https://nca2018.globalchange.gov/chapter/19/



# FOURTH NATIONAL CLIMATE ASSESSMENT CHAPTER 19: SOUTHEAST

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# FOURTH NATIONAL CLIMATE ASSESSMENT CHAPTER 19: SOUTHEAST

## **Historical Climate and Possible Future Climates**

The Southeast region experienced high annual average temperatures in the 1920s and 1930s, followed by cooler temperatures until the 1970s. Since then, annual average temperatures have warmed to levels above the 1930s; the decade of the 2010s through 2017 has been warmer than any previous decade. Published studies bring the statements in this section of the National Climate Assessment into serious question.

First, a report on significant cooling in the eastern US, focused in the southeast by Partridge, et al, <u>https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2017GL076463</u>

From the abstract:

The annual warming hole consists of two distinct seasonal modes, one located in the southeastern United States during winter and spring and the other in the midwestern United States during summer and autumn.

Next, information from a crowd-sourced effort, visiting sites and examining instrument exposure in light of well-established standards for these measurements.

https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2017GL076463



# **Geophysical Research Letters**

**Research Letter** 

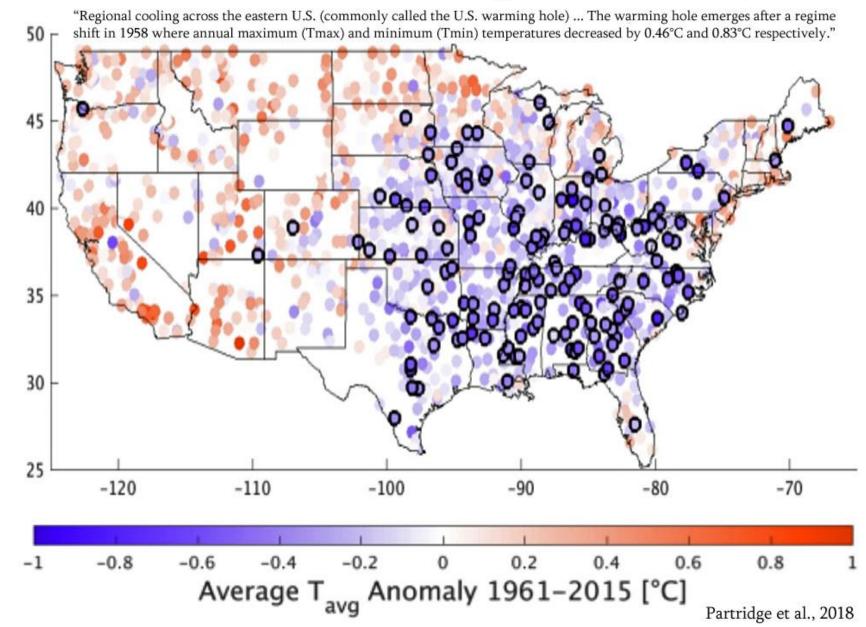
# Spatially Distinct Seasonal Patterns and Forcings of the U.S. Warming Hole

T. F. Partridge 🔀, J. M. Winter, E. C. Osterberg, D. W. Hyndman, A. D. Kendall, F. J. Magilligan

First published: 06 February 2018 | https://doi.org/10.1002/2017GL076463 | Cited by: 1

#### http://notrickszone.com/2019/01/14/regional-models-3-10c-warming-in-the-next-80-years-observations-no-warming-inthe-last-40-100-years/

### Eastern U.S. Cooling, 1961-2015



Some climate researchers became aware of artificial warming in temperature records.

They hypothesized the warming effect on many stations was related to poor instrument exposure.

They organized a crowd-sourced effort to visit and document many stations in the United States Historical Climatology Network.

Their results have been analyzed and put on line at <a href="http://surfacestations.org/">http://surfacestations.org/</a>

A major report: "Is the US Surface Temperature Record Reliable?"

https://wattsupwiththat.files.wordpress.com/2009/05/surfacestationsreport\_spring09.pdf

These results are important for the US as a whole, but especially for the Southeastern USA.

The following graphics explain this work.

# **Analysis of USHCN Station Visits**

Most USHCN stations do not meet NOAA'S own established standards.

11%, of stations meet the standards, a SMALL minority

20% of USHCN stations have >1C error

58% of USHCN Stations have >2C error

11% of USHCH Stations have >5C error

Is the US Surface Temperature record reliable when most stations have >= 2C Error?

