

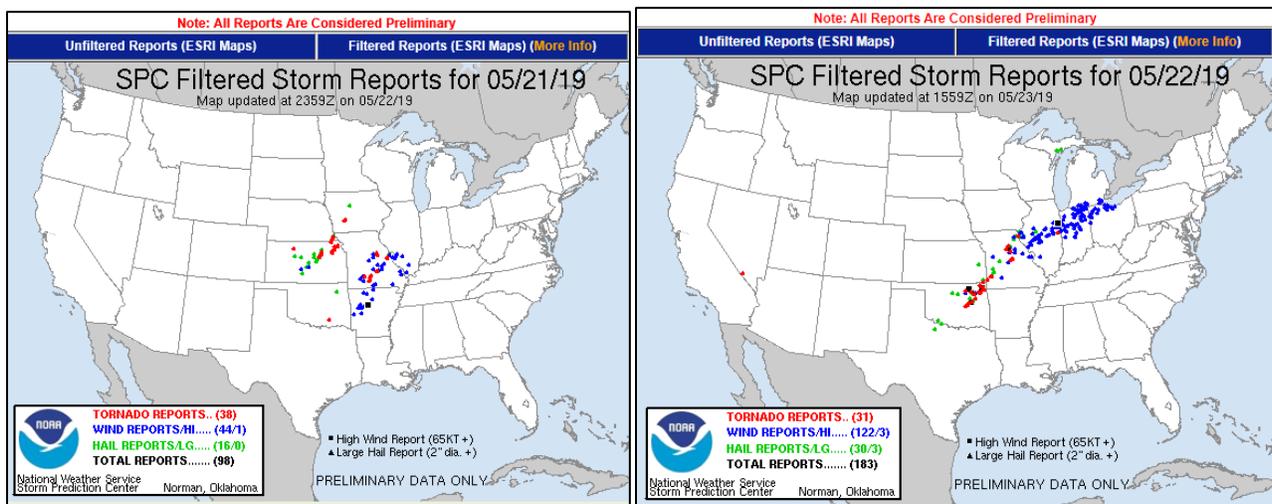
Water and Climate Update

May 23, 2019

The Natural Resources Conservation Service produces this weekly report using data and products from the [National Water and Climate Center](#) and other agencies. The report focuses on seasonal snowpack, precipitation, temperature, and drought conditions in the U.S.

| | | | |
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Severe storms, dozens of tornadoes, flooding across the central U.S.



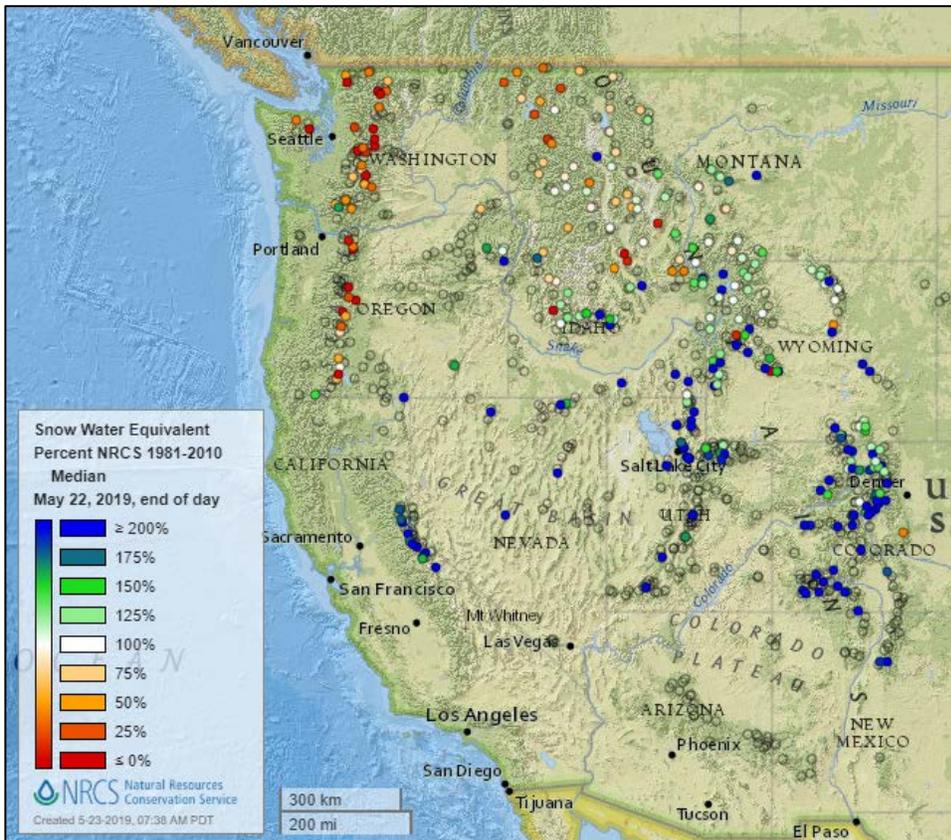
During the last week, severe storms with violent tornadoes, heavy rain, and damaging hail have ravaged the Plains and Midwest. The National Weather Service maps show the preliminary reports of tornadoes in red, hail in green, and high winds in blue for the last two days. These storms caused extensive damage in the region, including an overnight tornado that created a 30-mile long swath of damage in Jefferson City, Missouri. As rivers rise, evacuation orders are in place in parts of Oklahoma and Kansas.

Related:

- [Couple killed in SW Missouri tornado found 200 yards from home; Jefferson City also hit hard](#) – St. Louis Post-Dispatch (MO)
- ['Violent tornado' hits Missouri's capital, Jefferson City, after 3 killed in southwest part of state](#) – NBC News
- [New waves of violent storms threaten central U.S., following more than 60 tornadoes, widespread flooding](#) – The Washington Post
- [Heavy rain, tornadoes pummel Midwest](#) – Arkansas Democrat Gazette
- [Severe weather threat continues in Great Plains following deadly tornadoes, widespread flooding](#) – NBC News
- [At Least 8 Injured as 30 Tornadoes Passed Through the U.S. Southern Plains](#) - Time

Snow

Current Snow Water Equivalent, NRCS SNOTEL Network



[Snow water equivalent percent of median map](#)

See also:
[Snow water equivalent values \(inches\) map](#)

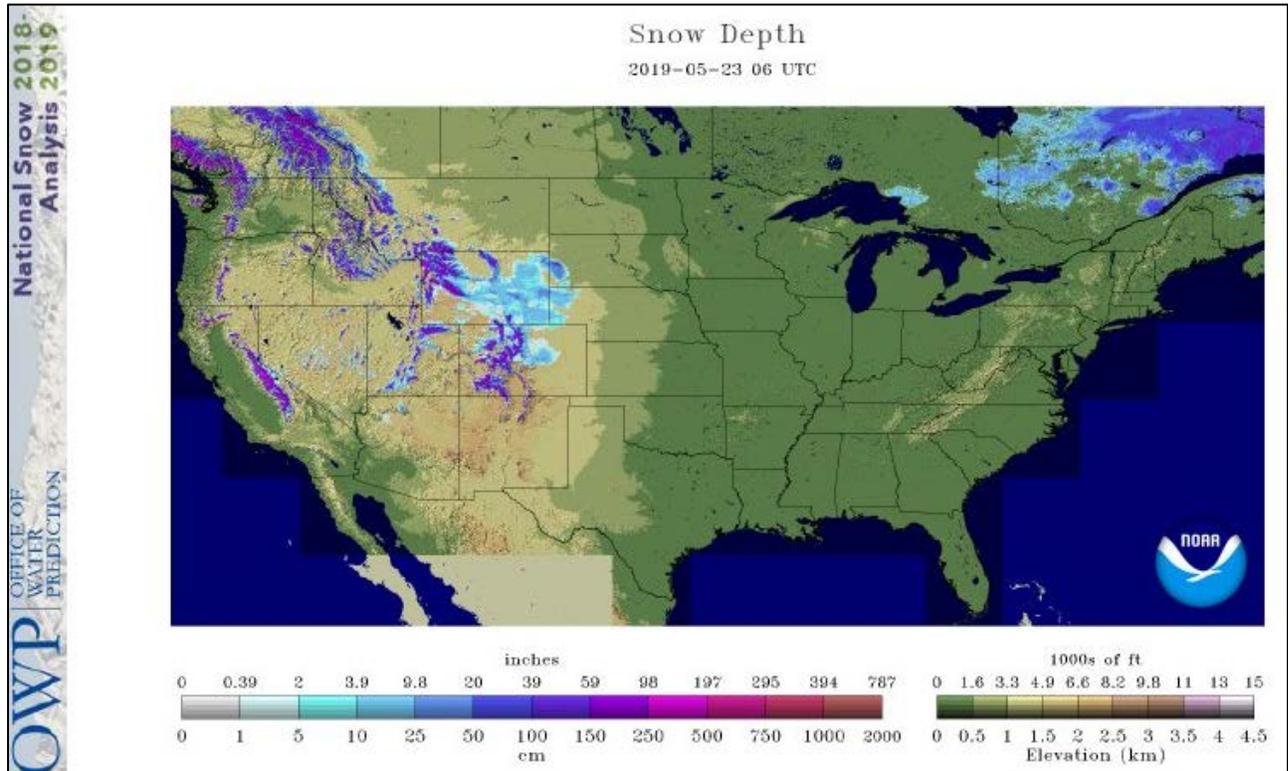


[Alaska snow water equivalent percent of median map](#)

See also:
[Alaska snow water equivalent values \(inches\) map](#)

