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SCIPP

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The National Climate Assessment and Preparing for Changes in the U.S.-Mexico Border Region

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Weather and climate affect most aspects of our lives, whether directly, such as through severe storms, or indirectly, through impacts to water supplies, natural resources, energy production, transportation, food production, and many other processes and products that contribute to modern life. The SCIPP region is well known for tornadoes, hurricanes, floods, droughts, and other extreme events. In recent years, along the southern part of the SCIPP domain, the border between the United States and Mexico has been buffeted by persistent drought, punctuated by occasional tropical storms, or even freeze events, as during the winter of 2013-14. The latest drought episode, which began in 2011, has cost the region as much as $12.0 Billion, along with including another $1B for wildfires, and at least several hundred million dollars in impacts to agriculture in northern Mexico (NCDC 2012; Texas AgriLife 2012).

The region's vulnerability to weather and climate extremes is a function of geography – an exposure to extremes, by virtue of being where precipitation sometimes arrives in explosive bursts, or not at all, and where temperatures can be exceedingly high on the interior plains or hot and humid along the Gulf Coast – and a function of societal elements and choices, such as the health of regional and local economies, investments in infrastructure and transportation, planning and preparedness, community resilience, regulations, and other factors.

The National Climate Assessment

The third National Climate Assessment (NCA), a review and synthesis of the effects of global change on the natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity, is slated to be released this spring. The NCA, mandated by a Federal law, the Global Change Research Act of 1990, aims to evaluate the current state of knowledge about climate impacts and trends. Additionally, it will evaluate the effectiveness of U.S. activities to mitigate and adapt to climate change, and identify economic opportunities and challenges that may arise as the climate changes.

While model projections of future climates portend additional stresses to the SCIPP region, in the form of exposure to changes in weather and hydrologic extremes, improved understanding of the region's preparedness and capacity to respond to projected changes, through assessment and synthesis of scientific literature, planning documents, and local knowledge, can point the way to maintaining and even increasing the resilience of urban areas, agriculture, coastal ecosystems, and economic activities in the face of changing exposure to climate variations. This kind of effort is particularly important in the context of the U.S.-Mexico border, where differences in cultural norms, laws, language, and institutions and cross-border communication trust among key Federal and local entities, can have a big influence on the ability of the region to anticipate and prepare for climate changes.

Observed and Projected Climate Changes

Temperatures in the SCIPP region, particularly over the inland portion of the Southern Great Plains, have increased since the early 20th century, with largest trends during the winter and spring seasons (Kunkel et al. 2013a). While there has not been a notable trend in precipitation over the Southern Great Plains for the period 1895-2010, there has been an increase in daily precipitation intensity, for the period 1951-2010 (Hartmann et al 2013). Increases in temperature have resulted in an increase in the length of the freeze-free season across most of the SCIPP region, which is consistent with trends over the contiguous United States (Hartmann et al. 2013; Kunkel et al. 2013a; 2013c).

To examine future climate changes, the scientific community uses global climate models, which represent the physical and biological processes of the earth system using mathematical equations. Scientists are most confident in model projections of temperature, and broad patterns of precipitation changes; confidence in these projections is best for large, regional changes. Confidence is derived from the ability of models to represent key climate processes, and to reproduce past global changes. For the projections described below, we assume that the global emissions of heat-trapping “greenhouse gases” will continue at a high rate into the future.

The broad patterns of climate changes projected for the SCIPP region, based on climate model projections include: increased annual temperatures, with the greatest increases in summer and fall, and possible decreases in precipitation, with the greatest degree of agreement among projections over West Texas (Kunkel et al., 2013a; 2013c). The upshot of these projected changes include an increased number of cooling degree days, by the 2041-2070 time frame, and increases in the length of dry spells across Texas. These factors have implications for increased water and energy demand, and effects on inland ecosystems.

Challenges for the U.S.-Mexico Border Region and the Rio Grande-Rio Bravo

Homing in on the U.S.-Mexico border region, climate model projections from the U.S., Mexico, and international sources (Hartmann et al. 2013; Kunkel et al. 2013c; Magana et al. 2013; Montero-Martínez et al., 2010; Wilder et al., 2013) show mid-century annual temperature increases on the order of 3-5°F by 2041-2070, and end of century increases on the order of 5-9°F (2071-2099). In addition, multiple studies show decreasing April 1 snowpack in the headwaters of the Rio Grande, and multi-year variations in Rio Grande runoff, with eventual declines during the April through July season by the 2050s onward (Cayan et al. 2013; Reclamation, 2013) **(Figure 1).**

