

Extreme heat events

Since 1950, extremely hot days and nights have increased. Nighttime heat waves have markedly increased since the mid-1970s.

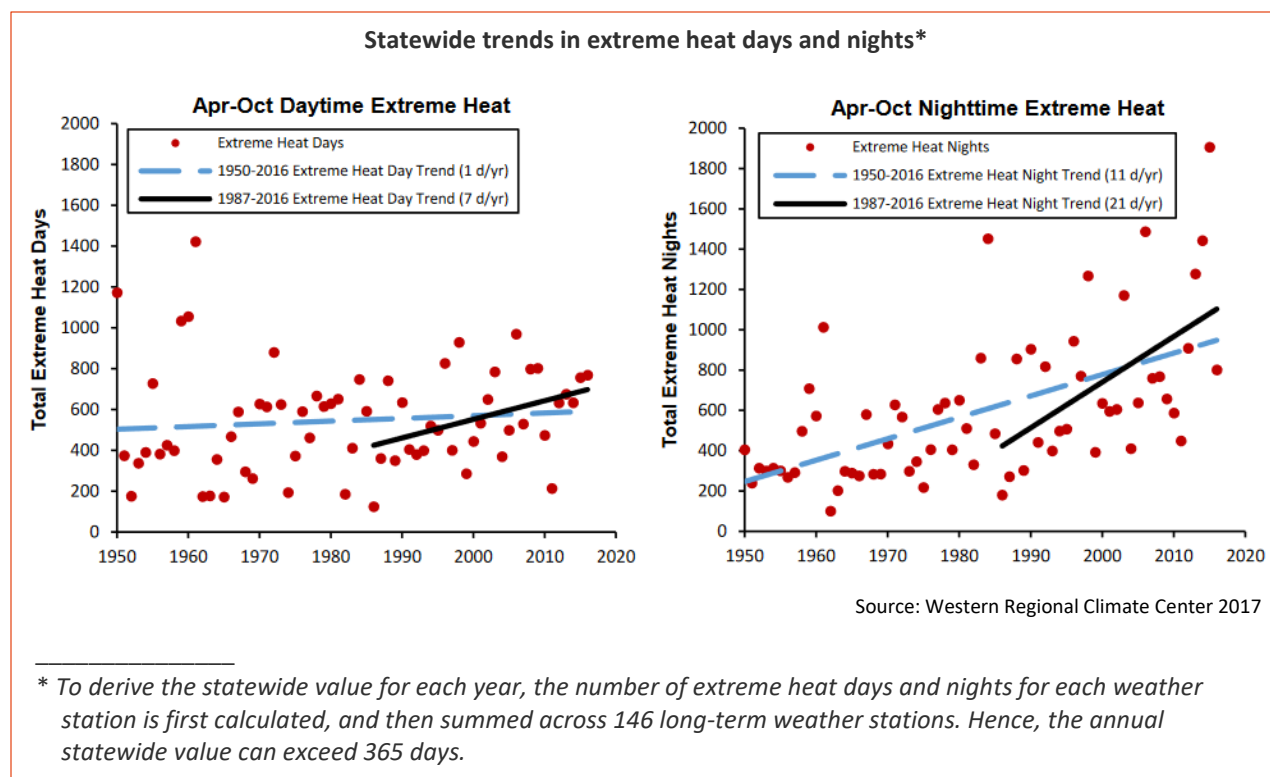


California's warm months have become increasingly hotter over the past several decades. The number of extreme heat events — the hottest days and nights — has increased, especially in the last 30 years. Nights have warmed more than days. On extreme heat days, temperatures are at or above the highest two percent of historical daily highs, while on extreme heat nights, they are at or above the highest two percent of historical daily lows.

Heat causes the most weather-related deaths in the United States. In addition to increasing the risk of heat-related illnesses and deaths, periods of extremely high temperatures worsen air quality, stress vegetation, threaten livestock health, increase agricultural and urban water demand, and strain the electric power supply.

