3 of 4 global metrics show nearly flat temperature anomaly in the last decade

8 03 2008

It has been 10 years since the super El Niño of 1998 helped to spike global temperatures dramatically. Now since it appears we are in the opposite phase, I thought it would be interesting to look at the 10 year trend from January 1998 to January 2008.

Here's a link to a 2-minute video called "The El Niño Factor". Bob Tisdale points out to me this interesting graph: (slightly modified the key placement to fit the image in this blog)

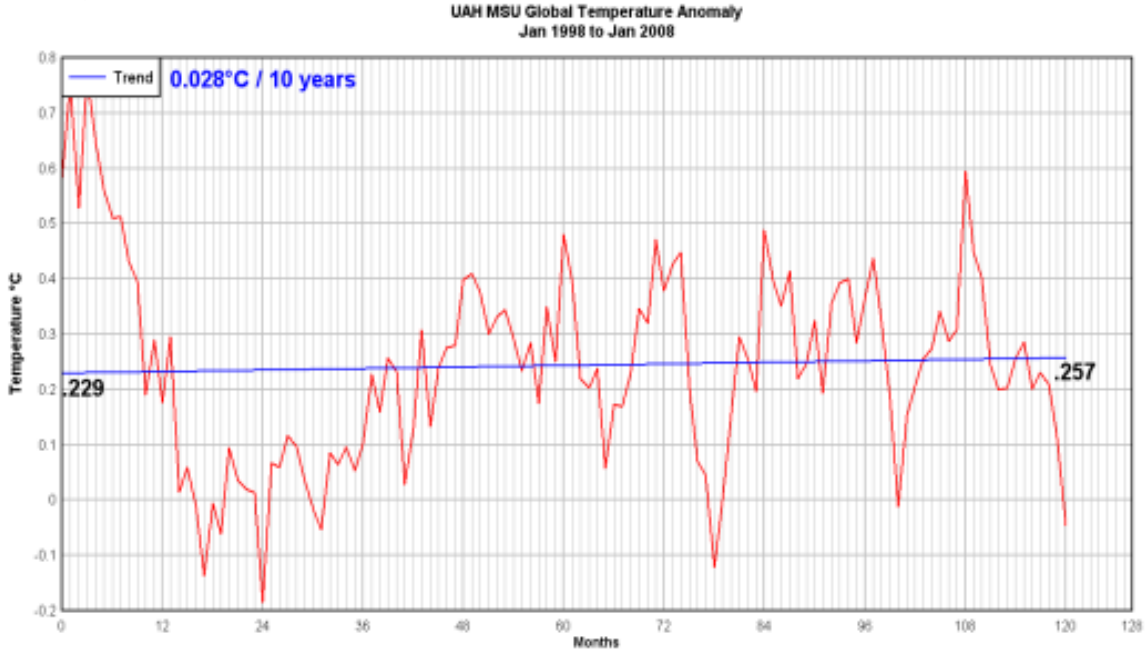
Here's the link to the Webpage that's the source of the data for the above graph.

Now let me be clear that a 10 year trend period is not typical for climate analysis. Typically a 30 year period is used to establish a climate baseline. For example, NOAA publishes climate summaries for cities in the USA based on 30 year periods. I'm not trying to do anything to compare to the last 30 or even the last 100 years. I'm simply curious about what the trend looks like since the last big El Niño event in 1998 now that we are in a La Niña. Of course this may upset some folks, and I'll probably get the usual invective hurled at me and furious scribblings on other blogs refuting this as "He's doing it wrong", but I think looking at what has happened globally between a large a large El Niño and La Niña is both interesting and useful.

To do this, I used the same global temperature anomaly datasets that I've used for the last few posts I made on the subject of global temperature anomalies. I created a new file, using all four global metrics, with only the last 10 years of data, which you can inspect here: 4metrics_temp_anomalies_1998-20081.txt

Here are the four charts of global temperature anomalies, note that there are links to each original organizations data source below each graph. Click each image to get a full sized one.