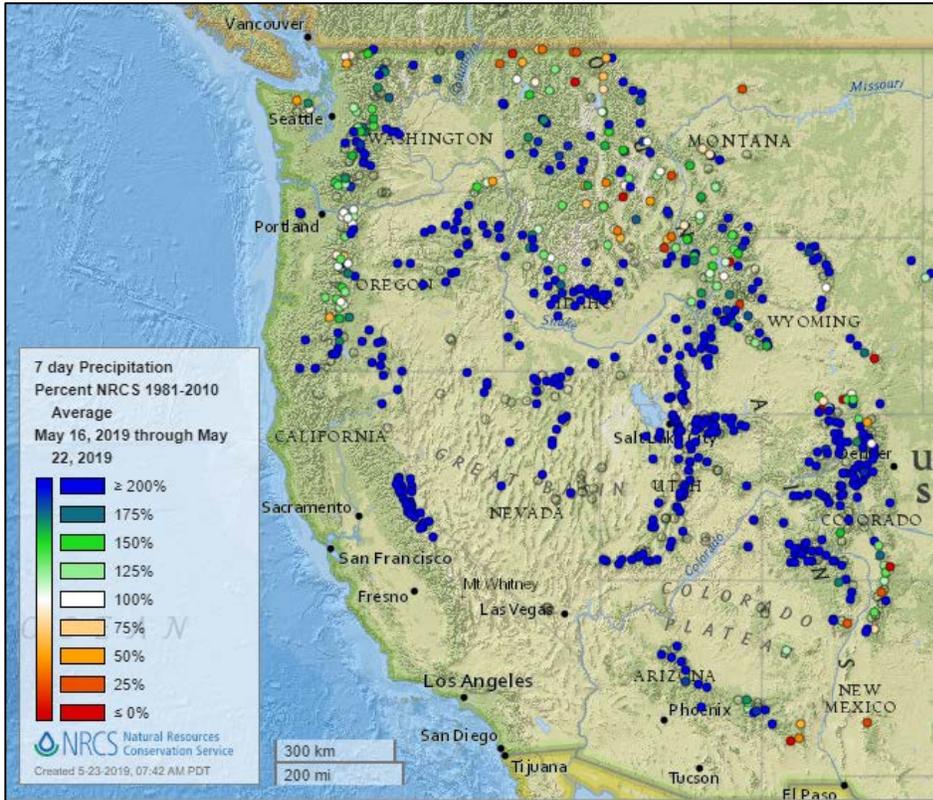
Current Snow Depth

Source: National Weather Service Snow Analysis



Precipitation

Last 7 Days, NRCS SNOTEL Network

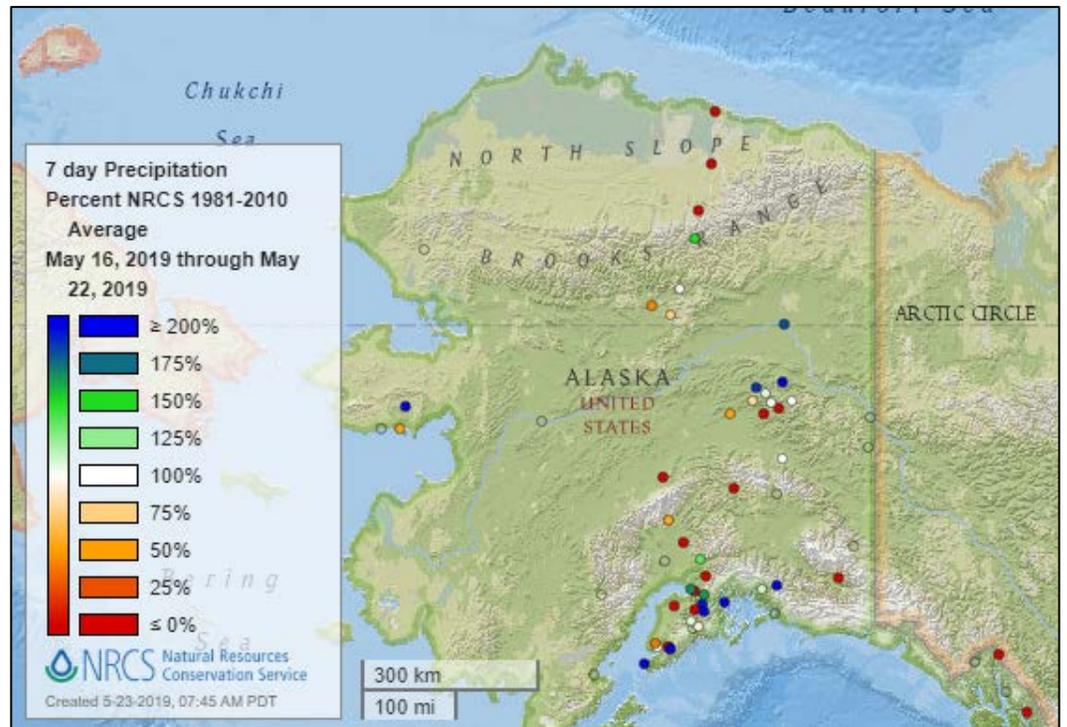


[7-day precipitation percent of average map](#)

See also:
[7-day total precipitation values \(inches\) map](#)

[Alaska 7-day precipitation percent of average map](#)

See also:
[Alaska 7-day total precipitation values \(inches\) map](#)



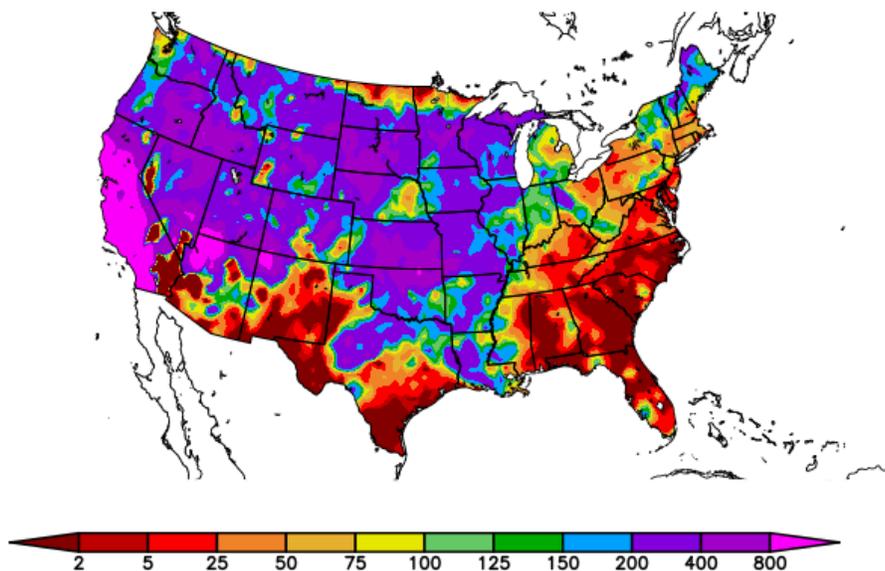
Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

[7-day precipitation percent of normal map](#) for the continental U.S.

See also: [7-day total precipitation values \(inches\) map](#)

Percent of Normal Precipitation (%)
5/16/2019 – 5/22/2019



Generated 5/23/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

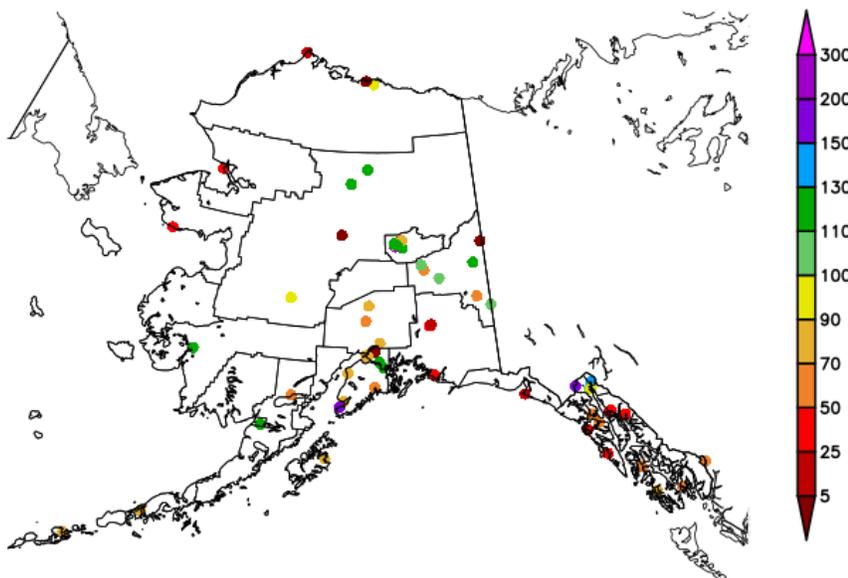
Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

[7-day precipitation anomaly map](#) for Alaska.

See also: [7-day total precipitation values \(inches\) map](#)

Percent of Normal Precipitation (%)
5/16/2019 – 5/22/2019



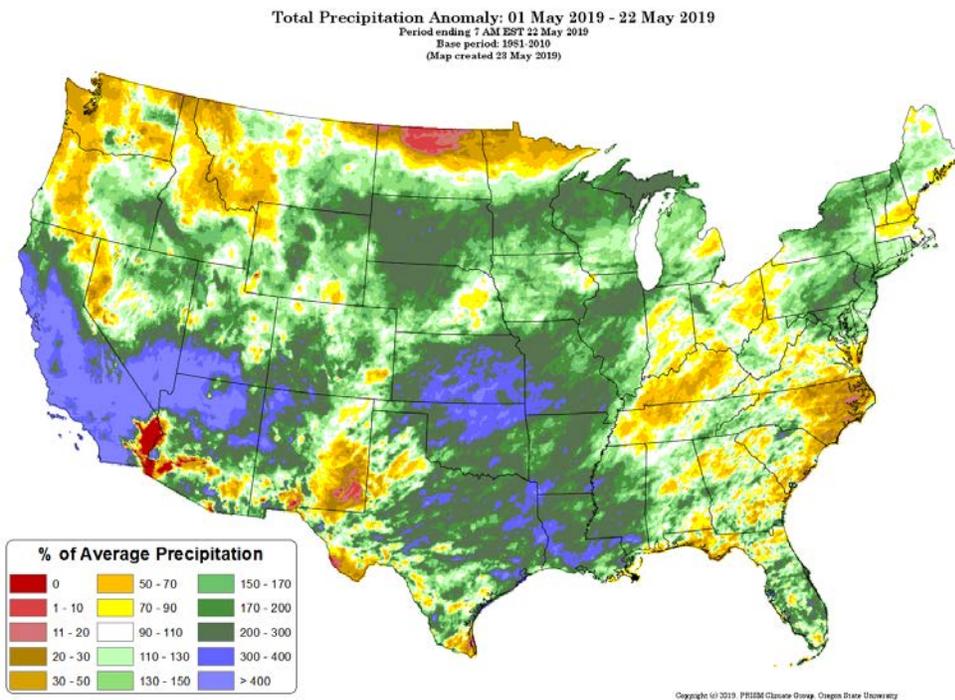
Generated 5/23/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

