



# Everything is going to be

# OK

## The climate change deniers and their war on science

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### **The IPCC and its latest report: why all the fuss?**

On 2 February 2007, the UN Intergovernmental Panel on Climate Change (IPCC) released the first volume of its Fourth Assessment Report, on the 'physical science basis' of climate change. The second and third volumes – on 'impacts, adaptation and vulnerability' and 'mitigation', respectively – will be published in mid-2007, with the fourth and final 'Synthesis Report' due for release at the end of the year.

The IPCC, established by the UN Environment Programme and the World Meteorological Organization in 1988, does not undertake its own research, its chief focus being instead to provide regular assessments of existing, peer-reviewed literature "relevant to understanding the scientific basis of human-induced climate change, its potential impacts and options for adaptation and mitigation". The First Assessment Report was published in 1990, followed by the second in 1995 and the third in 2001. The IPCC's assessment reports are considered the most authoritative sources of information on climate change, its causes and its effects.

The IPCC authors of the Fourth Assessment Report – or 'AR4' – are in a better position than they were in 2001 to under-





stand how human behaviour can warm or cool the climate, having been able to draw on more conclusive data derived from more extensive, longer-term climate modelling and better geographical coverage. Also setting AR4 apart from the earlier reports is the degree of scientific consensus over the positive correlation between emissions of greenhouse gases and accelerated climate change. Whereas the 2001 report states, "There is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activity," AR4 is more explicit, concluding that it is more than 90 per cent likely that human activity causes climate change.

Other key findings of AR4's first volume are that temperature will, by the end of the century, have probably risen by between 1.8 and 4 degrees Celsius, but that an increase of between 1.1 and 6.4 degrees is also possible. It is more than 60 per cent likely that sea levels will rise by 28-43 centimetres, that the Arctic summer sea ice will disappear in the second half of the century, and that climate change will lead to more intense tropical storms. That the number of heatwaves will grow in certain parts of the world is deemed to be more than 90 per cent likely.

### Politicians and the public following the scientists' lead

The consensus among the IPCC scientists is being matched by apparent agreement among many politicians. In the UK, climate change has become a *cause célèbre*, with the main political parties vying to 'out-green' one another. On 13 March, the government published a draft climate change bill, which if passed would commit the government to legally binding cuts in carbon emissions, set up a system of carbon budgeting to cap emissions over five-year periods, and establish a new independent body to monitor the government's progress and advise it on fulfilling its targets. The response of the Conservative opposition was to welcome the proposed legislation, rather than dispute it, with the Shadow Environment Secretary in fact calling for a more stringent plan, in line with the recommendations of some of the UK's leading environmental non-governmental organisations.

Helping to clear the path for the draft bill was the Stern review, the October 2006 report authored by former World Bank chief economist

Sir Nicholas Stern. The Stern review, on its publication vaunted effusively in Whitehall, predicted that global warming could shrink the world economy by 20 per cent, but that – if we act now – averting the crisis would cost only 1 per cent of global GDP. The report has since come under some criticism for the data upon which the forecasts are premised, yet the basic point stands: climate change is urgent, but dealing with it does not have to hamstring economic growth.

There are indications too that the scientific arguments are resonating with the British public. For instance, 62 per cent of respondents to a MORI poll conducted in January 2007 said that "every possible action should be taken to limit climate change".

Moving against this political momentum, and – more importantly – at odds with the overwhelming burden of scientific proof, are groups which contest global warming, argue that it is being exaggerated, and/or contend that it is an unremarkable phenomenon having its origins not in human activity but in cyclical fluctuations in the temperature of the earth and atmosphere. Often, either through contrivance or ignorance, this dissent is dressed up in what appears to be solid argument but what is in reality flimsy science.

