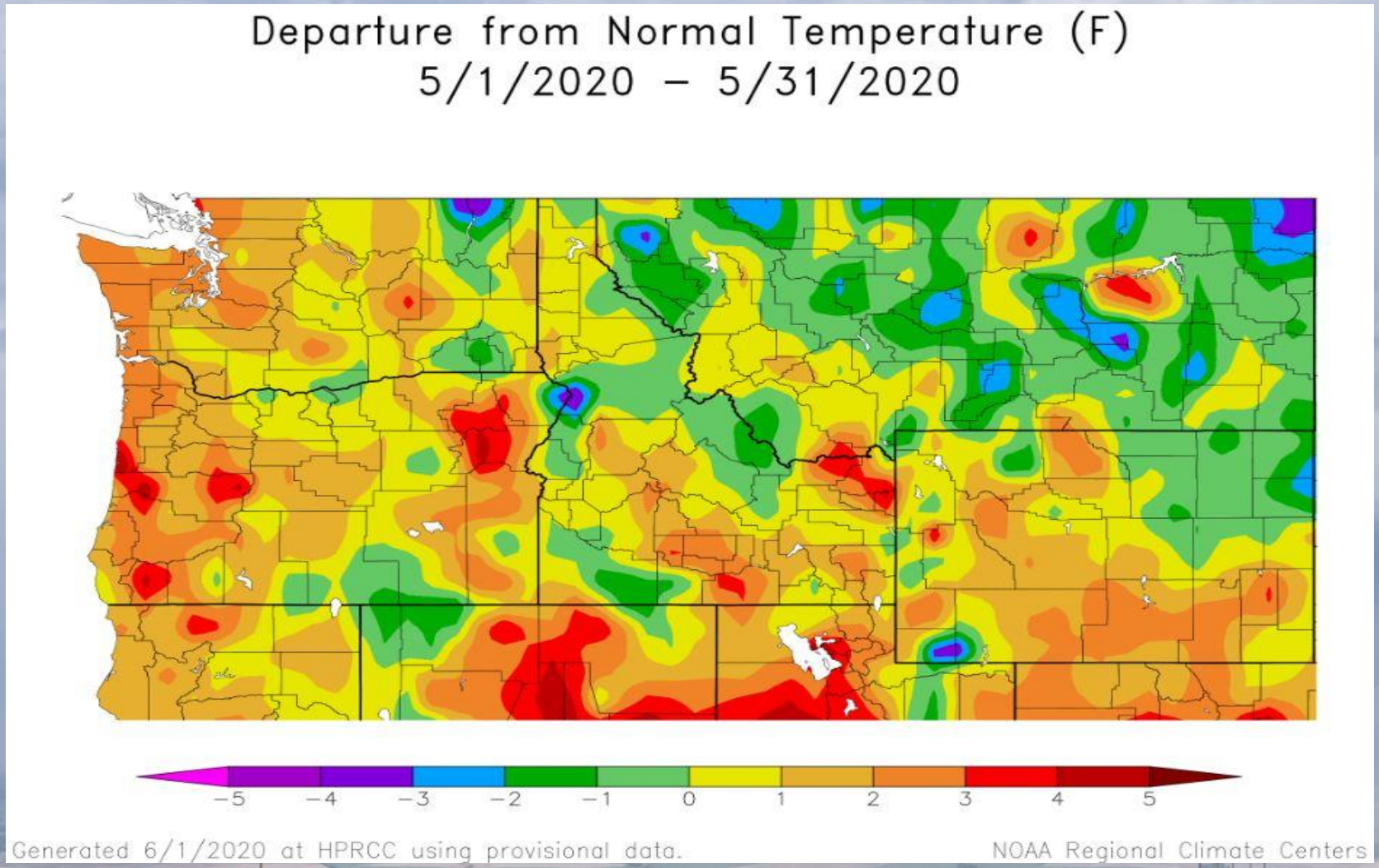
The month of May was a fairly active month with regard to thunderstorm activity and also flooding. During the middle of the month, a heavy precipitation event caused by a slow moving low pressure system caused flooding on many rivers and streams in the northeast mountains as well as in the John Day Highlands. The heavy rain in the southern Blue Mtns. drained into McKay creek which once again caused some flooding between Ukiah, OR to Pendleton, OR. Some of the most severe flooding was in the town of Pilot Rock, OR. At the end of the month, there was a severe thunderstorm outbreak which persisted over several days. The peak was on Saturday, May 30th when a strong upper trough moved across the Pacific Northwest. The atmosphere became very warm and very unstable during this event. Nocturnal thunderstorms occurred for three nights in a row from the 28th until the night of the 30th. Dew Point temperatures rose to the lower 70s in the Milton-Freewater, OR and Walla Walla, WA area, which is very high for this part of the USA. The Storm Prediction Center issued an "Enhanced" area of severe thunderstorms on the 30th which was the first time ever.

Supercell thunderstorm moving just to the west of Pendleton, OR.

A green sky with thunderstorms is a good indication of hail in the storm.

