Claim: Heat Waves are increasing at an alarming rate and heat kills

REBUTTAL

There has been no detectable long-term increase in heat waves in the United States or elsewhere in the world. Most all-time record highs here in the U.S. happened many years ago, long before mankind was using much fossil fuel. Thirty-eight states set their all-time record highs before 1960 (23 in the 1930s!).

![Number of State Record High & Low Temperatures by Decade](image1.png)

Source: NOAA NCDC (graph from John Christy)

Here in the United States, the number of 100F, 95F and 90F days per year has been steadily declining since the 1930s. The Environmental Protection Agency Heat Wave Index confirms the 1930s as the hottest decade.

![Heat Wave Index](image2.png)

Source: EPA Heat Wave Index (Kunkel 2016)
James Hansen while at NASA in 1999 said about the U.S. temperature record “In the U.S. the warmest decade was the 1930s and the warmest year was 1934”.

When NASA was challenged on the declining heat records in the U.S, the reply was that the U.S. is just 2% of the world. However all 8 continents recorded their all-time record highs before 1980.

Interestingly while the media gives a great deal of coverage to even minor heat waves to support the case that man-made global warming is occurring, the media tends to ignore deadly cold waves. But in actual fact worldwide cold kills 20 times as many people as heat. This is documented in the “Excess Winter Mortality” which shows that the number of deaths in the 4 coldest winter months is much higher than the other 8 months of the year. The USA death rate in January and February is more than 1000 deaths per day greater than in it is July and August.

Clearly, there is no evidence for increased heat waves.

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John Christy in written Senate Committee testimony:
“Much of the alarm related to increasing greenhouse gas concentrations shifted in the past decade from global temperature changes to changes in extreme events, i.e. those events which typically have a negative impact on the economy. In terms of heat waves, below is the number of 100 °F days observed in the U.S. from a controlled set of weather stations. It is not only clear that hot days have not increased, but it is interesting that in the most recent years there has been a relative dearth of them.”
Above: Number of Record Daily High Temperatures per year for 804 USHCN stations with >100 years of data (NOAA/NCEI, prepared by JR Christy).

Above: Average number of days per year with temperatures >100F and >105F in 682 USHCN stations with >105 years of record (1895-2018) (NOAA/NCEI, prepared by JR Christy).
The alarmists in National Climate Assessment finessed the issue by creating a ratio of record highs to record lows. Both have been declining since the 1930s but record lows are declining faster thanks to urban heat island nighttime temperature contamination. Colors were appropriately chosen to give the illusion heat records are rising rapidly although as we have shown they are declining.

National Climate Assessment

Most of the warming in daytime average readings is with nighttime lows and related to urbanization. Importantly, adjustments to the data have cooled the past, producing a trend where only cycles appear and have increased the chance that months and years will routinely rank among the warmest in the 'record' even if high temperature changes are minimal.
Globally, all 8 continents have all-time record highs before 1980 (WMO 2017).

**Continental All-time Record Highs**

- 134°F, 1913
- 120°F, 1905
- 118.5°F, 1977
- 131°F, 1931
- 129.2°F, 1942
- 108°F, 1912
- 123°F, 1960
- 59°F, 1974

Source: WMO
Dr. Keen did the same all time record count of highs lows for the 7 continents by decade, again showing multidecadal cycles but no upward trend.

![Number of all-time Temperature Extremes for each Decade for the seven continents](image)

Here compiled is a list of 81 graphs from 62 papers published in 2018 showing there has been no unprecedented warming in recent decades.

**COLD KILLS 20 TIMES MORE THAN HEAT**

The danger associated with this misdirection is that cold weather kills 20 times as many people as hot weather, according to an international study analyzing over 74 million deaths in 384 locations across 13 countries. The findings were published in The Lancet. “It’s often assumed that extreme weather causes the majority of deaths, with most previous research focusing on the effects of extreme heat waves,” says lead author Dr. Antonio Gasparrini from the London School of Hygiene & Tropical Medicine in the UK.

![Attributable fraction (%) of deaths due to extreme and moderate heat and cold](image)

Source: Gasparrini et al Lancet 2015
The USA death rate in January and February is more than 1000 deaths per day greater than in July and August. Indur M. Goklany wrote in 2009: “Data from the US National Center for Health Statistics for 2001-2008, shows that on average 7,200 Americans died each day during the months of December, January, February and March, compared to the average 6,400 who died daily during the rest of the year. In 2008, there were 108,500 ‘excess’ deaths during the 122 days in the cold months (December to March).

![Chart showing average U.S. deaths/day 2001-2008 (in thousands) by month](chart)

Source: National Center for Health Statistics

On the basis of all available UK Office of National Statistics data, between 1950-51 and 2011-12, there have been around 2,663,390 excess winter deaths in the UK. The majority of deaths occur with older people – specifically those aged 75 and above.

**THE NATURAL AND MAN INFLUENCED CHANGES ARE IN THE ‘NOISE’**

The claimed changes in global temperatures is miniscule relative to the normal daily temperature change, the normal seasonal range and the range between all time highs and lows.
Warming and cooling cycles, which have been observed over different time scales produce changes that are in the ‘noise’ with regards to changes we observe on a daily or annual basis. Historically warmer periods have been what were called ‘climate optima’ as they supported better crops and living conditions. As we have shown there is no trend in heat and it is cold that kills.

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