Weakening La Niña May Mean Relief for Texas

The extended outlook shows below-normal rain in the Southwest, with drought continuing over Florida and possibly expanding along the Gulf Coast and north into the Mid-Atlantic. About 40 percent of the U.S. has been in drought over the past year.

Drought Impacts Worst in California, Texas

Texas and California dominated the 550 drought impacts reported during the first three months of 2009, with Texas at 228 and California at 148. Reports of fire drew the most attention in Florida and Oklahoma, while water supply was the most frequently reported type of impact in South Carolina.

For more information, please see pages 4 and 5.

CoCoRaHS to Request Drought Impact Data, Too

The Community Collaborative Rain, Hail and Snow Network and the NDMC are pleased to announce that they have entered an agreement to incorporate drought impacts into the observations submitted by the network of volunteer weather observers.

Read more on pages 2 and 3

MO River Basin Drought

The NDMC is teaming up with researchers looking at long-term climate patterns and how they affect drought and floods in the Missouri River Basin, and long-term forecast potential. Workshops will be in Kansas City in April and in Helena, Montana, in June.

Read more on page 9

Recent Workshops

Texas, California

Workshops in Texas and California in February put the NDMC at the epicenter of serious current droughts.

Read more on page 10

U.S. Drought Monitor Publishes Map 500!

The April 7 U.S. Drought Monitor marked the 500th edition of the weekly map. Read more on pages 8 and 9

Upcoming Workshops

NDMC & NIDIS Do Tool Talk for Hydrologists

The NDMC and the National Integrated Drought Information System are co-presenting on May 19 as part of the National Hydrologic Warning Council annual meeting, May 18-21 in Vail, Colorado.

Read more on page 9

NDMC Adds Researcher

The NDMC is pleased to welcome research specialist Tonya Haigh.

Read more on page 7

K-12 Students Learn About Drought

The NDMC conducts outreach in school and community settings across Nebraska.

Read more on page 11
Spring 2009 Outlook and January to March Summary

By Brian Fuchs, Climatologist, National Drought Mitigation Center

Drought classifications are based on the U.S. Drought Monitor. For a detailed explanation, please visit http://drought.unl.edu/dm/classify.htm. The outlook integrates existing conditions with forecasts from the National Oceanic and Atmospheric Administration’s Climate Prediction Center: http://www.cpc.ncep.noaa.gov/

Outlook: A mild La Niña will continue to subside through the first part of summer. When it weakens, the southern Plains and the Southeast should stay in the active storm pattern that is seasonally normal. Climatologically, April and May are the two wettest months for much of the Southern Plains, so normal seasonal patterns and a lessening La Niña influence could lead to reductions in drought intensity in Texas and Oklahoma. On the dry side, the extended outlook also shows below normal precipitation spreading into the Southwest, where drought may continue to develop in portions of southern New Mexico and Arizona. Forecasters expect drought to continue over Florida, expanding north along the coasts into the Panhandle of Florida and the Coastal Carolinas, and they are keeping a close eye on the Mid-Atlantic.

January: As the New Year started, there were four regions where drought was extreme or exceptional: Hawaii, Texas, California, and the Southeast all had areas of D3 and D4 drought intensity. In the Southeast and Hawaii, sustained droughts were improving slowly, while in Texas and California, drought was getting worse. January started off with 38.9 percent of the United States experiencing abnormally dry and drought conditions, compared to 41.8 percent at the end of the month. The development of drought along the Gulf Coast into Florida and expansion in Texas made up the majority of
the degradation, showing the influence of La Niña.

**February:** Drought spread and intensified in the Southern Plains and Gulf Coast into Florida during the month. Some improvements were observed in Hawaii, California, and the Southeast as seasonal precipitation returned. February ended with 46 percent of the country reporting abnormally dry and drought conditions compared to 47 percent a year ago. Drought impacts being reported from south Texas show that the current drought is as bad or worse than the drought of record for this region that took place in the 1950’s. Texas has had more than $800 million in agricultural losses due to drought, with more than $560 million since November 2008. Ranching operations will take years to recover, as herds were being sold off and range-lands were suffering long-term damage.