### NOAA Temperature Classification Guide Climate Reference Network Site information Handbook

http://www1.ncdc.noaa.gov/pub/data/uscrn/documentation/program/X030FullDocumentD0 .pdf

**2.2.1 Classification for Temperature** 

Class 1 – Flat and horizontal ground surrounded by a clear surface... Sensors located at least 100 meters from artificial heating or reflecting surfaces, such as buildings, concrete surfaces, and parking lots.

Class 2 – Same as Class 1 with the following differences. .. Artificial heating sources within 30m...

Class 3 (error  $\geq$  1° C) – Same as Class 2, except no artificial heating sources within 10 meters.

Class 4 (error  $\geq 2^{\circ}$ C) – Artificial heating sources within 10 meters.

Class 5 (error  $\ge$  5°C) – Temperature sensor located next to/above an artificial heating source, such a building, roof top, parking lot, or concrete surface.

## **USHCN - Station Site Quality by Rating**

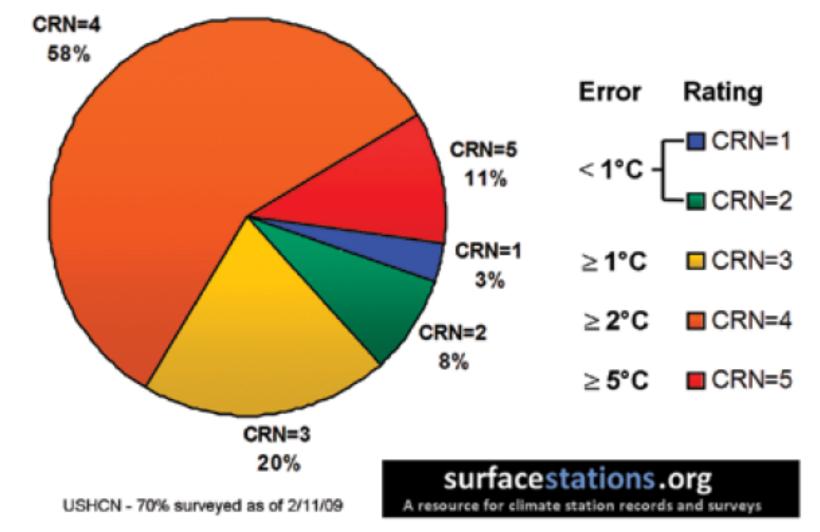


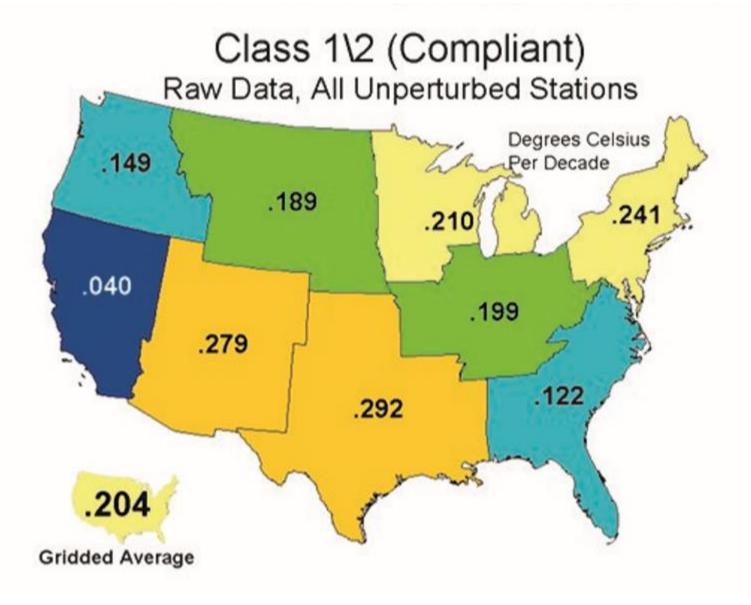
Figure 27. Most of the surveyed temperature stations in the U.S. fall into categories that mean they are unreliable. Only stations in CRN=1 and CRN=2 – 11 percent of all stations – are reliable.