Water and Climate Update

Month-to-Date, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

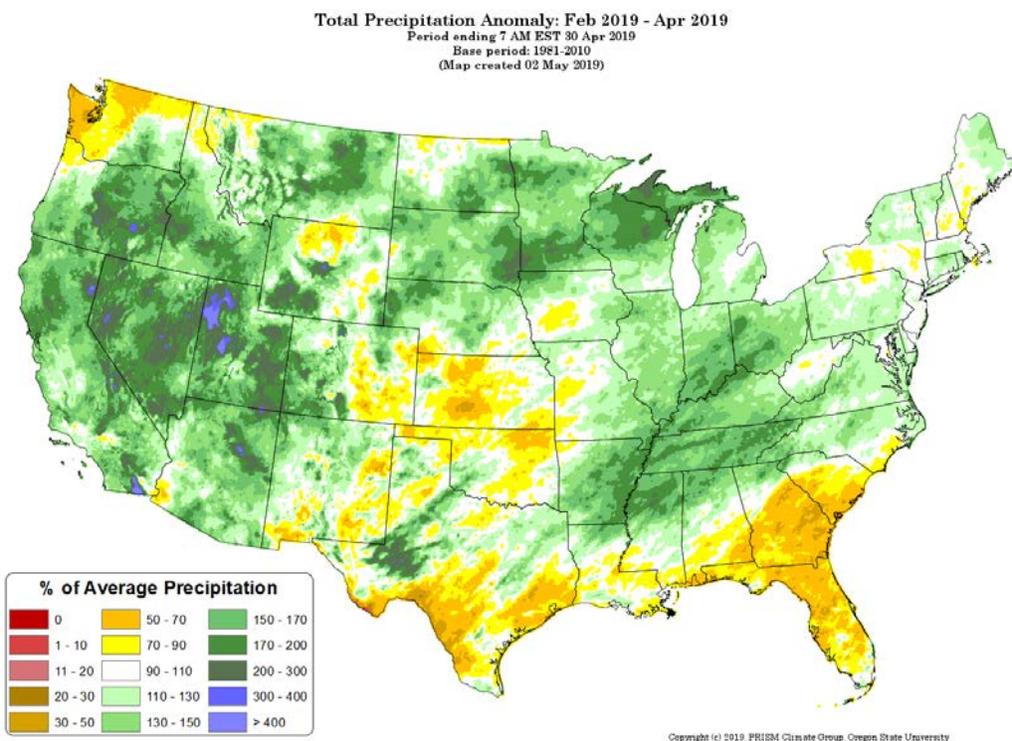


[Month-to-date national total precipitation percent of average map](#)

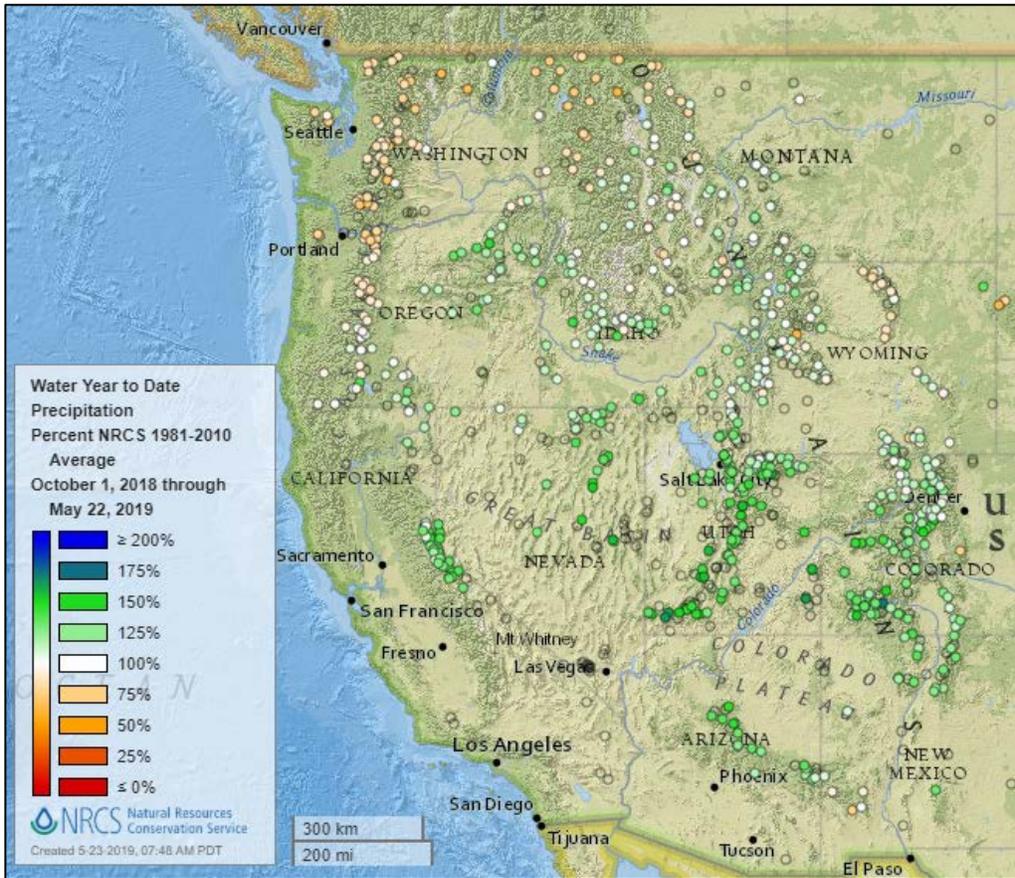
Last 3 Months, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

[February through April 2019 total precipitation percent of average map](#)

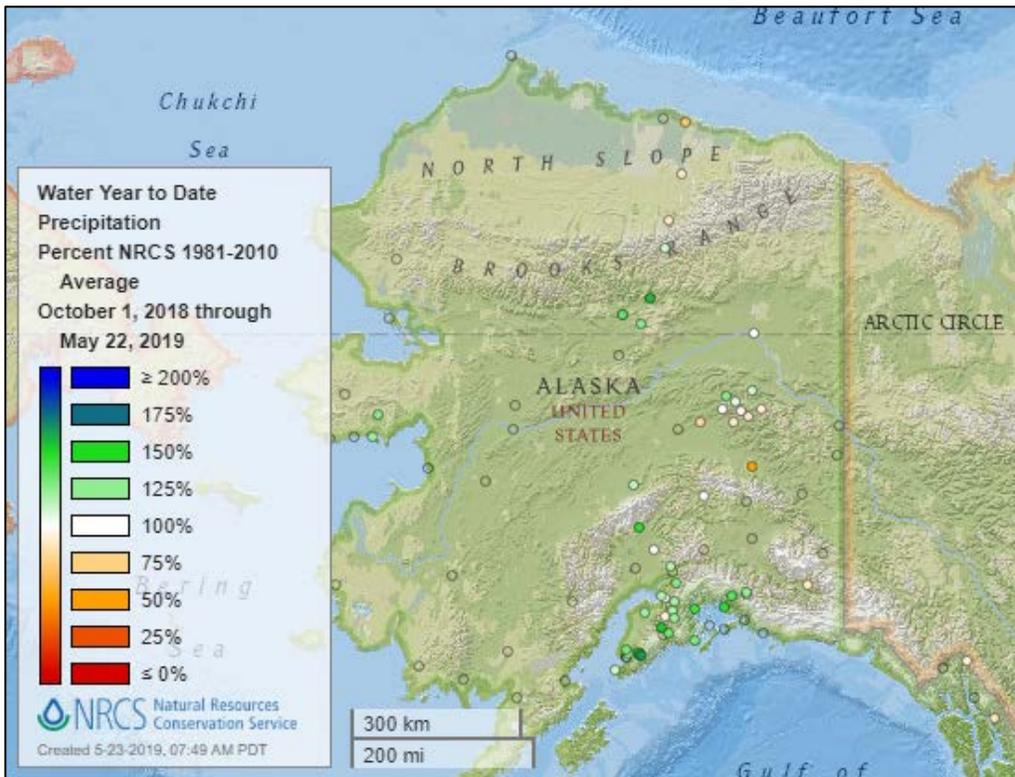


Water Year-to-Date, NRCS SNOTEL Network



[2019 water year-to-date precipitation percent of average map](#)

See also:
[2019 water year-to-date precipitation values \(inches\) map](#)



[Alaska 2019 water year-to-date precipitation percent of average map](#)

See also:
[Alaska 2019 water year-to-date precipitation values \(inches\) map](#)

Temperature

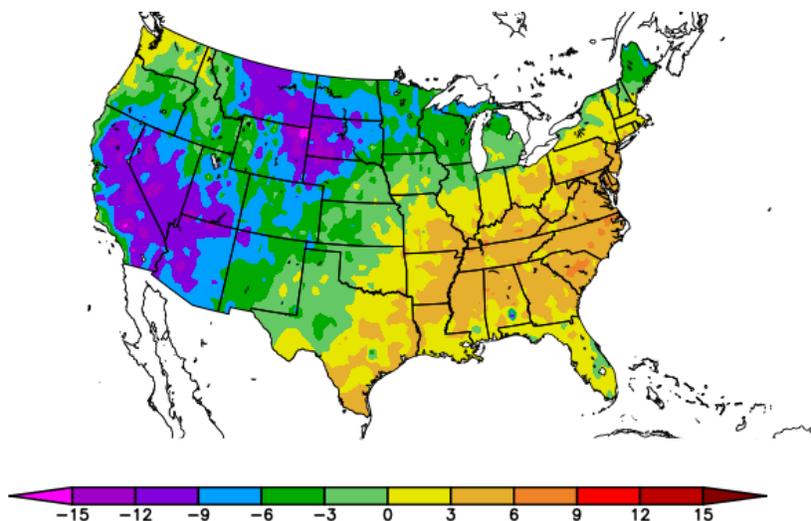
Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

[7-day temperature anomaly map](#) for the contiguous U.S.

