

PRESENTED BY UNIVERSITY OF HOUSTON

# ***TAMEST*** NATURAL HAZARDS SUMMIT

*Responding  
to and  
Mitigating  
the Impacts*

PART I: VIRTUAL SUMMIT

10.19.2021

#NATURALHAZARDSSUMMIT

# *Theme Three:*

## LONG-TERM OUTLOOK, RISK AND MITIGATION FOR CLIMATE CHANGE

Moderated by:

DANNY REIBLE, PH.D., P.E. (NAE)

Professor of Chemical Engineering, Professor of Civil, Environmental,  
and Construction Engineering

Texas Tech University



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# Panel:

## *Building Resilience to Mitigate Natural Hazards: Science and Policy*



LOUISE K.  
COMFORT, PH.D.

**Professor**  
*University of Pittsburgh*



KATHARINE  
HAYHOE, PH.D.

**Chief Scientist**  
*The Nature Conservancy*



JOHN WILLIAM  
NIELSEN-  
GAMMON, PH.D.

**Director of the Southern  
Regional Climate Center**  
*Texas A&M University*



## So Now What? - *John Nielsen-Gammon*



TEXAS A&M UNIVERSITY  
Office of the Texas State  
Climatologist

# ASSESSMENT of HISTORIC and FUTURE TRENDS of **EXTREME WEATHER** IN TEXAS, 1900-2036



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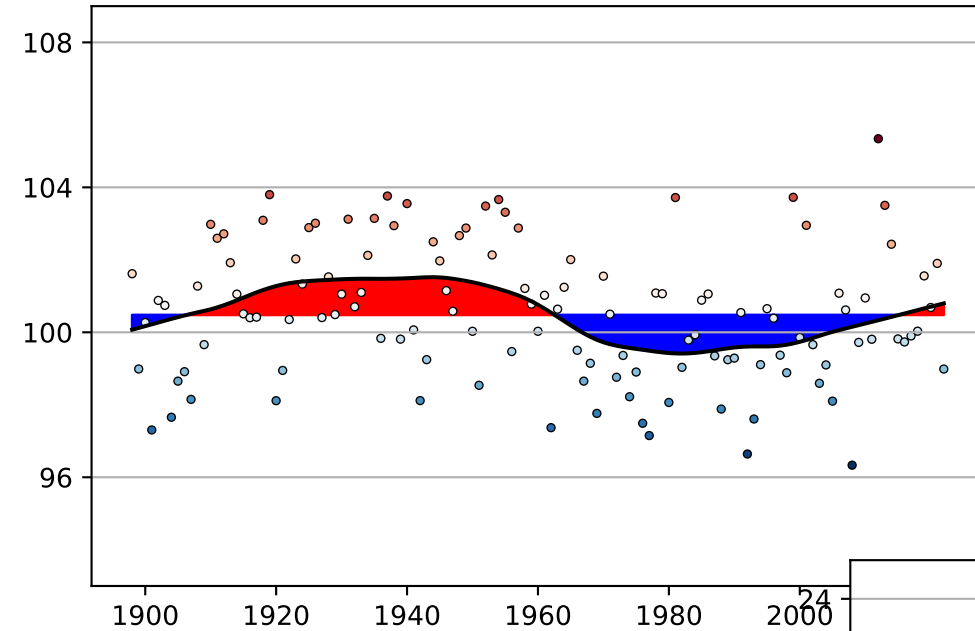
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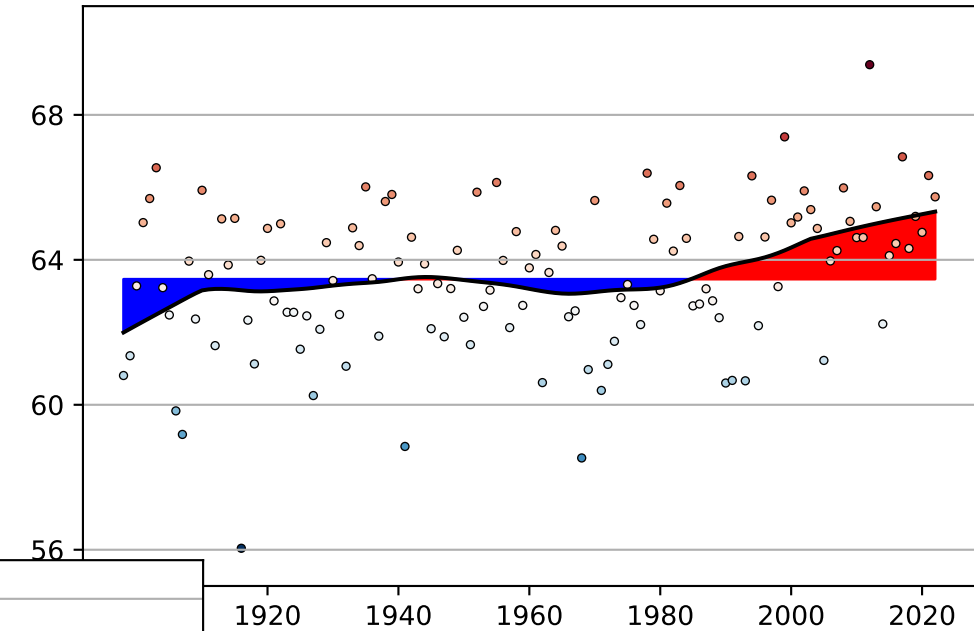
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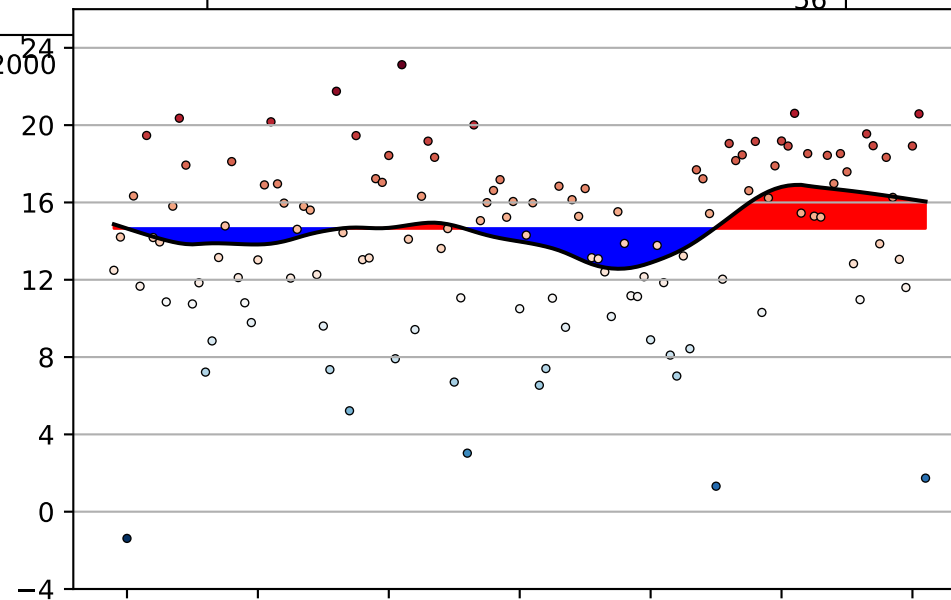
Average Hottest Monthly Temperature, Jun-Sep



