Climate at a Glance: Tornadoes

Bullet-Point Summary:

- The **number of tornadoes** has been **declining for the past 45 years**.
- The number of **strong tornadoes**, F3 or higher, has been ***dramatically*** **declining for the past 45 years**.
- In **2017-2018**, the U.S. set a record for the **longest period in history without a tornado death**.
- In **2017-2018**, the U.S. set a record for the **longest period in history without an F3 or stronger tornado**.
- **The two record-low years** for number of tornadoes both occurred this past decade – **2014 and 2018**.
- The **United Nations** itself **admits**, "There is **low confidence in observed trends** in small spatial-scale phenomena such as tornadoes."

Short Summary: Tornadoes typically form when very cold, dry air clashes with very warm, humid air. Global warming warms the Arctic more than the tropics and subtropics, resulting in less of a clash between cold Arctic air masses and warm Gulf of Mexico air masses. As a result, fewer and less violent tornadoes are occurring.

Yes, tornadoes will continue to occur, just as they did before global warming. But global warming is making tornadoes less frequent and severe. Figure 1, below, shows the decline in overall tornado activity in recent decades.

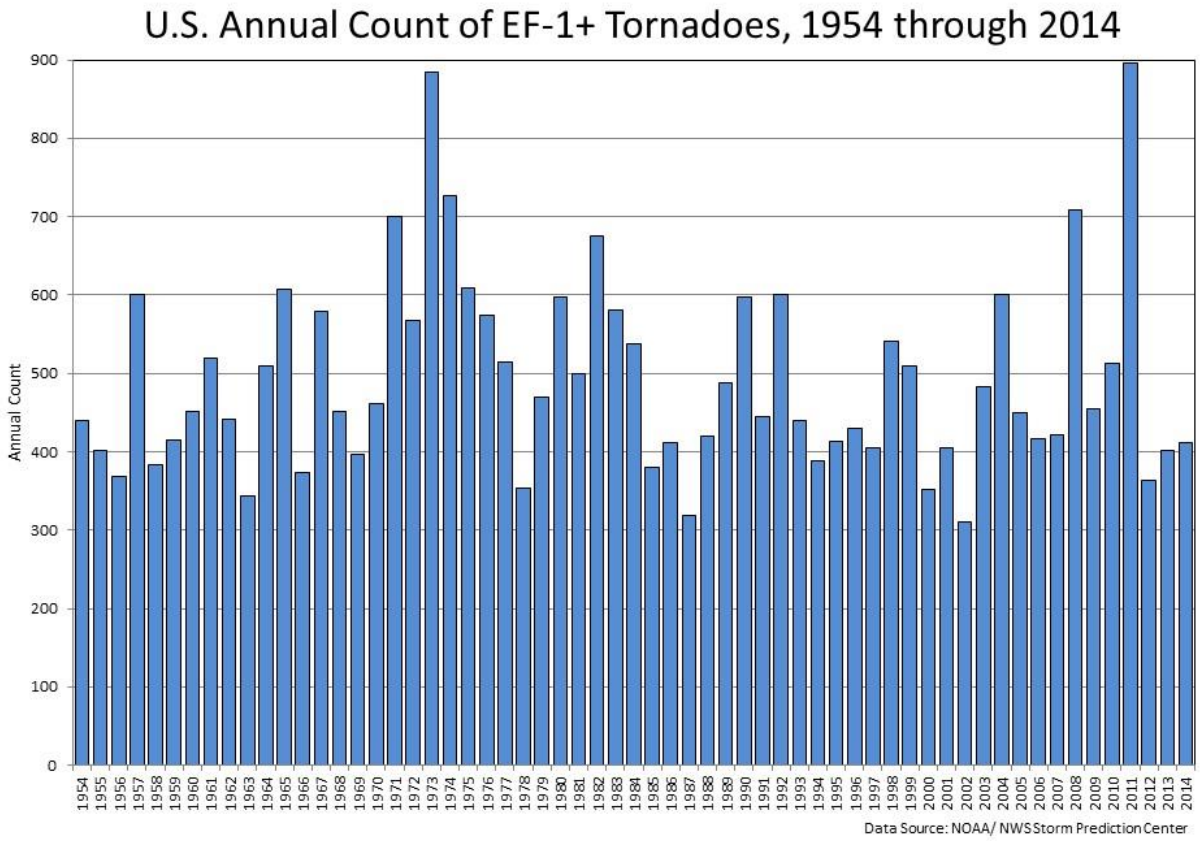

Figure 1: Tornado frequency has been declining since the early 1970s. Source: National Oceanic and Atmospheric Administration, U.S. Tornado Climatology, Historical Records and Trends, https://www.ncdc.noaa.gov/climate-information/extreme-events/us-tornado-climatology/trends.