See also: [7-day temperature \(° F\) map](#)

Departure from Normal Temperature (F)
5/16/2019 – 5/22/2019



Generated 5/23/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

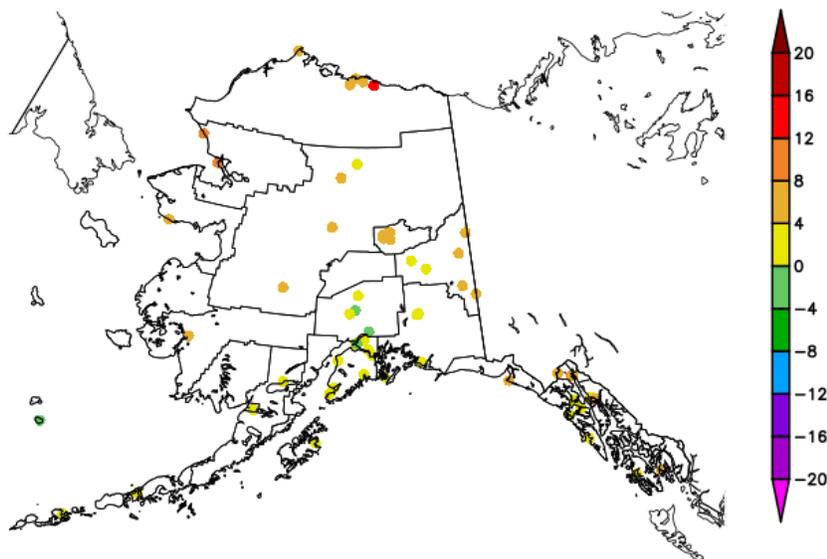
Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

[7-day temperature anomaly map](#) for Alaska.

See also: [7-day temperature \(° F\) map](#)

Departure from Normal Temperature (F)
5/16/2019 – 5/22/2019



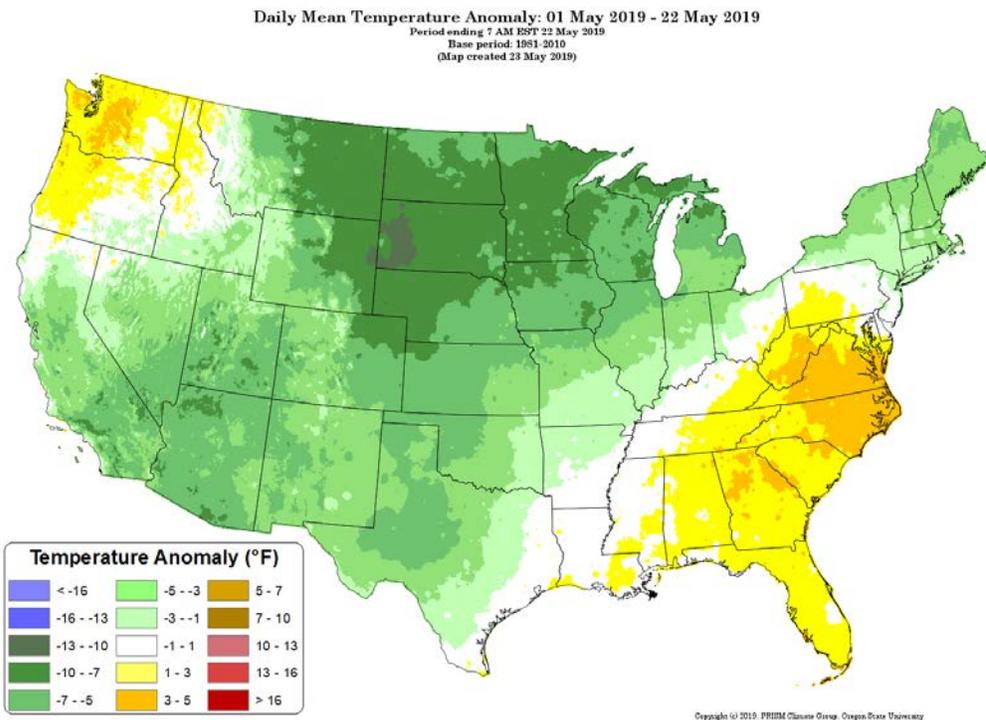
Generated 5/23/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

Month-to-Date, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

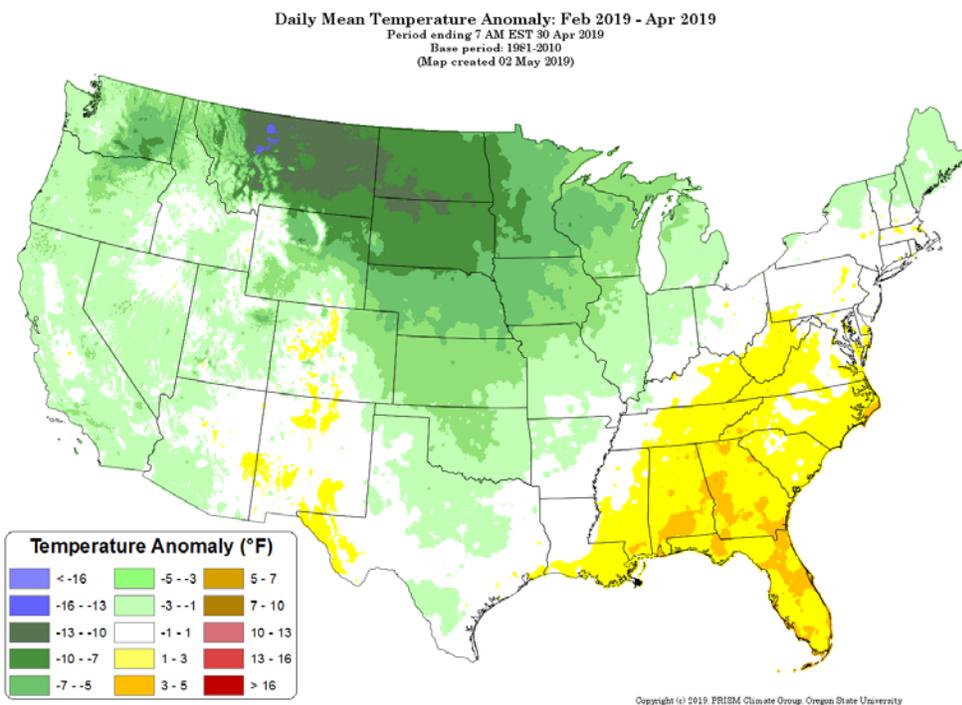
[Month-to-date national daily mean temperature anomaly map](#)



Last 3 Months, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

[February through April 2019 daily mean temperature anomaly map](#)



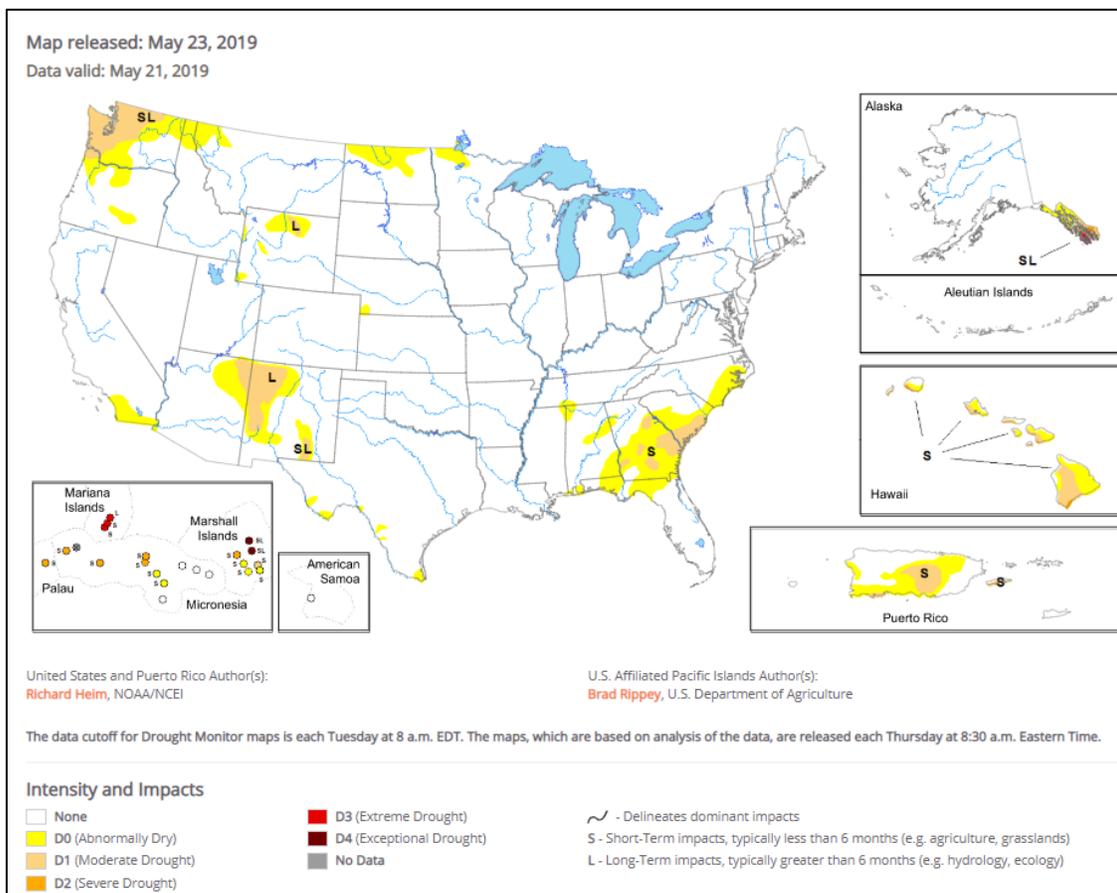
Drought

[U.S. Drought Monitor](#)

Source: National Drought Mitigation Center

[U.S. Drought Portal](#)

Source: NOAA



Current [National Drought Summary](#), May 23, 2019

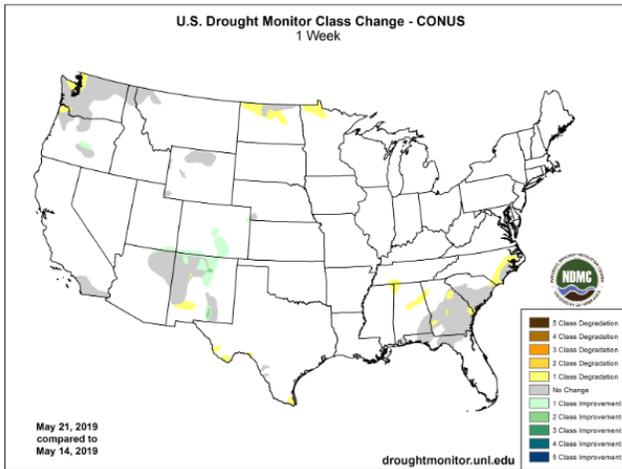
Source: National Drought Mitigation Center

“A series of Pacific upper-level weather systems, and their associated surface lows and fronts, moved across the contiguous U.S. (CONUS) during this U.S. Drought Monitor (USDM) week. These systems dropped half an inch or more of precipitation across much of the West, Plains, and Midwest, as well as parts of the Northeast. Heavy rains of 2 to 4 inches, or more, fell across parts of California, especially the upslope regions. The systems triggered severe weather in the Plains, with training thunderstorms dropping flooding rains. Two inches or more of precipitation was measured from northern Texas to Illinois, parts of the northern Plains, eastern Texas to Louisiana, and Upper Mississippi Valley to western Great Lakes. Parts of Oklahoma to southeast Kansas saw more than 5 inches of rain. Precipitation was sparse in southern Arizona and New Mexico, and across most of the Southeast where high pressure dominated, with less than a tenth of an inch observed. Most of the precipitation fell on areas that were drought-free. Drought and abnormal dryness contracted in parts of the Southwest, but expanded in areas that received below-normal precipitation this week, had continued and prolonged precipitation deficits, or were experiencing drought impacts. These included parts of southern Texas, the Pacific Northwest, the northern Plains, the Southeast, Hawaii, Puerto Rico, and the southern parts of the Alaskan panhandle. With the elimination of D2 from New Mexico, this week is the first time in the history of the USDM that the CONUS has been free of Severe to Exceptional Drought. However, it also marks the first time that Extreme Drought (D3) has been analyzed for Alaska.”

