

Presentation

Drought Intensities and Impacts

James Koelliker, Biological and Agricultural Engineering, Kansas State University, Manhattan. Kansas Dam Safety Conference, 15 February, 2011, Topeka, KS

Drought, a natural part of the hydrologic cycle, appears to show signs of occurring again in most of Kansas. Defining drought — a normal, recurrent feature of climate that occurs almost everywhere — depends on the effects most important to the users, their needs, and regional differences. More than a physical phenomenon, drought originates from a deficiency of precipitation over an extended period of time, resulting in a water shortage for some activity, group, or environmental sector.

Unlike other natural disasters (floods), drought does not have a clearly defined beginning and end. Reaction to drought traditionally has not been timely. While the first

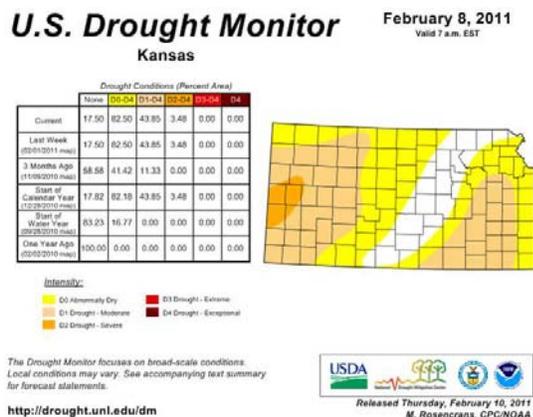


the last, but no one knows how serious it will be until the last dry day is gone and the rains have come again," wrote I.R. Tannehill in *Drought: Its Causes and Effects* (Princeton University Press, Princeton, New Jersey, 1947).

Use of land and water affects the hydrologic cycle, particularly in water-scarce regions such as western Kansas. Thus, people can be responsible, for example with their ground water withdrawals, dam construction, or farming practices, for drought that affects water supplies in streams and reservoirs. "These should be viewed as recognized changes that have consequences both positive and negative and defining drought conditions must take our activities into proper account," Koelliker said.

Recommended examples of climate and water availability sources are plentiful:

- [National Integrated Drought Information System](#)
- [U.S. Drought Monitor](#)
- [National Weather Service \(home page\)](#)
- [National Weather Service \(Climate Prediction Center\)](#)
- [National Weather Service \(Soil Moisture\)](#)
- [U.S. Geological Survey \(Kansas Water Science Center\)](#)
- [Kansas Geological Survey](#)
- [K-State Research and Extension \(Weather Data Library\)](#)



clear day after a rainy spell is welcomed, the more rainless days that continue increases concern. "The first rainless day in a spell of fine weather contributes as much to the drought as

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