Figure 2, below, shows the decline in strong, F3 or higher tornadoes in recent decades. Both charts are provided by the National Oceanic and Atmospheric Administration.

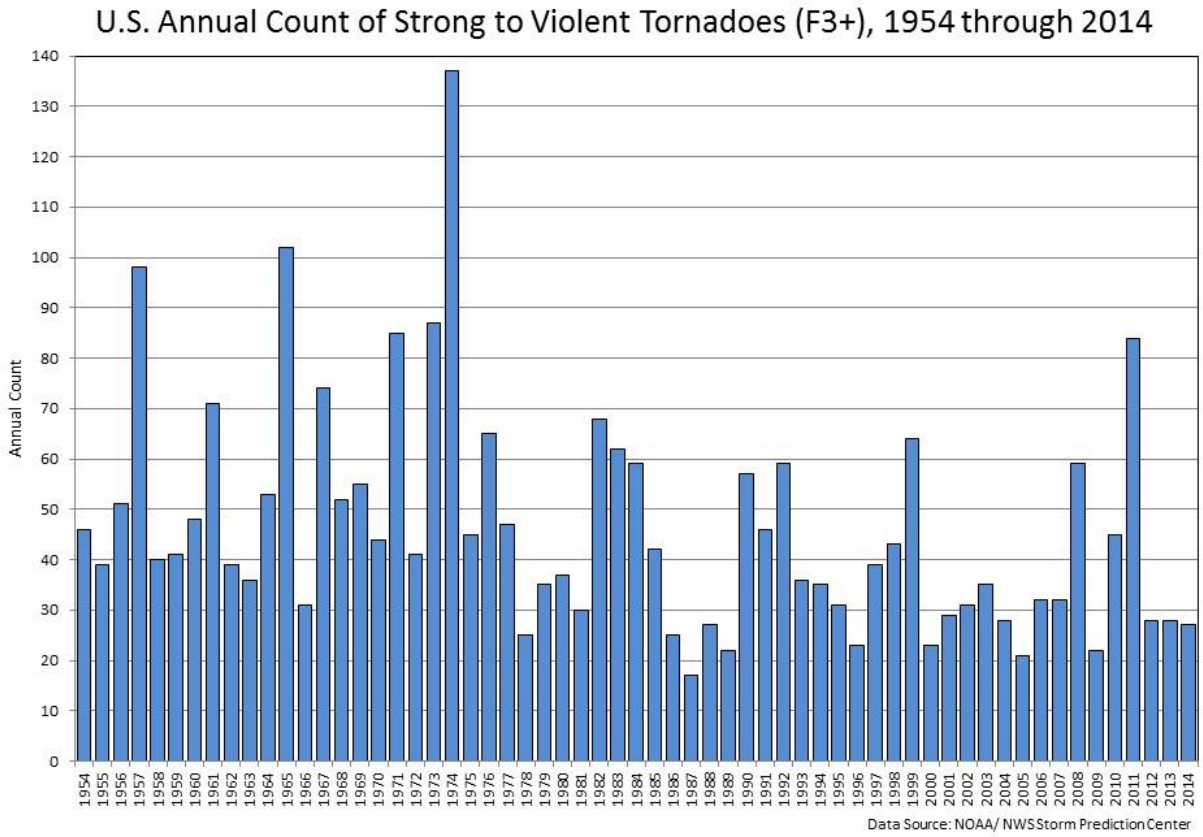

Figure 2: The frequency of strong tornadoes, registering F3 or stronger, has been declining since the early 1970s. Source: National Oceanic and Atmospheric Administration, U.S. Tornado Climatology, Historical Records and Trends, https://www.ncdc.noaa.gov/climate-information/extreme-events/us-tornado-climatology/trends.
