

**CENTRAL PARK TEMPERATURE**  
*THREE RADICALLY DIFFERENT US GOVERNMENT VERSIONS*

Our national centers regard station data as critical to measure recent climate change. The raw observations are taken from the stations then adjusted to account for local factors like site changes, changes in instrumentation, time of observation and in some cases urbanization (Karl 1988). One would think the differences would be small and that once adjusted, the data would stand the test of time.

We found that to be far from the truth by examining the data sets for our biggest city, New York City and the climate station in Central Park.

Historical Central Park observations were taken from the periphery of the park from 1909 to 1919 at the Arsenal Building 5th Ave (between 63rd & 64th) and then since 1920 at the Belvedere Castle on Transverse Rd (near 79th & 81st).



Belvedere Castle, Central Park, New York City

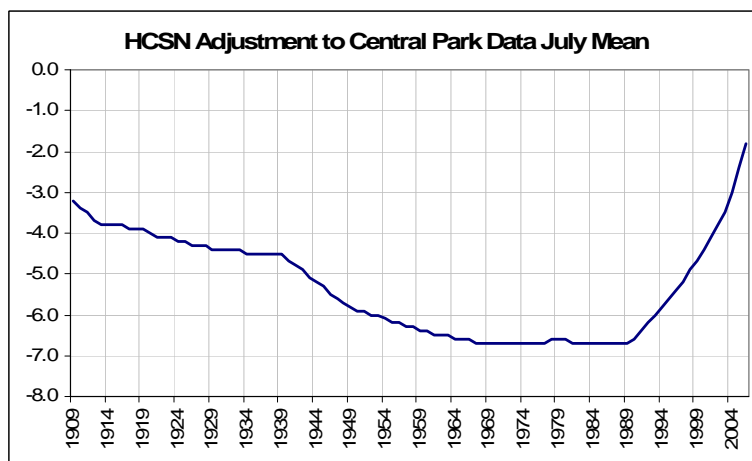
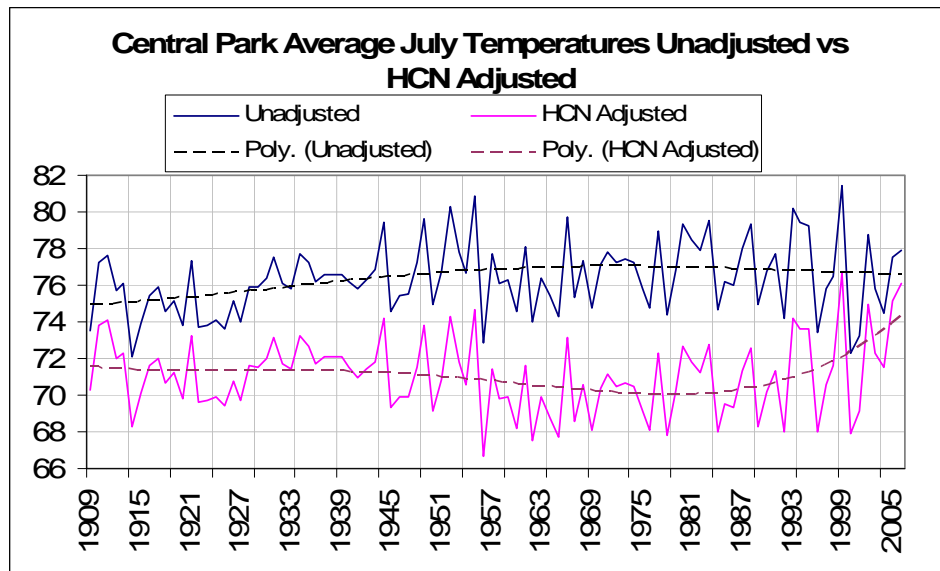
The National Climate Data Center takes the raw data and makes adjustments for the factors mentioned. The first major compilation and station by station adjustment occurred with [HCSN Version 1](#) in 1990. I compared the results of the data with the raw data taken directly from the NWS New York City website for Central Park. I chose the two extreme months – July and January for the comparison.

## JULY COMPARISON

The two data sets for July are plotted to the right.