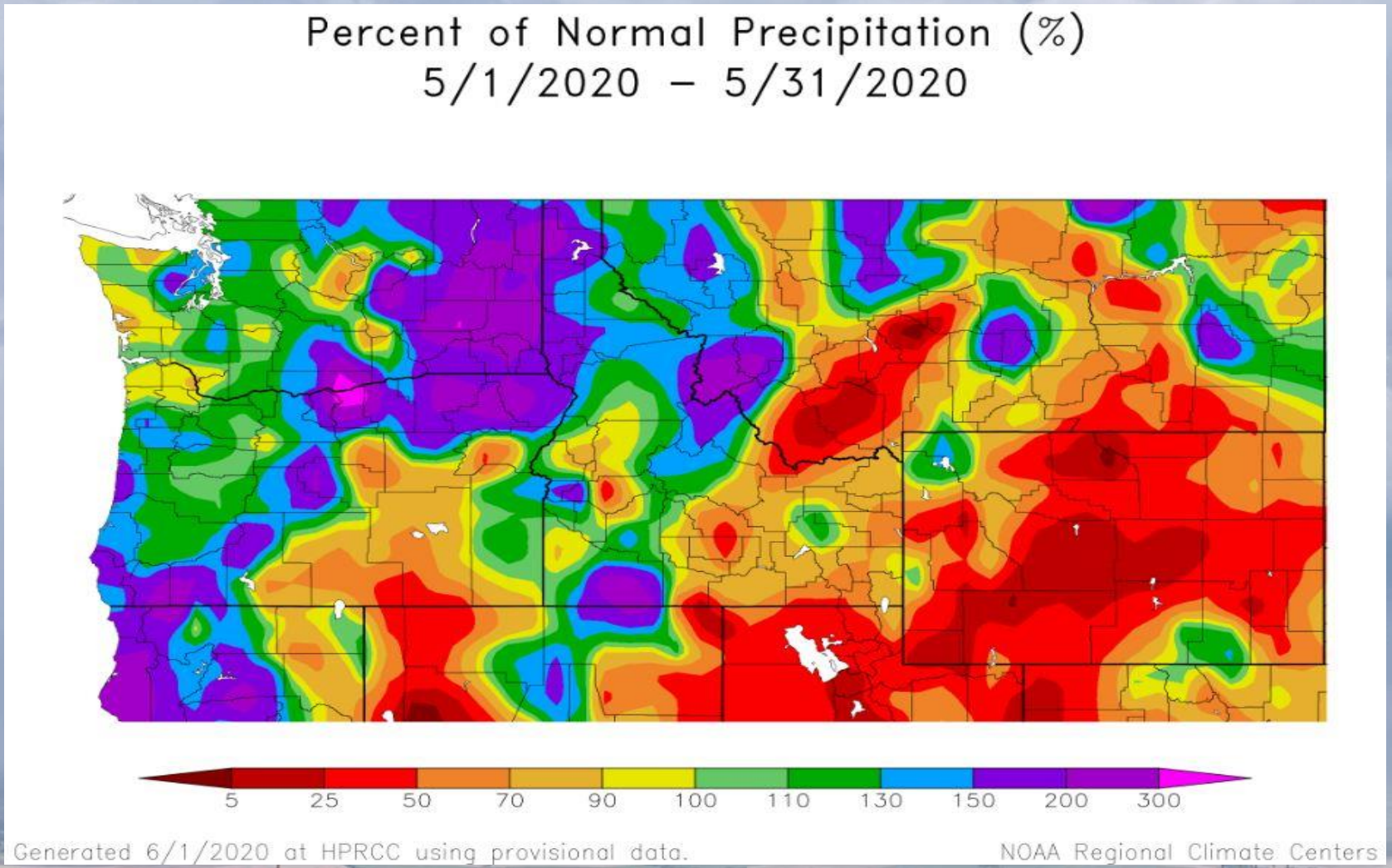
Dense blowing dust from severe thunderstorm downdraft winds.

May 2020, Departure from Normal of Average Temperatures



The image above shows that most of the forecast area had near to above normal temperatures for most of the forecast area. The warmest areas were in the Baker and Grande Ronde Valleys, and the coolest (slightly below normal) were in the Walla Walla Valley as well as in the eastern Columbia River Gorge and central Grant County.

May 2020, Percent of Normal of the Average Precipitation



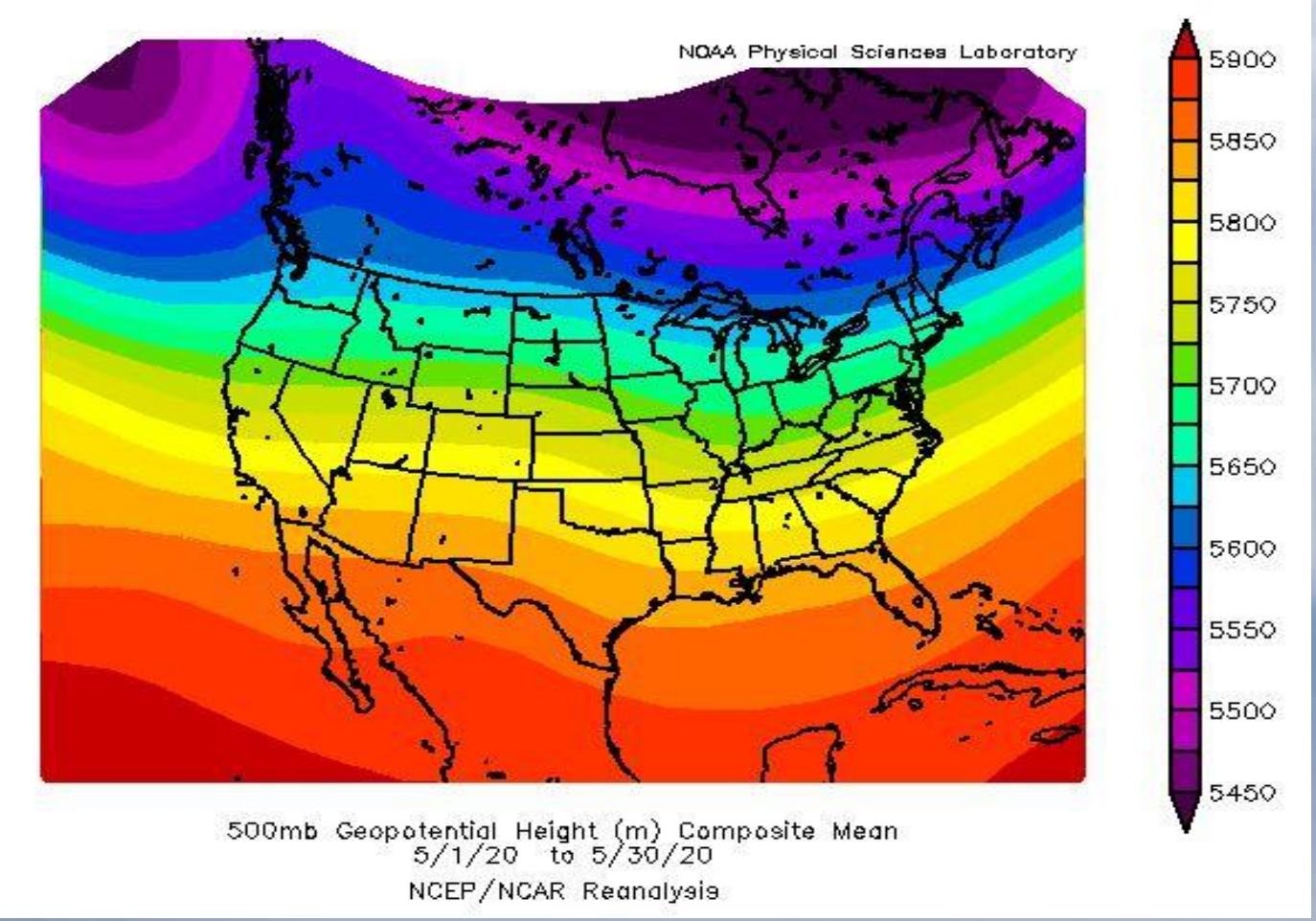
Much of the forecast area had much greater than 100 percent of the normal precipitation for May, while areas over the south central forecast area had less than 100 percent of the normal precipitation for the month. The departures ranged from as much as 200 - 300 % of normal in the wettest areas to as little as 50 to 70 percent of normal in the driest areas.

