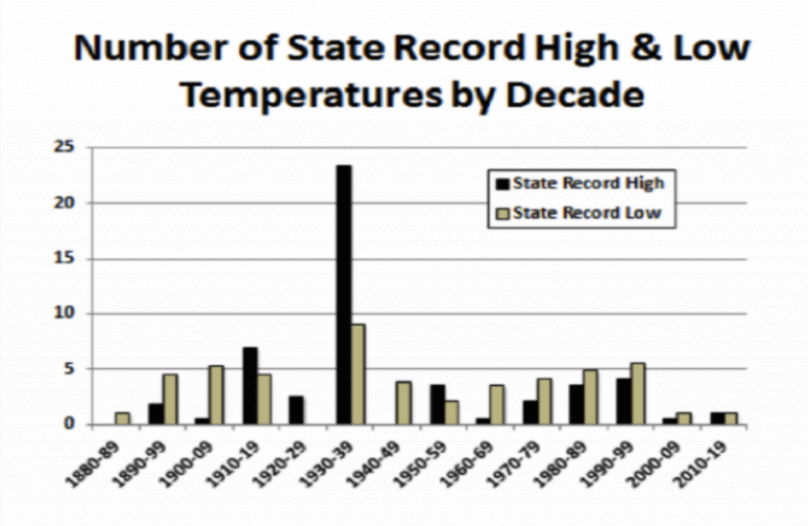
Claim: Heat Waves are increasing at an alarming rate and heat kills

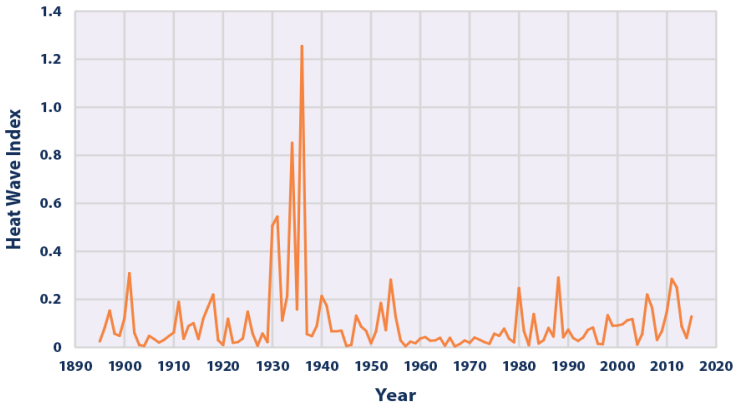
REBUTTAL

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!).



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.



Source: EPA Heat Wave Index (Kunkel 2016)

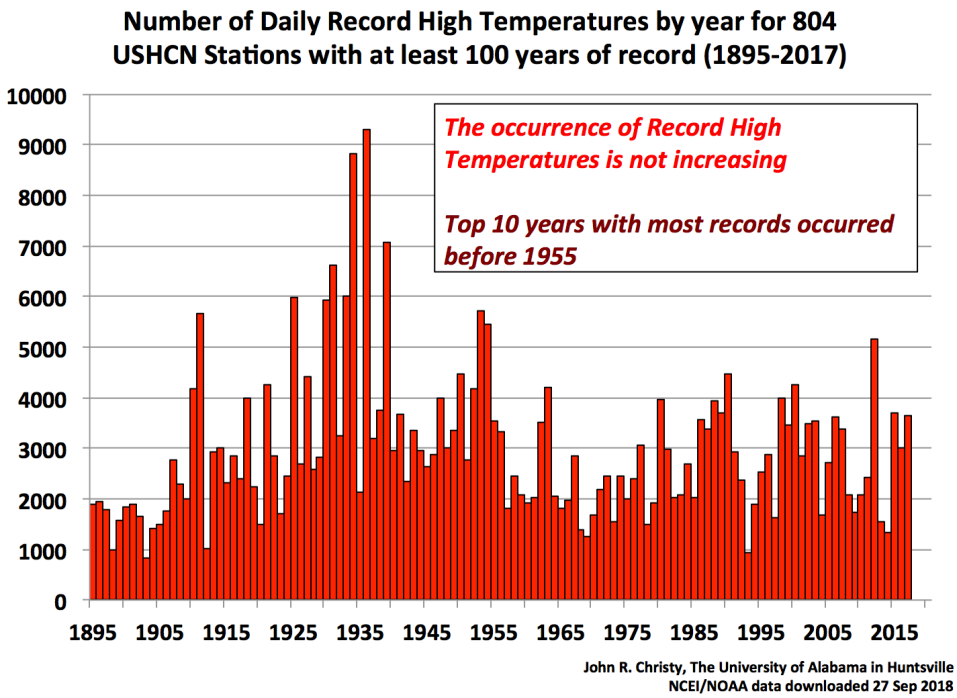
James Hansen while at NASA in 1999 said about the U.S. temperature record "In the U.S. the warmest decade was the 1930s and the warmest year was 1934".

