

Complaint to Ofcom^[Net] Regarding “The Great Global Warming Swindle”

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1. Complaint Summary

1.1 Overview

The documentary film *The Great Global Warming Swindle* was broadcast on Channel 4 television on March 8, 2007, and was re-broadcast on More4 on March 12.

This complaint details the ways in which we believe the film makers and Channel 4 have contravened the *Ofcom Broadcasting Code* and the *Communications Act* in both versions of the broadcast, by presenting misinformation and misleading the public. The complaint has been led by three concerned citizens with either professional or amateur interest in anthropogenic global warming science and policy. We have received additional contributions and reviewing by numerous professionals in the climate science, policy, and related fields.

We document a total of 137 apparent breaches of the *Broadcasting Code*, 105 of which were also apparent breaches of the *Communications Act*. For organisational purposes we have grouped certain similar, repeated breaches – and therefore report 67 transgressions (see section 1.7, page 6, section 1.8, page 9 and Appendix A.4, page 122 for details).

The Great Global Warming Swindle presented the thesis that the science of anthropogenic global warming is wholly incorrect, and is perpetuated to serve anti-capitalist and anti-growth environmentalist interests. As detailed by this complaint, this was done by displaying erroneous or artificially manipulated graphs, and presenting incorrect, misleading, or incomplete opinions and facts on the science of global warming and the related economics. It seems from the format and tone of the programme that its objective was to sway public opinion on global warming science – and to oppose action to reduce greenhouse gas emissions. Public statements by film maker Martin Durkin confirm this view (see for example *The Daily Telegraph*: <http://tinyurl.com/2clgy4> and *Life Style Extra*: <http://tinyurl.com/5hk3h6>).

Subsequent to the broadcast, Durkin acknowledged that the programme contained some “inadvertent errors” (see for example *The Independent*: <http://tinyurl.com/2x7fcc>), but has denied that this wrongdoing was intentional, and stands by the programme’s arguments and overall thesis.

Regardless of whether the errors were intentional, the sheer number of transgressions indicated in this complaint highlight that the film makers and Channel 4 completely failed to ensure that the programme complied with the *Broadcasting Code* and the *Communications Act*. Over the course of the programme, the programme-maker systematically failed to ensure that individual facts and graphs presented were correct, that interviewee’s individual opinions were indicated as such, that narrator impartiality was maintained, and that the consequent overall message of the programme was an accurate reflection of the scientific facts. Most seriously, this was done in the context of a “matter relating to current public policy”, in breach of Section 5 of the *Broadcasting Code* (<http://tinyurl.com/35xfpz>).

In addition, the views of many people were seriously misrepresented by the programme, in clear breach of both *Sections 5 and 7* of the *Broadcasting Code* (relating to “Fairness”, see: <http://tinyurl.com/38x45e>). This applied to two of the contributors to the programme, but also to *the Intergovernmental Panel on Climate Change* (IPCC); to many non-governmental organisations concerned with the environment, and their members; to Sir David King (the UK Government’s Chief Scientific Adviser); and to others. These breaches have also been documented wherever they occur in the transcript.

We appreciate that this complaint is rather long. However, we believe it is in the public interest for a detailed examination of the film to take place, and in doing so we have documented a multitude of apparent breaches of the *Broadcasting Code*.

Almost all of the complainants and reviewers are professionals who are well placed to judge that the programme misrepresented the information covered; and we have strong reason to believe that it has misled the public. The two lead authors that are not professionals have studied climate science extensively in their spare time, and they object to media distortions and misrepresentations of science, especially when these concern issues relevant to current public policy.

1.2 This Complaint is Not an Attack on Free Speech

Both *Channel 4* (see: <http://tinyurl.com/ytogy5>) and the film’s producer (see: <http://tinyurl.com/yo4n5v>) have sought to portray the film’s screening as an issue of free speech; and the film maker (and some sections of the press – see: <http://tinyurl.com/28o3sn>) have also sought to portray those who have complained to *Ofcom* as stifling free speech.

The authors of this complaint absolutely uphold the right to free speech. The programme was presented on a public broadcast channel, which has important responsibilities in a liberal democracy such as the UK. These responsibilities are detailed in the *Communications Act* and the *Broadcasting Code*, which was itself drafted in the light of the *Human Rights Act 1998* and the *European Convention on Human Rights* (as detailed at <http://tinyurl.com/3ylvo2>). We do not believe that the right to free speech allows the media to practise systematic deception – as we believe has taken place in the programme. As such, labelling this (and other) complaints as an attack on free speech equates to labelling the *Broadcasting Code*, the *Communications Act* and the *European Convention on Human Rights* as attacks on free speech.

1.3 Contributors and Peer Reviewers of this Complaint

With the exception of the lead authors, all of the contributing authors and peer reviewers of this complaint are experts in the subjects on which they are commenting or reviewing, and include two former Chairs of the IPCC. Their details and qualifications are listed in **Appendix I:** and **Appendix J:** .

1.3.1 Peer Reviewer Sign-off

All of the peer reviewers have stated that the sections of this complaint that they reviewed and that fell within their professional competence are accurate, and that all of their comments and suggestions have been dealt with to their satisfaction – see <http://tinyurl.com/ys3j4r>.

1.4 Structure of this Complaint

This complaint is in the form of an annotated transcript of the programme, detailing how the contents apparently breached *Broadcasting Code* and *Communications Act* clauses. With each "Comment" in the transcript we have indicated which specific *Ofcom* and *Communications Act* clauses we believe have been breached by the preceding statement(s).

In addition the complaint contains 12 appendices, which provide relevant background information.

1.4.1 Referencing

Each breach has been assigned a "Comment number" for ease of reference, and these "Comments" cross-reference each other and the appendices, where appropriate. The page numbers are provided with every cross reference, so that when reading a print-out, you can easily find the cross-referenced passage. The cross-references also contain hyperlinks, so that when reading the complaint on-screen, you can click on the hyperlinks to go to the cross-referenced passage, and then press <Alt> + <Left arrow> when you want to return to the referencing passage.

In addition, the sources for all of the information in our complaint have been given throughout, in the form of clickable links to websites, which allow the verification of factual statements. In the case of the peer reviewed research literature that we cite, we have linked to the papers themselves where possible, and to their abstracts where access to the papers requires subscription. In addition, an alphabetical list of the references used in this complaint to peer reviewed literature is provided in **Appendix K**: with sufficient detail to find the cited papers in a public library.

1.5 Relevant Clauses in Ofcom's Penalty Guidelines

We believe both *Channel 4* and the film maker have made contraventions relevant to *Ofcom's Penalty Guidelines* (see <http://tinyurl.com/3ajn5x>), which we detail in **Appendix F**: page 161. When Ofcom makes its ruling on the programme, one factor in particular that should be taken into consideration is the clause that cites "repeated contraventions by the same person". The track record of the film's producer Martin Durkin in breaching Broadcasting Codes is described in **Appendix B**: page 123.

1.6 Categories of Serious Individual Breaches

A full analysis of which "Comment numbers" (transgressions) fall into each of the following categories can be found in Appendix A.1, page 116.

1.6.1 Definition of "Serious"

Our definition of a "serious breach" is one that we feel would justify a complaint to Ofcom even if it had been the only breach that the programme had made.

1.6.2 *Falsification or Serious Misrepresentation of Graphs or Data; or of Quotations from Reports, or of Press Articles; or of Film Footage*

Presentation of graphs or figures which evidently have been manipulated or fabricated, most likely with the intent of aiding the arguments presented by the programme. Some examples:

1. The programme presented a graph (attributed to NASA) of global temperature over the last 120 years, and suggested that most of the warming in the 20th century actually occurred prior to the post-*World War II* industrial boom. However, the original source of the graph is unclear and, most importantly, it is obsolete as it ended in the mid-80s. Hence, it left out the warming from the last 20 years, the period in which the fastest rate of warming has occurred. The film makers extended the time axis of the graph to cover up this limitation, and later admitted that the original time axis was incorrect. A cursory glance at up-to-date temperature records from NASA would have revealed to the film maker that contrary to the programme's claims, most of the warming in the 20th century occurred after *World War II*, so this appears to have been an intentional deception (see [Comment 42](#), page 35 and [Comment 43](#), page 38).
2. The film presents a graph, attributed to Eigil Friis-Christensen (also an interviewee) titled 'Temp and Solar Activity 400 Years'. The original graph produced by Friis-Christensen and published in the scientific literature included a 100-year gap in the solar data. The graph presented in the film fills this gap (¼ of the graph) with solar activity data which exactly matches the temperature, artificially inflating the correlation between the two. The manner in which this occurred has led even Friis-Christensen to state that it is highly likely that it was filled with artificial data. Martin Durkin claims that this was a mistake (see [Comment 60](#), page 55).

A total of 9 breaches fell into this category. See Appendix [A.1.1](#), page 116 for details.

1.6.3 *Misrepresentations of People's Views and Other Breaches of Section 7 of the Ofcom Code*

1. The views of one of the programme's participants, Carl Wunsch, were clearly misrepresented by the programme on both climate change and on modelling, through selective editing and use of context to make him appear to the audience to be saying the precise opposite of what he was actually trying to convey: see [Comment 54](#), page 49; and [Comment 94](#), page 79. In addition, Wunsch has stated publicly that he was misinformed by *WagTV* about the true nature of the programme (see [Comment 53](#), page 48), in breach of Section 7 of the *Broadcasting Code*.
2. On April 27, 2007 another of the programme's participants, Dr Eigil Friis-Christensen issued a joint statement with one of the lead authors of this complaint, Nathan Rive, stating specifically that Friis-Christensen's views had been knowingly and fundamentally misrepresented by the film (see [Comment 60](#), page 55).

3. The UK Government's Chief Scientific Adviser Sir David King was attacked on the basis of a misquote in the closing statement of the film – see [Comment 137](#), page 115 and [Appendix H](#): page 167.
4. The views of both Non-governmental organisations (NGOs) and of millions of ordinary people who are concerned about the environment were repeatedly misrepresented in a factually inaccurate and extreme way (see [Comment 75](#), page 68; [Comment 80](#), page 71; [Comment 81](#), page 71; [Comment 120](#), page 100; and [Comment 136](#), page 114).
5. Serious allegations, many of them demonstrably false, were made about the IPCC without any evidence being offered to support the allegations, and without the IPCC being given a chance to defend itself on the programme (see [Comment 17](#), page 21; [Comment 113](#), page 94; and [Comment 115](#), page 96). A passage from an IPCC report was selectively quoted in order to appear to the viewer to be stating the opposite of what it was actually stating ([Comment 112](#), page 92) and other passages were seriously misrepresented by the film (for example [Comment 73](#), page 66; [Comment 74](#), page 67; and [Comment 111](#), page 92). A *Wall Street Journal* article attacking IPCC processes was shown and quoted from, but it was not revealed that the writer of the article has never had any involvement with the IPCC, nor that he runs a lobby group that actively campaigns against greenhouse gas emissions reduction policies (see [Comment 114](#), page 95).
6. Serious allegations of misappropriation of public funds by scientific funding bodies were made by the programme without any evidence being offered in support of the allegations and without any of the bodies being given a chance to defend themselves on the programme (see for example [Comment 117](#), page 97).

A total of 25 breaches fell into this category, although we have grouped related breaches if no individual had been named; and for the purposes of this complaint we consider them to collectively constitute 9 serious breaches: see [Appendix A.1.2](#), page 116 for details.

1.6.4 Use of "Straw Man", "Ad Hominem" and "Non-sequitur" Logical Fallacies

It is a serious matter if a film shown by a public service broadcaster, that claims to be a "documentary" on a complex scientific subject, resorts to using logical fallacies in an apparent attempt to mislead viewers. The most common logical fallacies used by the programme were *Straw Man* arguments (pretending that one's opponents are taking an absurd position that they are *not* taking, and then attacking that absurd position); *ad hominem* attacks (replying to an argument by attacking the person making the argument, rather than by addressing the substance of the argument); and *non-sequiturs* (stating conclusions that do not logically follow from what has gone before, for example "because human emissions were not responsible for pre-industrial climate change, it is therefore impossible that they could be strongly influencing climate change now"). For example, see [Comment 23](#), page 23; [Comment 79](#), page 70; [Comment 80](#), page 71; [Comment 35](#), page 27.

A total of 13 breaches fell into this category, although we have grouped the *non-sequiturs* into one breach as they seemed less serious than the *Straw Man* arguments and *ad hominem* attacks; so for the purposes of this complaint we consider them to collectively constitute **10** serious breaches: see Appendix **A.1.3**, page **117** for details.

1.6.5 *Recycling of Long Discredited Myths which the Contributors and Film Makers Should have been Aware are Myths*

Several well-known myths, that are frequently propagated by individuals and lobby groups critical of greenhouse gas emissions reductions policies, but which were discredited in the scientific literature many years ago, were given considerable air-time. It is difficult to understand how the contributors and the film maker could all have been unaware of the literature on these subjects (and they were billed as “leading scientists” and “an impressive roll-call of experts” – see Appendix **C.1.2**, page **126**); and this therefore appears to have been an attempt to deceive the public. One example of this is the lengthy air-time given in the film to the idea that the presence of vineyards in Britain in medieval times tells us anything meaningful about global average temperatures at that time (see **Comment 38**, page **31**). Other similar myths were also given significant air-time (see **Comment 68**, page **62**; **Comment 99**, page **82**; and **Comment 101**, page **84**).

A total of **4** breaches fell into this category: see Appendix **A.1.3**, page **117** for details.

1.7 Groups of Breaches in which Multiple Interviewee and Narrator Statements, Taken Together, Constitute a Highly Misleading Narrative

Such statements failed to present the true state of the science, economics or other topic being discussed; or presented extraneous facts which misled the viewer as to the true state of the current knowledge. In many cases, these statements did not directly concern the science of global warming but were indirect attacks on environmental objectives, climate policy, and the IPCC, based for the most part on misleading or inaccurate statements.

Some examples:

1. The programme suggests that measures to mitigate climate change are preventing developing countries from using their own fossil fuel resources, and forcing them to use “expensive” renewable energy sources. The only evidence they produce to support this claim is a single rural hospital in Kenya which uses a tiny solar panel to provide refrigeration and lighting. The programme fails to mention that developing countries do not have any requirement to reduce their emissions under the current Kyoto Protocol (see **Comment 123**, page **104**).
2. The programme narration, combined with misleading and inaccurate statements from Paul Reiter, criticises the IPCC review of the scientific literature’s conclusions about the potential impact of climate change on malaria in temperate regions – asserting that malaria is not dependent on temperature, and thus that climate change is of no concern in this regard. This is achieved using a mix of factually inaccurate statements (see **Comment 111**, page **92**), and misquoting the IPCC (see **Comment 112**, page **92**). In addition,

Reiter claimed falsely to have resigned from the IPCC, and to have been an author; and made other false claims about his relationship with the IPCC (see [Comment 115](#), page 96) and about the contents of the IPCC’s reports (see for example, [Comment 113](#), page 94). It is perfectly legitimate to criticise a body such as the IPCC if one has evidence to support one’s allegations, but to do so using misrepresentations of facts is unacceptable.

3. The programme gives an inaccurate history of global warming science and of the formation and development of the IPCC, in an apparent attempt to discredit both. It is suggested that the “eccentric” theory of the enhanced greenhouse effect originated with Bert Bolin in the 1970s, whereas the theory dates back to the 19th century, and involved subsequent work by numerous scientists and the collection of a huge body of evidence, prior to the 1970s. It is then suggested that the funding for climate change research in the UK (and later, the forming of the IPCC) was a co-conspiracy by Margaret Thatcher and the environmental movement to draw power away from the striking coal miners. This history is wholly incorrect, as the international developments that culminated in the IPCC actually pre-date Thatcher’s interest in global warming (see [Comment 69](#), page 63; [Comment 71](#), page 65; and especially [Comment 72](#), page 65).
4. A schematic graph (not a plot of real data) from a 1990 IPCC report is presented of temperatures over the past 1000 years in which it is suggested that the Medieval Warm Period (MWP) was warmer than current levels. However, the graph presents the year 1975 as ‘Now’, and thus ignores the past 30 years, when by far the fastest rate of warming occurred. Furthermore, the programme neglects a multitude of more recent peer-reviewed studies which clearly demonstrate that current global average temperatures are higher than those of the MWP (see [Comment 35](#), page 27 and [Comment 37](#), page 29).
5. The programme claims that because satellite measurements indicated that the troposphere is not warming as quickly as the surface, the current warming trend does not support global warming theory. This discrepancy between data and theory has been discussed in the scientific literature for some time. It is largely resolved and determined to be an issue of data collection and analysis, rather than a fault in the theory: a point that has been accepted even by interviewee John Christy. Failing to present the most recent science is highly misleading (see [Comment 49](#), page 42).
6. The programme highlights that in the ice core data, CO₂ fluctuations tended to lag those of temperatures. This is used to indicate that CO₂ cannot be the “driver” of climate change. This argument fails to take into account temperature–CO₂ feedback mechanisms, and has been refuted by numerous reputable climatologists and institutes (see [Comment 50](#), page 45).
7. The programme made numerous factual misrepresentations regarding the “carbon cycle”, in order to support its thesis that human CO₂ emissions are “not important”. For example, the programme claims that volcanoes annually produce more CO₂ emissions than humans. This statement is completely incorrect; their emissions are approximately 1% that of humans. The producer Martin Durkin has subsequently admitted that this was untrue, but has failed

to explain why such a clearly false claim was made in the first place (see [Comment 52](#), page 47). For another example, see [Comment 54](#), page 49.

8. The programme presented graphs and interview statements from Eigil Friis-Christensen regarding the link between solar activity and temperature over the last 100 and 400 years. The programme fails to mention that Friis-Christensen's apparent Sun-temperature correlation breaks down after 1975, indicating that another agent (such as greenhouse gases) must be subsequently at work to warm the globe. Ignoring this, the film makers go on to erroneously rule out a contribution to warming by man-made CO₂ – a conclusion that Friis-Christensen himself states cannot be drawn from his work. Finally, the film makers failed to mention that other researchers have challenged the research of Friis-Christensen, and find a weaker correlation which indicates a lesser contribution of the Sun to past climate changes (see [Comment 59](#), page 53; [Comment 60](#), page 55; [Comment 62](#), page 57; and [Comment 63](#), page 57).
9. The programme suggests that anthropogenic global warming theory is promoted as a means for environmentalists to reverse industrial growth. This is achieved in part by showing only extremist anti-capitalist viewpoints and implying that their views represent the views of mainstream economists, political scientists and environmentalists, who are mostly not anti-capitalist and who believe that climate change can be mitigated with current and future energy technologies, and without catastrophic economic consequences (see [Comment 75](#), page 68; [Comment 76](#), page 68; [Comment 77](#), page 69; [Comment 78](#), page 69; [Comment 80](#), page 71; [Comment 81](#), page 71; [Comment 82](#), page 72; [Comment 120](#), page 100; and [Comment 136](#), page 114).

The programme also gives a highly distorted and factually inaccurate account of the media's coverage of climate change and of the contributors to the programme, in an apparent attempt to portray their views as having been given insufficient coverage and thus to justify the programme's existence. As shown in [Appendix E: page 158](#), the contributors to the programme have enjoyed privileged access to some of the most influential news publications in the UK and US. See [Comment 11](#), page 16; [Comment 13](#), page 18; [Comment 33](#), page 26; [Comment 66](#), page 61; [Comment 82](#), page 72; [Comment 96](#), page 80; [Comment 97](#), page 81; [Comment 98](#), page 81; [Comment 100](#), page 84; and [Comment 107](#), page 87.

10. The programme presents a distorted view (in the narration, and unchallenged interviewee statements) of the science of climate modelling.

Firstly, it suggests that because weather can't be predicted accurately, climate can't either. This is incorrect, as it confuses weather and climate, which are subject to different constraints (see [Comment 88](#), page 74); and because climate scientists do not in any case make predictions, they make projections (see [Comment 92](#), page 77).

Secondly, it is suggested that climate model parameters are set arbitrarily, often in a way to produce the most exaggerated predictions. This is wholly incorrect, and it is made sure that models are able to reproduce the past and current climate before they are used to make projections (see [Comment 87](#), page 74; [Comment 89](#), page 75; [Comment 90](#), page 75; [Comment 91](#), page 76; [Comment 92](#), page 77; [Comment 93](#), page 78; [Comment 94](#), page 79; and [Comment 95](#), page 80).

A total of 129 breaches fell into this category, although we have grouped related breaches; and for the purposes of this complaint we consider them to collectively constitute 32 serious breaches: see Appendix [A.2](#), page 118 for details.

1.8 Grouping of Breaches which, Considered Individually, May be "Minor" but which, when Considered as a Group, are Serious Breaches

There are three categories of breach in which, if each code transgression in these categories were to be considered in isolation, they might be considered too minor to justify their inclusion in this complaint: yet each breach is misleading and together they create an overall misleading picture.

We are therefore treating these categories as being three serious breaches, rather than a much larger number of more minor ones.

A full analysis of which "Comment numbers" (transgressions) fall into which of these three categories can be found in Appendix [A.3](#), page 121.

1.8.1 Lack of Disclosure of Conflicts of Interest

The programme presented three of its interviewees stating that they have never received funding from oil companies (see [Comment 118](#), page 98) – and attempted to mislead the viewer into believing that the programme was therefore free from lobby-group bias. In fact *ten* of its interviewees have been funded directly or indirectly by the fossil fuel industry, or work with fossil fuel industry-funded lobby groups *that actively campaign against policies to reduce greenhouse gas emissions* – including Tim Ball, who denied in the programme that he had ever received such funding. Five of these ten have received direct funding from the fossil fuel industry to lobby on its behalf. This information is all in the public domain, and the details are documented here in [Appendix C](#): page 126.

In addition, the narrator attempted to mislead viewers into believing that the only funding Patrick Michaels has received from the fossil fuel industry was a research grant from the coal industry; and also that one would have to be a "climate campaigner" in order to object to the industry funding he has received (see [Comment 119](#), page 99). In fact he has received direct funding from six fossil fuel organisations to lobby on their behalf and is involved with twelve lobby groups that campaign against policies to reduce greenhouse gas emissions (see [Appendix C.11](#), page 136).

It was also not mentioned that there is considerable peer-reviewed evidence that studies funded by corporations that have a financial interest in the their outcome are much more likely to reach the desired conclusions than those which aren't (see [Appendix C.1.3](#), page 127); so the assertion by the programme that only extremist

activists could object to the fact that some of his climate research has been funded by the fossil fuel industry was misleading.

It was also not mentioned that it is not only activists who have criticised Michaels’ lobbying activities and the funding he receives, but that such criticisms have come from many distinguished scientists (see Appendix [C.1.3](#), page [127](#)).

This lack of disclosure of conflicts of interest is particularly important because of the strong evidence that has come to light (detailed in Appendix [C.1.3](#), page [127](#), and [Appendix D](#): page [145](#)) that some sections of the fossil fuel industry, together with the lobby groups that they fund, have been running a very well-funded misinformation campaign to reduce public support for cutting greenhouse gas emissions.

Because of this, although each individual transgression might be considered a relatively minor breach, taken together they constitute a systematic breach of the impartiality and accuracy sections of the *Ofcom Broadcasting Code*.

A total of **16** breaches fell into this category: see Appendix [A.3](#), page [121](#) for details; although for the purposes of this complaint we consider them to collectively constitute one serious breach.

1.8.2 *Misrepresentation or Overstating of the Credentials of the Contributors to the Programme*

The interviewees were billed as “leading scientists” and “an impressive roll-call of experts” (see Appendix [C.1.2](#), page [126](#)). Three interviewees were incorrectly described as being “senior climate scientists” (Shaviv, Clark and Corbyn – see [Comment 14](#), page [19](#)), and in a large number of cases it was not mentioned that the interviewees are not considered to be experts in the fields they were discussing (especially Lawson, Corbyn, Calder, Stott and Akasofu – see Appendices [C.2](#), [C.7](#), [C.6](#), [C.8](#) and [C.15](#), respectively). In addition, the credentials of several of the interviewees (for example, Stott, Ball, Singer – see Appendices [C.8](#), [C.9](#), [C.11](#) and [C.10](#), respectively), or their associations with the IPCC (Reiter – see [Comment 115](#), page [96](#)) were overstated.

As a result of this systematic attempt by the film maker to mislead the public about the credentials of contributors to the programme with respect to the specific subjects that they discussed, it seems likely that viewers may have considered the contributors’ statements to carry much more weight than they would otherwise have done. Because of this, while each individual transgression might be considered a relatively minor breach, taken together they constitute a systematic breach of the accuracy sections of the *Ofcom Broadcasting Code*.

It is very important to note, however, that the fact that, for instance, many of the contributors to the *Channel 4* programme were not climate experts does **not** necessarily make their statements on climate wrong. The ideas they put forward must stand and fall on their merits, and the extent to which they reflect the scientific evidence. It is for this reason that we have assessed each of the interviewee statements on a detailed, individual basis – regardless of the interviewee. This complaint is about the film maker’s intentional and systematic deception and is *not* an *ad hominem* attack on the contributors themselves.

A total of **21** breaches fell into this category: see Appendix **A.3**, page **121** for details; although for the purposes of this complaint we consider them to collectively constitute one serious breach.

1.8.3 *Presenting Contentious Opinions as if they Were Undisputed Facts*

The narration on many occasions put forward interviewee opinions as if they were facts, without any qualification or context to make it clear that they were opinions and that they were highly controversial amongst those professionals whose expertise qualifies them to judge their veracity.

Moreover, on numerous occasions, the narrative of the programme also appeared to express the highly contentious views of the film-maker (either directly, or through repeated consecutive interviewee statements that appeared to the viewer to corroborate each other and therefore constituted narration) – despite that fact that it was not made clear to the viewer that this was a “personal view” programme; that it was not “part of a series of programmes” (see section **1.10**, below); and that it concerned “matters relating to current public policy” – in clear breach of the impartiality sections of the *Broadcasting Code* (<http://tinyurl.com/35xfpz>).

While each individual transgression might be considered a relatively minor breach, taken together they constitute a systematic breach of both the accuracy and impartiality sections of the *Ofcom Broadcasting Code*.

A total of **11** breaches fell into this category: see Appendix **A.3**, page **121** for details: although for the purposes of this complaint we consider them to collectively constitute one serious breach.

1.9 Total Number of Serious Breaches

Given the grouped breaches in sections **1.6**, **1.7** and **1.8** above, for the purposes of your investigation and your ruling we consider that this complaint has documented **67** serious breaches as opposed to the total number of 137 individual transgressions of the Codes and Act that this complaint documents.

1.10 There was no “Series of Programmes”

Several clauses in Section 5 of the *Broadcasting Code* refer to the need for impartiality either within a programme or over “a series of programmes taken as a whole”; and if part of a series of programmes, Section 5 states “that should normally be made clear to the audience on air”. However, it was not announced on *Channel 4* at any time that it was part of any series of related programmes. Furthermore, when challenged by George Monbiot (see <http://tinyurl.com/yto5gy5>), Hamish Mykura (Head of History, Science and Religion, *Channel 4*), claimed that it was part of a series with two other films that were not science programmes. In fact, we are not aware of any recent *Channel 4* programmes that have explained in any detail the science of global warming; and certainly nothing that would counter the arguments put forth in *The Great Global Warming Swindle*.

1.11 Failure to Disclose the Personal Interests of the Producer

Clause 5.8 of the *Broadcasting Code* states: *Any personal interest of a reporter or presenter, which would call into question the due impartiality of the programme, must be made clear to the audience.*

The personal interests of the presenter, which were not disclosed to the audience, are detailed in **Appendix B**: page 123.

1.12 Full Disclosure

1. None of the contributors or reviewers of the complaint have received any payment, either in money or in kind, for their contribution to this complaint; not even to cover their expenses: with the one exception that one contributing author's internet costs of £15.09 GBP were reimbursed due to their need to use an internet café in order to look up references for the section they wrote.
2. John Shepherd, one of the peer reviewers of this complaint, has submitted a (very short, one page) *Ofcom* complaint of his own; and would also like to disclose that he occasionally undertakes work as a paid consultant to the oil industry (chairs independent peer reviews of the science & engineering studies undertaken in relation to the decommissioning of off-shore installations).

1.13 Acknowledgments

The lead authors of this complaint would like to acknowledge the immense contribution of all the contributing authors and peer reviewers of this complaint, all of whom gave up an immense amount of their free time to help with it.

In addition, we would like to thank the following people for their contributions:

1. Sir John Houghton (Co-Chair of IPCC Working Group I) who provided information that was used in the sections of this complaint relating to IPCC WG I.
2. Bob Ward, who until September 2006 was the *Royal Society's Senior Manager in Policy Communication*, and is now Director, *Global Science Networks, Risk Management Solutions Ltd* (www.rms.com): although not a formal peer reviewer, Mr Ward read and made many helpful suggestions regarding the Complaint Summary.
3. Kert Davies, Research Director at Greenpeace US, who set up and co-maintains the *ExxonSecrets* website (<http://tinyurl.com/28n384>), and who provided information and references that were used in **Appendix C**: and **Appendix D**: of this complaint.
4. Brendan DeMelle, an independent analyst and researcher in climate change and politics, who also provided information and references that were used in **Appendix C**: and **Appendix D**: of this complaint.
5. Kevin Grandia, Operations Manager of the *DeSmogBlog* website (www.desmogblog.com), who also provided information and references that were used in **Appendix C**: and **Appendix D**: of this complaint.

2. Complete Transcript and Rebuttal

Key to colour-coded commentary text

Bright red text: Actual falsification of data, and/or misrepresentation of the views of a contributor to the programme

Dark red text: Narration, or on-screen graphics, or an accumulation of consecutive interviewee statements that taken together amount to narration; which are either factually inaccurate, or apparently intentionally misleading, or are an attempt to give the impression that a contentious opinion is a fact.

Blue text: Interviewee is either factually inaccurate, apparently intentionally misleading, or expresses an opinion as if it were a fact without context being provided to make it clear that it's an opinion.

2.1 Programme Introduction

[Captions against background film of storms]

THE ICE IS MELTING

THE SEA IS RISING

HURRICANES ARE BLOWING

AND IT'S ALL YOUR FAULT

SCARED?

DON'T BE

IT'S NOT TRUE

[**Comment 1:** The narration (albeit using captions) in a science documentary by a public service broadcaster cannot validly say this. It is an extremely controversial opinion which would be disputed by the overwhelming majority of those professionally qualified to judge its veracity. Nevertheless, this opinion was presented (without any qualification whatsoever) as a fact, and is therefore extremely misleading. Given *Channel 4's* public service remit under the *Communications Act* to educate the public, this is a considerable breach of the public's trust.]

(In breach of the 2003 *Communications Act* Section 265, *Oofcom* 5.4, 5.5, 5.11, 5.12)

[**Professor Paul Reiter, Director of Insects and Infectious Diseases at the Pasteur Institute, Paris]**

We imagine that we live in an age of reason, and the global warming alarm is dressed up as science. It's not science. It's propaganda.

[**Comment 2:** Professor Reiter is a respected entomologist, but his credentials with respect to the specific subjects that he discussed in the programme were

exaggerated – see Appendix C.18, page 142, Comment 115, page 96 and Comment 110, page 91.

The inflation of credentials by the film maker of *most* of the contributors to the programme is important, because *Channel 4* billed them as being “leading scientists”, and as being “an impressive roll-call of experts” (see Appendix C.1.2, page 126), as a result of which the public almost certainly gave the contributors’ statements much more weight than they would otherwise have done. *Taken together with the inflation of credentials of most of the other contributors, this represents a serious breach of the Ofcom Code relating to accuracy.*

More importantly, Professor Reiter’s links to fossil-fuel industry-funded lobby groups that campaign against greenhouse gas emissions reductions should have been mentioned, as they would bear on the public perception of his impartiality (see Appendix C.18, page 142).

This lack of disclosure of conflicts of interest, which applied to most of the contributors to the programme, is especially important because of the overwhelming evidence that has come to light that some sections of the fossil fuel industry, together with the lobby groups that they fund, have been running a very well-funded misinformation campaign to reduce public support for cutting greenhouse gas emissions. This evidence is detailed in Appendix C.1.3, page 127, and Appendix D: page 145. *Taken together, with the lack of disclosure of most of the other contributors, this represents a serious breach of the Ofcom Code relating to impartiality.]*

(In breach of the 2003 Communications Act Section 265, Ofcom 5.7, 5.8)

[Dr Nir Shaviv, Institute of Physics, University of Jerusalem] There is no direct evidence which links 20th century global warming with anthropogenic greenhouse gasses.

[Comment 3: There is in fact much evidence (from basic physics to observations that agree with the predictions of the basic physics theory) in support of this link. It is therefore unacceptable that Shaviv’s extremely controversial opinion was presented as if it was a fact, and was not qualified in any way. This constitutes a clear attempt to mislead the public.]

(In breach of Ofcom 5.7)

[Comment 4: Dr Shaviv’s credentials with respect to the subjects he discussed in the programme were exaggerated – for full details, see Appendix C.13, page 139.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.7, 5.8)

[Nigel Calder, science journalist] We’re just being told lies, that’s what it comes down to.

[Comment 5: Nigel Calder’s credentials with respect to the subjects he discussed in the programme were greatly exaggerated – for full details, see Appendix C.6, page 132.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.7, 5.8)

[Professor Ian Clark, Dept of Earth Sciences, University of Ottawa] We can’t say that CO₂ will drive climate. It certainly never did in the past.

[Comment 6: There are many factors that influence the climate (see Comment 55, page 50): climate from the distant past can be inferred only indirectly, and the mechanisms of past climate change are still the subject of active research and debate. It is simply impossible to state with certainty (as Clark here did) that CO₂ never drove climate change in the past. Moreover, science can never provide such absolute certainty on any matter, and as a scientist, Clark should have been aware of this. Therefore, this appears to have been a deliberate attempt to mislead the public.]

(In breach of *Ofcom* 5.7)

[Comment 7: Ian Clark’s credentials with respect to the subjects he discussed in the programme were exaggerated; and his links to fossil-fuel industry-funded lobby groups that campaign against greenhouse gas emissions reductions should have been mentioned and were not. For full details, see Appendix C.16, page 140.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.7, 5.8)

[Dr Tim Ball, retired former Professor in the Dept. of Geography, University of Winnipeg] If the CO₂ increases in the atmosphere as a greenhouse gas, then the temperature will go up. But the ice core record shows exactly the opposite. So the fundamental assumption, *the* most fundamental assumption of the *whole theory* of climate change due to humans, is shown to be wrong.

[Comment 8: This statement, repeated later in the documentary (see Comment 50, page 45), is incorrect. Rises in temperature may precede CO₂ increases at the end of Ice Age glacial periods, but the changes are still highly and positively correlated, and the record does not show that CO₂ cannot drive temperature changes (see Comment 50 for more details).]

(In breach of *Ofcom* 5.7)

[Comment 9: Tim Ball's credentials with respect to the subjects he discussed in the programme were greatly exaggerated; and his links to fossil-fuel industry-funded lobby groups that campaign against greenhouse gas emissions reductions should have been mentioned and were not. In addition, the direct funding he has received from the fossil fuel industry was not mentioned. For full details, see Appendix C.9, page 134.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.7, 5.8)

[Nigel Calder] The whole thing stinks.

[Narrator] Man-made global warming is no longer just a theory about climate. It is the defining moral and political cause of our age. Campaigners say the time for debate is over. Any criticism, no matter how scientifically rigorous, is illegitimate – even worse, dangerous. But in this film it will be shown that the earth's climate is always changing, that there is nothing unusual about the current temperature, and that the scientific evidence does not support the notion that climate is driven by carbon dioxide, man-made or otherwise. Everywhere you are told that man-made climate change is proved beyond doubt. But you are being told lies.

[Comment 10: The interviewee Nigel Calder may be entitled to accuse almost all of the world's climate scientists of lying if he wishes. However, this was presented by the programme as a fact rather than an opinion, which is a breach of the *Broadcasting Code*. For the narrator to repeat this assertion ("you are being told lies") is moreover a considerable breach of the public's trust and is outside the remit of *Channel 4* under the *Communications Act*.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Dr Tim Ball] When people say "you don't believe in global warming," I say "no, I believe in global warming, I don't believe that human CO₂ is causing that warming."

[Dr Nir Shaviv] A few years ago if you would ask me I would tell you "it's CO₂," because just like everyone else in the public I listened to what the media had to say.

[Comment 11: This statement is profoundly misleading in several respects. Taken together with other similar statements by interviewees and by the narrator throughout the *Channel 4* programme (see **Comment 13**, page 18; **Comment 33**, page 26; **Comment 66**, page 61; **Comment 82**, page 72; **Comment 96**, page 80; **Comment 97**, page 81; **Comment 100**, page 84; and **Comment 107**, page 87), this amounts to a narrative, and to an apparent attempt by the film maker to mislead the public about the nature of the media's coverage of climate change:

1. It presents a misleading and wholly outdated view of the relationship between the public and the media. Studies have shown that whilst the public

may be made aware of climate change (and other environmental issues) by the media, they do not necessarily accept those views or act upon them (see *Stamm et al* 2000, <http://tinyurl.com/2vgj9f>). The deficit, or ‘hyperdermic’ model of media-public interaction has long been dismissed by researchers working to understand the impacts of broadcast media on public understanding of complex issues. Researchers tend to refer instead to more complex ‘cultural circuits’ (*Carvalho and Burgess* 2005, <http://tinyurl.com/2woyhg>). His statement that “everyone else in the public [listens] to what the media [has] to say” offers a caricatured and hence deceptive account of media effects.

2. The statement presents a monolithic and entirely false view of media coverage of climate change, implying that all of it has in recent years attributed climate change to CO₂ emissions. This fails to acknowledge or identify the many different and contested opinions about climate change that have been aired across these media forms (see: *Harrabin*, and *Brown and McDonald* in *Smith* 2000, <http://tinyurl.com/2jt529>; *Carvalho* 2005, <http://tinyurl.com/2yaa6v>; and *Carvalho and Burgess* 2005, <http://tinyurl.com/2woyhg>). For example, in her analysis of climate change coverage in UK broadsheets, *Carvalho* has shown that from the early to late 1990s, *The Times* “often emphasized uncertainties and cast doubt on climate change” while *The Independent* “swung between the creation of a sense of risk and ‘sceptical’ pronouncements” (*Carvalho* 2005, <http://tinyurl.com/2yaa6v>).
3. The statement gives the impression that the media have consistently over time reported climate change as anthropogenically caused. This is misleading because it does not acknowledge the consistently uneven, and generally very low media coverage of climate change over the nearly twenty years since Margaret Thatcher first sought to bring the issue to political and public attention (*Smith* in *Smith* 2000, <http://tinyurl.com/2jt529>, *Farrow* in *Smith* 2000, <http://tinyurl.com/2jt529>, *Carvalho* 2005, <http://tinyurl.com/2yaa6v>).

This inattentiveness on the part of the media was not due to the lack of reasonable scientific confidence about the contribution of CO₂ to climate change, but rather to the fact that the issue fails to deliver the combination of event, conflict and personality that so much news production relies upon. The difficulties faced by the climate change science and policy communities in gaining what they felt to be appropriate levels of public, hence media, attention to an issue they felt to be of enormous long term significance has been well documented (*Gummer*, and *May and Pitts* in *Smith* 2005, <http://tinyurl.com/2cm7qt>).

The events-based news cycles of the media have impeded effective coverage of all long-term environmental issues (*Adam* 1998, <http://tinyurl.com/2ghr5v>; and *Allan et al* 2000, <http://tinyurl.com/27h3qb>), but the demands of the news cycle have been particularly detrimental to advancing public understanding and debate of climate change (*Smith* 2005, <http://tinyurl.com/2cm7qt>).

4. See also [Comment 96](#), page 80.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Caption against background film of storms] “Climate change: Britain under threat” BBC1

[Narrator] Each day the news reports grow more fantastically apocalyptic. Politicians no longer dare to express any doubt about climate change.

[Nigel Lawson, Lord Lawson of Blaby, former British Chancellor of the Exchequer] There is such intolerance of any dissenting voice ...

[Comment 12: Nigel Lawson’s credentials with respect to the subjects he discussed in the programme were exaggerated. For full details, see Appendix C.2, page 130, and Comment 34, page 27.]

(In breach of the 2003 *Communications Act Section 265, Ofcom 5.7, 5.8*)

Cut to film of an unnamed activist giving a speech] Some of the worst climate criminals on the planet

[Nigel Lawson] this is the most politically incorrect thing possible, is to doubt this climate change orthodoxy.

[Narrator] Global warming has gone beyond politics – it is a new kind of morality.

[Cut to film of Jeremy Paxman on Newsnight, on BBC2] Now the Prime Minister is back from his holiday; he’s unrepentant and unembarrassed about yet another long haul destination.

[Narrator] Yet as the frenzy of a man-made global warming grows shriller, many senior climate scientists say the actual scientific basis for the theory is crumbling.

[Comment 13: In the above string of statements by the narrator and interviewees, combined with film clips, the narration is trying to give the viewer an inaccurate impression of the media coverage that actually exists: news reports about climate change are not all or even mostly “fantastically apocalyptic” – see Comment 11, page 16.

The brief excerpt from the *BBC One* Documentary *Climate Change: Britain Under Threat* gave an entirely false impression of the material within the programme. In the original BBC film, short illustrative passages were used to suggest impacts of storms combining with sea level rise decades in the future. The film itself was

Careful to nest these within a carefully considered script, which was exhaustively peer reviewed by an interdisciplinary panel of climate change academics from the Open University. Not only was the excerpt used to make false associations with all other media coverage of the issue; it was also an inaccurate representation of the programme that it edited the sequence from.

Lord Lawson’s reference to intolerance of dissenting voices is at odds with the fact that he contributed to a *House of Lords Economic Affairs Committee* enquiry that published a sceptical report on climate change timed to coincide with preparations for the 2005 G8 conference. The Report won an enormous body of media coverage (see *Google News*: <http://tinyurl.com/226hx7>). The suggestion that media reporting of climate change has been “fantastically apocalyptic” is at odds with the fact that, just considering print news media, the range of journalists considering how people might adapt to, or even profit from, climate change have ranged from gardening and food correspondents to economics and business. In other words, the media are beginning to find ways of exploring the more incremental business of learning to live with climate change.

Moreover, many climate scientists, including IPCC authors, see the IPCC process as producing excessively conservative summaries (see for example the *International Herald Tribune*: <http://tinyurl.com/2ly8ke> and the *BBC*: <http://tinyurl.com/2us82e>); and yet media coverage of climate science has concentrated almost exclusively on IPCC estimates.

In addition, by showing footage of an anti-capitalist activist in amongst these claims about the press, the film is attempting to associate in the viewers mind anti-capitalism, climate change science and media decision-making in a profoundly misleading manner.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Dr Nir Shaviv] There were periods for example in the earth’s history when we had 3 times as much CO₂ as we have today; or periods when we had 10 times as much CO₂ as we have today. And if CO₂ has a large effect on climate then you should see it in the temperature reconstruction.