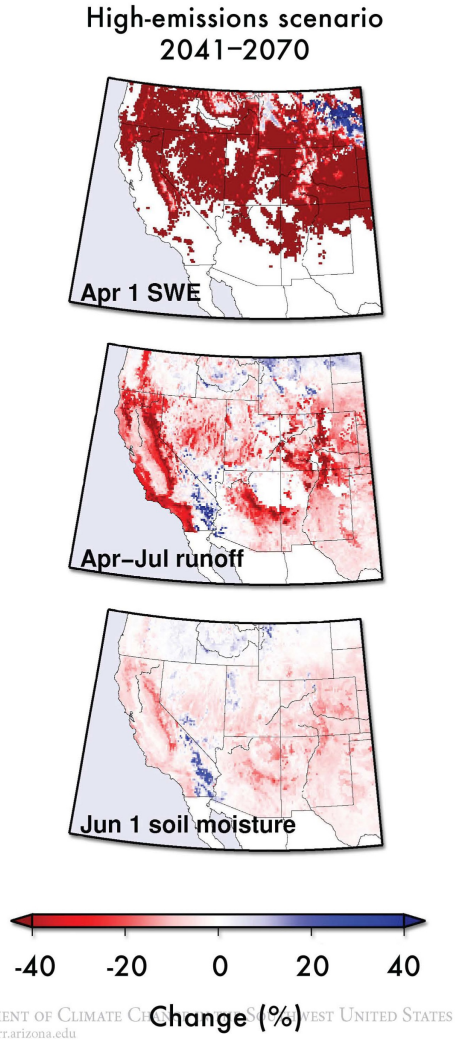

Figure 1. Projected changes in the water cycle. Mid-century (2041–2070) percent changes from the simulated historical median values from 1971-2000 for April 1 snow water equivalent (SWE, top), April–July runoff (middle) and June 1 soil moisture content (bottom), as obtained from median of sixteen hydrologic simulations under a high-emissions (SRES A2) scenario. Source: Cayan et al. 2013.

Reclamation's recent Lower Rio Grande Basin Study finds that, in addition to the previously mentioned findings, climate change is likely to result in increased evapotranspiration across the basin and, as a result, the gap between water supply and demand is projected to increase by as much as 86,438 acre-feet per year by 2060, due to climate change (Reclamation, 2013).

A key factor in border region urban vulnerability, noted in a technical contribution to the National Climate Assessment (Garfin et al. 2013), is the fact that much of the population is concentrated in paired, rapidly growing U.S. and Mexico cities, such as El Paso and Ciudad Juarez (**Figure 2**). Border region cities have higher poverty and less robust urban planning and infrastructure relative to the rest of the United States; thus, they are often considered more vulnerable to climate changes (Wilder et al. 2013). The capacity of the border region to prepare and respond to projected climate changes is complicated by differences in governance, planning, law and language in the two countries. Many border region cities have high exposure and sensitivity to climate and weather events, because cities have expanded into areas prone to droughts, wildfires and floods (Wilder et al. 2013), large parts of the urban population live in informal housing (*colonias*), lacking many health and safety standards, and characteristics of the built environment, such as the urban heat island, can amplify the impacts of extreme heat waves or severe storms (Wilder et al. 2013). Moreover, the border region lags in infrastructure development, such as wastewater collection and treatment facilities (Wilder et al. 2013).

The previously mentioned plausible projected future climate changes expose sensitive wetland and riparian ecosystems, which are hotspots of border region biodiversity, and rangeland ecosystems, to impacts, such as extended and more severe drought. Borderland grassland, shrub and woodland ecosystems, when exposed to protracted drought, are ripe for extensive wildfires, such as the fires that occurred in Texas in 2005-06 and 2011. Agriculture and ranching are important livelihoods for many along the border; these economic activities account for more than 70% of water consumption in the border region. Projected increases in temperature and evapotranspiration may result in reduced rangeland productivity, and the need to shift from water intensive crops (Wilder et al. 2013).

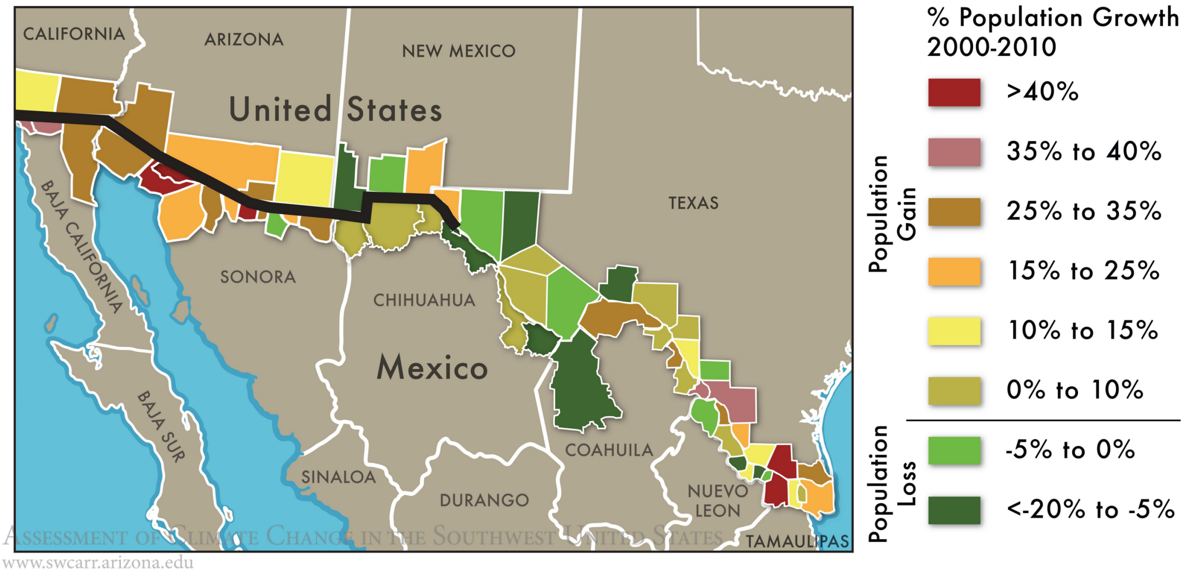

Figure 2. Population growth in the the U.S.-Mexico border region (2000–2010). Adapted from Good Neighbor Environmental Board 14th Report (2011). Source: Wilder et al. 2013.

