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"Global Warming Has Stopped"? How to Fool People Using "Cherry-Picked" Climate Data

The current favorite argument of those who argue that climate change isn't happening, or a problem, or worth dealing with, is that global warming has stopped. Therefore (they conclude) scientists must be wrong when they say that climate change is caused by humans, worsening, and ultimately a serious environmental problem that must be addressed by policy makers.

The problem with this argument is that it is false: global warming has **not** stopped and those who repeat this claim over and over are either lying, ignorant, or exhibiting a blatant disregard for the truth. Here is a tiny sample of the false claims, gleaned from various blogs, comments to [my previous Forbes posts](#), op-eds in the [Wall Street Journal](#), news stories, and statements from pundits who spread climate misinformation:

“The supposed ‘consensus’ on man-made global warming is facing an inconvenient challenge after the release of new temperature data showing the planet has not warmed for the past 15 years.”

- “Current pause in global warming”
- “lack of global warming for well over 10 years now.”
- “There is no credible (statistically significant) data that says global warming is occurring”
- “fifteen years of warming, then fifteen of cooling”
- “The last decades “rate of warming” is flat.”
- “Forget global warming...no warming in 15 years.”

I could find a hundred more variations, but you get the idea. These statements are scurrilous deceptions and falsehoods. The planet is warming – an observation noted by every climate research institution tracking temperatures, the US National Academy of Sciences (over and over and over), every other national academy of sciences on the planet, and every professional society in the geosciences.

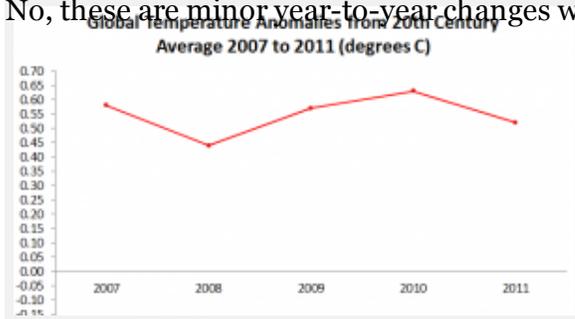
The actual data are easy for anyone to find – they are posted and regularly updated, freely, on public websites around the world. The most consistent, highly respected, and regularly analyzed and updated data on global surface temperatures are available from NASA’s [Goddard Institute for Space Sciences](#), NOAA’s [National Climate Data Center](#), and the United Kingdom’s Met Office [Hadley Center](#). [Feel free to redo my analysis using any of these – they all independently say the same thing: I’m using the NASA GISS data in my pictures below.]

All of the false claims take advantage of one fundamental truth about the average temperature of our planet: **it varies a little, naturally, from year to year**. Some years are a bit warmer than average and some are a bit colder than average because of El Niños, La Niñas, cloud variability, volcanic activity, ocean conditions, and just the natural pulsing of our planetary systems. When you [filter these out](#), the [human-caused warming signal](#) is clear. But natural variability makes it possible for scurrilous deceivers to do a classic “no-no” in science: to cherry-pick data to support their claims. They pick particular years or groups of years; they pick particular subsets of data. But when you look at **all** the data, or when you look at long-term trends, the only possible conclusion is that the Earth is warming – precisely the conclusion the scientific community has reached based on observations and fundamental physics.

Here is exactly what I mean by cherry-picking:

It turns out that 2011 was slightly cooler than 2010 and 2009. Oooh, global cooling? But wait, 2011 was warmer than 2008. Global warming? But wait again, 2011 was slightly cooler than 2007 again. Cooling?

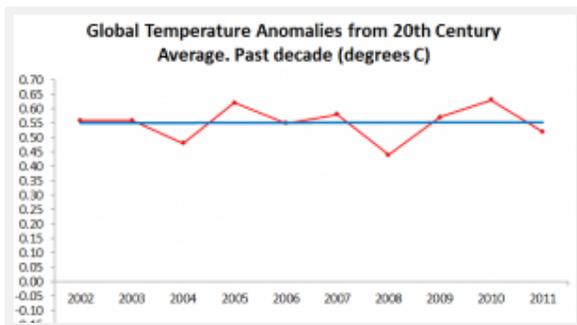
No, these are minor year-to-year changes well understood to be tiny variations largely attributable to natural causes.



Global temperature changes from 2007 to 2011

What about the **last decade**, as claimed above? The linear

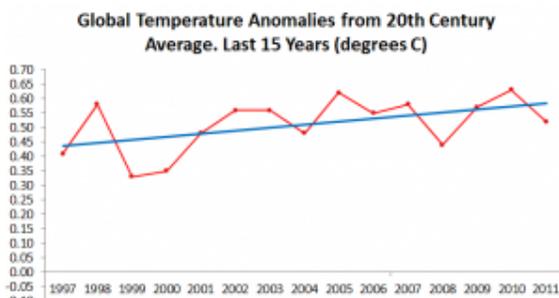
trend (the blue line) over the past decade is relatively flat, but in fact it still exhibited a warming trend, despite the temporary cooling forces that are masking the overall warming. As the British Met Office noted this week, in a reply to a misleading claim that the warming had stopped: “what is absolutely clear is that we have continued to see a trend of warming, with the decade of 2000-2009 being clearly the warmest in the instrumental record going back to 1850.”