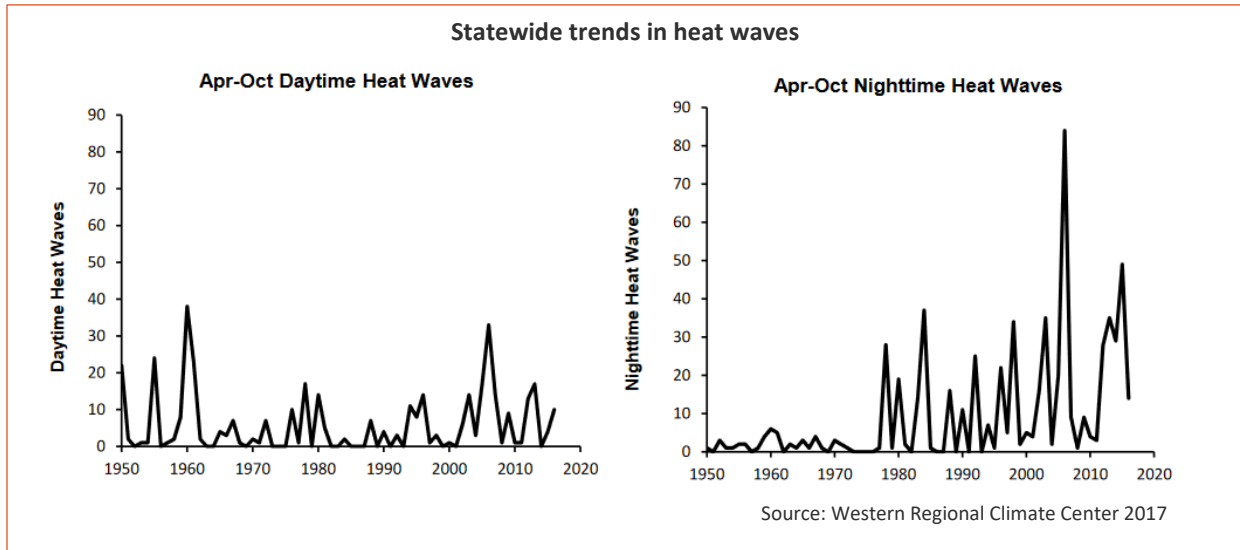
What does the indicator show?

Since 1950, total extreme heat days between April and October at the various weather stations statewide have increased at a rate of about one extreme heat day per year (left graph, below). More notably, extreme heat nights have increased faster, at a rate of 11 extreme heat nights per year (right graph, below). Scientists have shown that nighttime temperatures are inherently more sensitive to the heat-trapping effects of greenhouse gases, which could be amplified by other factors such as increased humidity and cloud cover. Both extreme heat days and nights increased at a faster rate over the last 30 years than the long-term trend, at a rate of 7 and 21 days and nights per year, respectively.





Five or more consecutive extreme heat days or nights make up a “heat wave.” As shown on the graphs below, heat waves have been highly variable since 1950. Nighttime heat waves, infrequent until the mid-1970s, have become more common over the past 40 years. Heat waves are especially harmful to health because prolonged exposures to heat overwhelm the body’s ability to recover.



Why is this indicator important?

The effects of extreme heat on human health are well known. Following a record-breaking heat wave in 2006, over 16,000 emergency room visits, more than 1,100 hospitalizations, and at least 140 deaths were reported. As heat events are projected to become more frequent and last longer, preparing for the public health challenges they pose is critical.

The risk of heat-related illnesses and deaths is influenced by the characteristics of the extreme heat event. When temperatures do not cool down at night, or when humidity is high, the body’s ability to cool down is hampered. Animals and plants adapted to California’s pattern of daytime heat and nighttime cooling are also more severely affected.

Many other impacts arise from extreme heat events. Increased demand for air conditioning can strain the power supply. Blackouts and power outages may result. Water demand also increases. Agricultural impacts include crop loss, reduced milk and egg production, and livestock illnesses and deaths. Wildfire risk increases as vegetation dries out. Damage to roadways, bridges and other transportation infrastructure may also occur.



For more information about this and other climate change indicators, visit:

<https://oehha.ca.gov/climate-change/report/2018-report-indicators-climate-change-california>

