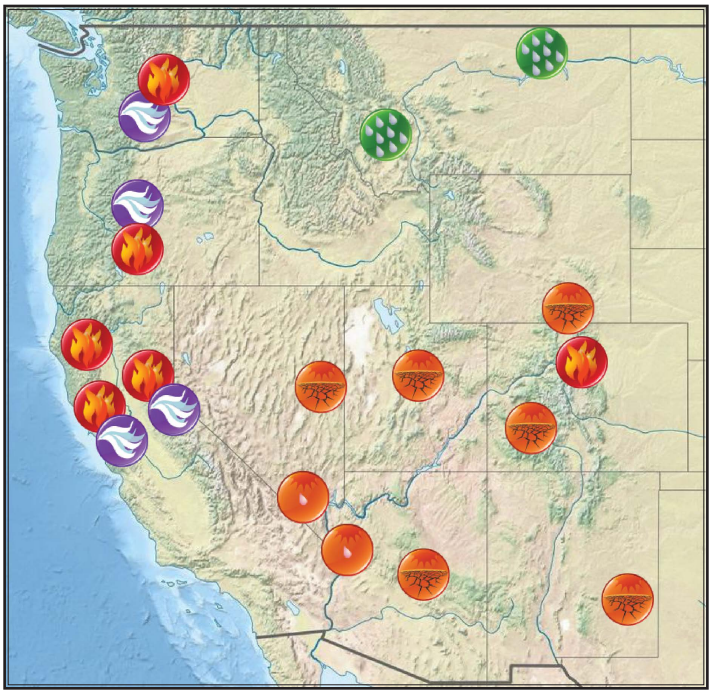
Quarterly Climate Impacts and Outlook

Western Region

December 2020

Significant Events for Sep-Oct-Nov 2020

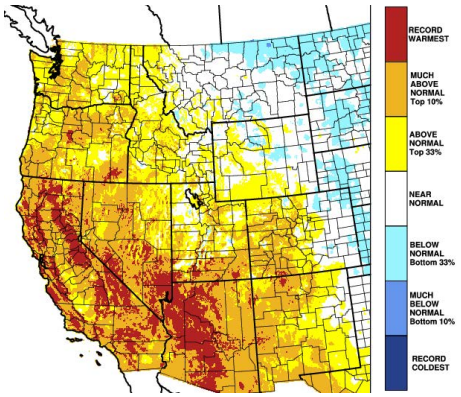


Sep-Oct-Nov Highlights

- Strong easterly downslope winds in early September fanned numerous deadly and damaging wildfires in OR, WA, and CA.
- Missoula, MT had its 2nd wettest October since 1900 and Glasgow, MT had its 12th wettest fall since 1947.
- Extreme drought now covers 22% of the West, including parts of NV, UT, AZ, CO, NM, and WY.
- Two wildfires in northern CO burned into alpine terrain through the fall on their way to becoming the two largest fires in state history.
- Parker, AZ observed no precipitation since June 1, leading to the driest 6-months on record. McCarran Airport in Las Vegas, NV also recorded its driest 6-month period with a trace since June 1.
- California's first million acre fire, the lightning-ignited August Complex Fire, was fully contained in mid-November when fall rains finally arrived.

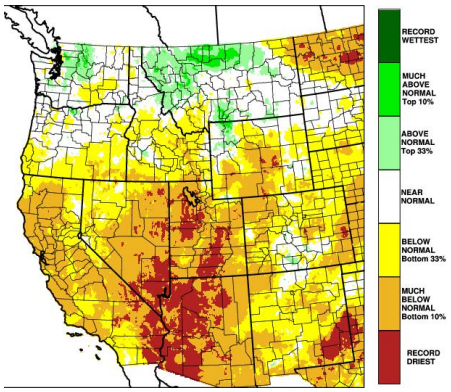
Regional Overview for Sep-Oct-Nov 2020

Mean Temperature Percentile
Sep-Oct-Nov 2020



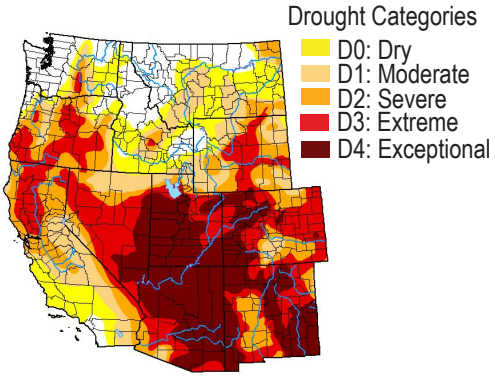
Temperatures were above-average during fall 2020 west of the Rocky Mountains, favored by a strong high pressure ridge anchored along the coast. Widespread record above-average temperatures occurred in CA, NV, and AZ. Downstream of this ridge, east of the Rockies, near-normal to below-normal temperatures were observed in much of MT and eastern WY and CO.

Precipitation Percentile
Sep-Oct-Nov 2020



Much of the West was drier-than-normal during fall, with the exception of northwestern WA and northern MT, which benefited from storms in early October and November. Although fall is typically dry in the southern half of the West, a persistent ridge of high pressure prevented landfalling Pacific storms, leading to well-below normal precipitation in many regions.

US Drought Monitor
December 1 2020



At the start of December, 88% of the western U.S. is in drought, with nearly 45% in extreme to exceptional drought. One year ago, 53% of the West was in drought. Worsening drought conditions resulted from continued above-average temperatures, below-average precipitation, and greater-than-normal evaporative demand during the warm season.

