

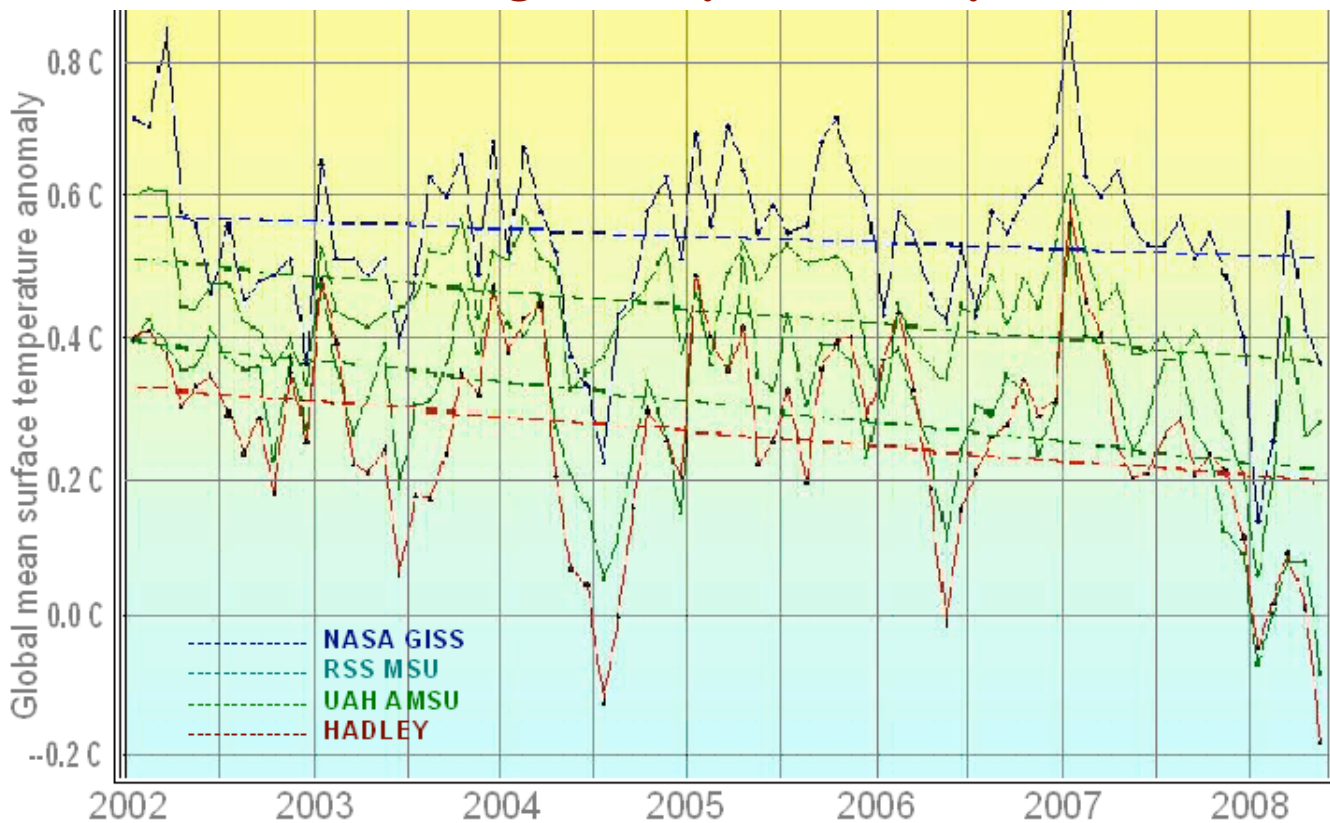
*To the Editors:*

Gentlemen – Professor Levin (July) offensively brands me a “denier” and implies I baselessly reject the notions that “global warming” is occurring; that it is caused by us; and that it could be harmful. He says I am wrong to cite only McIntyre & McKittrick (2005) in repudiating the “hockey-stick” graph by which Mann *et al.* (1998, 1999, *corrigendum* 2004) had purported to eradicate the medieval warm period; wrong to cite Solanki *et al.* (2005) to the effect that during the solar Grand Maximum of the past 70 years the Sun was more active, for longer, than at almost any time throughout the past 11,400 years; and wrong to say Al Gore had stated that “global warming” caused more frequent hurricanes, will cause sea level imminently to rise by 20 ft, and is melting the snows of Kilimanjaro.