Dealing with Uncertainty and Adapting to Change

Despite the gloomy picture of projected future climate and increased vulnerability in the border region, there are several bright spots of planning and cross-border cooperation to address existing vulnerabilities to weather events, and needs for increased preparedness for future weather and climate hazards. The North American Climate Services Partnership (NACSP), an agreement between the weather services of Canada, the United States, and Mexico, aims to enhance cross-border cooperation to provide regional climate services. NACSP partners have developed a pilot project in the Rio Grande-Rio Bravo Basin **(Figure 3)**, in which new products and services, such as bilingual online climate news and information (http://drought.gov/drought/content/resources/reports), enhanced cooperative long-term forecasting for the border region, and improved drought impacts monitoring, will make for more robust and timely drought early warning.

Figure 3. Rio Grande-Rio Bravo Basin. Source: Wilder et al. 2013.

With respect to the rich and diverse ecosystems of the Lower Rio Grande, the Big Bend Rio Bravo (BBRB) Partnership is tackling water and riverine ecosystem challenges. BBRB partners, including the World Wildlife Fund, Big Bend National Park, CONAGUA (the Mexican national water agency), and the International Boundary and Water Commission, are working together to protect endangered species, and improve riparian area vegetation health, through the removal of invasive water-intensive species, which impede the flow of water and choke sections of the river's banks. These partners have recently hooked up with the U.S. Department of Interior's Desert Landscape Conservation Cooperative (DLCC), to collaborate on adaptive decision-making processes, such as structured decision making, which explicitly incorporate climate change, into future riparian area planning. NACSP and the DLCC are also working together to explore methods of dealing with climate uncertainty for a range of time scales, from seasonal forecasts to multi-decade climate change projections.

In Mexico, several states have made progress on state climate change action plans (Plan Estatal de Acción ante el Cambio Climático or PEACC (http://peacc.cimav.edu.mx/otrospeacc.htm), which address a wide range of concerns, from agricultural and water resources viability to urban planning and public health. The western and eastern U.S.-Mexico border states of Baja California and Nuevo Leon have already developed PEACCs. Chihuahua, which borders Texas, has initiated a PEACC planning process, with support from the Mexican federal government (Cavazos, 2011). As Cavazos (2011) notes, the success of the PEACCs depends on strong connections with local stakeholders, sufficient financial and scientific capacity, and the political will to follow through and implement climate change mitigation and adaptation strategies.

Sustained Assessment

An innovation of the upcoming National Climate Assessment, is the development of mechanisms for ongoing assessment. The so-called "sustained assessment" effort (Buizer et al. 2013) aims to address emerging needs for research to inform climate change preparedness initiatives. A sustained process offers opportunities to better connect research with decision making, and to inform planning and investment decisions to reduce climate-related risks – a hallmark of SCIPP.

One aspect of the pioneer phase of sustained assessment in the United States is the NCA Network (NCAnet – http://ncanet.usgcrp.gov). NCAnet coordinates climate communication and education, and fosters partnerships among organizations from the private sector, academia, local governments, professional societies, and non-governmental organizations to target knowledge and information gaps, and to multiply the effectiveness of lessons learned through climate change initiatives. Among the recommendations by Buizer and colleagues (2013) in a special report to the National Climate Assessment, is the development of mechanisms for neighboring governments, such as the U.S. and Mexico, to learn from each other's assessment efforts. Such efforts will better position border region states and local governments to address issues across shared rivers, ecosystems, and urban areas, and accelerate U.S. and Mexico preparedness.

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Drought Update

Luigi Romolo
Southern Regional Climate Center

Drought conditions over the month of January remained relatively unchanged despite it being a very dry month across the region. In Louisiana, a small area of moderate drought has been added in the south central portions of the state. There was also some moderate drought added along the Texas Gulf coast region.

In Texas, many lakes across the state are at dangerous levels, including the Highland Lakes, which are at a combined 38% capacity. This is raising concerns that water prices across the Lower Colorado River Authority region could increase by 20% next year. The low water supply levels became evident when the State Comptroller's Office released a statement on January 17th reporting that 23,000 Texans are at risk to losing water service within 45 days and another 47,000 running that risk at 90 days. The USDA placed 180 counties within the state under a Natural Disaster Declaration, giving farmers and ranchers the option to apply for low interest rate federal loans to make up for losses. The Panhandle from 2010-2013 has surpassed the 1954-1956 time period as the record driest three year period on record. Wichita Falls, still under Stage 4 water restrictions, is considering a cloud seeding project that could cost more than $50,000 per month (Information provided by the Texas Office of State Climatology).