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.

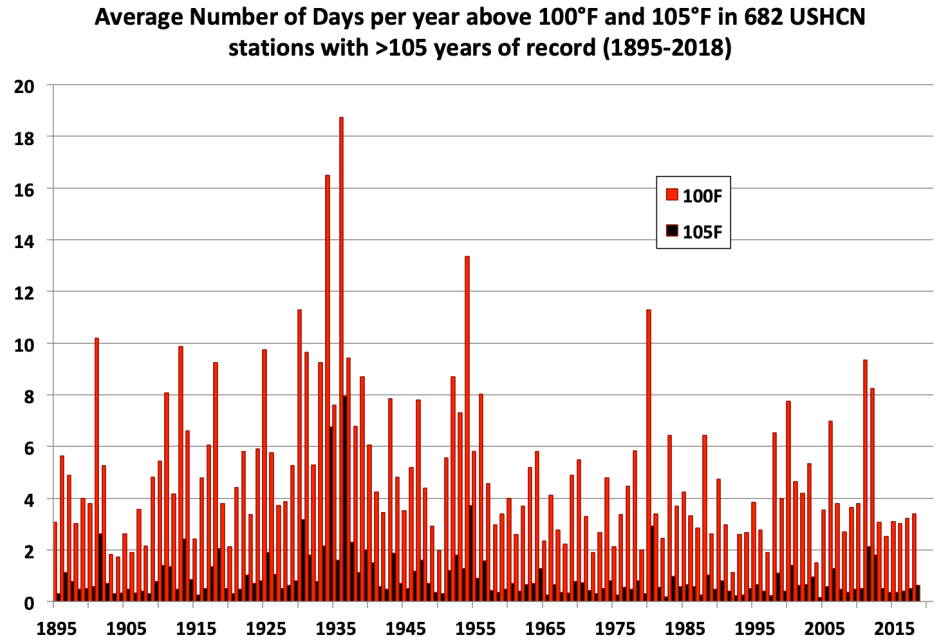
Interestingly while the media gives a great deal of coverage to even minor heat waves to support the case that man-made global warming is occurring, the media tends to ignore deadly cold waves. But in actual fact worldwide cold kills 20 times as many people as heat. This is documented in the "Excess 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.

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."

