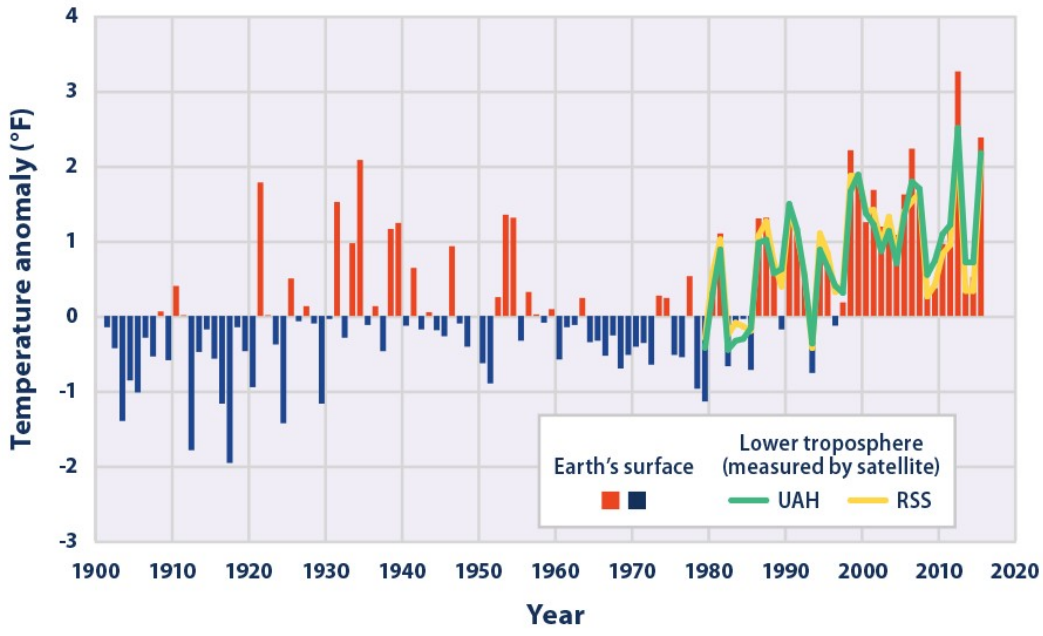
Climate Change Indicators: U.S. and Global Temperature

This indicator describes trends in average surface temperature for the United States and the world.

Figure 1. Temperatures in the Contiguous 48 States, 1901–2015



This figure shows how annual average temperatures in the contiguous 48 states have changed since 1901. Surface data come from land-based weather stations. Satellite measurements cover the lower troposphere, which is the lowest level of the Earth's

atmosphere. “UAH” and “RSS” represent two different methods of analyzing the original satellite measurements. This graph uses the 1901–2000 average as a baseline for depicting change. Choosing a different baseline period would not change the shape of the data over time.

Data source: NOAA, 2016[1]
Web update: August 2016

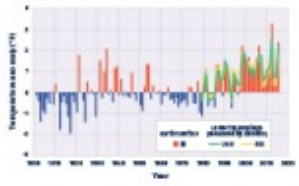


Figure 1. Temperatures in the Contiguous 48 States, 1901–2015

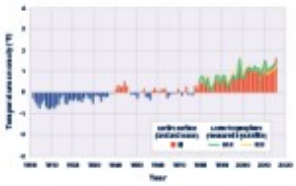


Figure 2. Temperatures Worldwide, 1901–2015

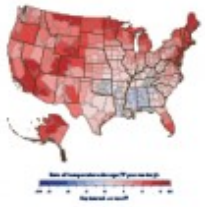


Figure 3. Rate of Temperature Change in the United States, 1901–2015

Key Points

Background

About the Indicator

Indicator Notes

Data Sources

Technical
Documentation

Key Points

- Since 1901, the average surface temperature across the contiguous 48 states has risen at an average rate of 0.14°F per decade (see Figure 1). Average temperatures have risen more quickly since the late 1970s (0.29 to 0.46°F per decade since 1979). Eight of the top 10 warmest years on record for the contiguous 48 states have occurred since 1998, and 2012 and 2015 were the two warmest years on record.
- Worldwide, 2015 was the warmest year on record and 2006–2015 was the warmest decade on record since thermometer-based observations began. Global average surface temperature has risen at an average rate of 0.15°F per decade since 1901 (see Figure 2), similar to the rate of warming within the contiguous 48 states. Since the late 1970s, however, the United States has warmed faster than the global rate.
- Some parts of the United States have experienced more warming than others (see Figure 3). The North, the West, and Alaska have seen temperatures increase the most, while some parts of the Southeast have experienced little change. Not all of these regional trends are statistically significant, however.

References

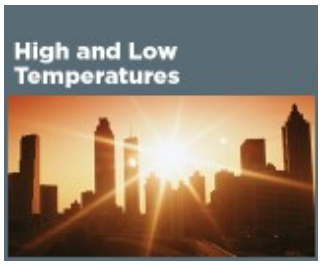
[1] NOAA (National Oceanic and Atmospheric Administration). 2016. National Centers for Environmental Information. Accessed February 2016. www.ncei.noaa.gov.

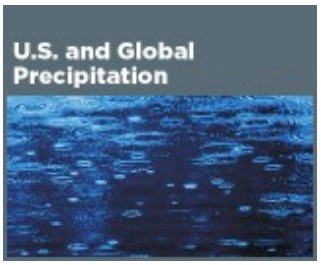
[2] NOAA (National Oceanic and Atmospheric Administration). 2016. National Centers for Environmental Information. Accessed February 2016. www.ncei.noaa.gov.

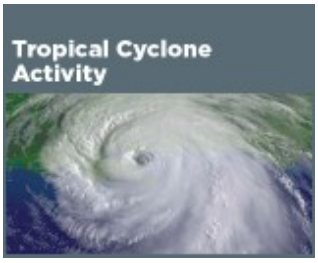
[3] NOAA (National Oceanic and Atmospheric Administration). 2016. National Centers for Environmental Information. Accessed February 2016. www.ncei.noaa.gov.

Printer-friendly PDF of all text and figures

Learn about other indicators in this section







LAST UPDATED ON DECEMBER 17, 2016