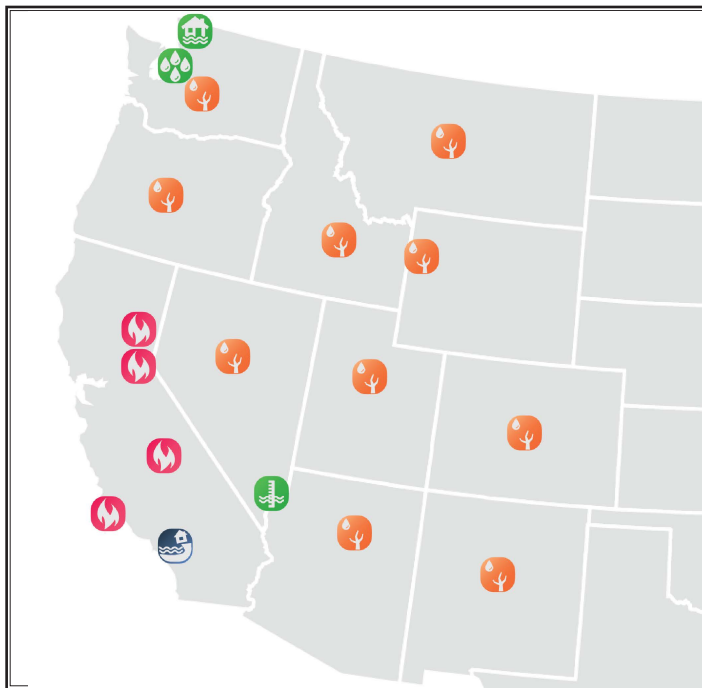






Significant Events for Sep-Oct-Nov 2021

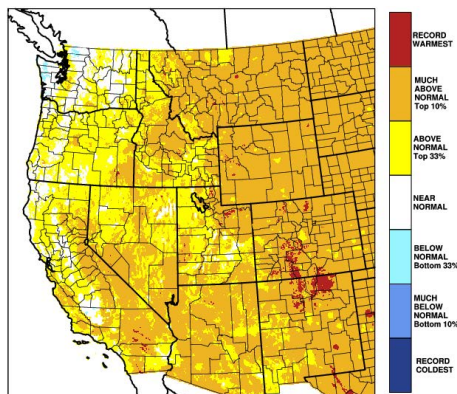


Sep-Oct-Nov Highlights

-  Seattle, WA recorded its wettest fall on record.
-  Dry antecedent soils mitigated a 1-in-1,000 year daily rainfall event from producing widespread flooding in Santa Rosa, CA
-  Denver, CO observed its third-driest fall on record.
-  The majority of the mountains of the West were experiencing snow drought (low or no snow conditions) by the end of November.
-  Extreme to exceptional drought covers 44% of the West and includes all Western States.
-  Large wildfires burned in the Sierra Nevada and Transverse Ranges of CA.
-  Lake Mead's (NV) water surface elevation of 1065.65 feet remains its lowest level since being filled.
-  Western WA experienced multiple episodes of riverine flooding.

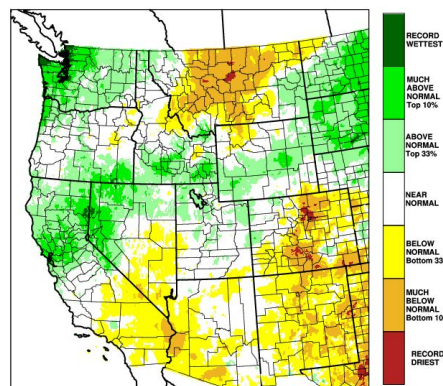
Regional Overview for Sep-Oct-Nov 2021

Mean Temperature Percentile
Sep-Oct-Nov 2021



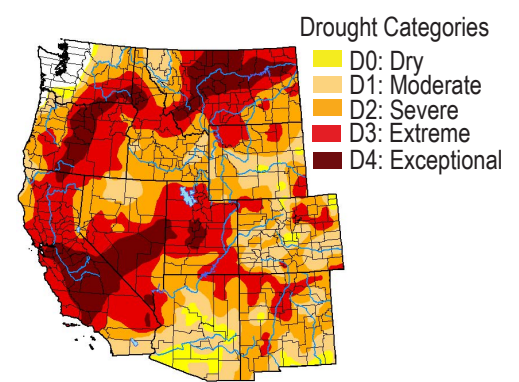
A strong ridge of high pressure favored widespread above- to much-above normal temperatures in the West. Record hot temperatures were observed in eastern Utah, western Colorado, northern New Mexico, and the Mojave Desert region of California. Below-normal temperatures occurred in western and northwestern Washington.

Precipitation Percentile
Sep-Oct-Nov 2021



Multiple extreme to exceptional landfalling atmospheric rivers in October brought above-average to record precipitation to the Pacific Northwest, northern California and Nevada, and southern Idaho. Below average to record low precipitation occurred in the Pacific Southwest, Colorado, and Montana. Near-to-above normal precipitation occurred elsewhere in the West.

