TEXAS A&M UNIVERSITY
Office of the Texas State Climatologist

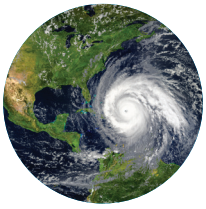
ASSESSMENT of HISTORIC and FUTURE TRENDS of

EXTREME WEATHER IN TEXAS, 1900-2036

EXECUTIVE SUMMARY

REPORT HIGHLIGHTS





This report analyzes historic observations of temperature, precipitation, and extreme weather in Texas and identifies ongoing and likely future trends out to the year 2036. These trends represent climatological expectations; the actual weather from year to year and decade to decade will be heavily influenced by natural variability which at this point is largely unpredictable.

HISTORIC TEMPERATURE TRENDS

- Rising temperatures since 1970s in Texas consistent with global trends

2036 EXPECTED AVERAGE TEMPERATURE

- About 3.0°F warmer than the 1950-1999 average
- About 1.8°F warmer than the 1991-2020 average

2036 EXPECTED NUMBER OF 100°F DAYS

- Nearly double the 2001-2020 average
- More 100°F days in urban areas

2036 EXPECTED EXTREME SUMMER HOT DAYS

- Surpassing historic values

2036 EXPECTED EXTREME WINTER COLD DAYS

- Odds decreasing but still a threat

HISTORIC PRECIPITATION TRENDS

- Precipitation amounts up 10% or more in eastern Texas over past century
- Little precipitation trend in western Texas

2036 EXPECTED PRECIPITATION

- Additional trend small compared to natural variability

2036 EXPECTED EXTREME PRECIPITATION

- Intensity 6%-10% larger than the 1950-1999 average
- Events 30%-50% more frequent than the 1950-1999 average

2036 EXPECTED DROUGHT

- Increasing temperatures, rainfall variability, and other factors will on balance decrease water availability but impact changes will vary strongly across applications

RIVER FLOODING

- No identified long-term observed trend
- Increased river flooding most likely in areas with normally high rainfall or for the most extreme events

URBAN FLOODING

- Expected increase similar to extreme precipitation

WINTER WEATHER

- Probably less snow and ice

SEVERE THUNDERSTORMS AND TORNADOES

- Historical trend data is unreliable
- Direction of future changes is largely unknown

COASTAL SUBSIDENCE AND SEA LEVEL RISE

- Barrier islands and coastal wetlands are generally retreating
- Continued relative sea level rise expected

STORM SURGES

- Increase in severity expected due to relative sea level rise
- An increase in intensity of the strongest hurricanes is also likely overall, but local trends will be very erratic

WILDFIRE

- Wildfire is affected by many factors
- By themselves, changes in weather and climate would increase fire risk
- Changes in local risk involve climate change impacts on amount of dry vegetation

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Full report at https://climatexas.tamu.edu/files/ClimateReport-1900to2036-2021Update