

Southern Great Plains

Regional Climate Impacts

Kansas, Oklahoma, Texas

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ENVIRONMENTAL
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Fast Facts Series

Climate extremes cost dollars and lives



The number of **extremely hot** days in the Southern Great Plains is projected to increase due to climate change.



Across the Southern Great Plains, the increasing frequency and severity of **drought** is leading to reduced crop and livestock production.



Western Gulf Coast **sea levels** are projected to rise 19–27 inches by 2050 due to climate change.



With a projected 3.3 feet of sea-level rise along the Texas Gulf Coast by 2100, a Category 2 **hurricane** is estimated to be \$10.4 billion more costly in that year than a similar storm today.

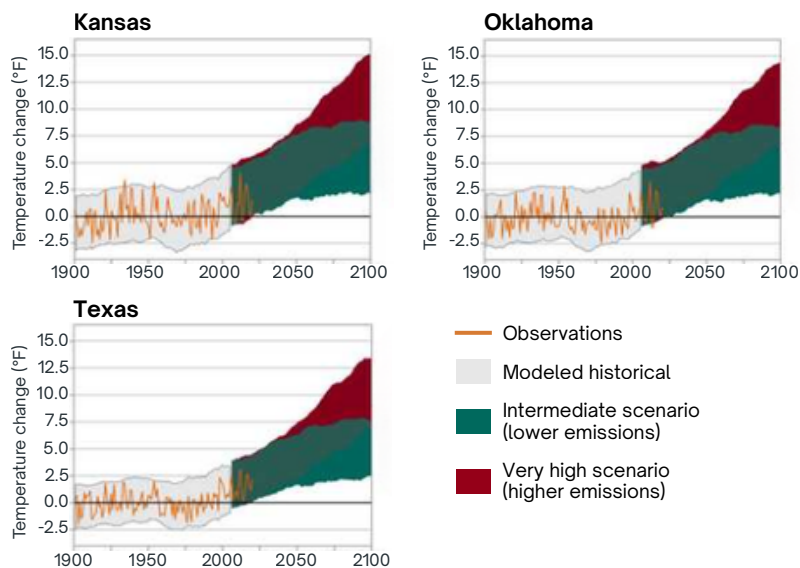


Between 2018 and 2022, 52 individual billion-dollar **weather and climate-related disasters** affected all or part of the region.

Unsafe heat exposure is leading to litigation

As climate change continues to contribute to rising temperatures in the Southern Great Plains, the number of heat-related illnesses and deaths is expected to increase. These health impacts will likely be cited more frequently in court cases.

Historical and Projected Changes in Air Temperature (1900–2100)



Air temperatures for Kansas, Oklahoma, and Texas are projected to be historically unprecedented by the end of the century. These graphs show observed and projected changes in near-surface air temperature. Figure adapted from the Fifth U.S. National Climate Assessment.

CASE SPOTLIGHT: EXTREME HEAT

Tiede v. Collier (W.D. Tex. 2025)

Summary: Prisoners challenged the Texas Department of Criminal Justice's (TDCJ) policy for **mitigating extreme heat conditions** in Texas prisons as unconstitutional and requested that the court require TDCJ to maintain “a safe indoor temperature between 65°–85°F” to protect their health and prevent cruel and unusual suffering. The court found that the **extreme heat conditions likely violated the Eighth Amendment**, but declined entering a preliminary injunction mandating temporary air conditioning, noting it would divert resources from a more permanent solution.

Science: Relying on a declaration from a climatologist and noting that Texas provided no evidence to the contrary, the court found that **hotter temperatures and more frequent heat waves** “are among the most certain predictions for future climate trends” and that “[t]he heat will only get worse with climate change.”



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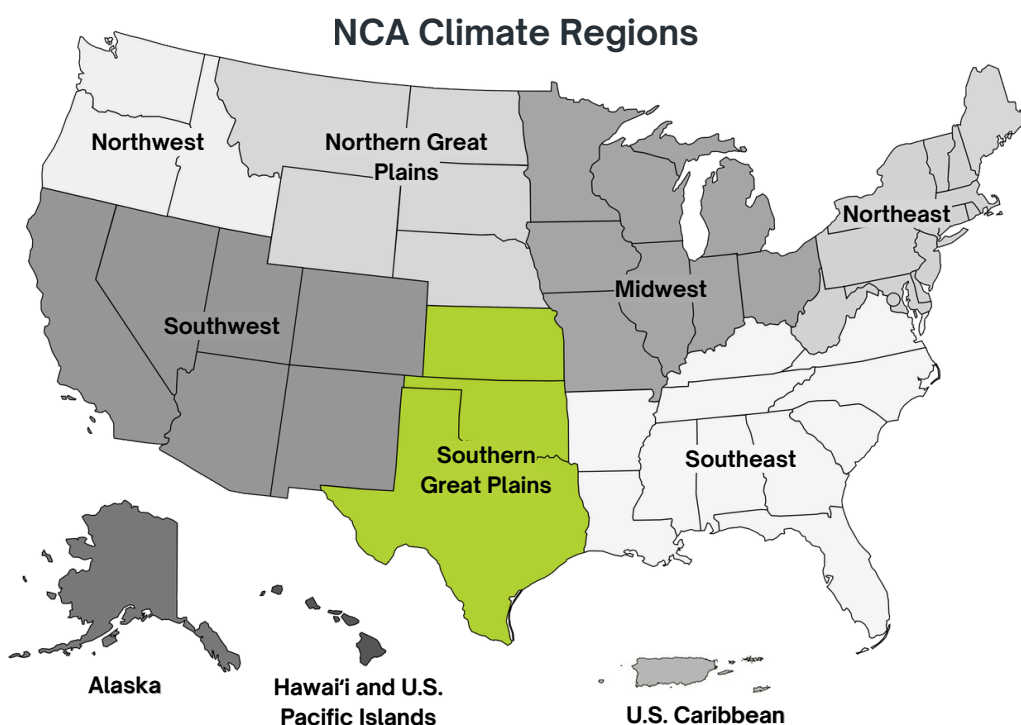
Providing judges with authoritative, objective, and trusted education on climate science and the law.

Climate change impacts all regions of the United States

The Fifth National Climate Assessment (NCA5) of 2023 divides the United States into ten regions to assess the current and future risks posed by climate change in each region. View fact sheets for other regions at cjp.eli.org and learn more about climate impacts at nca5.climate.us/regions.

Primary impacts from climate change vary regionally, typically affecting:

- Heat
- Sea-level rise and flooding
- Precipitation patterns
- Hurricanes and tropical storms
- Wildfires
- Air quality
- Sea ice and glacier melt



SO Why should judges care?

The effects of climate change are reshaping society and, with it, many aspects of the law. There are thousands of cases in courts throughout the country raising issues related to climate change that cover an extremely wide variety of topics, including, for example, insurance, permitting, and land use. As the impacts of climate change accelerate, judges can expect more cases that will draw upon scientific and technical evidence about these impacts.

SOURCES

Renee A. McPherson et al., *Chapter 26: Southern Great Plains* in Fifth National Climate Assessment (2023), <https://nca5.climate.us/>.

Tiede v. Collier, 796 F.Supp.3d 275 (W.D. Tex. 2025).