### The Great Global Warming Swindle and other fairytales

'The Great Global Warming Swindle', a programme broadcast by Channel 4 in March, takes

this masquerade to an extreme. Leaving aside some of its more inventive inferences – for example, that climate change campaigners are on a mission to "kill" the "African dream" of economic development, and that those calling for action against climate change are cynical alarmists with a vested interest in sustaining the "industry" of distortion and exaggeration they themselves have created – the programme uses discredited theories to try to rubbish the growing scientific consensus about global warming and debunk its links to human activity.

Responding on 13 March to the principal premise of the Channel 4 programme – that the sun, rather than greenhouse gas emissions, is mainly to blame for global warming – scientific author and journalist George Monbiot wrote the following for the *Guardian*:

*The film's main contention is that the current increase in global temperatures is caused not by rising greenhouse gases, but by changes in the activity of the sun. It is built around the discovery in 1991 by the Danish atmospheric physicist Dr Eigil Friis-Christensen that recent temperature variations on Earth are in "strikingly good agreement" with the length of the cycle of sunspots.*

*Unfortunately, he found nothing of the kind. A paper published in the journal Eos in 2004 reveals that the "agreement" was the result of "incorrect handling of the physical data". The real data for recent years show the opposite: that the length of the sunspot*

## Judge for yourself

- For George Monbiot's full article, 'Don't let truth stand in the way of red-hot debunking of climate change' (13 March 2007) and Professor Carl Wunsch's full letter to WAG TV, see [www.guardian.co.uk](http://www.guardian.co.uk)
- For the *Independent's* analysis arguing that the graphs used to illustrate the programme contained serious errors and distortions, see Steve Connor, 'The real global warming swindle' (14 March 2007), [www.independent.co.uk](http://www.independent.co.uk)
- Read Bob Ward's letter to Nick Thomas on the Royal Society's website: [www.royalsoc.ac.uk](http://www.royalsoc.ac.uk)
- For the Union of Concerned Scientists' report, 'Smoke, Mirrors & Hot Air', see [www.ucsusa.org](http://www.ucsusa.org)
- Judge for yourself what ExxonMobil is doing about climate change at [www.exxonmobil.com/corporate/campaign/climate\\_view.asp](http://www.exxonmobil.com/corporate/campaign/climate_view.asp)



Martin Durkin, director of 'The Great Global Warming Swindle', on the selection of data for the graphs used in the programme:

**“The original Nasa data was very wiggly-lined and we wanted the simplest line we could find.”**

– reported in the *Independent*, 14 March 2007

*cycle has declined, while temperatures have risen. When this error was exposed, Friis-Christensen and his co-author published a new paper, purporting to produce similar results. But this too turned out to be an artefact of mistakes – in this case in their arithmetic.*

*So Friis-Christensen and another author developed yet another means of demonstrating that the sun is responsible, claiming to have discovered a remarkable agreement between cosmic radiation influenced by the sun and global cloud cover. This is the mechanism the film proposes for global warming. But, yet again, the method was exposed as faulty. They had been using satellite data which did not in fact measure global cloud cover. A paper in the *Journal of Atmospheric and Solar-Terrestrial Physics* shows that, when the right data are used, a correlation is not found.*

*So the hypothesis changed again. Without acknowledging that his previous paper was wrong, Friis-Christensen's co-author, Henrik Svensmark, declared there was a correlation – not with total cloud cover but with "low cloud cover". This, too, turned out to be incorrect. Then, last year, Svensmark published a paper purporting to show cosmic rays could form tiny particles in the atmosphere. Accompanying the paper was a press release which went way beyond the findings reported in the paper, claiming it showed that both past and current climate events are the result of cosmic rays.*

*As Dr Gavin Schmidt of Nasa has shown on [www.realclimate.org](http://www.realclimate.org), five missing steps would have to be taken to justify the wild claims in the press release. "We've often criticised press releases that we felt gave*

*misleading impressions of the underlying work," Schmidt says, "but this example is by far the most blatant extrapolation beyond reasonableness that we have seen." None of this seems to have troubled the programme makers, who report the cosmic ray theory as if it trounces all competing explanations.*

Monbiot then argues that a secondary premise of the programme – that discrepancies between temperatures at the earth's surface and temperatures in the lower atmosphere contradict the common wisdom on the link between global warming and human activity – is similarly bogus. The data were disproved in three papers in *Science* magazine in 2005; and the original study's author even wrote a subsequent paper refuting his earlier conclusions.

