



This is the print version of the [Skeptical Science](http://sks.to/uhi) article '[It's Urban Heat Island effect](http://sks.to/uhi)', which can be found at <http://sks.to/uhi>.

Does Urban Heat Island effect exaggerate global warming trends?

What The Science Says:

Urban and rural regions show the same warming trend.

Climate Myth: It's Urban Heat Island effect

A paper by Ross McKittrick, an economics professor at the University of Guelph, and Patrick Michaels, an environmental studies professor at the University of Virginia, concludes that half of the global warming trend from 1980 to 2002 is caused by Urban Heat Island. ([McKittrick & Michaels](#))

The Urban Heat Island Effect (UHI) is a phenomenon whereby the concentration of structures and waste heat from human activity (most notably air conditioners and internal combustion engines) results in a slightly warmer envelope of air over urbanised areas when compared to surrounding rural areas. It has been suggested that UHI has significantly influenced temperature records over the 20th century with rapid growth of urban environments.

Scientists have been very careful to ensure that UHI is not influencing the temperature trends. To address this concern, they have compared the data from remote stations (sites that are nowhere near human activity) to more urban sites. Likewise, investigators have also looked at sites across rural and urban China, which has experienced rapid growth in urbanisation over the past 30 years and is therefore very likely to show UHI. The difference between ideal rural sites compared to urban sites in temperature trends has been very small:

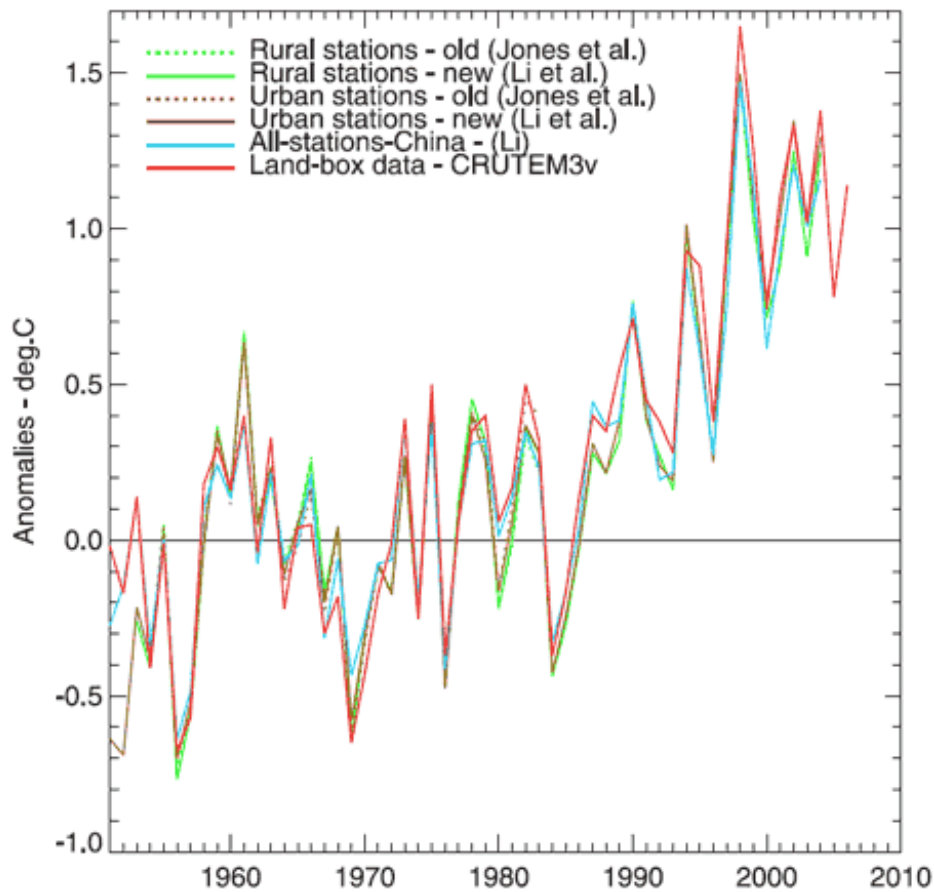


Figure 1. Annual average temperature anomalies. Jones et al (dotted green and brown) is a dataset of 42 rural and 42 urban sites. Li et al (solid green and brown) is an adjusted dataset of 42 rural and 40 urban sites. Li (blue) is a non-adjusted set of 728 stations, urban and rural. CRUTEM3v (red) is a land-only data set (Brohan et al., 2006). This plot uses the 1954-83 base period.

Another way to explore the UHI would be to look at where the majority of warming has occurred across the globe. The UHI should match where most people live. However, if you look at the 2006 global temperature anomaly (figure 2.), you find that the greatest difference in temperatures for the long term averages where across Russia, Alaska, far north Canada and Greenland and not where major urbanisation has occurred.

Data source: NASA/GISS

Credit: [NASA/Goddard Scientific Visualization Studio](#)

2006

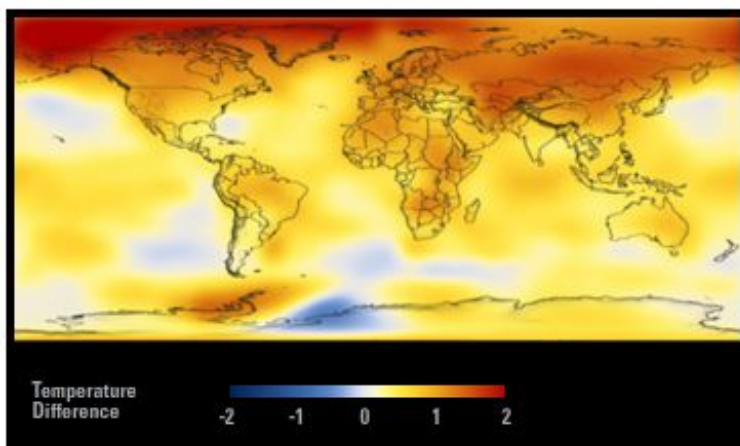


Figure 2. Using source data from NASA/GISS, this illustration shows the amount of change in global surface temperatures in 2006 from 1885.

The Urban Heat Effect has no significant influence on the record of global temperature trends.
Basic rebuttal written by mothincarnate

Update July 2015:

Here is a related lecture-video from [Denial101x - Making Sense of Climate Science Denial](#)



Skeptical Science explains the science of global warming and examines climate misinformation through the lens of peer-reviewed research. The website won the Australian Museum 2011 Eureka Prize for the Advancement of Climate Change Knowledge. Members of the Skeptical Science team have authored peer-reviewed papers, a [college textbook on climate change](#) and the book [Climate Change Denial: Heads in the Sand](#). Skeptical Science content has been used in university courses, textbooks, government reports on climate change, television documentaries and numerous books.



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