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Regional Impacts for Sep-Oct-Nov 2020

Drought, Flooding and Water Resources

Concerns are growing for post-fire runoff impacts on water resources infrastructure and water quality from enhanced sediment flux as well as post-fire debris flows in CO, WA, OR, and CA.

Reservoir storage is approximately 40% of capacity in Lakes Powell and Mead, with Colorado River system storage at 46% (down from 52% at this time last year). Reservoir storage varies from 2-77% in major reservoirs in WA, OR, CA, ID, WY, and NM.

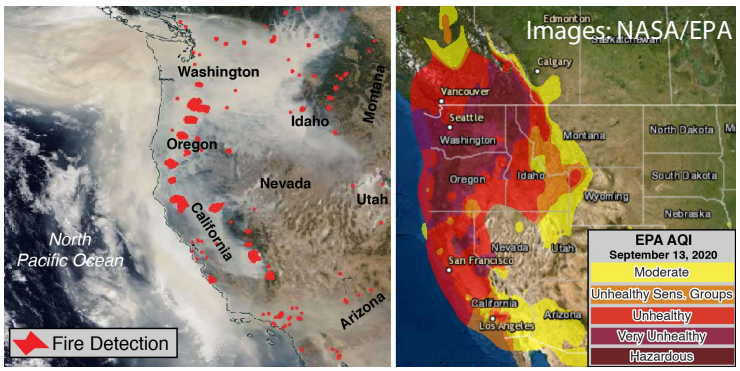
Agriculture and Wildlife

The Glass Fire destroyed and damaged numerous wineries and vineyards in Napa and Sonoma counties of CA, but summer and fall wildfire smoke tainted grapes statewide leading to worries of severe losses.

The large acreage of burned wildlands displaced, killed, and injured wildlife West-wide, disrupted big game hunting in ID, and destroyed critical habitat for imperiled species such as sage grouse in eastern WA and condors in coastal central CA.

Dry conditions throughout the West favored field work, but rangeland and pasture conditions continue to deteriorate, especially in CO, CA, OR, and WY.

Western US Wildfires Produce Hazardous Air Quality



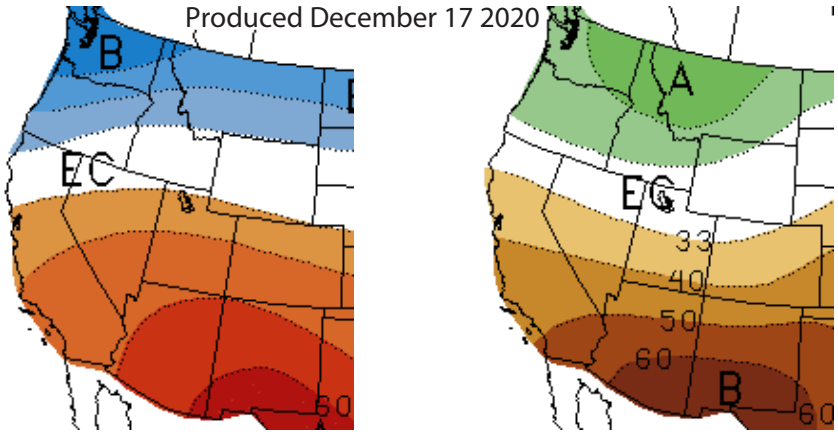
Dry fuels in the western U.S. created ideal conditions for severe wildfires during fall 2020. Hundreds of CA wildfires were ignited in mid-August by a rare dry lightning event. In early September, an unseasonably cold trough passed through the northern Intermountain West, establishing a strong pressure gradient across the Cascades and Sierra Nevada. The resulting hot and dry downslope winds drove rapid wildfire growth and extreme fire behavior in WA, OR, and CA. These destructive fires produced copious smoke that enshrouded parts of the West, including cities such as Seattle, Portland, and San Francisco, and Reno with unhealthy to hazardous air quality for many days.

Regional Outlook for Dec-Jan-Feb 2021

CPC Temperature Outlook

CPC Precipitation Outlook

Produced December 17 2020



A = Above normal B = Below normal EC = Equal chances. Numbers indicate percent chance of temperatures in warmest/coolest one-third and precipitation in wettest/driest one-third.

The CPC outlook for mid-winter shows the canonical signal of La Niña. During La Niña, the tropical easterly winds strengthen and tropical convection shifts westward, deflecting the Pacific storm track polewards. Above-normal temperatures and below-normal precipitation are likely for the southern tier of the western U.S. with below-normal temperatures and above-normal precipitation likely for the northern tier, consistent with the northward shift of the storm track. Warm sea surface temperature anomalies in the northern Pacific Ocean and well-below average Arctic sea ice extent also favor dry conditions in the Pacific Southwest.

Western Region Partners

Western Regional Climate Center
wrcc.dri.edu
National Integrated Drought Information System (NIDIS) - drought.gov
Western Governors' Association
westgov.org
Western States Water Council
westgov.org/wswc
NOAA/ESRL Physical Sciences Division
esrl.noaa.gov/psd
NOAA Climate Prediction Center
www.cpc.ncep.noaa.gov
National Centers for Envir. Info. (NCEI)
www.ncdc.noaa.gov
USDA/NRCS National Water and Climate Center - www.wcc.nrcs.usda.gov
National Interagency Fire Center
www.nifc.gov
Western Water Assessment
wwa.colorado.edu
Climate Assessment for the Southwest
climas.arizona.edu
California Nevada Applications Program
cnap.ucsd.edu
Climate Impacts Research Consortium
pnwclimate.org/resources
NWS Western Region Forecast Offices
www.wrh.noaa.gov/

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