In Texas, two winter weather events took place this month, hitting the southern part of the state with a mixture of icy precipitation. In the Panhandle, the cold combined with the lack of short-term rain has many winter wheat growers fearful that a large-scale crop die-off is imminent.

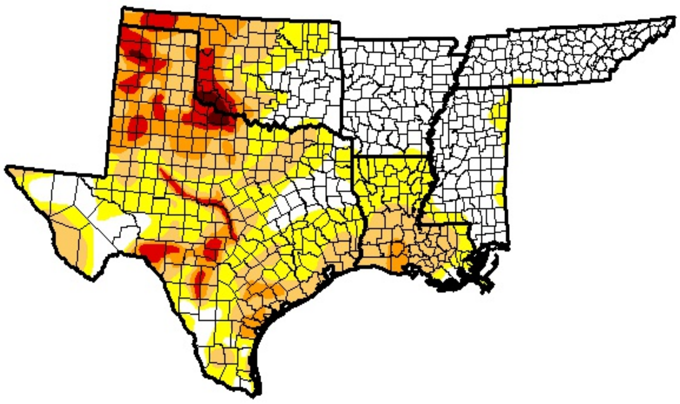
Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	37.26	62.74	36.75	15.67	5.70	0.68
Last Week *1/28/2014*	40.31	59.69	31.75	15.26	4.95	0.72
3 Months Ago *11/5/2013*	38.54	61.46	30.79	13.87	3.34	0.52
Start of Calendar Year *12/31/2013*	55.85	44.15	27.23	13.21	3.58	0.72
Start of Water Year *10/1/2013*	26.20	73.80	50.11	17.90	3.16	0.25
One Year Ago *2/5/2013*	34.65	65.35	55.82	41.66	23.91	9.20

Intensity:

- *D0 Abnormally Dry*
- *D1 Drought - Moderate*
- *D2 Drought - Severe*
- *D3 Drought - Extreme*
- *D4 Drought - Exceptional*

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompany text summary for forecast statements. **http://droughtmonitor.unl.edu**



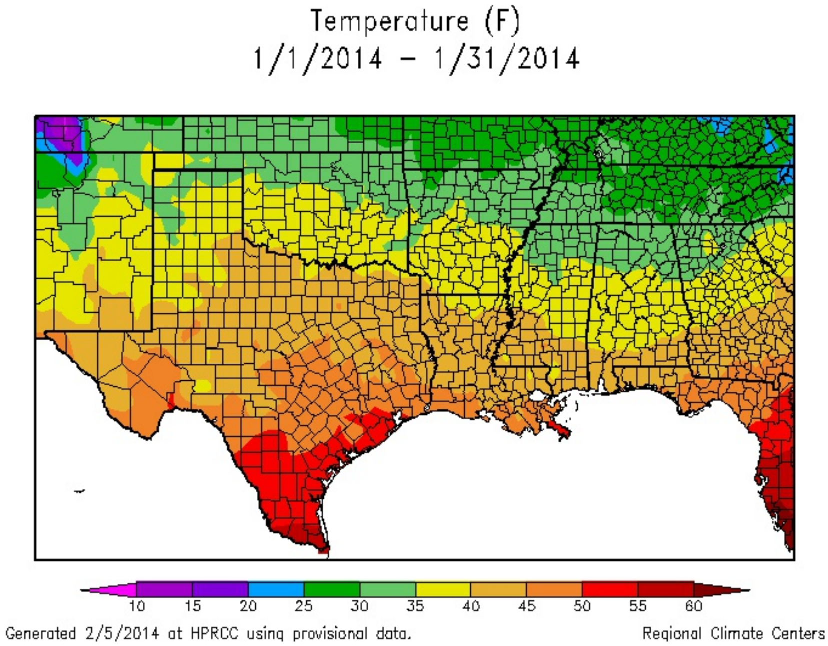
Released Thursday, Feb. 6, 2014.
Anthony Artusa NOAA/NWS/NCEP/CPC

Above: Drought Conditions in the Southern Region. Map is valid for February 4, 2014. Image is courtesy of National Drought Mitigation Center.

