



NATIONAL WEATHER SERVICE

MAY 2008

## What is Drought?

Drought is a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people. It is a normal, recurrent feature of climate that occurs in virtually all climate zones, from very wet to very dry. Drought is a temporary aberration from normal climatic conditions, thus it can vary significantly from one region to another. Drought is different than aridity, which is a permanent feature of climate in regions where low precipitation is the norm, as in a desert.

Human factors, such as water demand and water management, can exacerbate the impact that drought has on a region. Because of the interplay between a natural drought event and various human factors, drought means different things to different people. In practice, drought is defined in a number of ways that reflect various perspectives and interests. Below are three commonly used definitions:

### Meteorological Drought

Meteorological drought is usually defined based on the degree of dryness (in comparison to some "normal" or average) and the duration of the dry period. Drought onset generally occurs with a meteorological drought.

### Agricultural Drought

Agricultural drought links various characteristics of meteorological (or hydrological) drought to agricultural impacts, focusing on precipitation shortages, soil water deficits, reduced ground water or reservoir levels needed for irrigation, and so forth.

### Hydrological Drought

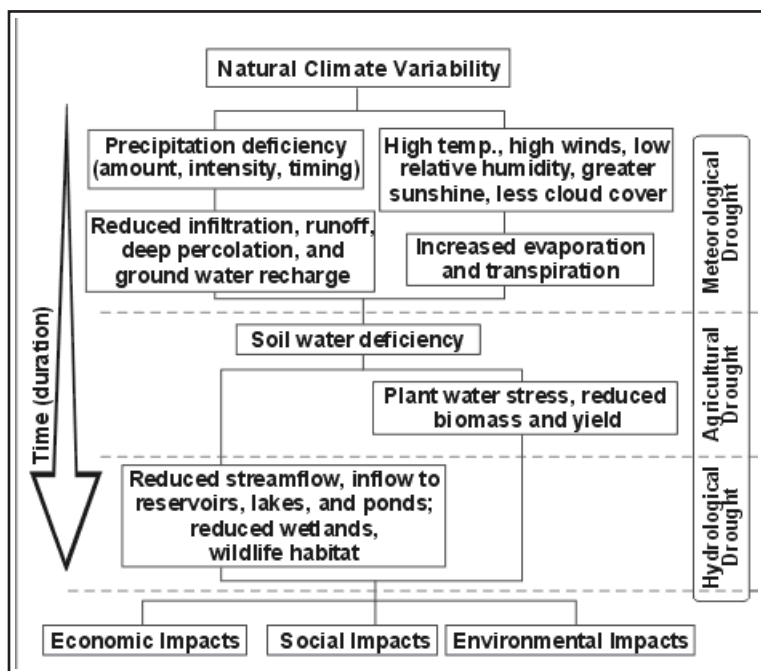
Hydrological drought usually occurs following periods of extended precipitation shortfalls that impact water supply (i.e., streamflow, reservoir and lake levels, ground water), potentially resulting in significant societal impacts. Because

regions are interconnected by hydrologic systems, the impact of meteorological drought may extend well beyond the borders of the precipitation-deficient area.

## Why is Drought Important?

The U.S. is vulnerable to the social, economic, and environmental impacts of drought. The over 100-year weather record of the U.S. indicates that there were three or four major drought events during that period. Two of these, the 1930's Dust Bowl drought and the 1950's drought, each lasted five to seven years and covered large areas of the continental U.S.

Droughts are among the most costly weather-related events, in terms of economics and loss of life. During the 25-year period from 1980 to 2005,



Flow chart illustrating the progression of drought, and the relationship between Meteorological, Agricultural, and Hydrological Drought. Economic, social and environmental impacts are shown at the bottom of the chart, independent of the time scale, indicating that such impacts can occur at any stage during a drought. (National Drought Mitigation Center, <http://www.drought.unl.edu/whatis/concept.htm>)