**March:** Drought continued to improve in several locations during March as a very active storm pattern brought rains to regions that had been dry most of the winter. D3 disappeared from the Southeast, which was the first time since March 2007 that the region was free of extreme drought. Heavy rains the last week of the month eliminated drought along the Gulf Coast as well, with Louisiana, Mississippi and Alabama being drought-free. The intensity of drought subsided in both California and Nevada, with these states welcoming March back into the rainy season. But drought spread and intensified in Florida, as the La Niña-influenced pattern shifted most rain north of the peninsula. Oklahoma and Texas received beneficial rains in the eastern portions of those states, but also saw drought spread and intensify. At the end of March, 25 percent of Texas was in extreme or exceptional drought, the worst it has been since July 2008.
January-March 2009 Drought Impacts Overview

By Denise Gutzmer, Drought Impact Specialist

The Drought Impact Reporter records and maps drought impacts that are reported by media, individuals, and government agencies. Currently, about 90 percent of the impacts being entered are from media reports. The National Drought Mitigation Center uses an electronic clipping service and sifts through hundreds of news stories each week to find drought impacts. During times of high drought news flow, we focus our efforts on a spatially representative sample of media outlets. Reports submitted by individuals are moderated. To view reported impacts, please go to The Drought Impact Reporter at http://droughtreporter.unl.edu, click to select a state and then a county, and scroll down to find the list of impacts reported for that county.

Overview

Texas and California dominated the 550 drought impacts reported during the first three months of 2009, with Texas at 228 and California at 148. Reports of fire drew the most attention in Florida and Oklahoma, while water supply was the most frequently reported type of impact in South Carolina.

California

Water is in short supply after the third consecutive dry winter. Water utilities were implementing both voluntary and mandatory conservation measures, and farmers were making difficult decisions about permanent crops such as fruit and nut trees.

A sample of January-March 2009 impacts from California:

January

Central Valley farmers cut acreage devoted to tomatoes, lettuce, and melons due to limited water supplies.

February

Wildfires in California are larger than usual, due to drought, according to the spokesman for the California Department of Forestry and Fire Protection.

West-side farmers in San Joaquin Valley were told they will get no water from the Central Valley Project; high-priority farmers on east-side may get 25 percent, while low-priority farmers get nothing.

Thousands of acres of almond orchards destroyed, over 300,000 acres of cropland fallowed in Fresno and Kings counties due to lack of federal water. High unemployment, increased drug use, alcohol abuse, hunger, and domestic violence reported in Central Valley communities. Governor of California declared a state of emergency, reiterating request for Californians to...
trim their water use by 20 percent.

**March**

Storms allow Department of Water Resources to increase water deliveries from 15 to 20 percent. Mayor of Rancho Santa Margarita in Orange County asked governor, president to set aside ruling on endangered fish to allow adequate water supplies to reach his city. California farmers urged to use soil conservation methods to reduce wind erosion.

**Texas**

Farmers and ranchers have borne the brunt of the drought, with ranchers culling their cattle and selling early, rather than purchasing expensive hay and supplements. Some ranchers have resorted to hauling water for their livestock. Many crops haven’t survived the dry winter.

A sample of January-March 2009 impacts from Texas:

**January**

Losses from drought at $829 million since summer 2008; $569 million lost since November 2008.

Drought limited food and fresh water availability for whooping cranes, resulting in a 7.8 percent mortality rate for a loss of 21 birds in Aransas National Wildlife Refuge.

Roughly 440,000 cattle — 10 percent more than last year — taken to feedlots in Texas during January, due to lack of pasture. In Big Country, stock tanks and wells are going dry, wheat is dying, little forage for livestock.

Governor of Texas proclaimed the state to be a disaster area due to high fire danger and prevalence of wildfires.

**February**

Over 1,000 cattle died in Bastrop County from insufficient water and nutrition, 75 percent of water sources in county dry or unsuitable for livestock consumption.