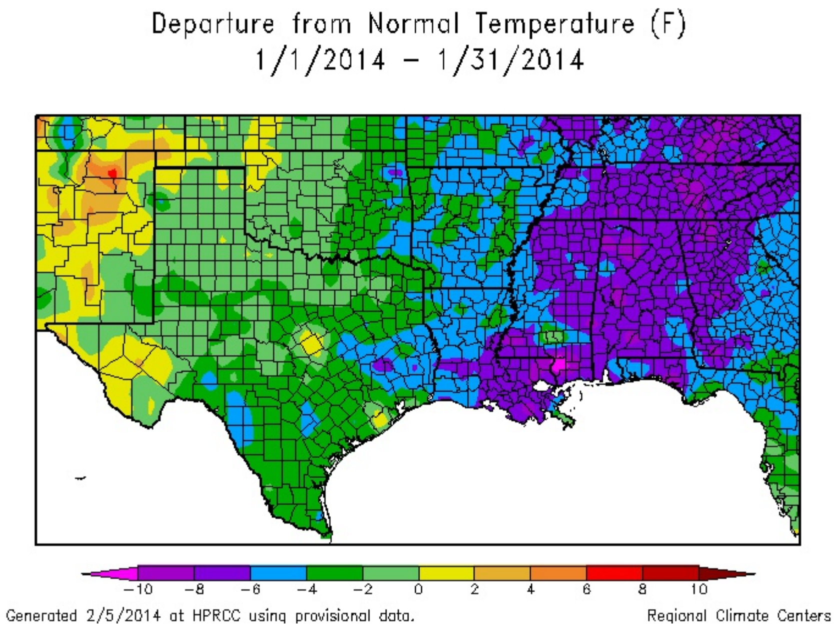
Temperature Summary

Luigi Romolo
Southern Regional Climate Center

The month of January was a very cold month for the entire Southern Region. Temperatures dipped down into the teens even as far south as Baton Rouge, Louisiana. The deep south experienced several hard freezes and two winter storms, which will make this past January a month to remember. Temperature anomalies for the month varied spatially from west to east. Texas and Oklahoma averaged between 2 to 4 degrees F (1.11 to 2.22 degrees C) below normal, while the central portions of the region, including Arkansas and northern Louisiana, averaged between 4 to 6 degrees F (2.22 to 3.33 degrees C) below normal. Farther east and in southern Louisiana, temperatures were even colder than normal, with most stations averaging from 6 to 10 degrees F (3.33 to 5.56 degrees C) below normal. All six states experienced a colder than normal month. The statewide average temperatures are as follows: Arkansas reported 34.90 degrees F (1.61 degrees C), Louisiana reported 43.30 degrees F (6.28 degrees C), Mississippi reported 38.00 degrees F (3.33 degrees C), Oklahoma reported 35.90 degrees (2.17 degrees C), Tennessee reported 30.00 (-1.11 degrees C), and Texas reported 44.30 degrees F (6.83 degrees C). For Tennessee and Mississippi, it was the seventh coldest January on record (1895-2014), while Louisiana recorded its eighth coldest January on record (1895-2014). Arkansas reported its fourteenth coldest January on record (1895-2014), while for Texas it was their thirtieth coldest January (1895-2014). Oklahoma experienced their forty-fifth coldest January on record (1895-2014).



Average January 2014 Temperature across the South.

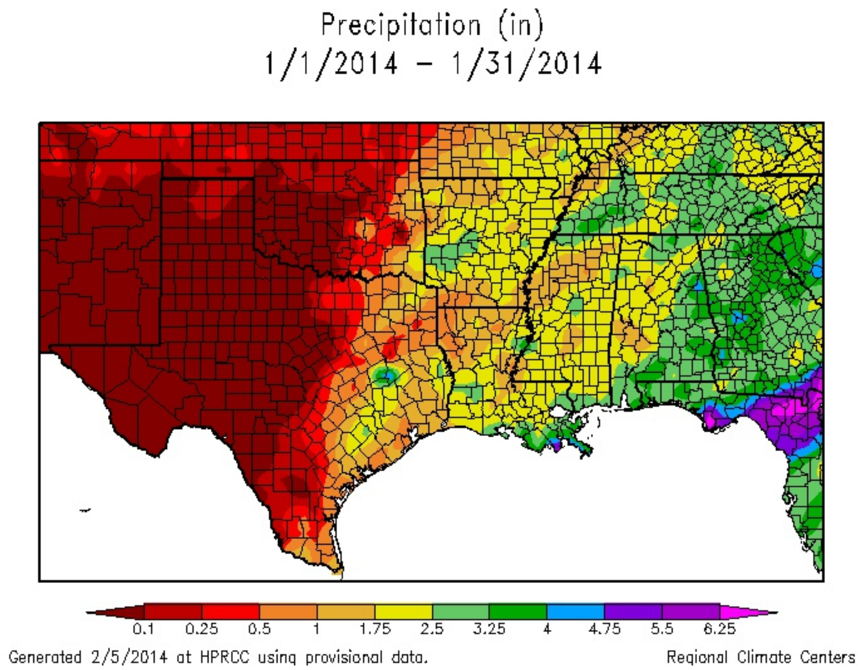


Average Temperature Departures from 1971-2000 for January 2014 across the South.

