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Cotsakis

Projected Temperature and Precipitation Changes in Central and East Texas over the Next 50 Years

Presenter: Katharyn Cotsakis

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Abstract: Considerable variability in temperature and precipitation has profound implications for future climate in the humid subtropical region of the United States. This study focuses on the North Texas area (30°N 95°W to 34°N 99°W) and uses the Downscaled Climate Projections (NEX-DCP30) historical dataset in combination with four Representative Concentration Pathways (RCP) developed by the IPCC (RCPs 2.6, 4.5, 6, and 8.5) to perform a trend analysis of future temperatures and precipitation amounts through 2050. Results indicate maximum temperature increases of 1.2°C, 2.0°C, 1.5°C, and 1.85°C using the RCP 2.6, 4.5, 6, and 8.5 scenarios, respectively. Variability in minimum temperatures was less common and only RCP 8.5 showed a difference exceeding 1°C. Both RCP 2.6 and 4.5 demonstrated the greatest precipitation flux and all scenarios showed the highest precipitation amounts when annual temperatures were cooler. This study assessed the possible meteorological results of climate change on the North Texas area and the resulting impacts this could have on the local populace.