

From: Achorn, Edward [mailto:eachorn@providencejournal.com]

Sent: Monday, February 1, 2016 7:46 AM

To: Herb Stevens <skiwxman@cox.net>

Subject:

Were NOAA and NASA wrong to proclaim that earth's 2015 average surface temperature was the warmest since 1880?

Yes, argues Herbert Stevens in his 26 January Commentary ("Fuzzy data on warming"), since he finds the NOAA and NASA temperature-data highly suspect. One of several reasons that made him suspicious is the claim that 89% of the weather-station thermometers in the United States yield artificially-high temperatures. In contrast, he states that the temperatures obtained from satellites are far less prone to error, and faults NASA for not using them. When they are used, 2015 ends up being 3rd or 4th in the 37-year satellite temperature record.

What is one to make of this? Are NOAA and NASA using defective ground-based data? Are the data from satellites more reliable? The answer to both questions is No.

At least as far back as 2007, NASA and NOAA realized there were siting problems with many of the US weather-station thermometers, so they began taking the steps that have been used to correct the temperature readings. For relevant information see the 2 July 2007 post on RealClimate and the May 15, 2014 NOAA post titled "The USHCN Version 2 Serial Monthly Data Sets." The latter one discusses how these and other corrections are implemented and tested. Conclusion: ground-based temperatures have been appropriately corrected for various biases and are a valid source of data.

Another drawback for Mr. Stevens is that NOAA and NASA "infill" the data from some weather stations (they do so using numerical methods—methods that have been accepted by climate scientists). Mr. Stevens includes such computer-generated temperatures among his NOAA/NASA "fudged" numbers, but omits calling his favored satellite temperatures "fudged," despite them being computer-generated as well. They are computer-generated because satellites measure radiance not temperatures; the temperatures, extracted using a mathematical model, are subject to various uncertainties that have been identified.

Satellite-based temperatures are provided by Remote Sensing Systems (RSS) and the University of Alabama at Huntsville (UAH). As there have been past errors in the UAH data, I will concentrate on RSS. In a recent article (type "Santer and Mears, 17 January 2016" into Google), climatologist Ben Santer and RSS's senior scientist Carl Mears have informatively discussed the satellite and weather-balloon (radiosonde) measurements; radiosondes measure temperatures directly. Other very interesting information is available by typing "The Weekend Wonk, January 24, 2016" into Google. There it is shown graphically that recent RSS-derived temperatures are lower than those from NOAA's radiosondes; also cited is Mears' statement that RSS's margin of error is 5 times greater than that of ground-based temperatures.

This should help clarify why NOAA and NASA use ground-based temperatures and why 2015 remains the warmest year since 1880.

Frank Levin, Portsmouth

Herb's reply to Edward Achorn , Vice President and Editorial Pages Editor The Providence Journal

Edward:

I have read Mr. Levin's response several times and quite frankly, don't know where to start because the options are so numerous. I will attempt to keep this relatively short, but his letter is a "target rich". First, I think it is essential to read this article as background for the many levels of data manipulation that NOAA and NASA have engaged in for decades now.

<http://realclimatescience.com/history-of-nasanoaa-temperature-corruption/>

Perhaps Mr. Levin would like to have a go at refuting all of the evidence of data tampering contained in this article. Then there is the matter of his references. It is laughable that Mr. Levin has used RealClimate as a source for his attempt at refutation. RealClimate is an ardent AGW web site administered by Gavin Schmidt, who also happens to administer the NASA surface temperature record!!! Any reference to a Google source is made with the knowledge that warming activist Al Gore sits on the Board at Google. It is no surprise that articles attempting to support the veracity and accuracy of land-based temperatures are posted on Google, but Google is far from an independent and credible source of science. I found the reference to a Ben Santer article amusing, given his climate activism and lack of judgment when it comes to interpreting the work of well-meaning fellow atmospheric scientists. Here is a summary of comments submitted in the process of putting together the Assessment of the Intergovernmental Panel on Climate Change back in 1995. The conclusions of 5 scientists are on the left...the text as it appeared in the final document, which was written by Santer, is on the right.