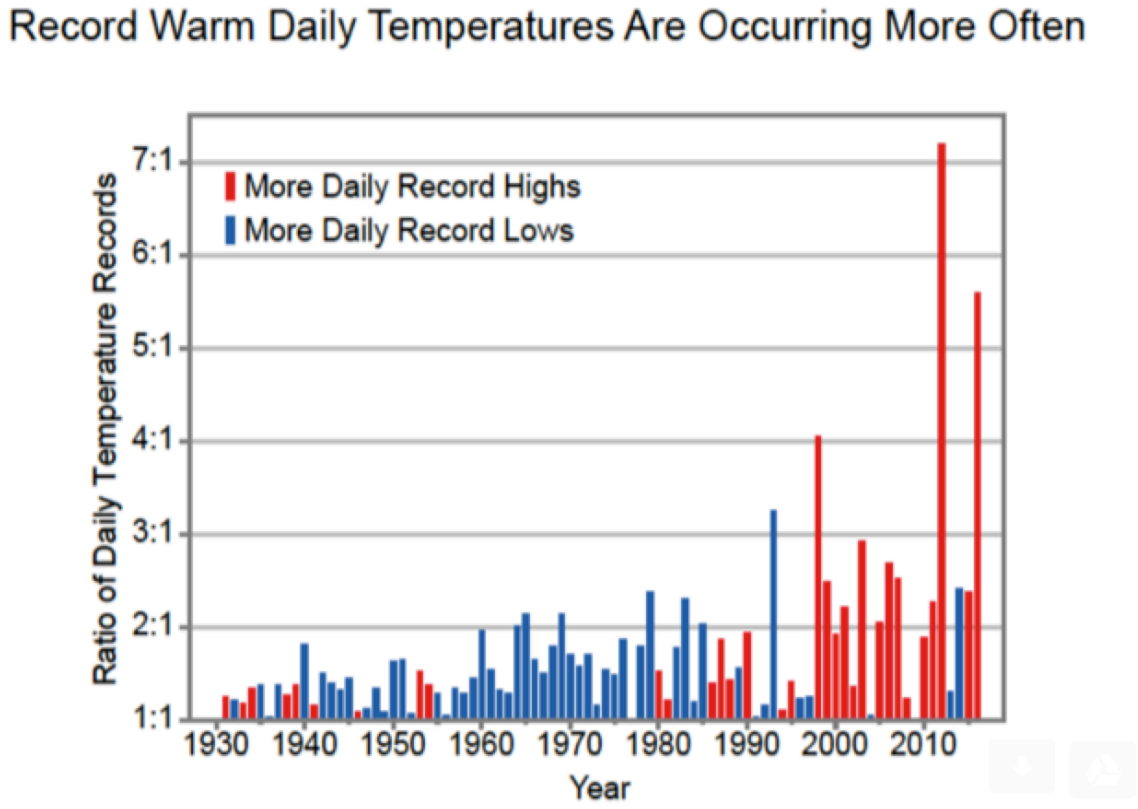


Above: Number of Record Daily High Temperatures per year for 804 USHCN stations with >100 years of data (NOAA/NCEI, prepared by JRChristy).