[Prof Ian Clark] If we look at climate with a geological timeframe we would never suspect CO₂ as a major climate driver.

[Piers Corbyn, “Weather Action”] None of the major climate changes in the last 1000 years can be explained by CO₂ .

[Comment 14: With regard to the narrator’s statement that Shaviv, Clark and Corbyn are “senior climate scientists”, see **Comment 4**, page 14, **Comment 7**, page 15 and **Comment 15**, below.

Shaviv and Clark’s comments neglect the strong positive correlation between CO₂ and temperature in the palaeoclimate record over multi-millennial time periods.

Shaviv in his comment further suggests that because CO₂ concentrations in the past have been up to 10 times the current levels, we should therefore be sanguine about the prospect of future warming. In doing so, he is neglecting the many other factors that impact global temperature, such as orbital, solar, and geological effects (<http://tinyurl.com/7r6q4>). These factors are always changing, so a given CO₂ concentration level will not guarantee a specific temperature change, making Shaviv’s statement misleading in this context. More importantly, when CO₂ levels were very high in the past, there were not 6 billion people on earth, living in densely populated cities, many of them in coastal regions, that are very vulnerable to the effects of changes in climate, such as sea level rises. There have also been massive extinction events in the past, but that does not mean that any sensible policy maker would wish to risk causing another massive extinction event now.

Clark’s comment is puzzling, as CO₂ has indeed affected past climates. His use of the term “driver” refers to the lag between temperature and CO₂ changes over time; and is part of the incorrect CO₂-lag argument he makes later on – see [Comment 50](#), page [45](#) for details.

Regarding Corbyn’s comment: given that CO₂ concentrations have remained stable over the last 1000 years until the industrial era (see <http://tinyurl.com/2p8rr9>), no one would suggest that the minor climate changes experienced during that period were associated with CO₂. Since the start of the industrial era, however, CO₂ is considered to be a primary driver of global warming (<http://tinyurl.com/yu9kuu>.)

(In breach of the 2003 Communications Act Section 265, Ofcom 5.7, 5.8)

[**Comment 15:** Piers Corbyn’s credentials with respect to the subjects he discussed in the programme were greatly exaggerated. For full details, see [Appendix C.7](#), page [133](#) and [Comment 57](#), page [51](#).]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.7, 5.8)

[**Prof Ian Clark** We can’t say that CO₂ will drive climate – it’s certainly never did in the past.

[**Professor John Christy, Dept of Atmospheric Science, University of Alabama in Huntsville** I’ve often heard it said that there’s a consensus of thousands of scientists on the global warming issue and that humans are causing a catastrophic change to the climate system. Well I am one scientist and there are many that simply think that is not true.

[**Comment 16:** Professor Christy’s links to fossil-fuel industry-funded lobby groups that campaign against greenhouse gas emissions reductions should have been mentioned and were not. For full details, see [Appendix C.19](#), page [143](#).]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.7, 5.8)

[**Narrator** Man-made global warming is no ordinary scientific theory.

[Cut to film of News at Ten presenter on BBC1] This morning the Intergovernmental Panel on Climate Change ...

[Narrator] It is presented in the media as having the stamp of authority of an impressive international organisation.

[Cut to film of Newsnight on BBC2, with a background of glaciers]

[Narrator] The United Nations Intergovernmental Panel on Climate Change or IPCC

[Dr Philip Stott, retired former Professor of Biogeography, School of Oriental and African Studies, University of London] The IPCC, like any UN body, is political. The final conclusions are politically driven.

[Comment 17: The IPCC procedures explicitly state that their reports “should be neutral with respect to policy” (see: <http://tinyurl.com/2o4948>, PDF). Hence, Stott is, in effect, claiming that the IPCC is breaching its own constitution as a matter of course. This is a very serious allegation, but despite this, absolutely no evidence is provided, nor is the IPCC given the chance to respond, which is a clear breach of *Section 7* of the *Ofcom Code*.

With regard to the specific evidence for or against Stott’s claim, one should note that the conclusions of the IPCC have been endorsed by most of the world’s academies of science (see <http://tinyurl.com/yoea6l>, PDF, and <http://tinyurl.com/2d5uxq>, PDF), as well as by many of the world’s respected professional scientific organizations such as the *American Meteorological Society* (<http://tinyurl.com/3yopfc>) and the *American Association for the Advancement of Science* (<http://tinyurl.com/23pte3>, PDF).

Furthermore, the IPCC’s conclusions have also been endorsed by the leaders of many of the world’s largest corporations, including BP (<http://tinyurl.com/2gpc8t>), Shell (<http://tinyurl.com/2t5z5y>), DuPont (<http://tinyurl.com/2dptz5>), 18 leading Canadian corporations (<http://tinyurl.com/2chfar>), and the Climate Group (<http://tinyurl.com/yr667d>), an organization representing around 30 major international corporations (<http://tinyurl.com/27m54k>).

Given this overwhelmingly positive reaction from the scientific and business communities, it is difficult to see how one could credibly conclude that the final conclusions of the IPCC are "politically driven".]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.7, 7.2, 7.3, 7.6, 7.9)

[Comment 18: Philip Stott's credentials with respect to the subjects he discussed in the programme were greatly exaggerated. For full details, see Appendix, C.8, page 133.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.7, 5.8)

[Prof Paul Reiter] This claim that the IPCC is the world's top 1,500 or 2,500 scientists – you look at the bibliographies of the people and it's simply not true. There are quite a number of non-scientists.

[Comment 19: The IPCC is divided into three working groups: the first considers the science of climate change, while the second assesses the impacts to society and nature and options for adaptation, and the third assesses options for mitigating climate change (see: <http://tinyurl.com/yvn5ym>). Many of the topics in the second and third working groups are outside the expertise of natural scientists, and more appropriate for social scientists: economists, for example, and other experts from both public and private sectors. It is therefore quite appropriate that scholars with a range of expertise beyond the natural sciences are involved in writing the IPCC reports.]

(In breach of *Ofcom* 5.7)

[Professor Richard Lindzen, Professor of Meteorology at MIT] And to build the number up to 2,500 they have to start taking reviewers and government people and so on – anyone who ever came close to them; and none of them are asked to agree. Many of them disagree.

[Comment 20: There are government scientists who contribute to the report, but government scientists *are* scientists. The reviewers of the scientific content of the IPCC reports are also scientists.]

(In breach of *Ofcom* 5.7)

[Comment 21: Professor Lindzen is a respected meteorologist (weather scientist); but his credentials with respect to the specific subjects that he discussed in the programme were exaggerated; and his links to fossil-fuel industry-funded lobby groups that campaign against greenhouse gas emissions reductions should have been mentioned and were not. In addition, the direct funding he has received from the fossil fuel industry was not mentioned. For full details, see Appendix C.17, page 141.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.7, 5.8)

[Prof Paul Reiter] Those people who *are* specialists but *don't* agree with the polemic and resign – and there have been a number that I know of – they are simply put on the author list and become part of this “2,500 of the world's top scientists”.

[Comment 22: There is no evidence to support this claim, which appears to have been made in an attempt to discredit the IPCC in the minds of less well-informed viewers – for details see **Comment 115**, page **96**.]

(In breach of *Ofcom* 5.7)

[Prof Richard Lindzen] People have decided you have to convince other people – that since no scientist disagrees, you shouldn't disagree either. But whenever you hear that in science, that's pure propaganda.

[Comment 23: Few scientists disagree with the ideas that the Earth orbits the Sun, that the Universe is billions of years old, and that humans are the product of millions of years of evolution. Are we to conclude that, when one hears these ideas, they are “pure propaganda”?]

(In breach of *Ofcom* 5.7)

[Narrator] This is the story of how a theory about climate turned into a political ideology.

[Patrick Moore] See I don't even like to call it the environmental movement any more because really it is a political activist movement; and they have become hugely influential at a global level.

[Comment 24: Patrick Moore's credentials with respect to the subjects he discussed in the programme were exaggerated; and his links to fossil-fuel industry-funded lobby groups that campaign against greenhouse gas emissions reductions should have been mentioned and were not. In addition, the direct funding he has received from the fossil fuel industry was not mentioned. For full details, see Appendix **C.5**, page **132**.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.7, 5.8)

[Narrator] It is the story of the distortion of a whole area of science.

[Comment 25: The narrator is again expressing contentious opinions as if they were undisputed facts, without any supporting evidence being provided.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Dr Roy Spencer, Weather Satellite Team Leader, NASA] Climate scientists need there to be a problem in order to get funding.

[Comment 26: Dr Spencer’s links to fossil-fuel industry-funded lobby groups that campaign against greenhouse gas emissions reductions should have been mentioned and were not. For full details, see Appendix C.19, page 143.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.7, 5.8)

[Prof John Christy] We have a vested interest in creating panic because then money will flow to climate science.

[Prof Richard Lindzen] There’s one thing you *shouldn’t* say, and that is, this might not be a problem.

[Narrator] It is the story of how a political campaign turned into a bureaucratic bandwagon.

[Professor Patrick Michaels, Dept of Environmental Sciences, University of Virginia] Fact of the matter is that tens of thousands of jobs depend on global warming right now. It’s a big business.

[Comment 27: Although Professor Michaels is a climatologist, his billing as a “leading scientist” and part of “an impressive roll-call of experts” (see Appendix C.1.2, page 126) is questionable; and the serious criticisms of his recent climate work were not mentioned. Furthermore, his links to fossil-fuel industry-funded lobby groups that campaign against greenhouse gas emissions reductions should have been mentioned and were not; and the extensive direct funding he has received from the fossil fuel industry (not just the coal industry) was not mentioned. For full details, see Appendix C.11, page 136.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.7, 5.8)

[Dr Philip Stott] It’s become a great industry in itself; and if the whole global warming farrago collapsed there’d be an awful lot of people out of jobs and looking for work.

[Narrator] This is a story of censorship and intimidation.

[Comment 28: The narrator is again expressing highly contentious opinions as if they were facts.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Nigel Calder] I have seen and heard their spitting fury at anybody who might disagree with them – which is not the scientific way.

[Narrator] It is a story about Westerners invoking the threat of climatic disaster to hinder vital industrial progress in the developing world.

[Comment 29: The narrator is again expressing highly contentious opinions as if they were facts.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[James Shikwati, economist and author] One clear thing that emerges from the whole environmental debate is the point that there's somebody keen to kill the African dream. The African dream is to develop.

[Comment 30: In economic debates about climate change, it is now understood that economic development and climate policy complement each other: there is no trade off between them. For example, *Research Programme 4* of the high-profile research body, the *Tyndall Centre for Climate Change Research* (<http://tinyurl.com/23rkzm>) is "International Development"; and the subtitle of this economic research programme is: *how can international development be sustained in a warming world?* (<http://tinyurl.com/2n3w6h>).

Also, there is no-one in the environmental movement who says that the poorest countries of the world should have their access to energy restricted. The reason for this is that the poorest countries have very low emissions. Even if they do develop using coal power, they will not contribute significantly to climate change. It is the OECD nations, EU, US Canada, Japan, Korea, Taiwan, Russia; and the newly industrialising countries China, India, Brazil and Mexico, which have large greenhouse gas emissions and which will have to reduce their emissions (but not their economic growth by any significant amount). See the *Stern Review*, <http://tinyurl.com/vgzxv>, which states in the *Executive Summary*, page xiii:

Resource cost estimates suggest that an upper bound for the expected annual cost of emissions reductions consistent with a trajectory leading to stabilisation at 550ppm CO_{2e} is likely to be around 1% of (World) GDP by 2050 ... (1% of World GDP)..... is significant, but is fully consistent with continued growth and development, in contrast with unabated climate change, which will eventually pose significant threats to growth.

Thus the above statement by James Shikwati is factually incorrect, and given its context, was an apparent attempt both by Shikwati and by the film maker to mislead the audience about the economics of climate change.]

(In breach of *Ofcom* 5.7)

[**Comment 31:** James Shikwati’s credentials with respect to the subjects he discussed in the programme were exaggerated; and his known biases, and his links to fossil-fuel industry-funded lobby groups that campaign against greenhouse gas emissions reductions should also have been mentioned and were not. For full details, see Appendix C.3, page 130.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.7, 5.8)

[**Patrick Moore**] The environmental movement has developed into the strongest force there is for preventing development in the developing countries.

[**Narrator**] The global warming story is a cautionary tale of how a media scare became a defining idea of a generation.

[**Comment 32:** The narrator is again expressing contentious opinions as if they were undisputed facts, without any supporting evidence being provided.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[**Nigel Calder**] The whole global warming business has become like a religion; and people who disagree are called heretics. I’m a heretic. The makers of this programme are all heretics.

[**Comment 33:** In fact most of the contributors to the *Channel 4* programme regularly receive a great deal of media coverage – for details, see Appendix E: page 158. Calder himself recently had a major op-ed piece critical of global warming theory published in *The Sunday Times* (see: <http://tinyurl.com/2fhq57>). Similarly, contributors Nigel Lawson and Philip Stott have enjoyed prominent interviews and articles in some of the most widely read newspapers in Britain. Thus this statement by Calder, together with the narrator’s statement that preceded it, are highly, and apparently intentionally, misleading.

Furthermore, the term “heretic” is used here in a manipulative way to suggest they suffer outsider status. In truth they have enjoyed privileged access to some of the most influential news publications in the country (see also Appendix E: page 158).]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[**Narrator**] In 2005 a House of Lords enquiry was set up to examine the scientific evidence for man-made global warming. A leading figure in that enquiry was Lord Lawson of Blaby, who, as Chancellor of the Exchequer in the 1980s was the first politician to commit government money to global warming research.

[Nigel Lawson] We had a very, very thorough enquiry, it took evidence from a whole lot of people expert in this area, and produced a report. What surprised me was to discover how weak and uncertain the science was. In fact, there are more and more thoughtful people, some of them a bit frightened to come out in the open, but who quietly, privately – and some of them publicly – are saying “hang on, wait a minute, this simply doesn’t add up”.

[Comment 34: Contrary to this assertion by the narrator, the House of Lords enquiry was supposed to be about the economics, *not* the science, of climate change (see: <http://tinyurl.com/j3vgy>). Although the scientific evidence was considered, the enquiry was conducted by the *Economic Affairs Committee*, which has little or no scientific background, rather than by the more qualified *Science and Technology Committee*.

Furthermore, at this point it should have been made clear that Lord Lawson’s views on the House of Lords Enquiry and on the IPCC have been substantially refuted, both by the mainstream scientific community (see <http://tinyurl.com/2s2xko>) and in the official British Government response to the enquiry (see <http://tinyurl.com/2tghdb>.)

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

2.2 Palaeoclimatic Temperature Reconstructions of the Past

[Narrator] We are told that the earth’s climate is changing. But the earth’s climate is always changing. In earth’s long history there have been countless periods when it was much warmer and much cooler than it is today: when much of the world was covered by tropical forests, or else vast ice sheets. The climate has always changed; and changed without any help from us humans.

[Comment 35: The narrator is trying to make the public believe that previous warming and cooling periods have been overlooked by climatologists; and they are therefore mistaken in their theory of greenhouse warming. Yet the entire field of palaeoclimatology is a study of historical climates. The documentary makers actually make reference to these historical climate studies in discussing ice-core data, so they must be aware that climatologists are aware that the climate is always changing. For the narrator to try to mislead viewers in this way is a clear breach of the *Broadcasting Code*.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12, 7.1, 7.2, 7.3, 7.6, 7.9, 7.14)

[Narrator] We can trace the present warming trend back at least 200 years, to the end of a very cold period in earth’s history. This cold spell is known to climatologists as “The Little Ice Age”.

[Cut to temperature graph showing the Little Ice Age.]

[Cut to Pieter Brueghel painting of figures in the snow.]

[Comment 36: The palaeoclimatic evidence suggests that the Little Ice Age was not a "very cold period in the earth's history", but was probably less than 1°C cooler than today on a hemispheric or global scale, and was more intense in some regions (for example, Europe) than in others (see IPCC 2001: <http://tinyurl.com/7q8jq>). Hence, showing a picture from Europe with narration stating that the Little Ice Age was "very cold" gives a highly misleading impression of global climate during this period.

It also attempts to imply to the viewer that anecdotal evidence such as paintings can be used as a reliable proxy for accurate temperature measurements, which it cannot – for example, see page 7 of the Jones/Mann report *Climate Over Past Millennia*, at: <http://tinyurl.com/3ck36g>.]

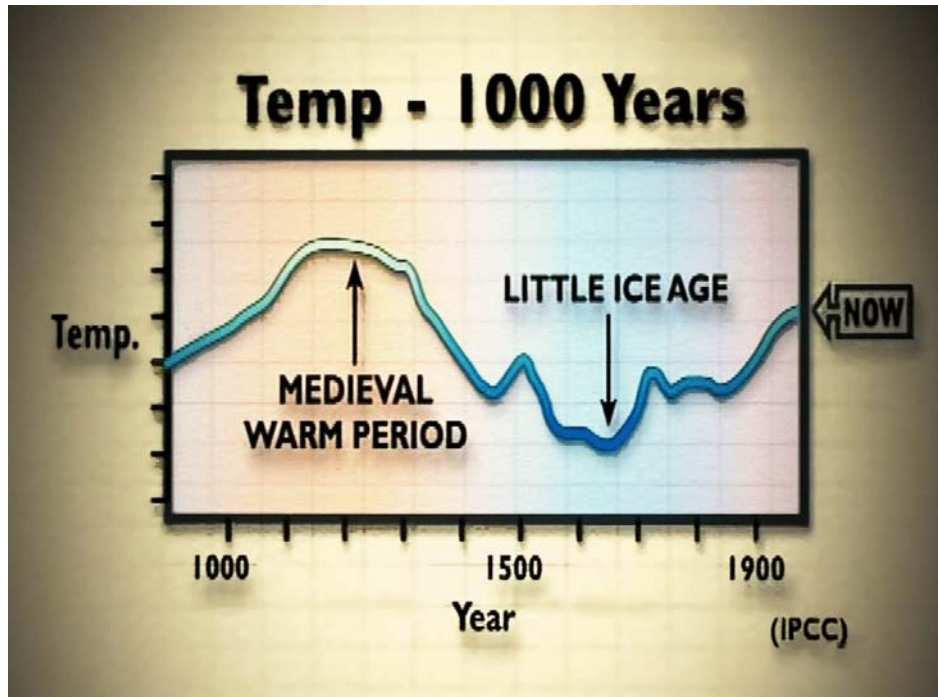
(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Dr Philip Stott]

In the 14 century, Europe plunged into the Little Ice Age; and where we'd look for evidence of this are the old illustrations and prints and pictures of Old Father Thames; because during the hardest and toughest winters of that Little Ice Age the Thames would freeze over. And there were wonderful ice fairs held on the Thames – skating, and people actually selling things on the ice.

[Narrator] If we look back further in time, before the Little Ice Age, we find a balmy golden era, when temperatures were higher than they are today ...

[Comment 37: Cut to the following graph of temperature over the past 1000 years attributed by the programme to "IPCC":



In fact this graph appeared in the 1990 IPCC report (Fig. 7.1(c), p202, see <http://tinyurl.com/ypvurw>), and was described there as "a schematic diagram", and **not** as a plot of real data; and for which the report cautions that "it is still not clear whether all of the fluctuations indicated are truly global." Most importantly, the above graph covers the period 900 AD to 1975, just before the start of by far the strongest and most sustained period warming in the 20th century. So by marking the end point of the above graph as "Now" rather than "1975" (see above), the programme makers misled the audience.

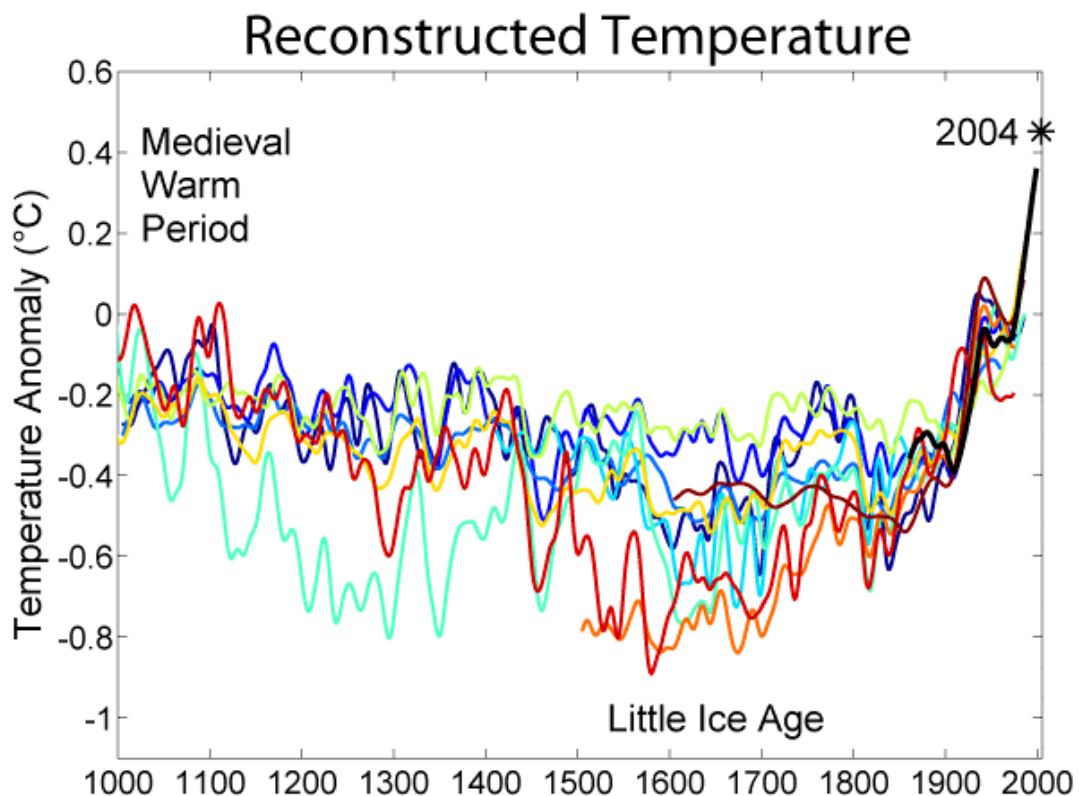
Up to 1990, palaeoclimatic reconstructions of past global temperatures were largely qualitative rather than quantitative; and the documentary did not mention the huge amount of more up-to-date evidence based on the considerable palaeodata that has been obtained and analysed since the 1990 IPCC report was published; data which led the 2001 and 2007 IPCC reports to conclude that recent average Northern Hemisphere temperatures are likely to have been the highest in at least the past 1000 years (in the case of the 2001 report), and in at least the past 1300 years (in the case of the 2007 report). See the 2001 IPCC Third Assessment Report at <http://tinyurl.com/32y43n>, the 2007 IPCC Summary for Policy Makers at <http://tinyurl.com/2x14c6>, and Chapter 6 of the full report at <http://tinyurl.com/3dwapw>.

See also the recent *Jukes et al* 2006 paper *Millennial temperature reconstruction intercomparison and evaluation* at: <http://tinyurl.com/32guez> (PDF) which reviewed

all of the recent literature on palaeoclimatic reconstructions of the temperature history of the last millennium, and which states in its conclusion:

The IPCC2001 conclusion that temperatures of the past millennium are unlikely to have been as warm, at any time prior to the 20th century, as the last decades of the 20th century is supported by subsequent research and by the results obtained here. Papers which claim to refute the IPCC2001 conclusion on the climate of the past millennium have been reviewed and some are found to contain serious flaws. Our study corroborates the IPCC2001 conclusions.

Compare the graph used in the programme with the following graph from the *Global Warming Art* website at: <http://tinyurl.com/2ugjbm>, which superimposes the results of 10 peer-reviewed studies by separate groups of climate scientists, carried out between 1998 and 2005, of temperatures over the past 1000 years. Although each of the temperature reconstructions below are different, due to the differing calibration methods and data used, they all clearly show that late 20th century temperatures to have been the highest in that 1000 year period:



Thus by showing a graph that was a schematic and was not based on data, produced in 1990 when quantitative palaeoclimatology based on real data was in its infancy; and by ignoring all of the peer reviewed research that has been done since then, the programme makers misled the public about the science of the reconstruction of past climate.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Narrator] ... a time known to climatologists as the Medieval Warm Period.

[Dr Philip Stott] It's important people know that climate enabled a quite different lifestyle. in the medieval period. We have this view that warming is going to have apocalyptic outcomes. In fact, wherever you describe this warm period it appears to be associated with riches.

[Narrator] In Europe, this was the great age of the Cathedral builders. A time when, according to Chaucer, vineyards flourished even in the north of England.

[Comment 38: The "vineyards in Britain are a good proxy for temperature" argument has been shown to be a myth in many peer reviewed scientific papers, so it is extraordinary that it is still being mentioned. For example, see *Realclimate*: <http://tinyurl.com/f6s6m>; or see page 7 of the Jones/Mann report *Climate Over Past Millennia* <http://tinyurl.com/3ck36g>; and most especially, the website of the English Wine Producers: <http://tinyurl.com/ypa8np> - where you can see that there are over 350 vineyards in Britain today, including one in Yorkshire; whereas there were only approximately 90 vineyards in medieval times, almost all of them in monasteries. There are also vineyards in Alaska today - see <http://tinyurl.com/2g8qog> - which proves that the presence or otherwise of vineyards is very far from being a reliable proxy for temperature.

Nevertheless, other proxy evidence does indeed show a period in Medieval **Europe** of comparable warmth to today. However, this cannot be extended to temperatures on hemispheric or global scales (see **Comment 37**). In addition, European temperatures over the past millennium can be reproduced by climate models with a combination of known natural factors and human factors such as deforestation; and in the last century or so, with greenhouse gas and sulphate aerosol emissions (*Goosse et al* 2006, <http://tinyurl.com/3bu5du>, PDF). The Medieval Warm Period in Europe can therefore be fully explained by current theories of climate, and is not evidence against a recent human influence, as implied by the documentary.

Furthermore, in promoting the benefits of a warmer **UK** climate as an argument against the concerns over rising **global** temperatures, the narrator is revealing a bias by neglecting the many negative impacts that will befall the rest of the world. Some temperate countries may benefit in the short term from warmer global temperatures (although in the longer term no country is likely to benefit); but developing countries will disproportionately suffer, both by virtue of their geography, and their poverty (and inability to adapt). See for example the IPCC 2001 report at <http://tinyurl.com/394n6f>.]

(In breach of the 2003 *Communications Act* Section 265, *Oofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

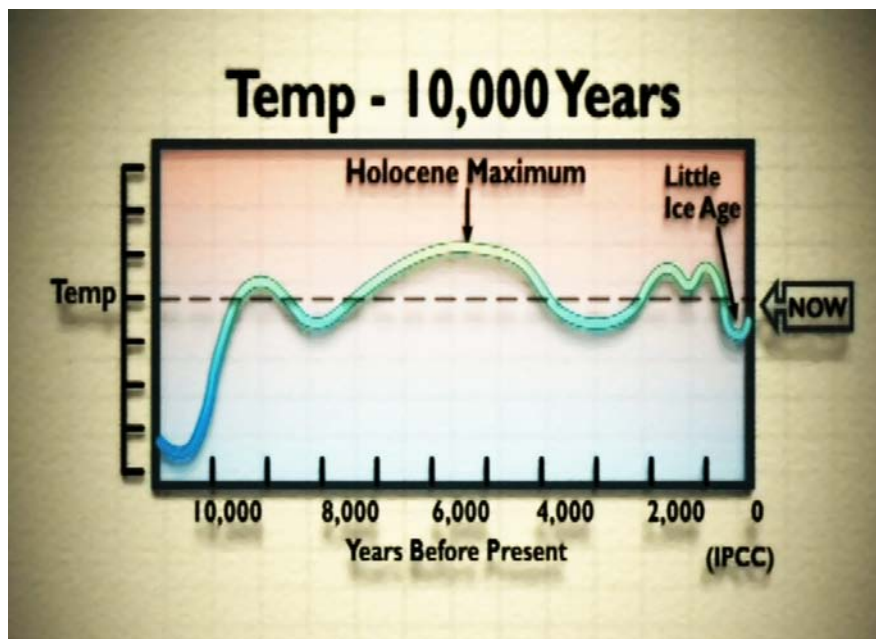
[Dr Philip Stott]

All over the City of London there are little "memories" of the vineyards that grew in the Medieval Warm Period. So this was a wonderfully rich time. And this little church, in a sense, symbolises it, because it comes from a period of great wealth.

[Narrator]

Going back in time further still, before the Medieval Warm Period, we find more warm spells, including a very prolonged period during the bronze age known to geologists as the Holocene Maximum, when temperatures were significantly higher than they are now for more than 3 millennia.

[Comment 39: Cut to graph showing the temperature over the past 10,000 years:



Like the previous graph (Comment 37, page 29), this is a "schematic diagram", not a plot of real data, from the 1990 IPCC report (Fig 7.1(b), p202, see <http://tinyurl.com/ypvurw>). The dashed line actually represents temperatures at the *beginning* of the 20th century, and the graph ends before the large warming of the past century, so the "Now" label is highly misleading.

In terms of the global average, Holocene Maximum temperatures are not known very well, but best estimates suggest they were no warmer than now and only 0.5 °C warmer than in the mid-20th century, although there are considerable uncertainties (see *Wikipedia*: <http://tinyurl.com/3bj7tj>). Thus the programme misleads by asserting facts where there is uncertainty, and where the best guess would be contrary to the programme's assertion. Also, by showing the above schematic, which was produced in 1990, and was not based on real data, and ignoring all of the quantitative research that has been done since then, the programme makers misled the public about the current state of scientific knowledge.

Important context is also missing, in that the warming during the "Holocene Maximum" can be explained by changes in the Earth's orbit (the Milankovitch cycles: see <http://tinyurl.com/hh2ea> and <http://tinyurl.com/293grf> [NOAA - the

National Oceanic and Atmospheric Administration]), which also controlled the ice ages, but which are not relevant to the present warming.

Using the “significantly” warmer Holocene Maximum period to suggest that we should not be concerned with warming also neglects the fact that the ecosystems and economies of today are not the same as those of 7-8000 years ago: the global population is much larger and societies live in built-up environments. For an assessment of how future warming is likely to impact economies and ecosystems during the 21st century, see the *IPCC Third Assessment Report on Impacts, Adaptation and Vulnerability* at <http://tinyurl.com/hu7dr>.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Prof Ian Clark] If we go back 8,000 years to the Holocene period, our current inter-glacial, it was much warmer than it is today. Now the polar bears obviously survived that period – they’re with us today. They’re very adaptable; and these warm periods in the past – what we call “hypsithermals” – posed no problem for them.

2.3 Twentieth Century Cooling

[Narrator] Climate variation in the past is clearly natural. So why do we think it’s any different today? In the current alarm about global warming, the culprit is industrial society. Thanks to modern industry, luxuries once enjoyed exclusively by the rich are available in abundance to ordinary people. Novel technologies have made life easier and richer. Transport and communications have made the world seem less foreign and distant. Industrial progress has changed our lives. But has it also changed the climate? According to the theory of man-made global warming, industrial growth *should* cause the temperature to rise. But does it?

[Comment 40: The narrator is misrepresenting global warming theory by claiming that the theory attributes global warming specifically to industrial growth. In fact global warming theory links temperature increase to the man-made emissions of CO₂, N₂O, CH₄, and other gases (see the IPCC 2001 report at: <http://tinyurl.com/32zmpm>); and the levels of these emissions are *not* linked directly to industrial growth levels.

It is true that in the past there has been a fairly strong (but indirect) link between industrial growth and CO₂ emissions and hence global warming. But because the link is indirect, it can be broken, given sufficient effort to do so, and it has already been broken in many countries.

For example, the following countries, whose economies grew every year between 1990 and 2004, all had *lower* greenhouse gas emission levels in 2004 than in 1990:

the United Kingdom, Sweden, Denmark, France, Germany and Iceland (see <http://tinyurl.com/y6ccls>, PDF [UNFCCC]).

As another example, the company *Vestas* has achieved rapid growth and wealth by creating alternative energy generation technology (see <http://en.wikipedia.org/wiki/Vestas>). There is also a well-known argument in the environmental economics literature that tight environmental regulations are in fact a business opportunity and that they lead to innovation and new products (see *Porter and Van der Linde* (1995) *Journal of Economic Perspectives*, <http://tinyurl.com/35n9aw>).

The aim of this false claim by the film maker is evidently to associate the things that have helped our society to prosper (industrial growth) with tackling climate change, and thus make the public fearful that we will have these things taken away from us if "environmentalists" have their way. This intentional deception is a manipulation of the public's trust in public service broadcasters.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Comment 41: In addition, the IPCC 4th Assessment 2007 (<http://tinyurl.com/24ps4t>) states that mankind has caused the accelerated rates of climate change that are now being measured:

The understanding of anthropogenic warming and cooling influences on climate has improved since the TAR, leading to very high confidence that the global average net effect of human activities since 1750 has been one of warming, with a radiative forcing of +1.6 [+0.6 to +2.4] W/m²

[*IPCC Working Group I Summary For Policymakers 2007, p3*]

Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations. This is an advance since the TAR's conclusion that "most of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations". Discernible human influences now extend to other aspects of climate, including ocean warming, continental-average temperatures, temperature extremes and wind patterns.

[*IPCC Working Group I Summary For Policymakers 2007, p10*]

Thus the narrator's statement above, in which he implies that because past climate change was natural, it is therefore impossible that current global warming could be driven by human greenhouse gas emissions, is a clear misrepresentation of the current state of scientific knowledge about *today's* climate change.]

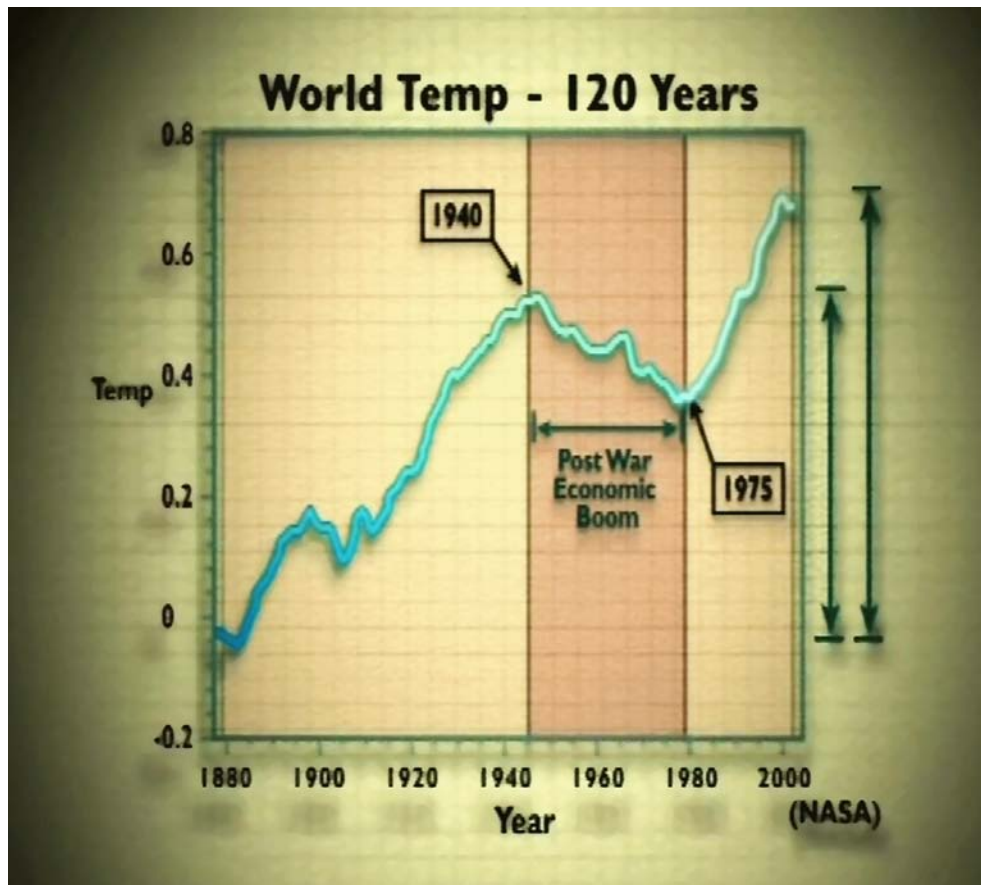
(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Prof Patrick Michaels]

Anyone who goes around and says that carbon dioxide is responsible for most of the warming of the 20th century hasn't looked at the basic numbers.

[Narrator] Industrial production in the early decades of the 20th century was still in its infancy - restricted to only a few countries, handicapped by war and economic depression. After the Second World War, things changed. Consumer goods like refrigerators and washing machines and TVs and cars began to be mass-produced for an international market. Historians call this global explosion of industrial activity the post-war economic boom. So how does the industrial story compare with the temperature record?

[Comment 42: At this point, the original transmission (on Channel 4, 8 March, 2007) showed the following graph of world temperatures, which it attributed to "NASA", with a time axis running from around 1875 to 2005, and two arrows to illustrate the claim that "most of the rise in temperature [since the mid-19th century] occurred before 1940":



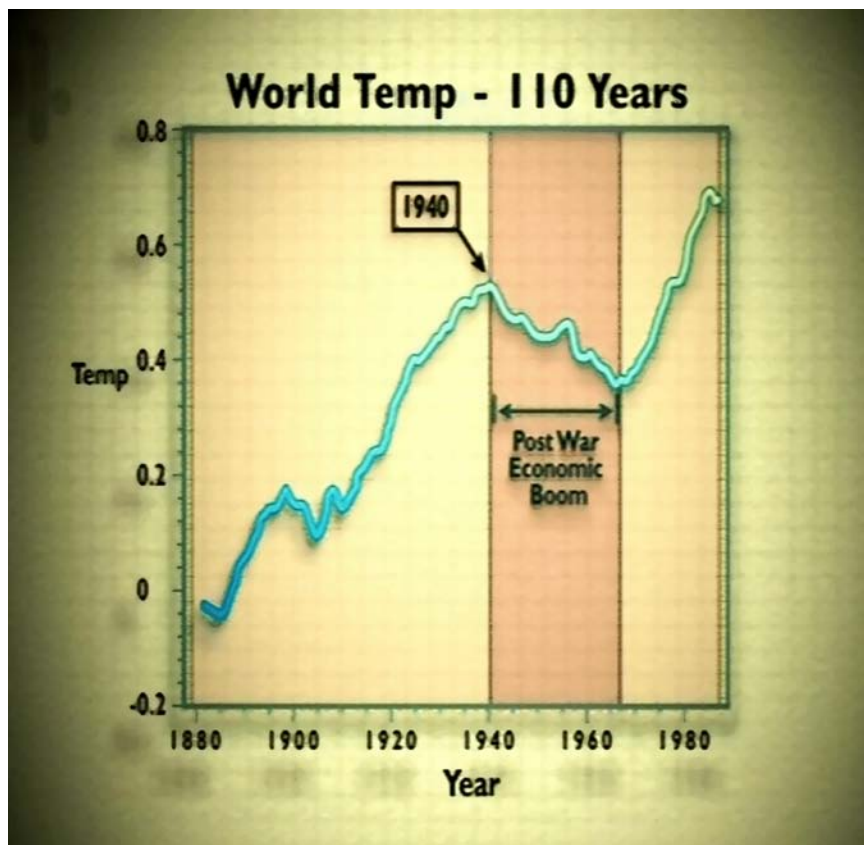
An investigation by *The Independent* newspaper (see <http://tinyurl.com/2wrm7u>) revealed that the graph used by the Channel 4 programme was taken directly from a non-peer-reviewed paper by Arthur Robinson and Zachary Robinson of the *Oregon Institute of Science and Medicine* (see page 154), with co-authors Sallie Baliunas and Dr Willie Soon (see page 138) of the *George C. Marshall Institute* (see page 149).

The graph it was based on was Figure 12 of the paper, *Environmental Effects of Increased Atmospheric Carbon Dioxide*, which is at <http://tinyurl.com/28gzs3>^[Nt2].

This paper, which concluded that "industrial activities can be counted on to encourage greater species biodiversity and a greener planet", had formed part of the heavily-criticized "Oregon Petition", a bulk mailing to thousands of scientists to petition against the *Kyoto Protocol* (see *Science* magazine: <http://tinyurl.com/2s2rho>, and the *Center for Media and Democracy*: <http://tinyurl.com/qxxcq>).

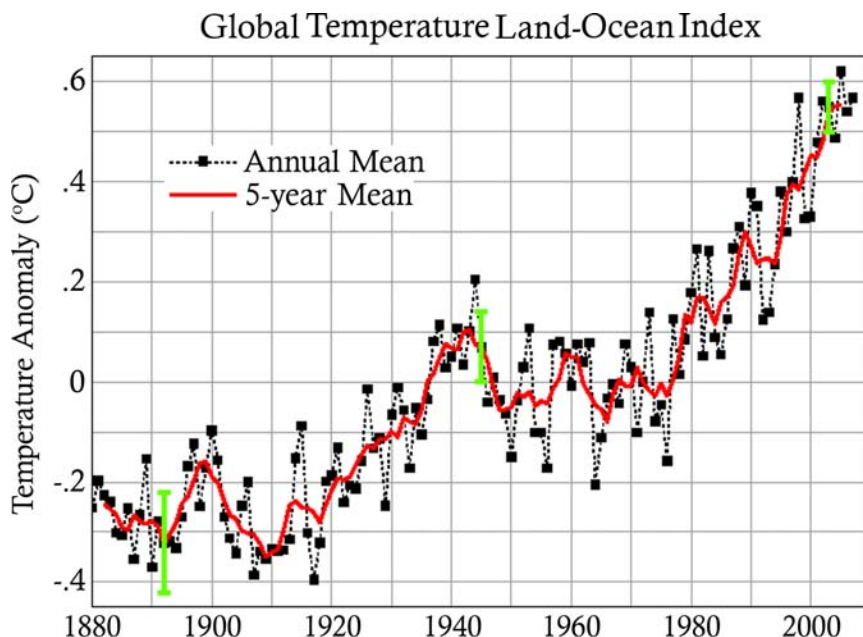
However, the original *Robinson et al* graph ended in the mid-1980s. The documentary re-labelled the time axis to give the incorrect impression that the graph extended to the present day, thus leaving out the past 20 years of unprecedented global warming while apparently intentionally deceiving viewers into thinking that this period had been included.