May 2020, Departures from Normal of Averages for Select Cites

	Max T	Max T D	Min T	Min T D	Ave T	Ave T D	PCPN	PCPN D
Yakima	74.5	2.1	45.3	3.4	59.9	2.8	0.87	0.29
Kennewick	75.9	1.4	51.1	1.6	63.5	1.5	1.39	0.75
Walla Walla	70.4	0.0	48.0	-0.3	59.2	-0.2	3.60	1.47
The Dalles	73.9	1.0	47.8	-0.8	60.8	0.0	1.12	0.43
Redmond	70.6	3.1	37.8	2.4	54.2	2.8	1.80	0.77
Pendleton Airport	72.7	2.7	45.5	-0.1	59.1	1.3	2.70	1.35

All stations had above normal mean average high temperatures, except for Walla Walla, WA, which had a mean average high temperature exactly normal. There was an even split for the mean average low temperatures for the month. All stations, except for Walla Walla, WA, had above normal mean average of the average temperatures for the month. Precipitation was above normal for all stations. Note that the station of La Grande, OR is usually included in this list, but the data was missing for this month. The above normal precipitation (green) for all stations is consistent with the significant rain event which occurred on the 20th-21st, and the severe thunderstorms from the 28th-30th, which also produced heavy rain.

May 2020 Average 500 MB Weather Pattern



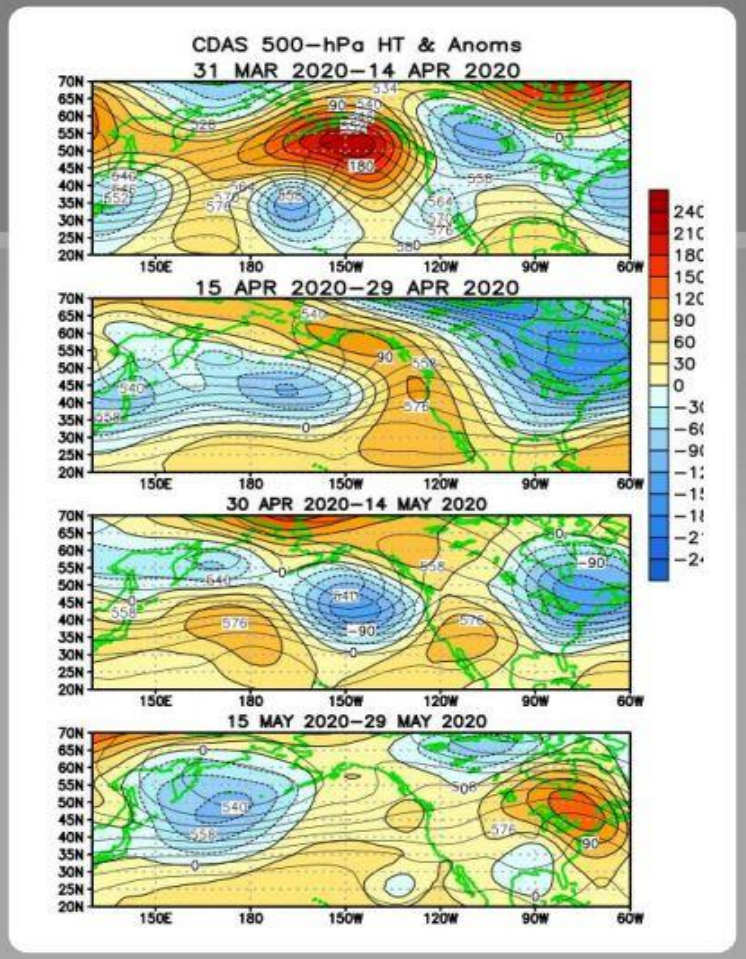
The average 500 mb pattern over the Pacific Northwest was an overall zonal to southwest flow aloft which resulted in more frequent Pacific weather systems being able to move into the region. There were some more amplified troughs, which brought significant weather (on the 20th-21st and on the 28th–31st) which resulted in flooding and severe thunderstorms respectively. Overall though, the balance between troughs and ridges canceled themselves out and resulted in an average relatively flat flow pattern for the month as shown.

More Detailed 500 MB Plots for May 2020

Atmospheric anomalies over the North Pacific and North America During the Last 60 Days

From April to mid-May, heights and temperatures were mostly below average over the eastern United States and they were mostly above average over the western United States.

During mid-May, heights and temperature transitioned to above average over eastern North America.



During the first half of April there was an overall upper trough over the northwest, which transitioned into an overall ridge by the end of April. Then, May started out with an overall average ridge over the region which transitioned into a rather flat zonal flow during the latter half of the month. This, again, averages out the more amplified troughs during the month.

