

From the Dust Bowl to the Sahel

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A severe drought combined with poor soil conservation practices can lead to extreme topsoil erosion, with devastating effects on the land. This is just what happened in the Great Plains region of the U.S. during the 1930s Dust Bowl years.

In May 1934, a cloud of topsoil from the Great Plains blanketed the eastern U.S. as far as 2,400 km (1,500 miles) away. In 1935, the U.S. established the Soil Conservation Service to promote good soil management practices. But according to some experts, this is not enough. Human-accelerated soil erosion continues to occur because much of the Great Plains is suited to moderate grazing rather than farming. And in 1975, the Council of Agricultural Science and Technology warned that severe drought in the Great Plains could trigger another Dust Bowl.



A wall of dust approaches a Kansas town, as shown in "Effect of Dust Storms on Health," U.S. Public Health Service, Reprint No. 1707 from the *Public Health Reports* 50(40) October 4, 1935. (Image courtesy of the [NOAA Photo Library](#). A new browser window will open.)

In semiarid grasslands, such as the Sahel region, dust storms are often generated where the ground has been stripped of vegetative cover by cultivation or grazing. The path of dust from a single desert storm can be traced as far as 4,000 km (2,500 miles).



The Sahel, or Sahelian Zone, lies south of the Sahara Desert in North Africa. This dry savanna environment is particularly prone to devastating drought years. Typically, several years of abnormally low rainfall alternate with several successive years of average or higher-than-average rainfall. But since the late 1960s, the Sahel has endured an extensive and severe drought.

West Sahel countries appear in yellow. (Image courtesy of the [Africa Data Dissemination Service](#) from the USGS. A new browser window will open.)

Desertification occurs when land surfaces are transformed by human activities, including overgrazing, deforestation, surface land mining, and poor irrigation techniques, during a natural time of drought. Desertification in the Sahel can largely be attributed to greatly increased numbers of humans and their grazing cattle.



A dust storm that originated near the Mongolia-China border on April 10, 2001, made its way across the Pacific to the U.S., sprawling from Canada to the Southwest and as far east as the Great Lakes. Although Asian dust storms occur every year, a drought in China and Mongolia, along with abnormally strong winds, provided ideal conditions for global dust travel in 2001. [Click here for more information.](#)



Dust storm over the Canary Islands [Click here for more information](#) (will open in a new window).



Fires (shown as red dots) smoulder throughout the Sahel, March 2, 2001. [Click here for more information.](#)

For related information, visit: [Droughts Aggravated by Dust in the Wind](#) News Release from the Earth Observatory [Drought](#) from the Earth Observatory

SeaWiFS and TOMS data

Most overgrazing is caused by excessive numbers of livestock feeding too long in a particular area. Extreme overgrazing compacts the soil and diminishes its capacity to hold water, and exposes the soil to erosion.

Although the relationship between drought and human influences is complex, desertification can be successfully mitigated if financial resources are available. But exploding population growth in developing African nations means that pressures on the land there will continue to intensify.

products are distributed through the Goddard Space Flight Center DAAC (now named the [GSFC Earth Sciences DAAC](#)). (A new browser window will open.)

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