In the repeat (shown on *More 4*, March 12, 2007) the time axis had been corrected, and the arrows and attribution to NASA removed, although no other attribution was given:



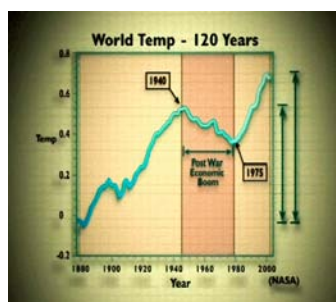
However, the graph remained highly misleading, since it still did not show the temperature rise over the past 20 years, despite the unchanged and false narration claiming that "most of the rise [in temperature in the 20th century] occurred before 1940", and despite the narration continuing to claim that there had been 40 years of cooling, when even its own revised graph only showed 25 years of cooling.

In fact, the real NASA data is readily available on NASA's own website at <http://tinyurl.com/2fq44q> and is shown below:

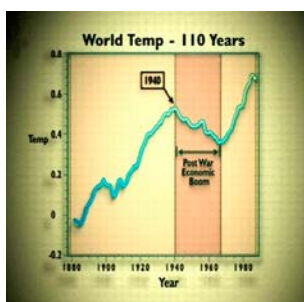


The NASA graph directly contradicts the programme's assertion that "most of the rise ... occurred before 1940". It also shows that the extent of the mid-century cooling is greatly exaggerated in both of the graphs shown in the documentary. Finally, the claim made by the narrator that the temperature fell for four decades is only supported by the earlier, falsified graph, and is contradicted both by the corrected graph and by the NASA data. The conclusions stated in the documentary about temperatures in the 20th century are thus based on incomplete, old and apparently intentionally falsified data, and were used to mislead the public regarding the status of current scientific knowledge.

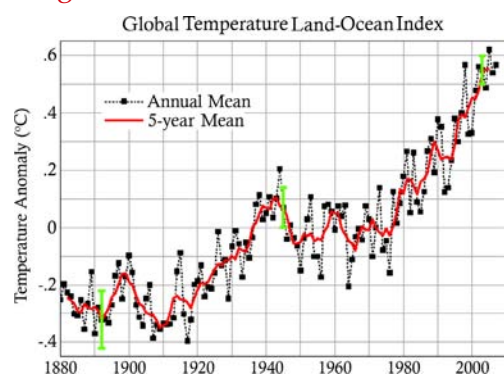
For comparison purposes, here are the three graphs alongside each other:



Graph broadcast 08 March, 2007



Graph broadcast 12 March, 2007



The accurate graph on NASA's website

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7)

[Narrator] Since the mid-19th century the earth’s temperature has risen by just over half a degree Celsius. But this warming began long before cars and planes were even invented. What’s more, most of the rise in temperature occurred before 1940, during a period when industrial production was relatively insignificant. After Second World War, during the post-war economic boom, temperatures in theory should have shot up – but they didn’t. They fell – not for one or two years – *for four decades*. In fact, paradoxically, it wasn’t until the world economic recession in the 1970s that they stopped falling.

[Comment 43: The reference to “cars and planes” is misleading – they are not relevant here, because the early growth of CO₂ emissions was due to burning of coal for heating, industrial activity and electricity generation.

The narrator continues to misrepresent global warming theory (see also **Comment 40**, page 33): by claiming that industrial growth can be used to predict temperature change.

His concerns would be justified if the theory actually did link industrial growth to instantaneous climate change. However, not only are industrial growth levels not directly linked to human greenhouse gas emission levels (see **Comment 40**, page 33), but in addition, greenhouse gas levels are not linked by the theory to instantaneous temperature changes.

There are many factors affecting climate in addition to greenhouse gas levels (see **Comment 55**, page 50 and the 2001 IPCC report at: <http://tinyurl.com/32zmpm>). The cooling period post-WWII, and the subsequent warming, is consistent with greenhouse warming theory, and is reproduced in all recent climate models (see <http://tinyurl.com/yskadm> [IPCC]). The mild cooling period post-WWII (which was greatly exaggerated in the documentary’s graph, see **Comment 42**, page 35) has been shown to have been due to sulphate aerosol emissions. Once sulphate emissions were controlled as a consequence of air quality regulation in the 1970s, the warming impact of the greenhouse gases took over (see *Realclimate*: <http://tinyurl.com/26sf9x>).

Furthermore, the suggestion that global temperatures should be rising and falling in immediate tandem with the emissions of greenhouse gas neglects the thermal lag in the climate system. This lag is driven largely by the oceans, which are so large that it takes centuries for them to warm up (see <http://tinyurl.com/3avwtj> [IPCC]). The film makers actually make reference to this “memory” of the oceans later on in the programme (see Carl Wunsch, page 49), but disregard it at this point in the film. This is again a clear misrepresentation by the film makers of the theory of greenhouse warming.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.11, 5.12)

[Professor Syun-Ichi Akasofu, Director, International Arctic Research Centre]

CO₂ began to increase exponentially in about 1940, but the temperature actually began to decrease 1940 and continued 'till about 1975. So this is the opposite relation: when the CO₂ is increasing rapidly and yet the temperature decreasing then we cannot say that CO₂ and the temperature go together.

[Comment 44: While the post-*World War II* period did experience rapid emissions growth, the temperature changes experienced over the past 100 years are consistent with global warming theory and are accurately reproduced in the climate models (see Comment 43, page 38).]

(In breach of *Ofcom* 5.7)

[Comment 45: Professor Akasofu is a respected astronomer, but his credentials with respect to the specific subjects that he discussed in the programme were exaggerated. For full details, see Appendix C.15, page 140.]

(In breach of the 2003 *Communications Act Section 265, Ofcom* 5.7, 5.8)

[Dr Tim Ball]

Temperature went up significantly up to 1940 when human production of CO₂ was relatively low; and then in the post-war years, when industry and the economies of the world really got going, and human production of CO₂ just soared, the global temperature was going down; in other words, the facts didn't fit the theory.

[Comment 46: While human production of CO₂ did increase dramatically after WWII, this statement is misleading, since only the CO₂ that remains in the atmosphere can influence the climate. The actual growth in atmospheric CO₂ during this period was much less dramatic (see <http://tinyurl.com/2n7s6w> [*Global Warming Art*]), since natural sinks (see Comment 52, page 47) started to absorb a larger fraction of the human emissions. Moreover, the assertion that "the facts didn't fit the theory" actually just refers to the fictitious, "straw man" theory that *only* CO₂ affects the climate, while ignoring the other factors that have operated over the past century (see Comment 43, page 38 and Comment 55, page 50).]

(In breach of *Ofcom* 5.7)

[Nigel Calder]

Just at the time when, after the Second World War, industry was booming, carbon dioxide was increasing, yet the earth was getting cooler and starting off scares of a coming ice age – it made absolutely no sense – it *still* doesn't make sense.

[Narrator]

Why do we suppose that carbon dioxide is responsible for our changing climate? CO₂ forms only a very small part of the earth's atmosphere. In fact we measure changes in the level of atmospheric CO₂ in tens of parts per *million*.

[Dr Tim Ball] If you take CO₂ as a percentage of all the gasses in the atmosphere – the oxygen and nitrogen and argon and so on, it’s .054%. It’s an incredibly small portion. Then of course you’ve got to take that portion that supposedly humans are adding, which is the focus of all the concern, and it gets even smaller.

[Narrator] CO₂ is a greenhouse gas. Greenhouse gasses themselves only form a small part of the atmosphere. What’s more, CO₂ is a relatively minor greenhouse gas.

[Dr Tim Ball] The atmosphere is made up of a multitude of gasses; a small percentage of them we call greenhouse gasses; and of that very small percentage of greenhouse gas, 95% of it is water vapour, it’s the most important greenhouse gas.

[Prof John Christy] Water vapour is a greenhouse gas – by far the most important greenhouse gas.

[Comment 47: These comments are highly misleading, and apparently intentionally so, in a number of ways.

First, the notion that, because greenhouse gases, and especially carbon dioxide, make up only a small part of the atmosphere they must have only a small effect, is false: without greenhouse gases the Earth’s surface would be around 33 degrees Celsius colder than it is (see: <http://tinyurl.com/2pjoge>).

Second, although it is true that water vapour is the most important greenhouse gas, carbon dioxide is the second most important, accounting for around 20% of the natural greenhouse effect (see Kiehl and Trenberth, 1997, Bulletin of the American Meteorological Society, at <http://tinyurl.com/zpzel> (PDF) and *Realclimate*: <http://tinyurl.com/8no28>).

Third, water vapour does not directly drive climate change, although it does amplify existing temperature trends (in climate science terminology it is a “feedback” rather than a “forcing”). The reason for this is that, whereas carbon dioxide remains in the atmosphere for an average of more than 100 years after entering it, water vapour only remains in the atmosphere for around 10 days on average, before condensing again. Average atmospheric water vapour levels are therefore determined solely by the temperature: pumping extra water vapour into the atmosphere (as happens, for instance following a volcanic eruption) does not increase atmospheric water vapour levels for long enough for its “greenhouse” properties to be a driver of climate change – within days, the extra water vapour condenses again. Water vapour is therefore extremely important in *amplifying* CO₂-driven global warming (because warmer air holds more water vapour, thus increasing the greenhouse effect); but it does not *drive* global warming (see also *Realclimate*: <http://tinyurl.com/8no28>).

Carbon dioxide therefore has a very significant effect on the climate, which is *reinforced* by water vapour, contrary to the impression given by the narrator and interviewees.

Tim Ball and the narrator must know all of the above, as it is very basic climate science, so this was an apparent attempt to mislead the audience.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.5, 5.7, 5.11, 5.12)

2.4 Troposphere "Cooling"

[Narrator] So is there any way of checking whether the recent warming was due to an increase in greenhouse gas? There is only one way to tell, and that is to look up in the sky; or a part of the sky known to scientists as the troposphere.

[Prof Richard Lindzen] If it's greenhouse warming, you get more warming in the middle of the troposphere – the first 10, 12 kilometres of the atmosphere – then you do at the surface. There are good theoretical reasons for that, having to do with how the greenhouse works.

[Narrator] The greenhouse effect works like this: the sun sends its heat down to earth; if it weren't for greenhouse gasses, this solar radiation would bounce back into space, leaving the planet cold and uninhabitable. Greenhouse gas traps the escaping heat in the earth's troposphere, a few miles above the surface; and it's here, according to the climate models, that the rate of warming should be highest, if it's greenhouse gasses that's causing it.

[Dr Frederick Singer, President of the Science and Environmental Policy Project] All the models – every one of them – calculate that the warming should be faster as you go up from the surface into the atmosphere. In fact the maximum warming over the equator should take place at an altitude of about 10 kilometres.

[Comment 48: Dr Singer's credentials with respect to the subjects he discussed in the programme were exaggerated; and his links to fossil-fuel industry-funded lobby groups that campaign against greenhouse gas emissions reductions should have been mentioned and were not. In addition, the direct funding he has received from the fossil fuel industry was not mentioned. For full details, see Appendix C.10, page 135.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.7, 5.8)

[Narrator] The scientist largely responsible for measuring the temperature in the earth's atmosphere is Professor John Christy. In 1981 he was awarded NASA's medal for exceptional scientific achievement; and in 1996 he received a special award from the *American Meteorological Society* for fundamentally advancing our ability to monitor climate. He was a lead author on the UN's Intergovernmental Panel on Climate Change or IPCC.

There are two ways to take the temperature in the earth's atmosphere – satellites and weather balloons.

[Prof John Christy] What we've found consistently is that in a great part of the planet the bulk of the atmosphere is not warming as much as we see at the surface in this region; and that's a real head-scratcher for us, because the theory is pretty straightforward, and the theory says that if the surface warms, the upper atmosphere should warm rapidly. The rise in temperature of that part of the atmosphere is not very dramatic at all, and really does not match the theory that climate models are expressing at this point.

[Prof Patrick Michaels] One of the problems that is plaguing the models is that they predict that as you go up through the atmosphere – except in the polar regions – that the rate of warming increases; and it's quite clear from two datasets – not just satellite data, which everybody talks about, but from weather balloon data – that you don't see that effect; in fact it looks like the surface temperatures are warming slightly more than the upper air temperatures. [Laughs]. That's a big difference.

[Prof Richard Lindzen] That data gives you a handle on the fact that what you're seeing is warming that probably is not due to greenhouse gasses.

[Dr Frederick Singer] That is, the observations do not show an increase with altitude – in fact most observations show a slight decrease in the rate of warming with altitude: so in a sense you can say the hypothesis of man-made global warming is falsified by the evidence.

[Narrator] So the recent warming of the earth happened in the wrong place and the wrong time. Most of the warming took place in the early part of the 20th century, and occurred mostly at the earth's surface – the very opposite of what *should* have happened according to the theory of man-made global warming.

[Comment 49: The narrator first repeats the false assertion, based on a manipulated and exaggerated graph, that most of the warming occurred in the early part of the 20th century. The surface temperature graph over the same period from NASA proves his claim to be incorrect (see **Comment 42**, page 35).

The issue of the once apparent discrepancy between modelling predictions and the satellite observation of tropospheric temperatures was a subject of much debate in the climate literature. Recent literature, however, suggests that the discrepancy is due to the methods used to collect and analyse satellite and radiosonde (weather balloon) data from the troposphere, rather than a fault in the theory (see *Realclimate*: <http://tinyurl.com/39ayzf>). This was summarized in the Executive Summary of the US Climate Change Science Program report, titled *Temperature Trends in the Lower Atmosphere: Steps for Understanding and Reconciling Differences*, published in April 2006 (<http://tinyurl.com/logfl>), **which was co-authored by John Christy himself** (the interviewee here); and which states:

Previously reported discrepancies between the amount of warming near the surface and higher in the atmosphere have been used to challenge the reliability of climate models and the reality of human-induced global warming. Specifically, surface data showed substantial global-average warming, while early versions of satellite and radiosonde data showed little or no warming above the surface. **This significant discrepancy no longer exists because errors in the satellite and radiosonde data have been identified and corrected. New data sets have also been developed that do not show such discrepancies.** [Emphasis added.]

Moreover, the programme focused exclusively on the results of Christy and Spencer, who find the smallest increase in tropospheric temperatures. Due to corrections that must be applied to the satellite measurements, alternative analyses of the same data by other groups (most notably, Mears and Wentz of *Remote Sensing Systems*: <http://tinyurl.com/22a2hy>) have found significantly larger trends. Yet these other analyses, considered by other experts in the field as being credible, were not even mentioned.

By leaving out this discussion and these findings – which cast into serious doubt the claims made by the narrator – this was an apparent attempt to mislead the public about the science of climate change.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.5, 5.7, 5.11, 5.12)

[Cut to Al Gore speaking on the film "An Inconvenient Truth"] I am Al Gore – I used to be the next President of the United States of America.

2.5 Ice Core Data

[Narrator] Former Vice President Al Gore's emotional film "An Inconvenient Truth" is regarded by many as the definitive popular presentation of the theory of man-made global warming. His argument rests on one all-important piece of evidence taken from ice core surveys in which scientists drilled deep into the ice to look back into earth's climate history hundreds of thousands of years. The first ice core survey took place in Vostok in the Antarctic. What it found, as Al Gore correctly points out was a clear correlation between carbon dioxide and temperature.

[Cut to Al Gore speaking on the film "An Inconvenient Truth", with a graph of CO₂ vs. temperature in the background] We're going back in time now 650,000 years. Here's what the temperature has been on our earth. Now one thing that kinda jumps out at you is: "Do ever fit together?" Most ridiculous thing I've ever heard.

The relationship is actually very complicated, but there is one relationship that is far more powerful than all the others, and it's this: when there is more carbon dioxide, the temperature gets warmer.

[Narrator] Al Gore says that the relationship between temperature and CO₂ is complicated; but he doesn't say what those complications are. In fact there was something very important in the ice core data that he failed to mention. Professor Ian Clark is a leading Arctic palaeoclimatologist, who looks back into the earth's temperature record tens of millions of years.

[Prof Ian Clark] When we look at climate on long scales we're looking at geological material that actually records climate. If we were to take an ice sample for example, we use isotopes to reconstruct temperature; but the atmosphere that's imprisoned in that ice, we liberate it and then we look at the CO₂ content.

[Narrator] Professor Clark and others have indeed discovered, as Al Gore said a link between carbon dioxide and temperature. But what Al Gore *doesn't* say is that the link is the wrong way round.

[Cut to Prof Ian Clark in front of his laptop, on which he's demonstrating a graph. Cut to a separate animation of the graph.]

[Prof Ian Clark] So here we're looking at the ice core record from Vostok, and in the red we see temperature going up from early time to later time. At a very key interval when we came out of a glaciation; and we see the temperature going up, and then we see the CO₂ coming up. The CO₂ lags behind that increase - it's got an 800 lag. So temperature is leading CO₂ by 800 years.

- [Narrator] There have now been several major ice core surveys. Every one of them shows the same thing. The temperature rises or falls, and then after a few hundred years CO₂ follows.
- [Dr Frederick Singer] So obviously carbon dioxide is not the cause of that warming. In fact we can say that the warming produced the increase in carbon dioxide.
- [Prof Ian Clark] CO₂ clearly cannot be causing temperature changes – it’s a *product* of temperature – it’s *following* temperature changes.
- [Dr Tim Ball] The ice core record goes to the very heart of the problem we have here. They said: “if the CO₂ increases in the atmosphere as a greenhouse gas, the temperature will go up”. But the ice core record shows exactly the opposite; so the fundamental assumption, *the most* fundamental assumption of the whole theory of climate change due to humans is shown to be wrong.

[Comment 50: This accumulation of consecutive interviewee statements, taken together with statements by the narrator, amount to a highly misleading narrative coverage of the lag of historical CO₂ increases behind temperature increases.

The “CO₂ lags temperature” argument against anthropogenic global warming theory has been discussed in the literature and rebutted many times, for example see: <http://tinyurl.com/2g4cq8> [UK Met Office], and <http://tinyurl.com/27lfdu> [RealClimate]. In order to demonstrate conclusively that the narration was apparently **intentionally** misleading, however, it is necessary to include a brief rebuttal here:

1. The temperature of the Earth has fluctuated naturally and cyclically over many millennia. There are a number of known causes of these fluctuations, including changes to the Earth’s orbit and solar activity.

During the glacial periods, cyclical changes in the earth’s orbit (the Milankovitch cycles, see <http://tinyurl.com/293grf> [NOAA]) triggered warming.

When the oceans warm, their capacity to absorb CO₂ is reduced. This leads to CO₂ being expelled from the oceans, and atmospheric CO₂ levels rising (as described by Carl Wunsch in the *Channel 4* programme, see page 49). However, this process is usually very slow, hence the lag between the start of a warming period triggered by Milankovitch cycles, and the rise in atmospheric CO₂ levels.

This increase in the levels of atmospheric CO₂ – a known greenhouse gas – causes further increases of temperature, and thus further increases in the level of CO₂. This feedback mechanism thus enhanced the initial relatively small (orbital) warming trigger.

2. These warming periods lasted for 5,000 to 10,000 years, and for the majority of that time, temperature and CO₂ rose together. While it is correct to say that CO₂ did not initially trigger the warmings, CO₂ was an important factor in the magnitude of the ultimate change.

3. The documentary is committing a logical fallacy (false dilemma) by suggesting that because rising temperatures have caused CO₂ concentrations to rise in the past, therefore CO₂ concentrations could never cause temperatures to rise. This is analogous to the saying that because increasing the number of fertilised eggs in a chicken coop will eventually lead to an increase in the number of chickens, that proves that increasing the number of chickens in a chicken coop could not possibly lead to an eventual increase in the number of eggs. It works *both* ways – when temperatures rise, atmospheric CO₂ levels rise (but this happens slowly, over hundreds of years); and when CO₂ levels rise, this results in temperatures rising (but this happens much more quickly, over a few decades).
4. The programme's suggestion that the theory of the greenhouse effect somehow depends on the ice core data is also extremely disingenuous and misleading. The theory of the greenhouse effect is well-established physics that dates back 150 years. It is covered in the most elementary text books on climate physics. The ice core data is **not** – as the film maker pretends that it is – important evidence supporting the theory, still less is it “the most fundamental assumption” behind the theory. However, the ice core data does *reinforce* the theory, because in the absence of the greenhouse effect it would be more difficult to fully account for amplitude of temperature changes inferred from ice core data, for the reasons described above.
5. Atmospheric CO₂ levels don't spontaneously increase for no reason; rises have to be triggered by something. In the past they were triggered by rising temperatures, now they are being caused by human CO₂ emissions. In the absence of human emissions, as during recent deglaciations, rises of atmospheric CO₂ were likely triggered by rising temperature. Hence it is not surprising that in the past, temperature rises started before the atmospheric CO₂ level began to rise. But those CO₂ rises then greatly increased the temperature.

Note: We know that the present increases in atmospheric CO₂ are caused by humans for two reasons. By accounting for how much we are emitting via burning fossil fuels and how much the natural carbon cycle absorbs, we know we are emitting more than is being absorbed. Another (independent) method of determining this is by checking what kinds of carbon atoms (isotopes) are found in the CO₂ in the atmosphere. The CO₂ respired by living plants contains a different type of carbon isotope mix compared to that of CO₂ emitted from burning of fossil fuels. By measuring changes in the isotope mix in the atmosphere over time, we see that increases are indeed due to human activity (see *Realclimate*: <http://tinyurl.com/r5pau>).

Finally, it is worth noting that the apparent lag (800±600 yr) of CO₂ to temperature in the historical record is not firmly established. In a discussion paper in *Climate of the Past Discussions*, Loulergue *et al.* (2007), <http://tinyurl.com/29qj7k> (PDF), suggest that:

The phase relationship between CO₂ and EDC temperature inferred at the start of the last deglaciation (lag of CO₂ by 800±600 yr) is overestimated and that the CO₂ increase could well have been in phase or slightly leading the temperature increase at EDC.

Most of the above is very basic, and very well-established and well-understood physics. While it is understandable that a layman should be unfamiliar with some of these concepts, it is quite inconceivable that Ball Clark and Singer, as well as the narrator, were unfamiliar with them. Thus they were clearly not simply expressing an ill-informed opinion, or making an error – they were apparently intentionally and knowingly setting out to mislead the public.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.5, 5.7, 5.11, 5.12)

2.6 “Humans Don’t Produce Much Carbon Dioxide”

[Narrator] But how can it be that high temperatures lead to more CO₂ in the atmosphere? To understand this, we must first restate the obvious point that CO₂ is a *natural* gas produced by all living things.

[Nigel Calder] Few things annoy me more than to hear people talking about carbon dioxide as being a pollutant. You’re made of carbon dioxide; I’m made of carbon dioxide. Carbon dioxide is how living things grow.

[Comment 51: Humans are **not** “made of carbon dioxide” (Nigel Calder is confusing carbon dioxide with carbon). Besides, his statement is a non-sequitur: the statement could be more accurately applied to water: does the fact that humans are made of water imply that flooding is not a problem?]

(In breach of *Ofcom* 5.7)

[Narrator] What’s more, humans are not the main source of carbon dioxide.

[Prof John Christy] Humans produce a small fraction, in the single digits percentage-wise, of the CO₂ that is produced in the atmosphere.

[Narrator] Volcanoes produce more CO₂ each year than all the factories and cars and planes and other sources of man-made carbon dioxide put together. More still comes from animals and bacteria, which produce about 150 gigatons of CO₂ each year, compared to a mere 6½ gigatons from humans.

An even larger source of CO₂ is dying vegetation – falling leaves, for example, in the autumn. But the biggest source of CO₂ by far is the oceans.

[Comment 52: Firstly, if volcanoes were a dominant source of CO₂, we should see spikes in the long-term CO₂ concentration record whenever volcanoes erupt – yet we do not. See the figure here: <http://tinyurl.com/2n7nfz>.

An article by the US Geological Survey (<http://tinyurl.com/3hasm>) highlights that humans contribute 150 times more CO₂ into the atmosphere than volcanoes every year, which is consistent with a British Geological Survey citation

(<http://tinyurl.com/2pelm4>) that the annual emissions of CO₂ by volcanoes is less than 1% that of humans.

Note that the film-maker, Martin Durkin, has admitted that this claim about volcanoes is incorrect (<http://tinyurl.com/yt99tl> [MSNBC]).

Secondly, while it is true that the oceans are the largest source of CO₂, they are also the largest *sink* (absorber) of CO₂ from the atmosphere (see <http://tinyurl.com/2l8wdo> and <http://tinyurl.com/2o4qpj>), and to state one without stating the other is a misleading representation of its role in the environment.

The carbon cycle is the process by which carbon is constantly exchanged between the “biosphere, geosphere, hydrosphere and atmosphere of the Earth” (<http://tinyurl.com/pturu>) – that is, living creatures, geological formations, bodies of water, and the atmosphere. For roughly the last 10,000 years, until the industrial revolution, the amount of carbon going into the atmosphere has been almost exactly balanced by the amount of carbon coming out of it. Humans have altered one side of this cycle by pumping extra carbon dioxide into the atmosphere without taking any out. Some of this extra carbon dioxide has been absorbed by the oceans, but despite this, atmospheric levels of CO₂ have increased by 35% over the past 150 years (see Global Warming Art: <http://tinyurl.com/23v5e5>). As discussed in the “note” in **Comment 50**, page 45, we are able to confirm using two independent methods that the recent increases in CO₂ concentrations in the atmosphere are human-induced.

Thus it is irrelevant to say that oceans are the largest source of CO₂: the real question is whether the recent 35% increase in CO₂ concentrations in the atmosphere is caused by humans (which we know that they are). Thus the narrator is misleading the public as to the real impact of humans on atmospheric carbon dioxide levels.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.5, 5.7, 5.11, 5.12)

[Narrator] Carl Wunsch is professor of Oceanography at MIT. He was also visiting professor of oceanography at Harvard University and University College London; and a Senior Visiting Fellow in Mathematics and Physics at the University of Cambridge. He is the author of four major text books on oceanography.

[Comment 53: Carl Wunsch has been misrepresented by the programme (see **Comment 54**, page 49 and **Comment 94**, page 79); and in addition, has stated publicly that he was misinformed by *WagTV* about the true nature of the programme (see: <http://tinyurl.com/2fcfnh> and Appendix C.20, page 144).]

(In breach of *Ofcom* 7.1, 7.2, 7.3, 7.6, 7.9, 7.14)

[Professor Carl Wunsch, Dept of Oceanography, Massachusetts Institute of Technology]

The ocean is the major reservoir into which carbon dioxide goes when it comes out of the atmosphere, or from which it is readmitted to the atmosphere. If you heat the surface of the ocean, it tends to emit carbon dioxide. So similarly, if you cool the ocean surface, the ocean can dissolve more carbon dioxide.

[Comment 54: Wunsch has since clarified these remarks, saying that "... I was trying to explain that warming the ocean was dangerous because it could potentially release so much CO₂. That was used to make the point that most of the CO₂ in the ocean is 'natural' and so not a human caused problem." (<http://tinyurl.com/2abj44>). The context provided by the narration therefore misrepresents Wunsch's point in a deeply misleading way.

See also Wunsch's response at: <http://tinyurl.com/2fcfnh>, in which he writes: "my intent was to explain that warming the ocean could be dangerous, because it is such a gigantic reservoir of carbon. By its placement in the film, it appears that I am saying that since carbon dioxide exists in the ocean in such large quantities, human influence must not be very important - diametrically opposite to the point I was making - which is that global warming is both real and threatening."]

(In breach of the 2003 *Communications Act Section 265, Ofcom 5.7, 7.2, 7.3, 7.6, 7.9*)

[Narrator]

So the warmer the oceans, the more carbon dioxide they produce, and the cooler they are, the more they suck in. But why is there a time lag of hundreds of years between a change in temperature and a change in the amount of carbon dioxide going into or out of the sea? The reason is that oceans are so big and so deep they take literally hundreds of years to warm up and cool down. This time lag means that oceans have what scientists call "memory" of temperature changes.

[Prof Carl Wunsch]

The ocean has a memory of past events running out as far as 10,000 years. So for example if somebody says: "oh, I'm seeing changes in the north Atlantic, this must mean that the climate system is changing," it may only mean that something happened in a remote part of the ocean decades or hundreds of years ago, whose effects are now beginning to show up in the north Atlantic.

2.7 It's the Sun, Stupid!

[Narrator] The current warming began long before people had cars or electric lights; but most of that rise occurred before 1940. Since that time the temperature has fallen for four decades and risen for three. There is no evidence at all from earth's long climate history that carbon dioxide has *ever* determined global temperatures. But if carbon dioxide doesn't drive the earth's climate, what does?

[Comment 55: This statement is inaccurate in several respects:

Most of the rise occurred **after** 1940, and it is untrue that "temperature has fallen for four decades and risen for three"(see **Comment 42**, page 35).

There is a *great deal* of evidence that carbon dioxide has strongly influenced temperatures in the past (see **Comment 50**, page 45).

And the final sentence in the above statement is a "straw man" argument (see <http://tinyurl.com/75141>), because nobody is claiming that carbon dioxide caused past changes of climate on its own. In fact, a very large number of factors influence the earth's climate, including:

- Cyclical variations in the earth's orbit and tilt, see Wikipedia: <http://tinyurl.com/jd7cl>;
- Solar activity levels (see <http://tinyurl.com/3bv95y>);
- Greenhouse gas levels, both in terms of driving temperature changes ("forcings") and in terms of reinforcing existing trends in temperature changes ("feedbacks") – see: <http://tinyurl.com/ycdeae>;
- Aerosols, including volcanic influences and air pollutants, see: <http://tinyurl.com/2d57kd>;
- Albedo – reflecting of heat back into the atmosphere by ice, clouds and so on, see: <http://tinyurl.com/6an3o>;
- And many other influences ...

... all of which are incorporated in the climate models – see: <http://tinyurl.com/2f8vam>; and all of which must be taken into account in any credible scientific discussion of global warming. See also *Wikipedia*: <http://tinyurl.com/yy9kuu>.

Given such a large number of influences on climate, for the programme to imply that any single influence could possibly on its own correlate with 20th century temperature changes makes it either scientifically illiterate or else intentionally highly misleading.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Narrator] The common belief that carbon dioxide is driving climate change is at odds with much of the available scientific data: data from weather balloons and satellites; from ice core surveys and from the historical temperature records. But if carbon dioxide isn't driving climate, what is?

[Comment 56: The narrator is stating highly contentious opinions as if they were facts. As discussed above, his opinions are not supported by the scientific literature, and the *Channel 4* programme purported to be a scientific documentary.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.7, 5.11, 5.12)

[Dr Philip Stott] Isn't it bizarre to think that it's humans, you know when we're filling up our car, turning on our lights, we're the ones controlling climate? Just look up in the sky. Look at that massive thing, the sun. Even humans at our present six and a half billion are *minute* relative to that.

[Narrator] In the late 1980s, solar physicist Piers Corbyn decided to try a radically new way of forecasting the weather. Despite the huge resources of the official Met Office, Corbyn's new technique consistently produced more accurate results. He was hailed in the national press as "Super-weather-man". The secret of his success was the sun.

[Comment 57: Absolutely no scientific evidence exists or was provided for the narrator's statement that Corbyn's method "consistently produced more accurate results" than the Met Office; and according to **ISI WoS** (see Appendix **C.1.5**, page **130**) Corbyn has not published any peer-reviewed scientific papers.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Piers Corbyn] The origin of our solar weather technique of long range forecasting came originally from study of sunspots and the desire to predict those; and then I realised it was actually much more interesting to use the sun to predict the weather.

[Narrator] Sunspots, we now know, are intense magnetic fields which appear at times of higher solar activity. But for many hundreds of years, long before this was properly understood, astronomers around the world used to count the number of sunspots in the belief that more spots heralded warmer weather. In 1893, the British astronomer Edward Maunder observed that during the Little Ice Age there were barely any spots visible on the sun: a period of inactivity which became known as the Maunder Minimum. But how reliable are sunspots as an indicator of the weather?

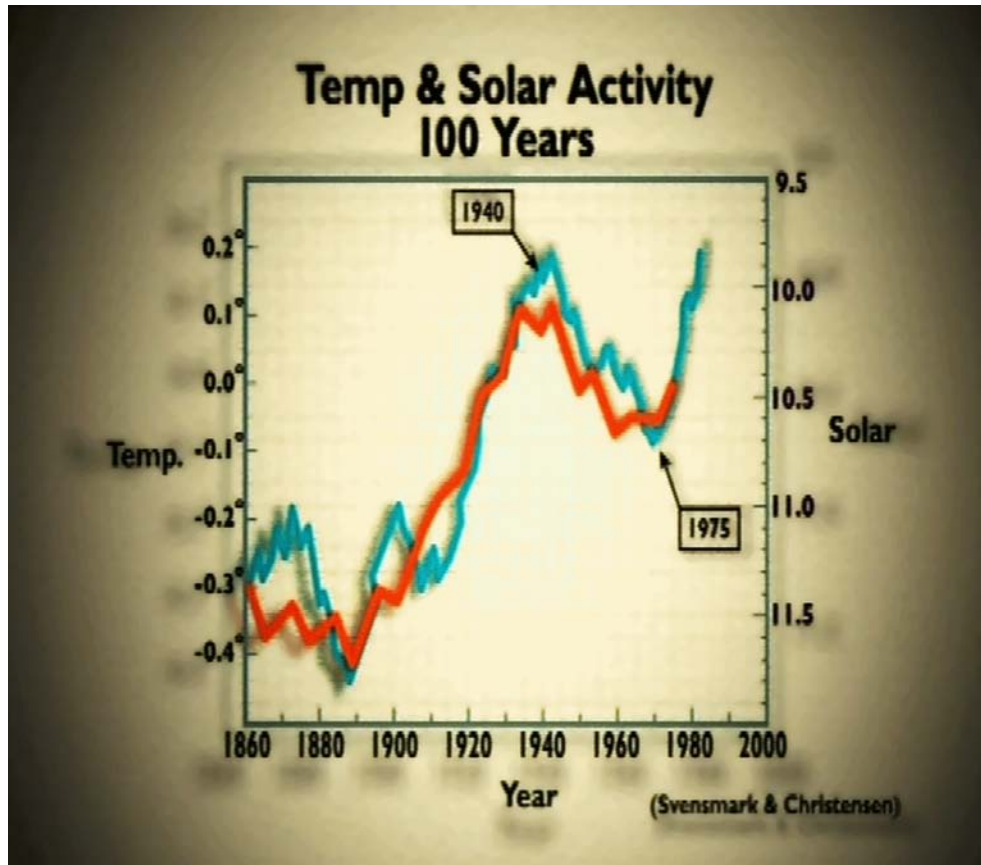
[Piers Corbyn] I decided to test it by gambling on the weather through William Hill against what the Met Office said was a – you know – normal expectation; and I won money month after month after month after month. Last winter, the Met Office said it could be – or would be – an exceptionally cold winter. We said: “no, that is nonsense, it’s gonna be very close to normal;” and we specifically said when it would be cold – i.e. after Christmas and February. We were right, they were wrong.

[Comment 58: What was remarkable about the winter of 2005/6 in the UK was not the temperatures in January and February, which were close to normal for the time of year, but the temperatures in March, which were far lower than normal for the time of year. Had Corbyn predicted that March would be unusually cold then it would indeed have been quite impressive: but he did not. So this statement was designed to mislead the public, most of whom are unlikely to be sufficiently aware of the detailed 2005/6 UK weather patterns to see through this sleight of hand. **See also Appendix C.7, page 133.]**

(In breach of *Ofcom* 5.7)

[Narrator] In 1991, senior scientists at the Danish Meteorological Institute decided to compile a record of sunspots in the 20th century and compare it with the temperature record.

[Comment 59: A graph is shown plotting temperature (blue line) against "solar" (red line):



Although the graph is attributed by the *Channel 4* programme to "Svensmark and Christensen" it was first published in a paper by Friis-Christensen and Lassen, *Science* 254, 698 (1991), see <http://tinyurl.com/39dyse>.

The number of sunspots change in a cyclical way over a time period of about 11 years, but this "solar cycle length" varies from cycle to cycle. The documentary reports that Friis-Christensen and Lassen found a good correlation between solar cycle length and temperature. However, the documentary does not mention that after corrections and updates to their original paper the correlation after 1975 disappeared (see for instance Kristjánsson, 2001, <http://tinyurl.com/yvc8zu>, PDF); with the temperature rapidly increasing while the solar curve remains flat. **The solar (red) line in the documentary ends in 1975 before this break-down in the correlation began, presenting a deeply misleading picture.**

These later corrections in the scientific literature are summarized by Damon and Laut in a paper in *EOS, Transactions American Geophysical Union*, 2004 (abstract at <http://tinyurl.com/2m5jwk>, full version at: <http://tinyurl.com/q7wg5>, PDF). Damon and Laut summarise the findings of a number of peer reviewed papers, which show:

... that the apparent strong correlations displayed on these graphs have been obtained by incorrect handling of the physical data. The graphs are still widely referred to in the literature, and their misleading character has not yet been generally recognized.

Below, we show Damon and Laut's comparison of (a) the original Friis-Christensen and Lassen data from 1991 which was used in the documentary, (b) an updated version of the solar data from 2000, and (c) the corrected data. As a result of the correction, the apparent correlation between sunspot cycle length and terrestrial temperature disappears after 1960. This was not identified by the film makers.

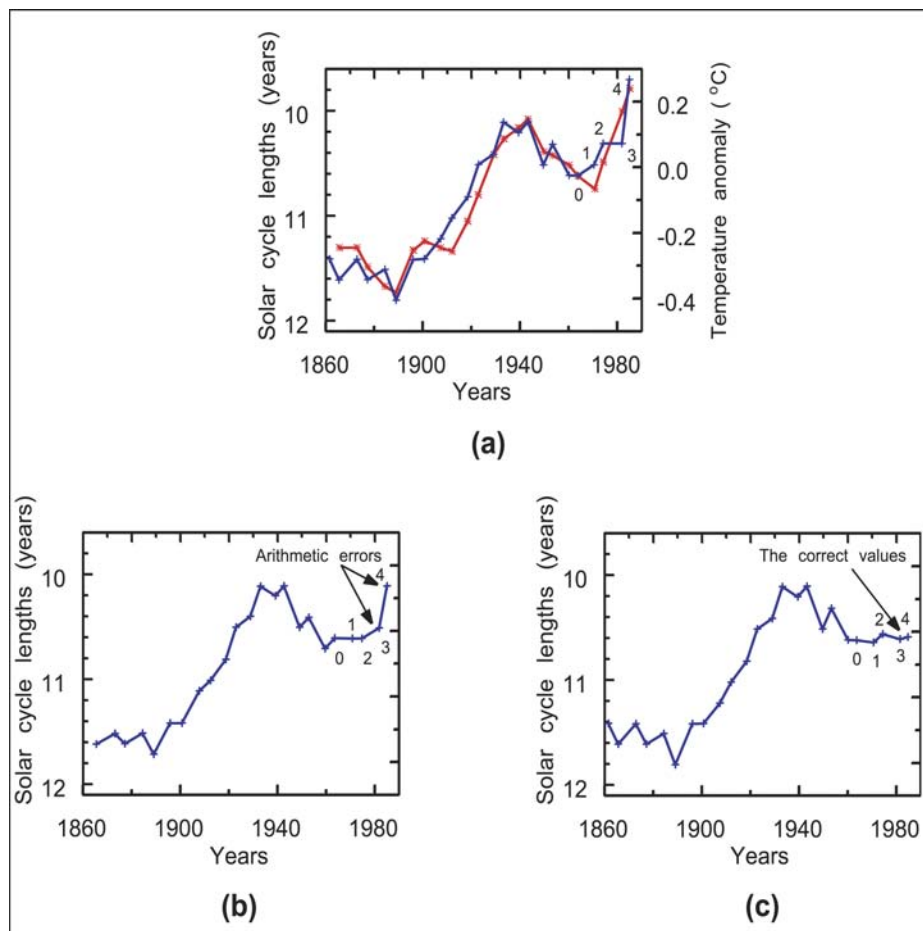


Fig. 1. (a) Solar cycle lengths (blue plus signs) and terrestrial temperatures (red asterisks) as presented by Friis-Christensen and Lassen [1991]. All points on the solar curve up to the point marked zero represent 1,2,2,2,1-filtered values, the points marked 1 and 2 represent values that are only partially filtered; and the points marked 3 and 4 represent values that are not filtered at all. (b) An update as presented by Lassen and Friis-Christensen [2000]. The upward bend of points 3 and 4, corresponding to the recent global warming, is the result of some trivial arithmetic error. (c) The correct update.

In 2000, Lassen and Friis-Christensen replied to an earlier paper co-authored by Laut, and defended their earlier findings, reiterating that they considered the correlation to have been significant between 1570 and 1970, and making clear that **this did not exclude any other climate forcing agents, "including the effect of man-made greenhouse gases, in particular, after 1970."** (<http://tinyurl.com/39hka9>). Thus Friis-Christensen and Lassen have themselves specifically stated

that the correlation only exists up to 1970. This point, which would have vastly changed the message presented by the *Channel 4* programme, was omitted, and in omitting it, the public have been greatly misled.

On April 27, 2007 Friis-Christensen issued a joint statement with one of the lead authors of this complaint, Nathan Rive, stating specifically that Friis-Christensen's views had been seriously misrepresented by the *Channel 4* programme - see [Comment 60](#) below.]

(In breach of the 2003 *Communications Act* Section 265, Ofcom 5.4, 5.5, 5.7, 7.2, 7.3, 7.6, 7.9)

[Narrator] What they found was an incredibly close correlation between what the sun was doing and changes in temperature on earth. Solar activity, they found, rose sharply to 1940, fell back for four decades until the 1970s, and then rose again after that.

[Dr Eigil Friis-Christensen, Director, Danish National Space Centre] When we saw this correlation between temperature and solar activity or sunspot cyclings, then people said to us: "okay it can be just a coincidence." So how can we prove that it's not just a coincidence? Well one obvious thing is to have a longer time series, or a different time series. Then we went back in time.

[Comment 60: Cut to a graph comparing temperature and solar cycle length since 1540, which is (mostly) taken from Friis-Christensen and Lassen, *J. Atmos. Terr. Phys.* 57, 835 (1995). As with their 1991 paper, the documentary fails to mention that the paper's results have been strongly disputed in the scientific literature (see Peter Laut, 2003, <http://tinyurl.com/2ule4h>, PDF, and Damon and Laut, 2004, <http://tinyurl.com/2cwntm>, PDF).