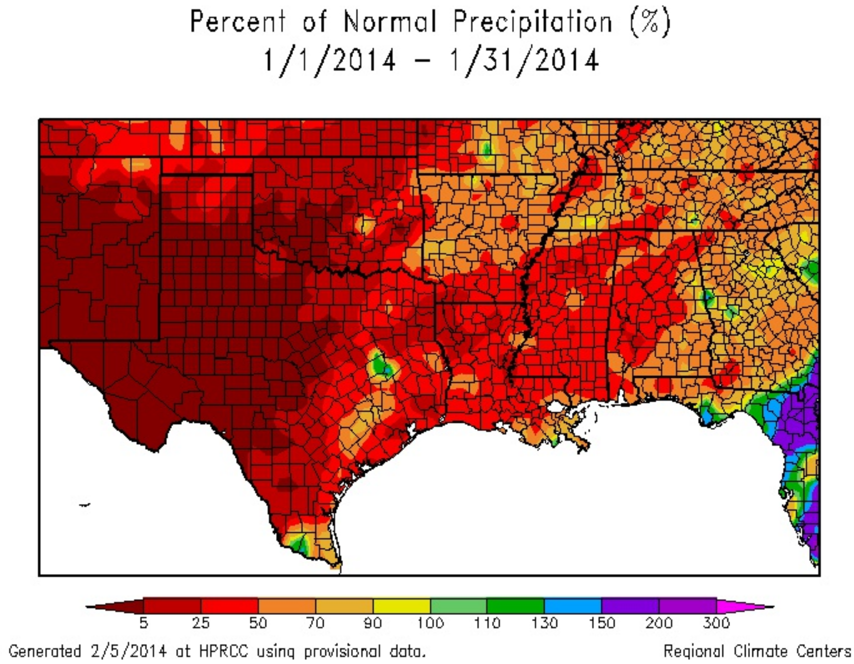
Precipitation Summary

Luigi Romolo
Southern Regional Climate Center

In addition to being anomalously cold, January was a very dry month for the Southern Region. Most of the region saw precipitation totals that were less than half of normal. In Arkansas and Tennessee, precipitation totals varied between 50 to 70 percent of expected values. Throughout most of Louisiana and Mississippi, precipitation totals ranged between one fourth and half of normal for the month. Conditions were even drier in Texas and Oklahoma. Much of the western half of Texas experienced an extremely dry month, with precipitation totals ranging from zero to five percent of normal. Many stations in that area reported no precipitation at all. The statewide average precipitation totals for the month are as follows: Arkansas reported 2.04 inches (51.81 mm), Louisiana reported 2.15 inches (54.61 mm), Mississippi reported 2.04 inches (51.82 mm), Oklahoma reported 0.30 inches (7.62 mm), Tennessee reported 2.68 inches (68.07 mm), and Texas reported 0.39 inches (9.91 mm). For the state of Texas, it was the fifth driest January on record (1895-2014), while Mississippi and Oklahoma reported their seventh and eighth driest January on record (1895-2014), respectively. Louisiana experienced their twelfth driest January on record (1895-2014), and Tennessee saw its eighteenth driest on record (1895-2014). For Arkansas, it was the twenty-first driest January on record (1895-2014).



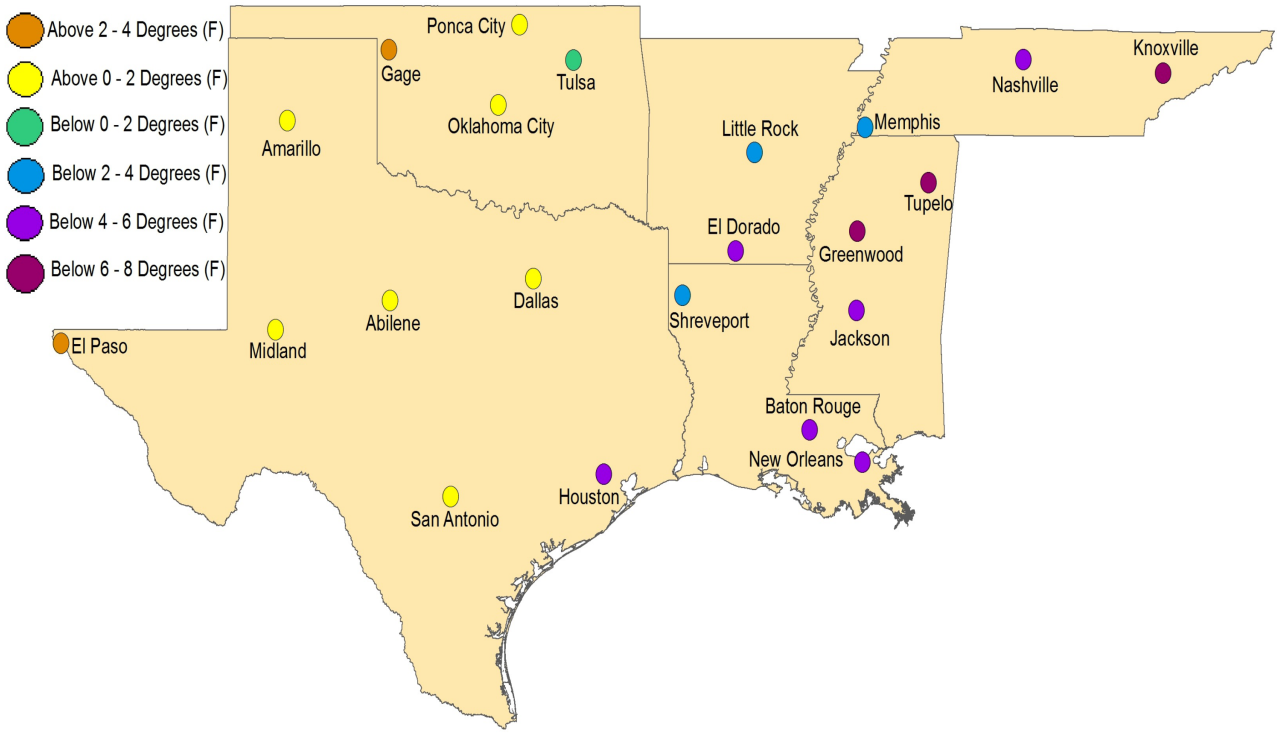
January 2014 Total Precipitation across the South.