Significant Weather Events for May, 2020

Significant Weather Events

Event	Date	Report	Where	Source
Tstm wind gust	May 2, 2020	M 61 mph	1 ENE Cayuse, OR	Trained Spotter
None-tstm wind gust	May 6, 2020	M 62 mph	5 ENE Rufus, OR	Meso-net
None-tstm wind gust	May 6, 2020	M 67 mph	8 NW Richland, WA	Meso-net
None-tstm wind gust	May 6, 2020	M 56 mph	5 N West Richland, WA	Meso-net
None-tstm wind gust	May 6, 2020	M 55 mph	4 W Adams, OR	Meso-net
None-tstm wind gust	May 6, 2020	M 52 mph	4 NNW West Richland, WA	Meso-net
None-tstm wind gust	May 6, 2020	M 51 mph	2 W Benton City, WA	Meso-net
None-tstm wind gust	May 6, 2020	M 50 mph	5 WSW Rufus, OR	Meso-net
Flood	May 20, 2020	M 3.5 inches in 24 hrs	8 SE Pilot Rock	Trained Spotter
Flood	May 20, 2020	4-6 inches in yard	Pilot Rock, OR	public
Flood	May 20, 2020	Plugged culverts	5 E Mission, OR	Emergency Mngr
Heavy Rain	May 20, 2020	M 2.91 inches	4 ESE Pilot Rock, OR	Trained Spotter
Flood	May 20, 2020	USFS road flooded	15 S Ukiah, OR	USFS
Flood	May 20, 2020	Hwy 244 flooded	Ukiah, OR	Emergency Mngr
Flood	May 20, 2020	Washout Birch Crk	Pilot Rock, OR	Emergency Mngr
Flood	May 20, 2020	Homes flooded	Pilot Rock, OR	newspaper
Flood	May 20, 2020	Hwy 395 closed	3 S Pilot Rock, OR	Dept of Highways
Flood	May 20, 2020	Hwy 237 closed	3 N Union, OR	Dept of Highways
Flood	May 20, 2020	Hwy 244 closed	Ukiah to Hilgard, OR	Dept of Highways
Heavy Rain	May 20-21, 2020	M 4.00 inches	5 NNE La Grande, OR	Trained Spotter
Flood	May 20, 2020	Homes flooded	14 E Long Creek, OR	newspaper
Flood	May 18, 2020	Roads flooded	Connell, WA	Law Enforcement
Hail	May 28, 2020	E 1.25 inch	ENE Ukiah, OR	Trained Spotter
Tstm wind gust	May 30, 2020	M 71 mph	2 SSW Grass Valley, OR	Meso-net
Hail	May 30, 2020	E 2.0 inches	9 SE Sisters, OR	public
None-tstm wind dmg	May 30, 2020	Tree down over hwy	1 S Hermiston, OR	Trained Spotter
Hail	May 30, 2020	E 1.0 inch	4 NNW La Pine, OR	Trained Spotter
Hail	May 30, 2020	E 1.0 inch	12 WNW La Pine, OR	Trained Spotter
Hail	May 30, 2020	E 1.0 inch	4 NNE Three Rivers, OR	Trained Spotter
Hail	May 30, 2020	E 1.25 inch	11 S Three Rivers, OR	public
Hail	May 30, 2020	E 1.75 inch	9 NW Terrebonne, OR	Trained Spotter
Tstm wind gust	May 30, 2020	E 70 mph	9 NW Terrebonne, OR	Amateur Radio
Tstm wind dmg	May 30, 2020	30 ft tree down	Prineville, OR	Amateur Radio
Tstm wind dmg	May 30, 2020	Numerous trees down	1 N Madras, OR	Trained Spotter
Hail	May 30, 2020	M 1.25 inch	6 W Terrebonne, OR	Trained Spotter
Hail	May 30, 2020	E 2.0 inches	10 NW Monument, OR	Trained Spotter
Tstm wind gust	May 30, 2020	M 85 mph	5 S Madras, OR	Trained Spotter
None-tstm wind gust	May 30, 2020	M 60 mph	13 WSW Sisters, OR	Meso-net

Significant Weather Events for May (cont), 2020

Significant Weather Events

Event	Date	Report	Where	Source
Tstm wind dmg	May 30, 2020	Large tree down	7 S Madras, OR	Trained Spotter
Hail	May 30, 2020	M 1.0 inch	6 SSE Prineville, OR	Trained Spotter
Hail	May 30, 2020	E 2.0 inch	9 SE Sisters, OR	public
Hail	May 30, 2020	E 1.75 inch	1 N Monument, OR	Trained Spotter
Tstm wind dmg	May 30, 2020	Homes, trees, power	Culver, OR	Broadcast Media
Tstm wind gust	May 30, 2020	M 64 mph	8 WSW Grass Valley, OR	Meso-net
Tstm wind gust	May 30, 2020	M 65 mph	5 WSW Rufus, OR	Meso-net
Tstm wind dmg	May 30, 2020	Tree down on home	Condon, OR	public
Tstm wind gust	May 30, 2020	M 62 mph	1 WNW Arlington, OR	Meso-net
Tstm wind gust	May 30, 2020	M 66 mph	27 S Mabton, WA	Meso-net
Tstm wind gust	May 30, 2020	E 60 mph	ESE Irrigon, OR	Trained Spotter
Hail	May 30, 2020	E 1.25 inch	W Holdman, OR	Trained Spotter
Tstm wind gust	May 30, 2020	M 67 mph	17 ESE Goldendale, WA	Meso-net
Tstm wind gust	May 30, 2020	M 69 mph	1 WNW Arlington, OR	Meso-net
Tstm wind dmg	May 30, 2020	Lrg Branches, 1/4 mi dust	Hermiston, OR	Trained Spotter
None tstm wind gust	May 30, 2020	M 65 mph	1 WSW Umatilla, OR	Trained Spotter
Tstm wind gust	May 30, 2020	M 72 mph	2 NW Hermiston, OR	Trained Spotter
Tstm wind gust	May 30, 2020	M 73 mph	22 SW Highland, WA	Meso-net
Flash Flood	May 30, 2020	Land Slide on BIA Rt 8	12 N Warm Springs, OR	911 Call Center
Tstm wind dmg	May 30, 2020	Trees, Power Lines, Roof	Warm Springs, OR	911 Call Center
Tstm wind dmg	May 30, 2020	Trees, Power Lines, Roof	Umatilla, OR	public
Hail	May 30, 2020	E 1.5 inch	5 W Pendleton, OR	public
Tstm wind gust	May 30, 2020	M 75 mph	1 WSW Umatilla, OR	Trained Spotter
Tstm wind gust	May 30, 2020	M 67 mph	1 SW Kahlotus, WA	Meso-net
Hail	May 30, 2020	E 1.75 inch	Spray, OR	public
Tstm wind dmg	May 30, 2020	Large tree down	Kennewick, WA	Law Enforcement
Tstm wind dmg	May 30, 2020	Tree down	Boardman, OR	Amateur Radio
Tstm wind dmg	May 30, 2020	Roof damage	NNW Prescott, WA	Trained Spotter
Tstm wind gust	May 30, 2020	M 75 mph	1 WSW Umatilla, OR	Trained Spotter
Hail	May 30, 2020	E 1.5 inch	3 SW Bend, OR	public
Tstm wind dmg	May 30, 2020	Tree, power line down	Dayton, WA	Emergency Mngr
Tstm wind dmg	May 30, 2020	Several trees down	Union Gap, WA	public
Tstm wind dmg	May 30, 2020	Trees down	Prosser, WA	public
Hail	May 30, 2020	E 2.0 inch	8 W Helix, OR	public
Tstm wind gust	May 30, 2020	M 72 mph	Grass Valley, OR	public
Hail	May 30, 2020	E 1.75 inch	9 SSE Echo, OR	public
Tstm wind dmg	May 30, 2020	Trees down	Moxee, WA	public
Hail	May 30, 2020	E 1.0 inch	Joseph, OR	public