The only authorities that Levin cites against me are a notoriously unreliable online encyclopedia “that anyone can edit”; a zoologist who admits to no knowledge of the mathematics or physics of climate; and a tendentious propaganda website created by two of the authors of the flawed “hockey-stick” graph. Levin does not cite a single peer-reviewed paper in support of his unprovoked, *ad hominem* assault on me. I hope you will let me reply briefly, *seriatim*, *ad rem*, and with references, to his unfortunate and disfiguring allegations.

**Is “global warming” occurring?** “Global warming” occurred naturally at a near-linear  $\sim 0.5$  °K / century for 300 years after the end of the Maunder Minimum; and, during all but the last 35 of those 300 years, we cannot have had much influence (Akasofu, 2008). From 1975-1998, there was a small uptick of  $\sim 0.2$  °K in the trend, but that has been canceled following a phase-transition in the surface temperature trend late in 2001, since when the Earth has been cooling: not for the two or three years Levin mentions, but for seven (Figure 1):

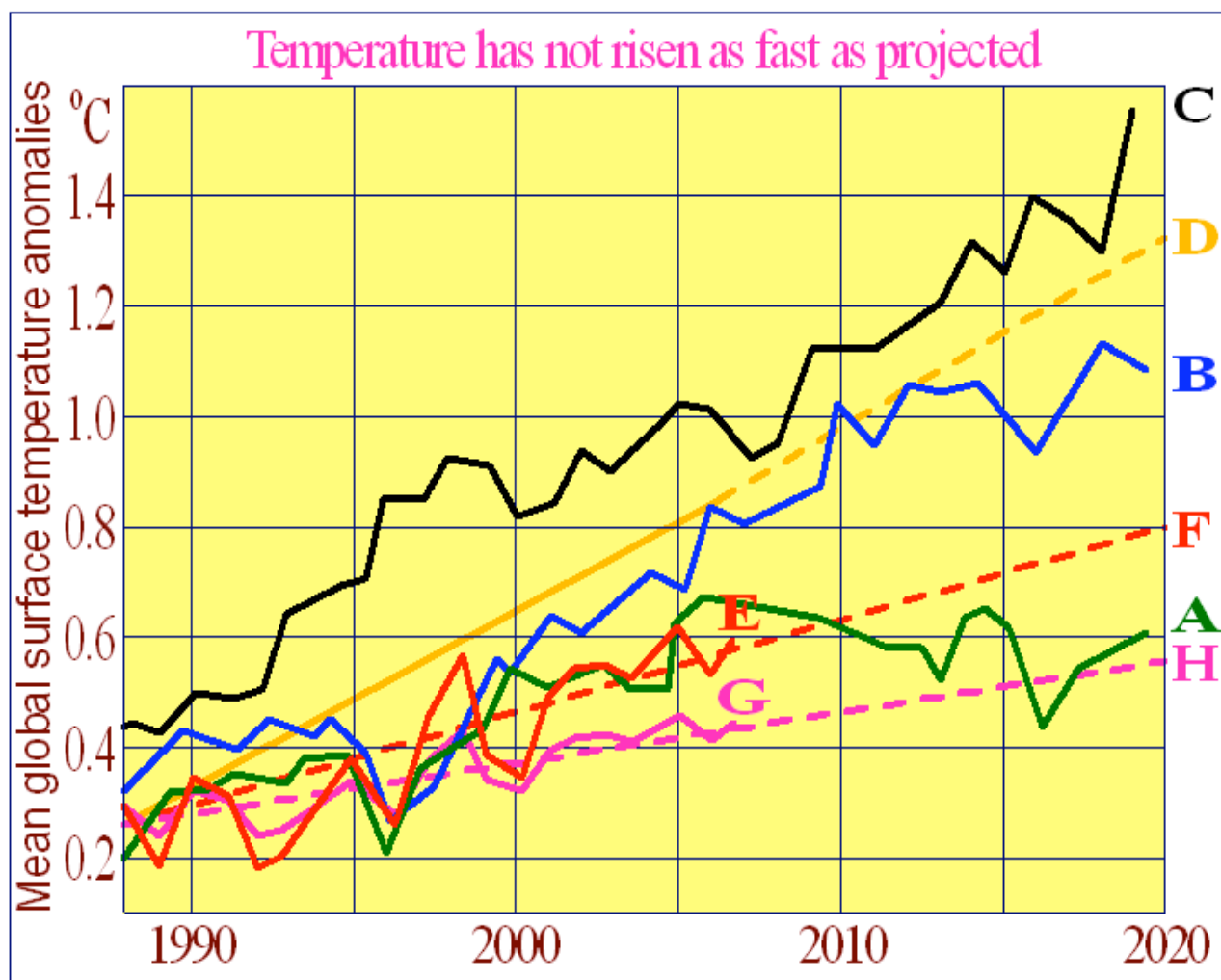
**Figure 1**  
**Global cooling, January 2002 to May 2008**