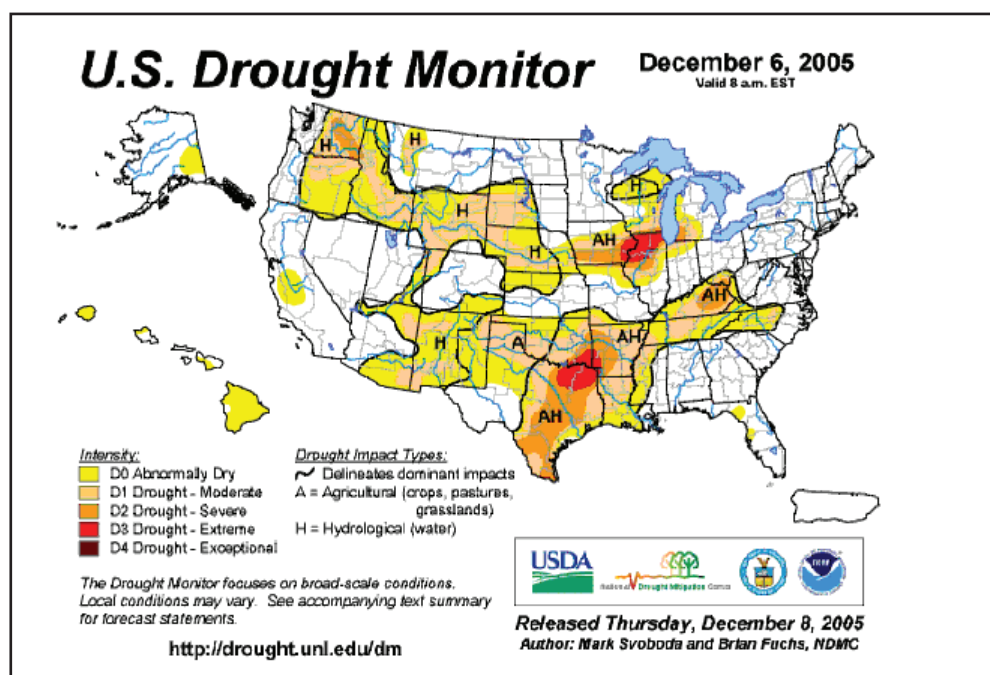
the U.S. sustained nine drought events in which overall damages and costs reached or exceeded \$1 billion at the time of the event. Of these, the most costly was the 1988-89 drought in the central and eastern U.S., which resulted in severe losses to agriculture and related industries, with an estimated loss of \$15 billion just in agricultural output. According

to the National Climatic Data Center (NCDC) the overall cost of the event was \$39-40 billion (<http://www.ncdc.noaa.gov/oa/reports/billionz.html>). In 1995, the Federal Emergency Management Agency (FEMA) estimated annual losses from drought to be \$6-8 billion, which is higher than any other natural weather-related disaster, including hurricane and flood.

## How is Drought Monitored and Assessed?

**U.S. Drought Monitor:** The U.S. Drought Monitor provides a general summary of current drought conditions. The U.S. Department of Agriculture (USDA), the National Oceanic and Atmospheric Administration (NOAA), and the National Drought Mitigation Center (University of Nebraska-Lincoln) collaborate on this weekly product, which is released each Thursday. Multiple drought indicators, including various indices, outlooks, field reports, and news accounts are reviewed and synthesized. In addition, numerous experts from other agencies and offices across the country are consulted. The result is the consensus assessment presented on the USDM map. The image is color-coded for four levels of drought intensity. An additional category, "Abnormally Dry," is used to show areas that might be moving into a drought, as well as those that have recently come out of one. The dominant type of drought is also indicated (i.e. agricultural and/or hydrological).