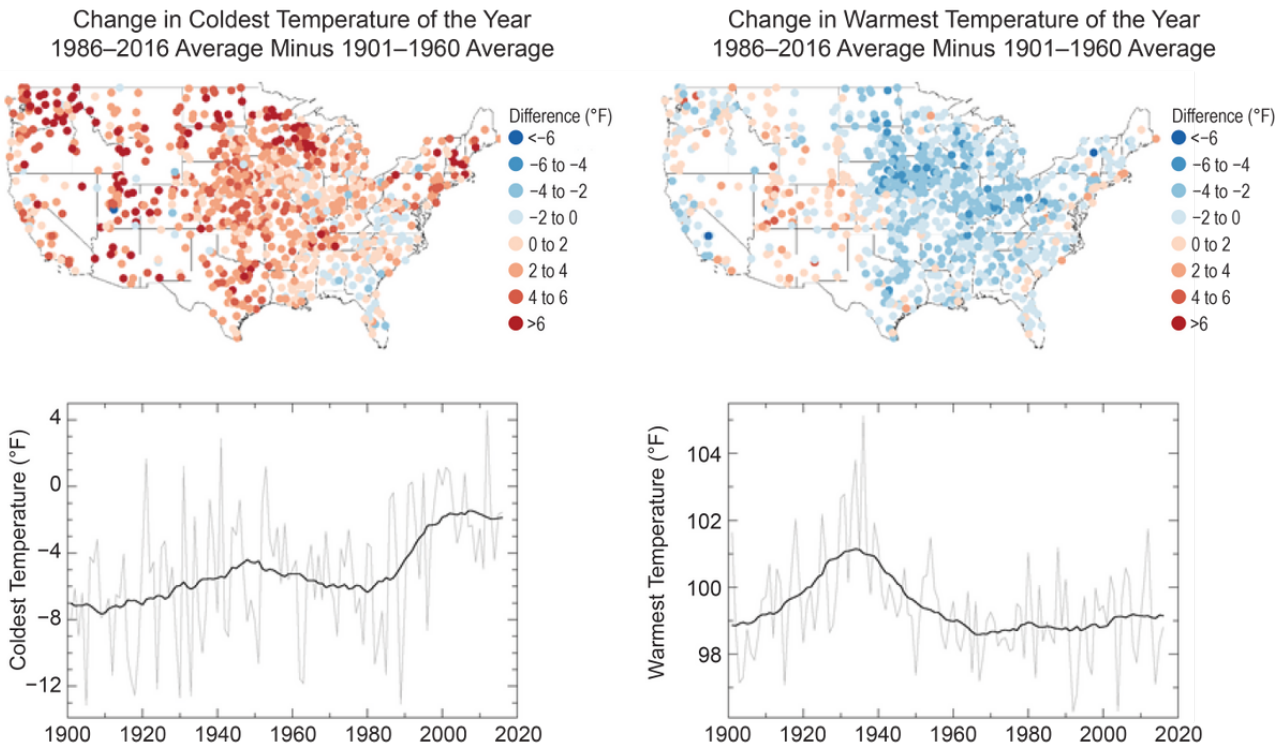
Above: Average number of days per year with temperatures >100F and >105F in 682 USHCN stations with >105 years of data (NOAA/NCEI, prepared by JRChristy).

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.

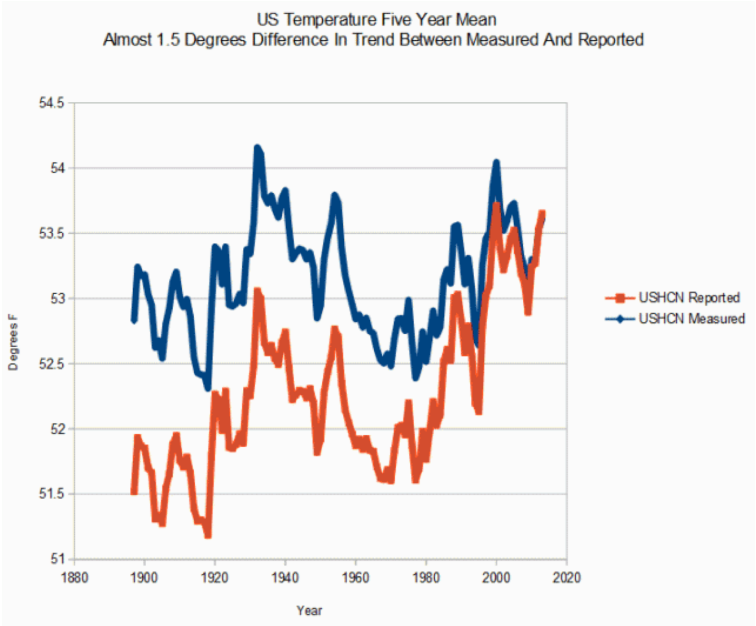


National Climate Assessment

Most of the warming in daytime average readings is with nighttime lows and related to urbanization. This is supported by CSSR report analysis of the change of annual maximum temperatures over the period of record.



Importantly, NOAA "adjustments" to the data shown below have cooled the past, producing an upward linear trend in the Reported data where the Measured data linear trend would be basically flat. Clearly, this data adjustment yielded Reported data that increased the chance that subsequent months and years will routinely rank among the warmest in the 'record."



Source: NOAA USHCN

THE TRUTH ABOUT HEAT THIS SUMMER

As of July 28, in the prior 7 and 30 days, there were more US record lows than highs. The heat wave in what has been a cool and wet spring and summer was intense but brief and mainly notable for the elevated nighttime temperatures. That nighttime warmth is consistent with the very wet first 6 months of 2019 and associated high humidity nights. Note the large number under HIGH MIN the last 30 days. There were also more DAILY and MONTHLY record lows than highs year to date.