US Drought Monitor
Nov 30 2021



Nearly 98% of the western U.S. is in drought, with 44% in extreme to exceptional drought. One year ago, 88% of the West was in drought and only 22% was in extreme to exceptional drought. Dry and warm conditions prevented any major drought amelioration during fall, however some locations improved out of extreme or exceptional conditions.

Regional Impacts for Sep-Oct-Nov 2021

Drought, Flooding and Water Resources

Widespread extreme to exceptional drought conditions persisted with hot and dry conditions driving high evaporative demand.

Western Washington experienced several flooding events with persistent rainfall from multiple landfalling atmospheric rivers.

Many large western US reservoirs remain low. Lake Mead is at 34% of capacity (1,065 ft), Lake Powell is at 28% of capacity, Jackson Lake and Palisades Lake are at 18% of capacity, American Falls is at 40% of capacity, and Owyhee is at 16% of capacity.

Agriculture and Wildlife Impacts

Adverse rangeland conditions (very poor to poor ratings) continue to exist West-wide.

After multiple years of smoke-taint concerns and harvest seasons being impacted by wildfire smoke or fires themselves, many California vintners celebrated an excellent wine growing season and harvest for the 2021 vintage.

Exceptional October Atmospheric River Brings Beneficial Rain

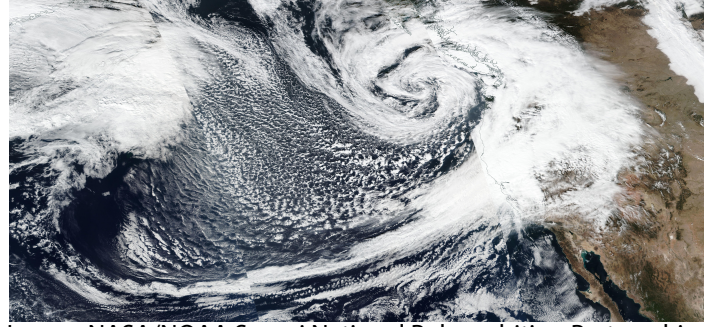
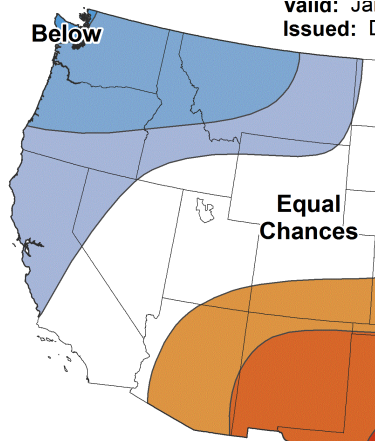


Image: NASA/NOAA Suomi National Polar-orbiting Partnership
On October 25, an exceptionally strong atmospheric river associated with a record low pressure system (942 mb) in the Gulf of Alaska brought heavy rainfall to northern California, northern Nevada, and southern Idaho. Coastal California experienced historic rainfall with daily precipitation totals satisfying 1-in-500 to 1-in-1,000 year return intervals. Snow levels exceeded 10,000 ft for much of the event but cold frontal passage brought several feet of early season snow to the Sierra Nevada allowing several ski resorts to begin winter operations. The rainfall helped to reduce wildfire hazard in northern California mountains and moisten record-dry soils in the Sierra Nevada, southern Cascades, and northern Coastal Ranges.

Regional Outlook for Jan-Feb-Mar 2022

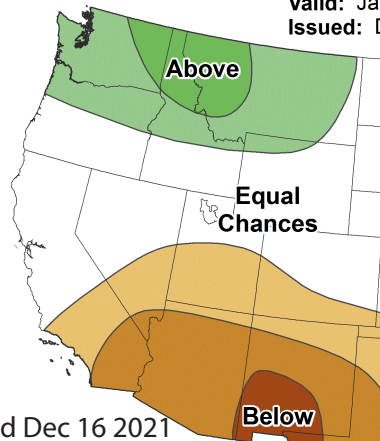
CPC Temperature Outlook

valid: Jan
Issued: C



CPC Precipitation Outlook

valid: Jan
Issued: D



Produced Dec 16 2021

A = Above normal B = Below normal EC = Equal chances.

The CPC outlook for mid-winter suggests a canonical La Niña-like pattern of cooler-than-normal and wetter-than-normal in the Pacific Northwest and northern Intermountain West with drier-than-normal conditions along the southern tier of the West. Large areas of equal chances for both above- or below-normal precipitation are projected for the central tier of the West. These projections suggest drought improvement in the northern tier of the West but indicate likely exacerbation of drought impacts in the Desert Southwest and Pacific Southwest, especially in light of forecast above-normal temperatures in Arizona, southern Colorado, and New Mexico.

Western Region Partners

Western Regional Climate Center
wrc.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.ncei.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.wr.noaa.gov/