Source: <http://www.drought.unl.edu/dm/index.html>

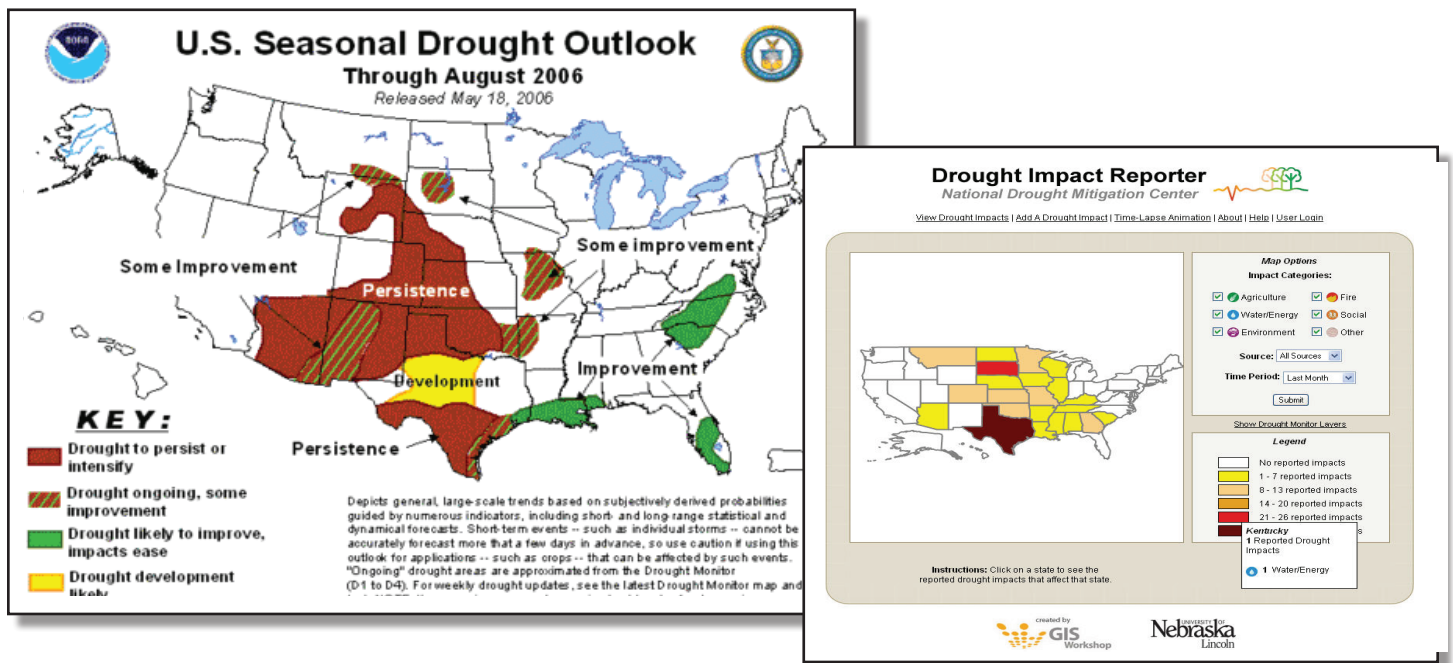






**U.S. Seasonal Drought Outlook:** The U.S. Seasonal Drought Outlook shows predicted trends for ongoing drought areas depicted in the U.S. Drought Monitor, as well as indicating areas where new droughts may develop. The NOAA Climate Prediction Center issues this monthly product in conjunction with their long-lead temperature and precipitation outlooks on the first and third Thursday of each month and when weather events warrant an interim update. The general large-scale trends depicted are based on numerous indicators, including short and long-range forecasts. A discussion detailing the atmospheric, hydrologic, and climatic conditions affecting the drought trends is included.

**Source:** [http://www.cpc.ncep.noaa.gov/products/expert\\_assessment/seasonal\\_drought.html](http://www.cpc.ncep.noaa.gov/products/expert_assessment/seasonal_drought.html)



**Drought Impact Reporter:** The goal of the National Drought Mitigation Center's Drought Impact Reporter is to collect, quantify, and map reported drought impacts for the U.S. and provide access to the reports through interactive search tools. Users can submit their own drought impact reports through the tool's easy web interface.

**Source:** <http://droughtreporter.unl.edu/>

## Where can I get more information?

NIDIS U.S. Drought Portal  
<http://www.drought.gov>

National Drought Mitigation Center  
<http://www.drought.unl.edu/index.htm>