But much more importantly, the original graph has been falsified by the film makers. The original Lassen and Friis-Christensen graph shows a gap in the sunspot cycle length curve (line dotted with circles) for the period 1600 to 1700. This is because this period was the Maunder Minimum (<http://tinyurl.com/p479h>), a period when there were few sunspots. It's not possible to measure the sunspot cycle length when there are no sunspots. The documentary makers presented a graph, however, where this gap had been filled with the temperature data, giving the impression of perfect correlation during this period. Here are the two graphs side by side:

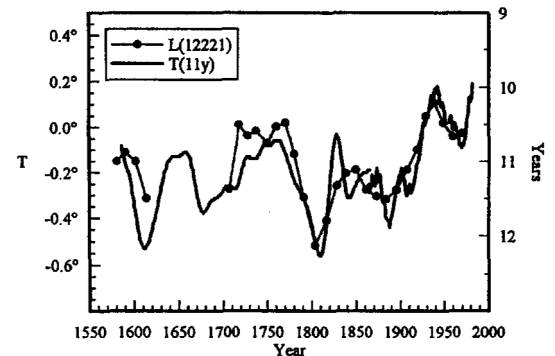
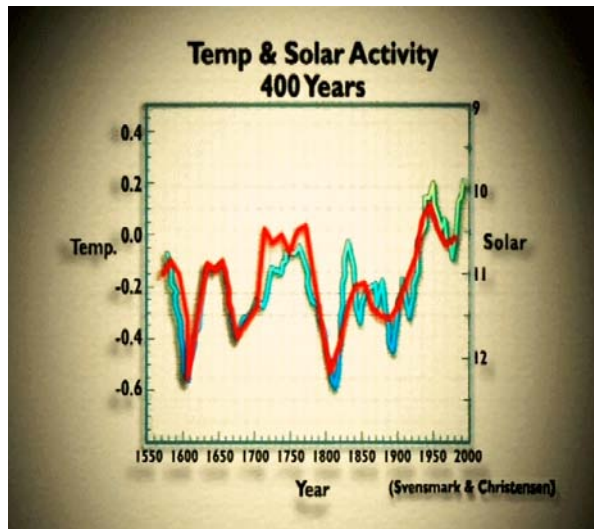


Fig. 6. Eleven-year running average of annual mean values of the northern hemisphere land air temperature 1579–1860 relative to the average temperature 1881–1975, reconstructed by Groverman and Landsberg (1979) together with corresponding values for 1851–1987 relative to 1951–1980 from Jones *et al.* (1986) and Jones (1988). Also plotted is the filtered value (1-2-2-2-1 filter) of the sunspot cycle length.

On April 27, 2007 Friis-Christensen issued a joint statement with one of the lead authors of this complaint, Nathan Rive (see <http://tinyurl.com/yvmattf>), which states:

We have concerns regarding the use of a graph featured in the documentary titled 'Temp & Solar Activity 400 Years'. Firstly, we have reason to believe that parts of the graph were made up of fabricated data that were presented as genuine. The inclusion of the artificial data is both misleading and pointless. Secondly, although the narrator commentary during the presentation of the graph is consistent with the conclusions of the paper from which the figure originates, it incorrectly rules out a contribution by anthropogenic greenhouse gasses to 20th century global warming.

Rive and Friis-Christensen go on to state:

The audience is told that the L+FC results demonstrate (a) the sun drove temperature changes over the past 400 years, and (b) no other agents were involved in changing the climate in that time. This is an overstatement that is not supported by the graph, interview statements by Friis-Christensen in the program, nor any related scientific literature. Although solar variations seem to be a major cause of climate variations on centennial and millennial time scales in the pre-industrial era (see for example Bond *et al.*, 2001 [Science, 294: 2130-6]), there are certainly other natural sources of climate change. For the industrialised period, the

L+FC (and other) results do not exclude an effect from man-made greenhouse gases.

Thus Friis-Christensen has stated quite clearly and publicly that not only was his published data falsified by the film-maker, but that his views were knowingly and fundamentally misrepresented by the film.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.7, 7.2, 7.3, 7.6, 7.9)

[Comment 61: Dr Friis-Christensen is a respected astronomer, but ongoing disputes regarding his solar-climate work were not mentioned and should have been. For full details, see Appendix C.14, page 139.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.7, 5.8)

[Narrator] So Professor Friis-Christensen and his colleagues examined 400 years of astronomical records to compare sunspot activity against temperature variation. Once again, they found that variations in solar activity were intimately linked to temperature variation on earth. It was the sun, it seemed, not carbon dioxide or anything else, that was driving changes in the climate. In a way it's not surprising. The sun affects us directly, of course, when it sends down its heat. But we now know the sun also affects us indirectly through clouds.

[Comment 62: As conclusively demonstrated in Comments 59 and 60 above, this statement by the narrator is not supported by Friis-Christensen graphs, by the interview statements by Friis-Christensen in the program, nor by any related scientific literature – and it has specifically been contradicted by Friis-Christensen himself. Yet this statement is presented as a fact rather than as the narrator's personal opinion.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7)

[Narrator] Clouds have a powerful cooling effect. But how are they formed? In the early 20th century scientists discovered that the earth was constantly being bombarded by sub-atomic particles. These particles, which they called cosmic rays, originated, it was believed, from exploding supernovae, far beyond our solar system. When the particles coming down meet water-vapour rising up from the sea they form water droplets and make clouds. But when the sun is more active and solar wind is strong, fewer particles get through, and fewer clouds are formed.

[Comment 63: This statement by the narrator refers to a proposal put forward by Henrik Svensmark and Nigel Calder in a book titled *The Chilling Stars*. However, the book has never been peer-reviewed, and is based only on a non-peer reviewed press release that was issued by *Svensmark et al.*, which they issued following the publication of their peer reviewed paper, *Experimental evidence for the role of ions in*

particle nucleation under atmospheric conditions, in the Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences (at <http://tinyurl.com/2ufuym> – login may be required).

Their peer reviewed paper found evidence that cosmic rays may be capable of ionizing ultra small aerosol particles in the atmosphere. However, unlike the press release, the peer reviewed paper makes no mention at all of climate change or of global warming. Unlike the press release, *Svensmark et al.*'s peer reviewed paper does not claim to have found any evidence that the ionised particles they created in the laboratory (which were far smaller than the particle size required to cause cloud formation) actually can cause cloud formation. The experimental conditions described in their paper did not replicate atmospheric conditions, as they used high-energy UV in their experiment, which never penetrates to the lower troposphere, and they used much higher concentrations of SO₂ and O₃ (ozone) than are usually found in the atmosphere.

Most importantly for the credibility of their press release's proposition that cosmic rays could be responsible for the global warming of recent decades, they did not attempt to show, either in the peer reviewed paper or in their press release, that there has actually been a decreasing trend in cosmic ray levels over recent decades, which would be required in order to explain recent trends in temperature. In fact, such a trend in cosmic rays has not occurred: see <http://tinyurl.com/2r8b75>.

See also *RealClimate*'s discussion at: <http://tinyurl.com/yh7x9u>.

Thus by not making it clear that the claim the *Channel 4* programme was making was based not on any peer reviewed scientific literature, but only on a non-peer reviewed press release, the film maker was apparently intentionally deceiving the public about the science of climate change; and has betrayed the public's trust in the educational remit of public service broadcasting.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7)

[Narrator] Just how powerful this effect was became clear only recently, when an astrophysicist, Professor Nir Shaviv, decided to compare his own record of cloud-forming cosmic rays with the temperature record created by a geologist, Professor Jan Veizer, going back 600 million years.

[Cut to a graph]

[Narrator] What they found was that when cosmic rays went up, the temperature went down; when cosmic rays went down, the temperature went up. Clouds and the earth's climate were very closely linked. To see *how* close, you just flip the lines.

[Dr Nir Shaviv] We just compare the graphs, just put them one upon the other, and it was just amazing – Jan Veizer looked at me and says: "you know, we have very explosive data here."

[Prof Ian Clark] I’ve never seen such vastly different records coming together so beautifully to show really what was happening over that long period of time.

[Narrator] The climate was controlled by the clouds; the clouds were controlled by cosmic rays; and the cosmic rays were controlled by the sun. It all came down to the sun.

[Comment 64: The narrator continues to present highly contentious interviewees’ opinions as fact. The theoretical climate-varying mechanism between cosmic rays and clouds has not been demonstrated empirically, and thus to present it as fact was a serious misrepresentation of the state of scientific knowledge by the narrator. Furthermore, the documentary fails to mention that Shaviv’s work (*Shaviv and Veizer*, 2003: <http://tinyurl.com/3dwgy3>) has been strongly disputed in the literature by three papers, none of which were mentioned by the narrator:

1. *Jahnke* (2005) in an article in *Astronomy and Astrophysics* (<http://tinyurl.com/388odc>) finds fault with the data collection and analysis methods used by Shaviv and Veizer in determining a periodicity of cosmic ray activity using meteorite samples. He finds the data to be consistent with a uniform distribution, which means that there is no evidence for this periodicity.
2. *Royer et al* (2004) compare the historical impact of CO₂ and cosmic ray flux on climate changes over the past 500 million years (<http://tinyurl.com/2n87o4>). They find fault with the method for reconstructing historical temperature used by *Shaviv and Veizer*. Correcting the methodology for errors introduced by the acidity (pH) of the ocean, the temperature is found to be better correlated with CO₂ concentrations. They suggest that cosmic rays may have an influence, but they are not the main driver over multi-million year time-scales.
3. *Rahmstorf et al.* (2004) state that Shaviv and Veizer’s use of meteorites as a means of measuring historical cosmic ray flux is highly questionable, and that the evidence presented by Shaviv and Veizer is “little more than a similarity in the average periods of the Cosmic Ray Flux variations and a heavily smoothed temperature reconstruction. Phase agreement is poor. The authors applied several adjustments to the data to artificially enhance the correlation.”

Secondly, and independently, they state that Shaviv and Veizer’s conclusion with regard to a revised estimate of climate sensitivity (temperature impact of doubling of CO₂ concentration) is weak, as they used an incomplete analysis that included climate eras that were much different to our current climate, so could not provide insight into the impact of CO₂ increases due to industrialisation (see the abstract at <http://tinyurl.com/386x4f>, and the full paper at <http://tinyurl.com/2dfbf>).

The programme’s failure to mention the serious concerns expressed about the *Shaviv and Veizer* paper in the scientific literature was a serious betrayal of the public’s trust in the public service remit of *Channel 4*.]

(In breach of the 2003 *Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12*)

[Nigel Calder] If you had x-ray eyes, what appears as a nice, friendly, yellow ball would appear like a raging tiger. The sun is an incredibly violent beast, and it’s throwing out great explosions, and puffs of gas, and endless solar wind, that’s forever rushing past the earth – we’re in a certain sense *inside* the atmosphere of the sun. The intensity of its magnetic field more than doubled during the 20th century.

[Narrator] In 2005, astrophysicists from Harvard University published the following graph in the official Journal of the American Geophysical Union.

[Cut to graph]

[Narrator] The blue line represents temperature change in the Arctic over the past 100 years; and here **[in the on-screen animation, a separate curve is now superimposed on the first one in the graph]** is the rise in carbon dioxide over the same period. The two are not obviously connected.

But now look again at the temperature record, and at this red line **[an animation of a red line appears]**, which depicts variations in *solar* activity over the past century, as recorded independently by scientists from NASA, and America’s Oceanic and Atmospheric administration.

[Prof Ian Clark] Solar activity over the last 100 years, over the last several hundred years, correlates very nicely on a decadal basis, with sea ice and Arctic temperatures.

[Narrator] To the Harvard astrophysicists and many other scientists, the conclusion is inescapable.

[Piers Corbyn] The sun is *driving* climate change. CO₂ is irrelevant.

[Comment 65: These three graphs (<http://tinyurl.com/2oqx7n>, <http://tinyurl.com/2glupk>, <http://tinyurl.com/ys7n7g>) were originally published in *Geophysical Research Letters* **32**, L16712 (2005) (<http://tinyurl.com/33o2tl>) by **one person, Dr Willie Soon** (see page 138), and **not** by a group of Harvard astrophysicists as stated in the narration.

It was not made clear by the *Channel 4* programme that the measure of “solar activity” used here is the total solar irradiance (TSI), which is different from the solar cycle length used by *Friis-Christensen et al.* in their graphs presented earlier.

It is also not clear why the correlation of TSI to temperature is shown in only a small region (the Arctic), but not for the global temperature – after all, solar

activity should be affecting temperatures all over the world, not just the Arctic, if it is to be considered to be of any relevance to global warming.

In addition, it was not pointed out this study was partly funded by the fossil fuel-industry-funded lobby group the *Charles G. Koch Charitable Foundation* (<http://tinyurl.com/2qgy4j>), as well as by the *American Petroleum Institute* (see the entry on the API on page 145), and by *ExxonMobil*. This conflict of interest should have been disclosed to the public, especially as recent peer reviewed scientific studies have demonstrated that research funded by corporations with a financial interest in the outcome are much more likely to reach the desired conclusions than are studies which don't receive such funding (for more details see Appendix C.1.3, page 127).

Finally, it was not disclosed that Dr Soon is linked to numerous lobby groups that are funded by the fossil fuel industry (see the entry on Dr Soon on page 138), creating an additional conflict of interest.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

2.8 Greenhouse Effect Conspiracy Theory

[Narrator] But why, if this is so, are we bombarded day after day with news items about man-made global warming? Why do so many people, in the media and elsewhere, regard it as an undisputed fact?

[Comment 66: The narrator's rhetorical question only makes sense in the context of the wholly misleading account the programme offers of climate change science. Certainly there has been a marked increase in news media coverage of climate change in Britain since early 2005. Most of this coverage has come to reflect the summary findings of the IPCC, the most ambitious scientific peer review process in history, and an allied increase in the political potency of the issue. In the severely constrained world of print and broadcast news media, climate change science and policy is no longer summarised as a 'pro versus con' story concerning climate science, but is now reported in ways that much more accurately reflect the state of both scientific and political debate (see *Andreadis and Smith, 2007*, <http://tinyurl.com/yv2wt3>).

Such statements by the narrator are intended to unsettle this development in climate change representations. This would be acceptable and part of normal public and academic debate if the conventions of public and academic debate were observed in the programme's representations of the science.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Narrator] To understand the power of global warming theory, we must tell the story of how it came about.

[Comment 67: The following narrative is actually a gross distortion of the history of global warming and climatology. A more accurate and scholarly introduction

can be found at “The Discovery of Global Warming” by Spencer Weart, Director of the *Center for History of Physics* of the *American Institute of Physics* (<http://tinyurl.com/yvnd7p>.)]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Cut to film clip from 1974 BBC documentary “The Weather Machine”] The weather satellite depicts a planet that grieves for its lost harvests.

[Narrator] Doom laden predictions about climate change are not new. In 1974, the BBC warned us of impending disasters which might seem strangely familiar.

[Cut to film clip from “The Weather Machine”] Again and again the newsreels have been showing us disasters of the weather. The American mid-west suffered it’s worst drought since the 1930s. Tornados were on the rampage.

[Narrator] And what was going to be the *cause* of these disasters? The man behind the series was former *New Scientist* editor Nigel Calder.

[Nigel Calder] In “The Weather Machine” we reported the mainstream opinion at the time, which was global cooling and the threat of a new ice age.

[Comment 68: Calder and the narrator are referring to discussion that took place in the 1970s about the possibility of future global cooling and a new ice age. This is often used by critics of global warming to imply that, since climate scientists were wrong before, they may be wrong now. However, this argument overstates the level that this was a mainstream opinion in the scientific community. William M. Connolley from the *British Antarctic Survey* (<http://tinyurl.com/363urv>) undertook a survey of the scientific publications in the 1970s, where the “experts” would have made their predictions. He found that there were two strands to the discussion of the global cooling: one which discussed it in terms of changes in the Earth’s orbit, and another that discussed the impacts that anthropogenic aerosols were having on the climate. Yet none suggested that a “catastrophic” cooling or new ice age was imminent and unease was expressed in the scientific literature about projecting any trend into the future. This idea of “catastrophic” cooling was only discussed in the popular media (such as in Nigel Calder’s *Weather Machine* programme, and in *Newsweek*, <http://tinyurl.com/36779s>); and **not** in the scientific literature.

There was never a scientific consensus on whether this cooling trend would continue (see the *American Institute of Physics*: <http://tinyurl.com/21874q>, and *Realclimate*: <http://tinyurl.com/mx1cr>). The mainstream opinion of the time, however, can be summarized by a 1975 *National Academy of Sciences* report that

stated “we do not have a good quantitative understanding of our climate machine and what determines its course. Without the fundamental understanding, it does not seem possible to predict climate” (<http://tinyurl.com/ythc45>). Hence, the climate scientists at that time were wary of making predictions, and were recommending further research rather than political action. To compare the 1970s discussion of global cooling to the current consensus on global warming is therefore disingenuous.]

(In breach of *Ofcom* 5.7, 5.10)

[Cut to film clip from “The Weather Machine”] Nature’s ice dwarfs us.

[Narrator] After four decades of falling temperatures, experts warned that a cooler world would have catastrophic consequences.

[Cut to film clip from “The Weather Machine”] There’s the ever-present threat of a big freeze. Will a new ice age claim our lands and bury our northern cities?

[Narrator] But amid the doom and gloom was one voice of hope. A Swedish scientist called Bert Bolin tentatively suggested that man-made carbon dioxide might help to warm the world – although he wasn’t sure.

[Comment 69: The suggestion that Bert Bolin was a “lone voice” suggesting warming is far from the truth. In fact, the science behind the enhanced greenhouse effect from carbon dioxide goes back to the 19th century, and particularly the work of another Swede, Svante Arrhenius. See the history of the science written by *American Institute of Physics*, at <http://tinyurl.com/35jvdt> and their timeline at <http://tinyurl.com/2v4drn>).

By the 1970s, after the work of Callendar, Revelle, Keeling, Manabe and many others, carbon dioxide was well-established as a cause of global warming. For example, a 1970 report cited warming from CO₂ as likely (<http://tinyurl.com/347uox>, [William Connolley]), while Broecker (*Science* 189, 460 (1975) <http://tinyurl.com/33m5tm>) and Damon and Kunen (*Science* 193, 447 (1976) <http://tinyurl.com/34plgf>) published papers predicting warming in subsequent decades. It was hardly an “eccentric” theory, as implied by the narrator later.

Moreover, the total neglect by the *Channel 4* programme of many decades of prior research appears to have been a deliberate attempt to mislead viewers into thinking that the theory of global warming is relatively new and untested, when in fact it is more than 150 years old.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Cut to film clip from "The Weather Machine" with Bert Bolin speaking] And there is a lot of oil, and there are vast amounts of coal left, and we seem to be burning it with an ever increasing rate; and if we go on doing this, in about 50 years' time, the climate may be a few degrees warmer than today. We just don't know.

[Nigel Calder] We were the first to put Bolin of Sweden on international television talking about the dangers of carbon dioxide; and I remember being bitterly criticised by top experts for indulging him in his fantasy.

[Narrator] At the height of the cooling scare in the 70s, Bert Bolin's eccentric scare of man-made global warming seemed absurd. Two things happened to change that.

[Comment 70: It is one thing for Nigel Calder to claim that the 150-year-old greenhouse gas theory was considered "eccentric" by climatologists in 1974; but for the narrator to make this claim is an apparent attempt to deceive the public, and a clear breach of *Channel 4's* public service remit.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Narrator] First, temperatures started to rise; and second, the miners went on strike.

To Margaret Thatcher, energy was a political problem. In the early 70s, the oil crisis had plunged the world into recession. The miners had brought down Ted Heath's conservative government. Mrs Thatcher was determined the same would not happen to her. She set out to break their power.

[Cut to film clip of Margaret Thatcher giving a speech] What we have seen in this country is the emergence of an organised revolutionary minority who are prepared to exploit industrial disputes, but whose real aim is the breakdown of law and order and the destruction of democratic parliamentary government.

[Nigel Calder] The politicisation of the subject started with Margaret Thatcher.

[Nigel Lawson] She was very concerned, always – I remember when I was Secretary of State for Energy – to promote nuclear power, long before the issue of climate change came up, because she was concerned about energy security; and she didn't trust the Middle East, and she didn't trust the National Union of Mineworkers: so she didn't trust oil, and she didn't trust coal. Therefore she felt we really had to push ahead with nuclear power. And then when the climate change/global warming thing came up, she felt: "well this is great: this is another argument – because it doesn't have any carbon dioxide emissions – this is another argument why you should go for nuclear. And that is what she was really, largely, saying. It's been misrepresented since then.

[Nigel Calder] And so she said to the scientists – she went to the *Royal Society* and she said: "there's money on the table for you to prove this stuff". So of course they went away and did that.

[Comment 71: There are two speeches by Mrs. Thatcher's to the *Royal Society* that mention climate change (<http://tinyurl.com/2kvovo>, <http://tinyurl.com/2n5n5a>), neither of which contain anything that could be construed as meaning "there's money on the table for you to prove this stuff," or even mention the funding of climate science.]

(In breach of *Ofcom* 5.7, 5.10)

[Dr Philip Stott] Inevitably, the moment politicians put their weight behind something, and attach their name to it – in some ways, of course, money will flow; that's the way it goes. And inevitably research development institutions started to bubble up – if we can put it that way – which were going to be researching climate change; but with a particular emphasis on the relationship between carbon dioxide and temperature.

[Narrator] At the request of Mrs Thatcher, the UK Met Office set up a Climate Modelling Unit, which provided the basis for a new international committee called The United Nations Intergovernmental Panel on Climate Change, or IPCC.

[Comment 72: This history of the IPCC is inaccurate and apparently intentionally misleading. In fact, the IPCC was established in 1988 by the *World Meteorological Organization* (WMO) and the *United Nations Environment Programme* (UNEP). These organizations, together with the *International Council for Science*, had individually and collectively organized conferences in 1979 and 1985, which expressed concern about the human impact on the climate. They subsequently established the *Advisory Group on Greenhouse Gases* (AGGG) to "ensure periodic assessments of the state of scientific on climate change and its implications." (<http://tinyurl.com/3ccs3h>, PDF). This process culminated in the IPCC, which was proposed in the 10th Congress of the WMO in May 1987 (see <http://tinyurl.com/>

[yobhym](http://tinyurl.com/2ex6rr), PDF, and the timeline from *Australian Bureau of Meteorology* at <http://tinyurl.com/2ex6rr>), before its establishment in 1988.

These international developments pre-date Margaret Thatcher's interest in climate change, which was first made public in a speech to the *Royal Society* in September 1988 (which is at: <http://tinyurl.com/2kvovo>). A search of Thatcher's speeches shows that this was her first public statement on the issue (see: <http://tinyurl.com/2oboey>). They also pre-date the "Climate Modelling Unit" of the UK Met Office (the Hadley Centre), which was not opened until 1990 (see: <http://tinyurl.com/27pzzu>). Hence the chronology described in the documentary is completely incorrect and, given that the real history of the IPCC is freely available, was apparently intended to mislead the public in order to discredit the IPCC.

In view of the rest of the history presented in the documentary (below), it should also be noted that Margaret Thatcher's *Royal Society* speech was made **after** global warming had become a major international public issue in the summer of 1988, sparked by the Senate testimony of NASA scientist James Hansen in June of that year (see <http://tinyurl.com/2rfv7q>, PDF, <http://tinyurl.com/rvyfz> and <http://tinyurl.com/2tvz9j>). This occurred three years after the end of the miners' strike, and after many coal mines had already been closed (see: <http://tinyurl.com/37297g>). Not only was the issue scientifically and politically important before Thatcher's first public interest, it would seem superfluous for her to invent the issue to break the miners' unions, given that their power had already been fatally undermined.

Furthermore, to blame a worldwide scientific consensus over man-made global warming on a British strike is analogous to the conspiracy theorists who claim for example that Israel masterminded 9/11; and as it's the narrator who is putting this conspiracy theory forward as if it were a fact, this is outside *Channel 4's* remit as a public service broadcaster.

Regarding the point about Middle Eastern oil, one should note that Britain was a net *exporter* of oil in the 1980s and 90s (<http://tinyurl.com/3xbr3w>).

All this information is in the public domain: thus this statement could only have been an intentional attempt to discredit the IPCC in the mind of the audience by misrepresenting the facts.]

(In breach of the 2003 *Communications Act* Section 265, *Oofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Nigel Calder] They came up with the first big report which predicted climatic disaster as a result of global warming.

[Comment 73: The First Assessment Report (FAR) of the IPCC, published in 1990, predicted temperature rises by the end of the 21st century of 3°C (as a "best guess" under "business-as-usual") accompanied by a sea level rise of 65cm. Both figures are consistent with the later reports (<http://tinyurl.com/2trfqy> and <http://tinyurl.com/2xl4c6> [IPCC 2001, 2007]), and although posing a serious problem, it could not be construed as "disastrous". The IPCC also acknowledged considerable uncertainty in these projections, and were very cautious in their

language. For example, in the Executive Summary they stated that “[r]apid changes in climate will change the composition of ecosystems: some species will benefit while others will be unable to migrate and will become extinct” – a balanced assessment, incompatible with warnings of unmitigated disaster.

This caution, given the considerable uncertainties in 1990, is also reflected in their conclusion that “The size of the warming [so far] is broadly consistent with predictions of climate models, but it is also of the same magnitude as natural climate variability. Thus the observed increase could be largely due to this natural variability; alternatively this variability and other human factors could have offset a still larger human-induced greenhouse gas warming. The unequivocal detection of the enhanced greenhouse effect from observations is not likely for a decade or more.” Bert Bolin (the IPCC Chairman at the time) has noted that “this statement describes very well the state of knowledge in 1990 and research during the fifteen years since then shows that this conclusion was indeed well expressed and largely correct.” (see Professor Bolin’s comments in **Appendix G**: page 165). Subsequent IPCC reports have progressively strengthened the conclusion that humans are changing the climate, consistent with their conclusions being driven by accumulating evidence, rather than the desire to conform to a pre-existing ideology.]

(In breach of *Ofcom* 5.7)

[Nigel Calder] I remember going to the scientific press conference and being amazed by two things: first, the simplicity and eloquence of the message, and the vigour with which it was delivered; and secondly, the total disregard of all climate science up ’til that time – including, incidentally, the role of the sun, which had been the subject of a major meeting at the *Royal Society* just a few months earlier.

[Comment 74: *The IPCC First Assessment Report* does in fact acknowledge and discuss the role of variability of the Sun, in the Summary for Policy Makers and in the main text (Section 2.3.1, p61-63). Other factors that influence the climate, apart from carbon dioxide and the sun, were also discussed in the Report.

Furthermore, in his statement below, the narrator appears to the viewer to agree with what Nigel Calder has just said: which means that it is not just one interviewee making a clearly inaccurate statement, but much more seriously, an apparent attempt by the film maker to misrepresent the history of the IPCC to the audience, in clear breach of the *Ofcom Code* relating to impartiality on matters of current policy and in clear breach of the *Communications Act’s* remit for *Channel 4* programmes to be educational.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Narrator] But the new emphasis on man-made carbon dioxide as a possible environmental problem didn’t just appeal to Mrs. Thatcher.

[Nigel Calder] It was certainly something very favourable to the environmental idea - what I call the medieval environmentalism of: "let's get back to the way things were in medieval times and get rid of all these dreadful cars and machines. They loved it because carbon dioxide was for them an emblem of industrialisation.

[Comment 75: The narrative, using an accumulation of interviewee and narrator statements (see [Comment 80](#), page 71; [Comment 81](#), page 71; [Comment 120](#), page 100; and [Comment 136](#), page 114), is presenting a wholly inaccurate picture of the environmental movement and its history, for which absolutely no evidence is provided. In fact no major environmental organisation advocates "getting rid" of cars. Greenpeace, for example, in its brochure "How to save the climate" (<http://tinyurl.com/2qt7p9>, PDF) (page 29) states:

The most important question when you buy your next car is: "What is its fuel consumption?"

Furthermore the programme gives a highly distorted and inaccurate impression by failing to mention the long history of environmental movements *before* the fall of the Berlin wall and the rise of anti-globalisation movements in the 1980s. For example, *WWF* has been campaigning since 1961 (see <http://tinyurl.com/ywfpfts>); *Greenpeace* since 1971 (see <http://tinyurl.com/2mn9jn>); and *Friends of the Earth* since 1971 (see <http://tinyurl.com/27eyrf>).

This is therefore an apparent attempt by the film maker and by several of the interviewees to mislead the public about the views of environmental groups. Misrepresenting their views in this way is not only inaccurate but is also manipulative and slanderous, although as no individuals were named, it is unlikely to be actionable.]

(In breach of the 2003 *Communications Act Section 265*, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12, 7.2, 7.3, 7.6, 7.9)

[Dr Frederick Singer] Well carbon dioxide clearly *is* an industrial gas, and tied in with economic growth, with transportation and cars - with what we call civilisation; and there *are* forces in the environmental movement that are simply against economic growth. They think that's bad.

[Comment 76: By playing this extract with no context from the narrator, taken together with other similar statements by other contributors and by the narrator (e.g. [Comment 40](#), [Comment 122](#), etc.), this amounts to narration: the false impression is systematically being created in the viewer's mind that in order to reduce global carbon dioxide emissions one must necessarily have zero or negative economic growth. As discussed in [Comment 40](#), page 33, this is a fallacy, and is apparently intentionally misleading.

It has been accepted by for example the *Stern Review* (<http://tinyurl.com/vgzxv>), that the costs of mitigating climate change will at worst slightly reduce the rate of economic growth. It is definitely not the case that reducing greenhouse gas

emissions requires zero or negative growth. This is a falsehood, as is demonstrated by the *IPCC 4th Assessment Report Working Group III, 2007* (<http://tinyurl.com/ysxugh>):

In 2030 macro-economic costs for multi-gas mitigation, consistent with emissions trajectories towards stabilization between 445 and 710 ppm CO₂B-eq, are estimated at between a 3% decrease of global GDP and a small *increase*, compared to the baseline (see Table SPM.4). However, regional costs may differ significantly from global averages (high agreement, medium evidence)

[*IPCC 4th Assessment Report Working Group 3 (2007), Summary for Policymakers, page 16.*]

Thus the above statement by Dr Singer was a clear misrepresentation of the facts, and given the context, was an apparent attempt both by Dr Singer and by the film maker to mislead the audience.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Dr Philip Stott] It could be used to legitimise a whole suite of myths that already existed – anti-car, anti-growth, anti-development; but above all, anti that great Satan, the US.

[Comment 77: The implied idea that the world’s climatologists, many of whom are based in the US and are financed by US government funds, are motivated by a view of the US as being “great Satan”, is a logical fallacy as well as being a slander.]

(In breach of Ofcom 5.7, 5.10, 7.11)

[Narrator] Patrick Moore is considered one of the foremost environmentalists of his generation. He is co-founder of Greenpeace.

[Comment 78: His claim to be a co-founder of Greenpeace is disputed, and few people would objectively consider him to be “one of the foremost environmentalists of his generation” – see entry on Patrick Moore in Appendix C.5, page 132.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Patrick Moore] The shift to climate being a major focal point came about for two very distinct reasons. The first reason was because by the mid-80s, a majority of people now agreed with all of the reasonable things we in the environmental movement were saying they should do. Now when a majority of people agree with you it's pretty hard to remain confrontational with them; and so the only way to remain anti-establishment was to adopt ever more extreme positions. When I left Greenpeace it was in the midst of them adopting a campaign to ban chlorine worldwide. Like I said, "you guys, this is one of the elements in the periodic table, you know; I mean, I'm not sure if it's in our jurisdiction to be banning a whole element."

[Comment 79: Patrick Moore is actually referring to the gradual phasing out, not of the existence of the element Chlorine, as he implies, but of the production of the complex compounds known as CFCs (see *Wikipedia*: <http://tinyurl.com/yt2dpm>), due to their known effect on the ozone layer (see *Wikipedia*: <http://tinyurl.com/ygmgwh>) – a decision which most governments in the world have signed up to under the Montreal Protocol (see *Wikipedia*: <http://tinyurl.com/ypl8nq>).

Those governments signed the Montreal Protocol not because a few extremist environmentalists told them to (it is hardly credible for a rational person to claim that governments are so easily swayed), but because of hard scientific evidence (again, see *Wikipedia*: <http://tinyurl.com/ygmgwh>).

As for Patrick Moore's suggestion that one would have to be mad to ban the use of an element that is in the periodic table, we have banned the use of the element lead in gasoline and in paint; and we have laws against the dumping of the element mercury into our lakes and rivers; and we have banned the use of the element radium to illuminate watch and clock hands. Long term exposure to any of those elements has serious effects on human health, including kidney damage, digestive tract failure, and disruption of neurological function in young children.

Thus Moore's comments are not only profoundly misleading, but apparently intentionally so.]

(In breach of *Ofcom* 5.7, 5.9)

[Cut to film clip of people destroying the Berlin Wall]

[Patrick Moore] The other reason that environmental extremism emerged was because world communism failed: the wall came down, and a lot of peaceniks and political activists moved into the environmental movement, bringing their neo-Marxism with them; and learnt to use green language in a very clever way to cloak agendas that actually have more to do with anti-capitalism and anti-globalisation than they do anything with ecology or science.

[Nigel Lawson] The left have been slightly disoriented by the manifest failure of socialism and indeed, even more so of communism, as it was tried out; and therefore, they still remain as anti-capitalist as they were; but they have to find a new guise for their anti-capitalism.

[Comment 80: The above interview statements, which taken together amount to narration, imply that environmentalists are predominately anti-capitalist extremists. This is clearly designed to marginalize environmentalists, and by extension, the millions of ordinary people who are non-environmentalists but who are concerned about global warning. Representatives of environmental groups were not given the chance to reply to this characterisation, nor was any evidence presented to support it; and the strong counter-evidence against this characterisation was not mentioned.

In fact, far from being anti-capitalist, the leading environmental groups all collaborate with major corporate businesses on environmental issues: for example, *WWF* (<http://tinyurl.com/37vcev>), *Friends of the Earth* (<http://tinyurl.com/3c27se>) and *Greenpeace* (on the “Greenfreeze” alternative to CFCs, (<http://tinyurl.com/28zgf7>), which has been praised by Tony Blair as a “highly successful example of a green organisation and industry working together for the benefit of the Ozone layer” (<http://tinyurl.com/24xvn6>)).

Thus this was a clear attempt to mislead the public, and was based on a “straw man” logical fallacy (in this case, by characterising their opponents in this debate as extremists when most of them are not) and on an “ad hominem” logical fallacy (attacking one’s opponents rather than addressing their arguments).]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Nigel Calder] And it was a kind of amazing alliance from Margaret Thatcher on the right through to very left-wing anti-capitalist environmentalists that created this kind of momentum behind a loony idea.

[Comment 81: It is beyond parody to call the 150 year-old theory of man-made global warming, based as it is on the fundamental laws of physics, “a loony idea,” while at the same time putting forward the view that Margaret Thatcher was engaged in an alliance with neo-Marxists – and all because, we are led to believe, she wanted to break the power of the miners’ unions! (See **Comment 72**, page 65). Such an extraordinary claim would require extraordinary evidence. Yet absolutely no evidence was provided, and this view was left unchallenged, in what was billed as a “science documentary”.]

(In breach of *Ofcom* 5.7)

[Narrator] By the early 1990s, man-made global warming was no longer a slightly eccentric theory about climate – it was a full-blown political campaign. It was attracting media attention; and as a result, more government funding.

[Comment 82: The great majority of the diverse research communities that have been drawn to research climate change have had no direct engagement with either media or politics: indeed many have sought to clearly mark out the distance between their research and popular and political debate. This has been seen as a factor in delaying widespread public understanding and engagement with climate change as an issue (see *Smith* 2005, <http://tinyurl.com/2cm7qt>).

It is right and proper that if a scientific problem is identified and judged by peer review committees to be serious, it should attract more funding; but to suggest that media attention necessarily yields funds is wholly incorrect. Not all potential problems that have been identified by scientists and which have received a great deal of media attention go on to attract large amounts of funding (for example, MMR vaccine, and the health effects of mobile phones); because many of them are judged by peer review funding committees to be either insufficiently credible or insufficiently serious.

In addition, the cumulative effect of this collation of statements and images is to implant in the viewer's mind the idea that almost all of the world's climatologists have reached the scientific conclusions that they have reached, in many thousands of peer reviewed research papers, in support of environmentalist agendas. This comment fails to reflect the fact that the institutions and individuals engaged in the IPCC process are all well established in their fields of research. They have not been needy of funding. It gives an entirely false impression of the nature of academic research funding, and damages public understanding of the IPCC process: a process that was purposefully designed to be transparent, accountable and working to the highest standards of academic rigour. The editorial point driving the editing of this sequence lacks all credibility and no evidence was provided to support this idea.

Finally, the programme's wording denies the scientific consensus on climate change that has existed since the mid-1990s by not acknowledging this and instead presenting its supposed movement from an 'eccentric theory' into a 'political campaign'. This is inaccurate and misleading. *Spencer R. Weart, 2003, The discovery of Global Warming* (<http://tinyurl.com/368wk>) tracks the long history of scientists' attempts to explain global warming and the institutional underfunding of global warming scientists throughout the 20th century.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Prof Richard Lindzen] Prior to Bush the elder, I think the level of funding for climate and climate-related sciences was somewhere around the order of 170 million dollars a year, which was reasonable for the size of the field. It jumped to 2 billion a year – more than a factor of 10 – and, yeah that changed a lot. A lot of jobs, it brought a lot of new people into it who otherwise were not interested; so you developed whole cadres of people whose *only* interest in the field was that there was global warming.

[Comment 83: Richard Lindzen's implied suggestion that it is in climate scientists' interest in terms of preserving their jobs to hype up man-made global warming has been fully rebutted by one of his own colleagues, at <http://tinyurl.com/pb9fx>.

Regarding Lindzen's highly inaccurate and misleading statement about funding, see **Comment 116**, page 97.

Finally there is no evidence that there are any climatologists whose only interest in climatology is global warming, and it is not credible that scientists would enter a highly complex and extremely intellectually demanding profession unless they have a passionate and genuine curiosity about the science that they are studying. As a scientist himself, Lindzen must be fully aware of this, and his assertion to the contrary was again a clear attempt to deceive those members of the public who aren't aware of how science actually works.]

(In breach of *Ofcom* 5.12, 7.11)

[Comment 84: In addition, at this point, given that funding is being discussed, it should have been made clear by the narrator that Richard Lindzen works for five organisations that are funded by *ExxonMobile* – see also Appendix **C.17**, page 141.]

(In breach of *Ofcom* 5.8)

[Nigel Calder] If I wanted to do research on, shall we say, the squirrels of Sussex, what I would do – and this is any time from 1990 onwards – I would write my grant application saying: "I want to investigate the nut-gathering behaviour of squirrels with special reference to the effects of global warming – and that way I get my money. If I forget to mention global warming, I might not get the money.

[Dr Frederick Singer] There's really no question in my mind that the large amounts of money that have been fed into this particular, rather small area of science have distorted the overall scientific effort.

[Comment 85: Again, given that funding is being discussed, it should have been made clear at this point that Frederick Singer has worked for fourteen *ExxonMobile*-funded lobby groups – see Appendix **C.10**, page 135.]

(In breach of *Ofcom* 5.8)

[Prof Richard Lindzen] We’re all competing for funds; and if your field is the focus of concern, you have that much less work rationalising why your field should be funded.

2.9 “Climate Models are Inaccurate”

[Narrator] By the 1990s, tens of billions of dollars of government funding in the US, UK and elsewhere were being diverted into research related to global warming.

[Comment 86: Because it uses vague wording (“by the 1990s”, “elsewhere”, “related to”) we are unable to verify the exact amount of funding per year they are referring to, but we know that money going towards research in global warming pales in comparison with that which goes into research on military technology or health – see [Comment 116, page 97.](#)]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Narrator] A large portion of those funds went into building computer models to forecast what the climate will be in the future. But how accurate *are* those models? Dr Roy Spencer is Senior Scientist for Climate Studies at NASA’s Marshall Space Flight Centre. He has been awarded medals for exceptional scientific achievement from both NASA and the *American Meteorological Society*.

[Dr Roy Spencer] Climate models are only as good as the assumptions that go into them, and they have hundreds of assumptions, all it takes is one assumption to be wrong, for the forecast to be way off.

[Comment 87: Spencer is correct that the models involve many assumptions, but these are made in the light of existing scientific knowledge (not at random). Moreover, not all assumptions have a big effect on the results, and there are techniques (sensitivity testing) for systematically testing which assumptions matter a lot, and which don’t matter so much. To say that “all it takes is one assumption to be wrong, for the forecast to be way off.” is therefore a considerable (and misleading) overstatement of the extent of the problem.]

(In breach of *Ofcom* 5.7)

[Narrator] Climate forecasts are not new, but in the past, scientists were more modest about their ability to predict the weather. Any attempt at forecasting changes of climate, meet scepticism from the men who model the weather by computer.

[Comment 88: This statement by the narrator is highly misleading. Climatology (the study of climate, see *Wikipedia*: <http://tinyurl.com/2twres>) and meteorology (the study of weather, see *Wikipedia*: <http://tinyurl.com/zcnfd>) are two related but in practice rather different scientific disciplines.

Climatology involves the study of long-term processes, whereas meteorology is the study of shorter term weather processes and forecasting. The public is much more familiar with weather forecasts – and their uncertainty – than with climatology.

For example, in December in the Northern Hemisphere, we may not know for sure what the temperature will be tomorrow (weather). But we do know that the temperature will almost certainly be higher in July than it is in December (climate); and that it will almost certainly be higher in Kenya than in Alaska (climate).

See a further discussion on why the climate can be predicted at *Realclimate*:
<http://tinyurl.com/oet3t>.

It is inconceivable that the narrator was unaware of the difference between weather and climate; so by exploiting the fact that this difference is not well known amongst the general public, the narrator was clearly setting out to mislead the programme’s viewers about the ability to predict climate.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Cut to film clip from 1974 BBC documentary “The Weather Machine”] “In making decisions that affect people, a bad prediction as to what the climate of the future will be can be far worse than none at all. I’m afraid that our understanding of the complex ‘weather machine’ is not yet good enough to make a reliable statement of the future.”

[Comment 89: This statement is apparently intentionally highly misleading; partly because it confuses weather with climate (see **Comment 88**); and partly because it is referring to 1974. Sophisticated climate models were only developed in the late 1980s, so they did not exist in 1974. Moreover, they have improved dramatically in both sophistication and accuracy since then, both through improved fundamental understanding and increased computing power, as an outcome of the increased investment in climate research that is subsequently criticised by the *Channel 4* programme (see section **2.13**, page **97**).]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Narrator] All models assume that man-made CO₂ is the main cause of climate change, rather than the Sun or the clouds.

[Comment 90: In fact, models do not “assume” this. The main factors influencing the climate are inputs in the models, and the predictions for different combinations of the factors are compared to observations. This is the basis of “attribution and detection studies” (<http://tinyurl.com/34a883> [NOAA]) which has been subject to much research in recent years. The models show (<http://tinyurl.com/2v4x2t> [IPCC]) that the global warming over the past few decades cannot be explained by natural factors alone, although they also show

that natural factors are important (<http://tinyurl.com/2f8vam> [*Global Warming Art*]).