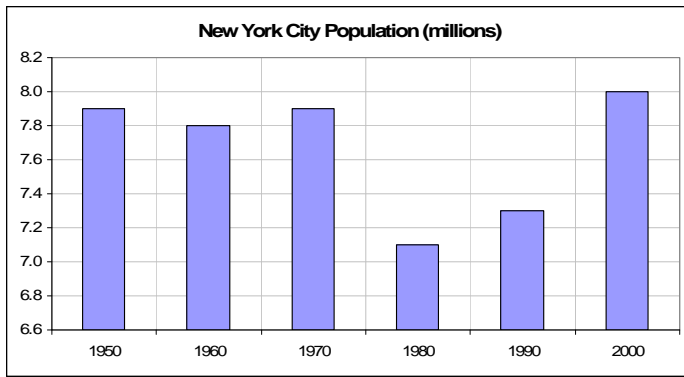
Note the adjustment was a significant one (a cooling exceeding 6 degrees from the mid 1950s to the mid 1990s.) Then inexplicably the adjustment diminished to less than 2 degrees.

The result is a trendless curve for the past 50 years



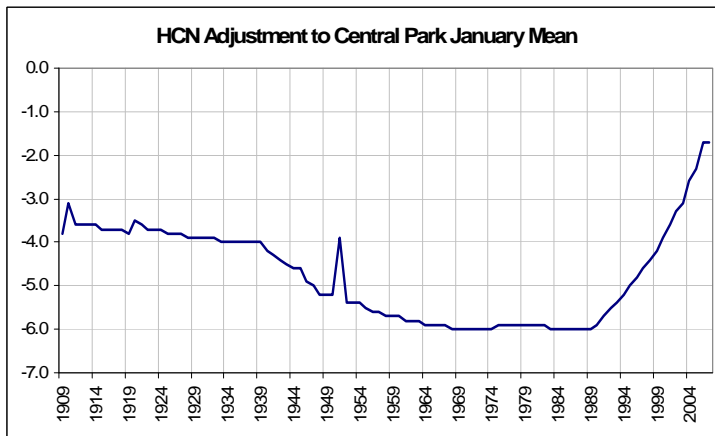
became one with an accelerated warming in the past 20 years. It is not clear what changes in the metropolitan area occurred in the last 20 years to warrant a major adjustment to the adjustment. The park has remained the same and there has not been a population decline but a

spurt in the city's population in the 1990s.

