



What is the U.S. Drought Monitor?

Maybe you've seen it in the media: that map of the U.S. painted with blobs of yellow, orange and red. It shows drought — but how do we know which colors go where? Who decides? What does it mean for you?

A U.S. Drought Monitor Q&A

The U.S. Drought Monitor is a map released every Thursday, showing parts of the U.S. that are in drought. The map uses five classifications: abnormally dry (D0), showing areas that may be going into or are coming out of drought, and four levels of drought: moderate (D1), severe (D2), extreme (D3) and exceptional (D4).

What agencies or organizations are responsible for the USDM?

The Drought Monitor has been a team effort since its inception in 1999, produced jointly by the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln, the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Department of Agriculture (USDA). The NDMC hosts the web site of the drought monitor and the associated data, and provides the map and data to NOAA, USDA and other agencies. It is freely available at droughtmonitor.unl.edu.

Who uses it, and what do they do with it?

The USDA uses the drought monitor to trigger disaster declarations and eligibility for low-interest loans. The Farm Service Agency uses it to help

determine eligibility for their Livestock Forage Program, and the Internal Revenue Service uses it for tax deferral on forced livestock sales due to drought. State, local, tribal and basin-level decision makers use it to trigger drought responses, ideally along with other more local indicators of drought.

How does drought affect the country?

Drought is a normal part of the climate cycle. It is a slow-moving hazard, which causes people to underestimate the damage it can do, but losses from drought are as substantial as those from hurricanes, tornadoes and other faster-moving disasters. Drought causes losses to agriculture; affects domestic water supply, energy production, public health and wildlife; and contributes to wildfire, to name a few of its effects.

No single federal agency is in charge of water or drought policy; response and mitigation fall to an assortment of federal authorities. The USDA leads response efforts; NOAA, through the National Integrated Drought Information System (drought.gov), leads monitoring; agencies such as the U.S. Geological Survey and NASA contribute data; and the Environmental Protection Agency regulates water quality. The National Drought Resilience Partnership, launched in the aftermath of widespread drought in 2012, is an effort to unify federal drought response and

policy. Drought response efforts, planning and water law vary from state to state.

How do we know when we're in a drought?

Recognizing drought before it intensifies can reduce impacts and save money. How you recognize it depends on how it affects you. Traditional ways to measure drought are by comparing observed precipitation with what's normal (climatologic), by comparing soil moisture and crop conditions with what's normal (agricultural), or by looking at how much water is contained in snow, the level or flow rate of moving water, water in reservoirs, or groundwater levels (hydrologic). NDMC recommends that decision makers adopt an operational definition of drought for their own circumstances, incorporating local data such as grazing conditions or streamflow at a nearby gauge.

Who draws the map?

Several authors from the NDMC, NOAA and USDA create the map. They take turns, usually two weeks at a time.

How do they figure out where drought is and how bad it is?

This is what makes the U.S. Drought Monitor unique. It is not a statistical model, although numeric inputs are many: the Palmer Drought Severity Index, the Standardized Precipitation Index and other climatological inputs; the Keech-Byram Drought Index for fire, satellite-based assessments of vegetation health and various indicators of soil moisture; and hydrologic data, particularly in the West, such as the Surface Water Supply Index and snowpack. To see links to these products, please visit the Current Conditions and Outlooks page on the U.S. Drought Monitor website: <https://droughtmonitor.unl.edu/CurrentConditionsandOutlooks.aspx>.

The USDM relies on experts to synthesize the best available data from these and other sources and work with local observers to interpret the information. The USDM also incorporates ground truthing and information about how drought is affecting people, via a network of more than 450 observers across the country, including state climatologists, National Weather Service staff, Extension agents and hydrologists.

Bear in mind that recognizing emerging drought, or knowing whether drought is over, entails understanding what is normal for a given location or season, and considering longer time frames. If an area has been in drought for a while, it typically takes more than one or two rains to end it, although one rain may be all that is needed to awaken dormant vegetation or spur crop growth.

It's not a forecast

Unlike most of the weather maps people see in the news, the U.S. Drought Monitor is not a forecast. In fact, it looks backward. It's a weekly assessment of drought conditions, based on how much precipitation did or didn't fall, up to the Tuesday morning before the map comes out. That gives authors about two working days to review the latest data. If a lot of rain falls in a drought area on a Wednesday, the soonest drought would be removed from the map is the following week. Drought is a slow-moving hazard, so you can be certain that an area will still be in drought if it doesn't get rain. But it also may take more than one good rainfall to end a drought, especially if an area has been in drought for a long time.

Get involved

Want to contribute your observations to the USDM process? Here are some ways:

- 1. Talk to your state climatologist**
Find the current list at the American Association of State Climatologists website: www.stateclimate.org.
- 2. Email**
Emails sent to droughtmonitor@unl.edu inform the USDM authors.
- 3. Submit CMOR reports**
Use the Condition Monitoring Observer Report (CMOR) system (go.unl.edu/cmor_drought) to provide information about how drought is affecting your area. Your report will appear immediately on an interactive map. The CMOR page includes fact sheets in English and Spanish and a how-to video. Your report will help Drought Monitor authors and others interpret weather and climate data.
- 4. Become a CoCoRaHS observer**
Submit drought reports along with daily precipitation observations. Learn more at www.cocorahs.org.

