

A RESPONSE TO THE "*GREAT GLOBAL WARMING SWINDLE*"

Andrew Glikson
Department of Earth and Marine Science
Australian National University
Canberra, A.C.T. 0200
Andrew.glikson@anu.edu.au

According to "The Great Global Warming Swindle", produced by Martin Durkin and broadcast on the UK Channel 4, human-triggered climate change is merely a conspiracy theory, designed by over 2000 climate scientists, the world's leading climate research organizations and the Intergovernmental Panel for Climate Change to prevent the world's poor nations from developing.

Given an overwhelming agreement among climate scientists and biologists about the reality of human-induced climate change, "climate sceptics"—some of whom are known to have received money from fossil fuel companies—have attempted to argue that (1) No global warming is taking place, or (2) If global warming is real it is of natural origins and not the result of human emissions, and may even be beneficial.

On 4.11.2006, Bob Ward, Senior Manager, Policy Communication, British Royal Society, wrote an extraordinary letter in the annals of science, addressed to a major oil company, stating, among other things, "... I am writing to express my disappointment at the inaccurate and misleading view of the science of climate change that these documents present...leaves readers with such an inaccurate and misleading impression of the evidence on the causes of climate change that is documented in the scientific literature... My analysis indicates that (your company) provided more than \$2.9 million to organizations in the United States which misinformed the public about climate change through their websites."

The film "The Great Global Warming Swindle", due to be screened on the ABC on 12 July, is no exception, continuing to perpetrate a number of discredited misconceptions:

- *High temperatures are not unique to the 20-21st century*

Not true. By 2000 mean global temperatures have risen about 0.3°C higher than the maximum of the Medieval Warm Period (1000-1200AD) and highest since 125,000 years ago when temperatures reached 2-3°C above present levels. Temperature rise rates exceeded those of the last glacial termination by an order of magnitude.

- *CO₂ is not the main cause of global warming*

Not true. The infrared radiative effects of CO₂ are a physical fact demonstrated both in nature and in the laboratory, where the doubling of CO₂ levels results in an increase of about 3°C in

temperature (*Climate sensitivity*). Rates of CO₂ rise during 1970-2003 exceeded those of the last glacial termination by two orders of magnitude.

- *During the interglacial periods changes in CO₂ lag behind temperature rises, so are not the cause for warming*

Past interglacial warming were triggered by sharp spikes in solar irradiation associated with the Earth's position relative to the sun (Milankovic cycles), with consequent feedback release of greenhouse gas (CO₂, CH₄) from the oceans and the biosphere, resulting in atmospheric infrared radiation effects and in melting of ice sheets, which amplify global warming. By contrast current climate change is caused by the thermal effects of CO₂ emissions from burning of some 300 billion tons of fossil fuel since the dawn of the industrial age, with a consequent increase of CO₂ to 380 parts per million, 36 percent above maximum levels (about 280 parts per million) which pertained over the last one million years (The Pleistocene).

- *No perfect concordance occurs between greenhouse gases and temperatures since the dawn of the industrial age.*

Terrestrial mean temperature variations are a compound consequence of several factors, principally solar variations and greenhouse gases. Since the beginning of the 20th century to about 1940 temperatures increased by about 0.45°C as a combined effect of an increase in greenhouse emissions and in solar irradiation associated with the 11-year sunspot cycle (Figure 1). A decline in temperature during 1940-1970 of about 0.1°C occurred, despite continuing rise in emissions, due to a decline in the sun spot cycle. From the mid-1970s the solar cycle effects and temperature effects were strongly decoupled due to a sharp rise in greenhouse gas levels, rising by about 0.6 °C to 2000 (Figure 1).

- *Cosmic rays result in increased clouding, consequently periods of low cosmic ray flux cause global warming.*

Not true. The cosmic ray flux and solar irradiance are inversely related, due to deflection of the former during periods of maximum sun spot activity. Water clouds have both cooling effects (due to reflection) and warming effects (due to infrared properties of water). The increased clouding during periods of cosmic ray maxima and sun spot minima may ensue from decreased solar radiation and lesser cloud dispersion. It has not been demonstrated cosmic rays result in cloud nucleation. Cloud formation is affected by several factors, including concentration of aerosols and dust, and are relatively scarce over areas of maximum warming, namely the poles and the deserts. From the mid-1970s temperatures were strongly decoupled from the solar and cosmic ray cycles (Figure 1).

- *Water vapor are responsible for global warming*

Increases in evaporation and concentration of water vapor in the atmosphere are the consequence of, not the trigger for, global warming. The residence time of water in the atmosphere is much shorter than that of CO₂, which may last between 5 and 200 years.