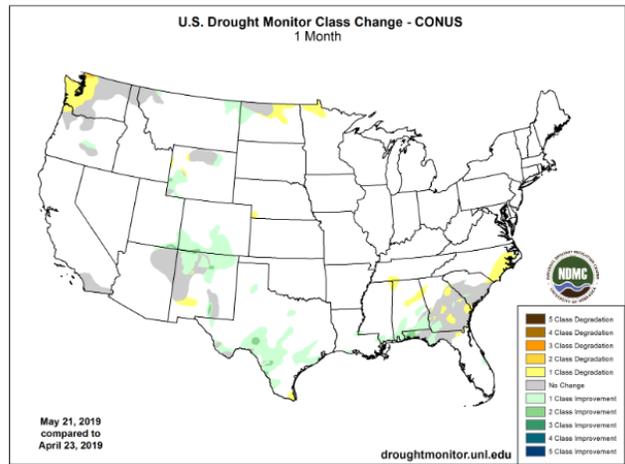
Changes in Drought Monitor Categories over Time

Source: National Drought Mitigation Center

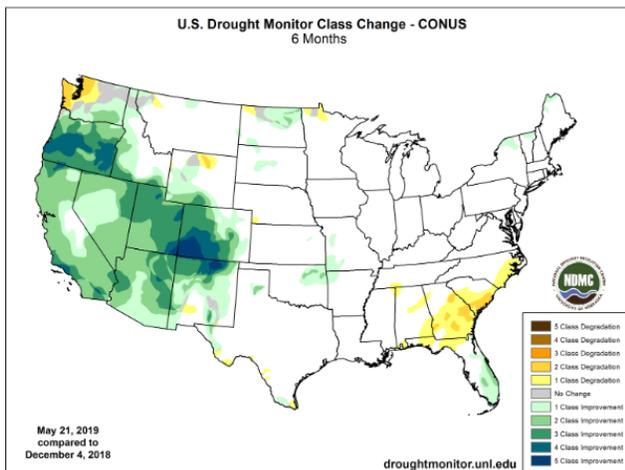
1 Week



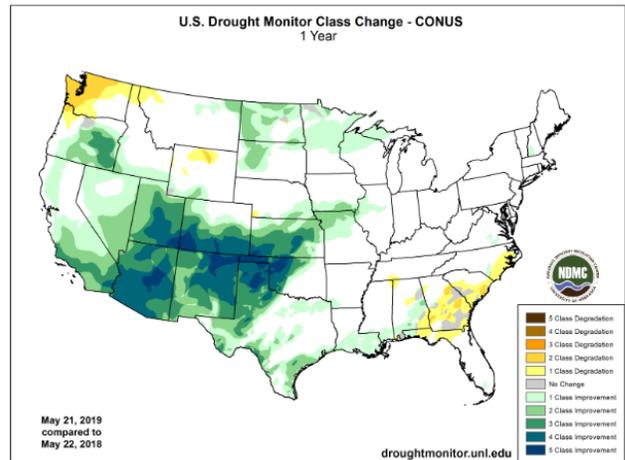
1 Month



6 Months



1 Year



[Changes in drought conditions over the last 12 months for the contiguous U.S.](#)

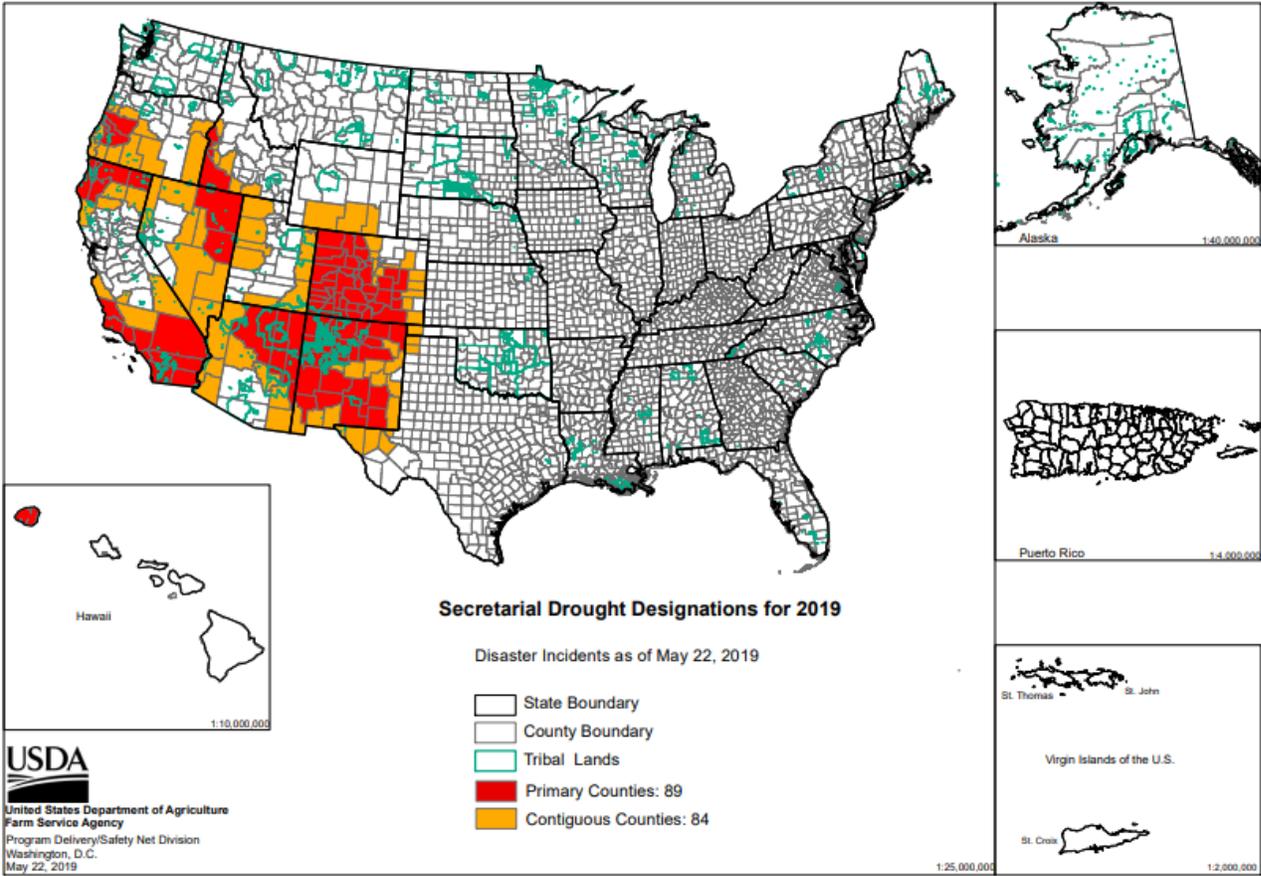
Highlighted Drought Resources

- [Drought Impact Reporter](#)
- [Quarterly Regional Climate Impacts and Outlook](#)
- [U.S. Drought Portal Indicators and Monitoring](#)
- [U.S. Population in Drought, Weekly Comparison](#)
- [USDA Disaster and Drought Information](#)

Secretarial Drought Designations

Source: USDA Farm Service Agency

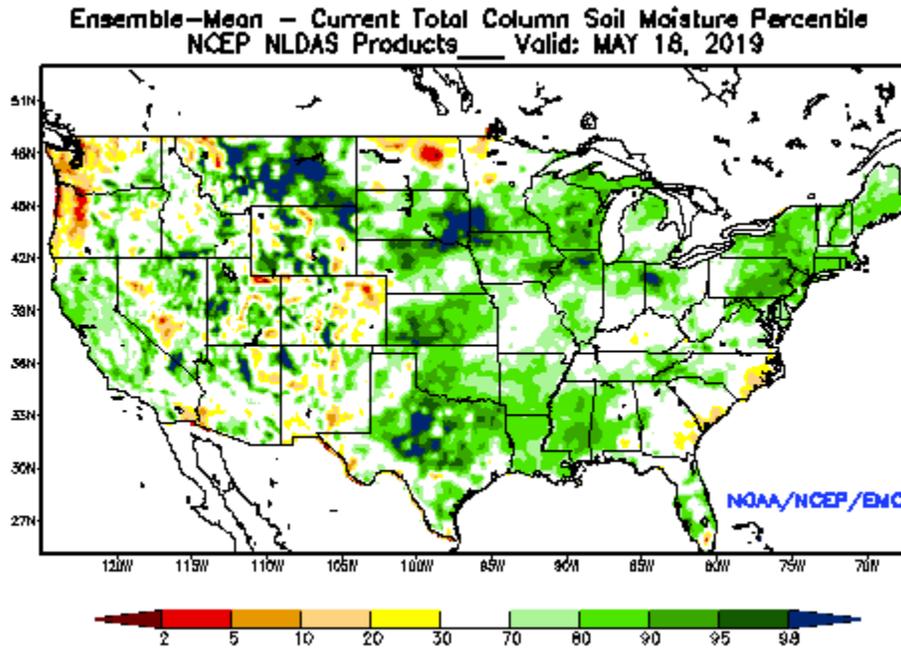
2019 Secretarial Drought Designations - All Drought