Significant Weather Events for May (cont), 2020

Significant Weather Events				
Event	**Date**	**Report**	**Where**	**Source**
Tstm wind gust	May 30, 2020	M 97 mph	3 E Vantage, WA	public
Tstm wind gust	May 30, 2020	M 60 mph	4 W Adams, OR	Meso-net
Tstm wind gust	May 30, 2020	M 58 mph	7 W Helix, OR	Meso-net
Hail	May 30, 2020	M 2.0 inch	8 W Helix, OR	public
Tstm wind gust	May 30, 2020	M 58 mph	8 W Helix, OR	Meso-net
Tstm wind gust	May 30, 2020	M 85 mph	9 NNW Clarno, OR	Meso-net
Tstm wind dmg	May 30, 2020	Dibris all over campground	12 N Gateway, OR	public

The month of May was dominated by 3 significant weather events. A high wind Event on the 6th, heavy rainfall with flooding on the 20th-21st, and severe thunder-Storms on the 28th-30th.

Record Weather Events for May, 2020

Record Weather Reports					
Event	**Date**	**Where**	**Previous Record**	**New Record**	**Records Began**
Low Temp	May 7, 2020	Redmond, OR	20 / 2002	19 degrees	1941
Rainfall	May 20, 2020	Meacham, OR	0.93 / 1960	2.55 inches	1929
Rainfall	May 20, 2020	Pendleton, OR	0.64 / 1960	1.11 inches	1934
Rainfall	May 20, 2020	Walla Walla, WA	0.92 / 1960	1.66 inches	1930
Rainfall	May 20, 2020	Joseph, OR	0.63 / 1905	0.68 inches	1893
Rainfall	May 20, 2020	Whitman Mission, WA	0.75 / 2006	1.20 inches	1962
Rainfall	May 20, 2020	Dayton, WA	1.18 / 1893	1.29 inches	1893

Most of the records recorded for the month were record rainfall amounts on the 20th-21st. There was only one other record, which was a record low temperature on The 7th.

May 2020 Observed Monthly Max & Min Temperatures

Location	Highest Maximum Temperature	Lowest Minimum Temperature
Pendleton, OR	89	34
Redmond, OR	91	19
Pasco, WA	95	32
Yakima, WA	93	28
Walla Walla, WA	91	37
Bend, OR	83	27
Ellensburg, WA	92	29
Hermiston, OR	94	32
John Day, OR	94	32
La Grande, OR	Missing	Missing
The Dalles, OR	96	35
MT Adams RS, WA	86	27

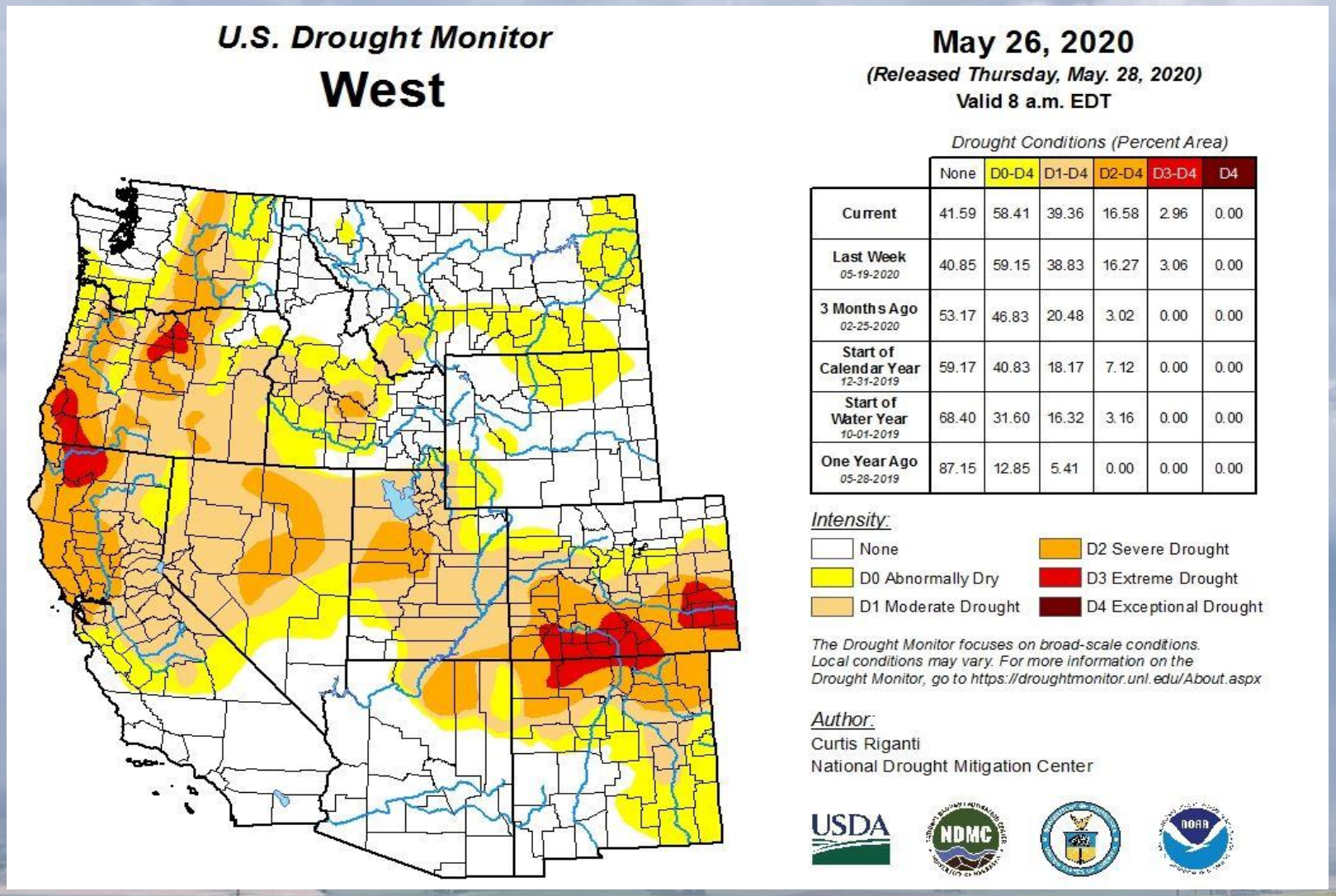
More than half of the stations reported maximum highs in the 90s, with 3 stations not getting out of the 80s during the month. Even in May, higher elevation stations can still get below freezing at night, such as Redmond, OR, Bend, OR, and the Mt. Adams Ranger Station. Half of the stations had lowest minimum temperatures at or above freezing.