Monbiot concludes by pointing out that the film features one scientist whose work has not been disproved, the oceanographer Carl Wunsch. After the programme was aired Wunsch, who in the film "appears to support the idea that increasing carbon dioxide is not responsible for rising global temperatures", wrote to WAG TV, the production company responsible for the programme. In his letter he protested that while his remarks had been "literally what [he] said" they had been "grossly distorted by context". He asked that "the film should never again be seen publicly with [his] participation".

'The Great Global Warming Swindle' is not alone in its exploitation of dodgy science. But while its release could be argued opportunistic and irresponsible, evidently timed as it was to coincide with the publication of the govern-

ment's draft climate change bill, the programme's distortions are dwarfed by propagandisms in different quarters – not least those allegedly generated by giants of the oil industry.

### Smoke, mirrors and hot air

On 3 January 2007, the Union of Concerned Scientists (UCS), an American environmental organisation which stresses the need for political non-interference in science, published a report entitled 'Smoke, Mirrors & Hot Air'. In this report, UCS argues that ExxonMobil, the world's largest publicly traded company, has waged a war of disinformation about climate change in an apparent bid to sow doubt among policy-makers and the public about the accepted science of climate change and on the need to take action.

ExxonMobil is a titan in the oil and gas industry and is itself a major source of the world's global greenhouse gas emissions, considered by the vast majority of scientists to be the primary catalyst of accelerated climate change. "If it was a country," the UCS report says, "ExxonMobil would rank sixth in emissions."

UCS notes ExxonMobil's close ties not only to the American political establishment (in the 2004 election cycle, ExxonMobil and affiliated individuals doled out more than any other energy company towards political contributions, most of it directed at the Bush campaign) but also to a network of think-tanks. Between 1998 and 2005, says the report, ExxonMobil channelled over \$16 million to 43 organisations, all of which are associated with the work of "climate change contrarians".

The UCS report argues that ExxonMobil's strategy replicates that employed previously by the tobacco industry (which infamously denied the link between smoking and lung cancer). Using this strategy, the company's "modest but effective investment" of \$16 million has allowed it "to fuel doubt about global warming to delay government action just as Big Tobacco did for over 40 years".

According to 'Smoke, Mirrors & Hot Air' ExxonMobil's strategy rests broadly on two pillars, the first being "information laundering" through ostensibly scientific not-for-profit organisations. These organisations are reported to include well-known outfits such as the American Institute and the Cato Institute, as well as some lesser-known ones for which ExxonMobil's financial contribu-

**Greenpeace has set up an interactive website mapping out the labyrinthine, overlapping connections linking ExxonMobil to Washington's policy-makers and advocacy organisations seeking to occlude the facts about climate change. See [Exxonsecrets.org](http://Exxonsecrets.org)**



tions were said by the *New York Times* to represent more than 10 per cent of their annual budgets. A notable characteristic of these organisations is the large degree of overlap among its board members, staff and scientific advisers; these bodies then, according to the UCS, collectively act as an "echo chamber" and "publish and re-publish the works of a small group of climate change contrarians".

UCS identifies the "rallying call for 'sound science'" as another pillar in ExxonMobil's strategy. Scientists who argue that climate change is happening and that it needs to be addressed are denounced as fantasists, while the climate change contrarians represent themselves as arbiters of truth. The objective, according to the UCS, is to "manufacture uncertainty" about global warming and stall political action on climate change.

