

Climate – Drought and Excessive Rainfall

This metadata page provides a brief summary of this dataset. More detailed data and metadata may be available from the data sources listed, the Louisiana Department of Health (LDH) Environmental Public Health Tracking Program ('LDH Tracking') and the US Centers for Disease Control and Prevention (CDC) Tracking Program. Please refer to the contact information on the last page under 'Questions?'

Data Source(s)

- National Centers for Environmental Information. National Oceanic and Atmospheric Administration (NOAA) [Historical Palmer Drought Indices](#) | Palmer Drought Severity Index (PDSI)

Data Measure(s)

The Palmer Drought Severity Index (PDSI) uses temperature and precipitation data to estimate the relative dryness of a region. Its scale ranges from -10 (very dry) to +10 (very wet) with 0 being normal. A value for moderate drought is -2 while conditions of extreme drought start at -4. The PDSI is best used to quantify long-term drought that has affected a region for several months.

Table 1. PDSI Ranges

-4.00 and below	Extreme drought
-3.00 to -3.99	Severe drought
-2.00 to -2.99	Moderate drought
-1.99 to +1.99	Mid-range
+2.00 to +2.99	Moderately moist
+3.00 to +3.99	Very moist
+4.00 and above	Extremely moist

NOAA National Centers for Environmental Information
[Historical Palmer Drought Indices](#)

The LDH Health Data Explorer contains information on the following climate – drought and excessive rainfall measures: **Monthly Palmer Drought Severity Index by Louisiana climate division.**
data vintage: 2010 through 2023

Explore Data

The LDH Health Data Explorer (<http://ldh.la.gov/tracking>) is an online query tool which provides health, environmental hazard, exposure and population data to be explored and viewed side-by-side in tables, charts, and maps. These data can be downloaded, viewed and further analyzed.

To Explore Data on the query tool:

1. Select Criteria
2. Category: Environmental Quality
3. Topic: Climate

4. Focus: Drought and Rainfall
5. Indicator: PDSI (Palmer Drought Severity Index)

Figure 1. Louisiana Climate Divisions with Climate Station by city



Drought, Excessive Rainfall and your Health

Environmental health scientists are tracking climate indicators such as drought (water scarcity) and excessive rainfall (heavy rainfall, flash flooding, and flooding due to hurricanes) because the extent to which these external factors impact population health can be wide-ranging and severe. Effects can also be cumulative (adding one on top of another) resulting in cascading problems.

Extreme weather events must be considered while studying other environmental impacts on health. [Flooding can cause fatalities, injuries, and extensive infrastructural damage](#) (Federal Emergency Management Agency (FEMA), 2024). Extreme weather alters the economy, the population distribution of an area, and the distribution of medical treatment and medical conditions reported during an emergency medical response. Drought and excessive rainfall conditions may shape everything from agriculture/economy to the ability of a disease vector (any living agent that carries and transmits an infectious pathogen such as a parasite or microbe, to another living organism) to reproduce or survive. Because some mosquitoes species for example, lay their eggs in standing water, increased rainfall has the potential to leave behind stagnant water, and to become a breeding ground for mosquitoes. Some mosquito species carry diseases that infect humans. Meanwhile, drought conditions may impact our drinking water sources, for example, introducing water contamination. According to the US Geological Survey (USGS), drought may lead to elevated levels of naturally occurring arsenic in private domestic wells ([USGS, 2021](#)) impacting approximately 4 million people. Both conditions and extremes--excessive rainfall and drought--may introduce concerns to industries, homes and other infrastructure, such as a hospital, because our communities rely on these water resources.

Data Methods

The monthly PDSI by climate region was obtained from NOAA's National Climatic Data Center (NCDC). This data includes all parishes in Louisiana and is displayed according to the 9 climate regions in Louisiana assigned by NOAA (see also, Figure 1).

Table 2. Louisiana Climate Divisions and Weather Stations

Climate Division	Weather Station Name
NORTHWEST	Shreveport Regional Airport
NORTH CENTRAL	Monroe Regional Airport
NORTHEAST	Tallulah-Vicksburg Regional Airport
WEST CENTRAL	Fort Johnson, Natchitoches Regional Airport
CENTRAL	Alexandria International Airport
EAST CENTRAL	Baton Rouge Metropolitan Airport (Ryan Field)
SOUTHWEST	Lake Charles Municipal Airport
SOUTH CENTRAL	Lafayette Regional Airport
SOUTHEAST	New Orleans International Airport

Data Limitations and Important Considerations

Please refer to the NOAA National Climatic Data Center (NCDC) Monthly Palmer Drought Severity Overview: <https://www.ncei.noaa.gov/access/monitoring/historical-palmers/overview>.

Data Re-release

This is a Federal public dataset which can be freely shared.

Data Citations

Please cite the US CDC, LDH Environmental Public Health Tracking Program Cooperative Agreement NUE1EH001490, and any data source(s) listed on Page 1 when re-sharing or applying these data in analyses or publications.

Disclaimer

Data are intended to spur further research and should be used only as a starting point to understanding how the environment and other contributing factors may be connected to disease. Datasets presented on the LDH Health Data Explorer site are intended to answer some basic questions, but should ultimately lead to further inquiry and more detailed study.

Data limitations should be noted if conducting exploratory ecological studies with these data. Limitations may include data gaps, reporting discrepancies (for example, a disruption of reporting or instrument recording) and insufficient data on all potentially confounding factors. There are numerous additional factors which may contribute to disease onset. These include genetics, access to health care, existing health conditions, medicines, other chemical substances we come into contact with or ingest, nutrition, route and duration of exposure, level of activity, level of stress, and others.

Responsible use of this data requires exercising caution when drawing conclusions based solely on views of the limited available data. Any perceived relationship, trend, or pattern apparent in the data should not be interpreted to imply causation; may in fact be unrelated; and should be regarded as preliminary, and potentially erroneous, until more in-depth study and if applicable, statistical evaluation, can be applied.

The LDH Bureau of Health Informatics and Environmental Public Health Tracking Program cannot guarantee the completeness of the information contained in these datasets and expressly disclaim liability for errors and omissions in their content.

Additional Information

Please visit the following links for more information.

- [National Center for Atmospheric Research](#)
- [NOAA's Climate Prediction Center](#)

Questions?

- Email: healthdata@la.gov
- Website: <http://ldh.la.gov/tracking>
- Toll free Phone: 1-888-293-7020