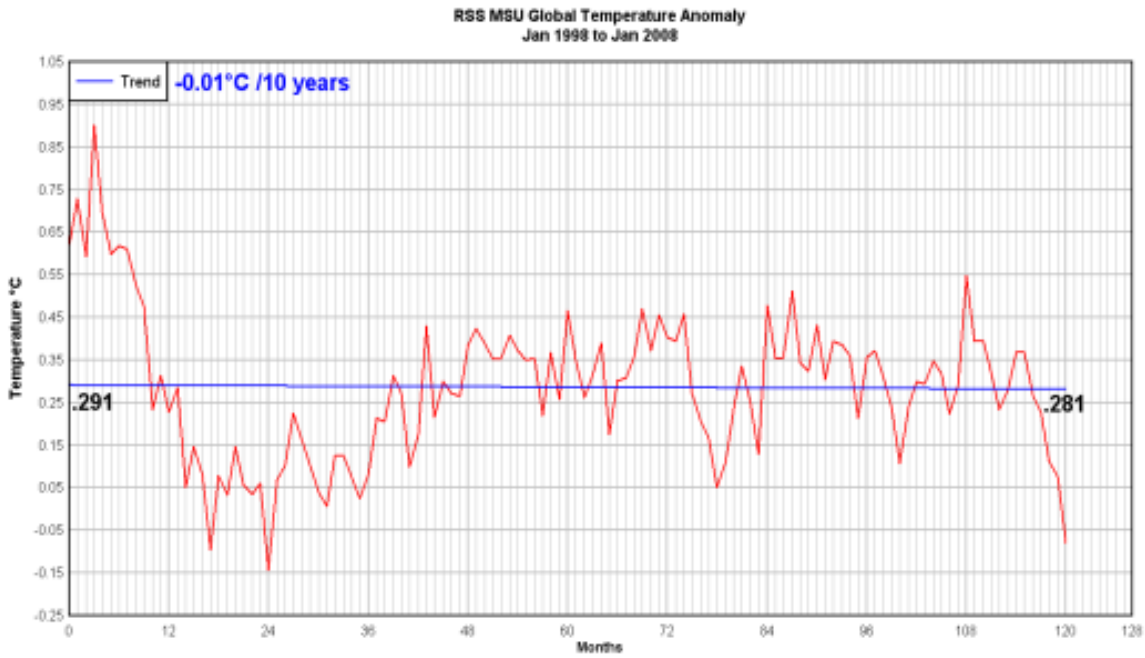
University of Alabama, Huntsville (UAH) Dr. John Christy:



Reference: UAH lower troposphere data

UAH shows a slightly positive anomaly trend of 0.028°C for the last ten years.

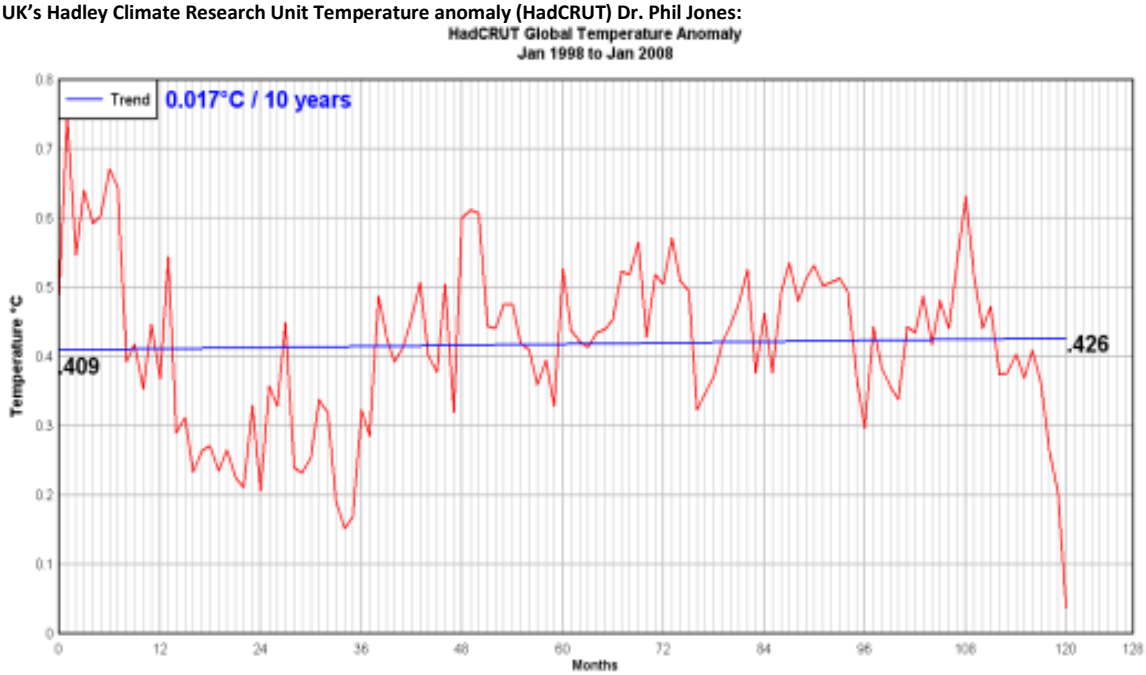
Remote Sensing Systems of Santa Rosa, CA (RSS):



Reference: RSS data [here](#) (RSS Data Version 3.1)

RSS shows a slight negative anomaly trend of -0.01°C for the 10 year period. This may have to do with the fact that RSS reported an anomaly for January 2008 that was twice the size than what UAH reported (-0.08 for RSS, -0.044 for UAH) owing to a different methodology of the satellite data preparation.

