



SUSTAINABLE LIVING TASMANIA

The Great Global Warming Swindle

Who's doing the swindling?

Sustainable Living Information

The documentary film *The Great Global Warming Swindle* is a slick and viewable piece of television, promising to show that "the actual scientific basis for the theory (of man-made global warming) is crumbling". As such *The Swindle* is a swindle in itself.

Viewers of Martin Durkin's film need to be aware of its fallacies and misrepresentations. Over several decades, the views presented by GGWS have been considered and tested by the world's climate scientists. An overwhelming majority of scientists have rejected them as irrelevant to the present, pressing debate.

After analysing enormously complex climate data, scientists have almost unanimously concluded that while there are many causes of global warming, we humans are the main influence today. They are saying that the consequences of global warming will not be to our advantage, that we will have to change what we're doing – and that we must act, now.

Below are some of the issues canvassed in GGWS, with a scientific response. The notes highlight the processes of science, in which issues are clarified through rigorous examination and re-examination of data, both old and new. In failing to apply these processes, GGWS has let down its audiences.

1. Are greenhouse gases emitted from human activities increasing global temperature?

GGWS says that, from previous glacial cycles, we can tell that CO₂ doesn't cause warming. *This is false*. What's happening now is different from what happened

during glacial cycles. Warming in glacial cycles is triggered by changes in the sun's radiation and amplified by 'feedback' processes such as greenhouse gases being given off by a warmer ocean and heat-reflecting ice cover being removed. But with large-scale burning of coal and oil, accumulating greenhouse gases have become the main agent of warming, also amplified by feedback processes.

GGWS says that human influences are small compared with natural sources. *This is wrong*. For example, volcanic emissions are about 1/150th of human CO₂ emissions. If volcanoes had an impact, the atmospheric CO₂ record would show spikes after volcanic eruptions – but it doesn't.

GGWS implies that the *oceans* are a bigger source of greenhouse gases than human emissions. *This is wrong*. There is a large two-way exchange of CO₂ between the atmosphere and the oceans, but crucially, about 1/60th of this is an imbalance driven mainly by emissions from human activities.

Rather than comparing human emissions with the two-way atmosphere-ocean exchange, we should put our human emissions (about 8 gigatonnes of carbon a year) up against the oceans' absorption of these emissions (only 2.2 gigatonnes a year) – and the 2.6 gigatonnes/year absorbed by biological processes on land. The rest of our emissions – 3.2 gigatonnes/year – is increasing the concentration in the atmosphere.

2. Is the sun the dominant driver of global temperature?

No, not at present. Changes in global temperature have multiple influences, including the sun, greenhouse gases and aerosols. Earlier in the 20th century the

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sun's influence was detectable, but in recent decades warming has been dominated by greenhouse gases. The Intergovernmental Panel on Climate Change says in its 2007 scientific report:

"It is likely that there has been significant anthropogenic [human-induced] warming over the past 50 years averaged over each continent except Antarctica....The observed patterns of warming, including greater warming over land than over the ocean, and their changes over time, are only simulated by models that include anthropogenic forcing."

3. Can we trust the data presented in GGWS?

No. Some of the GGWS data is misattributed, some is distorted, some is 'cherry-picked' and some is clearly fabricated, as shown in three key graphs used in the film.

Graph 1: *Global temperature for 1880-2000.* This was attributed to 'NASA'. But this is significantly different from the NASA graph at: <http://data.giss.nasa.gov/gistemp/graphs/>. For example, the temperature rise from 1940 to 2000 is about 0.35°C in the true NASA graph but only about 0.18°C in the GGWS version.

Graph 2: *Global temperature and solar forcing for 1860-1980* – intended to show a correlation between solar activity and global temperature. One of the Danish authors of this 1991 graph, Friis-Christensen (who appeared in GGWS), has recently criticised two of the film's uses of his data: (http://folk.uio.no/nathan/web/statement_bak.html), indicating that the 1991 plot was too short to adequately describe recent events. A paper published in 2000 failed to show any correlation between solar influences and temperature after

1985, when the temperature continued to rise but solar activity flattened out. This paper was ignored by GGWS.

Graph 3: *Global temperature and solar forcing for 1550-1980.* One of this graph's Danish authors, Friis-Christensen, said recently (see http://folk.uio.no/nathan/web/statement_bak.html) that the original 1991 paper provided no solar activity for the period 1610 to 1710. In the GGWS version, this gap in solar activity data is simply filled with a replica of the global temperature (with which it is supposed to correlate!). In his web criticism, Friis-Christensen refers to this as 'fabricated data'.

4. Do model simulations disagree with temperature observations?

GGWS claims that satellite and balloon observations are at odds with computer models, which predict more warming in the mid-troposphere (the bottom part of our atmosphere) than at down at the surface. But this statement is based on old and flawed analyses of satellite and balloon data. One of the scientists who originally made this claim, John Christie – who appears in GGWS – has accepted these flaws, though this was not acknowledged in GGWS.

Other useful information:

<http://www.realclimate.org/index.php/archives/2007/03/swindled/>

<http://www.realclimate.org/index.php/archives/2007/03/swindled-carl-wunsch-responds/>

<http://www.climateofdenial.net/>

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