

Warmest Year Declaration Full of Pitfalls!

By Dr. Madhav Khandekar and Joseph D'Aleo

The news item about the year 2007 as the second warmest (Washington Post 12 January 2008) must be taken with a grain (maybe a whole block) of salt. Such declarations are based on calculating a mean temperature for the earth's surface area (land-ocean combined) and this seemingly simple task is often full of 'pitfalls'. Large areas of earth's landmass were only sparsely monitored in the past, and remain so even today. The largest and densest observing network of meteorological stations are over Europe and North America. Elsewhere, say over African Sahara, Brazil's Amazon region, central Australia and Arctic/subarctic Siberia, the network of observing stations is rather sparse and thus a mean temperature calculation based on such unevenly distributed observing locations is far from the 'real' mean temperature. And ironically the situation has gotten worse since 1990, when two thirds of the world's climate reporting stations shut down. Add to that the issues of improper accounting for urbanization and land use changes as documented by [Roger Pielke Sr.](#) and most recently [McKittrick and Michaels](#) and poor siting as documented by [Anthony Watts](#) and his network of volunteers and unaccounted for instrument changes as [Ben Herman](#) blogged on Climate Science recently about, and you have a little reason to trust the accuracy of any station based data set.

Add to this the problem of calculating a mean temperature over the earth's water bodies (oceans, lakes, rivers) and the task of calculating a mean temperature, accurate enough for declaring a certain year as "the warmest", becomes even more challenging. Large ocean areas, especially in the Southern Hemisphere, remain unobserved even today, while over Northern Hemisphere, sea surface temperature data was available primarily over well-traveled ship tracks in the early 1900s and even today many ocean buoys and other temperature platforms are located in and around major shipping routes of the world oceans. And the methods for ship measurement of sea surface changed from canvas to wooden buckets in the 19th century and to ship intake in the World War II and later years, each of which produce different results. Although the changes occurred gradually, adjustments to the data were made arbitrarily in the late 1800s and in 1941. This too helps create uncertainty since the oceans are two thirds the globe. Climate Audit has had numerous posts on this ignored issue including [this one](#).

So when NASA scientists James Hansen and colleagues declare 2007 to be the second warmest year, one has to wonder and ask: How good is their calculation? Is it possible to calculate the earth's mean temperature accurate to a few tenth's of a degree? How can NASA scientists then declare that the mean temperature for 2007 was 58.2F which was just 0.1F less warm than the year 1998? Further, NOAA in Washington calculated 2007 as the fifth warmest while the Climate Research Unit (CRU) in East Anglia (UK) which is the benchmark for IPCC (Intergovernmental Panel for Climate Change) calculated 2007 as the seventh warmest! So who one is right and who is wrong? Do we know for sure?

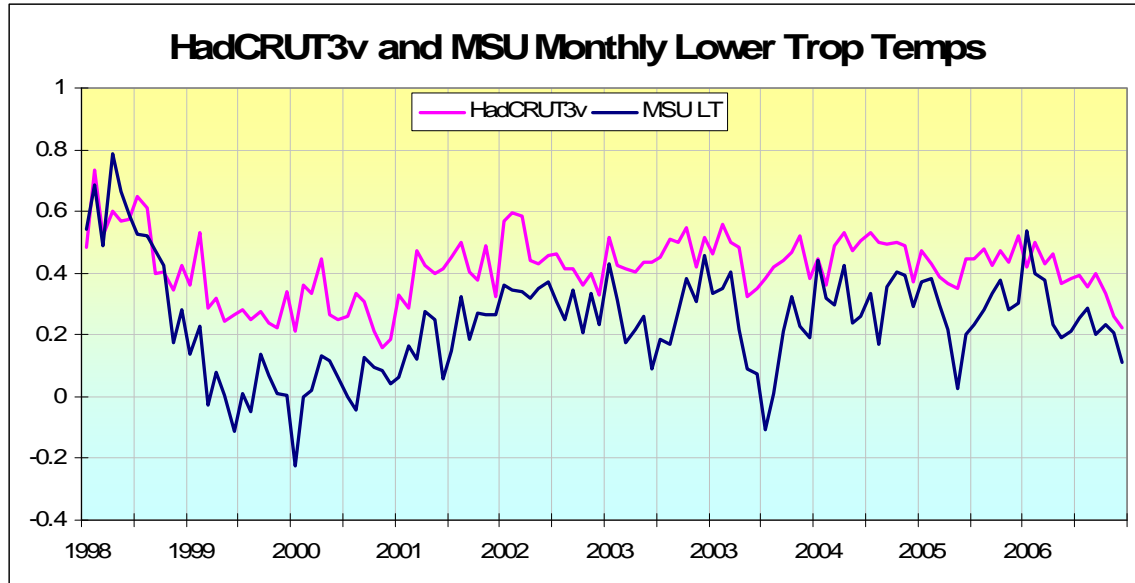
Just last summer (2007) Stephen McIntyre, a Canadian web logger of the website [Climate Audit](#) found some error in the way NASA calculates the mean US temperature and showed that the year 1998 was NOT the hottest year in the USA as declared by former VP Al Gore! The 'hottest' year for the US turned out to be 1934! A few other years which were declared among the 'hottest' by NASA had to re-ranked as well. In addition, as Roger Pielke Jr. noted in a recent [Prometheus blog](#), NASA's (Hansen's) assessment is warmest of all assessments and their forecast for future warming were greater than even the IPCC. He noted "Good scientific practice would have forecasting and data collection used to verify those forecasts conducted by completely separate groups."

In a [July 2006 Report](#) to the US House Committee on Energy & Commerce (Ad Hoc Committee Report on the "Hockey Stick" Global Climate Reconstruction, Professor Edward Wegman of the Centre for Computational Statistics at George Mason University (Washington) stated that the IPCC (Intergovernmental Panel on Climate Change) claim that the 1990s were the hottest decades in a millennium" cannot be supported--"The paucity of data (weather data) in the more remote past makes the "hottest-in-a-millennium" claim unverifiable.

There you have it! If you cannot verify whether the year 2007 was second warmest OR the year 1998 was the warmest in a millennium, there is NO point making such a claim. Such declarations then become mostly academic and do not tell if the earth's temperature is really getting 'warmer'.

In reality, competing measures of station data and satellite derived data, the earth's mean temperature appear to have reached a plateau, which has been even been admitted by Rajendra Pachauri, the head of the U.N. IPPC that shared the 2007 Nobel Peace Prize with former U.S. Vice President Al Gore. "One would really have to see on the basis of some analysis what this really represents" he told [Reuters](#), adding "are there natural factors compensating? (for increases in greenhouse gases from human activities).

This leveling off can be clearly seen with a trend analyses of both the UK Hadley center CRU and the MSU satellite data analyses of the University of Alabama at Huntsville.



If the earth's mean temperature is indeed steady while carbon dioxide has continued to rise, it is time to start to ask some hard questions about the global warming science.

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