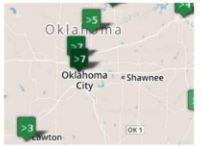
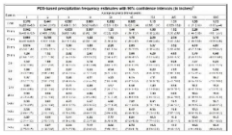
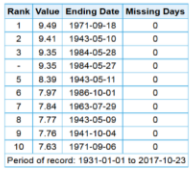
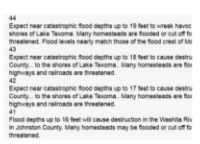
Simple Planning Tool

http://www.southernclimate.org/pages/data-tools

Heavy Rainfall and Flooding

Data Limitations: There is a relatively long historical record of precipitation data. However, a lack of spatial density of stations combined with highly variable precipitation across the state means that some rainfall events, including high rainfall amounts, may not be adequately represented in the data. Also, flood risk depends on a precipitation event, preceding events, the built environment and flood mitigation techniques. Flooding can and does occur outside of the Federal Emergency Management Agency (FEMA) Special Flood Hazard Areas. Flood impacts are extremely localized, so the data listed below may not adequately represent a single community or neighborhood flood risk or history.

Historical Climatology	**Climate Extremes Portal - Precipitation** (period of record varies by station) Southern Regional Climate Center	Interactive map shows precipitation extremes at airport weather stations, which can be used to show some previous heavy rainfall occurrences (i.e. the highest rainfall totals do not necessarily occur at airport weather stations). **1.** Pan and zoom to location of interest. **2.** To obtain *High precipitation records by month:* On left side of screen select *Records In A Month* → *High Precipitation* → *Month of interest* → *Go*. **3.** Measurement unit is inches. Mouse over icon for record details (date of occurrence and station record). **4.** To obtain *All-time records:* Select *All-Time Records* → *High Precipitation* → *Go*. Tool Link: http://extremes2.srcc.lsu.edu/	
	NOAA Atlas 14 Precipitation Frequency Data Server (Last updated in 2013) NOAA Hydrometeorological Design Studies Center	Interactive tool shows rainfall frequency estimates for select durations (e.g. 3-, 12- and 24 hours) and recurrence intervals (e.g. 100-, 500-, and 1000-years) with 90% confidence intervals. Probable maximum precipitation (PMP) values are not represented in this tool. Such values will be available through an additional tool in the near future. **1.** Click on *Oklahoma* from the map. A new screen will open. **2.** To select a location, either enter the desired location, station or address manually OR select a station from the interactive map. **3.** Precipitation frequency estimates will be displayed in both table and graph forms below. **4.** For additional help, select *FAQ* from the left-hand menu, then refer to the *Section 5* link under section 1.1. Tool Link: https://hdsc.nws.noaa.gov/hdsc/pfds/index.html	
	Multi-Day Extreme Precipitation on xmACIS2 (period of record varies by station) NOAA Regional Climate Centers	Interactive tool shows the highest multi-day (user chooses duration) rainfall totals for a station of interest in a table. It can be used determine the upper level thresholds of multiple day rainfall amounts that have occurred, and what one could expect to occur again. **1.** On left side of screen, select *Single-Station*, then *Extremes*. **2.** Next to *Variable*, select *Total Precipitation*. **3.** Enter length of period of interest (e.g. 2 Days for 2-day rainfall totals). **4.** Click on *Select station* tab. **5.** Search for area or choose from List (AMA, OUN, & TSA cover Oklahoma). **6.** Click *Go*. **7.** Table will be displayed on screen. Note the period of record (POR) on the bottom of the table. Choose a station with longer POR if possible. Tool Link: http://xmacis.rcc-acis.org/	
	Flood Impacts by River Crest Height National Weather Service Arkansas-Red Basin River Forecast Center	Interactive tool shows a summary of flood impacts for location of interest. It can be used to show the extent of flood events. **1.** On map, pan and zoom to area of interest. **2.** Double-click on stream gauge of interest (small circle) on the map. **3.** Click *River at a Glance* tab near top of page. **4.** Left column: Select gauge of interest. Right column: At a minimum, select *Flood Impacts*, *Location Map*, *Record Crest History*. **5.** Click *Make my River Page!* 6. Information you selected will be displayed on a new page. Tool Link: https://www.weather.gov/abrfc/	

SCIPP A NOAA RISA TEAM

National Drought Mitigation Center

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City Climate Templates

Project funded by National Academies' Gulf Research Program (GLISA)

Climate Change in New Orleans, LA

Being a coastal city that is mostly below sea level, New Orleans is vulnerable to several climate hazards, particularly tropical storms (most famously Hurricane Katrina in 2005) and sea level rise. New Orleans' many high flood risk buildings are protected by levees that surround the city, which are increasingly likely to fail as climate change continues to raise sea levels and contribute to increasingly powerful storms.