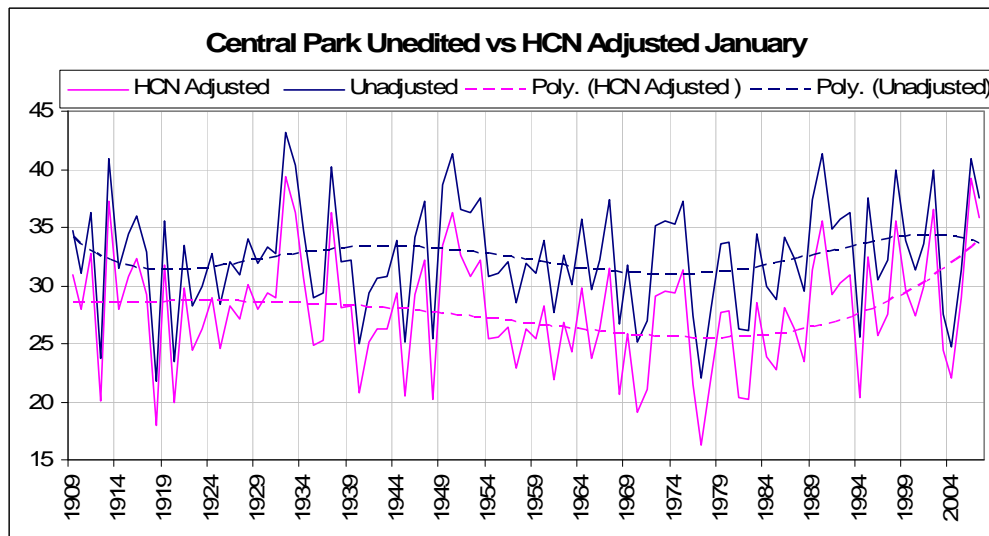


## JANUARY COMPARISON

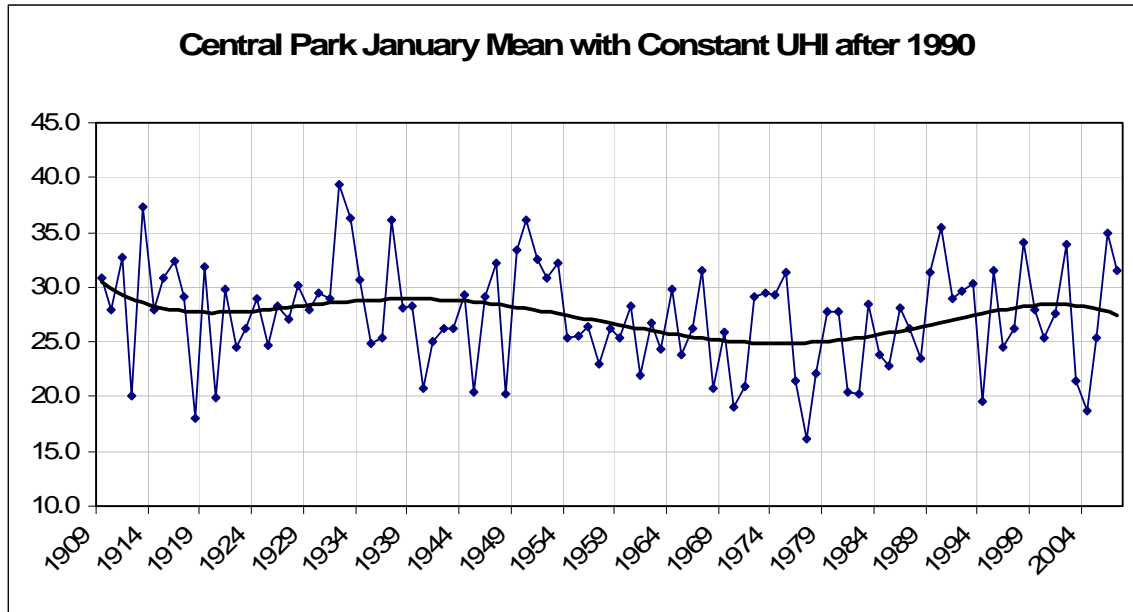
I repeated the analysis for January for Central Park using the same two data sources. A similar UHI adjustment pattern was seen.



It had the same result on the adjusted temperatures, showing recent warming not in the raw data which exhibited a cyclical up and down pattern with current levels similar to the 1930s and 1940s..



If they had left the urban heat island (UHI) adjustment the same after 1990, the following would have been the adjusted result.



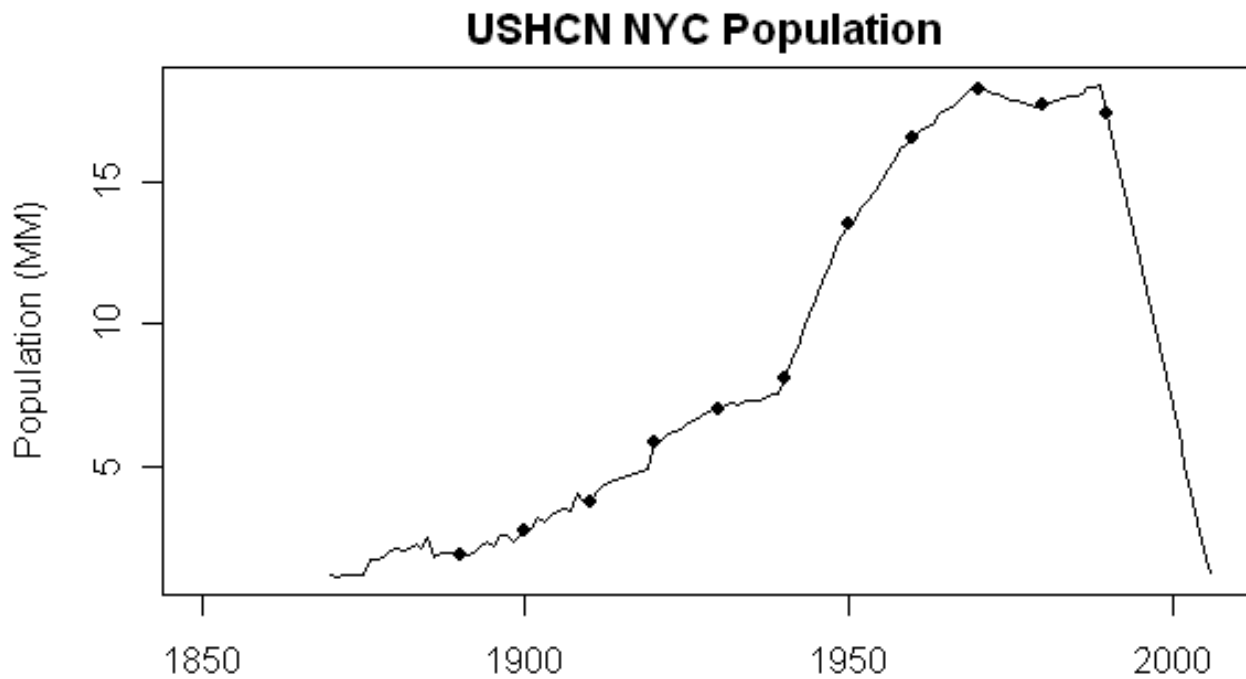
Clearly no global warming evident in either the unadjusted or the uniformly UHI adjusted plots for one of world's largest cities for January or in last half century or more for July.