This, along with other evidence (<http://tinyurl.com/3cjq8x> [IPCC]), led the IPCC in 2001 to conclude that “most of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations” (<http://tinyurl.com/2kd75l> [IPCC]), and to upgrade the certainty level to “very likely” in the 2007 IPCC report (<http://tinyurl.com/2xl4c6> (PDF) [IPCC]).]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Dr Tim Ball] The analogy I use, is like, my car’s not working very well, so I’m gonna ignore the engine which is the Sun, and I’m gonna ignore the transmission, which is the water vapour; and I’m gonna look at one nut on the right rear wheel, which is the human produced CO₂ – it, it’s that, the science is that bad.

[Prof Ian Clark] If you haven’t understood the climate system, if you haven’t understood *all* the components, the cosmic rays, the solar, the CO₂, the water vapour, the clouds and put it all together, if you haven’t got all that, then your model isn’t worth anything.

[Comment 91: In fact, climate models do incorporate solar variability, as well as water vapour, clouds, aerosols, and a large number of other influences on the climate (see **Comment 55**, page 50). Tim Ball and Ian Clark must be well aware of this fact, so they are apparently setting out to mislead the public with the above statements.

Ironically, it is the graphs that this programme used to “show” a direct one-to-one relationship between solar activity and climate (see **Comment 59**, page 53 and **Comment 64**, page 59) which fail to take any account of aerosols or any of the many other influences on climate. Those graphs try to pretend that climate could possibly be influenced **entirely** by cosmic rays levels, driven by solar activity. For if there is more than one influence on climate, then **by definition** there could not be any overwhelming correlation between temperature and any one of the influences.]

(In breach of Ofcom 5.7, 5.10)

[Narrator] The range of climate forecasts, varies greatly. These variations are produced by subtly altering the assumptions upon which the models are based.

[Prof Carl Wunsch] The runs are so complicated you can often adjust them in such a way that they do something very exciting.

[Prof Ian Clark] I’ve worked with modellers, I’ve done modelling; and, with a mathematical model, and you tweak parameters, you can model anything, you can make it warmer, you can make it get colder by changing things.

[Narrator] Since all the models assume that man-made CO₂ causes warming, one obvious way to produce a more impressive forecast is to increase the amount of imagined man-made CO₂ going into the atmosphere.

[Comment 92: This statement by the narrator, combined with the accumulation of consecutive interviewee statements which taken together amount to narration, presents a highly inaccurate picture of climatology, and misrepresents the true nature of how climate modelling is undertaken.

Firstly, scientists do not know everything there is to know about the Earth’s climate. Particular uncertainties concern the role in climate change of the carbon cycle, ocean circulation and clouds. Thus it is quite reasonable to adjust the parameters/assumptions to see what effect doing so has on the models. This, in fact, this is a standard part of any scientific study in the form of a sensitivity analysis (see *Wikipedia*: <http://tinyurl.com/38k89k>).

Furthermore, because the models can be used to simulate a wide variety of situations (e.g. past climate such as ice ages, and maybe even climate on other planets) they have to pass the test of modelling current (and, increasingly, past) climate reasonably accurately before they can be used to simulate the future. The models, their structure and assumptions, and their parameter values, are all selected to eliminate those giving unreasonable results, contrary to what is suggested by the narration and contributors. For a good example of how accurately climate models do in fact model the temperature of the past, see <http://tinyurl.com/2v4x2t> [*IPCC*] and <http://tinyurl.com/2f8vam> [*Global Warming Art*].

Other studies may involve a Monte Carlo simulation of complex systems (see <http://tinyurl.com/2twcdc>), with many degrees of uncertainty (like atmospheres, or industrial process chains), where the parameters are changed in order to find out how different combinations of assumptions affect the system.

For the narrator to suggest that climate model parameters are changed with the purpose of generating “impressive” forecasts is simply false, and such a study would not pass a cursory peer-reviewed inspection.

Secondly, in addition to the uncertainties in the climate system, another uncertainty is what level of greenhouse gas emissions will be released into the atmosphere in future. We simply do not know, because it depends on decisions that governments and individuals make in the future, which is relatively unpredictable. Because of this, climate models are **not** used to make “forecasts” (although they are often presented as such in the popular press), but instead are used to create climate scenarios, in which one says, in effect, “if we assume for the sake of argument, x, y and z, in terms of population growth, economic growth, technology improvements, and so on, what would be the likely future outcomes of that in terms of atmospheric levels of CO₂ and hence climate?” Usually a range of such possible scenarios are provided by experts who are **not** climate scientists, such as economists, population and technology experts; and the climate modellers then input these scenarios into their models to see what the likely outcomes for future climate are likely to be, in each scenario.

So for example the estimate in the IPCC’s 2007 report that the global mean temperature is likely to rise by between 1.1C–6.4C this century with a “best guess” of 3C (<http://tinyurl.com/2x14c6>, PDF) is not a forecast: it represents a range of scenarios such as those described above; and much of the uncertainty is due to uncertainty about human behaviour, **not** uncertainty about climate science.

An authoritative example of the use of these scenarios is the IPCC Special Report on Emissions Scenarios (SRES) (<http://tinyurl.com/3co3n3>). The SRES included a set of four alternative “families” of future scenarios for industrial activity (and greenhouse gas emissions). These families were characterised by population, technological development, economic growth, and environmental outlook. These characteristics all are highly uncertain for the future, and would all change how the climate would appear. The IPCC stresses that the SRES scenarios are *not* predictions or forecasts – see <http://tinyurl.com/2lhfvu>.

The film maker should have been aware of all this, as it is all publicly available information; and most of the contributors to the programme were certainly aware of it. Thus this section of the *Channel 4* programme was an apparent attempt to mislead the viewer in order to promote an agenda, and was a betrayal of the public’s trust.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Prof Patrick Michaels]

We put an increase in Carbon Dioxide in them that is 1 percent per year. It’s been .49% per year for the last ten years, .42 for the ten years before that and .43 for the ten years before that; so the models have twice as much greenhouse warming radiation going in them as is known to be happening. It shouldn’t shock you that they predict more warming than is occurring.

[Comment 93: It is not true that the IPCC has overestimated the CO₂ increases that have occurred in the last thirty years – see Figure 1 of the *Proceedings of the National Academy of Sciences of the United States of America*, at <http://tinyurl.com/2d7uwu> (PDF).

Furthermore, models do *not* predict more warming than is occurring: they match the observations well. For example, models driven with historical changes in CO₂ and other factors accurately “hindcast” temperatures over the past century (<http://tinyurl.com/2v4x2t> [IPCC 2001]), and a 1980s NASA climate model accurately predicted the temperature increases over the past two decades (<http://tinyurl.com/29e53y> [*RealClimate*]). Climate projections are made for a variety of scenarios, which reflect uncertainties in future emissions of CO₂ and other pollutants, not just the 1% per annum increase implied by Michaels (see **Comment 92**, above).]

(In breach of Ofcom 5.7)

[Narrator] Models predict what the temperature might be in 50 or a 100 years time. It is one of their peculiar features, that long range climate forecasts are only proved wrong long after people have forgotten about them. As a result, there is a danger, according to Professor Carl Wunsch, that modellers will be less concerned in producing a forecast that is accurate than one that is interesting.

[Prof Carl Wunsch] Even within the scientific community, you see, it's a problem. If I run a complicated model and I do something to it, like melt a lot of ice into the ocean and nothing happens, it's not likely to get printed. But if I run the same model and I adjust it in such a way that something dramatic happens to the ocean circulation, like the heat transport turns off, it will be published. People will say: "this is very exciting", it will even get picked up by the media. So there is a bias, there's a very powerful bias within the media and within the science community itself, towards results which are dramatisable. The Earth freezes over - that's a much more interesting story than saying: "well, you know, it fluctuates around, sometimes the mass flux goes up by 10 percent, sometimes it goes down by 20 percent, but eventually it comes back". Well, you know, which would you do a story on? That, that's what it's about.

[Comment 94: Wunsch has subsequently stated (see: <http://tinyurl.com/2abj44>) that:

The part of the program where I'm discussing models was changed by cutting. I believe that I tried to explain that models were essential to understanding climate change, but that I was doubtful about their predictive skill when run out for long periods into the future. I did also say, as shown, that there was a natural bias toward modeling results that were dramatic rather than ones that seemed to show little or slow change. Again, I thought I was appearing in a program whose goal was to show how complicated climate change is and how all the subtleties are lost.

Finally, and this did not appear at all in the film, I said that there were some threats that were much more concrete and already present than was a new ice age in the UK by shutting off the Gulf Stream. In particular, I mentioned the ongoing threat of sea level rise, and of mega droughts in the US midwest which I said worried me, among other things. None of this got in.

Although it is fair to report Wunsch's criticisms of models, and of media coverage of global warming, it shows a clear bias on the part of the film makers, and profoundly misrepresents Wunsch's views, to have edited out his statement that "models [are] essential to understanding climate change;" as well as editing out the concerns he expressed about the threats to be expected from future climate change.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.7, 7.2, 7.3, 7.6, 7.9)

[Narrator] To the untrained eye, computer models look impressive, and they give often wild speculation about the climate the appearance of rigorous science. They also provide an endless source of spectacular stories for the media.

[Comment 95: The narrator, again, is misrepresenting how climate scenarios are developed. See **Comment 92**, page 77. Moreover, despite the claims that models’ results provide “wild speculations about the climate”, the programme provided no examples, nor any evidence that this has ever occurred.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Nigel Calder] The thing that has amazed me, as a life-long journalist, is how the most elementary principles of journalism seem to have been abandoned on this subject.

[Comment 96: Numerous studies have shown that the application of “the most elementary principles of journalism” in fact resulted in a wholly distorted summary of climate research through the 1990s and into the first half of this decade. The dramatic and editorial conventions that favour conflict, with the presentation of ‘pro’ and ‘con’ voices within a debate format, ensured that for 15 years much coverage of the issue gave a distorted and unbalanced sense of where the centre of gravity on the issue of climate change really lay. In striving for “balance” the news media failed to represent to the public the fact that since the mid 1990s, the vast majority of climate scientists have been convinced of the anthropogenic contribution to climate change.

In the UK these distortions have been identified in research by *Smith* 2000 (<http://tinyurl.com/2jt529>); *Smith* 2005 (<http://tinyurl.com/2cm7qt>); and *Carvalho and Burgess* 2005 (<http://tinyurl.com/2woyhg>); while in the US, research by *Boykoff and Boykoff* 2004 (<http://tinyurl.com/3yu9pu>, PDF) and *McCright and Dunlap* 2003 (<http://tinyurl.com/3cpcnh>, PDF) has reached similar conclusions.

This situation has changed gradually, as the number of ‘climate change sceptics’ with a published academic record in relevant subjects has dwindled to a vocal handful (almost all appearing in this film) (see *Andreadis and Smith* 2007, <http://tinyurl.com/yv2wt3>); compared with the thousands of researchers supporting the IPCC process and its conclusions.

Calder’s statement also fails to acknowledge that there are several news publications which have, through the last ten years, given consistent, often prominent, coverage to the contrarian point of view expressed in the *Channel 4* programme, including highly influential UK papers such as *The Economist* (see <http://tinyurl.com/gatww>), *The Mail* (<http://tinyurl.com/yudacw>) and *The Telegraph* (<http://tinyurl.com/yc4jtf>.)

(In breach of the 2003 *Communications Act* Section 265, *Oofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Narrator] In fact the theory of man-made global warming has spawned an entirely new branch of journalism.

[Nigel Calder] You've got a whole new generation of reporters: environmental journalists; and if you're an environmental journalist, and if the global warming story goes in the trash can, so does your job. It really is that crude. And the reporting has to get more and more hysterical because there are still fortunately a few hardened news editors around, who will say: "you know, this is what you were saying five years ago". "Ah, but now it's much, much worse - you know, there's going to be ten feet of sea-level rise by next Tuesday," or something. They have to keep on getting shriller and shriller and shriller.

[Comment 97: The first statement by Calder is factually incorrect. The second is either an ignorant or a wilfully misleading account of environmental change stories in the contemporary British media. All major quality newspapers have had Environment Correspondents since the late 1980s. The size of the environmental press corps has grown and fallen with public attention, but this has been a stable area of reporting regardless of the fortunes of the climate change story (see *Brown* and *McDonald* in *Smith* 2000, <http://tinyurl.com/2jt529>). None of these specialist journalists started on the environment beat. All have come from other areas of journalism and general training.

The comment suggests self-interestedness by reporters. This fails to recognise both the high levels of mobility within the profession between specialisms and institutions, and also the sense in which the climate change issue has for at least two years widened out beyond specialist coverage, to be explored critically by economics, business, personal finance and a host of other specialists as well as leader writers and columnists.]

(In breach of the 2003 *Communications Act* Section 265, *Oofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

2.10 "The Ice is Not Melting"

[Narrator] It is now common in the media to lay the blame for every storm or hurricane on global warming. But is there any scientific basis for this?"

[Comment 98: Some elements of the press might do that sometimes (although even then, the above statement is gross exaggeration); but climate scientists certainly do *not* - e.g. see *Realclimate*: <http://tinyurl.com/dptpu>.]

(In breach of the 2003 *Communications Act* Section 265, *Oofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Prof Richard Lindzen]

This is purely propaganda. Every textbook in meteorology is telling you, the main source of weather disturbances is the temperature difference between the tropics and the poles. And we're told: "in a warmer world this difference will get less". Now that would tell you, you'll have less storminess, you'll have less variability. But for some reason, that isn't considered catastrophic, so you're told the opposite.

[Comment 99: This statement by Professor Lindzen is completely misleading, and is apparently intentionally so. Richard Lindzen is a very knowledgeable meteorologist, and it is therefore simply not credible that he could be completely unaware of the peer reviewed research that has been published on this subject (see below), and that he could simply be expressing an ill-informed opinion rather than setting out to deceive the audience. Note that to the best of our knowledge, Lindzen has never disputed in the peer reviewed literature any of the research findings described below.

While it is true that "... the main source of weather disturbances is the temperature difference between the tropics and the poles ...", this statement refers to the source of extra-tropical cyclogenesis - e.g. the formation of large depressions that track eastwards towards to UK, most often in autumn and spring. The truly catastrophic storms are the hurricanes that occur in the tropics, and the remnants of hurricanes that sometimes reach the extratropics, with further adverse impacts. The formation and sustenance of hurricanes is strongly linked to several factors that may change with climate (either naturally or under anthropogenic influence):

1. Sea Surface Temperature (SST): hurricanes tend to form once SST rises above about 26°C, which is why the Atlantic hurricane season lasts "officially" from 1 June to 30 November (the season during which Atlantic SST is above 26°C, on climatological average);
2. Upper Ocean Heat Content: linked to SST, ocean heat is the main source of the power of hurricanes; the effect of hurricane-force winds on the ocean is to draw water up from depths of several tens of metres; if the underlying layers are sufficiently warm, a hurricane will be sustained through this heat source;
3. Mid-tropospheric moisture: as water vapour condenses, latent heat is released; this also provides a source of heat to power the hurricane; air has the capacity to hold more water vapour as temperature rises (according to the long-established Clausius-Clapeyron relation), hence the warmer the air, the larger the potential latent heat source;
4. Vertical wind shear: in the Atlantic, hurricane formation is favoured by low vertical wind shear; in other words a situation in which light winds vary little with altitude through the atmosphere.

It is now well-established that the Atlantic has warmed considerably in the last 20 years. Whether or not this regional warming is closely linked to global warming, there has been a discernible impact on Atlantic hurricanes. In the tropical Atlantic, positive SST anomalies in recent years may have contributed to increasingly severe Atlantic hurricane seasons. (*Saunders and Harris 1997, Emanuel 2005,*

Webster et al 2005, Foltz and McPhaden 2006). See the following peer reviewed papers for more on this:

- *Emanuel, K. (2005). Increasing destructiveness of tropical cyclones over the past 30 years. Nature, 436, 686-688, <http://tinyurl.com/2h2p59>.*
- *Foltz, G. R., and M. J. McPhaden (2006). Unusually warm sea surface temperatures in the tropical North Atlantic during 2005. Geophys. Res. Lett., 33, L19703, doi:10.1029/2006GL027394, <http://tinyurl.com/3d775p>.*
- *Saunders, M. A., and A. R. Harris (1997). Statistical evidence links exceptional 1995 Atlantic hurricane season to record sea warming. Geophys. Res. Lett., 24, 1255-1258, <http://tinyurl.com/2yo69z>.*
- *Webster, P. J., Holland, G. J., Curry, J. A., and H.-R. Chang (2005). Changes in Tropical Cyclone Number, Duration, and Intensity in a Warming Environment. Science, 309, 1844-1846, <http://tinyurl.com/3eyzss>.*

Future hurricane intensity and frequency cannot be predicted with great certainty. However, it is very likely that, in future decades:

- SST will stay above 26 deg C for an increasing period of the annual cycle;
- The upper layer of the tropical ocean will continue to warm, year on year;
- The warming atmosphere will hold increasing amounts of water vapour.

These three factors favour increases in hurricane intensity. It is not clear how or whether wind shear may change in the future. To the extent that such increasingly intense hurricanes persist into the extratropics, we can also expect more intense extra-tropical storms.

The consensus position is summarized in the IPCC AR4 Summary for Policymakers (February 2007):

- It is very likely that hot extremes, heat waves, and heavy precipitation events will continue to become more frequent.
- Based on a range of models, it is likely that future tropical cyclones (typhoons and hurricanes) will become more intense, with larger peak wind speeds and more heavy precipitation associated with ongoing increases of tropical SSTs. There is less confidence in projections of a global decrease in numbers of tropical cyclones. The apparent increase in the proportion of very intense storms since 1970 in some regions is much larger than simulated by current models for that period.
- Extra-tropical storm tracks are projected to move poleward, with consequent changes in wind, precipitation, and temperature patterns, continuing the broad pattern of observed trends over the last half-century.

Finally, it should be further clarified that in a warmer world, such as the AR4 multi-model average world of 2100, the temperature difference between the tropics and the poles is not straightforward. The predominant influence on the warming pattern is the land/sea contrast. This contrast is already clear from observations over several decades, and has been recently explained in terms of changes in the hydrological cycle (*Sutton et al. 2007*), and this effect must be taken into account when postulating on future temperature gradients. See the following

peer reviewed paper for more on this: *Sutton, R. T., Dong, B., and J. M. Gregory (2007). Land/sea warming ratio in response to climate change: IPCC AR4 model results and comparison with observations. Geophysical Research Letters, 34, L02701, doi:10.1029/2006GL028164, <http://tinyurl.com/2kthny>.]*

(In breach of *Ofcom* 5.7)

[Narrator] News reports frequently argue that even a mild increase in global temperature could lead to a catastrophic melting of the Polar Ice-caps. But what does Earth’s climate history tell us?

[Comment 100: In the absence of any specific references to either reports, journalists, institutions or indeed to temperature increases, this comment represents an attempt to support the polemical intentions of the programme with an apparently authoritative, but in fact entirely empty statement of opinion.]

(In breach of the 2003 *Communications Act Section 265, Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Prof John Christy] We happen to have temperature records of Greenland that go back thousands of years. Greenland has been much warmer – just a thousand years ago, Greenland was warmer than it is today, yet it didn’t have a dramatic melting event.

[Comment 101: Greenland was actually not “much warmer” (according to the ice core borehole record) 1000 years ago (see *Dahl-Jensen et al (1998), Science, <http://tinyurl.com/2pf7e3>*); and in any case the sea-level takes many centuries (at least) to adjust fully to changes of temperature. The best estimates from the recent palaeoclimate record (e.g. Eemian sea-level) are that each degree of warming corresponds to a few metres of sea-level rise (eventually), which must involve some melting of the major ice-sheets such as Greenland.

Furthermore, Christy is referring to the so-called “Medieval Warm Period”, which, as discussed in **Comment 37**, page 29, was largely a regional rather than a global phenomenon; and for Christy to attempt to confuse in the minds of the viewer regional with global phenomena was deeply misleading.

See also page 7 of the Jones/Mann report *Climate Over Past Millennia* at: <http://tinyurl.com/3ck36g>, which states:

Despite these extensive research efforts, anecdotal evidence concerning the last millennium based on factually dubious beliefs is still rife. We note three specific examples that are often misrepresented in terms of their relevance to past climate: (1) the freezing of the River Thames in London in past centuries, (2) the cultivation of vines in medieval England, and (3) the settlement of Iceland and southwestern Greenland about 1000 years ago.

And continues:

Iceland was settled mainly from Norway and the northern British Isles beginning ~A.D. 871. The further migration to SW Greenland

approximately one century later, by a small group of Icelanders, was the result primarily of a political and economic need to leave Iceland [Ogilvie and Jónsson, 2001]. Climate was not a factor in their decision despite claims otherwise that still appear in the literature [Soon and Baliunas, 2003; Soon et al, 2003]. The SW Greenland settlements survived for many centuries, but in the mid-14th century the more marginal and more northerly located Western Settlement was abandoned. There were a number of reasons for this, including culture and economic factors. However, it seems likely that climate did play a part in the abandonment. The focus of their economy on animal husbandry denied them the advantages of hunting marine and other mammals that ensured the survival of their Inuit neighbors. A series of unusually late springs and cold summers, for example, may have helped to make a marginal situation untenable [Barlow et al, 1997]. The more southerly Eastern Settlement survived to around the mid-15th century [Buckland et al, 1996].

With regard to the references in the above text to papers by Soon, see the entry on **Dr Willie Soon** on page 138.

For a respected scientist to recycle long discredited myths in a programme billed as a “science documentary” is highly irresponsible and is a clear breach of the *Ofcom* regulations.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Dr Philip Stott]

Even if we talk about something like permafrost, a great deal of the permafrost – that icy layer under the forests of Russia for example – 7 or 8 thousand years ago melted far more than we’re having any evidence about it melting now. So in other words, this is a historical pattern again but the world didn’t come to a crunching halt because of it.

[Comment 102: Stott is referring to the period known as the “Holocene Maximum”, when, as discussed in **Comment 39**, page 32, best estimates suggest that global average temperatures were no warmer than now, although there are considerable uncertainties. As such, while in fact very little, if anything, is known about the permafrost melting that took place at that time, it might be reasonable to suggest that the permafrost could have undergone a thawing event similar to that seen today – although almost certainly not as great as is likely to occur during the 21st century, when, according to the IPCC Fourth Assessment Report (<http://tinyurl.com/ysxugh>), global average temperatures are likely to rise by a “best guess” of 3°C.

More importantly, to suggest that because “the world didn’t come to a crunching halt” during the Holocene Maximum, we should not be concerned about the effects of warming on current ecosystems and economies is highly misleading. The ecosystems and economies of today are not the same as those of 7–8000 years ago: the global population is much larger and societies live in built-up environments. For an assessment of how future warming is likely to impact

economies and ecosystems during the 21st century, see the IPCC *Third Assessment Report on Impacts, Adaptation and Vulnerability* at <http://tinyurl.com/hu7dr>.

Moreover, although most climate simulations end in 2100, neither carbon emissions nor global warming will stop then, but will most likely continue for several centuries thereafter; so that temperatures well in excess of those of the mid-Holocene optimum are likely eventually, unless carbon emissions are successfully reduced by a large amount.]

(In breach of *Ofcom* 5.7)

[Narrator] Professor Syun-Ichi Akasofu is head of the International Arctic Research Centre, in Alaska. The IARC is the world's leading Arctic research institute. Professor Akasofu insists that over time the ice-caps are always, naturally, expanding and contracting.

[Comment 103: While it is true that over very long time periods the ice caps do indeed expand and contract as global temperatures rise and fall, they do not spontaneously expand or contract without any cause: they expand when temperature trends are downwards and they contract when temperature trends are upwards. They are currently contracting very rapidly year on year – see the NSIDC graph at: <http://tinyurl.com/2yyjhs> – which is what one would expect to happen during warming. Thus the narrator's statement above is both meaningless and deeply misleading.]

(In breach of the 2003 *Communications Act Section 265, Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Prof Syun-Ichi Akasofu] There are reports from time to time of a big chunk of ice broke, break away from the Antarctic continent. Those must have been happening all the time, but because now we have a satellite that can detect those, that's why they become news.

[Narrator] This data from NASA's meteorological satellites shows the huge natural expansion and contraction of the polar sea ice taking place in the 1990s.

[Comment 104: The video played on the programme at this point, illustrating this "huge natural expansion and contraction of the polar sea ice" is deeply misleading. In fact, the variation that the film shows is simply the seasonal cycle: the ice melts and shrinks during the summer, and expands again during the winter (see <http://tinyurl.com/yvkbkh> [NASA] for a similar video).

The important issue regarding Arctic sea ice levels is the **year-on-year** changes, not seasonal changes; and although year-on-year changes do show some natural variability, there has been a strong decreasing trend in recent years (see the NASA video at: <http://tinyurl.com/ysjyns>, and the NSIDC graph at: <http://tinyurl.com/2yyjhs>).

Pretending that they were showing a film of year on year changes when they were actually showing a film of seasonal expansion and contraction amounts to deliberate deception.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Prof Syun-Ichi Akasofu] Actually, all the TV programmes that relate to global warming show big chunks of ice floating from the edge of the glaciers – but people forget that ice is *always* moving.

[Narrator] News reports frequently show images of ice breaking from the edge of the Arctic. What they *don't* say is that this is as ordinary an event in the Arctic as falling leaves on an English Autumn day.

[Comment 105: Again, this confuses seasons with long-term trends over a number of years. By implying that it is the former that is of concern, rather than the latter, the film maker misleads the audience.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Prof Syun-Ichi Akasofu] They ask me: "did you see ice falling from the edge of glaciers?" Yes, that's the spring break-up, that happen every year. Press come to us all the time: "I want to see something that the greenhouse disaster." I say: "There is none". [chuckles.]

[Comment 106: Climatologists are not saying that there is currently a disaster; they are saying that Arctic ice, especially in Greenland, is melting at unprecedented rates. Again the *Channel 4* programme is trying to confuse in the viewer's mind the expansion and contraction of ice that occurs every winter and summer with the long term year on year trends. This is a very disingenuous and manipulative ploy on the part of the film maker.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

2.11 Conspiracy Theory About Media Coverage

[Cut to footage from "Climate Change, Britain under Threat" BBC1]

[Narrator] Alarming television programmes raise the fearful prospect of vast tidal waves flooding Britain. But what causes the sea-level to change? And how fast does it happen?

[Comment 107: Again no references are offered in support of the assertion. The most prominent climate change programmes of 2006, David Attenborough's *Are We Changing Planet Earth* (BBC One TX: May 24, 2006) and *Can We Save Planet Earth*, (BBC One TX: June 01, 2006), from which one of the 'flood' graphics used in the *Channel 4* programme were drawn, saw their scripts go through a thorough

academic peer review process involving five *Open University* academics with a range of disciplinary backgrounds relevant to the topic. The references to sea level rise and increases in storm intensity and frequency in these *BBC One* programmes and in *Climate Change: Britain Under Threat* (*BBC One* January 21, 2007) (which also underwent the same peer review process) were carefully worded to reflect the latest scientific peer reviewed research.

Again the vagueness of reference to 'programmes' allows the programme makers to recruit sympathy for their case while failing to pinpoint the target of their criticism. This failing is of particular significance in a polemic that centres its claims so squarely on the quality of evidence.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Dr Philip Stott] Sea-level changes over the world in general are governed fundamentally by two factors: what we will call local factors, the relationship of the sea to the land – which often, by the way, is to do with the land rising or falling than anything to do with the sea. But if you're talking about what we call "eustatic" changes of sea-level, world-wide changes, that's through the thermal expansion of the oceans, nothing to do with melting ice; and that's an enormously slow and long process.

[Comment 108: Melting glaciers, ice caps and ice sheets do contribute significantly to rises in sea level, so this statement is factually incorrect and misleading. In fact, the latest evidence (<http://tinyurl.com/2o3bde>, PDF [IPCC 2007]) indicates that melting ice contributed around 40% of the global sea level rise between 1993 and 2003.]

(In breach of *Ofcom* 5.7)

[Prof Carl Wunsch] People say: "oh, I see the ocean doing this last year, that means that something changed in the atmosphere *last year*"; and this is not necessarily true at all: in fact it's actually quite unlikely, because it can take hundreds to thousands of years for the deep ocean to respond, to forces and changes that are taking place at the surface.

2.12 Conspiracy Theory About the IPCC

[Narrator] It is also suggested that even a mild rise in temperature would lead to the spread northward of deadly insect-borne tropical diseases like malaria. But is this true? Professor Paul Reiter of the *Pasteur Institute* in Paris is recognised as one of the world's leading experts on malaria and other insect-borne diseases. He is a member of the *World Health Organisation* Expert Advisory Committee, was Chairman of *The American Committee of Medical Entomology*, of the *American Society for Tropical Medicine* and Lead Author on the Health Section of the *US National Assessment of the Potential Consequences of Climate Variability*. As Professor Reiter is eager to point out, mosquitoes thrive in very cold temperatures.

[Comment 109: The first and last sentences by the narrator, above, are highly misleading, in several respects.

1. The narrator implies here that as a general rule, mosquitoes are as active and long-lived in cold temperatures as in warm ones, which is entirely untrue. Reiter's own papers make the point that general statements of the kind made by the narrator are inaccurate. See for example the following paper which Reiter co-authored: Patz J *et al*, *The potential health impacts of climate variability and change for the United States*, *Environmental Health Perspectives*, April 2000, <http://tinyurl.com/34gd5j> (PDF), which states (on page 7 of the PDF file):

High temperatures can increase the rate at which mosquitoes develop into adults, the rate of development of pathogens in the mosquitoes and feeding and egg-laying frequency. The key factor in transmission is the survival rate of the vector. Higher temperatures may increase or reduce survival rate, depending on the vector, its behavior, ecology and many other factors.

Indeed the narrator is misrepresenting Reiter here: Reiter does not claim that mosquitoes "thrive" in the cold: he simply makes the points that some mosquitoes are able to survive low temperatures and that malaria is not necessarily restricted to the tropics (although malaria transmission has now been eradicated from Europe and North America) – see his actual statements below, and Reiter's email to Professor Curtis at <http://tinyurl.com/2rklxc>.

2. Although the narrator does not specify whom he thinks is suggesting that "even a mild rise in temperature would lead to the spread northward of ... malaria", in the context of the statements about the IPCC, both by the narrator and by Reiter, that precede and follow this claim (**Comment 22**, **Comment 112**, **Comment 113**, **Comment 115**), the viewer is left with the clear and completely false impression that the IPCC has suggested this. It has not.

For example, the IPCC 3rd Assessment Report Working Group II, 2001, states (<http://tinyurl.com/2xmw4>):

Malaria was successfully eradicated from Australia, Europe, and the United States in the 1950s and 1960s, but the vectors [i.e. the mosquitoes] were not eliminated (*Bruce-Chwatt and de Zulueta*, 1980;

Zucker, 1996). In regions where the vectors persist in sufficient abundance, there is a risk of locally transmitted malaria. This small risk of very localized outbreaks may increase under climate change. Conditions currently exist for malaria transmission in those countries during the summer months, but few nonimported cases have been reported (*Holvoet et al., 1983; Zucker, 1996; Baldari et al., 1998; Walker, 1998*). Malaria could become established again under the prolonged pressures of climatic and other environmental-demographic changes *if a strong public health infrastructure is not maintained*. A particular concern is the reintroduction of malaria in countries of the former Soviet Union with economies in transition, where public health infrastructure has diminished (e.g., Azerbaijan, Russia). [Emphasis added.]

This is a very cautious statement. It makes it quite clear that malaria is not a tropical disease (stating that it was eradicated from temperate regions only quite recently); it states specifically in its third sentence that *Anopheles* mosquitoes (i.e. those that could carry malaria) do currently live in many temperate countries; and it makes it clear that the reintroduction of malaria into temperate regions due to climate change is highly unlikely, except possibly in countries whose health services break down.

3. The narrative, both in the above statement and in the statements which follow, attempts to confuse the viewer into believing that where mosquitoes are able to survive, malaria is also likely to be present, as it makes no distinction between the two – but this is quite false, as the film maker must have known. See for example the statement by the malaria specialist Professor Chris Curtis at <http://tinyurl.com/2rklxc> (PDF), in which he states:

Even though malaria can occur in cool climates, there would tend to be even more malaria where it is hotter. That is because *Plasmodium* would be more likely to complete its complex development in the mosquito before the mosquito died ... However, in fact I do not think it likely that global warming will bring much malaria transmission back to northern Europe because malaria is transmitted from humans to mosquitoes to humans and northern mosquitoes could only become infected from "imported" human cases. However such cases are nearly always promptly treated by the good health services in the north.

4. The narrative, both in the above statement and in the statements which follow, focuses only on one disease, malaria, and attempts to mislead the viewer into thinking that because malaria is unlikely to spread northwards as a result of climate change, therefore there are no other diseases that are likely to do so. This is false, and is another clear misrepresentation of the facts. For example, Professor Curtis writes (<http://tinyurl.com/2rklxc>):

In the case of pathogens transmitted from reservoirs in wild mammals (e.g. tick borne encephalitis) or birds (West Nile virus) via arthropods to humans the reservoirs are not treated and establishment or increase of the human disease would presumably depend on, among other things, the effect of climate on the biology

of the pathogen and the arthropod vector. I have heard that the less severe winters in Sweden are now causing an increase in tick borne encephalitis.

5. The narrative, both in the above statement and in the statements which follow, focuses only on whether or not diseases are likely to move northwards as a result of climate change; and ignores the fact that many diseases are likely to become much more widespread as a result of climate change without necessarily moving northwards – for example, cholera (see IPCC: <http://tinyurl.com/36nrbm>). Thus the misleading and quite inaccurate impression was given to the viewer that climate change is unlikely to have much impact on human health, whereas in fact it is likely to have a very considerable impact on health. It is difficult to believe that the film maker was simply ignorant about this subject; and it would thus appear that he set out to mislead the audience in this respect as well.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.7, 7.2, 7.3, 7.6, 7.9)

[Comment 110: Reiter’s primary area of expertise is the mosquitoes that carry diseases *other than* malaria, such as those that carry the West Nile Fever virus: not malaria, nor malaria-carrying mosquitoes. For the narrator to say that he is “one of the world’s leading experts” on these topics is misleading. See also Appendix C.18, page 142.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.7, 5.8)

[Prof Paul Reiter]

Mosquitoes are not specifically tropical. Most people will realise that in temperate regions there are mosquitoes – in fact, mosquitoes are extremely abundant in the Arctic. The most devastating epidemic of Malaria was in the Soviet Union in the 1920s: there were something like 13 million cases a year, and something like 600,000 deaths – a tremendous catastrophe that reached up to the Arctic Circle. Archangel had 30,000 cases and about 10,000 deaths. So it’s not a tropical disease; yet these people, in the global warming fraternity invent the idea that malaria will move northwards.

[**Comment 111:** It is not true that the most devastating epidemic of malaria was in the Soviet Union in the 1920s. Most serious malaria (well in excess of a million deaths every year, currently), occurs in tropical and sub-tropical regions, such as in sub-Saharan Africa and South Asia. Reiter has acknowledged his error in his email to Professor Curtis at <http://tinyurl.com/2rklxc>.

In addition, the narrative continues to imply, wrongly, in this statement by Reiter, that wherever there are mosquitoes, there will also be malaria (untrue); that the IPCC is suggesting that mosquitoes are specifically tropical (it is not); and that the IPCC is suggesting that malaria is likely to move northwards (it is not); all in an apparent attempt to discredit the IPCC in the eyes of the viewer, based on clear misrepresentations of the facts. For more detail on this, see **Comment 109**, page 89.]

(In breach of *Ofcom* 5.7)

[**Narrator** Climate scare stories cannot be blamed solely on sloppy or biased journalism. According to Professor Reiter hysterical alarms have been encouraged by the reports of the United Nations Intergovernmental Panel on Climate Change, or IPCC. On the spread of malaria, the IPCC warns us that:

[**Voiceover with on-screen quotation from IPCC Assessment** Mosquito species that transmit malaria do not usually survive where the mean winter temperature drops below 16-18°C.

[**Narrator** According to Professor Reiter, this is clearly untrue.

[**Comment 112:** The IPCC is selectively quoted here. The full sentence where the quotation appears (Climate Change 1995: Impacts, Adaptation and Mitigation of Climate Change, p571) reads:

Although anopheline mosquito species that transmit malaria do not usually survive where the mean temperature drops below 16-18°C, **some higher-latitude species are able to hibernate in sheltered sites.**
[Emphasis added.]

Hence, the IPCC statement, taken in context, is consistent with the statements of Reiter. By pretending that it is not, and by quoting only the middle half of the sentence in order to make it appear to state the opposite of what it really is stating, the film maker apparently set out quite intentionally to mislead the audience.

Furthermore, the risk of malaria depends not only on the vector (the anopheline mosquito) but also the malaria parasite. The programme refers only to the effects of climate on the vector. The 1996 IPCC report went on to say:

Sporogonic development (i.e., the extrinsic incubation phase of the plasmodium within the mosquito) ceases below around 18°C for *Plasmodium falciparum*, and below 14°C for *P. vivax*. Above those

temperatures, a small increase in average temperature accelerates the parasite's extrinsic incubation (*Miller and Warrell, 1990*).

In addition, the 3rd and 4th IPCC Assessments were both very clear that the jury is still out as to whether increases in malaria in the East African highlands can be attributed to rising temperatures. For example, see Box 9.2 of the *3rd Assessment* at <http://tinyurl.com/38mckr>, which states:

There are insufficient historical data on malaria distribution and activity to determine the role of warming, if any, in the recent resurgence of malaria in the highlands of Kenya, Uganda, Tanzania, and Ethiopia (*Cox et al., 1999*).

Nevertheless, peer reviewed studies by specialists in this field have indeed suggested that in the future, climate change will be one of many factors influencing the incidence of malaria, including in the East African Highlands (*Githeko and W Ndegwa, 2001, http://tinyurl.com/3cl7hw*; *Tanser et al, 2003, http://tinyurl.com/yvqnxb*; and *Martens et al, 1999, http://tinyurl.com/342b44*).

It should also have been pointed out by the narrator that Reiter is not an expert on the effects of large-scale environmental change on human health; and nor is he considered to be a malaria mosquito expert – he is more of an expert on other types of mosquito (see Appendix **C.18**, page **142** and **Comment 109**, page **89**).

Thus the above narration is deeply misleading, both concerning the IPCC, and regarding the current state of scientific knowledge.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Prof Paul Reiter]

I was horrified to read the Second and the Third Assessment Reports because there was so much misinformation, without any kind of recourse, or virtually without mention of the scientific literature – the truly scientific literature – literature by specialists in those fields.

[Comment 113: This allegation that IPCC Working Group II reports do not consider any of the peer reviewed literature by any genuine specialists in any of the fields that it covers is clearly false: in the chapter on Human Health in the *Third Assessment Report*, the reference list runs to nearly 7 pages of citations of peer reviewed scientific papers by specialists, and three of the references are to Paul Reiter's own work (see IPCC TAR WG 2 p.483, <http://tinyurl.com/35gb3m>).

The chapter discusses the possibility that recent increases in highland malaria might have been caused by global warming and concludes on p.465 that "there are insufficient historical data on malaria distribution and activity to determine the role of warming, if any, in the recent resurgence of malaria in the highlands of Kenya, Uganda, Tanzania and Ethiopia" (see <http://tinyurl.com/2xmw4>). Thus the conclusions in the IPCC report are cautious and the criticisms Reiter makes here are factually incorrect.

Reiter must be well aware of the above, as it is all in the public domain, so the above statement by him was an apparent attempt to mislead the public.

In addition, see the statement by former IPCC co-Chair Professor James McCarthy at <http://tinyurl.com/yqyego> (PDF), describing how the IPCC processes actually work. It is difficult to see how the film's position on the IPCC processes can credibly be maintained in the light of this document; and the fact that the IPCC was not given a chance to respond to the very serious allegations made against it by Reiter in the *Channel 4* programme is a clear breach of *Section 7* of the *Ofcom Code*.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.7, 7.9, 7.10, 7.11)

[Narrator] In a letter to the *Wall Street Journal*, Professor Frederick Seitz, former President of America's *National Academy of Sciences*, revealed that IPCC officials had censored the comments of scientists. He said that:

[Cut to zoomed in on-screen display of Wall Street Journal article.]

[Voiceover] This report is not the version that was approved by the contributing scientists.

[Narrator] At least 15 key sections of the science chapter had been deleted. These included statements like:

[Voiceover] None of the studies cited has shown clear evidence that we can attribute climate changes to increases in greenhouse gases.

[Voiceover] No study to date has positively attributed all or part of the observed climate changes to man-made causes.

[Narrator] Professor Seitz concluded:

[Voiceover] I have never witnessed a more disturbing corruption of the peer review process than the events that led to this IPCC report.

[Cut to on-screen display of IPCC reply to these allegations.]

[Narrator] In its reply, the IPCC did not deny making these deletions, but it said there was no dishonesty or bias in the report; and that uncertainties about the cause of global warming had been included. The changes had been made, it said, in response to comments from governments, individual scientists, and non-governmental organisations.

[Comment 114: The documentary should have made clear that this refers to events that took place in 1996, surrounding the release of the *Second Assessment Report*, which has been superseded by two more recent assessments. It should also have disclosed that Frederick Seitz is a condensed matter physicist, and has never been a climate scientist or ever been involved with the IPCC. Moreover, it should have disclosed that at the time of writing the letter to the *Wall Street Journal*, Seitz was the Chair of the fossil-fuel industry-funded *George C. Marshall Institute* (see page 149), as well as being Chairman of the *Science and Environmental Policy Project* (see page 155, and see also **S. Fred Singer**, Appendix C.10, page 135).

Seitz has also worked as a consultant to the tobacco industry (<http://tinyurl.com/j5dpp> [Guardian]), and was described in an internal memo by *Phillip Morris Co.* in 1989 (7 years before the WSJ letter) as “quite elderly and not sufficiently rational to offer advice.” (<http://tinyurl.com/ytymym> [Tobaccodocuments]). He was later instrumental in organising a “petition project” of the *Oregon Institute of Science and Medicine* or OISM: a petition that has been heavily criticised for its misleading nature (see the entry about the OISM on page 154 for details).

Moreover, the revisions to a draft chapter of the IPCC report were made by the *authors* (i.e. the scientists) *themselves*, in response to review comments, as they are obliged to do under the normal peer review process. None of the authors complained about the changes, and forty signed a letter to the *Wall Street Journal* (see <http://tinyurl.com/yr3ozf>) stressing that the scientific content of the report was unchanged, and that uncertainties were still discussed in the final version.

They also noted that Seitz:

... was not involved in the process of putting together the 1995 IPCC report on the science of climate change. He did not attend the Madrid IPCC meeting on which he reports. He was not privy to the hundreds of review comments received by Chapter 8 Lead Authors. Most seriously, before writing his editorial, he did not contact any of the Lead Authors of Chapter 8 in order to obtain information as to how or why changes were made to Chapter 8 after Madrid.