- *Ice sheet melting effects are slow processes lasting many centuries or millennia.*

Not true. Long-term relations between sea level rise and temperatures exceed 4 metres per 1°C. Significant short-term (decades to century-scale) temperature and sea levels fluctuations (several degrees and many metres) during the last ice age (about 110 – 15 thousand years ago) imply great instability of the Greenland and west Antarctic ice sheets. Marked reduction in permanent ice cover by about 17 percent, and rapid collapse dynamics of these ice sheets, were observed over the last 20 years. Sea level rise rates have doubled between 1860 and 2005 (1860-2000 +1.6 mm/year; 1910-1997 +2.3 mm/year; 1994-2005 +2.8 to 3.4 mm/year).

According to the World Conservation Union, present extinction rates are 1000 to 10,000 times the background rate of 0.5-2.0 species/year. From AD 1600 to the present an estimated 50% of birds and mammals have disappeared ([http://www.iucn.org /themes/ssc/index.htm](http://www.iucn.org/themes/ssc/index.htm)). Great mass extinction of species during geological history (late Devonian, Permian-Triassic, end-Triassic, Cretaceous-Tertiary, Paleocene-Eocene) were associated with sharp increases in atmospheric levels of CO₂ and CH₄. Those who watch “The Great Global Warming Swindle” need to bear this in mind.

References

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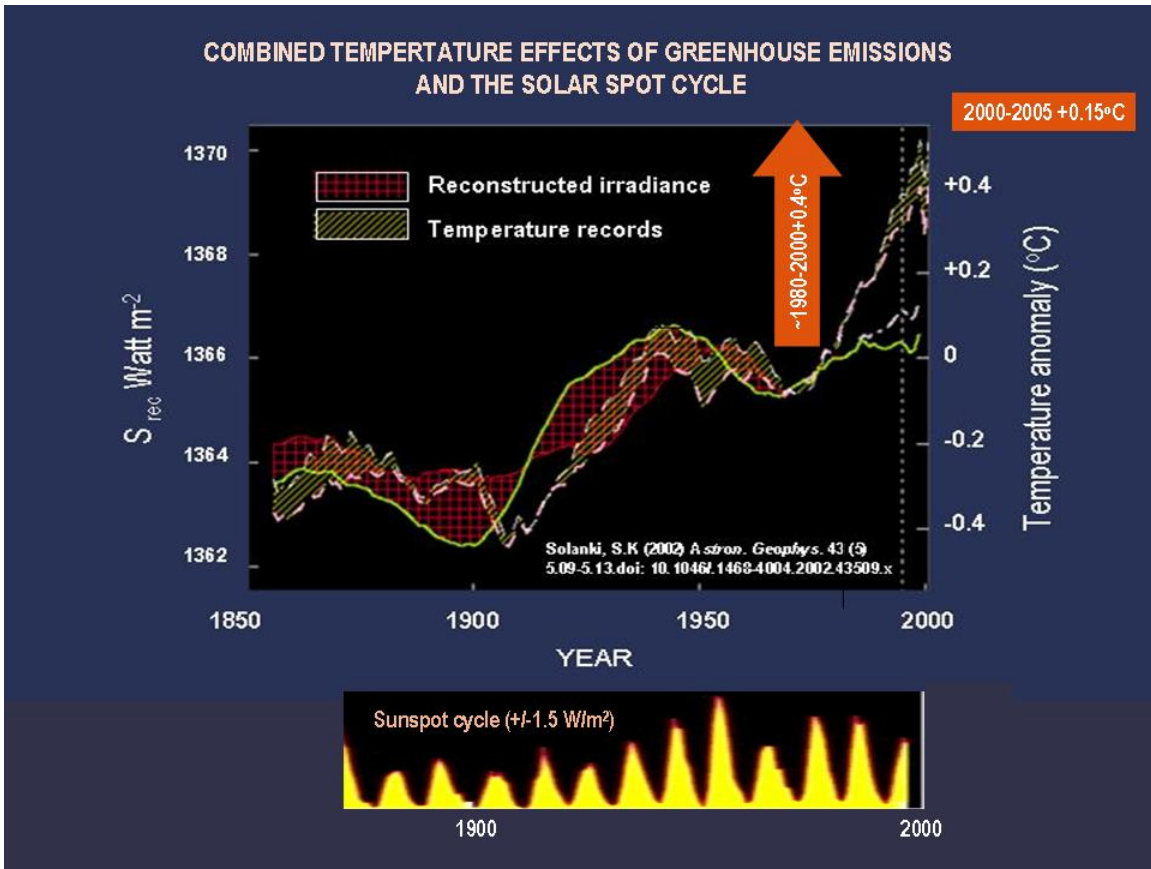


Figure 1. Combined temperature effects of solar irradiation and greenhouse effects during 1850 and 2000 correlated with the sun spot cycle (after Solanki, 2002).