

*NATIONAL WEATHER SERVICE PRODUCT/SERVICE DESCRIPTION  
DOCUMENT (PDD) TYPE: Official Product DATE: January 29, 2003*

U. S. DROUGHT MONITOR

Part 1 -Mission Connection

1. Product/Service Description: NOAA's Climate Prediction Center (CPC) and National Climatic Data Center (NCDC), the U.S. Department of Agriculture, and the National Drought Mitigation Center (NDMC) jointly issues this graphic summarizing the extent and intensity of drought conditions with lead responsibility rotating among this "team." The product uses a classification system to show drought intensity and type.

1 Purpose/Intended Use:  
The product is intended for short-term planning.

2 Audience:  
The audience is primarily agricultural and water supply managers.

3 Presentation Format: The team presents the outlooks in red book graphic over AWIPS. The team also posts the graphics on the NDMC web site.

4 Feedback Method: <http://www.cpc.ncep.noaa.gov/comment-form.html>

Part 2 -Technical

1. Format and Science Basis: The team summarizes the extent and intensity of large scale drought nationwide. The team uses a classification system to show drought intensity and type analogous to the schemes for hurricanes and tornadoes. They combine key indices of rainfall and drought as well as local impact reports and expertise to produce the final drought intensity rating. Since drought often affects various activities differently, the team encloses areas with solid black lines where drought is affecting agriculture and hydrological interests disproportionately. Drought areas not enclosed by a black line are experiencing both impact types to a similar degree.

Drought Severity Classification: The team bases the drought intensity classes on six key indicators and numerous supplementary indicators. The accompanying drought severity classification table below shows the ranges for each indicator for each dryness level. Because the ranges of the various indicators often do not coincide, the team bases the final drought category on what the majority of the indicators show. The team also weighs the indices according to how well they perform in various parts of the country and at different times of the year. The team often needs additional indicators in the West, where winter snowfall has a strong

bearing on water supplies.

The team loosely defines the drought intensity classes, ranging from D0 to D4, by the frequency with which similar or drier conditions can be expected for the given location and season. The team approximates thresholds for the D0, D1, D2, D3, and D4 classifications by

30 percentile, 20 percentile, 10 percentile, 5 percentile, and 2 percentile occurrence frequencies, respectively. To make such assessments, the team uses a variety of drought indicators including derived indices, precipitation on various time scales, impact reports, and local expertise, with the final classification leaning toward those indicators which seem most relevant to observed impacts. The following table provides examples of indicators which independently meet the D0 to D4 criteria. However, the following indicators are not expressed as or based on percentiles (specifically, the Palmer Drought Index, Percent of Normal Precipitation, and Satellite Vegetative Health Index) representing the national average of conditions that meet the D0 to D4 thresholds. Thus, these thresholds used in practice vary dramatically with location and time of year.

D0 Abnormally Dry Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered.

- Palmer Drought Index -1.0 to -1.9 Standard Precipitation Index -0.5 to -0.7
- Percent of Normal Precip. <75% for 3 mo. Satellite Vegetative Health Index 36-45
- CPC Soil Moisture Model 21-30%
- U.S. Geological Survey
- (USGS) Weekly Streamflow 21-30%

D1 Moderate Drought Moderate drought Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low; some water shortages developing or imminent; voluntary water use restrictions requested.

- Palmer Drought Index -2.0 to -2.9 Standard Precipitation Index -0.8 to -1.2
- Percent of Normal Precip <70% for 3 mo. Satellite Vegetative Health Index 26-35
- CPC Soil Moisture Model 11-20%
- USGS Weekly Streamflow 11-20%

D2 Severe Drought Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed. Palmer Drought Index -3.0 to -3.9 Standard Precipitation Index -1.3 to -1.5 Percent of Normal Precip <65% for 6 mo. Satellite Vegetative Health Index 16-25 CPC Soil Moisture Model 6-10% USGS Weekly Streamflow 6-10%

D3 Extreme Drought Major crop or pasture losses; extreme fire danger; widespread water shortages or restrictions.

		2 D4 Exceptional Drought Exceptional and widespread crop or pasture losses; exceptional	
Palmer Drought Index	-4.0 to -5.4	Standard Precipitation Index	-1.6 to -1.9
Percent of Normal Precip	<60% for 6 mo.	Satellite Vegetative Health Index	6-15
CPC Soil Moisture Model	3-5%		

USGS Weekly Streamflow 3-5%

fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies. Palmer Drought Index -5.5 or less Standard Precipitation Index -2.0 or less Percent of Normal Precip <60% for 12 mo. Satellite Vegetative Health Index 1-5 CPC Soil Moisture Model 0-2% USGS Weekly Streamflow 0-2%

The Drought Monitor is at <http://drought.unl.edu/dm/monitor.html>.

2. Availability: The team issues this product every Thursday at 8:30 a.m. Eastern local time except if Thursday is a Federal Holiday. In the case of a Thursday holiday, the team will issue the product the Wednesday before the Thursday Holiday at 8:30 a.m. Eastern local time. They are issued on NWS dissemination systems under the following product IDs:

WMO Heading -PYIA88 KWNC AWIPS ID -RBGDRO

They are also issued on the CPC web site at the URL listed in section a.

3. Additional Information:

Valid Time: This product is valid as of 1200 Universal Coordinated Time (UTC) on the Tuesday prior to issuance until 1200 UTC the following Tuesday

Product Expiration Time: This product expires with the next issuance one week later.

Creation Software: The team uses CorelDraw for personal computers.