An open letter of support for the IPCC was also written by the *American Meteorological Society* and the *University Corporation for Atmospheric Research* (see <http://tinyurl.com/yr3ozf>). See also **Appendix G:** page 165 for further context provided by Bert Bolin, the IPCC Chairman at the time of this controversy.

By quoting selectively an article by someone who has never had any involvement with the IPCC, who is not a climate scientist, and whose article in the *Wall Street*

Journal has been shown to be so highly misleading, the film maker was apparently setting out to mislead the audience and to misrepresent the facts.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Prof Paul Reiter]

When I resigned from the IPCC, I thought that was the end of it; but when I saw the final draft my name was still there, so I asked for it to be removed. Well, they told me that I had contributed, so it would remain there; so I said: “no, I haven’t contributed, because they haven’t listened to anything I said. So in the end it was quite a battle but finally I threatened legal action against them and they removed my name; and I think this happens a great deal. Those people who *are* specialists but don’t agree with the polemic and resign – and there have been a number that I know of – they are simply put on the author list and become part of this “2,500 of the world’s top scientists”.

[Comment 115: It is not true that Dr Reiter resigned from the IPCC.

Professor Martin Parry, co-chair of *Working Group II* for the IPCC’s *Fourth Assessment Report* (2007), has reported (see: <http://tinyurl.com/2hr3na>, PDF) that Reiter was not selected as an author, so could not resign from its writing group. He was invited to act as a reviewer, and he did so, contributing many comments on the first and second order drafts of the Health Chapter. Parry also states that he has “not received any request from him to have his named removed from the list of reviewers of the Fourth Assessment.”

Professor James McCarthy, co-chair of *Working Group II* for the IPCC’s *Third Assessment Report* (2001) has reported (see: <http://tinyurl.com/2ax9p4>, PDF) that:

Nothing like what Reiter describes with regard to having ‘resigned’, asking that his name be removed from the chapter author list, or threatening legal action ever happened [during the Second or Third Assessment] at WG II. Moreover, Reiter’s remark ‘this happened a great deal ... specialists ... don’t agree and resign ... there have been a number that I know of ...’ is completely without basis in fact. Neither [the heads of the SAR and TAR Technical Support Units] nor I can recall a single instance ... of even one author having ‘resigned’.

McCarthy adds in his email (<http://tinyurl.com/2ax9p4>) that “Reiter seems to have exaggerated his claim of having been the equivalent of an author.” At one point in the review process, Reiter’s name appears as a contributing author, but he was never on the Working Group II author list, and a search of the archives reveals no indication that he ever contributed any text to the report.

The above statement by Reiter therefore appears to have been an attempt to mislead the audience by misrepresenting the facts, presumably in order to discredit the IPCC in the eyes of the viewers. It also appears to have greatly exaggerated Reiter’s links with the IPCC.

Moreover, the fact that the IPCC was not given a chance to respond to the very serious allegations made against it by Reiter in the *Channel 4* programme is a clear breach of *Section 7* of the *Ofcom Code*.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.7, 7.9, 7.10, 7.11)

2.13 Conspiracy Theory About Research Funding

[Narrator] Research relating to man-made global warming is now one of the best funded areas of science. The US government alone spends more than 4 billion dollars a year. According to NASA climatologist Roy Spencer, scientists who speak out against man-made global warming have a lot to lose.

[Comment 116: In fact, the US spends around \$1.1 billion on climate science research (*not* \$4 billion); with an additional \$570 million on satellite monitoring of the climate (see the “Supplement to the President’s Fiscal Year 2007 Budget”, *U.S. Climate Change Science Program*, at <http://tinyurl.com/2ok5nq>).

The “over 4 billion dollars” quoted by the programme includes energy technology research, tax incentives, etc. (see the *US Department of State* website at <http://tinyurl.com/24tmvc>), which do not benefit climatologists.

Moreover, much of the climate research funding does not relate directly or exclusively to man-made global warming (see: <http://tinyurl.com/35cnj6> [*U.S. Climate Change Science Program*]), but is also are devoted to understanding natural factors and fundamental climatic processes such as “feedbacks”.

Finally, to place this funding into context, the US Government spends \$28 billion on medical research (<http://tinyurl.com/yr9q7u> [NIH]), and \$73 billion on military research (<http://tinyurl.com/2bftxb> [Department of Defense]).

Thus by quoting incorrect figures and by failing to put them into context, the film maker misled the audience.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Dr Roy Spencer] It’s generally harder to get research proposals funded, because of the stands that we’ve taken publicly; and you’ll find very few of us that are willing to take a public stand, because it does cut into the research funding.

[Comment 117: The programme makes a serious allegation, involving the misappropriation of public funds, in saying that scientists critical of man-made global warming are unfairly denied funding. It is therefore disappointing that the only supporting evidence offered by the programme is the unsubstantiated opinion of a single, highly partisan, interviewee (see Appendix **C.19**, page **143**), and no solid, documentary evidence is offered. Moreover, given that the allegation raises questions about their impartiality, integrity, and competence, it is clearly a breach of the *Ofcom* rules, that the views of scientific funding bodies such

as the *National Science Foundation* (US) or the *Natural Environment Research Council* (UK) were not represented at all in the documentary.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.5, 7.9, 7.10, 7.11)

[Narrator] It is a common prejudice that scientists who do not agree with the theory of man-made global warming must be being paid by private industry to tell lies.

[Dr Philip Stott] I get it all the time: “you *must* be in the pay of the multi-nationals”. Sadly, like most of the scientists you will talk to, I haven’t seen a *penny* from the multi-nationals.

[Dr Tim Ball] I am always accused of being paid by the oil and gas companies. I’ve never received a *nickel* from the oil and gas companies. I joke about I wish they would pay me, then I could afford their product.

[Nigel Calder] Whenever anybody says that I’m in the pay of an oil company, I say: “my bank manager would wish”.

[Comment 118: By presenting three interviewees who claim that they have not been paid by the fossil fuel industry – suggesting that the “facts” presented in the *Channel 4* programme are free from bias and that the interviewees have no material conflicts of interest – the *Channel 4* programme was clearly trying to implant in the viewer’s mind the idea that none of the other interviewees had any such conflicts of interest either.

In fact, the following interviewees have either been paid (directly or indirectly) by the fossil fuel industry, or work for lobby groups that are funded by the fossil fuel industry:

1. Paul Driessen
2. Patrick Moore
3. Tim Ball
4. Frederick Singer
5. Patrick Michaels
6. Ian Clark
7. Richard Lindzen
8. Paul Reiter
9. John Christy
10. Roy Spencer

Note that this list includes Tim Ball, one of the interviewees who specifically denied having any such links.

This lack of disclosure of conflicts of interest is especially important because of the overwhelming evidence that has come to light that some sections of the fossil fuel industry, together with the lobby groups that they fund, have been running a very well-funded misinformation campaign to reduce public support for cutting greenhouse gas emissions. This evidence is detailed in Appendix C.1.3, page 127, and Appendix D: page 145.]

(In breach of the 2003 *Communications Act Section 265, Oofcom 5.4, 5.5, 5.7, 5.11, 5.12*)

[Narrator] There is almost no private sector investment in climatology and yet, to be involved in any research project which involves an industry grant, no matter how small, can spell ruin to a scientist’s reputation.

[Prof Patrick Michaels] Modern technology, fuelled by greenhouse gases.

[Narrator] Patrick Michaels is Professor of Environmental Sciences at the University of Virginia. He was Chair of the *Committee on Applied Climatology* at the *American Meteorological Society*, President of the *American Association of State Climatologists*, the author of three books on Meteorology; and an author and reviewer on the UN’s Intergovernmental Panel on Climate Change. But when he conducted research which was part funded by the coal industry he found himself among those under attack from climate campaigners.

[Comment 119: This statement by the narrator is deeply misleading on several levels.

The narrator’s statement that “when he conducted research which was part funded by the coal industry he found himself among those under attack from climate campaigners” implies that one would have to be prejudiced in order to be concerned about the links that some of the scientists in the programme have to the fossil fuel industry. In fact there are two very serious public interest reasons why it is quite legitimate to be concerned about such links, why many leading scientists (and not just “campaigners”, as claimed by the narrator) have expressed such concerns; and why these conflicts of interest should therefore have been revealed:

1. With regard to some scientific research into global warming having been funded by the fossil fuel industry, there is considerable peer-reviewed evidence that studies that are funded by corporations that have a financial interest in the outcome of that study are much more likely to reach the desired conclusions than are studies which don’t receive such funding.
2. There is very strong and growing evidence that a well-funded disinformation campaign is currently being run by a large number of lobby groups that are funded by the fossil fuel industry, in order to undermine public support for government action to reduce emissions.

The evidence for the above is detailed in Appendix C.1.3, page 127, and Appendix D: page 145.

Furthermore, Patrick Michaels' links to the fossil fuel industry are far more extensive than the above statement by the narrator implies: not only in terms of research funding, but also in terms of the funding that the fossil fuel industry provides both to Michaels himself, and to the twelve lobby groups that Michaels is involved with. For details see Appendix C.11, page 136 and Comment 118, page 98.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Cut to film of an unnamed activist giving a speech] British-based corporations are some of the worst climate criminals on the planet. Shell is based in the UK, right here in London. We have the right and the duty to take it back into public ownership, dismantle it, break it up and send its managers to rehabilitation training.

[Comment 120: By showing at this point a speech by a fringe anti-capitalist, the programme is trying to confuse in viewers' minds the tiny number of people in the environmental movement who hold extreme views, with the vast majority of people who are simply concerned about the environment.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Narrator] But reasoned debate is not the only casualty in the global warming alarm. As international public policy bears down on industrial emissions of carbon dioxide, the developing world is coming under intense pressure not to develop.

[Cut to film of an unnamed activist giving a speech] I'm no expert on climate change; I'm no scientist; and what I'm gonna say next is a great big turn off. It's just that: *turn it off. Anything* you don't need, you're not using. It's easier than you think to make a difference.

[Narrator] Delegates from around the world are flying in to Nairobi for a conference, sponsored by the UN, to talk about global warming. Civil servants, professional NGO campaigners, carbon offset fund managers, environmental journalists and others will discuss every aspect of man-made climate change: from how to promote solar panels in Africa to the relationship between global warming and sexism. The conference lasts 10 days. The number of delegates exceeds 6,000.

[Prof John Christy] The billions of dollars invested in climate science means there is a huge constituency of people dependent on those dollars; and they will want to see that carry forward - it happens in any bureaucracy.

- [Nigel Calder] Where I live we have a local council global warming officer. There's a huge tail out there of people who have, in one way or another, been recruited to join this particular bandwagon.
- [Nigel Lawson] Anybody who then stands up and says: "hey, wait a minute, let's look at this coolly and rationally and carefully; and see how much merit, how much this stands up - they will be ostracised.
- [Narrator] Scientists accustomed to the relative civility and obscurity of academic life suddenly find themselves publicly attacked if they dare to challenge the theory of man-made global warming. Vilified by campaign groups, and even within their own universities.
- [Dr Tim Ball] There's the old English saying: "if you stand up in the coconut shy, they're gonna throw at you;" so I understand that there's going to be some of that, but it gets pretty difficult and pretty nasty and very personal; and there've been, you know, death threats and all sorts of things - so I'm not doing it for my health.
- [Patrick Moore] These days, if you are sceptical about the litany around climate change, you're suddenly like as if you're a holocaust denier. The environmental movement, really it is a political activist movement; and they have become hugely influential at a global level. And every politician is aware of that today, whether you're on the left, in the middle or the right, you have to pay homage to the environment.

2.14 Conspiracy Theory About Kyoto and the Third World

- [Narrator] In the past month, the global warming campaign has won a great victory. The United States government, once a bastion of resistance, has succumbed. George Bush is now an ally.

[Comment 121^[N13]: The narrator is referring to the President's 2007 *State of the Union* speech (see: <http://tinyurl.com/yvv2kr>), in which he stated:

It's in our vital interest to diversify America's energy supply ... To reach this goal, we must increase the supply of alternative fuels ... Achieving these ambitious goals will dramatically reduce our dependence on foreign oil.

The primary context of this statement in his speech was thus *reducing US dependence on foreign oil*, and *not* climate change, although he does go on to say:

America is on the verge of technological breakthroughs that will enable us to live our lives less dependent on oil. And these technologies will help us be better stewards of the environment, and they will help us to confront the serious challenge of global climate change.

The policies he announced related only to fuels and new technologies, and did not include any targets for cuts in greenhouse gas emissions, or even any apparent willingness to consider implementing such targets.

The levels of future temperature change that would be “dangerous” are highly uncertain – not least because defining “dangerous” is difficult. However, a wide range of scientific literature, and the European Union, have suggested that global mean temperatures should not exceed 2°C above pre-industrial levels (see for example *Oppenheimer and Petsonk*, 2004, at <http://tinyurl.com/3x32qq>, and the *Council of the European Union* report at <http://tinyurl.com/325t2j>).

To achieve temperature stabilisation at less than 2°C above pre-industrial levels, it is thought that atmospheric greenhouse gas levels will need to peak at around 475 ppm CO₂-equivalent and then fall to, and stabilise at, around 400ppm. For a description of the science behind these figures, see *Realclimate*: <http://tinyurl.com/274oxn>; or for a much more detailed discussion, *den Elzen and Meinshausen* (2006), *Avoiding Dangerous Climate Change*, Cambridge University Press (<http://tinyurl.com/33yju4>, 16MB PDF). See also Table SPM.5 in the *IPCC 2007 Working Group III* report at <http://tinyurl.com/ysxugh>.

What these figures mean is that global greenhouse gas emissions will have to **decrease** by a large percentage in order to avoid “dangerous” temperature stabilisation levels. There is a great deal of uncertainty about how large the global emissions reduction will have to be, but estimates range between a 50-80% cut in emissions relative to 2000 levels by 2050 (*den Elzen and Meinshausen* (as above); *Rive et al*, 2007, *Climatic Change* journal, <http://tinyurl.com/3awvrl>).

The longer governments wait before taking serious action to cut emissions, the greater the eventual cut will have to be. The *IPCC 2007 Working Group III* report states on page 22: “The lower the stabilization level, the more quickly this peak and decline would need to occur. Mitigation efforts over the next two to three decades will have a large impact on opportunities to achieve lower stabilization levels.” And *Kallbekken and Rive*, 2007, <http://tinyurl.com/2rjbcl>, states: “a 20-year delay means that we must reduce emissions at an annual rate that is 5 to 11 times greater than with early climate action.”

Despite this, the US administration still does not accept mandatory emissions reduction targets: see <http://tinyurl.com/259tzt> [*US Department of State*], <http://tinyurl.com/2z9218> [*US Environmental Protection Agency*]; and the analysis at <http://tinyurl.com/35q69b>, which points out that current US greenhouse gas *intensity* targets (for reducing, not total emissions, but only the rate of growth of emissions), even if met, would imply US greenhouse gas emissions in 2012 that are 32% higher than the 1990 level – little deviation from the “business as usual” pathway.

Furthermore, not only does the US government still maintain its rejection of the Kyoto Protocol, but it very recently ruled out talks that had been planned for December 2007 to change the Kyoto pact’s parent treaty, the *Convention on Climate Change* – a necessary step to extending Kyoto beyond 2012 (see: *Reuters*, 18 May 2007, <http://tinyurl.com/239ep7>).

In addition, a memo dated May 14, 2007 was recently leaked, in which the US Administration strongly criticised the German Government for pressing for emissions targets at the G8 summit; and rejected the German proposals outright (see: <http://tinyurl.com/23acsb> and the memo itself at: <http://tinyurl.com/yuo6mf>, PDF).

In another leaked memo dated March 02, 2007, the US Administration sought to ban US Government scientists from discussing climate change (or polar bears!) when travelling abroad, unless they first signed "a statement of assurance that these individuals understand the Administration's position on these issues" (see <http://tinyurl.com/2xdws8> and the memo itself at <http://tinyurl.com/2bdf27>, PDF).

This attitude of the US Government towards emissions cuts is in stark contrast to the attitude of the Mayors of most US cities (see the press release at <http://tinyurl.com/2xblop>); and to the attitude of many major US corporations (see the *International Herald Tribune* <http://tinyurl.com/ywejga>).

In addition, in his *State of the Union* speech, the President announced a mandatory renewable/alternative fuels target of 35 billion gallons by 2017. Notably absent were any measures to improve vehicle efficiency (see <http://tinyurl.com/2hcqv4>); or any tax or investment measure to encourage reduced car use and better public transport. Most of the 35 billion gallons alternative fuels target is likely to take the form of biofuels, and the jury is still out as to whether these can be produced in a sustainable manner. In the short term, there is much evidence that their use may actually be harmful and counter-productive: see for instance <http://tinyurl.com/2kpijx>, <http://tinyurl.com/yqu4ns> and <http://tinyurl.com/2tjfgb>.

Thus while President Bush has identified climate change as a problem, and put policies in place that reduce American dependence on oil, he has not "succumbed" and it was deeply misleading for the narrator to claim that he is now an "ally" of the climate researchers whose peer reviewed studies have shown that the US and the other industrialised countries must quickly begin to reduce their total emissions if they are to avoid dangerous levels of warming.

This statement by the narrator was therefore a serious misrepresentation of the facts, and was an apparent attempt to mislead the public about the US Government's true position on climate change.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Narrator] Western governments have now embraced the need for international agreements to restrain industrial production in the developing and developed world. But at what cost? Paul Driessen is a former environmental campaigner.

[Comment 122: There are no international agreements, either in place, or being considered, to restrain industrial production, either in the developing or the developed world.

As explained in **Comment 40**, page 33, a reduction in emissions does not require a reduction in industrial production.

This was therefore a deeply misleading statement and an apparent attempt to mislead the viewer, presumably in order to reduce public support for taking action on climate change.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Paul Driessen, author: Green Power, Black Death] My big concern with global warming is that the policies being pushed to supposedly prevent global warming are having a disastrous effect on the world's poorest people.

[Comment 123: Here and in the subsequent commentary a string of interviewee and narrator statements, which taken together amount to a continuous narration, and which therefore are effectively an expression of the views of the narrator, make the verifiably false claim that policies such as the Kyoto Protocol are preventing the developing world from growing economically. This is a serious misrepresentation of the facts, in several different respects:

1. In fact, the only part of the Kyoto Protocol's climate change policy that directly affects developing countries in any way at all is the section that provides for partial sponsorship of clean energy projects in developing nations, financed by developing countries through the Clean Development Mechanism (CDM). See for example *Wikipedia*: <http://tinyurl.com/29q6op>, which states that:

Governments are separated into two general categories: developed countries, referred to as Annex I countries (who have accepted GHG [greenhouse gas] emission reduction obligations and must submit an annual greenhouse gas inventory); and developing countries, referred to as Non-Annex I countries (who have **no** GHG emission reduction obligations but may participate in the Clean Development Mechanism) ... **What this means in practice is that Non-Annex I economies have no GHG emission restrictions**, but when a GHG emission reduction project (a "GHG Project") is implemented in these countries, that GHG Project will receive Carbon Credit which can be sold to Annex I buyers. [Emphasis added.]

Thus for the *Channel 4* programme to pretend that Kyoto is "having a disastrous effect on the world's poorest people" when in reality Kyoto's emissions targets do not apply to developing countries at all, is a gross misrepresentation of the facts, presumably intended to manipulate the public into withdrawing their support for the Kyoto Protocol.

2. Paul Wolfowitz recently suggested in a speech that CDM could free up around \$100 billion per annum within a few decades for clean energy projects in developing nations – see his March 13, 2007 speech at <http://tinyurl.com/2spv3v>.

3. It is especially disingenuous and misleading for the *Channel 4* programme to pretend that Kyoto was designed to harm the world's poorest nations, given that the primary reason the US Government gave for *not* ratifying the Kyoto Protocol was precisely the fact that the protocol contained **no** target for developing countries to reduce their emissions. See for example *Wikipedia*: <http://tinyurl.com/2oefen>, which states:

On July 25, 1997, before the Kyoto Protocol was finalized ... the U.S. Senate unanimously passed by a 95-0 vote the Byrd-Hagel Resolution, which stated the sense of the Senate was that the United States should not be a signatory to any protocol that did not include binding targets and timetables for developing as well as industrialized nations. [The full text of the Byrd-Hagel Resolution is at <http://tinyurl.com/2sa4yf>].

The current President, George W. Bush, has indicated that he does not intend to submit the treaty for ratification, not because he does not support the Kyoto principles, but because of the exemption granted to China ... Furthermore, the U.S. is concerned with broader exemptions of the treaty. *For example, the U.S. does not support the split between Annex I [i.e. developed countries] countries and others [i.e. developing countries].* [Emphasis added.]

4. Under the "Washington Declaration", any requirement relating to developing countries that ends up in the successor to the Kyoto Protocol will be based on their achieving energy *efficiency* savings, with help from the West, *not* on preventing them from growing. See for instance the *New Scientist* report at <http://tinyurl.com/2a3b86>, which states:

On 14 and 15 February more than 100 legislators and officials from 13 countries met within the walls of the US Senate to discuss the future of international climate policy. At the close of the meeting they issued a statement setting out the components which they say will be essential for an international agreement on climate change when the Kyoto protocol expires in 2012, [which includes] emissions targets for all countries, according to historical responsibility and development needs. Developed countries must lead, **with targets for developing country recognising their need for economic growth.** [Emphasis added.]

5. The people who will suffer - and are already suffering - by far the most as a result of global warming are those who live in tropical regions - which is also where most of the world's poorest people live. Under even the most conservative projections, severe droughts and severe floods will become far more frequent and far more severe in the tropics over the next few decades. For example, in the IPCC's Climate Change 2001 Working Group II report covering "Impacts, Adaptation and Vulnerability", at <http://tinyurl.com/394n6f>, it states:

The impacts of climate change will not be evenly distributed among the peoples of the world. **There is high confidence that developing countries will be more vulnerable to climate change than**

developed countries, and there is medium confidence that climate change would exacerbate income inequalities between and within countries. There also is medium confidence that a small temperature increase would have net negative impacts on market sectors in many developing countries and net positive impacts on market sectors in many developed countries. However, there is high confidence that with medium to high increases in temperature, net positive impacts would start to decline and eventually would turn negative, and negative impacts would be exacerbated. [Emphasis added.]

Also see the *World Health Organisation's* 2005 report *Priority environment and health risks*, at <http://tinyurl.com/2us2eg>, which states that at that time climate change was already "estimated to cause over 150,000 deaths annually", and that *most of these deaths were in the developing world*.

So it is the world's poorest people who stand to benefit by far the most from any measures the developed world takes to reduce its emissions – the opposite of what the film maker was trying to manipulate the public into believing.

It is hard to believe that this is a case of the narrator and the other contributors expressing ill-informed opinions, as the facts are very easy to obtain; and the film was, after all, billed as a "documentary" containing "experts". This is therefore a clear case of very serious misrepresentation and even deceit. For the film-maker to mislead the public to such a great degree on a matter relating to current public policy is a clear and very serious breach of *Ofcom's Broadcasting Code*.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[**Comment 124:** Paul Driessen's links to fossil-fuel industry-funded lobby groups that campaign against greenhouse gas emissions reductions should have been mentioned and were not. For full details, see Appendix C.4, page 131.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.7, 5.8)

[**Narrator**] Global warming campaigners, say: 'it does no harm to be on the safe side. Even if the theory of man-made climate change is wrong, we should impose draconian measures to cut carbon emissions, just in case'. They call this "the precautionary principle".

[**Paul Driessen**] The precautionary principle is a very interesting beast. It's basically used to promote a particular agenda and ideology; it's always used in one direction only; it talks about the risks of using a particular technology – fossil fuels for example – but never about the risks of *not* using it. It never talks about the benefits of *having* that technology.

[**Comment 125:** The above statements regarding the "precautionary principle" are a serious misrepresentation of the facts. The precautionary principle says that, if there is a possible, but uncertain, major threat to mankind, it is sensible for society

to address this before there is absolute proof that the problem exists. This is especially the case for climate change, because reduction in emissions will only reduce climate change significantly in 30 years plus, usually considered to be 50-100 years. Given that there is credible evidence that climate change is occurring and that it is largely caused by mankind's emissions, the precautionary principle says that we should act now, because of the large risks involved. See the *Stern Review, Executive Summary*, p1, "The benefits of strong, early action on climate change outweigh the costs" (<http://tinyurl.com/vgzxv>).

The program is also incorrect here in that much of the debate on mitigation is about how to *square* fossil fuel use with climate change. Hence the emphasis on carbon capture and storage technologies because of the acknowledged impossibility of asking China, India *et al* to stop using coal. Greenpeace and *Friends of the Earth* are not fundamentally opposed to carbon capture technology for this reason, although both stress the importance of implementing serious measures immediately in order to reduce emissions, rather than waiting for future technologies to come online (see <http://tinyurl.com/ywtxwl> [Greenpeace] and <http://tinyurl.com/37g53x>, PDF [*Friends of the Earth*]).

In addition, to dismiss the concept of the precautionary principle is, in effect, to dismiss the entire concept of taking out insurance. All sensible governments, businesses and individuals take out insurance against small but potentially very serious risks, such as fires. Home and car owners have to take out insurance by law. For the film to imply otherwise is a serious misrepresentation of the facts.

Finally, as discussed in **Comment 40**, page 33, the idea that anyone is suggesting that we should not use technology is a fallacy, and is apparently intentionally misleading.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Cut to scene in small mud hut somewhere in Kenya]

[Narrator] Anne Mougella is about to cook a meal for her children. She is one of the two billion people – a third of the world's population – who have no access to electricity. Instead they must burn wood or dried animal dung in their homes. The indoor smoke this creates is the deadliest form of pollution in the world. According to the *World Health Organisation*, 4 million children under the age of five die each year from respiratory diseases caused by indoor smoke; and many millions of women die early from cancer and lung disease, for the same reason.

[Comment 126: The "four million children" figure appears to have been made up by the film-maker – the *World Health Organisation* fact sheet gives a total figure of 1.6 million people per year: <http://tinyurl.com/258364>.

Inhalation of wood smoke is certainly a major public health problem, but it is entirely false to imply (as the programme does) that action to combat climate

change would somehow make this problem worse or more persistent. On the contrary, provision of more efficient stoves is an important component of many carbon offsetting schemes, with the aim of simultaneously reducing deforestation and promoting human health (see for example <http://tinyurl.com/38r7sp> [*ClimateCare*].)

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[James Shikwati]

If you were to ask a rural person to define development, they'll tell you: "yes, I'll know I've moved to the next level when I have electricity. Actually not having electricity creates a long chain of problems, because the first thing you miss is the light; so you get that they have to go to sleep earlier, because there's no light - there's no reason to stay awake. I mean, you can't talk to each other in darkness.

[**Comment 127:** Rural electrification is not opposed by the environmental movement. On the contrary, it could be a major force for good in many places (see **Comment 30**, page 25; and paragraph number 5 of **Comment 123**, page 104; and **Comment 128**, page 109; concerning the links between development and climate change).

The only problem with electricity from the point of view of climate policy is that, if it is generated by fossil fuels, it contributes to climate change. However, an obvious solution is to use solar and wind resources wherever doing so is cost-effective; and it could be much more extensively used than it is in rural regions in Africa to generate electricity. It is a falsehood to suggest that climate change campaigners would argue that people in rural Africa should not have electricity.

Furthermore, the *IPCC 4th Assessment Report* clearly states that improving rural access to electricity in developing countries (even to fossil fuel-generated electricity) will not have much influence on global greenhouse gas emissions. The reason for this is that the amount of electricity that would be generated in such areas is insignificant in global terms. See the *IPCC 4th Assessment Report Working Group 3 (2007), Summary for Policymakers*, p34 (<http://tinyurl.com/ysxugh>), which states:

Climate change and other sustainable development policies are often but not always synergistic. There is growing evidence that decisions about macroeconomic policy, agricultural policy, multilateral development bank lending, insurance practices, electricity market reform, energy security and forest conservation, for example, which are often treated as being apart from climate policy, can significantly reduce emissions. **On the other hand, decisions about improving rural access to modern energy sources for example may not have much influence on global GHG emissions.** [Emphasis added.]

See also **Comment 123**, page 104 and **Comment 129**, page 109.

Thus the above statement by Shikwati is a clear and very serious misrepresentation of the facts; and an apparent attempt to mislead the viewers

about the economics of climate change, presumably with the aim of reducing public support for emissions reduction policies.]

(In breach of *Ofcom* 5.7)

[Narrator] No refrigeration or modern packaging means that food can't be kept. The fire in the hut is too smoky and consumes too much wood to be used as heating. There is no hot water. We in the West cannot begin to imagine how hard life is without electricity. The life expectancy of people who live like this is terrifyingly short – their existence impoverished in every way.

[Comment 128: Mitigating climate change does not require such people to be kept poor. Also, many such people will have their livelihoods destroyed by climate change impacts: such as desertification (for example, in Sub Saharan Africa); and sea-level rise (for example, Pacific Islands, Bangladesh). For more information on this, see the IPCC's *Climate Change 2001 Working Group II* report at <http://tinyurl.com/394n6f>, and also see paragraph number 5 of Comment 123, page 104.

So cutting emissions and thereby slowing down climate change will bring great benefits to these people, in direct contradiction to the false impression that the narrator was seeking to create.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Cut to UN office in Nairobi]

[Narrator] A few miles away, the UN is hosting its conference on global warming in its plush gated headquarters. The gift shop is selling souvenirs of peasant tribal life, while delegates discuss how to promote what are described as: "sustainable forms of electrical generation". Africa has coal, and Africa has oil, but environmental groups are campaigning against the use of these cheap sources of energy. Instead, they say Africa and the rest of the developing world should use solar and wind power.

[Comment 129: Again in a single short statement the narrator has seriously misled the public about the facts in several distinct ways:

1. Out of 56 African countries, only 11 have oil and only 14 have coal – 36 have neither (see the US Government EIA website's figures at: <http://tinyurl.com/28eewm>). Ironically, Kenya, where this section of the *Channel 4* programme was filmed, has neither oil nor coal.
2. In remote African villages, photovoltaic (solar) generators (see *Wikipedia*: <http://tinyurl.com/2xe8dn>) are frequently *far* more cost-effective to install and maintain, and the resulting electricity bills are far lower for the villagers, than connecting the same villages up to a national grid. See for example the peer reviewed book, *Goldemberg J. and Johansson, T.B. (Editors) (1995), Energy as an*

Instrument for Socio-Economic Development, United Nations Development Programme: New York, NY.

See also the article: *Nigeria Launches Solar Electrification Project*, <http://tinyurl.com/33oclt>, which states:

The event ... marked the kick-off of a rural electrification project by the country's Lagos State government that will provide solar installations to a total of nineteen villages previously without power ... **It costs about 150 million naira (around 1.2 million dollars) to connect each village to the national grid, while the solar energy project costs only about 10 million naira (around 83,000 dollars) per village.** [Emphasis added.]

3. In Nigeria, one of the very few African countries that does have oil, only one tenth of the oil is used by Nigerians (see the *CIA World Fact Book*: <http://tinyurl.com/2wh88p>); and the profits from the exports go mainly to international oil companies and to politicians – only a very small percentage of it benefits the poor – see for example the *World Bank's* 2002 report at <http://tinyurl.com/3d3rne>, which states in paragraph number 29:

Moreover, the main beneficiaries of the oil sector are foreign oil companies and the Nigerian government. As yet, there has been very little direct impact of oil and gas production on the lives of Nigeria's poor.

4. Also, there is an increasing amount of money being put into carbon capture and storage technologies that could potentially reduce CO₂ emissions from coal fired power plants by 90%. This acknowledges the legitimate claims of developing countries to develop and the fact that fossil fuel will be important for this process. It also acknowledges that the implementation of purely renewable electricity systems is challenging.

Thus the film maker was either extraordinarily ill-informed, or else he set out intentionally to mislead the audience.]

(In breach of the 2003 *Communications Act* Section 265, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12)

[Cut to a clinic in the countryside]

[Narrator] A short drive out of Nairobi we find our first solar panel. A Kenyan public health official has brought us to a clinic which serves several villages. The only electrical implements in the clinic are the electric lights and a refrigerator in which to keep vaccines, medicine and blood samples. Electricity is provided by 2 solar panels.

[Interviewer] So what can it do successfully?

[Dr Samuel Mowangi, Kenyan doctor] Lighting.

[Interviewer] Lighting only?

[Dr Samuel Mowangi] Yes.

[Interviewer] What happens when you put lighting plus the refrigerator and others, what happens?

[Dr Samuel Mowangi] It sounds an alarm.

[Interviewer] Sounds an alarm?

[Dr Samuel Mowangi] Yes.

[Interviewer] Can we maybe see that?

[Plugs in fridge, alarm sounds]

[Narrator] The solar panels allow Dr Samuel Mowangi to use either the lights or the refrigerator but not both at the same time – if he does, the electricity shuts down. Wind and solar power are notoriously unreliable as a source of electricity and are at least 3 times more expensive than conventional forms of electrical generation.

[Comment 130: This section of the programme is just a criticism of the size of the solar panel but is misleadingly presented as an argument against solar technology. If a hospital in the tropics has a tiny solar panel that isn't powerful enough to supply it with the electricity it needs, the cheapest solution is frequently to provide it with many more solar panels and possibly a wind generator, as well as an energy efficient refrigerator (see paragraph number 2 of **Comment 129**, page 109). In the tropics, if the hospital is a long way from the electricity grid, then solar power is quite possibly as cheap as or cheaper than a grid connection, and is sometimes much cheaper; because it is not necessary to build the power cables or the power station. Also, there is no need to buy oil or other fuel on the international market. So even if the solar panel is relatively expensive to install, it could be much cheaper to run.

So again the narrator has set out to mislead the audience using fallacious arguments and misrepresentations of the facts.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[James Shikwati]

The question would be: how many people in Europe, how many people in the United States, are already using that kind of energy? And how cheap is it, you see? If it's expensive for the Europeans, if it's expensive for the Americans; and you're talking about poor Africans, you know, it doesn't make sense. The rich countries can afford to engage in some luxurious experimentation with other forms of energy but for us we are still at the stage of survival.

[Comment 131: Shikwati is either very ill-informed or he, too, is setting out to deceive the audience. Solar energy is more effective in the tropics than it is in temperate regions and therefore cheaper for a given output, because the tropics get much more intense sunlight, and for longer periods each day, than temperate regions do. Conversely, in under-developed countries, installing a national grid to supply remote rural regions with few people is far more expensive per capita than the per capita cost of a national grid in a developed nation. See also paragraph number 2 of **Comment 129**, page 109.]

(In breach of *Ofcom* 5.7)

[Narrator]

To former environmentalist, Paul Driessen, the idea that the world's poorest people should be restricted to using the world's most expensive and inefficient forms of electrical generation is the most morally repugnant aspect of the global warming campaign.

[Comment 132: So far as we are aware, nobody other than the narrator and Paul Driessen has ever suggested that "the world's poorest people should be restricted to using the world's most expensive and inefficient forms of electrical generation". See **Comment 123**, page 104 and **Comment 129**, page 109. The narrator and Driessen are using the logical fallacy known as a "straw man" argument (see *Wikipedia*: <http://tinyurl.com/75141>) - by pretending that their opponents are taking an absurd position that they are *not* taking, and then attacking that absurd position. In doing so they are misrepresenting the facts to the public.

There are certainly people who are encouraging developing countries to include alternative energies in a diverse energy mix, and for very good reasons: Africa is still expanding its energy infrastructure, making both grid-connected and decentralized alternative energy options cost-competitive in different situations. Most developed nations planned their infrastructure in an era when fossil fuels were assumed to be endless and benign; and now they have a host of issues because of it.

Most environmentalists accept that coal will continue to be important for India and China, as well as South Africa. But there is large scope for emissions reductions from their coal use: by energy efficiency improvements, and – in time – from the use of carbon capture and storage (if it can be demonstrated to work). For more detail on this, see the *International Energy Agency's* series of *World Energy Outlook* reports at <http://www.worldenergyoutlook.org>.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12)

[Paul Driessen] Let me make one thing perfectly clear: if we're telling the third world that they can only have wind and solar power, what we are really telling them is: you cannot have electricity.

[Comment 133: So far as we are aware, no one is actually advocating this.]

(In breach of Ofcom 5.7)

[James Shikwati] The challenge we have, when we meet western environmentalists who say we must engage in the use of solar panels and wind energy, is how we can have Africa industrialised; because I don't see how a solar panel is going to power a steel industry – how a solar panel, you know is going to power, maybe, some railway train. It might work, maybe to power a small transistor radio.

[Comment 134: So far as we are aware, no one is actually advocating this either; and the above statement is also highly misleading, because there are low-carbon power generation technologies available now that can deliver enough power for large scale applications such as steel mills or trains. Some of these are: hydroelectric power, large scale wind farms (such as the offshore wind farms being installed in Denmark and now the UK); coal fired power plants with carbon capture and sequestration (although this is still being developed), nuclear power, and biomass.

In addition, in the tropics, photovoltaic solar panels can produce large amounts of electricity very efficiently. As already discussed, for rural villages photovoltaic solar generators are often far more efficient and cost-effective than a national grid; but in tropical and sub-tropical regions, photovoltaic panels can also form an efficient part of the supply mix used by a national grid – for example see *Watt et al, 2006. Photovoltaics research and development in Australia*, <http://tinyurl.com/yttmoj>.]

(In breach of *Ofcom* 5.7)

[Patrick Moore] I think one of the most pernicious aspects of the modern environmental movement is this romanticisation of peasant life; and the idea that industrial societies are the destroyers of the world.

[James Shikwati] One clear thing that emerges from the whole environmental debate is the point that there’s somebody keen to kill the “African Dream;” and the “African Dream” is to develop.

[Comment 135: See previous comments, especially **Comment 123**, page 104 – this statement is either extremely ill-informed or profoundly and intentionally misleading.]

(In breach of *Ofcom* 5.7)

[Patrick Moore] The environmental movement has evolved into the strongest force there is for preventing development in the developing countries.

[James Shikwati] We are being told: “don’t touch your resources; don’t touch your oil; don’t touch your coal.” That is suicide.

[Patrick Moore] I think it’s legitimate for me to call them anti-human – like, okay, you don’t have to think humans are better than whales, or better than owls, or whatever, if you don’t want to, right; but surely it is not a good idea to think of humans as sort of being scum, you know – that it’s okay to have hundreds of millions of them go blind, or die or whatever. I just can’t relate to that.

[Comment 136: Again, (see previous comments, especially **Comment 123**, page 104), this statement is either extremely ill-informed or profoundly and intentionally misleading. Furthermore, it is an extreme *ad hominem* attack (an *ad hominem* is a logical fallacy, which consists of replying to an argument by attacking the person making the argument, rather than by addressing the substance of the argument).

Moore’s comments are also a further example of the “straw man” logical fallacy (see **Comment 132**, page 112) since very few (if any) members of the environmental movement hold the views he ascribes to them. The remarks are also deeply offensive and slanderous to many millions of people, but are unlikely to be actionable since no individuals are named. It is in clear breach of *Section 7* of the *Ofcom Broadcasting Code*.]

(In breach of the 2003 *Communications Act Section 265*, *Ofcom* 5.4, 5.5, 5.7, 5.11, 5.12, 7.2, 7.3, 7.6, 7.9)

[Narrator] The theory of man-made global warming is now so firmly entrenched – the voices of opposition so effectively silenced – it seems invincible. Untroubled by any contrary evidence – no matter how strong – the global warming alarm is now beyond reason.

[Dr Frederick Singer] There will still be people who believe that this is the end of the world – particularly when you have, for example, the chief scientist of the UK telling people that by the end of the century, the only inhabitable place on the earth will be the Antarctic; and it may, humanity may survive, thanks to some breeding couples who moved to the Antarctic – I mean this is hilarious. It *would* be hilarious, actually, if it weren't so sad.

[Comment 137: Sir David King has said no such thing – what Sir David actually said, and the context in which he said it, is described in detail in **Appendix H: page 167**. This is another extreme *ad hominem* attack as well as being further example of the “straw man” fallacy; and is in clear breach of *Section 7* of the *Ofcom Broadcasting Code*, as Sir David was not given the opportunity to defend himself against this false allegation.

The closing statement in a documentary is what the viewer is left with as their most lasting impression of the programme's message; so this statement by Dr Singer amounts to narration and ending with such a clearly distorted message is a major breach of several *Ofcom* regulations, as listed below.]

(In breach of the 2003 Communications Act Section 265, Ofcom 5.4, 5.5, 5.7, 5.11, 5.12, 7.2, 7.3, 7.6, 7.9)

Appendix A: Complaint Category Analysis

In this section, we have analysed which of the breaches of the *Ofcom Code* and the *Communications Act* that we have documented fall into which of the categories outlined in the **Complaint Summary**. We have also grouped some related breaches into one “complaint” per group.

A.1 Categories of Serious Individual Breaches of the Codes

A.1.1 *Falsification or Serious Misrepresentation of Graphs or Data; or of Quotations from Reports, or of Press Articles; or of Film Footage*

Category	The Comment Numbers that fall into this category	No. of Breaches	No. of Complots
Falsification/ manipulation of graphs	Comment 42, Comment 59, Comment 60	3	3
Use of manipulated or highly misleading graphs: for example, labelling 1975 as “Now”, or using long- outdated graphs	Comment 37, Comment 39	2	2
Other falsification of data	Comment 126	1	1
Mislabelling of film footage	Comment 104	1	1
Selective quoting, making a passage being quoted appear to state the opposite of what it actually states	Comment 112	1	1
Selectively quoting from a discredited press article without making it clear that the article has been discredited	Comment 114	1	1
Total		9	9

A.1.2 *Serious Misrepresentations of People’s Views and Other Breaches of Section 7 of the Ofcom Code*

Category	The Comment Numbers that fall into this category	No. of Breaches	No. of Complots
Misrepresentations of Carl Wunsch’s views	Comment 54, Comment 94	2	2
Failure to inform Wunsch of the nature	Comment 53	1	1

Category	The Comment Numbers that fall into this category	No. of Breaches	No. of Complots
and purpose of the programme			
Misrepresentations of Eigil Friis-Christensen’s views	Comment 60	1	1
Misrepresentations of Sir David King’s views	Comment 137	1	1
Misrepresentations of the views of most climatologists	Comment 35, Comment 77, Comment 82 <i>Because no individuals were named, we have grouped these breaches into one “complaint”.</i>	3	1
Misrepresentations of the views of environmental NGOs and of ordinary people who are concerned about the environment	Comment 75, Comment 80, Comment 81, Comment 120, Comment 127, Comment 132, Comment 133, Comment 134, Comment 135, Comment 136 <i>Because no individuals were named, we have grouped these breaches into one “complaint”.</i>	10	1
Making serious, unsubstantiated allegations regarding the IPCC without giving the accused parties an opportunity to respond	Comment 17, Comment 113, Comment 114, Comment 115 <i>Because no individuals were named, we have grouped these breaches into one “complaint”</i>	4	1
Making serious, unsubstantiated allegations of misappropriation of public funds, by scientific funding bodies, without giving the accused parties an opportunity to respond	Comment 71, Comment 82, Comment 83, Comment 117 <i>Because no individuals were named, we have grouped these breaches into one “complaint”</i>	4	1
Total		26	9

A.1.3 Other Serious Individual Breaches

Category	The Comment Numbers that fall into this category	No. of Breaches	No. of Complots
Use of “straw man” and/or <i>ad hominem</i> logical fallacies	Comment 23, Comment 79, Comment 80, Comment 132, Comment 133, Comment 134, Comment 135, Comment 136,	9	9

Category	The Comment Numbers that fall into this category	No. of Breaches	No. of Complots
	Comment 137		
Use of <i>non-sequitur</i> logical fallacies	Comment 35, Comment 41, Comment 50, Comment 51 <i>These seem to the authors to be less serious than the “straw man” and ad hominem fallacies, so they have been grouped into one “complaint”.</i>	4	1
Recycling of long discredited myths	Comment 38, Comment 68, Comment 99, Comment 101	4	4
Total		17	14

A.2 Groups of Breaches in which Multiple Interviewee and Narrator Statements, Taken Together, Constitute a Highly Misleading Narrative

Some Comment numbers describe more than one breach of the *Broadcasting Code* and/or *Communications Act* and therefore fall into more than one of the following categories: but each category of grouped Comments constitutes a single **serious breach**.