Now though the larger the city, the more Urban Heat Island (UHI), most of incremental warming from UHI occurs for cities that increase rapidly in population or where the observing site (airport) initially rural has the city grow around it. In New York City, Central Park is in the center of the city which has been a big city for a long time. Though there is no doubt it is warmer in the city than in rural areas, significant incremental UHI induced warming should not be expected. Certainly no precipitous decline should be expected either.

Steve McIntyre at Climate Audit became interested in the data at this point. He was able to confirm my results after exchanging emails with NCDC ensuring the accuracy of the data sources. Then he went further.

“I’ve been able to emulate the Karl adjustment. If one reverse engineers this adjustment to calculate the New York City population used in the USHCN urban adjustment, the results are, in Per’s words, **gobsmacking**, even by climate science standards.)

Here is the implied New York City population required to justify Karl’s



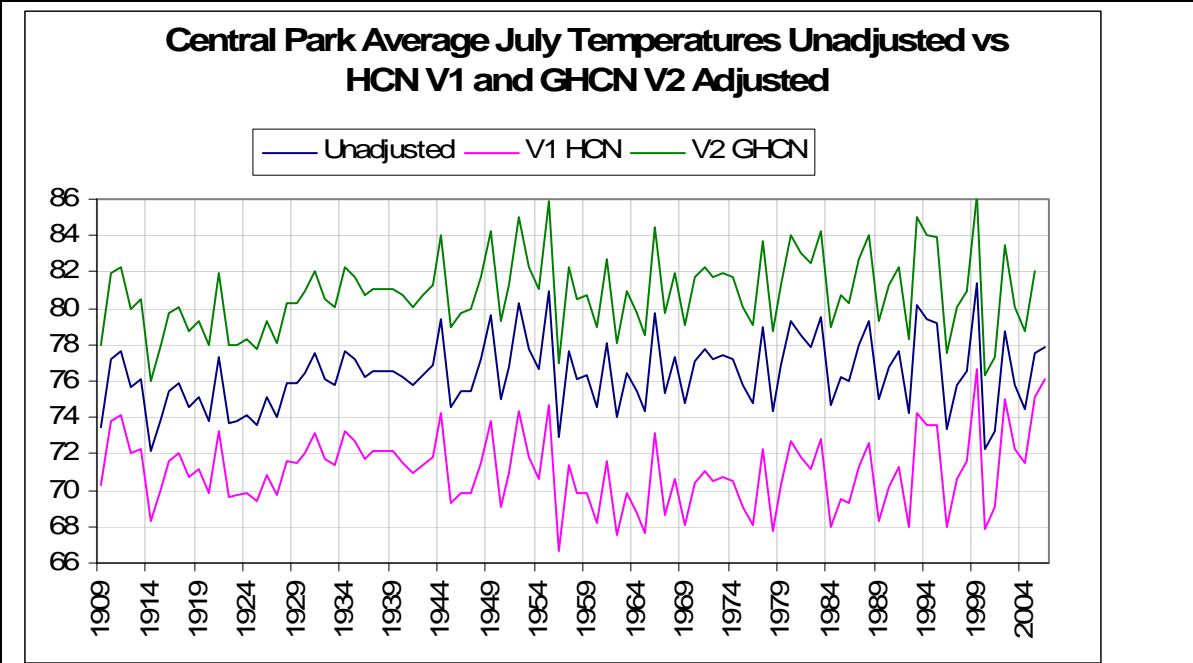
“urban warming bias” adjustments.”