**March**

Governor requested disaster declaration for state, citing severe hardship to agricultural sector.

Walls of Mission Espada in San Antonio moved because drought caused soil to shift.

209 of Texas’ 254 counties have burn bans.
The National Drought Mitigation Center and the Community Collaborative Rain, Hail and Snow (CoCoRaHS) Network are pleased to announce a partnership agreement that will add drought impacts to the observations that CoCoRaHS volunteer weather observers can submit.

“We’re excited about this because the Drought Impact Reporter would like to build its user-submitted content,” said Mark Svoboda, NDMC climatologist and leader of the group’s Monitoring program area. “And we have tremendous respect for CoCoRaHS’s ability to recruit, train and motivate volunteers. We’re really looking forward to working with them on this.”

“We view this is a two-way street, not just having weather watchers report impacts, but to help recruit qualified weather watchers, people whose jobs and obligations make them better suited to report drought impacts,” said Nolan Doesken, Colorado state climatologist and CoCoRaHS founder. He added that the network would especially benefit from additional volunteers in rural and agricultural areas.

CoCoRaHS, a volunteer grassroots precipitation monitoring network developed by Colorado State University, as of April 2009 was operating in 42 states with more than 13,000 volunteers, and it was expected to expand to six more states by the end of 2009.

The Drought Impact Reporter has been on-line since 2005. It includes more than 11,000 impacts, including historic accounts from as far back as 1850 and current impacts entered daily from media stories and individuals’ reports. About 90 percent of the reports currently in the Drought Impact Reporter are from media accounts.

Outcomes of the partnership will include a web-based data entry system for CoCoRaHS drought impacts reporting, automatic transfer of information to the Drought Impact Reporter, and preliminary training materials for spotting and reporting drought impacts.

As the new impacts reporting system is developed for their observers, CoCoRaHS will confer with some of its seasoned veteran coordinators and observers to develop an appealing framework that will encourage good solid impact reporting for average citizens venturing into this new territory.

A second task will be to instill awareness of drought’s impacts. “We’d like to be building an awareness of how the lack of precipitation affects them,” Doesken said. “A lot of people are aware of how precipitation affects them. They’ll say things like, ‘It’s greening up,’ or ‘the crick is filling.’ We’d like to capture their observant nature and apply it to drought.”

When CoCoRaHS was first established in 1998, one of its purposes was to help ground-truth radar information on extreme storms, Doesken said. It has taken a while to start building awareness that lack of precipitation is also noteworthy.
NDMC, CoCoRaHS Enter Agreement, continued

During the drought of 2002, people were losing interest in reporting, he said. “They were asking, ‘What do I need a rain gauge for? All I measure is dust.’ But then in some of the urban areas where we had quite a few volunteers, some of them started to become neighborhood proponents of water conservation. There was this linking of measurements to impacts – what does getting 50 percent of average precipitation mean?”

It’s that elusive link between the data and what people experience that is at the heart of CoCoRaHS, Doesken said. It’s also valuable information for researchers who study the impacts of climate and weather, and for everyday decision-makers, including homeowners, farmers and ranchers. “We help people make the connection between the data and their experiences, and that helps everyone understand what our options are for dealing with water shortages.”

Learn more by visiting CoCoRaHS online at http://www.cocorahs.org/

NDMC Welcomes Tonya Haigh

Tonya Haigh began working with the National Drought Mitigation Center in February 2009 as a Research Specialist. She has an M.S. in Rural Sociology from South Dakota State University, and a B.S. in Human and Physical Ecology from Hamline University in St. Paul, Minnesota. She has worked for sustainable agriculture and environmental conservation organizations as a program director, community organizer, and grant writer over the last fifteen years. Since moving to Lincoln with her family in 2008, Tonya has also been taking courses in environmental planning and natural resource management at the University of Nebraska-Lincoln.

Tonya is working on Managing Risk on the Ranch, a planning resource. “I’m very interested in the ‘before,’ how you setup the whole resilient system so you’re in a stronger place to weather the weather,” she said.