### All a big misunderstanding?

In an interview with EurActiv.com on 14 February, Ken Cohen, ExxonMobil's vice-president for public affairs, was asked whether the company had changed its opinion on the links between human activity and climate change (the interviewer's impression being that its stance may have "softened"). Cohen replied, "For some people our position on climate change does continue to be misunderstood." He later said:

*We are not a denier; we understand that the climate is changing. I know a number of people like to label us that way but the fact is we're not. We are aware that the climate is changing, that the earth has warmed on average about 0.6 degrees Celsius over the last century. We are aware that many global ecosystems, especially in the polar areas, are showing signs of warming; that CO<sub>2</sub> emissions have increased during the same time period and that – during the same time period – the emissions from fossil fuels and land use changes are one source of these emissions.*

ExxonMobil's website suggests that the company is doing its bit to reduce emissions, promote cleaner, more efficient sources of energy, and explore the viability of geological carbon storage. Both the website and Cohen's EurActiv.com interview also tout the involvement of ExxonMobil's scientists in compiling IPCC reports as proof of the company's commitment to scientific clarity on climate change.

### The Royal Society throws down the gauntlet

But claims of a 'softened stance' and implied support for the IPCC sit somewhat uncomfortably with evidence cited by Bob Ward of the Royal Society in a letter last September to Nick Thomas, the director of corporate affairs of Esso UK, the British arm of ExxonMobil. In his letter, Ward quotes a passage from a public ExxonMobil document in which the IPCC and its conclusions are seriously misrepresented. One sentence reads:

*While assessments such as those of the IPCC have expressed growing confidence that recent warming can be attributed to increases in greenhouse gases, these conclusions rely on expert judgment rather than objective, reproducible statistical methods.*

Ward points out what ExxonMobil should surely already know: that the IPCC's so-called judgment "was actually based on objective and quantitative analyses and methods, including advanced statistical appraisals, which carefully accounted for the interplay of natural variability, and which have been independently produced."

The letter also refers to a meeting at which, Ward claimed, Thomas had indicated that ExxonMobil would be discontinuing its funding of organisations disseminating inaccurate information about climate change. Ward concludes by stating, "I would be grateful if you could let me know which organisations in the UK and other European countries have been receiving funding from ExxonMobil so that I can work out which of these have been similarly providing inaccurate and misleading information to the public."

### What does this mean for the woman or man in the street?

The UN IPCC's Fourth Assessment Report was compiled by over a thousand scientists and brings together reams of peer-reviewed research on climate change and its causes – including, incidentally, the very research which questions the generally accepted link between human activity and global warming. Indeed in certain cases the IPCC has erred on the side of caution and conservatism: its predictions of potential rises in sea level, for example, do not factor in the additional rise which

would result from melting glaciers and ice caps, as this process is hard to model.

Taking into account the wide spectrum of opinion, the myriad hypotheses put forward and the legions of results yielded up from years of climate modelling, the IPCC authors have been able to agree – among other things and as noted above – that global warming's origins in human activity are more than 90 per cent certain, and that sea levels are more than 60 per cent likely to rise by 28-43 centimetres.

These percentages are difficult to convert into practical comprehension. But if you were told that your house was over 90 per cent likely to burn down, or 60 per cent likely to be flooded, what would you do? Argue that the insurance was too expensive and hope for the best?

The science behind climate change is not simple, and effective solutions will require a complex, multi-pronged approach, entailing the development of efficient and affordable energy sources, backed up by massive investments in technology. A key test will be whether the power of the private sector can be harnessed, and whether innovative means for incentivising a shift to a low-carbon economy can be found. If businesses are to help facilitate such a shift, the government needs to adopt long-sighted climate policies which lend themselves to a stable and predictable environment in which carbon markets can thrive.

While the government and private sector must play their part, so can all of us as individuals. The exhortation to reduce, re-use and recycle has never been more important. We all need to act, and act now.

