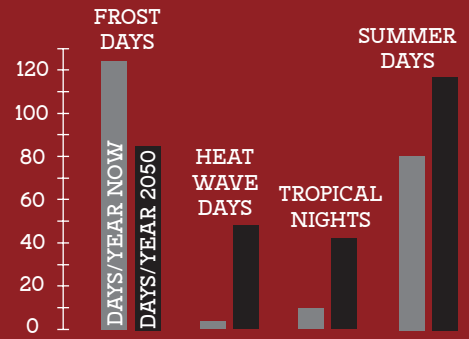
RISING TEMPERATURES & PRECIPITATION IN CONNECTICUT

Information from the Governor's Council on Climate Change

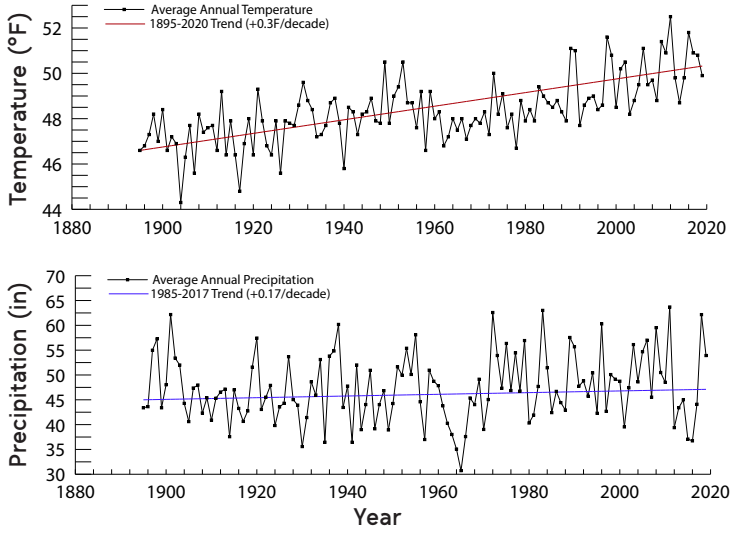
1. By 2050, average temperatures are expected to increase about 5°F, with increases thereafter dependent on emissions choices now.
2. Average precipitation is expected to increase about 8% (4 inches/year).
3. Indices of hot weather, summer drought, and extreme precipitation, are expected to increase.

Indices are tools used to track trends and projections in local climate. Extreme Indices help quantify impacts of a warming climate on weather measurements. Many of these common indices have been increasing due to climate change.

Annual counts of certain indices (defined below) in CT are to the right. Gray bars indicate today's and black 2050 values.



TEMPERATURE & PRECIPITATION RECORD FOR CT SINCE 1895



Current Trends:

Since 1895, Connecticut's annual average temperature has been increasing by 0.3°F per decade, or 3°F warmer in 2020. Seasonal averages have also been increasing, with winter experiencing the greatest increase. Observations show more warming along the southern coast and eastern half of the state.

Precipitation across Connecticut has been increasing by 0.17 inches per decade since 1985, with the largest increases in fall.

Predictions:

According to high CO_2 emission scenarios (RCP 8.5) for the future, average temperatures in Connecticut are predicted to rise 5°F (± 1°F) by 2050 and continue rising thereafter. The largest temperature increase is expected in summer and fall.

In the same scenario, average annual precipitation is expected to increase about 8% (4 inches per year), with much occurring in winter and spring. In a warmer Connecticut, precipitation will increase because of evaporation and the water cycle.

Present & Future Extreme Indices:

Heat/Cold Indices:

- Frost Days (annual number of days when the daily minimum is below 32°F) to drop from 124 to 85.
- Heat Wave Days (6 or more consecutive days with daily maximum temperature above the 90th percentile.) to rise from 4 to 48.
- Tropical Nights (annual number of days when the daily minimum is above 68°F) to rise from 10 to 40.
- Summer Days (annual number of days when the daily maximum temperature is above 77°F) to rise from 81 to 118.
- Number of Days above 90°F (annual number of days with maximum temperatures above the threshold value) to rise from 5 to 25.

Wet/Dry Indices:

- Number of days with more than 1 inch of precipitation to rise from 12 to 14.
- Number of heavy precipitation days to rise from 3 to 5.
- Fraction of heavy precipitation to rise from 15% to 20%.
- Maximum 1-day precipitation to rise (27%) from 2.8 to 3.5 inches.
- Maximum 5-day precipitation to rise (20%) from 4.5 to 5.4 inches.

More detailed information is in the ***Connecticut Physical Climate Science Assessment Report*** which is available here: https://circa.uconn.edu/ct-climate-science

resilientconnecticut.uconn.edu