Her interests include permaculture, local food systems, resiliency, and spending time gardening, reading, and in the great outdoors with her husband and two daughters.
The U.S. Drought Monitor achieved a milestone with publication of the April 7, 2009, map – number 500.

The Drought Monitor sets the standard for communicating location and intensity of drought to a broad audience. "It’s being used as a model all around the world," said Mark Svoboda, National Drought Mitigation Center (NDMC) climatologist and Drought Monitor author. “I think we’ve accomplished what we set out to do. Seeing the Drought Monitor picked up by The Weather Channel, The New York Times, The Wall Street Journal, The Los Angeles Times, USA Today, and all those other radio and TV media sources -- we’ve generated awareness of drought as a hazard.”

A North American Drought Monitor launched in 2003, with the U.S. Drought Monitor authors teaming up with counterparts in Mexico and Canada to produce monthly maps.

Doug Le Comte, a meteorologist with the National Oceanic and Atmospheric Administration (NOAA)’s Climate Prediction Center, spearheaded development of the Drought Monitor, working closely with Svoboda and others. He was an author for many years. “No formal project plan or MOU was ever made,” Le Comte said. “We just had this meeting in early 1999, and somebody said, ‘Go ahead and do it.’ That was fun.”

Several ideas were incorporated from the beginning:

- A variety of data-based drought indices and indicators were combined into a single composite drought indicator.

- The map would show drought intensity on a scale similar to tornadoes and hurricanes, with a one-in-50-year drought being considerably more serious than a one-in-10-year drought.

- Authors from different partner agencies would rotate in two-week shifts. Partner agencies are NOAA, including the Climate Prediction Center, the National Climatic Data Center, and the Western Regional Climate Center (WRCC); the U.S. Department of Agriculture’s Office of the Chief Economist, including the Joint Agricultural Weather Facility and the World Agricultural Outlook Board; and the NDMC. Last year’s addition of the WRCC brought a valuable western perspective to the process.

- Authors request ground truth each week from experts around the country, corroborating data with observations of drought conditions and impacts from around the country. The list of federal, state and academic reviewers of each week’s map has grown from 17 to 270.

In addition to being a valuable communication tool for media, policymakers have embraced the weekly Drought Monitor. "It’s become an extremely valuable tool for monitoring drought"
and the impacts on agriculture,” said Ray Motha, USDA’s chief meteorologist. “It’s used every week for decision-making here in the Department,” along with the Palmer Drought Severity Index and other information.

The USDA uses it to distribute millions, even billions, of dollars in drought relief to farmers and ranchers each year, and the Internal Revenue Service also uses it for ranching-related tax determinations. Some states, such as North Carolina, rely on the Drought Monitor to be their depiction of drought. Other states prefer to make their own drought determinations and are sometimes at odds with the Drought Monitor.

“We knew all along that it was going to be very difficult to get agreement all the time,” Le Comte said. In addition to the obvious acceptance and success of the product, he said, “There are some challenges in coming up with objective and credible depictions of drought.”

“The Drought Monitor is a blend of art and science,” Svoboda said. “No single drought index works for all circumstances or at all scales. We take the data as far as it will go, and then we reconcile differences and fill in the gaps based on well-informed, vigorously debated expert judgment.”

The Drought Monitor continues to evolve. More data streams have been fine-tuned for the Drought Monitor process, partly in response to the demand for a higher resolution drought assessment, and stakeholder input is continuously incorporated. A Drought Monitor forum held every year brings together authors and stakeholders from across North America, providing valuable opportunities to connect with Mexican and Canadian drought researchers. The next Forum is planned for October 2009.

Details about the upcoming Drought Monitor Forum will be added to the NDMC’s webpage -- http://drought.unl.edu/ -- as they become available.