Other Climatic and Water Supply Indicators

Soil Moisture

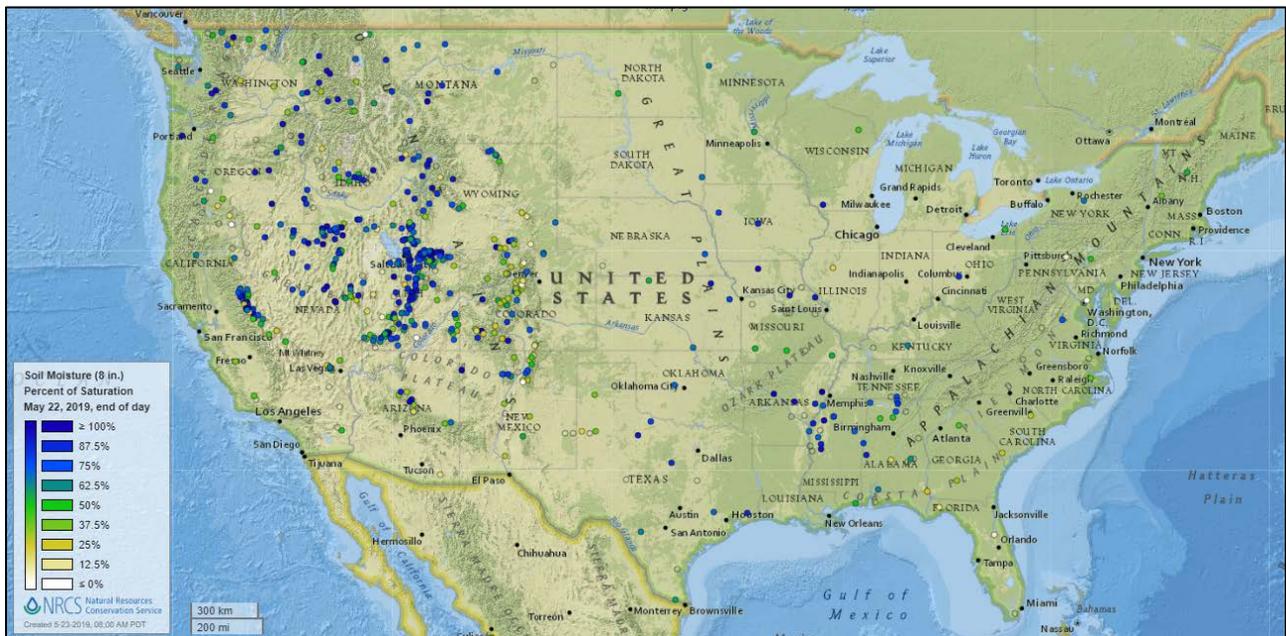
Source: NOAA National Centers for Environmental Prediction



[Modeled soil moisture percentiles](#) as of May 18, 2019

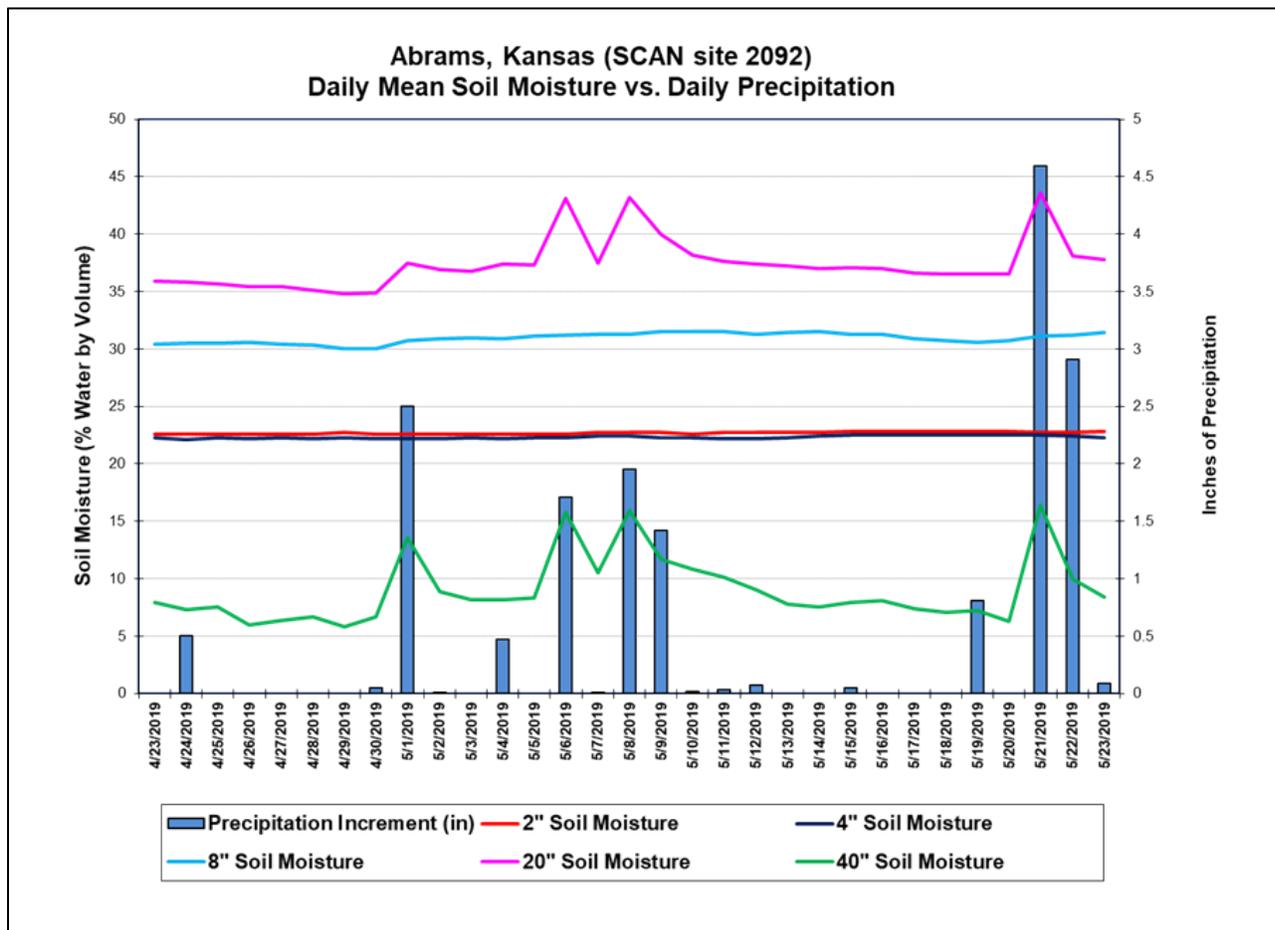
Soil Moisture Percent of Saturation

Source: NRCS SNOTEL and [Soil Climate Analysis Network](#) (SCAN)



Soil Moisture Data

Source: NRCS [Soil Climate Analysis Network](#) (SCAN)



This graph shows the soil moisture and precipitation for the last 30 days at the [Abrams SCAN site 2092](#) in Kansas. This site is located in an area that has recently experienced heavy rainfall. In the past three days, accumulated precipitation totaled 7.59 inches and soil moisture increased at the 8-, 20-, and 40-inch sensor levels. The 2- and 4-inch sensors are near saturation at this time and didn't respond to additional precipitation. This site is located in an alluvium soil type that contains different water holding capacity in each layer depending on how much sand and clay are present at that depth.

Soil Moisture Data Portals

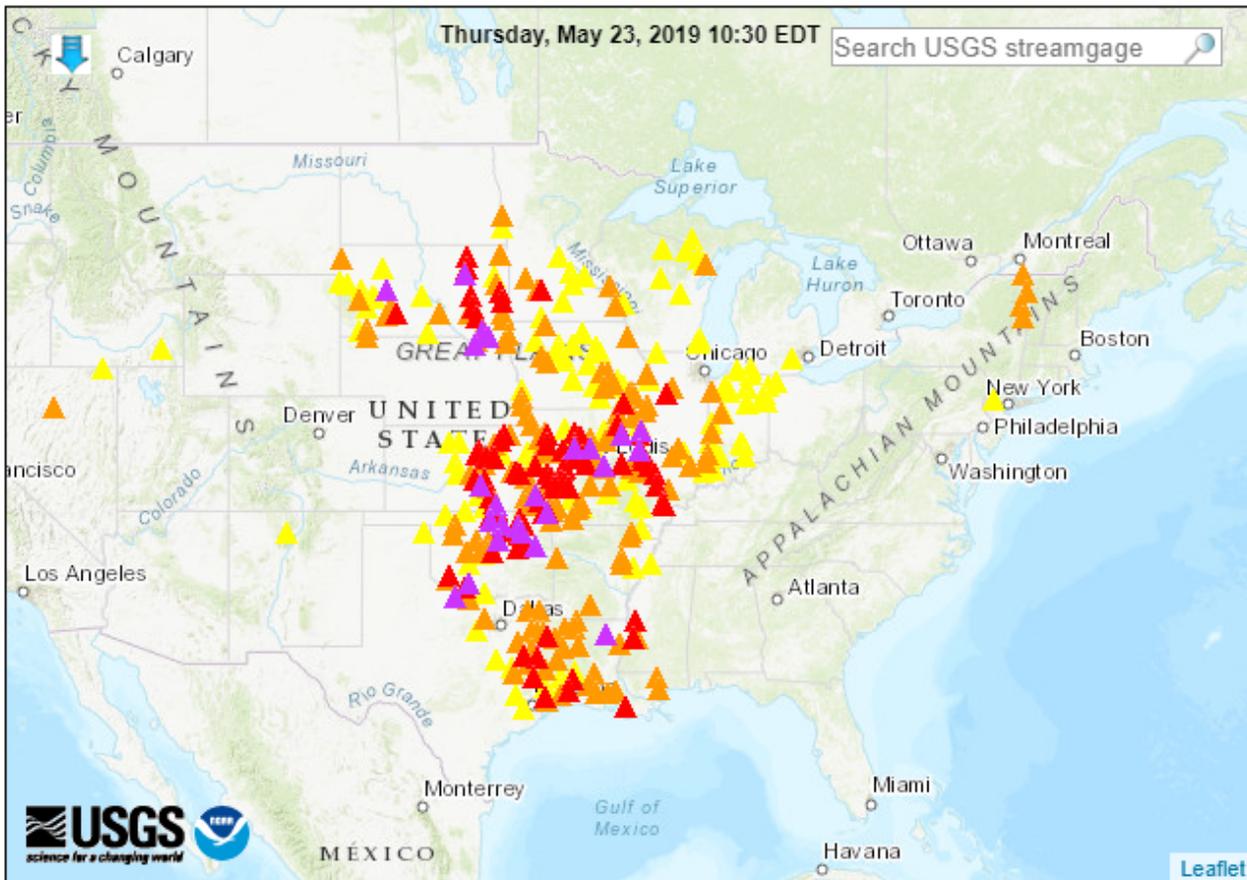
- [CRN Soil Moisture](#)
- [Texas A&M University North American Soil Moisture Database](#)
- [University of Washington Experimental Modeled Soil Moisture](#)