May 2020, Monthly Precipitation and Snowfall Totals

Location	Total Monthly Precip (inches)	Total Snowfall (inches)
Pendleton. OR	2.70	0.0
Redmond, OR	1.80	0.0
Pasco, WA	1.08	0.0
Yakima, WA	0.87	0.0
Walla Walla, WA	3.60	0.0
Bend, OR	1.55	Missing
Ellensburg, WA	0.95	Missing
Hermiston, OR	0.92	0.0
John Day, OR (RAWS)	1.31	Missing
La Grande, OR	Missing	Missing
The Dalles, OR	1.12	Missing
Mt Adams RS, WA	0.51	0.0

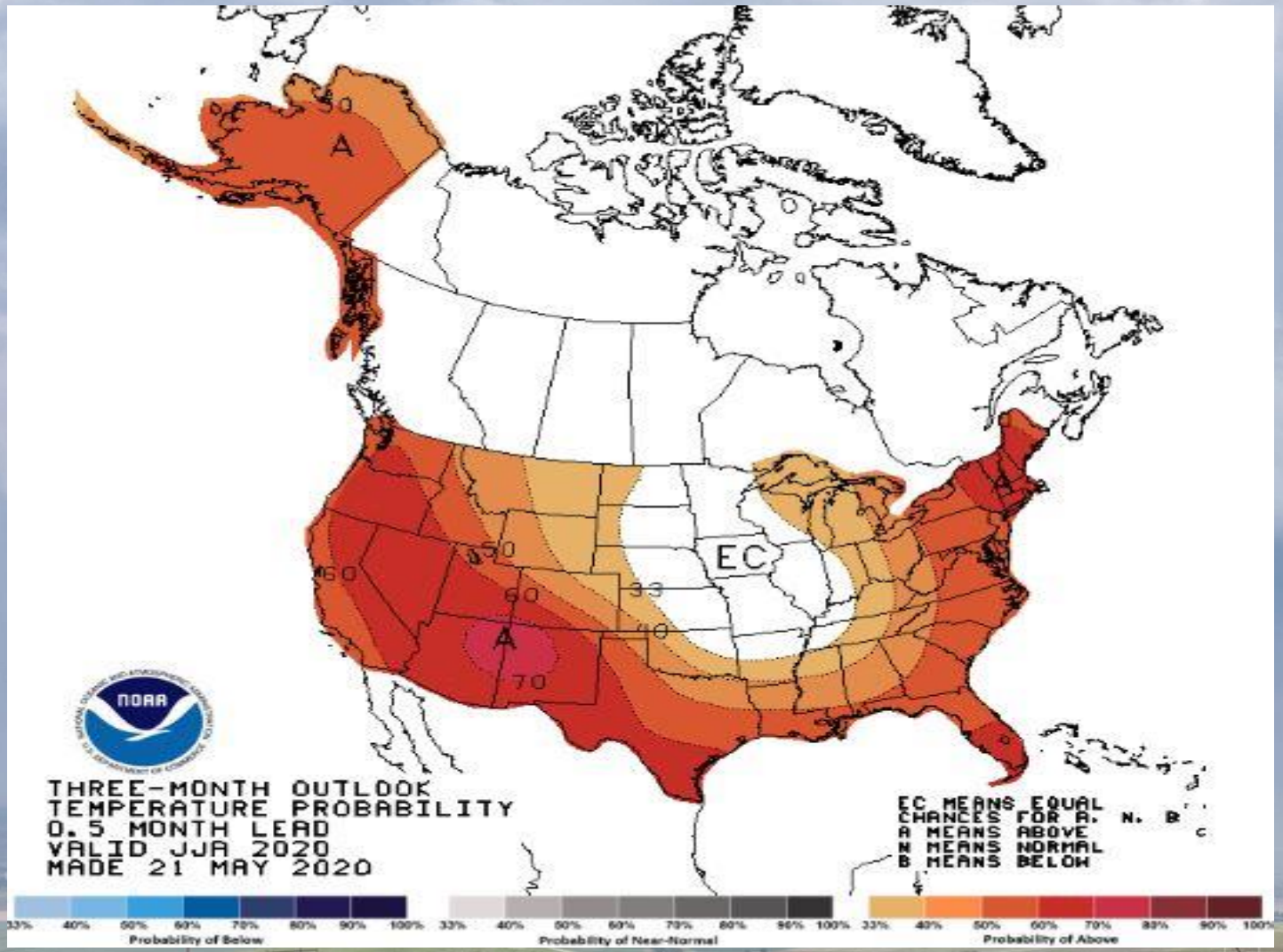
Most stations had more than an inch of precipitation during the month. Four stations had less than an inch total for the month. It is not surprising that none of the stations reported snow. If there was snow reported, it would have been most likely due to hail accumulation. It is interesting to note that the Mt. Adams Ranger Station had the least amount of precipitation of only 0.51 of an inch, which is in the greater drought area.