IPCC (1995): pre-final draft	Final draft
"None of the studies cited above has shown clear evidence that we can attribute the observed [climate] changes to the specific cause of increases in greenhouse gases."	'The body of ... evidence now points to a discernible human influence on global climate.'
"No study to date has positively attributed all or part [of observed climate change] to anthropogenic causes."	
"While none of these studies has specifically considered the attribution issue, they often draw some attribution conclusions, for which there is little justification."	
"Any claims of positive detection of significant climate change are likely to remain controversial until uncertainties in the total natural variability of the climate system are reduced."	
"When will an anthropogenic effect on climate be identified? It is not surprising that the best answer to this question is, 'We do not know.'"	

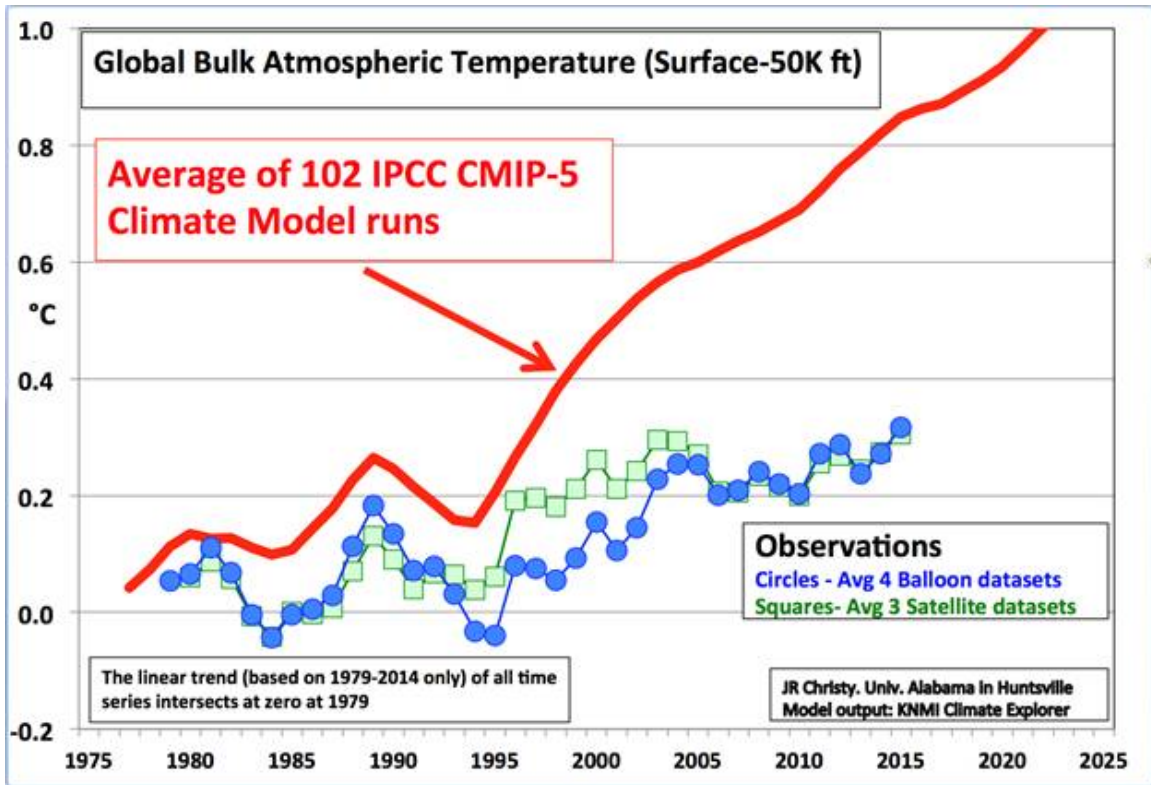
Did Santer have an agenda, or a reading comprehension issue?

There is no question that NOAA has a major problem with respect to the siting of their instrument packages, which contributes to the mess that the surface data record has become. Here's what the General Accounting Office had to say about their operation in a September 2011 report...

