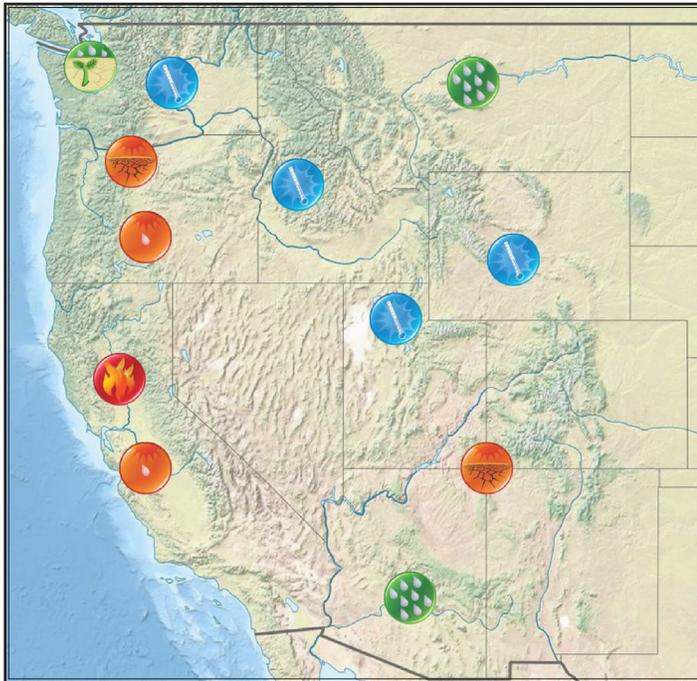




## Significant Events for Sept-Oct-Nov 2019

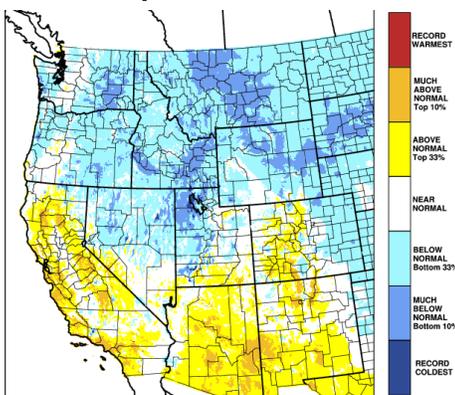
### Sept-Oct-Nov Highlights



-  Coldest Oct. on record for ID; 2nd coldest Oct. for UT, WA, WY.
-  AZ reported its 9th wettest autumn on record and MT its 11th wettest.
-  OR reported its 14th driest autumn on record and CA its 19th driest.
-  At the end of Nov., snow water equivalent (SWE) was well below normal across most mountain ranges of the Pacific Northwest.
-  At end of Nov., 23% of the West was in drought, up 12% from the beginning of Sept. Drought conditions expanded in the Four Corners region and improved in the Pacific Northwest.
-  CA experienced several impactful wildfires associated with a dry autumn and strong winds.
-  Neutral El Niño Southern Oscillation (ENSO) conditions were present in autumn and are favored to persist through the winter season.

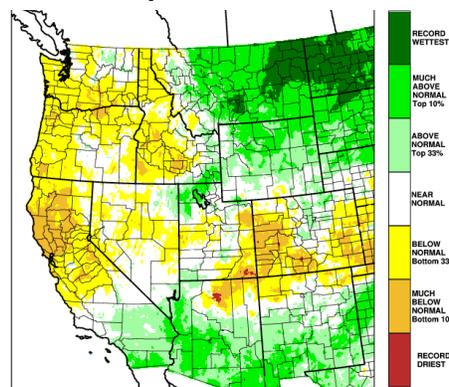
## Regional Overview for Sept-Oct-Nov 2019

### Mean Temperature Percentile Sept-Oct-Nov 2019



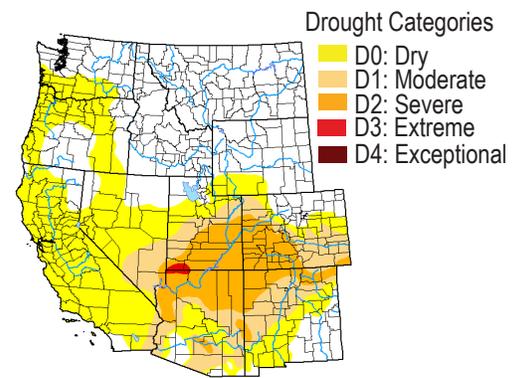
Autumn temperatures were well below normal across the northern tier of the region while near to above normal temperatures were observed across CA and the Southwest. Oct. was record-cold for many areas across the northern tier of the West, including a potential all-time coldest Oct. temperature for the continental U.S. at Peter Sinks, UT, where the temperature fell to -45.5 F on Oct. 30.