Average Coolest Monthly Temperature, Jul-Aug



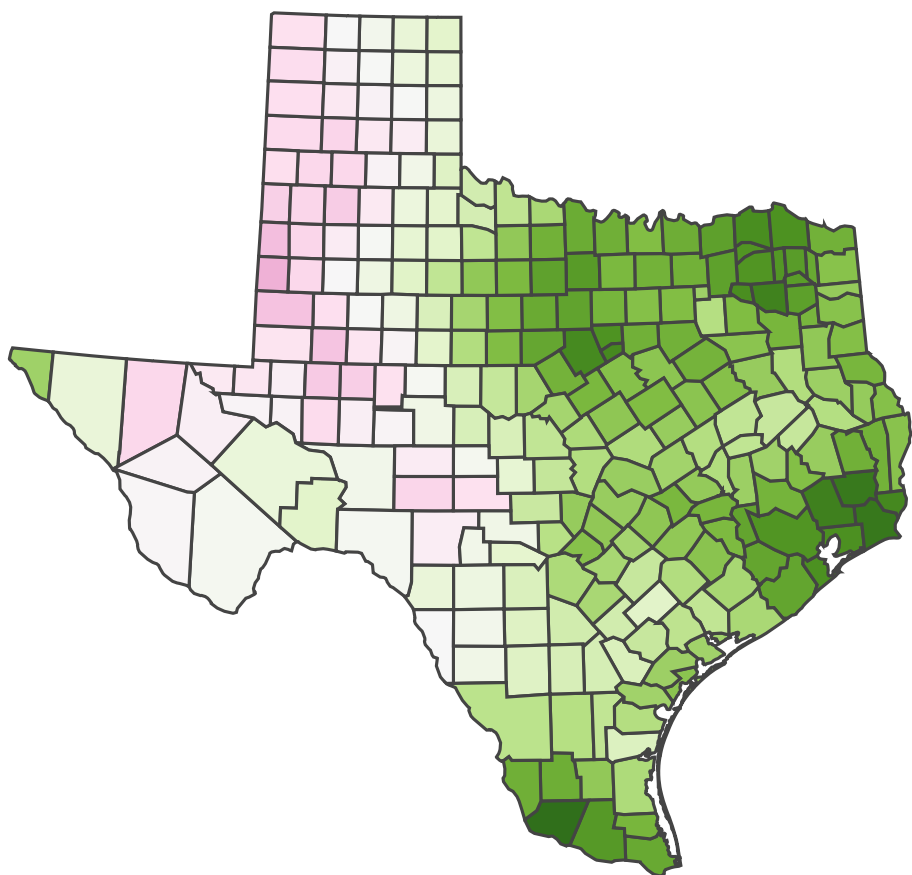
Coldest Temperature



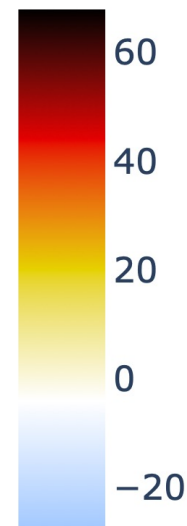
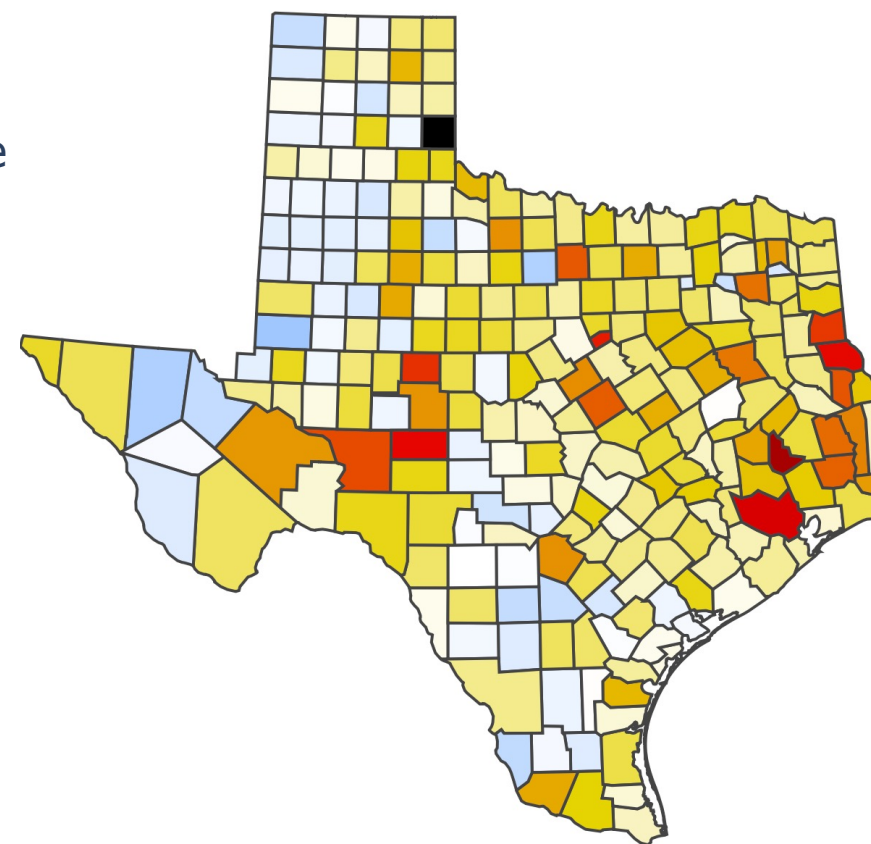
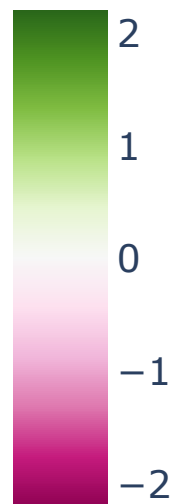