May 2020 - Drought Monitor



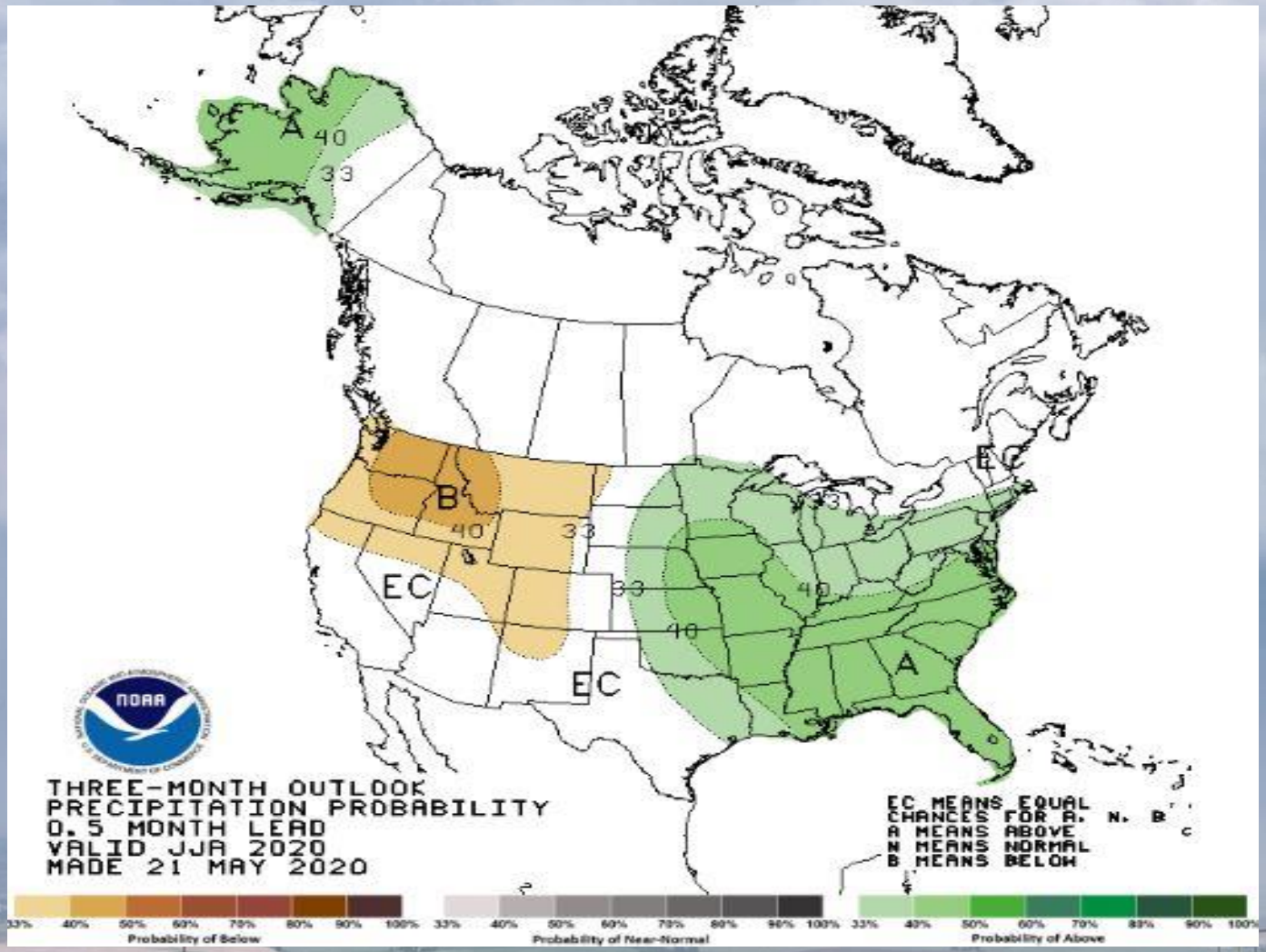
As of late May (the 26th) most of the forecast area was in a drought classification to some degree. This ranged from “None” (no drought) in the far northeast OR and southeast WA corners to a classification of “D3-D4” (Extreme Drought). The greatest drought was over north central Oregon and the least (None) was in far northeast OR and southeast WA.

USA Three Month Temperature Outlook



The temperature outlook for the three months of June, July & August shows about a 50-60 percent chance of having above normal temperatures for all of the forecast area.