Percent of 1971-2000 normal precipitation totals for January 2014 across the South.

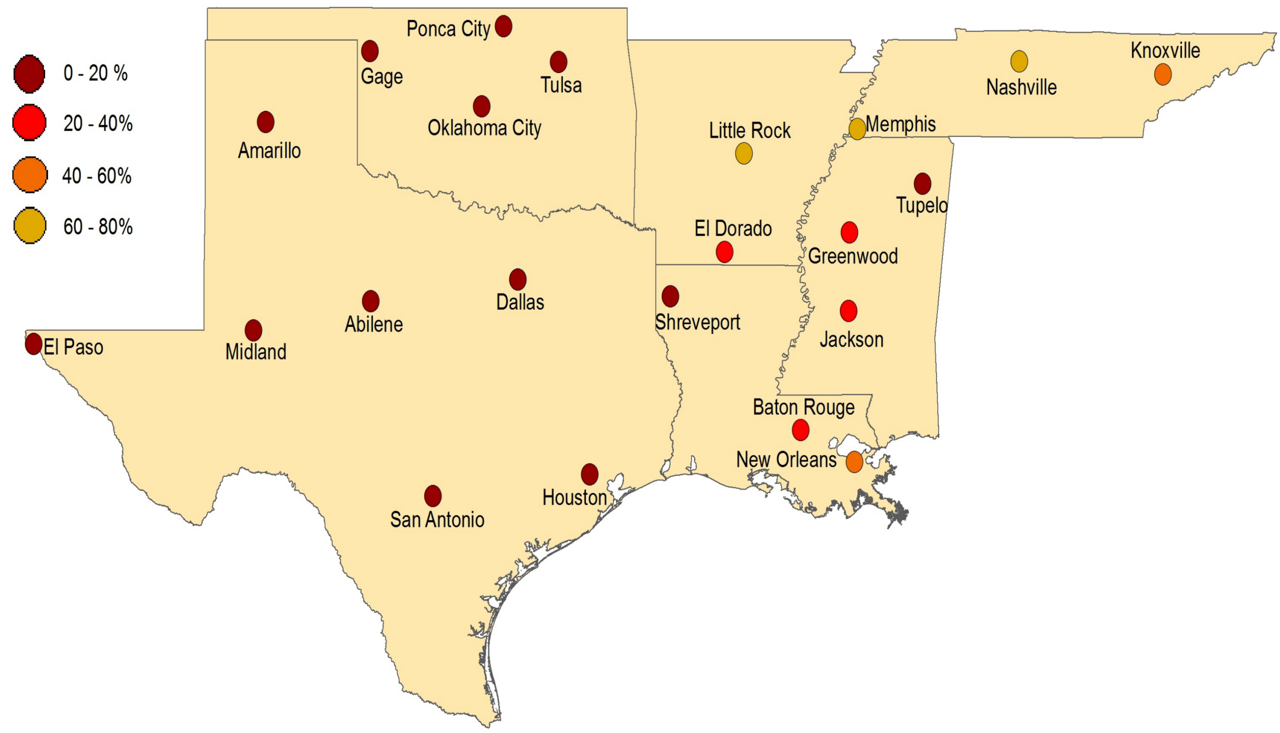
Regional Climate Perspective in Pictures

January Temperature Departure from Normal



January 2014 Temperature Departure from Normal from 1971-2000 for SCIPP Regional Cities

January Precipitation Departure from Normal



January 2014 Percent of 1971-2000 Normal Precipitation Totals for SCIPP Regional Cities

Climate Perspective

State	Temperature	Rank (1895-2011)	Precipitation	Rank (1895-2011)
Arkansas	34.90	14th Coldest	2.04	21st Driest
Louisiana	43.30	8th Coldest	2.15	12th Driest
Mississippi	38.00	7th Coldest	2.04	7th Driest
Oklahoma	35.90	45th Coldest	0.03	8th Driest
Tennessee	30.00	7th Coldest	2.68	18th Driest
Texas	44.30	30th Coldest	0.39	5th Driest

State temperature and precipitation values and rankings for January 2014. Ranks are based on the National Climatic Data Center's Statewide, Regional, and National Dataset over the period 1895-2011.