U.S. Daily Records Summary

PERIOD	HIGH MAX	HIGH MIN	LOW MAX	LOW MIN	PRECIPITATION	SNOWFALL	SNOW DEPTH
Last 7 Days	57	182	179	435	269	0	0
Last 30 Days	731	2499	524	754	1576	9	0
Last 365 Days	13487	27199	23102	12537	29685	8706	0
Month to Date	674	2362	510	738	1495	9	0
Year to Date	6977	13481	14327	8510	17302	5405	0

U.S. Monthly Records Summary

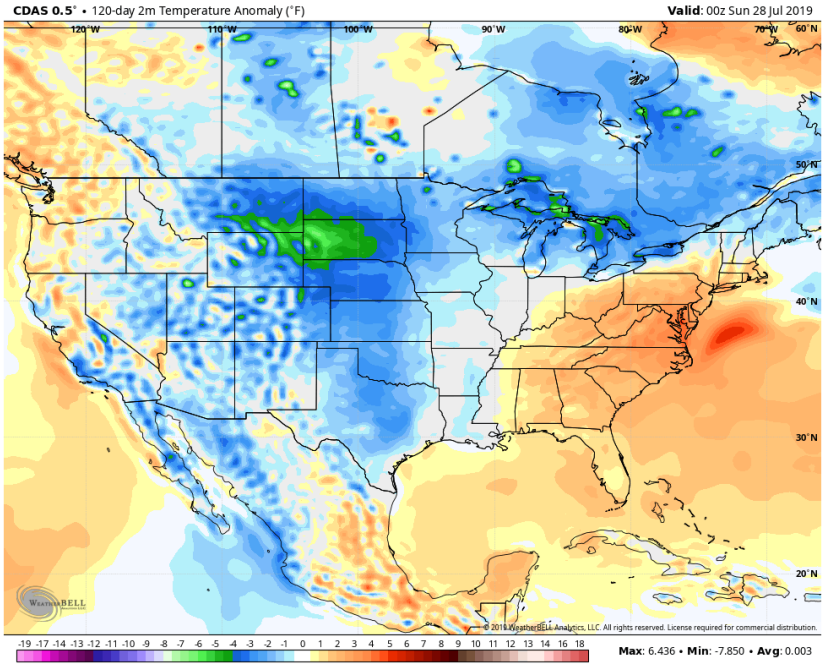
PERIOD	HIGH MAX	HIGH MIN	LOW MAX	LOW MIN	PRECIPITATION	SNOWFALL	SNOW DEPTH
Last 7 Days	0	9	0	11	9	0	0
Last 30 Days	38	124	7	18	57	9	0
Last 365 Days	645	1264	734	524	964	436	0
Month to Date	35	111	7	18	54	9	0
Year to Date	353	643	497	391	552	247	0

For all-time records - year to date there were more than 3 times as many all time record lows than highs