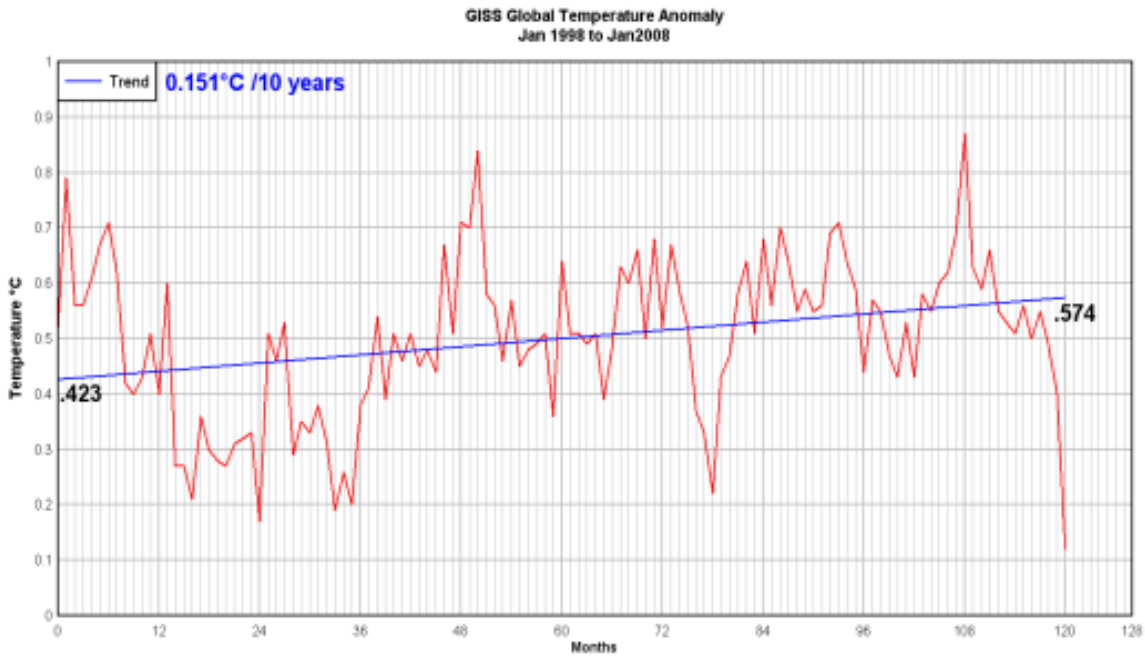
UK's Hadley Climate Research Unit Temperature anomaly (HadCRUT) Dr. Phil Jones:



Reference: above data is HadCRUT3 column 2 which can be found [here](#)
description of the HadCRUT3 data file columns is [here](#)

The HadCRUT land-ocean global anomaly data shows a slight trend of 0.017°C for the last ten years. Surprisingly, it is lower than the trend of 0.028°C for the UAH satellite data.

NASA Goddard Institute for Space Studies (GISS) Dr. James Hansen:



Reference: GISS dataset temperature index data

And finally we have the NASA GISS land-ocean anomaly data showing a ten year trend of 0.151°C, which is about 5 times larger than the largest of the three metrics above, which is UAH at 0.028°C /ten years. Given some of the recent issues Steve McIntyre has brought up with missing data at NASA GISS, it also makes me wonder if the GISS dataset is as globally representative as the other three.

UPDATE: The answer as to why the GISS data diverges so much may be found in the 2005 summary on the GISTEMP website, (h/t Barry H.) Here is a relevant excerpt:

> Our analysis differs from others by including estimated temperatures up to 1200 km from the nearest measurement station (7). The resulting spatial extrapolations and interpolations are accurate for temperature anomalies at seasonal and longer time scales at middle and high latitudes, where the spatial scale of anomalies is set by Rossby waves (7). Thus we believe that the remarkable Arctic warmth of 2005 is real, and the inclusion of estimated arctic temperatures is the primary reason for our rank of 2005 as the warmest year.

I'm not sure the "remarkable Arctic warmth" is real, especially since the disappearance of arctic sea ice during that time has been linked not to warmer temperatures, but to wind patterns by other researchers at NASA. The sea ice "melt" as proxy for increased arctic temperatures doesn't seem to be connected. Further, a NASA satellite AVHRR image shows the high latitudes near the south pole getting colder, except in areas where volcanic activity is known to exist.

A recent comment from Carl Smith came with an animated graphic showing how that 1200 km spatial extrapolation looks when compared to a 250 km block, which is also used in GISS analysis. Carl writes "Bear in mind that the data in a 250km 'block' is in many cases from a single station, especially in remote areas, so is really just a minuscule dot on the map. Note how little real polar region data there is in the 250 km map, whereas in the 1200 km map the polar regions appear to be well covered."

As a creator and purveyor of meteorological measurement technology I have never been a fan of "extrapolated" data. It is not a confidence builder to know that data for something so important has been either extrapolated or estimated, especially when there are so few stations in the high latitudes, as evidenced by the Historical Station Distribution study by John Goetz.

By treating the NASA GISS data as being an outlier due to that data confidence difference, and by taking a "3 out of 4 approach" in looking at the plotted trends, one could conclude that there has not been much of a trend in global temperature anomalies in the past ten years.