New Orleans, like the rest of South Louisiana, has experienced some of the largest temperature increases and rainfall decreases along the Gulf Coast in recent years. Key statistics about recent and future climate change in New Orleans are given below; *see the following pages for further details.*

TEMPERATURE

Since 1990...	By 2100...*
2.4 °F increase of average annual temperature	Projected average temperature changes by season
33 days above 95°F per year (average)	Winter 6 ± 2 °F
80 nights above 75°F per year (average)	Spring 6 ± 2 °F
	Summer 8 ± 1 °F
	Fall 9 ± 3 °F
	64+ extra days above 95°F per year

RAINFALL

Since 1990...	By 2100...*
-6.3 in decrease of average annual rainfall	Projected average rainfall changes by season
5 days of heavy rainfall (>2 in) per year (average)	Winter 1 ± 4 in
	Spring -1 ± 3 in
	Summer 1 ± 5 in
	Fall 1 ± 3 in
	1 ± 2 extra days of heavy rainfall per year

Source: SC-ACIS; NA-CORDEX

* Based on climate model projection ranges using higher emissions scenarios

Climate Change Along the Gulf Coast

The Gulf Coast has seen increased temperatures and decreased rainfall in heavier bursts in recent decades, likely due to human-driven climate change. The region's coastal wetlands and low-lying cities are especially vulnerable to the challenges presented by climate change, such as reduced freshwater supply, more active hurricane seasons, and increased tidal flooding from sea level rise. As global temperature increases continue, adapting to these challenges will be essential for the sustainability of communities along the Gulf Coast. Further details can be found in the *Climate of the Gulf Coast States* report, prepared by FloodWise Communities.

FLOOD WISE COMMUNITIES

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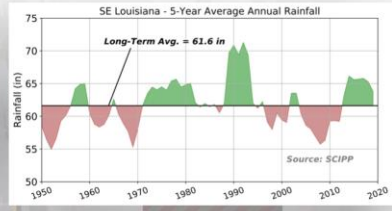
Rainfall in New Orleans

New Orleans experiences wet conditions year-round, with summer being the wettest season. Being on the coast, convective thunderstorms and hurricanes are not uncommon, with >2-inch rains happening around 5 days every year. Future rainfall trends are hard to predict, though a mid-century increase in rainfall followed by an end-century decline is expected.



New Orleans has experienced wetter and drier decades in the recent past, similar to the rest of Southeast Louisiana.

Historic and Projected Rainfall – New Orleans

Variable	Historic Average: 1991-2020	Historic Change: 1991-2020	Mid-Century Projections: 2041-2070*	End Century Projections: 2071-2100*
Annual Avg Rainfall	60.2 in	-6.3 in	64.1 ± 10.7 in	60.2 ± 10.3 in
Winter Avg Rainfall	13.0 in	-5.8 in	14.0 ± 2.7 in	14.0 ± 3.8 in
Spring Avg Rainfall	13.6 in	-2.3 in	14.5 ± 3.4 in	13.2 ± 3.4 in
Summer Avg Rainfall	21.6 in	3.2 in	23.8 ± 5.9 in	21.9 ± 5.4 in
Autumn Avg Rainfall	13.2 in	-2.1 in	14.3 ± 3.4 in	14.4 ± 2.5 in
Heavy Rains (>2-in) per year	5 days	-1 day	7 ± 2 days	6 ± 2 days

* Projections represent the range of highest and lowest projections from the NA-CORDEX climate models, driven by the RCP 8.5 emissions scenario.

Source: SC-ACIS; NA-CORDEX

Recent Severe Weather Events in New Orleans

Event	Date	Notes
New Orleans *Flash Flood*	August 2017	Around 6 inches of floodwaters; 4 inches of rain fell in 2 hours.
Hurricane Isaac	August 2012	Hundreds of thousands without power; almost $90 million in damages.
Hurricane Gustav	September 2008	First big hurricane after Katrina; mass evacuation.
Hurricane Katrina	August 2005	638 deaths in New Orleans; >$21 billion in damages; mass evacuations.
Hurricane Cindy	July 2005	Widespread power outages.

Source: SC-ACIS; NA-CORDEX

FLOOD WISE COMMUNITIES

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