### Precipitation Percentile Sept-Oct-Nov 2019



Several areas of the West reported below normal autumn precipitation including northern CA, eastern UT, and western CO. MT, northern WY, northwestern UT, and the Southwest reported above normal precipitation. MT recorded its 2nd wettest Sept. on record. In the Southwest, Sept. was near to slightly wetter than normal, Oct. was notably dry, and Nov. was much wetter than normal.

### US Drought Monitor Nov. 26 2019



By the end of Nov., 23% of the West was experiencing drought conditions with the most severe centered on the Four Corners region following a weak monsoon season and a drier than normal October in much of this area. In contrast, above normal Sept. precipitation improved drought conditions in the Pacific Northwest, especially western WA, northern ID, and northwestern MT.

## Regional Impacts for Sept-Oct-Nov 2019

### Drought, Flooding and Water Resources

Heavy snow in the Sierra Nevada during two late Nov. storms led to road closures, including a 12h closure on Interstate 80, a major transportation corridor.

Three people died in central AZ on Nov. 30 when the vehicle they were in was inundated while attempting to cross Tonto Creek during a flash flood.

As of Nov. 1, reservoir storage above normal for all western states except NM and WA.

Record dry early autumn conditions in southern UT led fire managers to extend fire restrictions in 11 counties.

### Agriculture and Wildlife

In parts of MT, wet conditions in Sept. followed by extreme cold in Oct. caused harvesting delays and damaged the sugar beet crop.

In late Nov., streamflows were below normal in coastal N. CA, and western parts of WA, OR. Low streamflows in OR may impact access for spawning salmon.

AZ Game and Fish announced in Sept. that since Jan. 1, they have transported over 1.5 million gallons of water to fill catchments to protect local wildlife populations from drought impacts, especially related to the weak 2019 monsoon.

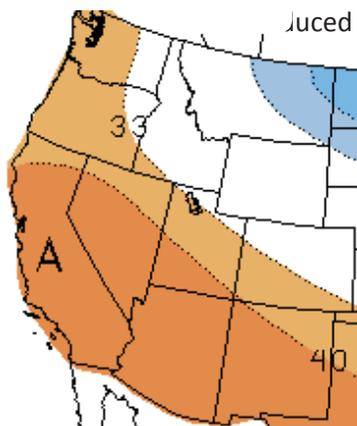
### California Wildfire Outbreak

From early Oct. through early Nov., numerous large and dangerous wildfires broke out in northern and southern CA – including the 77,758-acre Kincade Fire that started on October 23 and was responsible for the destruction of 374 structures in Sonoma County. In southern CA, several wildfires broke out between mid-to-late Oct. in Los Angeles, San Bernardino, and Ventura counties including the Saddle Ridge Fire, which burned 8,799 acres near the San Fernando Valley in Los Angeles County. Across the state, the firefighting efforts were complicated by extreme and erratic fire behavior in association with strong Diablo (northern CA) and Santa Ana winds (southern CA). On Oct. 27, a RAWS fire-weather observing station in proximity to the Kincade Fire reported a maximum wind gust of 76 miles per hour and relative humidities in the single digits.

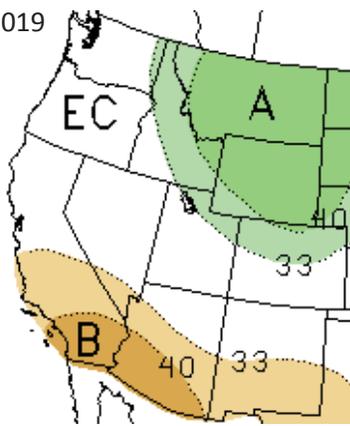


## Regional Outlook for Jan-Feb-Mar 2020

### CPC Temperature Outlook



### CPC Precipitation Outlook



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 slightly favors above normal temperatures along the West Coast into the Great Basin and Southwest. This outlook is supported by model output and long-term trends. Cooler than normal temperatures are slightly favored in eastern MT. Subseasonal variability (e.g., MJO) is likely to drive variable temperatures during winter. For precipitation, models slightly favor below normal precipitation along the southern border region. This represents expectations given the current sea surface temperature and convection patterns in the tropical Pacific. The Northern Rockies are slightly favored to have above normal precipitation, with equal chances elsewhere.

## 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.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.wr.noaa.gov/