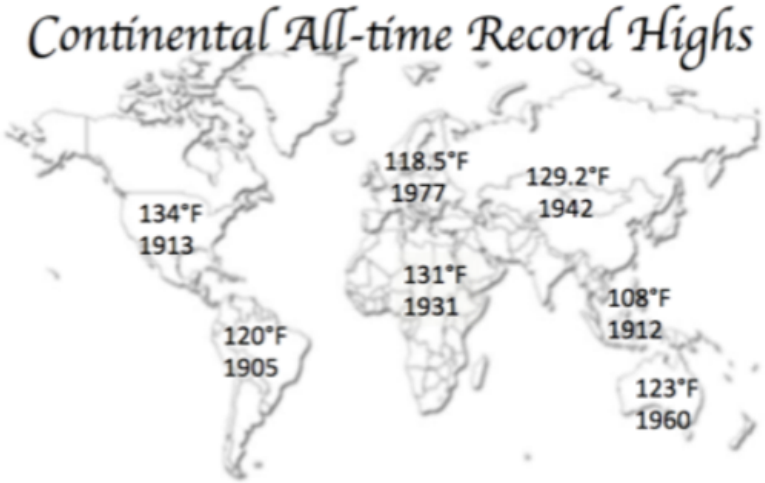
U.S. All Time Records Summary

PERIOD	HIGH MAX	HIGH MIN	LOW MAX	LOW MIN	PRECIPITATION	SNOWFALL	SNOW DEPTH
Last 7 Days	0	3	0	0	1	0	0
Last 30 Days	16	47	0	0	10	0	0
Last 365 Days	59	111	51	61	95	26	0
Month to Date	14	45	0	0	10	0	0
Year to Date	19	73	51	60	44	14	0

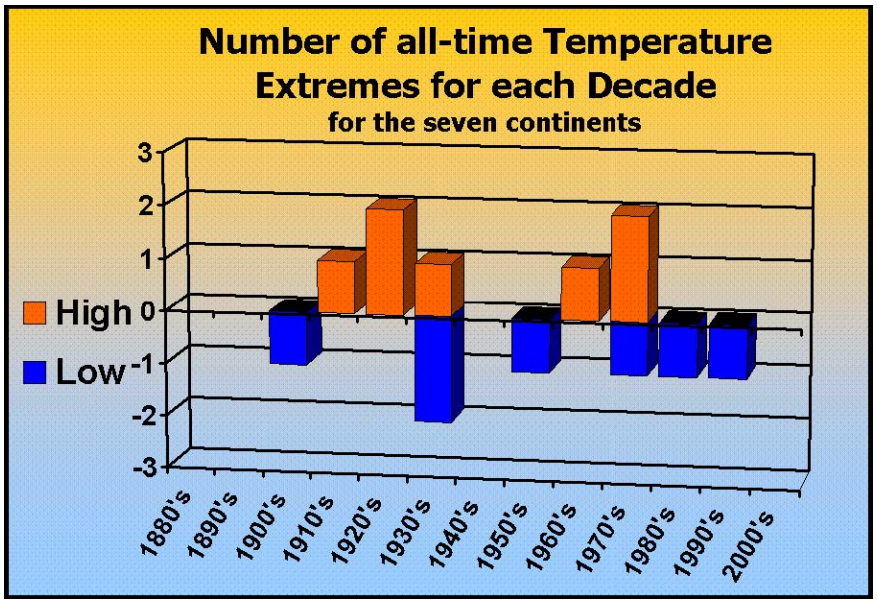
As shown below, the last 4 months have been colder than normal for much of the United States and Canada.



Indeed, all the continental all-time records were long ago (source WMO). Europe's all-time heat record was in 1977 (also very hot in the summer in the US but surrounded by two brutal winters that had the media talking ice age). The heat wave of 2003 had a similar jet stream scenario. Though proclaimed to be the new climate norm, they had to wait 16 years to see it repeat.



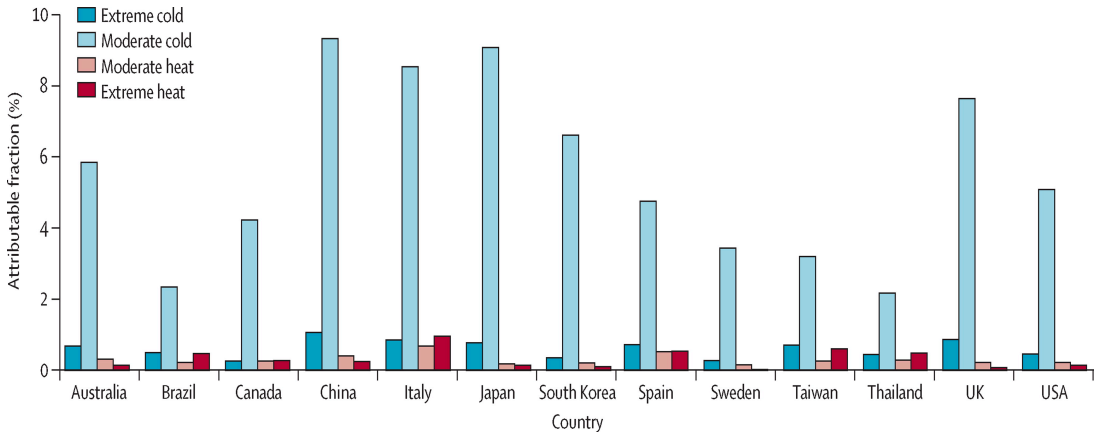
Dr. Keen did the same all time record count of highs lows for the 7 continents by decade, again showing multidecadal cycles but no upward trend.