Category	The Comment Numbers that fall into this category	No. of Breaches	No. of Complots
Gross over-simplifications of the relationship between CO ₂ and climate	Comment 6, Comment 14, Comment 43, Comment 44, Comment 46, Comment 55	6	1
Misrepresentations of the science of climate modelling	Comment 87, Comment 88, Comment 89, Comment 90, Comment 91, Comment 92, Comment 93, Comment 94, Comment 95	9	1
Misrepresentations of the state of scientific knowledge regarding the ice core record (the “lag” fallacy)	Comment 8, Comment 14, Comment 50	3	1
Misrepresentations of the state of scientific knowledge regarding the effect on climate of solar and cosmic ray activity	Comment 59, Comment 60, Comment 62, Comment 63, Comment 64, Comment 65	6	1
Misrepresentations of the state of scientific knowledge regarding warming in the	Comment 49	1	1

Category	The Comment Numbers that fall into this category	No. of Breaches	No. of Complots
troposphere			
Misrepresentations of the state of scientific knowledge regarding palaeoclimatic temperature reconstructions	Comment 35, Comment 36, Comment 37, Comment 38, Comment 39	5	1
Misrepresentations of the 20th century's temperature trends	Comment 37, Comment 39, Comment 42, Comment 49, Comment 55, Comment 58	6	1
Misrepresentations regarding the state of scientific knowledge regarding the melting of glaciers, ice caps and ice sheets	Comment 103, Comment 104, Comment 108	3	1
Presentation of scientific papers that have been strongly disputed in the scientific literature, without mentioning that they are disputed	Comment 59, Comment 60, Comment 63, Comment 64	4	1
Confusing weather with climate	Comment 88, Comment 89	2	1
Confusing regional with average global temperatures	Comment 36, Comment 37, Comment 38, Comment 39, Comment 101, Comment 102	6	1
Confusing seasons with long-term trends	Comment 104, Comment 105, Comment 106	3	1
Misleading the viewer by claiming that because there have been major changes in climate in the distant past, we should not be concerned about future changes (ignoring the fact that in the distant past, the earth did not support 6 billion people, most living in built-up environments).	Comment 39, Comment 102	2	1
Misrepresentations of	Comment 47, Comment 50	2	1

Category	The Comment Numbers that fall into this category	No. of Breaches	No. of Complots
the physical properties of CO ₂			
Misrepresentations of the nature of the “carbon cycle”	Comment 52, Comment 54	2	1
Misrepresentations of the state of scientific knowledge about the likely effects of climate change on human health, and/or about mosquitoes, malaria, and other diseases	Comment 109, Comment 111, Comment 112	3	1
Confusing vectors (diseases carriers) with the diseases they carry	Comment 109, Comment 111, Comment 112	3	1
Misrepresentations of the way that science works	Comment 83	1	1
Misrepresentations of the contents of the IPCC reports	Comment 73, Comment 74, Comment 93, Comment 109, Comment 111, Comment 112, Comment 113	7	1
Other clear misrepresentations regarding the IPCC	Comment 115	1	1
Misrepresentations regarding the nature or amount of funding of climate science	Comment 71, Comment 82, Comment 83, Comment 86, Comment 116	5	1
Misrepresentations of the history of global warming theory	Comment 67, Comment 69, Comment 70, Comment 71, Comment 81	5	1
Misrepresentations of the history of the formation and development of the IPCC	Comment 72, Comment 74	2	1
Misrepresentations of the history of the environmental movement	Comment 75, Comment 80, Comment 81	3	1
Misrepresentations of the link between	Comment 30, Comment 40, Comment 43, Comment 76,	6	1

Category	The Comment Numbers that fall into this category	No. of Breaches	No. of Complots
greenhouse gas emissions and economic development and/or growth	Comment 127, Comment 128		
Misrepresentations of the nature of international climate change agreements such as Kyoto, or of US policy on climate change	Comment 121, Comment 122, Comment 123	3	1
Misrepresentations regarding the likely impact of climate change on developing world economies	Comment 123, Comment 128	2	1
Misrepresentations of the impact of renewable energy in the developing world	Comment 123, Comment 129, Comment 130, Comment 131, Comment 132, Comment 133, Comment 134, Comment 135, Comment 136	9	1
Other misrepresentations regarding economics	Comment 125, Comment 126, Comment 127, Comment 129	4	1
Misrepresentations of the nature of IPCC processes and composition	Comment 17, Comment 19, Comment 20, Comment 22	4	1
Misrepresentations of the media’s coverage of climate change	Comment 11, Comment 13, Comment 66, Comment 82, Comment 96, Comment 97, Comment 98, Comment 100, Comment 107	9	1
Misrepresentations of the media’s coverage of the contributors to the programme	Comment 33, Comment 82	2	1
Total		129	32

A.3 Categories of Breach in which, Considered Individually, the Breach May be “Minor” but which, when Considered as a Group, are Serious Breaches

Our definition of a “serious breach” is one that would justify a complaint to *Oofcom* even if it had been the only breach that the programme had made.

Category	The Comment Numbers that fall into this category	No. of Breaches	No. of Complints
Lack of disclosure of conflicts of interest	Comment 2, Comment 7, Comment 9, Comment 16, Comment 21, Comment 24, Comment 26, Comment 27, Comment 31, Comment 48, Comment 65, Comment 84, Comment 85, Comment 118, Comment 119, Comment 124	16	1
Misrepresentation or overstating of the credentials of the contributors to the programme	Comment 2, Comment 4, Comment 5, Comment 7, Comment 9, Comment 12, Comment 14, Comment 15, Comment 18, Comment 21, Comment 24, Comment 27, Comment 31, Comment 34, Comment 45, Comment 48, Comment 57, Comment 61, Comment 78, Comment 110, Comment 112, Comment 115	22	1
Presenting highly contentious opinions as if they were undisputed facts	Comment 1, Comment 3, Comment 10, Comment 25, Comment 28, Comment 29, Comment 32, Comment 34, Comment 56, Comment 57, Comment 64	11	1
Total		49	3

Note: For the sake of brevity, the first time a contributor appeared in the programme, both of the first and second categories above were documented in a single “Comment number” where applicable, hence several Comment numbers appear in both categories.

A.4 Total Number of Serious Breaches Reported in this Complaint

Section	No. of serious breaches
Appendix A.1.1	9
Appendix A.1.2	9
Appendix A.1.3	14
Appendix A.2	32
Appendix A.3	3
Total	67

Appendix B: Background to the Film Maker, Martin Durkin

B.1 The Reasons for Including this Section

Ofcom's *Broadcasting Code* Clause 5.8 states: *Any personal interest of a reporter or presenter, which would call into question the due impartiality of the programme, must be made clear to the audience.*

This clause was breached by *Channel 4* in several respects:

1. All three previous programmes Durkin has made for *Channel 4* have also been accused by respected sources of misinforming the public, distorting the truth, and misrepresenting the positions of some of the contributors to the programmes. This was not made clear to the audience.
2. Durkin's film *Against Nature* was found by the ITC to have breached its code of practice on two counts, forcing *Channel 4* to issue an apology on prime time television, and this was not made clear to the audience.
3. All Durkin's films have taken an extreme anti-environmentalist position – for example, comparing environmentalists with Nazis. This was not made clear to the audience.
4. There is significant evidence linking Durkin to a lobby group known as the *LM Group*, whose members have been accused of distortion of facts and of extreme anti-environmentalism and extreme libertarianism (see Appendix [B.3](#)). This was not made clear to the audience.
5. It was not made clear that this was a "personal view" program, as defined in Section 5 of the *Broadcasting Code* (<http://tinyurl.com/35xfpz>). Martin Durkin never appeared on the programme: instead, the narration took the form of an anonymous and authoritative-sounding voiceover, giving the audience the misleading impression that the narration was impartial.
6. Both before and after the screening of the programme, *Channel 4* billed it as a science documentary (see <http://tinyurl.com/3d5ltc> and <http://tinyurl.com/ytogy5>), which implies a fact-based programme, rather than a platform for the airing of one man's personal opinions.

In addition, Ofcom's draft penalty guidelines (<http://tinyurl.com/3ajn5x>) state that "repeated contraventions by the same person" is a factor in determining the penalty; and that "the need to ensure that the threat of penalties will act as a sufficient incentive to comply" is another.

B.2 Previous Films Made by Durkin for *Channel 4*

B.2.1 *Against Nature*

In November 1997, *Channel 4* broadcast a film by Martin Durkin called *Against Nature*, which accused the environmental movement of being a threat to personal freedom and of crippling economic development; and which compared environmentalists to Nazis. Durkin has subsequently tried to portray it as a science film, but the ITC found it guilty of distortion of facts (see <http://tinyurl.com/2lcsvq>). The ruling stated:

Comparison of the unedited and edited interview transcripts confirmed that the editing of the interviews with these four contributors had indeed distorted or misrepresented their known views. It was also found that the production company had misled them, when it originally sought their involvement, as to the format, subject matter and purpose of the programmes. No mention had been made of the critical position the programmes intended to adopt, for example in correspondence.

Channel 4 was forced to issue a public apology (see <http://tinyurl.com/2w6sjd>).

The letter of complaint from one of the contributors to *Against Nature*, Peter Melchett, whose complaint was upheld by the ITC, is at: <http://tinyurl.com/2rned3>.

B.2.2 *Equinox: Storm in a D Cup*

In May 1999, *Channel 4* broadcast in its *Equinox* series, which claimed to be a series of science documentaries, a film produced by Durkin called “Storm in a D Cup”, which argued that silicone breast implants were beneficial to a woman’s health. According to George Monbiot in *The Guardian*, the film had earlier been rejected by the BBC’s *Horizon* series on the grounds that “Mr Durkin had ignored a powerful body of evidence contradicting his claims” (see <http://tinyurl.com/yu8l8w>).

According to the same article, Najma Kazi, a respected TV researcher and producer who was previously a research biochemist walked away from the breast implant programme project after two weeks, claiming that her research had been ignored. She is also reported to have said: “I don’t know how that programme got passed. The only consolation for me was that I’m really glad I didn’t put my name to it.” (<http://tinyurl.com/yu8l8w>).

B.2.3 *Equinox: Modified Truth: The Rise and Fall of GM*

On March 20, 2000, *Channel 4* broadcast another programme produced by Durkin in its *Equinox* series, whose thesis according to one of the film’s participants was that:

GM food is perfectly safe and beneficial and badly needed to feed the hungry in the Third World. But hysterical environmentalists and the privileged, chattering middle-classes (mainly women) have been responsible for bringing down the industry. [See <http://tinyurl.com/2tspuw>].

A joint letter signed by a group of scientists based in the developing world was sent to *Channel 4* and to *The Times* newspaper in protest against the claims made in the film and in a related *Times* article (see: <http://tinyurl.com/28uu48>). The scientists accused both the film and the article of “misleading oversimplification” and “misinformation”.

Prior to the film’s broadcast, Dr. Mae-Wan Ho, a geneticist featured on the program, said in an interview: “I feel completely betrayed and misled. They did not tell me it was going to be an attack on my position” (see *The Guardian*: <http://tinyurl.com/yu8l8w>), and she subsequently wrote (see: <http://tinyurl.com/2tspuw>):

In 1997, Martin Durkin made a series, *Against Nature*, for Channel 4, which compared environmentalists ... to Nazis ... The *Independent Television Commission's* verdict on the series was that the programme makers "distorted by selective editing" the views of the interviewees and "misled" them about the "content and purpose of the programmes when they agreed to take part." That was exactly what happened to me.

Dr Ho also wrote in the same article:

What offended me most was not the attacks on my position, but the programme's exploitation of the poor and starving in the Third World. Scenes of sick, starving children and subsistence farmers in Africa alternated with women from the Women against GMO Campaign lunching around a table or shopping for organic food.

Similar techniques were used in *The Great Global Warming Swindle* (see for example [Comment 126](#), page 107 and [Comment 130](#), page 111).

B.3 Durkin's Links with the LM Group

The controversial *LM Group* evolved from the *Revolutionary Communist Party* (RCP), but now appears to have an extreme libertarian, anti-environmentalist agenda (see *Center for Media and Democracy*: <http://tinyurl.com/3xetqs> and *Wikipedia*: <http://tinyurl.com/ytnea5>). It currently uses the online magazine, *Spiked* (www.spiked-online.com), and the *Institute of Ideas* (<http://tinyurl.com/2mfnum>) to promote its views: *Spiked* replaced *LM Magazine* when the latter was forced to close down following a libel suit against it by the UK broadcaster ITN (see *Wikipedia*: <http://tinyurl.com/2zstjz> and *The BBC*: <http://tinyurl.com/2vmwbg>).

Against Nature featured leading LM Group members Frank Furedi (aka Frank Richards), the founder of the Group (see *Center for Media and Democracy*: <http://tinyurl.com/27h6xz>); John Gillott (aka John Gibson); and Juliet Tizzard.

In addition, the assistant producer of *Against Nature*, Eve Kaye (aka Eve Anderson), is one of the principal coordinators of the RCP/LM Group (see *Center for Media and Democracy*: <http://tinyurl.com/2wzobj>). Her husband James Heartfield (aka James Hughes) helped write the RCP's manifesto (see *Center for Media and Democracy*: <http://tinyurl.com/23976n>).

Although Durkin denies being a member of the LM Group, he recently confirmed his Marxist background in an interview with *Spiked* (see <http://tinyurl.com/yo4n5v>); and his Channel 4 films have all demonstrated a very strong anti-environmentalist and pro-libertarian viewpoint (see for example [Comment 136](#), page 114 and [Comment 75](#), page 68). The first interview Durkin gave following the broadcast of *The Great Global Warming Swindle* was to *Spiked* magazine, on March 9, 2007 (<http://tinyurl.com/yo4n5v>). See also <http://tinyurl.com/ynsab9> and <http://tinyurl.com/23gnpe> [Lobbywatch^[Nt4]].

There would therefore appear to be sufficient grounds for stating that under Clause 5.8 of the *Broadcasting Code*, Channel 4 should have made clear to the audience that there is evidence of links between Durkin and the *LM Group*.

Appendix C: Backgrounds of the Contributors to the Programme

C.1 Overview

C.1.1 *The Reason for Including this Section*

It is extremely important to note that this section is **not** an *ad hominem* attack on the contributors. An *ad hominem* consists of replying to an argument by attacking or appealing to the person making the argument, rather than by addressing the substance of the argument. An *ad hominem* attack is a logical fallacy – see <http://tinyurl.com/6xykl>; although the technique was used extensively by the programme makers (see for example **Comment 136**, page **114** and **Comment 137**, page **115**).

The fact, for instance, that many of the contributors to the *Channel 4* programme were not climate experts does **not** necessarily make their statements on climate wrong. The ideas they put forward must stand and fall on their merits, and the extent to which they reflect the scientific evidence. It is for this reason that we have assessed each of the interviewee statements on a detailed, individual basis – regardless of the interviewee.

However, in judging technical and scientific matters, relevant qualifications and backgrounds are important. One does not employ unqualified car mechanics, doctors, or electricians – for good reasons. Thus, by greatly exaggerating the credentials of some of the contributors, by implying that the scientists on the programme were climate experts when almost all of them are not, and by apparently intentionally misleading the public about the links that many of them have to the fossil fuel industry and associated lobby groups, the public was purposely misled into giving much more weight to the interviewee statements than they would have given them otherwise. **Misleading the public in this way is in clear breach of the provisions of the 2003 Communications Act regarding Channel 4’s remit for its programmes to be educational and therefore not to be intentionally misleading; and is also a clear breach of section 5.7 of the Broadcasting Code regarding not misrepresenting facts.**

C.1.2 *Exaggerated or Misleading Credentials*

According to the *Channel 4* web page about the “The Great Global Warming Swindle” at <http://tinyurl.com/2yml73>:

The film brings together the arguments of **leading scientists** who disagree with the prevailing consensus that carbon dioxide released by human industrial activity is the cause of rising global temperatures today.

And on the following page, (<http://tinyurl.com/2qrrvr>), *Channel 4* states that:

The film features an impressive roll-call of experts, in climatology, oceanography, meteorology, environmental science, biogeography and palaeoclimatology, from such reputable institutions as *MIT*, *Nasa*, the *International Arctic Research Centre*, the *Institut Pasteur*, the *Danish National*

Space Center and the Universities of London, Ottawa, Jerusalem, Winnipeg, Alabama and Virginia.

However:

1. Several of the main contributors were not scientists at all, and furthermore, are well known for having very little background in contemporary climate science research; and yet they talked extensively about the science of climate change on the programme.
2. The credentials of many of the scientists, and also of some of the other contributors, were greatly inflated during the programme itself, in order to give the misleading impression that they were leading experts in the fields they were discussing, when most of them were not.
3. The **implication** given, in the promotional text on the *Channel 4* website; in the trailers for the programme; and in the programme itself, was that the contributors were experts in the specific subjects that they were discussing – and in large part the subject was the current state of climate change research.

Yet very few of them are climate scientists. To give two pertinent examples: being an expert on weather does not necessarily make one an expert on climate (see <http://tinyurl.com/ofd6k> and <http://tinyurl.com/kdp4a>); and being an expert in astronomy does not necessarily make one an expert on climate. Most viewers would not have made this distinction, and certainly none of the press coverage of the programme made the distinction – see for instance <http://tinyurl.com/3byejo>. Yet it is a crucial distinction to make. A scientist (however distinguished in his or her field) who is not a climate scientist is not necessarily any more an expert in the physical science of climate change theory than an intelligent and well-informed layman is – and yet the public was given the clear and highly misleading impression that they were almost all experts in the current state of science regarding climate change.

As a result of this deception, the public almost certainly gave the contributors' statements far more weight than they would otherwise have done, which was the programme maker's apparent intention. **This is in breach of the provisions of the 2003 *Communications Act* regarding *Channel 4*'s remit for its programmes to be educational and therefore not intentionally misleading; and a clear breach of section 5.7 of the *Broadcasting Code* regarding not misrepresenting facts.**

C.1.3 Links to the Fossil Fuel Industry

There are several serious reasons why the links that many of the contributors to the programme have to the fossil fuel industry are important in terms of public interest, accuracy, and impartiality; and why these links should have been made clear to viewers of the programme:

1. Parts of the fossil fuel industry regard any action to reduce CO₂ emissions (which are caused primarily by burning fossil fuels) as a potential threat to their profits and shareholder value. Some of the companies have therefore invested in campaigns against such policies.

2. The programme misled viewers into thinking that the only contributor to it who has any links to the fossil fuel industry is Professor Michaels, and that even he only has a link to the coal industry (see **Comment 118**, page 98, and **Comment 119**, page 99). This was a clear case of misinformation by omission.
3. The programme misled viewers into thinking that *one would have to be prejudiced* (see **Comment 119**, page 99) in order to be concerned about the links that some of the scientists in the programme have to the fossil fuel industry.

In fact there are two very serious public interest reasons why it is quite legitimate to be concerned about such links, and why they should therefore have been revealed. These are:

- 3.1. With regard to some scientific research into global warming having been funded by the fossil fuel industry (see **Comment 119**, page 99), there is considerable peer-reviewed evidence that studies funded by corporations that have a financial interest in the study's outcome are much more likely to reach the desired conclusions than those which aren't - see, for example, *Okike et al 2007* (PDF available at: <http://tinyurl.com/2rnyw3>); *Vartanian et al 2007* (<http://tinyurl.com/2zpp5y>); and *Peppercorn et al 2007* (<http://tinyurl.com/yvu5er>).

Good science involves testing (and accepting or rejecting) a proposed hypothesis based purely on the evidence, rather than starting with a predetermined conclusion and then trying to find evidence that appears to support that conclusion. Wherever there is a risk that the latter might be happening, the integrity of the entire scientific process is put at risk. This potential for corruption - or even for unconscious bias - is clearly against the public interest; and to point this out is clearly *not* to be guilty of prejudice, as the narrator of the programme claimed that it was.

More importantly, most of the criticism of funding by the fossil fuel industry has not been of their funding of *research projects*, as the programme claimed; but rather of their funding of a huge, and very well-funded misinformation campaign, as is well-documented by media and scholars (see 3.2 below). The deliberate efforts of this misinformation campaign was perpetuated and greatly raised in profile by the *Channel 4* programme (see for example *The Vancouver Sun*, April 23, 2007, <http://tinyurl.com/2wcrjg>).

- 3.2. There is very strong and growing evidence (see <http://tinyurl.com/v8u2d>, <http://tinyurl.com/2ebvwa> and <http://tinyurl.com/2udvt7>) that a well-funded disinformation campaign costing tens of millions of dollars is currently being run by a large number of lobby groups that are funded by the fossil fuel industry, many of these lobby groups being directly linked to contributors to the *Channel 4* programme; and that the aims of this campaign are: to mislead the public about the existence of a link between CO₂ and global warming; to convince the public that increasing the atmospheric level of CO₂ is good for us; and to convince the public that there is much less consensus about the science of man-made global warming than there really is - all in order

to confuse the public and decrease public support for government action to reduce emissions.

Two good examples of this are the advertising campaign that was run in May 2006 by the *Competitive Enterprise Institute* (CEI), titled: "CO₂, we call it *life*"; and the CEI's lawsuit against the US Federal Government to suppress two major scientific reports concerning the current state of knowledge about global warming. For more details, see the CEI entry on page 146.

According to a 2007 report by the highly regarded *Union of Concerned Scientists*, this disinformation campaign is reminiscent of, and even uses some of the same people as, the earlier campaign by the tobacco industry that for many years misled the public into believing that there is no link between smoking and lung cancer – see the PDF report at: <http://tinyurl.com/v8u2d>, especially Table 3: *Key Personnel Overlap between Tobacco and Climate Disinformation Campaigns*.

In addition, four US Government briefing papers released under the *Freedom of Information Act* have shown that *ExxonMobil*, and an industry-funded lobby group, *The Global Climate Coalition* (now disbanded), together played a major role in influencing the US Government not to sign up to Kyoto. For more details see <http://tinyurl.com/2k8dyo>. The briefing papers themselves can be downloaded from that web page.

4. The programme attempted to give the viewer the highly misleading impression that the only people who have criticised the links that some of the programme's contributors have with the fossil fuel industry, are extremist environmentalists (**Comment 119**, page 99). In fact, such criticisms have come from many distinguished scientists (e.g., see: <http://tinyurl.com/v8u2d>).

So for all these reasons, the programme's failure to declare the links many of its contributors have to the fossil fuel industry and to lobby groups funded by the fossil fuel industry is in serious breach of the provisions of the 2003 Communications Act regarding Channel 4's remit for its programmes to be educational, and therefore not to be intentionally misleading; and in serious breach of section 5.7 of the Broadcasting Code regarding not misrepresenting facts.

C.1.4 Links to Lobby Groups

To use an analogy, had a scientific documentary had, as one of its main contributors, a scientist who was also a leading member of Greenpeace; and had the documentary not declared that scientist's involvement with Greenpeace, there would have been a justifiable outcry, on the basis that the omission would have misled the public about the perceived impartiality of that scientist.

The failure of the *Channel 4* programme to mention that most of the contributors work for lobby groups (most of which are funded by the fossil fuel industry) that are actively lobbying governments and the public against taking any action to reduce CO₂ emissions, and which in some cases are also spending millions of pounds on advertising campaigns that use misinformation to convince the public

that there is no need to reduce carbon emissions (e.g. see <http://tinyurl.com/nvaep>, <http://tinyurl.com/ch83s> and <http://tinyurl.com/j45yg>), was in clear breach of the 2003 *Communications Act*, and of sections 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 5.11 and 5.12 of the *Broadcasting Code*.

C.1.5 *ISI WoS*

The ISI Web of Science (WoS) is a database of almost 9000 peer-reviewed journals – see: <http://scientific.thomson.com/products/wos/>. The database covers publications between 1970 and the present day.

All references to “ISI WoS” in the following section mean that the source of the information being cited was this database.

C.2 Nigel Lawson, Lord Lawson of Blaby

Lord Lawson is a politician and was Chancellor of the Exchequer between 1983 and 1989. He has no relevant scientific credentials and therefore could not be considered an “expert” in the evaluation of contemporary climate change science. Substantial criticisms of his views on the IPCC and climate change were not aired on the programme: for instance, see: *Lawson vs. the IPCC* at <http://tinyurl.com/2s2xko>, and see the *Official British Government response to the House of Lords Economic Affairs Select Committee Report*, (PDF) at <http://tinyurl.com/2tghdb>.

Despite his lack of any qualifications as an expert on the subject of contemporary climate change science, or of the IPCC, he was given a great deal of air time in the programme to talk about those topics.

C.3 James Shikwati

The *Channel 4* web page about the “The Great Global Warming Swindle” at <http://tinyurl.com/2qrrvr> bills James Shikwati as “a respected Kenyan development expert”; and also states that: “The film features an impressive roll-call of experts”. This, combined with his billing in the programme itself as “Economist and Author” will have given viewers the impression that he is a leading academic expert on development economics.

A search of the *MIMAS Web of Knowledge* (<http://wok.mimas.ac.uk>), the biggest UK academic search engine, only found one academic paper by James Shikwati (Shikwati J, *Undesirable development aid – Africa can play a new role with independent solutions*, *Internationale Politik*, 61 (4): 6-15 Apr 2006). Furthermore, he does not appear to be attached to any University or academic institution, and does not have a doctorate. Instead he is Director of a lobby group that has been indirectly funded by the fossil fuel industry (see below).

He has had many articles published in *non*-academic media such as newspapers; has frequently been interviewed in the media; and has participated in many international fora that focus on promotion of trade (see *Wikipedia*: <http://tinyurl.com/2t9on5> and *The New York Times* profile of him at <http://tinyurl.com/35qu8k>). He could therefore be accurately described as a libertarian commentator and lobbyist, but certainly not as a leading expert in economics.

He is best known for his absolutist view that foreign aid *always* accelerates, rather than alleviates, poverty (see IREN: <http://tinyurl.com/2dsyd3>, BBC News: <http://tinyurl.com/2m7ga3> and *The New York Times*: <http://tinyurl.com/35qu8k>). As a libertarian (see *Wikipedia*: <http://tinyurl.com/2t9on5>), he also opposes and lobbies against any regulation of business. This fact provides a context for the vehement opposition to the Kyoto treaty that he expressed in the *Channel 4* programme. This bias should have been made clear to the viewer and was not.

His academic credentials were thus greatly inflated by the *Channel 4* programme, and his known biases were not mentioned, in contravention of *Ofcom clauses 5.7 and 5.8*.

C.3.1 Links to Corporate-funded Lobby Groups

Mr Shikwati is Director of the *Inter Region Economic Network* or IREN (see <http://www.irenkenya.com>, and the IREN entry on page 152).

C.4 Paul Driessen

Paul Driessen was described in the programme as a former environmental campaigner; however, his activities as an energy industry lobbyist were not disclosed – see: <http://tinyurl.com/33rqlk> and <http://tinyurl.com/36gb9n>, and see below. His strongly negative views regarding the environmental movement are set out in detail in his book “Eco-Imperialism: Green Power Black Death” (see <http://tinyurl.com/3yaao2>).

C.4.1 Funding and Links to Corporate-funded Lobby Groups

(For information about the following organisations and the funding they receive, see **Appendix D: Corporate-funded Organisations Linked to Contributors to the Programme**).

1. He is Senior Fellow with the *Center for the Defense of Free Enterprise* (see www.cdfef.org/EHRP.htm).
2. He is Senior Fellow with the *Atlas Economic Research Foundation* (see www.cdfef.org/Paul.htm).
3. He is Senior Fellow with the *Committee for a Constructive Tomorrow* (see www.cdfef.org/Paul.htm).
4. He is Senior Fellow with the *Frontiers of Freedom Institute and Foundation* (see www.cdfef.org/Paul.htm).
5. He is the Senior Policy Advisor of the *Congress of Racial Equality* (see the end of the article at <http://tinyurl.com/3x34su>).
6. He is a regular contributor to *TCS Daily*, the web-based magazine of the *Tech Central Science Foundation* (see <http://tinyurl.com/38qw86>).
7. He is a contributing author for the *Interfaith Stewardship Alliance*. In July 2006, Driessen and three other noted global warming critics co-authored a report published by the ISA, criticising another religious organization for its support for action to reduce CO₂ emissions. For more details, see the ISA entry on page 151.

C.5 Patrick Moore

Patrick Moore was billed as “Co-founder, Greenpeace”. However, it was not mentioned that the other founders of Greenpeace dispute his claim, although, they say that he did go on the first Greenpeace voyage (see <http://tinyurl.com/24upfo>). His rather compromised credentials as an environmentalist were also not mentioned.

His current activities as a paid lobbyist for and consultant to, the nuclear energy, mining, biotechnology and logging industries were not disclosed by the *Channel 4* programme.

Moore has dismissed concerns about the impacts of logging, mining and forest clearance for agriculture on the Amazonian rainforests (see <http://tinyurl.com/2dtady>).

In 1976, Moore called nuclear power plants “the most dangerous devices that man has ever created. Their construction and proliferation is the most irresponsible, in fact the most criminal, act ever to have taken place on this planet.” In 2006, Moore became co-chair (with Christine Todd Whitman) of a new industry-funded initiative, the *Clean and Safe Energy Coalition*, which supports increased use of nuclear energy (see <http://tinyurl.com/ytxeyn>).

See also <http://tinyurl.com/2nlbet>.

C.5.1 Direct Corporate Funding

In 1991 he established a consultancy business, *Greenspirit Enterprises*, through which he has worked for the mining industry, the logging industry, PVC manufacturers and in defence of biotechnology (see <http://tinyurl.com/ynmrrw>).

C.5.2 Links to Corporate-funded Lobby Groups

1. In 1991 he became a member of the Board of Directors of the timber industry-created *Forest Alliance of B.C.* (see <http://tinyurl.com/2dtady>).
2. In 1991 Moore was appointed as Director of the British Columbia Forest Alliance which was described by O’Dwyer’s PR Services Report, as “a Burson-Marsteller-created group, bankrolled by large timber companies, [which] is waging a PR war with environmentalists upset with the logging of rainforests in western Canada” (see <http://tinyurl.com/2dtady>).
3. Since 2006 he has been a consultant to the *Nuclear Energy Institute* front group, the *Clean and Safe Energy Coalition*. Moore is also listed as an honorary member of *Environmentalists for Nuclear Power – USA* and the Honorary Chair of *Environmentalists for Nuclear Power – Canada*. (see <http://tinyurl.com/2cy3jv>).

C.6 Nigel Calder

The programme relied extensively on interviews with Nigel Calder, a science journalist. The *Channel 4* programme billed him as “former Editor, *New Scientist*”, but this billing gives a very misleading impression: first because he was only editor between 1962 and 1966, more than 20 years before global warming became a major public issue; and also because the *New Scientist* is a popular magazine and

not a peer-reviewed journal, a fact that viewers may not have been aware of. It should also have been mentioned that some of his press articles on climate change have been shown to be highly misleading by mainstream climatologists, e.g. see <http://tinyurl.com/2klpu6>.

Calder is not an active research scientist, and has had only one peer-reviewed scientific article on climate change, published, in 1974 (ISI WoS).

C.7 Piers Corbyn

Corbyn was described in the *Channel 4* programme's caption about him as "Dr Piers Corbyn, Climate Forecaster." However he is not a "Dr" since he does not hold a PhD and his highest degree is an MSc in astrophysics (see <http://tinyurl.com/yo9fvk>). He is also not a "climate forecaster", but a *weather* forecaster, who claims to be able to accurately predict weather many months in advance using solar activity (see www.weatheraction.com) – an idea at odds with all meteorology. Weather and climate are apparently intentionally confused with each other at various points during the programme – see **Comment 88**, page 74.

Despite his "willingness", expressed in the *Channel 4* programme and elsewhere, to make bets on his weather forecasts, he has declined to accept a bet from climatologist James Annan on his climate forecasts of cooling in the future (see <http://tinyurl.com/2olp97> and <http://tinyurl.com/ynvhsww>), despite the following article in *Nature*: <http://tinyurl.com/3e3tbn>.

He refuses to disclose his weather forecasting methods, and has not published any peer-reviewed articles on his theories on weather or climate, or on any other subject (ISI WoS).

Piers Corbyn cannot, therefore, objectively be regarded as a "leading scientist", and still less as an expert on climate science; and yet he was given extensive air time in the documentary.

C.8 Dr Philip Stott

The programme wrongly identified Dr Stott as "Professor Philip Stott, Dept. of Biogeography, University of London". However, the University of London has never had a Department of Biogeography (see <http://tinyurl.com/2ukxr4>).

He is a Professor Emeritus (having retired in 2004, see <http://tinyurl.com/22omnr>) of Biogeography, **at the School of Oriental and African Studies** (see <http://tinyurl.com/2y9jb9>); a *Social Sciences* college of the University of London which does not contain a Science Faculty. He has only had 9 peer-reviewed articles published since 1970, and all those concern forests in tropical regions; with nothing on climatology or the impacts of climate change (ISI WoS).

Dr Stott could not, therefore, objectively be considered to be a leading scientist; still less a climate expert: and **nor does he have any known expertise in English history** [N15]. Yet he was given a great deal of air time on the *Channel 4* programme, to talk about climate science and English history.

C.9 Dr Tim Ball

The programme relied extensively on interviews with Tim Ball, who was identified in the programme’s caption about him as “Professor Tim Ball, Dept. of Climatology, University of Winnipeg.”

However, the University of Winnipeg has never had a Department of Climatology (see <http://directory.uwinnipeg.ca>); and Dr Ball is no longer affiliated with the University and is not a Professor. He retired as a Professor in the Department of **Geography, rather than Climatology**, in 1996 (see <http://tinyurl.com/ysj7p8>).

He has published a total of only four papers in peer-reviewed scientific journals: and these were on historical climate in Canada, **with no publications on the physical causes of climate change**.

He is not currently active in scientific research, and has not published in the peer-reviewed literature since 1994 (source: **ISI WoS**).

His claims to have been a Professor for 28 years and to have been the “first climatology PhD in Canada” have been challenged and are currently the subject of a lawsuit (see <http://tinyurl.com/yvf243> and <http://tinyurl.com/25wzzy>).

Dr Ball can certainly not objectively be regarded as an expert on climate, nor as a leading scientist. He is not currently a Professor, and his links to the fossil fuel industry and to lobby groups were not disclosed.

C.9.1 *Direct Corporate Funding*

According to an August 12, 2006 *Globe and Mail* feature (<http://tinyurl.com/39q2dj>), Ball “has been paid to speak to federal MPs by a public-relations company that works for energy firms and his travel expenses are covered by a group supported by donors from the Alberta oil patch.”

C.9.2 *Links to Corporate-funded Lobby Groups*

(For information about the following organisations and the funding they receive, see **Appendix D: Corporate-funded Organisations Linked to Contributors to the Programme**).

Contrary to Ball’s assertion of never having received any money from the energy industry:

1. He was co-founder and until recently was a Senior Scientific Advisor to *Friends of Science* (see <http://tinyurl.com/2yncq4>).
2. He is currently Chair of the *Natural Resources Stewardship Project* (see <http://nrsp.com/people.html>).
3. He is a *Science Roundtable Member* of the *Tech Central Science Foundation* (see <http://tinyurl.com/yuf3ld>).

C.10 Dr Frederick Singer

Contrary to his billing in the programme, Singer was never a director of the US National Weather Service. In fact, he was Director of the US National Weather *Satellite Center*, and only between 1962 and 1964 (see <http://tinyurl.com/yqbmjl>).

He is also no longer a Professor, having retired as Professor of Environmental Sciences, University of Virginia, in 1994.

He has published 43 articles since 1970 (**ISI WoS**). However few of these papers have presented original scientific research, and even fewer concerned climate: most have concerned policy.

Two papers on climate that he co-authored in 2004 have been found to have used cherry-picked data and to have been seriously flawed on a number of other counts (see <http://tinyurl.com/2jf714>).

As well as global warming, he also expresses scepticism about the link between CFCs and the ozone hole (see <http://tinyurl.com/26guvf>); and between second-hand smoke and cancer (see <http://tinyurl.com/3by65a>).

He has also oscillated rapidly between claiming in 2005 that there is no evidence that global warming is happening (see <http://tinyurl.com/2jqe6y>), to claiming in 2006 that it’s happening and it’s unstoppable (see <http://tinyurl.com/33bk2t>) to claiming in 2007 that “climate is not warming significantly” (see <http://tinyurl.com/383tk5>).

Dr Singer cannot therefore be objectively regarded as a leading scientist, nor as an expert on climate.

C.10.1 Direct Corporate Funding

1. He founded and is currently President of the *Science and Environmental Policy Project* (see <http://tinyurl.com/2tqgp2>, and the entry on SEPP on page 155).
2. In a September 24, 1993 sworn affidavit (which is at <http://tinyurl.com/2rrqz7>, PDF), Dr. Singer admitted to conducting climate change research on behalf of oil companies, such as Exxon, Texaco, Arco, Shell and the American Gas Association. However, on February 12, 2001, Singer wrote a letter to *The Washington Post* in which he denied receiving any oil company money in the previous 20 years (<http://tinyurl.com/39nm8b>).

C.10.2 Links to Corporate-funded Lobby Groups

(For information about the following organisations and the funding they receive, see **Appendix D: Corporate-funded Organisations Linked to Contributors to the Programme**).

1. He is a Scientific Advisor to the *American Council on Science and Health* (see <http://tinyurl.com/2wtdvp>).
2. He has been a Science Adviser to *The Advancement of Sound Science Coalition* (see <http://tinyurl.com/359hf3>).

3. He is on the Editorial Advisory Board of the *Cato Institute* (see <http://tinyurl.com/3xnmpa>).
4. Until at least June 2004, he was an Adjunct Fellow of the *Frontiers of Freedom Institute and Foundation* (see <http://tinyurl.com/2xhdem> and <http://tinyurl.com/2orgp6>).
5. He is an E-Team Adjunct Scholar at the *National Center for Policy Analysis* (see <http://tinyurl.com/26lp95>).
6. He is a Research Fellow of, and is sponsored by, the *Independent Institute* (source <http://tinyurl.com/2f7t78>). He has also written reports on behalf of *The Independent Institute*, e.g. *New Perspectives in Climate Change: What the EPA Isn't Telling Us*, July 28, 2003, <http://tinyurl.com/34rp8y>.
7. He is on the Board of Advisors of the *Environmental Conservation Organization* (see <http://tinyurl.com/2x68el>^[Nt6]).
8. He is a Featured Expert of the *Centre for the New Europe* (see Singer, S.F., *Climate Policy – from Rio to Kyoto: A Political Issue for 2000 and Beyond*, Centre for the New Europe: PDF file at <http://tinyurl.com/3atp5b>).
9. He is a Featured Expert of the *Federalist Society for Law and Public Policy Studies* (see Singer, S.F., 2000, *The Road from Rio to Kyoto: How Climate Science was Distorted to Support Ideological Objectives*, published in *Environmental Law and Property Rights*, Washington, DC, <http://tinyurl.com/2pjb4>, PDF).
10. He was a *Robert Wesson Endowment Fund Fellow* and Featured Author of the *Hoover Institution on War, Revolution and Peace* between 1997-99 and 2001-02 (source: Singer, S.F., Letter to the editor, Washington Post, February 12, 2001, <http://tinyurl.com/39nm8b>).
11. Singer has also been involved in campaigns to promote the views of the tobacco industry (see <http://tinyurl.com/yloyf2>).

C.11 Professor Patrick Michaels

In 2004 Michaels co-authored a paper which purported to show that a half of the warming measured by weather stations was explained by economic factors, but which included the basic mathematical error of mixing up degrees with radians (see <http://tinyurl.com/2e2t4h>).

Michaels has also written several other papers claiming to demonstrate that global warming is not occurring, which have been shown to have some similar flaws and to use cherry-picked data (see <http://tinyurl.com/2jf714>).

In Congressional testimony in June 2003, Professor. John Holdren, who is Professor of Environmental Science and Public Policy in the Department of Earth and Planetary Sciences, at Harvard University, and a member of the *National Academy of Sciences*, told the *US Senate Republican Policy Committee*, that:

Michaels ... has published little if anything of distinction in the professional literature, being noted rather for his shrill op-ed pieces and indiscriminate denunciations of virtually every finding of mainstream climate science. [See PDF file at <http://tinyurl.com/386rf9>].

The programme’s assertion that Michaels was attacked because he conducted research that “was part funded by the coal industry” is highly misleading, given the full extent of his links with the wider fossil-fuel industry (see below).

C.11.1 *Direct Corporate Funding*

1. Michaels has received at least \$100,000 from the energy utility **Intermountain Rural Electric Association**, or IREA, and additional contributions from other utilities (see the IREA entry on page 152).
2. He is Chief Editor for *World Climate Report* (see <http://tinyurl.com/2m4xyn>), which is financed by *Western Fuels* (see the entry on *WCR* on page 157).
3. *Western Fuels* has provided a \$63,000 grant for Michaels’ climate change research, in addition to funding Michaels’ *World Climate Report* magazine (see <http://tinyurl.com/yqvozw>).
4. The German Coal Mining Association has given Michaels \$49,000 in direct funding (see <http://tinyurl.com/yqvozw>).
5. The Edison Electric Institute has given Michaels \$15,000 (see <http://tinyurl.com/yqvozw>).
6. The mining company Cyprus Minerals has given Michaels \$40,000 (see <http://tinyurl.com/yqvozw>).

