

MANAGING DROUGHT

IN THE SOUTHERN PLAINS

Webinar Topic: U.S. Drought Monitor
March 8, 2012

Regional Drought Summary

Brian Fuchs, National Drought Mitigation Center

After months of steady improvement, drought conditions in the Southern Plains turned upward in the past week with some former D4 area in the Texas Panhandle being reinstated. Meanwhile, the fingerprint of drought has been expanding in the West with nearly half the area currently designated in some stage of drought..

The improvement of the last several months has not been as strong in New Mexico, west Texas, and the Oklahoma Panhandle. Similarly, a strong transition from extreme drought to no drought can be found in Florida and the southeastern U.S. with the intensification of drought conditions occurring during the winter. Over the past six months, parts of the Southern Plains has recorded a three to five-class improvement in the Drought Monitor depiction, however 11% of the region remains in exceptional (D4) drought and 67% of the region has some level of drought designation. The relative lack of improvement in the Big Bend area of Texas, parts of West Texas, New Mexico and southeastern Louisiana is apparent in the [Drought Monitor change maps](#).

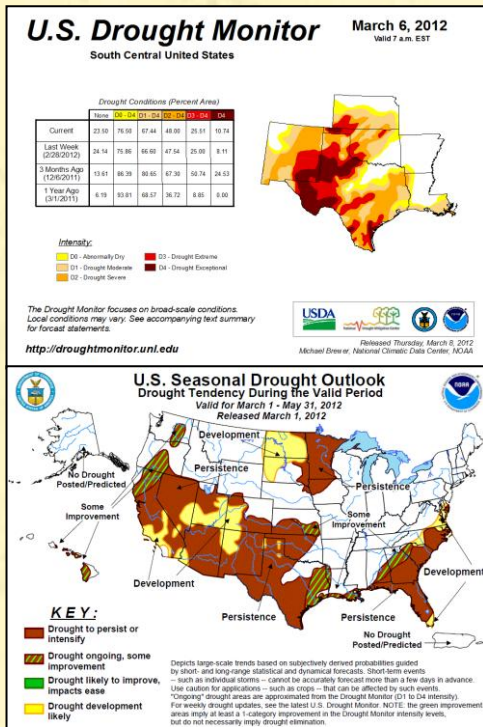
More good news appears to be on the way for the Southern Plains with widespread rainfall expected to bring the potential for more than five inches of rain in the eastern part of the region. It appears that this rainfall-producing pattern may stick around for at least the next few weeks. Warmth is expected to return, especially across the northern Plains.

The seasonal pattern is a bit more uncertain as the influence of La Nina fades (although it has not behaved as expected this winter across the Southern Plains). A key factor to watch is the expectation of above-normal temperatures, which were a big factor in creating the feedbacks with dry soils that contributed to the extreme heat of last summer. With the dry signal maintaining itself in New Mexico and West Texas, this will be an important feature to watch.

The latest El Nino-Southern Oscillation (ENSO) models show a transition away from La Nina this summer into either neutral or perhaps even El Nino conditions next winter. However, forecast skill this far out is limited. Confidence should increase by late summer. If El Nino does develop, that has historically been beneficial for winter rainfall production.

Reporting local drought conditions is vital to helping the Drought Monitor authors properly depict areas of concern. Reports could be simply things you notice or it could be specific losses, such as crops withering, selling cattle, or wildlife changes. There are several ways you can be a part of the process:

- Adding to the [Drought Impact Reporter](#)
- Contacting your [State Climatologist](#)
- E-mailing the Drought Monitor Authors at: droughtmonitor@unl.edu



Resources

U.S. Drought Portal

<http://www.drought.gov>

National Drought Mitigation Center

<http://drought.unl.edu>

Drought Impact Reporter

<http://droughtreporter.unl.edu>

State Climatologists

<http://www.stateclimate.org>

Southern Climate Impacts Planning Program (SCIPP)

<http://www.southernclimate.org>

Climate Assessment for the Southwest (CLIMAS)

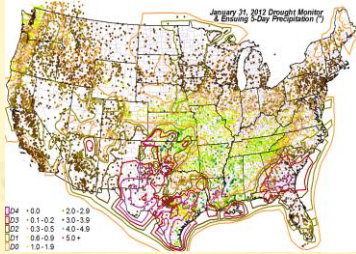
<http://www.climas.arizona.edu>

Southern Plains Portal

http://www.drought.gov/portal/serve.r.pt/community/southern_plains

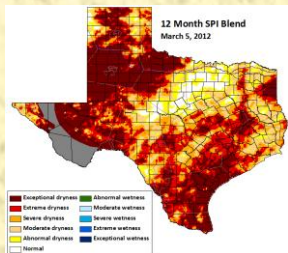
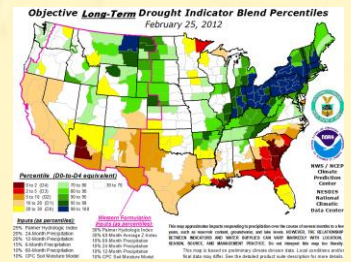
The U.S. Drought Monitor