## Percent Intensity Change 1960-2020 of Expected Extreme Single-Day Rainfall

### Overall Precipitation Trend, 1895-2020



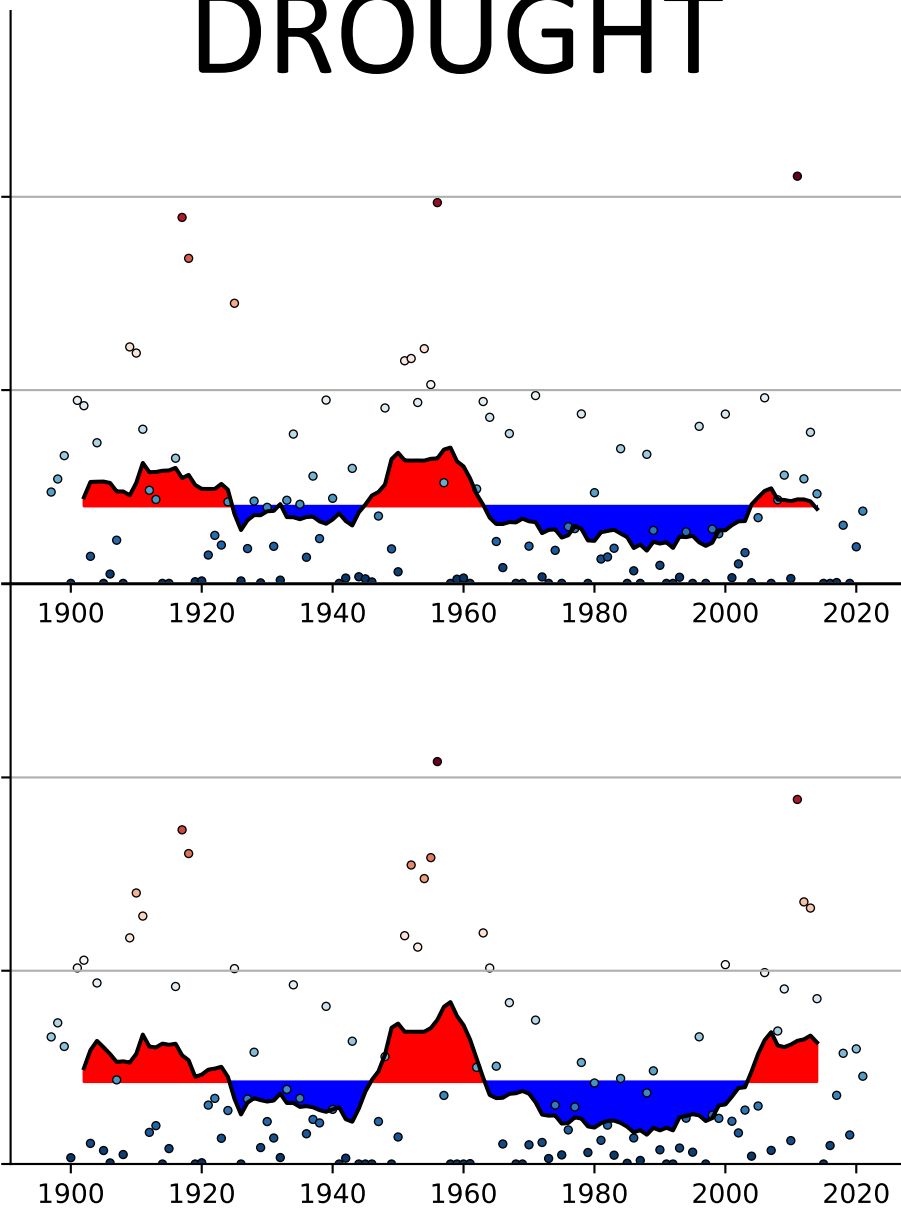
%/decade







## DROUGHT



- **On the drying side...**
  - Decreases in annual precipitation
  - Increases in temperature
  - Increases in rainfall extremes, month to month
  - Changes in biomass (short term)
- **On the wetting side...**
  - Increases in annual precipitation
  - Changes in biosphere water use efficiency
  - Changes in biomass (long term)
- **Switching sides...**
  - Changes in rainfall extremes, single storms
  - Changes in soil moisture
  - Changes in rainfall seasonality



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**IN TEXAS, 1900-2036**

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