*Not “global warming”:* A pronounced downtrend followed the phase-transition in surface temperatures late in 2001. In the cold winter of 2007/8, record sea-ice extents were observed at both Poles. The January-to-January fall in temperature from 2007-2008 was the greatest since global records began in 1880.

None of the models relied upon by the IPCC had predicted so long and strong a cooling as that shown in Figure 1. Global temperature in June 2008 was actually lower than 20 years ago, when Hansen (1988) presented his much-exaggerated and now-disproved temperature graphs to Congress (Figure 2, curves A-C). Contrary to Levin’s assertion, Hansen’s curve B has not proven to be a skilful prediction (Figure 2): compare Hansen’s curve B with the actual trend F, corrected by McKittrick (2007) at H to make sufficient allowance for urbanization:

**Figure 2**  
**Global temperature projections and outturns, 1988-2020**



*Unskilful projections:* Hansen (1988) projected that global temperature would stabilize (A) if global carbon dioxide concentration were controlled from 1988 and static from 2000: otherwise temperature would rise rapidly (B-C). IPCC (1990) agreed (D). However, these projections proved well above the National Climate Data Center’s outturn (NCDC, 2008: E-F), which, in contrast to the the datasets at Fig. 1, show a modest rise in temperature from 1998-2007. If McKittrick (2007) (G,H) is correct that temperature since 1980 has risen at only half of the published rate, outturn tracks Hansen’s CO<sub>2</sub> stabilization case (A), although emissions have risen rapidly since 1988.

**Is “global warming” caused by us?** Some of it is. The issue is not *whether* we are warming the Earth: it is simple to calculate that our direct output of heat, including waste heat, is likely to have increased global temperature by 0.1-0.2 °K over the past 50 years.

**Might we cause dangerous “global warming”?** The only question worthy of study in the climate debate is *how much* warming we have indirectly induced by causing CO<sub>2</sub> to occupy one-ten-thousandth more of the atmosphere than in 1750, and *how much* further warming any continued CO<sub>2</sub> enrichment may cause. I conclude (Monckton, 2008) that, at CO<sub>2</sub> doubling, global temperature may have risen by just 0.58 °K. As temperature fails to respond as the IPCC had predicted, it is itself moving slowly towards lower climate sensitivity: 3.8 °K in its 1996 assessment; 3.5 °K in 2001; 3.26 °K in 2007. None of these estimates is properly explained in the IPCC’s assessments, and none is justified either by theory or by observation. Low climate sensitivity is now the rule in the literature: see, e.g., Chylek (2008); Lindzen (2007); Spencer (2007); Wentz *et al.* (2007); etc., etc. Since climate sensitivity is low, the probability that “global warming” will prove dangerous is vanishingly small.

**The “hockey stick” graph** is described in a National Academy of Sciences report (North *et al.*, 2006) as having “a validation skill not significantly different from zero.” Wegman *et al.* (2005) come to a similar conclusion, and also demonstrate that many of the papers supporting the “hockey stick” that suddenly appeared once McIntyre & McKittrick (2005) had demonstrated its falsity had been written by associates and previous co-authors of the “hockey stick’s” creators. The following are among the many papers in the peer-reviewed literature that provide proxy-observational (as opposed to mere numerical) evidence for the existence of the mediaeval warm period in all parts of the world: Wilson *et al.*, 1979; Kitagawa & Matsumoto, 1995; Dahl-Jensen, 1998; Tyson *et al.*, 2000; Chu *et al.*, 2002; Khim *et al.*, 2002; Seppa & Birks, 2002; Hallett *et al.*, 2003; Noon *et al.*, 2003; Esper & Schweingruber, 2004; Williams *et al.*, 2004; Rein *et al.*, 2004, 2005; Mangini *et al.*, 2005; Qiang *et al.*, 2005; Gupta *et al.*, 2005; Pla & Catalan, 2005; Holzhauser *et al.*, 2005; Bjorck *et al.*, 2006; Grinsted *et al.*, 2006; etc., etc. I have selected these papers because each of them presents at least one graph in which the mediaeval warm period is easily visible. I have publicly cited most of these papers before: therefore, Levin has no legitimate basis for his statement that I have relied solely upon McIntyre & McKittrick (2005).