"NOAA does not centrally track whether USHCN stations adhere to siting standards...nor does it have an agency-wide policy regarding stations that don't meet standards." The report continues, "Many of the USHCN stations have incomplete temperature records; very few have complete records. 24 of the 1,218 stations (about 2 percent) have complete data from the time they were established."

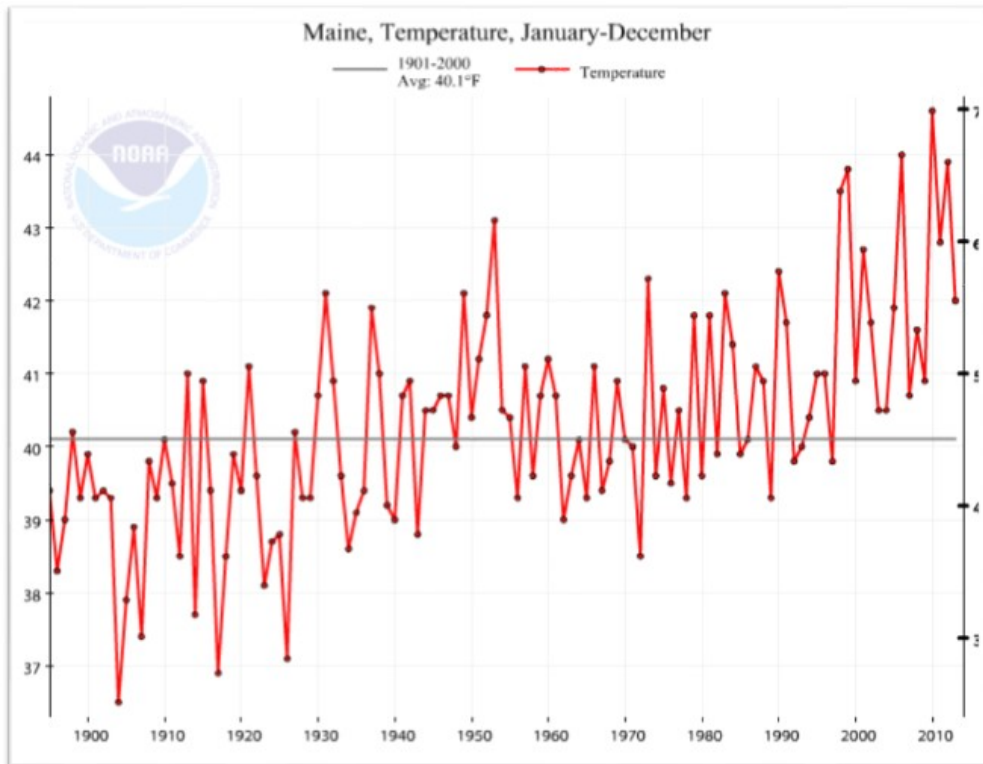
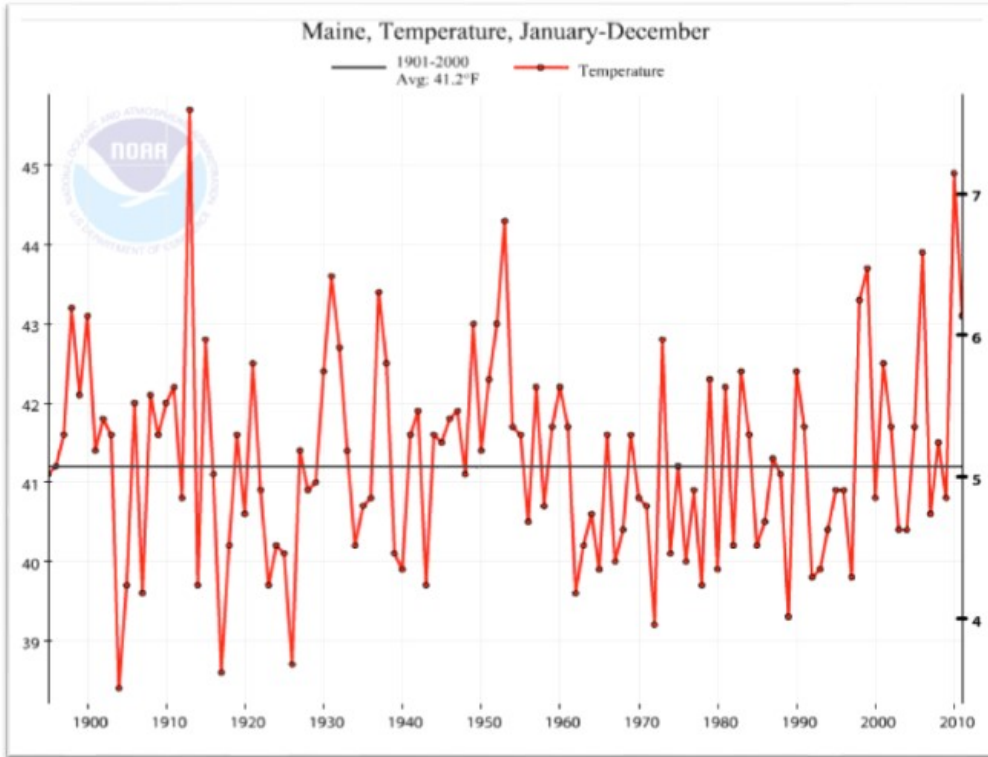
The GAO generously concluded that only 42% of all thermometers were improperly sited in 2010. After the all-volunteer, non-government, independent not for profit surfacesstations.org released the results of their inventory of over 1,000 of the 1,200 stations in the USHCN network in 2013 (which showed 89% to be non-compliant), some of the worst offending stations were taken off line. The bulk of the remainder remain in locations where readings are influenced by artificial warming. It is important to note that the surface thermometers have a margin of error of plus or minus 0.9 degrees. 71 per cent of the planet is covered by water, where data is incredibly sparse, and 50 per cent of the globe's land area is not covered by any sort of instrument network. Where data is sparse on land, such as in Canada, data is estimated/interpolated using thermometers as far away as 120 kilometers. And we are to believe that NOAA and NASA can claim the globe's temperature difference between years to a hundredth of a degree?!?! With a surface data set that is a sewer of digits?