Here compiled is a list of 81 graphs from 62 papers published in 2018 showing there has been no unprecedented warming in recent decades. See also this response to the latest environmental advocacy group Union of Concerned Scientists claims.

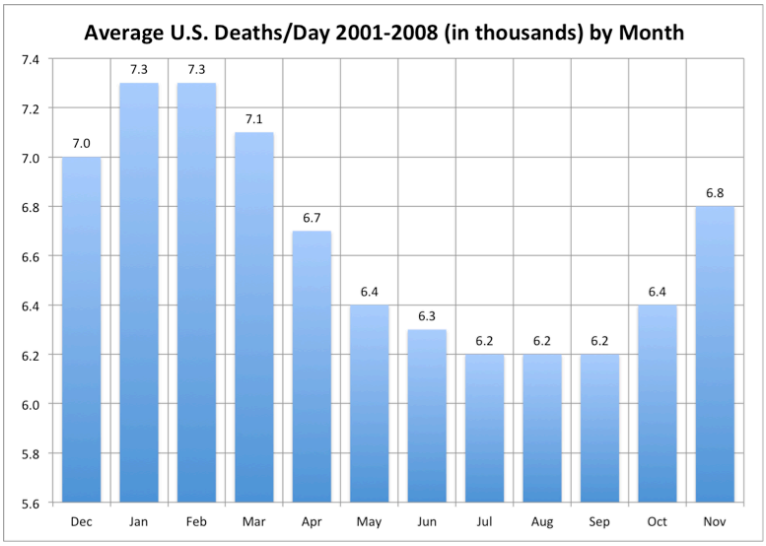
COLD KILLS 20 TIMES MORE THAN HEAT

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.



Source: Gasparrini etal 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).

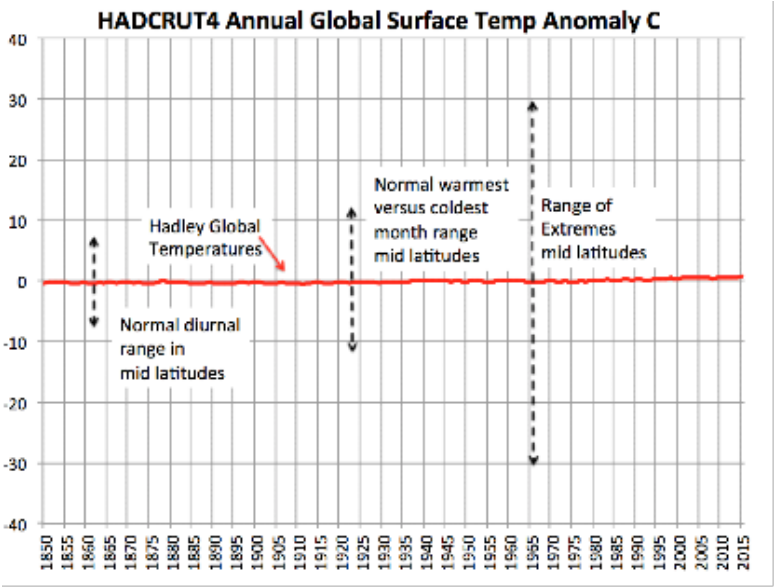


Source: National Center for Health Statistics

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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