Climate Change and Drought in Texas:
Past vs. Future

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Climate model projections: + 2-4 °F by 2050
Precipitation trends at century-long USHCN stations

Blue: Increasing Precipitation
Red: Decreasing Precipitation
We were spoiled during 1976-2000!
Climate model projections: probably drier by 2050
Gray: PDSI; Red: 20-yr average PDSI

Note: 1950s were bad, but so were 1850s, and the last part of the 20th century was probably the most drought-free period of the past millennium!

Source: North American Drought Atlas, IRI/Columbia
Climate Change Summary

• Certainly warmer, maybe less rain, definitely more evaporation
• That scenario could easily happen (and has) even without global warming
• Year-to-year changes strongly driven by nature
• The Impact of Global Warming in Texas: http://www.texasclimate.org/
Headline: Hundreds Attend Global Warming Protest

(courtesy Jan Null)
Local Monitoring Tools

• Keetch-Byram Drought Index
• [http://twc.tamu.edu/kbdi.aspx](http://twc.tamu.edu/kbdi.aspx)
• Just google “texas keetch-byram”
• Constructed from NWS radar-estimated precipitation
Keetch-Byram Drought Index (KBDI)

Keetch-Byram Drought Index (KBDI) is an index used to determining forest fire potential. The drought index is based on a daily water balance, where a drought factor is balanced with precipitation and soil moisture (assumed to have a maximum storage capacity of 8-inches) and is expressed in hundredths of an inch of soil moisture depletion.

The drought index ranges from 0 to 800, where a drought index of 0 represents no moisture depletion, and an index of 800 represents absolutely dry conditions. Presently, this index is derived from ground based estimates of temperature and precipitation derived from weather stations and interpolated manually by experts at the Texas Forest Service (TFS) for counties across the state. Researchers at Texas A&M University are working with the TFS to derive this index from AVHRR satellite data and NEXRAD radar rainfall within a GIS.

- More details on KBDI
- View current interactive KBDI map

View KBDI Maps

Select a date from the calendar, check the boxes next to the maps you would like to display, and click "Submit".

You may need to disable your pop-up blocker before submitting (CTRL + click).
Keetch-Byram Drought Index for 2/10/2009

Keetch-Byram Drought Index
02/10/2009

KBDI
0 - 200
200 - 300
300 - 400
400 - 500
500 - 600
600 - 700
700 - 800

DATA SOURCES: NEXRAD and NWS

Texas Forest Service
The Texas A&M University System

AgriLIFE Research
Texas A&M System

Spatial Sciences Laboratory
Local Monitoring Tools

• Community Collaborative Rain, Hail, and Snow Network (CoCoRaHS)


• Volunteer high-density rain gauge monitoring network

• More volunteers needed in west-central Texas!
Daily Precipitation (inches x.xx), for the 24 hour period ending ~7:00 am
Bastrop County, Texas 2/11/2009

Sign up for once-a-day measurements at www.cocorahs.org
Local Monitoring Tools

- Office of the State Climatologist, Texas
- [http://atmo.tamu.edu/osc](http://atmo.tamu.edu/osc)
- Weekly/monthly climate reports
- Climate monitoring tools under development
- Steven Quiring (Geography) and Brent McRoberts (OSC)
Accumulated precipitation, south-central Texas
The End

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