Since its inception in 1999, The U.S. Drought Monitor (<http://droughtmonitor.unl.edu>) has produced a weekly assessment of drought conditions across the United States.. What's more, you won't find the Drought Monitor in any agency budget. It is produced by a group of scientists who began the effort out of a curiosity more than a decade ago. Today, more or less those same agencies, and in many instances those same people, are at the heart of producing this important assessment tool. Production of the Drought Monitor rotates among a team of 10-11 authors from several organizations.



The Drought Monitor is not a forecast (the Seasonal Drought Outlook fulfills that role). It is not a declaration, although several states use it as a trigger. Rather it is a snapshot of current drought status based on the best available information. When the Drought Monitor was started, it incorporated data from 5-7 key indicators available on a climate division (multi-county) scale. Today it includes dozens of indicators, many available on a sub-county scale. Each of these indicators are ranked using their historical performance. Values representing the driest 30%, 20%, 10%, 5% and 2% of observations are determined as thresholds for the various drought categories. These correspond to the familiar D0 to D4 levels appearing on the weekly maps. For example, an indicator in the top 20% of its driest observations, or an expectation of similar conditions occurring about once every five years, would match to a D1 level. D0 is not considered to be a region in drought; rather it is a "heads up" that drought could be developing or impacts from a drought may be lingering.

The next generation of tools available to the Drought Monitor authors include satellite-based assessments of vegetation health, radar-rainage comparisons, soil moisture monitoring and assimilation modeling along with high-altitude snow measurements. The author uses these, in addition to objective blends that mix many of these ingredients to account for short-term or long-term impacts and seasonal and regional differences, to make an initial assessment. Some of the factors an author considers are where it rained in the preceding week and whether that rain was enough to show improvements or if a lack of rainfall warrants intensification or indication of a developing drought. Typically, a core suite of indicators on a 60-90 day time scale works well. Another useful check is whether stream flows quickly dropped back to low values following a rain, indicating sub-surface dryness remaining and cautioning against rapid improvement. Soil moisture models are also a good sanity check; if the indicators don't show dryness matching the soil moisture then further investigation is needed.



These data sources are supplemented with input from about 325 local experts who contribute via a listserv e-mail system each week. These local experts are excellent sources of knowledge on how well indicators match up to what they see on the ground especially when various indicators conflict with each other. Local experts, such as state climatologists, regional climate centers, and National Weather Service offices, are often well-connected with state coordinators, local sources, media, and 'rumors and impacts'. These provide some ground-truth to the depiction.

Local experts often have their own products and resources as well, such as the Texas Office of the State Climatologist's [Standardized Precipitation Index \(SPI\) assessments](#) using radar-based rainfall estimates. Local experts may also be aware of what observation sites are the best indicators, such as stream flow measurements along managed versus unmanaged streams, or which areas are sensitive to drought at which times due to different agricultural uses.

While drought assessment is important, it is just one step in the process. The National Integrated Drought Information System (NIDIS) was established by Congress in 2006 to move the nation from reactive to proactive management of drought through improved coordination, creating an interactive clearinghouse (the [drought portal](#)), and creating a Drought Early Warning system that emphasizes preparedness and planning. To do this, NIDIS has set up several pilots. Each is established to work with different local and state entities in regions with very different water sources and needs. This includes identifying key indicators and triggers, gaps in observations, and needs for tools, products and research. Engagement techniques include weekly drought assessments, webinars, outlook forums, newsletters and fact sheets. NIDIS responded to the evolving drought in the Southern Plains through conversations with regional partners, leading to establishment of a regional drought planning workshop, several drought outlook forums, and this webinar series.

Presenters:

Mark Svoboda - [National Drought Mitigation Center](#)
John Nielsen-Gammon - [Texas State Climatologist](#)
Chad McNutt - [National Integrated Drought Information System](#)

Uses of the Drought Monitor

- USDA livestock assistance
- Extensive media dissemination
- Featured on the NIDIS Drought Portal
- National Weather Service Drought Information Statements
- IRS deferral of cattle replacement costs