In other words, for the HCN Version 1 data to be valid for Central Park, the population of the metro are would have to have declined to pre-1900 levels.

#### *The NCDC GHCN Version 2 Data Set*

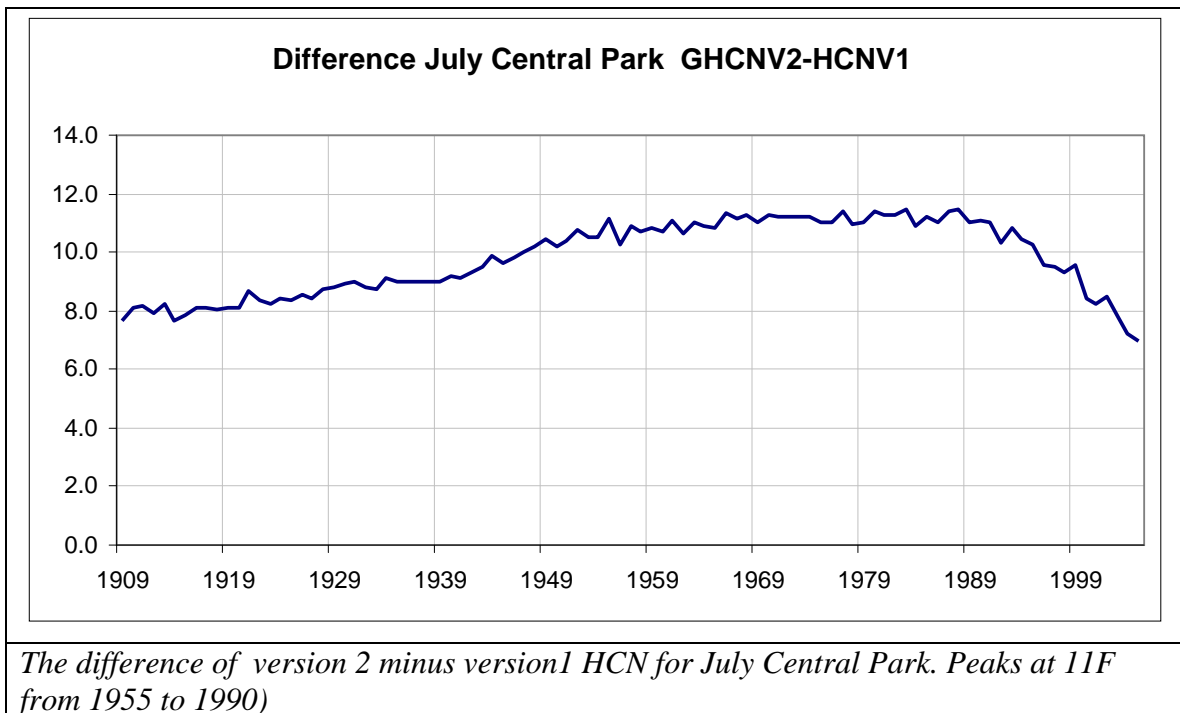
The story doesn’t end there. The same NCDC maintains a global data base of station data used for climate change assessment called GHCN. Version 2 of GHCN contains some of the same adjustments except for the Karl urban adjustment. Central Park is one of the GHCN sites.

I decided to compare Central Park in that GHCN data set (the latest V2) with the HCN data (V1) set relative to the raw data.



*The raw observed Central Park Mean July temperatures (blue), version 1 HCN (purple) and version 2 GHCN (green). All for the same station for the same month.*

The differences between the data sets is startling large for the July monthly mean through much of the record (11F!). It diminishes since 1990 as HCN adjustments for urbanization have inexplicably diminished even as NYC population grew but even here a difference of 7F is seen.



This is just one city. But remember these observations all came from the National Weather Service – an official long term climate observing station and the National Climate Data Center. The biggest differences actually occurred between the two NCDC versions.

These kinds of variances in the “data” have got to have you question whether we can trust any surface station based data set to determine changes the order of a tenth of a degree for climate change assessment.

Oh, by the way, NCDC plans soon to release new versions of their US and global data sets. They promise through special algorithms that adjustments made to the data will improve (that site and UHI adjustments will no longer be needed). You can count on us and others to compare the 5 data sets very carefully.