Station Summaries Across the South

Station Summaries Across the South

Station Name	Temperatures (degrees F)								Precipitation (inches)		
	Averages				Extremes				Totals		
	Max	Min	Mean	Depart	High	Date	Low	Date	Obs	Depart	%Norm
El Dorado, AR	52.7	25.8	39.2	-4.4	71	1/20	10	1/7	1.16	-3.77	24
Little Rock, AR	50.7	25.0	37.9	-2.2	71	1/20	9	1/7	2.34	-1.27	65
Baton Rouge, LA	57.1	31.8	44.4	-5.7	71	1/11	17	1/30	2.09	-4.10	34
New Orleans, LA	57.1	37.0	47.0	-5.6	74	1/11	24	1/7	2.72	-3.15	46
Shreveport, LA	56.6	30.5	43.5	-2.9	74	1/20	15	1/7	0.83	-3.77	18
Greenwood, MS	50.1	23.8	37.0	-6.9	65	1/20	8	1/29	1.57	-3.68	30
Jackson, MS	54.0	26.4	40.2	-4.9	69	1/20	14	1/30+	1.61	-4.06	28
Tupelo, MS	47.1	21.2	34.2	-6.1	64	1/22+	4	1/29+	0.88	-4.45	17
Gage, OK	50.9	19.8	35.4	2.5	75	1/19	-4	1/6	0.00	-0.49	0
Oklahoma City, OK	51.5	24.9	38.2	1.5	75	1/12	4	1/24	0.07	-1.21	6
Ponca City, OK	47.3	20.5	33.9	0.1	71	1/12	-3	1/6	0.00	-1.18	0
Tulsa, OK	48.3	23.3	35.8	-0.6	72	1/12	-2	1/6	0.13	-1.47	8
Knoxville, TN	41.5	18.0	29.7	-6.5	60	1/12	-6	1/29	2.82	-2.48	53
Memphis, TN	47.6	24.6	36.1	-3.8	64	1/26+	8	1/7	3.16	-1.08	75
Nashville, TN	43.9	20.8	32.4	-4.4	64	1/26	2	1/29+	2.61	-1.36	66
Abilene, TX	59.5	29.9	44.7	1.2	83	1/31	10	1/28	0.00	-0.97	0
Amarillo, TX	52.3	21.8	37.0	1.2	71	1/12	4	1/28	0.03	-0.60	5
El Paso, TX	61.5	32.6	47.0	2.0	73	1/30	19	1/7	0.00	-0.45	0
Dallas, TX	58.1	32.5	45.3	1.2	74	1/31+	15	1/6	0.33	-1.57	17
Houston, TX	62.5	39.7	51.1	-3.2	77	1/20	25	1/7	0.54	-3.71	13
Midland, TX	59.8	29.4	44.6	1.4	79	1/30	14	1/24+	0.00	-0.53	0
San Antonio, TX	4.4	37.8	51.1	0.8	82	1/20	22	1/7	0.23	-1.43	14

Summary of temperature and precipitation information from around the region for January 2014. Data provided by the Applied Climate Information System. On this chart, "depart" is the average's departure from the normal average, and "% norm" is the percentage of rainfall received compared with normal amounts of rainfall. Plus signs in the dates column denote that the extremes were reached on multiple days. Blueshaded boxes represent cooler than normal temperatures; redshaded boxes denote warmer than normal temperatures; tan shades represent drier than normal conditions; and green shades denote wetter than normal conditions.

What is Wind Chill?

Barry Keim, Louisiana State Climatologist, Louisiana State University

I think most of realize that on chilly days, we feel a whole lot colder when its windy. This is caused by the wind chill effect. Wind chill can be defined as the perceived decrease in air temperature felt by humans or animals due to airflow, and it is measured using the wind chill index. The basis for the index is that as cool (or cold) air flows across your body, it makes you colder by stripping away energy from around your body. It also cools you through evaporation of moisture and oils from your skin surface, and through conduction – direct contact of your skin with the colder air molecules.

The concept of a wind chill was first devised in 1940 by Paul A. Siple and Charles F. Passel. They were explorers in the Antarctic who came up the idea while braving the elements in the coldest and windiest continent. The idea formed while performing experiments on how fast a cup of water would freeze in Antarctica while the cup sat on the expedition hut roof. They did this while monitoring the starting temperature of the water, the outside temperature, and the wind speed. Through repeated experiments, they quickly realized that with the same initial water temperature and outside temperature, the cup of water would freeze more quickly as wind speeds increased. The scale that Siple and Passel derived was first used by the National Weather Service in the 1960s and 1970s and note that the original experiments never included humans and their perceptions. There have been revisions since that have included a human element, but the scale hasn't really changed dramatically since its inception.

There are attributes of the scale that are worth pointing out. First, the scale doesn't take effect until there is about a 4-5 mph wind (Figure 1). The average walking speed for most people is about 3 mph and the argument I've heard is that we at least need to exceed that before considering a wind chill effect. Also note that once winds get to about 40 mph, there is little additional cooling effect. In other words, a 40 mph wind will strip energy from your body at nearly the same level, as winds at 50 mph, 75 mph, or even 100 mph. I have actually been on the summit of Mt. Washington, New Hampshire in early spring when the temperature was near 0°F, with winds gusting to 100 mph. It was quite miserable, harsh, and scary in one sense, and quite amazing, exhilarating, and beautiful in another. When facing such conditions, it helps to be prepared, as any faulty moves could be your last. Please contact me with any questions or complaints at keim@lsu.edu.

Wind Chill Chart

Wind (mph) \ Temperature (°F)	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes, 10 minutes, 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

Figure 1. Wind chill chart from the National Weather Service found at http://www.nws.noaa.gov/om/windchill/images/windchillchart3.pdf.

Monthly Comic Relief

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For any questions pertaining to historical climate data across the states of Oklahoma, Texas, Arkansas, Louisiana, Mississippi, or Tennessee, please contact the Southern Regional Climate Center at 225-578-502. For questions or inquiries regarding research, experimental tool development, and engagement activities at the Southern Climate Impacts Planning Program, please contact us at 405-325-7809 or 225-578-8374.