Global temperature changes 2002 to 2011

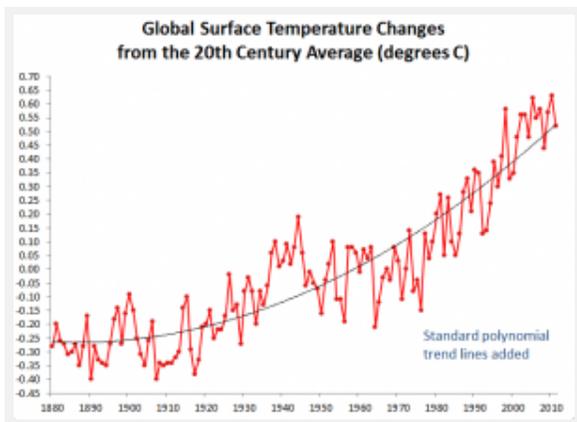
What about the **last 15 years?**

This claim, too, is false, in two important ways: First, it actually **has** warmed over the past 15 years, and second, the past 15 years are themselves among the warmest in the past 130 years.



Global temperature changes past 15 years.

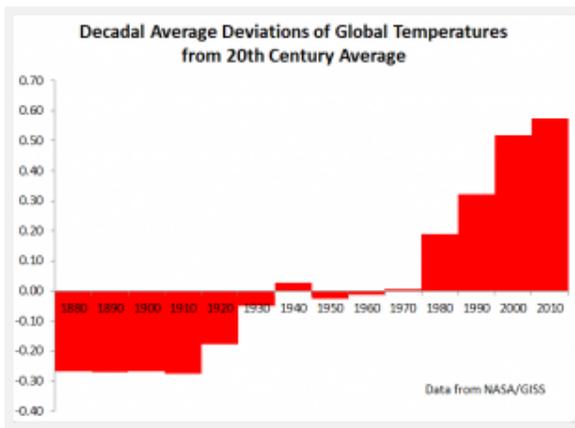
But even these selections of time periods are cherry picking. What about the **entire** instrumental record going back 130 years – the period of time when scientists know that growing concentrations of heat-trapping gases in our atmosphere have been piling up? Well, **you** look at the graph. The warming is unmistakable, despite the year-to-year ups-and-downs.



130 years of global temperature changes

What if we look decade by decade in order to smooth out some of the year-to-year natural variability? OK, here

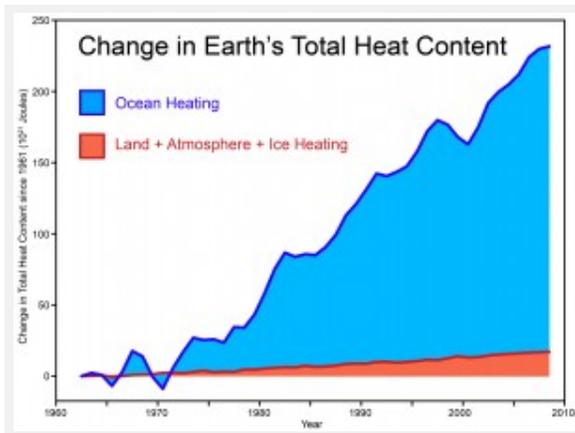
you go. The last decade had less warming than the one before (because of these natural variations I've mentioned), but is it cooling? No. Instead we see a continuation of the bad news.



Decadal changes in global temperatures

Finally even this is cherry-picking, because it turns out

that the heat imbalance of the planet is not only measured by rising surface temperatures. [Scientists now know](#) that a massive amount of the extra heating effect is also going into melting ice (in the Arctic and Greenland and mountain glaciers) and also [heating the oceans](#), and that even when surface heating slows, ocean heating continues. This next figure based on [data from a 2011 paper by Church et al.](#) shows that most of the heat actually goes into the oceans, not into rising surface temperatures.



Total heating of the oceans, ice, and surface, showing that most heating is going into the oceans.

[A technical comment for those interested: anyone who understands the statistics of long time-series with internal natural variability also understands that we can see periods of time as long as 10 or 15 years with modest warming, followed by periods with higher-than-average warming – a dynamic confirmed by both models and by actual observations.]

The next time you hear someone say it isn't warming, or it hasn't warmed for "xx" years, or "it's actually cooling," remember: someone is trying to deceive you with cherry-picked numbers.

The climate drives the weather. People care about the weather – what happens day to day – our weather can bring us joy or misery. It is time to care about the climate as well, because our decisions and actions today will reverberate in our weather for centuries to come. The famous quote from a century ago, attributed to Mark Twain and Charles Dudley Warner ("everybody talks about the weather but nobody seems to do anything about it") may have been true once. But it isn't true anymore.

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<http://www.forbes.com/sites/petergleick/2012/02/05/global-warming-has-stopped-how-to-fool-people-using-cherry-picked-climate-data/>