Streamflow, Drought, Flood, and Runoff

Source: U.S. Geological Survey

Map of flood and high flow conditions

(24 in major flood, 79 in moderate flood, 144 in minor flood, 120 in near flood)



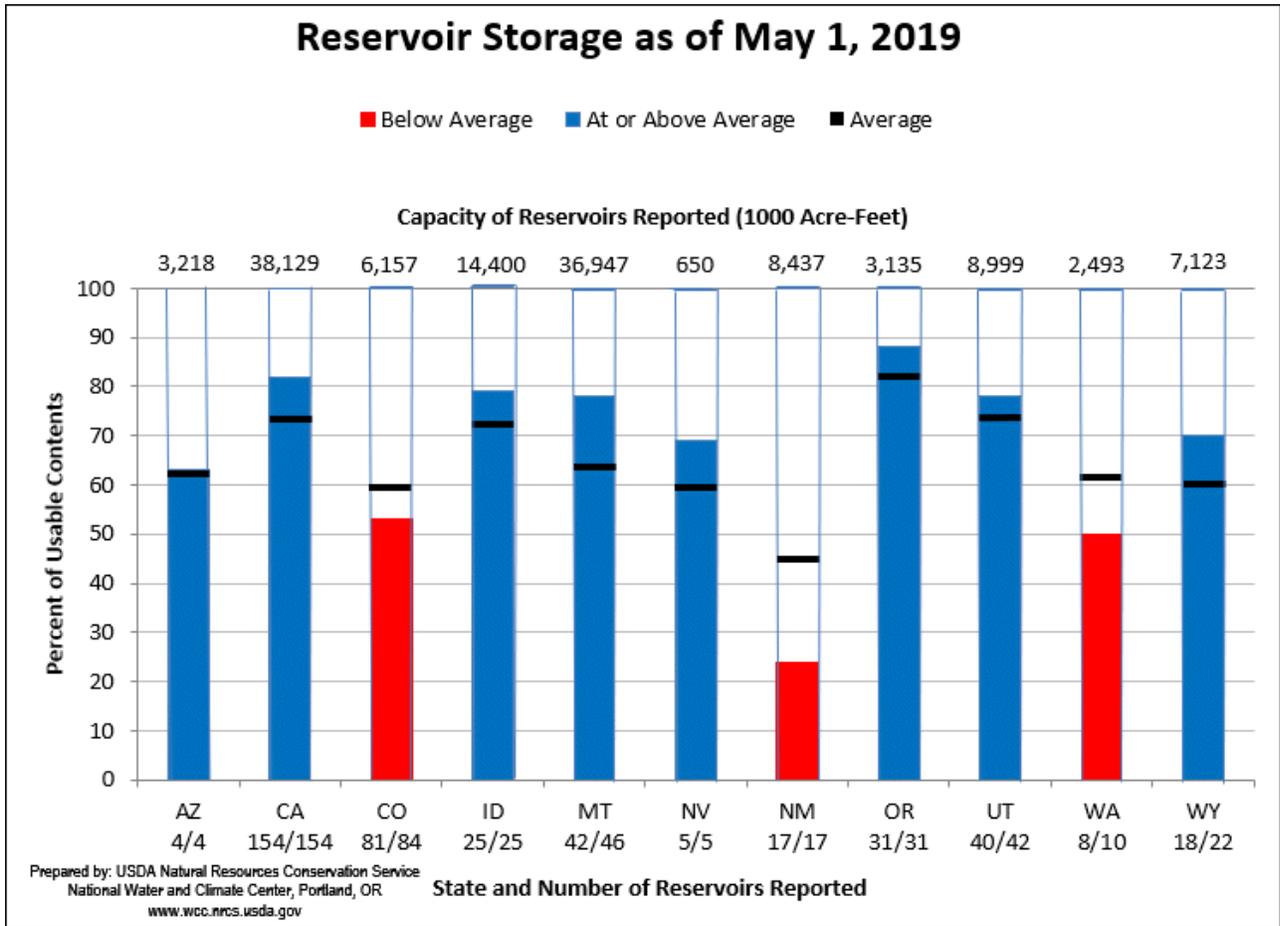
| Explanation - Percentile classes | | | | | | |
|----------------------------------|-------|-------|--------------------------------|-------------------|----------------------------|-------------------------|
| <95 | 95-98 | >= 99 | Above action stage | Above flood stage | Above moderate flood stage | Above major flood stage |
| Streamgage with flood stage | | | Streamgage without flood stage | | | |

[WaterWatch: Streamflow, drought, flood, and runoff conditions](#)

Reservoir Storage

Western States Reservoir Storage

Source: NRCS National Water and Climate Center



May 1, 2019 Reservoir Storage: [Chart](#) | [Dataset](#)

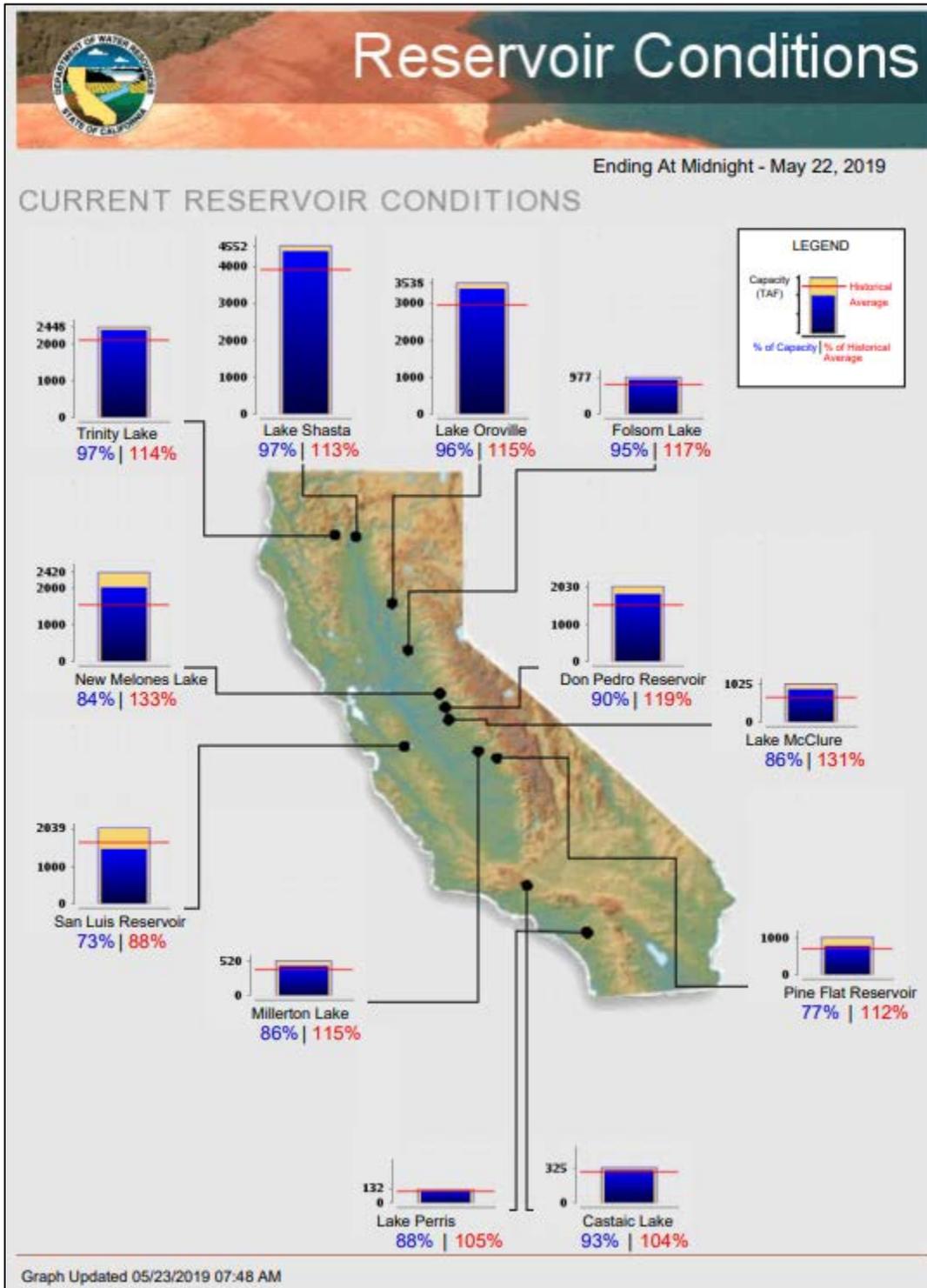
Hydromet Tea Cup Reservoir Depictions

Source: U.S. Bureau of Reclamation

- [Upper Colorado](#)
- [Pacific Northwest/Snake/Columbia](#)
- [Sevier River Water, Utah](#)
- [Upper Missouri, Kansas, Oklahoma, Texas](#)

Current California Reservoir Conditions

Source: California Department of Water Resources



[Current California Reservoir Conditions](#)