NDMC and NIDIS Team Up to Talk Drought Tools with Hydrologists

Decision-makers who need drought-related information will benefit from a workshop that the NDMC and the National Integrated Drought Information System are co-presenting on May 19 as part of the National Hydrologic Warning Council annual meeting, May 18-21 in Vail, Colorado. The morning session will focus on tools that the NDMC is developing, including the Drought Atlas, the Drought Monitor-Decision Support System, the Vegetation Drought Response Index (VegDRI), and the Drought Impact Reporter. The afternoon will focus on the NIDIS web portal, drought.gov. For more information or to register, please visit the Council’s website:

http://www.hydrologicwarning.org/
Workshops to Explore Long-term Forecast Prospects for Missouri River Basin

The Center for Research on the Changing Earth System (CRCES), the National Drought Mitigation Center (NDMC), and the U.S. Army Corps of Engineers are holding workshops on decadal climate variability in the Missouri River Basin (MRB). The workshops are part of a project funded by the Sectoral Application Research Program of the National Oceanic and Atmospheric Administration’s Climate Program Office. Workshops will be at the National Weather Service Training Center in Kansas City, Missouri, on April 27-28, and in Helena, Montana, June 24-25.

During this workshop, researchers will show that climatic events on the decadal scale -- long-term climate cycles -- have had major effects in the MRB. Participants will be provided scenarios showing the relationship between various phenomena that occur in the Atlantic and Pacific oceans and multiyear to decadal droughts and wet periods in the MRB.

Discussions will focus on gathering information about the effects of drought in the late 1970s, the 1980s, and the most recent drought period in this decade, as well as the prolonged wet period of the 1990s. Stakeholders and leaders will also focus on the potential for developing future decadal climate outlooks and management options that would be useful in preparing for and coping with droughts and wet periods.

Specific stakeholder groups have been invited in the lower Missouri River Basin, but there is still room for about two more people. For more information, please contact Nicole Wall, NDMC Outreach and Research Specialist, nwall2@unl.edu or 402-472-6776.

Kansas City Workshop Flyer
http://drought.unl.edu/news/workshopkansascity09/Kansas_City_workshop_flyer.pdf

Missouri River Basin Climateer

NDMC Holds Workshops in Drought-Affected Texas and California

The NDMC’s workshops in Bastrop, Texas, February 12, and in Coalinga and Woodland, California, February 24 and 26, both coincided with particularly high levels of drought awareness. The presentations are now on-line. The Texas workshop attracted attention from Austin TV station KXAN. Bastrop County officials on February 17 requested state assistance in dealing with the drought, and on March 1 were contending with wildfire. Media attention in California was focused on the U.S. Bureau of Reclamation’s February 20 announcement that water deliveries for the Federal Central Valley Project would be severely curtailed due to drought, on Gov. Schwarzenegger’s February 27 declaration of a drought emergency, and on the federal response to the emergency in California, announced February 26. On April 2, the Department of Water Resources issued “California’s Drought: Water Conditions & Strategies to Reduce Impacts,” in response to the governor’s proclamation.
Spring brings many opportunities for K-12 outreach. NDMC staff have been or will be presenting drought-related activities at the earth wellness festival, which reaches every fifth grader in Lincoln, Nebraska; at the Central Plains Severe Weather Symposium and Family WeatherFest at the University of Nebraska-Lincoln’s School of Natural Resources; at Nature Nights in local schools; and at the Groundwater Festival in Grand Island, Nebraska.

Kids at the earth wellness festival learned about weather-related hazards by playing Meteoropoly, shown above. The NDMC also led students in Water Banking, a role-playing game that brings water management decisions to life. Altogether, the NDMC worked with 18 different classes in the day-and-a-half-long festival.

At left, Donna Woudenberg, NDMC drought management specialist, helped kids at WeatherFest use the “drought wheel” to hone their knowledge of drought and water trivia. The ninth annual Weather Symposium and WeatherFest drew more than 4,000 attendees of all ages.

This spring the NDMC is concluding its outreach activities by distributing packets of native wildflower seeds, shown at right. Native plants are well-adapted to growing conditions and tend to be more drought-resistant. Students’ faces lit up upon receiving the seeds. Comments included, “I’m gonna go home and plant these!” and “My mom will love this!”