Why all models that use Global Mean Temperature as a reference to the air temperatures must be wrong

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The accepted standard by the majority of scientists trying to find the correlation between the air temperatures on our planet and time is to use 'annual global anomaly' as dependent variable Y, and time as an independent variable X. As it can be seen from the figure below, the most extreme hot years so far are 0.6^{O}C above the mean, while the most extreme cold years are 0.4^{O}C below the mean. So, within total range of 1^{O}C one year can be either declared extremely hot or extremely cold:

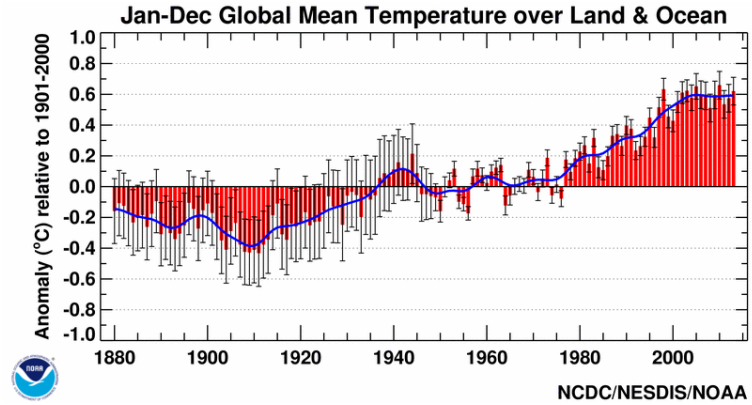

Figure 1. Correlation between air temperatures and time (in years) between 1880 and 2013

What is also obvious from Fig 1 is that the minimum time unit used is 1 year, i.e. the annual temperature patterns for the whole planet are represented by a single number. Let me now introduce the graph below which compares anomaly, or to be more accurate, the variance, between the dataset based on a **daily** thermometer readings, Tmax and Tmin, from the weather station at Armagh (UK); the dataset based on **monthly** averages Tmax and Tmin from the weather station at Verhojansk (Arctic – Russia) and the climate scientists' standard, the annual global temperature:

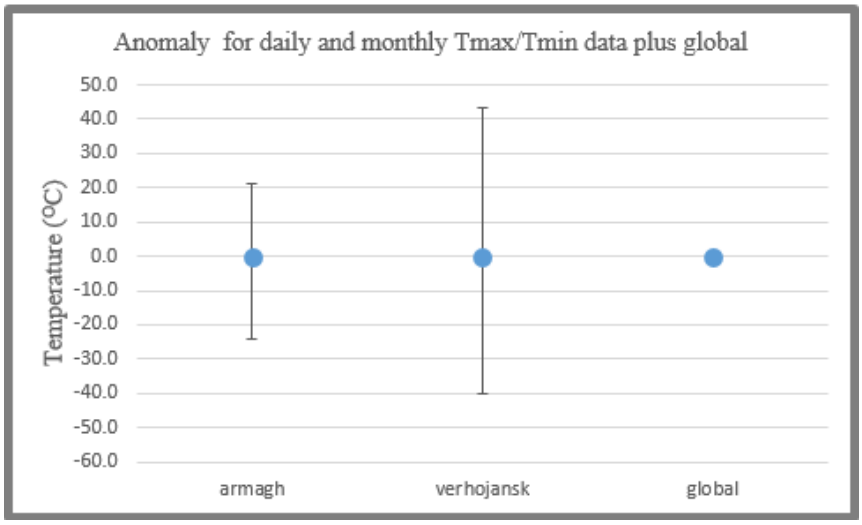

Figure 2. Anomalies for Armagh, Verhojansk and global datasets (with the means set at 0) with error bars indicating maximum and minimum distance to the mean

First thing to notice is that excel cannot display the variance or anomaly range of the global set since it is too small for comparison. The anomaly for Armagh is between +20 to -25^{O}C, for Verhojansk between +43 and -40^{O}C, while for global between +0.6 to -0.4^{O}C. If we use the same matrix as in Figure 2 but display the respective means at their actual values, we are starting to see what the real problem with the concept of the annual global temperatures is:

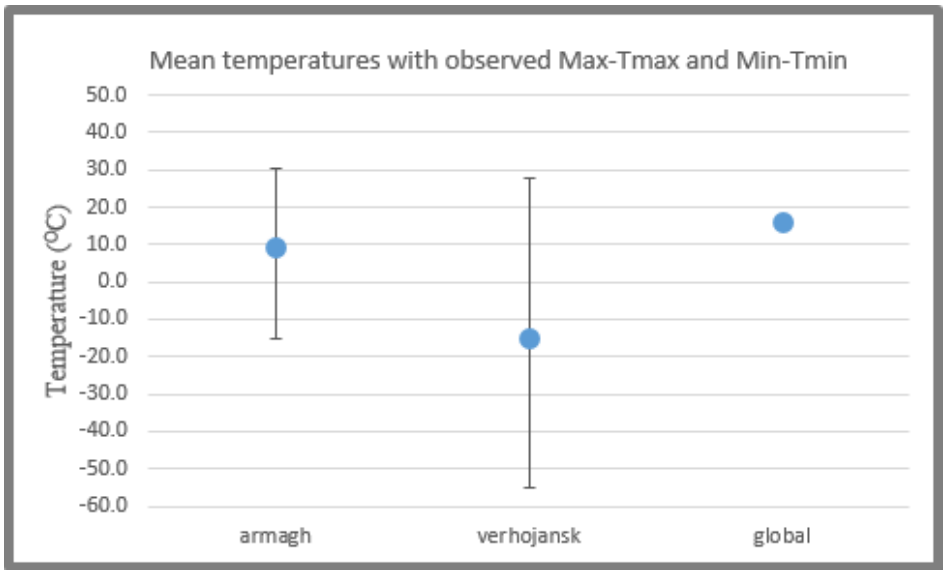

Figure 3. The actual means and anomalies for Armagh, Verhojansk and global datasets

With the respective means set at their actual values, i.e. reflecting the physical reality as detected by the use of calibrated thermometer, except in case of global temperatures which are generated by the computer software, we can see that the natural variations for Armagh are between -15 and +30^{O}C, for Verhojansk between -55 and +28^{O}C while the global temperature stayed constant at 16^{O}C. The range of years covered by each individual set is: Armagh 1844-2004; Verhojansk 1900-2013 and global 1880-2013. The histogram below summarises it all:

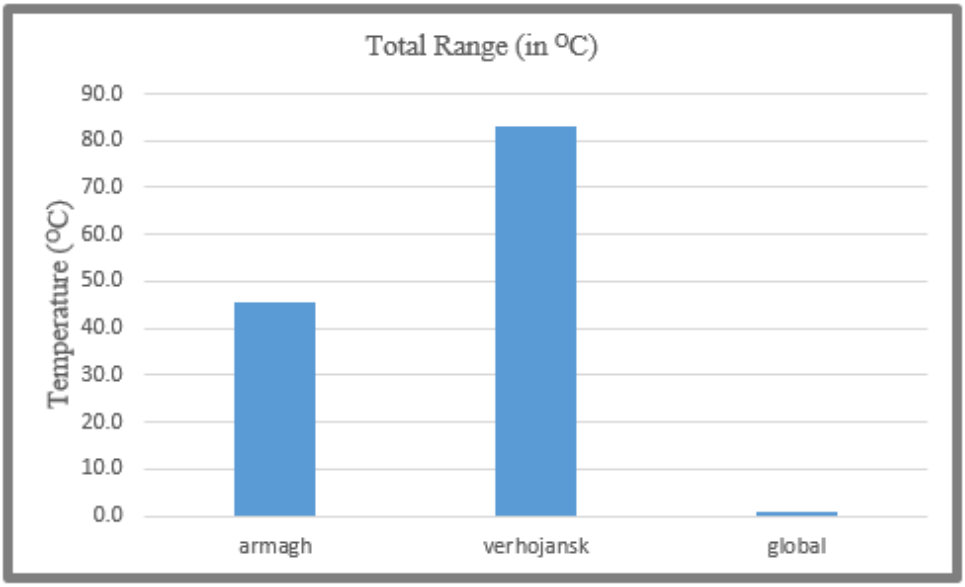

Figure 4. Total observed temperature ranges for Armagh and Verhojansk and those calculated for the Earth's global set

The single and most powerful message that can be extracted from Figure 4 is that everything, in terms of air temperatures, is local and nothing is global.

It must follow that if we want to understand day-night variations, we must extract that knowledge from the local-daily Tmax/Tmin data. If we want to understand seasonal variations, we must extract that knowledge from the local-monthly Tmax/Tmin data.

Since the single global-annual datapoint has 0% of the information content, what possible knowledge can anyone extract from it? Remember, everything is local and nothing is global!