USA Three Month Precipitation Outlook

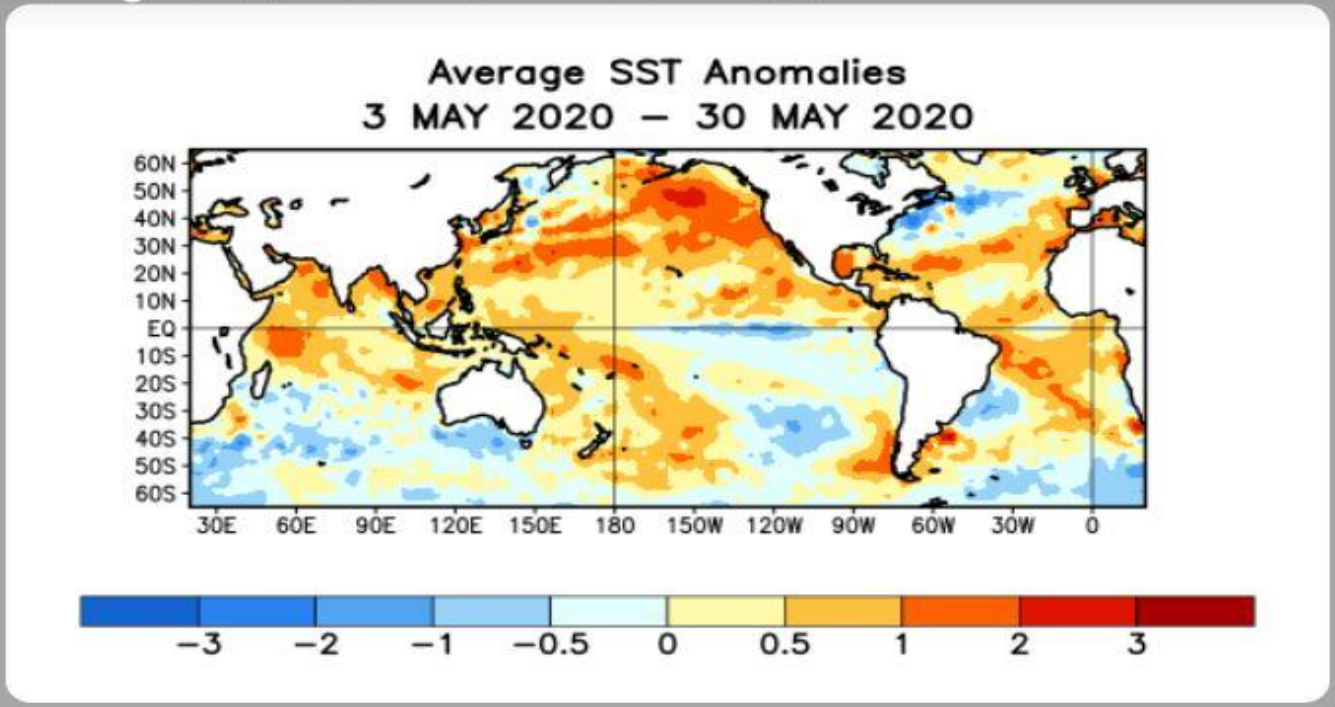


The precipitation outlook for the three months of June, July & August shows that the entire forecast area will have a 33-40 percent chance of below normal precipitation for the period.

Sea Surface Temperature (SST) analysis for May 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, the western and eastern Atlantic Ocean, and the Indian Ocean. They were below average in the east-central Pacific Ocean.



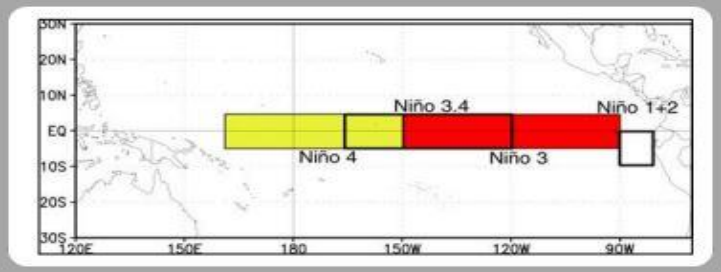
SSTs were above average for most of the eastern Pacific ocean, but cooler than normal along the equator in the eastern Pacific. While these anomalies do not alone indicate either an El Nino or a La Nina event, it is consistent with the greater than normal amount of Pacific weather systems (upper troughs) which moved into the western USA in May.

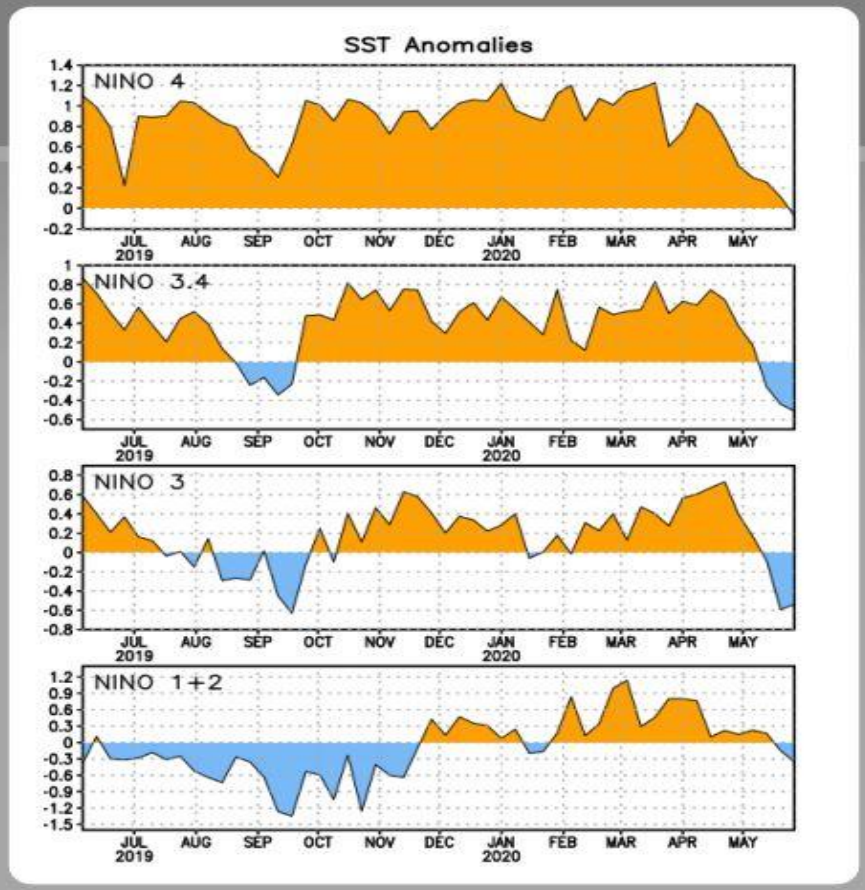
El Nino/ La Nina Regions, Showing SST Anomalies for Each Nino Region

Niño Region SST Departures (°C) Recent Evolution

The latest weekly SST departures are:

Niño 4	-0.1°C
Niño 3.4	-0.5°C
Niño 3	-0.5°C
Niño 1+2	-0.4°C





All Nino Regions have begun to show cooling of tropical Pacific sea surfaces near the equator, especially Regions Nino 3 and Nino 3.4. This is after a relative long period of above average SSTs since February. Still, this alone does not indicate an El Nino or a La Nina Event. In fact, the latest ENSO Status Alert indicates that ENSO status is still neutral and that it will remain neutral through the summer, and then may begin to deviate from neutral during the fall.

Current ENSO (El Nino Southern Oscillation) Alert System Status

ENSO Alert System Status: Not Active

ENSO-neutral conditions are present.*

Equatorial sea surface temperatures (SSTs) are near average across most of the Pacific Ocean.

The tropical atmospheric circulation is consistent with ENSO-neutral.

There is a ~65% chance of ENSO-neutral during Northern Hemisphere summer 2020, with chances decreasing through the autumn (to 45-50%).*

As stated in the previous slide, ENSO conditions are still “Neutral” or “Not Active”. This is likely to remain (a 65% chance) during the Northern Hemisphere summer, but then begin to decrease during the autumn to about 45-50%, in favor of a La Nina event.

Thank You!