25 years ago, NASA said "satellite analysis of the upper atmosphere is more accurate, and should be adopted as the standard way to monitor temperature change." Satellite issues with orbital degradation were fixed 10 to 20 years ago and it is important to note that the discrepancies were within the margin of error of the on-board instruments. Years ago, warmists claimed that the mid tropospheric temperatures would be the "smoking gun" to validate their theory...if the troposphere, particularly over the tropics, showed warming, it would be "game, set, match". Not only did the satellite data show no warming at that level, it was corroborated by the data obtained from weather balloons. The surface data set has no such means of cross-checking. This graph illustrates the agreement between satellite and balloon data and the absence of runaway warming forecast by the IPCC's climate models.



So, now that satellite data has failed to give the warmists' the lob pass that they were planning on dunking, they have taken to discrediting the very instruments that they declared superior 25 years ago.

The surface data is a largely unusable mess, plagued by siting issues, infilling of missing data that amounts to 40 percent of recent measurements, over distances as far as 120 kilometers, and massaged by a series of "homogenization" adjustments that have dramatically warmed the past couple of decades while cooling the early portion of the 20th century. The proof can be found throughout the pages of NOAA's website. Here's an example. The following 2 slides are the state temperature record for Maine. The first was the official record in 2012. The second is now the official record, posted in April of 2014.



If you focus on the 41 degree line on the left in the first frame and then check the second frame, you will clearly see that the record for the first half of the last century was cooled, which has the effect of making the slope of modest 21st warming appear more dramatic. The surface temperature record is replete with manipulations like this one, all of which serve to suggest that runaway warming has been happening for a hundred years or more. It is all a lie, and I refuse to stand by as more and more fabrications are created and distributed by government and media.

Regards,

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