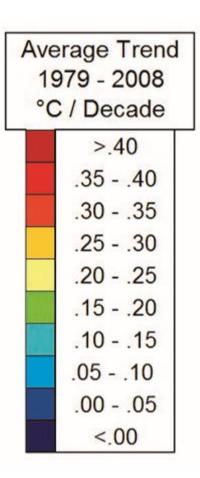
https://wattsupwiththat.com/2012/07/29/press-release-2/

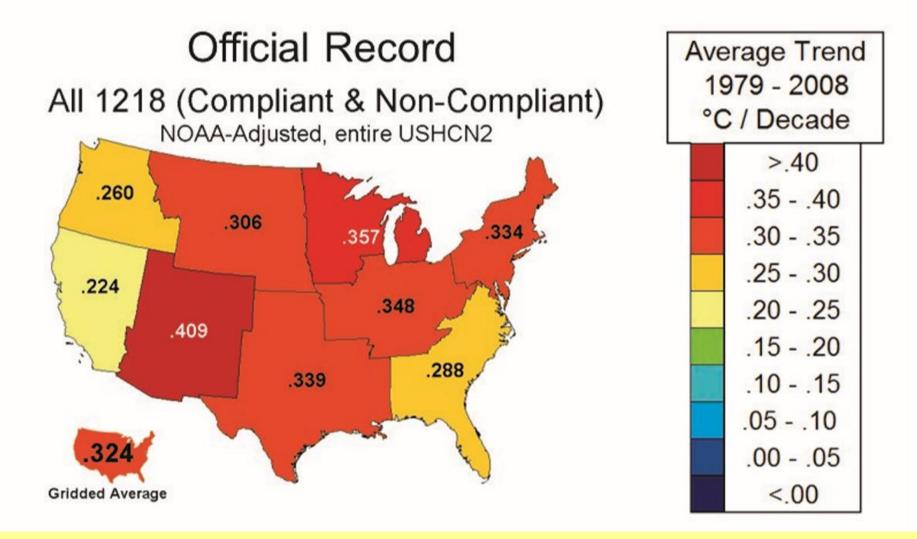


Heat sinks cover under 10% of area within a 30-meter radius of sensor, under 1% of within 5 meters, and under 5% of an annulus from 5 to 10 meters. Airports are excluded, urbanized areas are included.

Sample size: 126





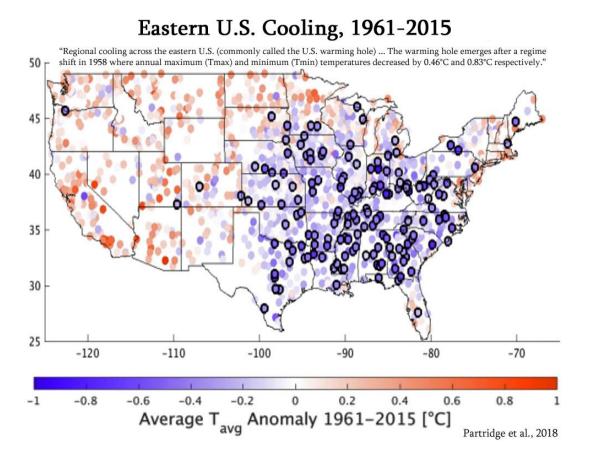


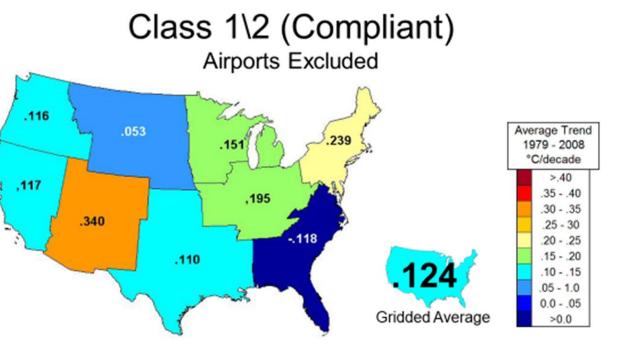
"The 30-year Tmean temperature trend of unperturbed, well sited stations is significantly lower than the Tmean temperature trend of NOAA/NCDC official adjusted homogenized surface temperature record for all 1218 USHCN stations.

... NOAA/NCDC homogenization adjustment causes well sited stations to be adjusted upwards to match trends of poorly sited stations."

"The Southeast region experienced high annual average temperatures in the 1920s and 30s, followed by cooler temperatures until the 1970s. Since then, annual average temperatures have warmed to levels above the 1930s; the decade of the 2010s through 2017 has been warmer than any previous decade."

This section, quoted above, of NCA4 is deliberately deceptive. It is well-documented in the literature that there has been substantial cooling in this region.





Heat sinks cover under 10% of area within a 30-meter radius of sensor, under 1% of within 5 meters, and under 5% of an annulus from 5 to 10 meters. Airports are excluded, urbanized areas are included.