**The Sun’s role in warming:** Absent any other causative agent, the recovery of global mean surface temperature in the 300 years since the end of the Maunder Minimum could not have been as substantial as it has been if the Sun’s role were as insignificant as the IPCC suggests. Sami Solanki’s opinion is that perhaps as much as one-quarter to one-third of the warming of the past 50 years is attributable to the Sun. The International Astronomical Union (IAU, 2004), goes further, concluding that the Sun is chiefly responsible for late 20<sup>th</sup>-century warming. Svensmark *et al.* (2006) posit a reinforcement of solar forcing by cosmic rays. Also, the IPCC’s models do not take sufficient account of the fact that a given quantum of solar forcing raises temperature more than an equivalent quantum of terrestrial forcing because almost half of the *incoming* solar irradiance is already in the near-infrared when it arrives at the top of the atmosphere. Warming coincident with that on Earth is reported on Mars, Jupiter, Neptune’s largest moon, and even on distant Pluto.

**Al Gore’s “errors”:** I was an expert witness in the London court case in which the judge (Burton, 2007) identified nine “errors” sufficiently serious to require correction before innocent schoolchildren could be exposed to Al Gore’s sci-fi comedy horror movie. There are at least three dozen scientific errors in Gore’s movie: significantly, all tend to invent a danger where none exists, or otherwise to exaggerate the imagined danger, sometimes by one or two orders of magnitude. The three errors that Levin says are not errors were in the list we submitted to the learned Judge for decision. He upheld us on all three:

**Hurricanes:** The judge said: “Hurricane Katrina and the consequent devastation in New Orleans is ascribed to global warming. It is common ground that there is insufficient evidence to show that.” Contrary to Levin’s assertions, Gore’s movie states that hurricane intensity is increasing and implies that hurricane frequency is also increasing, because of “global warming”, yet the trend in the literature is moving away from the notion, expressed in Webster *et al.* (2005) and Emanuel (2005), that either the frequency or the intensity of hurricanes is increasing. See, for instance, Klotzbach (2006), who reports that the data “do not support the argument that global tropical-cyclone frequency, intensity and longevity

have undergone increases in recent years”. Also, Webster’s conclusions are instantly falsified if one chooses 1900 rather than 1950 as the start-date for analysis; and Emanuel has himself to some extent qualified the opinion he expressed in 2005.

**Kilimanjaro:** The judge said: “Mr. Gore asserts that the disappearance of snow on Mt. Kilimanjaro is expressly attributable to global warming ... this is a point that specifically impressed Mr. Miliband [then UK Environment Minister]. It is common ground, however, that there is no evidence that the disappearance of snow on Mt. Kilimanjaro is attributable to global warming.” The region around Kilimanjaro has been cooling for 50 years; the summit temperature averages  $-7^{\circ}\text{C}$  and never rises above  $-1.6^{\circ}\text{C}$  (Molg *et al.*, 2003); and the ablation of the summit ice began in 1880, long before our influence could have been significant: much of the Fürtwängler glacier at the summit had gone well before Hemingway wrote *The Snows of Kilimanjaro* in 1936.

**Sea level rise of 20 ft:** The judge said: “This is distinctly alarmist and part of Mr. Gore’s ‘wake-up call’. It is common ground that if Greenland melted it would release this amount of water, but only after, and over, millennia, so that the Armageddon scenario he depicts is not based on any scientific view.” The IPCC has reduced its high-end sea-level projection to 2100 from 88 cm in its 2001 assessment to 59 cm in 2007, a reduction of one-third. Niklas Mörner, who has been studying sea level for a third of a century, tells me there is no reason to think that sea level will rise very much faster in the 21<sup>st</sup> century than it did in the 20<sup>th</sup> (i.e. <8 in, not 20 ft: *vide* Mörner, 2004). Also, I had to require the IPCC to correct a table that it had inserted into the final draft of its 2007 assessment after the scientists’ draft had been finalized, to remove a tenfold exaggeration in the observed contribution of melting ice-sheets and glaciers to sea-level rise.

It would surely be more constructive if, in future, the debate about the climate were conducted courteously, in accordance with the scientific method, and with at least some reference to the peer-reviewed literature.

Monckton of Brenchley

Carie, Rannoch, PH17 2QJ, Scotland  
2008 July 14

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