Short- and Long-Range Outlooks

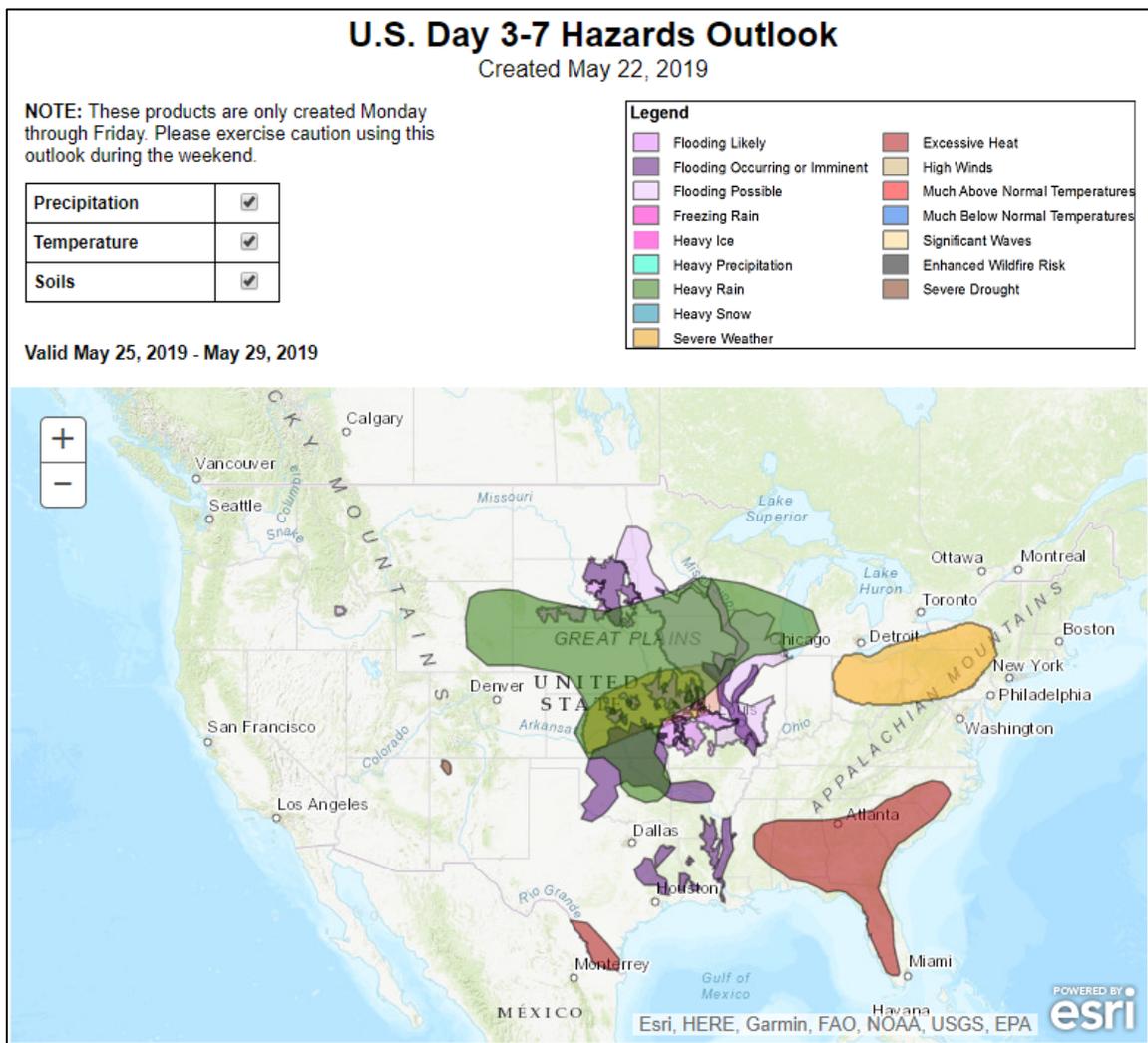
Agricultural Weather Highlights

Author: Brad Rippey, Agricultural Meteorologist, USDA/OCE/WAOB

National Outlook, Thursday, May 23, 2019: “A parade of late-season storms will continue to arrive from the Pacific, maintaining cool, showery conditions in the West and stormy weather across the Plains, Midwest, and Northeast. Five-day rainfall totals could reach 1 to 5 inches or more in the aforementioned regions, with some of the highest amounts expected already flooded areas of central and eastern Kansas and environs. Locally severe showers and thunderstorms will accompany the unsettled conditions. Elsewhere, generally cool conditions will persist across large sections of the western, central, and northern U.S., while above-normal temperatures will prevail from the Gulf Coast northward to the Ohio Valley. The NWS 6- to 10-day outlook for May 28 – June 1 calls for the likelihood of warmer-than-normal conditions in the Pacific Northwest and from the Gulf Coast northward to the Ohio Valley, while below-normal temperatures will prevail in Maine and from the Southwest to the northern Plains and upper Midwest. Meanwhile, wetter-than-normal weather across most of the country will contrast with below-normal rainfall in a few areas, including the southern Rockies, Pacific Northwest, and lower Southeast”

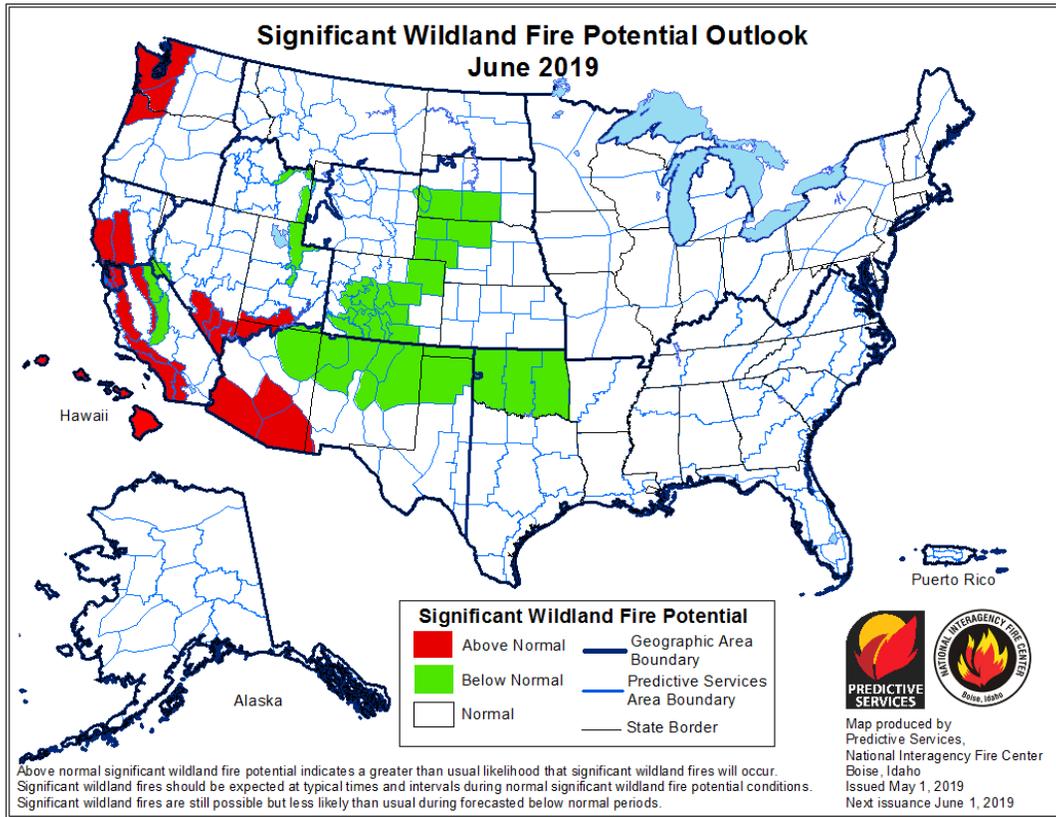
Weather Hazards Outlook: May 25 – May 29, 2019

Source: NOAA Climate Prediction Center



Significant Wildland [Fire Potential Outlook](#)

Source: National Interagency Fire Center



Seasonal Drought Outlook: [May 16 – August 31, 2019](#)

Source: National Weather Service

U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period

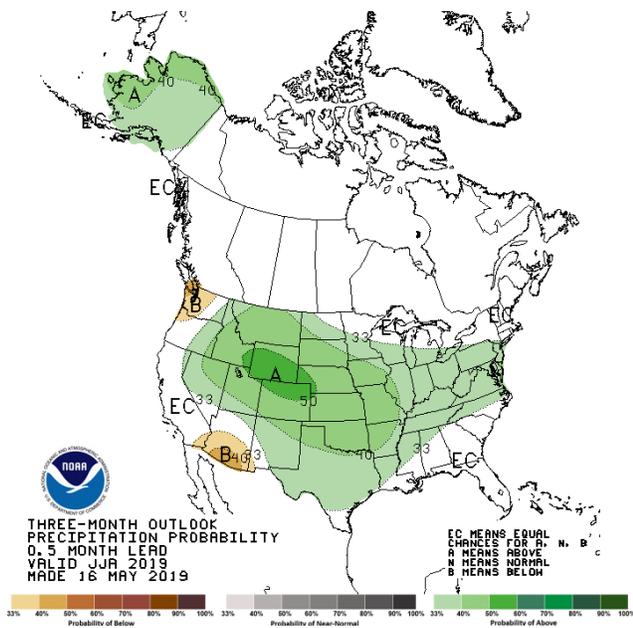
Valid for May 16 - August 31, 2019
Released May 16



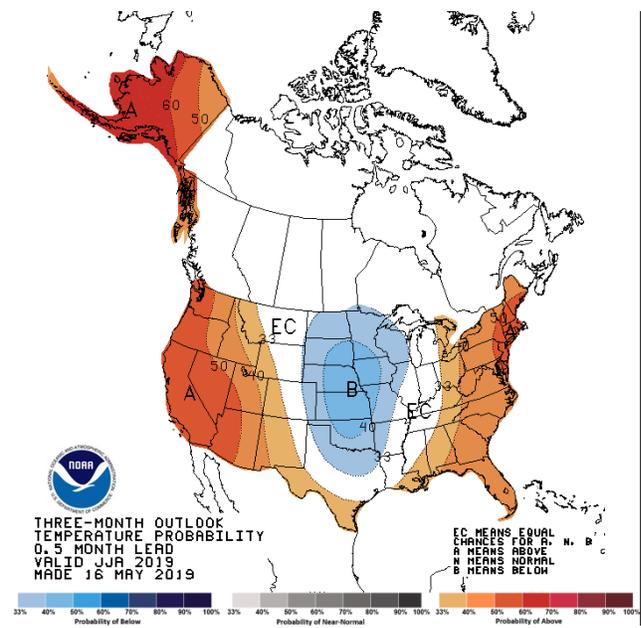
Climate Prediction Center 3-Month Outlook

Source: National Weather Service

Precipitation



Temperature



[June-July-August \(JJA\) 2019 precipitation and temperature outlook summaries](#)

More Information

The NRCS [National Water and Climate Center](#) publishes this weekly report. We welcome your feedback. If you have questions or comments, please [contact us](#).