C.11.2 *Links to Corporate-funded Lobby Groups*

(For information about the following organisations and the funding they receive, see **Appendix D: Corporate-funded Organisations Linked to Contributors to the Programme**).

1. He is a Senior Fellow in Environmental Studies with the *Cato Institute* (see www.cato.org/people/experts.html).
2. He has been a Science Adviser to *The Advancement of Sound Science Coalition* (see <http://tinyurl.com/359hf3>).
3. He is on the Board of Scientific and Policy Advisors of the *American Council on Science and Health* (see <http://tinyurl.com/2wtdvp>).
4. He is an Expert with the *Competitive Enterprise Institute* (see <http://tinyurl.com/27ev7q>^[Nt7]).
5. He was an Advisory Council Member of *Consumer Alert or CA* until at least 18 April 2005 (see <http://tinyurl.com/2lk5h3>^[Nt8]).
6. He is on the Board of Academic and Scientific Advisors of the *Committee for a Constructive Tomorrow* (see: www.cfact.org/site/about.asp).
7. He is a Policy Expert of the *Heritage Foundation* (source: Heritage Foundation “Policy Experts” website, <http://tinyurl.com/2adg3o>).
8. He is a Visiting Scientist (see <http://tinyurl.com/2sqb79>); and a Book Editor and Contributor; to the *George C. Marshall Institute* (see, for example, Michaels, P.J., ed., *Shattered Consensus*, <http://tinyurl.com/2r5zj5>).

9. He is a *Science Roundtable Member* of the *Tech Central Science Foundation* (see <http://tinyurl.com/yuf3ld>).
10. He is a Study Author for the *Weidenbaum Center on the Economy, Government, and Public Policy* (See Michaels, P.J., 1998, *Global Deception: The Exaggeration of the Global Threat*, St. Louis, MO: Center for the Study of American Business, PDF file at: <http://tinyurl.com/27o882>).
11. He is an Report Author for the *American Legislative Exchange Council* or ALEC (See Michaels, P.J., 2002, *Global Warming and the Kyoto Protocol*, published by ALEC, PDF file at <http://tinyurl.com/yoqtw4>).
12. He is a columnist with the *American Spectator* (see <http://tinyurl.com/2t66xp>).

C.12 Dr Willie Soon

Dr Wei-Hock (“Willie”) Soon is a research astrophysicist at the *Solar, Stellar and Planetary Sciences Division* of the *Harvard-Smithsonian Center for Astrophysics* (see <http://tinyurl.com/32pkbf> and *Wikipedia*: <http://tinyurl.com/3dnvex>). He has written 40 peer-reviewed papers, but only 10 have been related the Earth’s climate, with the remainder being on astrophysics and plasma physics (*ISI WoS*).

Although he didn’t speak in the *Channel 4* programme, three graphs from papers he has written were used in the programme (see **Comment 42**, page 35, and **Comment 65**, page 60). He was also thanked in the credits.

In 2003 Soon co-authored the paper “*Proxy climatic and environmental changes in the past 1000 years*,” (<http://tinyurl.com/2qyg43> PDF), partly funded by the *American Petroleum Institute*, which purported to show that the 20th century was not the warmest in the last millennium. The publication of this paper in the journal *Climate Research* sparked a great deal of controversy. The Editor-in-chief, Hans von Storch, and four other editors of the journal resigned as a consequence (<http://tinyurl.com/2ycuv7> [Von Storch]), citing failures in the peer review process which had allowed such a seriously flawed paper to be published.

C.12.1 Direct Corporate Funding

Soon’s research has been funded by *ExxonMobil* and *Texaco* (e.g. see Acknowledgments section of <http://tinyurl.com/3bhqho> PDF).

C.12.2 Links to Corporate-funded Lobby Groups ^[Nt9]

(For information about the following organisations and the funding they receive, see **Appendix D: Corporate-funded Organisations Linked to Contributors to the Programme**).

1. He is a Senior Scientist at the *George C. Marshall Institute* (<http://tinyurl.com/33vvtv>).
2. He has been funded by the *American Petroleum Institute* (e.g. see Acknowledgments Section of <http://tinyurl.com/2qyg43> PDF).
3. In 2004 he received \$60,000 in consulting fees from the *Frontiers of Freedom Institute and Foundation* (source: <http://tinyurl.com/38qn8u> PDF).

4. He has been a contributing writer for the *Fraser Institute* (<http://tinyurl.com/3ac998>).
5. He is a regular writer for *TCS Daily* web-based magazine of the *Tech Central Science Foundation* (see <http://tinyurl.com/2vcwas>) and is a member of the TCS Science Roundtable (<http://tinyurl.com/yuf3ld>).
6. He is a past contributor to *World Climate Report* (<http://tinyurl.com/3xfb32>).
7. He has been a contributing writer for the *Heartland Institute* (<http://tinyurl.com/22d99v>).

C.13 Dr Nir Shaviv

Most of Dr Shaviv's 36 peer-review articles have been in astronomy and **not** climatology (see <http://tinyurl.com/2w76av>).

The programme drew heavily on his 2003 paper written with Jan Veizer: *Celestial driver of Phanerozoic climate*, a PDF version of which is at: <http://tinyurl.com/2wlppf>; which claimed a link between cosmic ray flux and temperature over the past 500 million years. However, this paper has been strongly disputed in the peer reviewed literature.

Criticisms of Shaviv's paper in the scientific literature include the charge of making arbitrary changes to time scales in order to show a correlation where there is none (*Rahmstorf et al*, <http://tinyurl.com/32x9dt>); and that it contains serious and very basic errors in the treatment of statistics (*Jahnke and Knud*, <http://tinyurl.com/yry26j>). These are very serious charges. See also *Rahmstorf et al*'s reply to Shaviv at <http://tinyurl.com/2uq6xc> (PDF). Shaviv has responded to the comments in both EOS Forum and GSA Today (<http://tinyurl.com/2lf3mt>).

These substantial scientific criticisms of Dr Shaviv's work were not aired by the programme. See also the comments at <http://tinyurl.com/3as2ev> and the follow-up comments on the same page (you need to wait for the page to load fully and it will then automatically jump down to the relevant comment). See also the response at <http://tinyurl.com/2w47pz>.

In summary, Dr Shaviv is an astronomer rather than a climatologist; his only peer reviewed paper on climatology, which formed the centrepiece of the *Channel 4* programme, has been shown to be flawed: yet this was not mentioned.

C.14 Dr Eigil Friis-Christensen

Dr Friis-Christensen is the Director of the Danish Space Research Institute <http://tinyurl.com/2w5jux>. He has published 75 articles, most of which are in astronomy rather than climatology (*ISI WoS*).

Two of his papers purporting to show correlations between solar cycle lengths and Northern hemisphere temperature featured prominently in the documentary. These were *Friis-Christensen and Lassen, Science* 254, 698 (1991) and *Lassen and Friis-Christensen, J. of Atmospheric and Solar-Terrestrial Physics* 57, 835 (1995).

Not mentioned in the *Channel 4* programme, however, is the ongoing dispute in the scientific literature about Friis-Christensen’s work. These include Damon and Laut’s 2004 discussion paper: *Pattern of Strange Errors Plagues Solar Activity and Terrestrial Climate Data*, which is available in PDF format at <http://tinyurl.com/33cJOR>; and Peter Laut’s 2003 peer reviewed paper: *Solar activity and terrestrial climate: An analysis of some purported correlations*, available in PDF format at <http://tinyurl.com/2ule4h>; which found “a pattern of strange errors” and “questionable handling of the underlying physical data”. Damon and Laut have argued in several papers that the apparent correlation between solar activity and temperature in the last century found by Friis-Christensen and colleagues was merely an artefact of improper data handling (mixing filtered and unfiltered data on the same curve). “Nevertheless,” wrote Damon and Laut in their discussion paper, “the authors and other researchers keep presenting the old misleading graph.”

Friis-Christensen and Lassen have responded to the criticisms in the literature. In this example in the *Journal of Geophysical Research* (<http://tinyurl.com/39hka9>), they reiterate the statistically significant correlation between solar cycle length and temperature, but do not rule out a warming contribution from anthropogenic greenhouse gases.

In summary, Friis-Christensen is primarily an astronomer rather than a climatologist; and the papers he has published on climatology, which, with Shaviv’s paper formed the centrepiece of the *Channel 4* programme, have been strongly disputed in the literature. Yet this was not mentioned in the *Channel 4* programme.

C.15 Professor Syun-ichi Akasofu

Professor Akasofu retired on January 31, 2007 as Director of the *International Arctic Research Center* (IARC), Fairbanks Alaska (see <http://tinyurl.com/3xgpb1>). He is a distinguished astronomer with an excellent publication record (see <http://tinyurl.com/ys2t8w>).

However, the programme did not disclose that his field of expertise is **astronomy**, especially with regards to Auroras (the “Northern and Southern Lights”), and that he has no known expertise in climatology.

See also: <http://tinyurl.com/ytkva9> and <http://tinyurl.com/2354z4>.

C.16 Professor Ian Clark

Ian Clark is a Professor in the Department of Earth Sciences at the University of Ottawa, and has published 47 peer-reviewed articles (**ISI WoS**).

Despite the documentary’s contention that he is a “leading Arctic palaeoclimatologist”, only a small number of his papers are connected with palaeoclimate (and those are poorly cited by other scientists); with most being on hydrology and geochemistry. In addition, contrary to the impression given by the programme, he has not published anything on Antarctic ice cores, or on the lag between carbon dioxide and temperature.

It is therefore difficult to see how *Channel 4* can justify its billing of Ian Clarke as a leading scientist, and a leading expert on climatology, palaeoclimatology and Antarctic ice core data

C.16.1 *Funding and Links to Corporate-funded Lobby Groups*

(For information about the following organisations and the funding they receive, see **Appendix D: Corporate-funded Organisations Linked to Contributors to the Programme**).

1. Clark is a Science Advisor to the *Natural Resources Stewardship Project* (see www.nrsp.com/people-ian-clark.html).
2. He is a *Science Roundtable Member* of the *Tech Central Science Foundation* (see <http://tinyurl.com/yuf3ld>).

C.17 Professor Richard Lindzen

Lindzen is Professor of Meteorology at the Massachusetts Institute of Technology. He is a well-regarded meteorologist with a distinguished publication record (see <http://tinyurl.com/28wszg>); however, his research is mostly in meteorology (the weather) rather than on climatology.

His last original research in climatology was published in 2001 (**ISI WoS**) and hypothesized an adaptive “Iris Effect” of clouds in the tropics that reduces the temperature change due to increasing greenhouse gas concentrations. However, this hypothesis has since been strongly disputed by other climate scientists (see <http://tinyurl.com/23gwno>).

Lindzen co-authored a 2001 report of the *National Academy of Sciences* <http://tinyurl.com/yuswbu>, which concluded that:

Greenhouse gases are accumulating in Earth’s atmosphere as a result of human activities, causing surface air temperatures and subsurface ocean temperatures to rise. Temperatures are, in fact, rising. The changes observed over the last several decades are likely mostly due to human activities, but we cannot rule out that some significant part of these changes is also a reflection of natural variability.

He has since claimed that the summary did not accurately reflect the main report, and has made similar criticisms of the IPCC *Summary for Policy Makers* from its 2001 Third Assessment Report (see <http://tinyurl.com/2ay5vj>) – although he has yet to demonstrate the basis of these claims.

Despite reportedly saying that he is “willing to take bets that global average temperatures in 20 years will in fact be lower than they are now”, he has refused to accept a bet with climatologist James Annan on this, unless the payout was 50:1 or better in his favour (see <http://tinyurl.com/39e5ne>).

Lindzen has also been accused by distinguished scientists of having said things in public testimony, in order to win an argument, that he knew were not supported by the scientific evidence – see: <http://tinyurl.com/yo5and>, <http://tinyurl.com/ytb2g9>, <http://tinyurl.com/2a35a6> and <http://tinyurl.com/yrbcbju>.

C.17.1 Direct Corporate Funding

In a 1995 article in *Harper’s Magazine*, Ross Gelbspan asserted that Lindzen “charges oil and coal interests \$2,500 a day for his consulting services; his 1991 trip to testify before a Senate committee was paid for by *Western Fuels*; and a speech he wrote, entitled *Global Warming: the Origin and Nature of Alleged Scientific Consensus*, was underwritten by OPEC” (see <http://tinyurl.com/2rpr7k>, subscription required).

C.17.2 Links to Corporate-funded Lobby Groups

(For information about the following organisations and the funding they receive, see **Appendix D: Corporate-funded Organisations Linked to Contributors to the Programme**).

1. He is a Member of the Science and Economic Advisory Council of *The Annapolis Center for Science-Based Public Policy* (see <http://tinyurl.com/26rdf5>).
2. He is a Contributing Expert to the *Cato Institute*, and has also written reports for them. See, for example, Lindzen, R., 1992, *Global warming: The Origin and Nature of the Alleged Scientific Consensus*, *Regulation Magazine*, Vol.15, No. 2, Spring 1992: published by the *Cato Institute*, <http://tinyurl.com/y9gk3j>.
3. He is a Contributing Expert to the *George C. Marshall Institute* (see <http://tinyurl.com/2sq4pf>).
4. He has been a contributor to *TCS Daily*, the web-based magazine of the *Tech Central Science Foundation* (see <http://tinyurl.com/2lbqad>).
5. He is a global warming expert with the *Heartland Institute* (see: <http://tinyurl.com/33txc4>).

C.18 Professor Paul Reiter

Reiter is director of Insects and Infectious Diseases at the *Pasteur Institute* in Paris. He is a distinguished entomologist specialising in mosquitoes, but although he talked about climate change in the programme, he is not an expert on climate; nor is he an expert on the effects of large-scale environmental change on human health, which he also discussed. Reiter’s primary area of expertise is the mosquitoes that carry diseases *other than* malaria, such as those that carry the West Nile Fever virus: *not* malaria, nor malaria-carrying mosquitoes: yet the narrator of the film referred to him as “one of the world’s leading experts on malaria and other insect-borne diseases” (see **Comment 110**, page 91). In addition, his links with the IPCC were greatly overstated by the programme (see **Comment 115**, page 96).

Thus his credentials with respect to the specific subjects that he discussed in the film were greatly inflated by the film maker, and the public was seriously, and apparently intentionally misled about his expertise in these areas.

It should also have been pointed out that Reiter’s views on the relationship between climate and infectious disease are certainly not shared by all or even by most scientists working in this area. Here are some examples:

Tanser *et al*, 2003, <http://tinyurl.com/yvqnxb>, reports that “projected scenarios would estimate a 5–7% potential increase (mainly altitudinal) in malaria distribution with surprisingly little increase in the latitudinal extents of the disease by 2100”. In comparison, Reiter focuses on the much more ambitious task of predicting disease.

Martens *et al*, 1999, <http://tinyurl.com/342b44>, concludes: “On a global level, the numbers of additional people at risk of malaria in 2080 due to climate change is estimated to be 300 and 150 million for *P. falciparum* and *P. vivax* types of malaria, respectively, under the HadCM3 climate change scenario. Under the HadCM2 ensemble projections, estimates of additional people at risk in 2080 range from 260 to 320 million for *P. falciparum* and from 100 to 200 million for *P. vivax*.”

Githeko and W Ndegwa, 2001, <http://tinyurl.com/3cl7hw>, report that: “We found an association between rainfall and unusually high maximum temperatures and the number of inpatient malaria cases 3–4 months later.”

In addition, Reiter’s links with fossil fuel industry-funded lobby groups that campaign against measures to reduce greenhouse gas emissions were not revealed by the programme (see below), and the public was thus misled about his impartiality.

C.18.1 Links to Corporate-funded Lobby Groups

(For information about the following organisations and the funding they receive, see **Appendix D: Corporate-funded Organisations Linked to Contributors to the Programme**).

1. He is a CEI Expert (see: <http://tinyurl.com/2slt25>^[NH10]) and contributing author (see: <http://tinyurl.com/yrbfcq>) with the *Competitive Enterprise Institute*.
2. He is a member of the *Science and Economic Advisory Council* for *The Annapolis Center for Science-Based Public Policy* (see <http://tinyurl.com/26rdf5>).
3. He is a *Science Roundtable Member* of the *Tech Central Science Foundation* (see <http://tinyurl.com/yuf3ld>).

C.19 Professor John Christy and Dr Roy Spencer

Professor John Christy and Dr Roy Spencer pioneered the use of satellites to monitor temperature trends in the atmosphere. For several years this data appeared to show more warming at the surface than higher in the atmosphere, which, as discussed in the programme, was used to argue against the accuracy of the climate models.

However the programme failed to disclose that Christy and Spencer’s early satellite data has been found to be in error (see <http://tinyurl.com/g2quv>). As concluded in a 2006 report of the *US Climate Change Science Program* (see <http://tinyurl.com/logfl>), resolving these errors resolved the apparent discrepancy between the models and data; and in fact, John Christy was a co-author of this report. See also the 2005 *New York Times* article, *Errors Cited in Assessing Climate Data*: <http://tinyurl.com/35egf3>.

It is therefore deeply misleading for the programme to use the outdated data to imply problems with the climate models or the theory of greenhouse gas-driven warming, without revealing recent developments in the science which have discredited this view.

C.19.1 *Links to Corporate-funded Lobby Groups*

(For information about the following organisations and the funding they receive, see **Appendix D: Corporate-funded Organisations Linked to Contributors to the Programme**).

1. Christy is a member of the *Independent Institute*'s Panel on Global Warming (see <http://tinyurl.com/yp6hh2>). He has also written reports for the *Independent Institute*, e.g. *New Perspectives in Climate Change: What the EPA Isn't Telling Us*, July 28, 2003, <http://tinyurl.com/34rp8y>.
2. Spencer is a *Science Roundtable Member* (see <http://tinyurl.com/yuf3ld>) and contributing author (see <http://tinyurl.com/3au28u>) of the *Tech Central Science Foundation*.
3. Spencer is a Scientific Advisor to the *Interfaith Stewardship Alliance* (see ISA web page at <http://tinyurl.com/yss5dy>). In July 2006, Spencer and three other noted global warming critics co-authored a report published by the ISA, criticising another religious organization for its support for action to reduce CO₂ emissions. For more details, see the ISA entry on page 151.
4. Spencer is a regular contributor to *TCS Daily*, the web-based magazine of the *Tech Central Science Foundation* (see: <http://tinyurl.com/3au28u>).
5. Spencer is a contributing author to the *Heartland Institute* (see <http://tinyurl.com/2payzk>).
6. Spencer is a Contributing Expert to the *George C. Marshall Institute* (see <http://tinyurl.com/238m72>).

C.20 Professor Carl Wunsch

Carl Wunsch is Professor of Physical Oceanography at Massachusetts Institute of Technology, and has a distinguished publication record on oceans and the climate (see <http://tinyurl.com/659hn6>).

Wunsch has reported that he was misled into contributing to the programme, and that his views were seriously misrepresented by it (see <http://tinyurl.com/ypjhh1>). He has since clarified his views on human-induced climate change and on the documentary (see <http://tinyurl.com/2gxorv>).

Appendix D: Corporate-funded Organisations Linked to Contributors to the Programme

The information in the table below was obtained from the websites that it cites and links to throughout. The authors of this complaint carried out this research with the help of many others, whose contributions are acknowledged in section 1.13, page 12.

Organisation	Details
<i>American Council on Science and Health</i> or ACSH [Nt11] www.acsh.org	A lobby group that takes the position on most health and environmental issues that the threat in question is not a serious risk. ACSH has received \$125,000[Nt12] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i> : http://tinyurl.com/26qodt).
<i>American Legislative Exchange Council</i> or ALEC [Nt13] www.alec.org	ALEC lobbies to discredit state level legislation that provides incentives to cut CO ₂ emissions. It has received \$1,127,700[Nt14] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i> : http://tinyurl.com/25dzty).
<i>American Petroleum Institute</i> or API [Nt15] www.api.org	The main U.S. trade association representing the oil and natural gas industry, its activities include lobbying and public relations. A 1998 leaked API memo (see: http://tinyurl.com/v8u2d , Appendix C, Part I) detailed a public relations campaign for defeating the Kyoto Protocol and similar policies by questioning the science of climate change. It states that: “Victory will be achieved when average citizens understand (recognize) uncertainties in climate science” and when public “recognition of uncertainty becomes part of the ‘conventional wisdom’.”
<i>American Spectator</i> [Nt16] www.spectator.org	An on-line and print conservative magazine that has received \$40,000[Nt17] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i> : http://tinyurl.com/2663d6).
<i>Atlas Economic Research Foundation</i> , or AERF [Nt18] www.atlasusa.org	An anti-regulation lobby group which has received \$925,000[Nt19] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i> : http://tinyurl.com/3bnrjh).
<i>Cato Institute</i> [Nt20] www.cato.org	A libertarian “think tank” and lobby group that has received \$125,000[Nt21] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i> : http://tinyurl.com/32428h), as well receiving substantial funding from energy industry-money-backed charitable foundations such as the Charles G Koch Foundation (see <i>Media Transparency</i> : http://tinyurl.com/2qgy4j).

Organisation	Details
<p>Center for the Defense of Free Enterprise or CDFE [Nt22] www.cdfef.org</p>	<p>An anti-environmentalist lobby group and publisher that campaigns, among other things for the exploitation of the petroleum resources in the Arctic National Wildlife Park, and which has published several books attacking environmentalism. They have been quoted in newspaper interviews as saying "We are sick to death of environmentalism and so we will destroy it" (<i>Boston Globe</i>), and "Facts don't really matter. In politics, perception is reality" (<i>Outside Magazine</i>) – see <i>ExxonSecrets</i>: http://tinyurl.com/2rb9wj.</p> <p>CDFE has received \$230,000[Nt23] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/2rb9wj).</p>
<p>Centre for the New Europe [Nt24] www.cne.org</p>	<p>A "think tank" and lobby group that promotes "pro-market" and "European liberal" policies for the European Union, and which regularly collaborates with members of the <i>Atlas Economic Research Foundation</i>.</p> <p>CNE has received \$170,000[Nt25] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/yty46r).</p>
<p>Committee for a Constructive Tomorrow or CFACT [Nt26] www.cfact.org</p>	<p>An anti-regulation lobby group that has received \$567,000[Nt27] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/2zxbu7).</p>
<p>Competitive Enterprise Institute or CEI [Nt28] www.cei.org</p>	<p>An anti-regulation lobby group at the centre of the global warming misinformation campaign.</p> <p>In May 2006 it ran a television advertising campaign in 14 US states featuring two 60 second films which claimed that increasing the levels of atmospheric carbon dioxide is good for us, and included the statement: "carbon dioxide: they call it pollution; we call it life!" See www.cei.org/pages/co2.cfm, http://tinyurl.com/ltb9w and http://tinyurl.com/j45yg. The campaign was the subject of a complaint by Professor Curt Davis, whose studies one of the films had quoted. He said the advertisement had intentionally misrepresented his research, and called it a "deliberate effort to confuse and mislead the public" – see http://tinyurl.com/r62fk.</p> <p>In August 2003, the CEI sued the US Federal Government (see http://tinyurl.com/38w8e3) in order to suppress two major scientific reports concerning the current state of scientific knowledge about global warming. The CEI action failed, and the report was published to worldwide headlines focussing on the fact that the Bush administration was now admitting the science of climate change.</p>

Organisation	Details
	<p>Subsequently a copy of an email was obtained by <i>Greenpeace</i> under the <i>Freedom of Information Act</i> (see analysis at http://tinyurl.com/34vsoa and the email itself at: http://tinyurl.com/2m5sku), which was sent on June 03, 2002 by Myron Ebell, a Director of the CEI, to Phil Cooney, who at the time was the Chief of Staff for President George W. Bush's <i>Council on Environmental Quality</i>. Despite holding a position that one might assume would require scientific training, Cooney is a lawyer and holds a bachelors degree in economics, with no known scientific qualifications (see <i>Wikipedia</i>: http://tinyurl.com/219cz6).</p> <p>Before taking that position, Cooney was a lobbyist for the <i>American Petroleum Institute</i>, the main US trade association for the oil and natural gas industries (see page 145, and <i>Wikipedia</i>: http://tinyurl.com/39gllu and http://tinyurl.com/219cz6).</p> <p>The email from Ebell to Cooney appeared to show Federal Government collusion with the CEI over trying to dampen down the headlines over the report's publication. It also appeared to show collusion over trying to force the resignation of the then head of the <i>Environmental Protection Agency</i>, Christine Todd Whitman. (She subsequently did resign in May 2003: see news report at http://tinyurl.com/yqgtgz).</p> <p>Disclosure of this email led the Attorneys General of Maine and Connecticut to write to US Attorney General John Ashcroft calling for an investigation (see http://tinyurl.com/2erpof).</p> <p>In late 2003, the CEI withdrew its lawsuit, but only after the White House <i>Office of Science and Technology Policy</i> (OSTP) added a caveat to the website hosting one of the reports, stating that it had not been subjected to the OSTP's <i>Information Quality Act Guidelines</i> – without mentioning that these guidelines did not exist when the report was written, and that had they existed at that time, the report would have met them. The CEI then distorted the meaning of this caveat in a press release – see http://tinyurl.com/3cjokm and http://tinyurl.com/34v5n2 (PDF).</p> <p>In 2005, after media attention on the whole affair, and leaking of documents, Phil Cooney resigned from the White House and went to work for ExxonMobil.</p> <p>On March 19, 2006, <i>The Washington Post</i> reported: "The Competitive Enterprise Institute, which widely publicizes its belief that the earth is not warming ... because of the burning of coal and oil, says Exxon Mobil Corp. is a 'major donor' largely as a result of its</p>

Organisation	Details
	<p>effort to push that position.” (see http://tinyurl.com/mvod4).</p> <p>The CEI has received \$2,005,000^[Nt29] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/yvbmzt) as well as receiving funding from Ford and General Motors (see <i>DeSmogBlog</i>: http://tinyurl.com/j45yg).</p>
<p><i>Congress of Racial Equality</i> or CORE^[Nt30] www.core-online.org</p>	<p>A right-leaning civil rights and minority issues organization. Chairman and CEO Roy Innis is an active gun rights activist and has been critical of environmental groups. CORE has received \$260,000^[Nt31] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/3ceww7).</p>
<p><i>Consumer Alert</i> or CA ^[Nt32] (see http://tinyurl.com/2q6soe and http://tinyurl.com/3dae04^[Nt33] – formerly www.consumeralert.org)</p>	<p>An anti-regulation lobby group that has received \$70,000^[Nt34] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/2xa3ot). It has also received substantial funding from the oil company Chevron (see <i>Center for Media and Democracy</i>: http://tinyurl.com/2lk5h3).</p> <p>Consumer Alert may have ceased operations. Its former website, www.consumeralert.org, is no longer online. Its website was operational until at least February 2006 (see the archives at: http://tinyurl.com/2q6soe and http://tinyurl.com/3dae04).</p>
<p><i>Environmental Conservation Organization</i> or ECO ^[Nt35] http://tinyurl.com/33efbt^[Nt36]</p>	<p>An anti-regulation lobby group set up to “to protect private property rights from erosion by excessive environmental regulations” (see <i>ExxonSecrets</i>: http://tinyurl.com/2yr55s).</p>
<p><i>Federalist Society for Law and Public Policy Studies</i> ^[Nt37] www.fed-soc.org</p>	<p>An influential anti-regulation lobby group which <i>The Washington Monthly</i> called “the best-organized, best-funded, and most effective legal network operating in this country” and added, “what gets less attention, however, is that the Society is accomplishing in the courts what Republicans can’t achieve politically” (Jerry Landay, <i>The Federalist Society: The Conservative Cabal That’s Transforming American Law</i>, March 2000).</p> <p>The <i>Federalist Society for Law and Public Policy Studies</i> has received \$105,000^[Nt38] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/2aj6).</p>
<p><i>Fraser Institute</i> ^[Nt39] www.fraserinstitute.org</p>	<p>A Canadian “free market” think tank, it has received \$120,000^[Nt40] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i> http://tinyurl.com/3348tj). It has released several publications criticising climate science and opposing regulations on greenhouse gases (http://tinyurl.com/yoc2fz).</p>

Organisation	Details
<p><i>Friends of Science</i> or FoS [Nt41] www.friendsofscience.org</p>	<p>An anti-Kyoto lobby group partly funded by oil and gas companies (see <i>Center for Media and Democracy</i>: http://tinyurl.com/yojcx and <i>DeSmogBlog</i>: http://tinyurl.com/2vd2b9).</p> <p>In a January 28, 2007 article in the <i>Toronto Star</i> (see http://tinyurl.com/2wvje2), the President of FoS admitted that about one-third of the funding for the FoS is provided by the oil industry.</p> <p>In an August 12, 2006 <i>Globe and Mail</i> feature (which is at http://tinyurl.com/39q2dj), FoS was exposed as being funded in part by the oil and gas sectors and as hiding the fact that they were. According to the <i>Globe and Mail</i>, the oil industry money was funnelled through the <i>Calgary Foundation</i> charity, to the University of Calgary and then put into an education trust for the FoS.</p>
<p><i>Frontiers of Freedom Institute and Foundation</i> or FoF [Nt42] www.ff.org</p>	<p>A lobby group set up to fight environmental regulations, particularly the <i>Endangered Species Act</i> and any law seen as infringing on “property rights.” It has received \$1,182,000 [Nt43] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/ysyp49).</p>
<p><i>George C. Marshall Institute</i>, or GMI [Nt44] www.marshall.org</p>	<p>GMI lobbies on civic environmentalism, climate change and national defence, and has received \$745,000 [Nt45] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/26xkau).</p> <p>For a revealing look at the views of the GMI, see their <i>May 2004 Policy Outlook</i> at http://tinyurl.com/yw8blj (PDF).</p>

Organisation	Details
<p><i>Heartland Institute</i> [Nt46] www.heartland.org</p>	<p>The <i>Heartland Institute</i> is a libertarian lobby group, which, according to its web site is “a non-profit organization devoted to discovering and promoting free-market solutions to social and economic problems.”</p> <p>It claims to be fighting a war against “junk science” (see Google: http://tinyurl.com/28sjro), by which it appears to mean any scientific research into potentially harmful environmental or public health effects of corporate activities that does not set out to minimise the effects of such activities (see http://en.wikipedia.org/wiki/Junk_science). It also promotes what it calls “common-sense environmentalism”, by which it appears to mean denial that there are any problems arising from passive smoking, and being anti-Kyoto and pro-GM. In this it is using the tactics pioneered by <i>The Advancement of Sound Science Coalition</i>.</p> <p>On its website it claims to be a “genuinely independent source of research and commentary”. However, the <i>Heartland Institute</i> has received \$830,000 [Nt47] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/33hllf), as well as being funded by the tobacco companies <i>Philip Morris</i> and <i>Brown & Williamson Tobacco</i>, and by a wide range of libertarian and fossil fuel industry-funded foundations (see <i>Center for Media and Democracy</i>: http://tinyurl.com/23ho7n and <i>Americans for Nonsmokers’ Rights</i>: http://tinyurl.com/2nwnbh).</p>
<p><i>Heritage Foundation</i> [Nt48] www.heritage.org</p>	<p>A lobby group that is a fervent opponent of the Kyoto protocol, and which has received \$565,000 [Nt49] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/259uh5).</p>
<p><i>Hoover Institution on War, Revolution and Peace</i> [Nt50] www-hoover.stanford.edu</p>	<p>A conservative think tank that campaigns against any regulation of greenhouse gasses, and which has received \$295,000 [Nt51] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/3cwue9).</p>
<p><i>Independent Institute</i> [Nt52] www.independent.org</p>	<p>A lobby group that has sponsored global warming critic Frederick Singer, and which has received \$70,000 [Nt53] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/yuk854).</p>

Organisation	Details
<p><i>Interfaith Stewardship Alliance</i> or ISA [Nt54] www.interfaithstewardship.org</p>	<p>According to its website, the ISA is “a coalition of religious leaders, clergy, theologians, scientists, academics, and other policy experts committed to bringing a proper and balanced Biblical view of stewardship to the critical issues of environment and development.”</p> <p>In July 2006, the ISA published a report criticising another religious organization called the <i>Evangelical Climate Initiative</i> or ECI (whose website is at http://tinyurl.com/je9ca) for its support for action to reduce CO₂ emissions.</p> <p>The ISA report was entitled <i>A Call to Truth, Prudence and Protection of the Poor: an Evangelical Response to Global Warming</i> (downloadable from http://tinyurl.com/2z9zfe). The authors of the ISA report were Roy Spencer, Calvin Beisner, Paul Driessen and Ross McKittrick, all of whom are well known global warming critics, all of whom have worked for fossil fuel industry-funded lobby groups (see <i>ExxonSecrets</i>: http://tinyurl.com/28n384), and only one of whom is a scientist (Roy Spencer). The report has had extensive press and blog coverage (see http://tinyurl.com/24qw48 and http://tinyurl.com/39kb7q).</p> <p>A letter of endorsement (at http://tinyurl.com/2jc7oc, PDF) of the ISA report was signed by representatives of various organizations, including six that are funded by <i>ExxonMobil</i>, such as the <i>Competitive Enterprise Institute</i> and the <i>Congress of Racial Equality</i> (see <i>Ethics Daily</i>: http://tinyurl.com/2goge4).</p>

Organisation	Details
<p><i>Intermountain Rural Electric Association</i>, or IREA [Nt55] www.intermountain-rea.com</p>	<p>The IREA is an energy utility, or what is known in the US as a Generation & Transmission Cooperative (G&T). On July 07 2006, the IREA sent a letter to more than 900 fellow members of the National Rural Electric Cooperative Association. The letter is at http://tinyurl.com/ywppbm (PDF). After mentioning the potential threat to the energy industry of emission caps, the letter states:</p> <p style="padding-left: 40px;">We here at IREA believe that it is necessary to support the scientific community that is willing to stand up against the alarmists and bring a balance to the discussion ... We decided to support Dr. Patrick Michaels and his group (New Hope Environmental Services Inc.).</p> <p>It goes on:</p> <p style="padding-left: 40px;">In February of this year, IREA alone contributed \$100,000 to Dr. Michaels. In addition, we have contacted all the G&T's in the United States ... and obtained additional contributions and pledges for Dr. Michaels' group. We will be following up the remaining G&T's over the next several weeks.</p> <p>The letter included a 6 page "fact" sheet containing a great deal of disinformation about the science of climate change (see <i>Realclimate</i>: http://tinyurl.com/35qzp7 and <i>ABC News</i>: http://tinyurl.com/l2o4q).</p>
<p><i>Inter Region Economic Network</i>, or IREN [Nt56] http://www.irenkenya.com</p>	<p>The IREN is a libertarian think tank and lobby group, which has been funded by the <i>International Policy Network</i> (IPN), which was formerly called the <i>Atlas Economic Research Foundation</i> in the UK. According to the Atlas/IPN accounts (see http://tinyurl.com/223rc4), IREN received £6,853 from Atlas in 2001, £4,000 in 2002 and £4,000 in 2003.</p> <p>IPN, in turn, has received \$390,000 [Nt57] in funding from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/2hzwnm).</p> <p>The IREN and its Director James Shikwati are also strongly promoted by the fossil fuel industry-funded lobby group the <i>Atlas Economic Research Foundation</i> (see <i>Google</i>: http://tinyurl.com/36co69). He is also a contributing writer to their magazine (http://tinyurl.com/2kj3sk).</p>
<p><i>National Center for Policy Analysis</i>, or NCPA [Nt58] www.ncpa.org</p>	<p>A lobby group which opposes the Kyoto Protocol and any regulation of greenhouse gases, and which has received \$545,900 [Nt59] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/ydbza3).</p>

Organisation	Details
<i>Natural Resources Stewardship Project</i> or NRSP [Nt60] http://nrsp.com	A public relations and advocacy group which refuses to disclose its funding sources (see <i>Center for Media and Democracy</i> : http://tinyurl.com/37vw8v) but which was founded and is controlled by individuals currently active in lobbying the Canadian government on behalf of the energy sector (see <i>DeSmogBlog</i> : http://tinyurl.com/youp44).

Organisation	Details
<p>Oregon Institute of Science and Medicine or OISM [Nt61] www.oism.org</p>	<p>According to its website, OISM is a “small research institute founded in 1980 to conduct basic and applied research in subjects immediately applicable to improvements in human life” (http://tinyurl.com/24e4aq). It is located on a remote farm in Oregon, with only one paid employee: founder Arthur Robinson (http://tinyurl.com/2tkdws).</p> <p>In 1998 OISM organized a mass mailing of tens of thousands of US scientists [Lahsen 2005 (http://tinyurl.com/ytavvm)]. This included a letter from Frederick Seitz, a former president of the <i>National Academy of Sciences</i> (NAS), and a petition form criticising the science of global warming and opposing the Kyoto Protocol. These were accompanied by a paper, unpublished but formatted in the style of the respected journal <i>Proceedings of the National Academy of Sciences</i>, with authors Arthur Robinson, his son Zachary, and Sallie Baliunas and Willie Soon (see Appendix C.12, page 138) of the <i>George C. Marshall Institute</i>. This paper was heavily criticized for its misleading appearance and content [Science (http://tinyurl.com/2s2rho)], as well for as the fact that none of its authors had previously published any research on climatology (http://tinyurl.com/ypdtbd). The NAS took the unprecedented step of issuing a statement disassociating itself from the project of its former president (http://tinyurl.com/38nqdj).</p> <p>The associated petition, despite being frequently cited by global warming critics as showing that thousands of scientists disagree with the consensus on global warming, contains very few people with relevant expertise; and its vetting was so lax that it included fictional signatories such as Star Wars characters and a member of the Spice Girls [Lahsen 2005 (http://tinyurl.com/ytavvm)].</p> <p>In its IRS Form 990 for 1999, OISM reported revenues totalling \$355,224, most of in the form of contributions from unspecified sources. As president, Arthur Robinson received \$16,691 in salary and benefits. OISM listed \$945,427 in total assets, \$735,888 of which was in the form of land, buildings and equipment. (See the <i>Center for Media and Democracy</i>: http://tinyurl.com/yom8cv.)</p> <p>See also Professor Bolin’s discussion of the OISM in Appendix G: page 165.</p>

Organisation	Details
<p><i>Science and Environmental Policy Project</i>, or SEPP [Nt62] http://tinyurl.com/2tqgp2</p>	<p>An anti-Kyoto, Anti-IPCC, anti-regulation lobby group founded and run by Frederick Singer, that has received \$20,000[Nt63] from <i>ExxonMobil</i> since 2000 (see <i>ExxonSecrets</i>: http://tinyurl.com/2awexa), as well as having received substantial funds from several other fossil-fuel industry sources including Shell, Unocal, Texaco, Arco, and the American Gas Association (see his sworn affidavit at http://tinyurl.com/2rrqz7; <i>HeatIsOnline</i> at: http://tinyurl.com/yqvozw; and <i>Center for Media and Democracy</i>: http://tinyurl.com/yloyf2).</p> <p>SEPP has also received funding from the tobacco industry in return for writing papers challenging the health effects of second-hand smoke (see http://tinyurl.com/3by65a).</p>
<p><i>Tech Central Science Foundation</i>[Nt64] or <i>Tech Central.com</i> www.techcentralstation.com</p>	<p>An anti-regulation lobby group and website that has received \$95,000[Nt65] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/2ffueo) and has also been funded by General Motors (see <i>DeSmogBlog</i>: http://tinyurl.com/35ee9v).</p>

Organisation	Details
<p><i>The Advancement of Sound Science Center</i>, or TASSC [Nt66]</p>	<p><i>The Advancement of Sound Science Center</i> (TASSC), formerly <i>The Advancement of Sound Science Coalition</i>, is an industry-funded lobby group which promotes the idea that environmental science is “junk science”, which should be replaced by “sound science” more favourable to corporate interests (see <i>Wikipedia</i>: http://tinyurl.com/2rgkr8).</p> <p>It runs well-funded campaigns to cast doubt on a variety of environmental and public health issues, including global warming and second hand smoke.</p> <p>It was founded primarily by the tobacco company Philip Morris in 1993 and changed its name after receiving negative exposure in an April 26, 1998 <i>New York Times</i> article: John H. Cushman, Jr., “Industrial Group Plans to Battle Climate Treaty”, http://tinyurl.com/2x86n5.</p> <p>TASSC is headed by Steven Milloy, who also runs the junkscience.com website.</p> <p>See also the following articles, by the <i>Union of Concerned Scientists</i>: http://tinyurl.com/v8u2d (PDF), the <i>University of Maryland</i>: http://tinyurl.com/2hdzbf, the <i>Center for Media and Democracy</i>: http://tinyurl.com/yho43j, <i>Wikipedia</i>: http://tinyurl.com/2rgkr8 and Tim Lambert: http://timlambert.org/2004/02/milloy.</p> <p>TASSC has received \$50,000[Nt67] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/ymsk9). It also receives substantial funding from the mining company 3M, the oil company Chevron, the car firm General Motors and the oil company Occidental Petroleum (see <i>Wikipedia</i>: http://tinyurl.com/2h477f).</p>
<p><i>The Annapolis Center for Science-Based Public Policy</i> [Nt68] www.annapoliscenter.org</p>	<p>A lobby group that argues against the idea that global warming is the result of burning fossil fuels, and which has received \$841,000[Nt69] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/ywptzr)</p>
<p><i>Weidenbaum Center on the Economy, Government, and Public Policy</i> [Nt70] (formerly the <i>Center for Study of American Business</i>) http://wc.wustl.edu</p>	<p>A publishing house that has published the works of several noted global warming critics in its <i>Policy Study</i> series, and which has received \$345,000[Nt71] from <i>ExxonMobil</i> since 1998 (see <i>ExxonSecrets</i>: http://tinyurl.com/ywrpwf).</p>

Organisation	Details
<p><i>World Climate Report/World Climate Review</i>, or WCR [Nt72] www.worldclimatereport.com</p>	<p><i>World Climate Report</i>, which changed its name from <i>World Climate Review</i> in 1995, is an online magazine that argues against limiting carbon emissions in the US. It has been called "a major vehicle for publicizing the arguments and analyses of climate change 'skeptics'", by Congressman George E. Brown in his report <i>Environmental Science Under Siege</i> at http://tinyurl.com/yt79xu (PDF).</p> <p>It is published by New Hope Environmental Services, which is run by Patrick Michaels, and which receives funding from the <i>Greening Earth Society</i> to publish the WCR. The <i>Greening Earth Society</i> was created and is funded by the <i>Western Fuels Association</i>, a national fuel supply cooperative which supplies coal in Missouri, Wyoming and other power plants in the Great Plains (see: http://tinyurl.com/2qvzsj).</p>

Appendix E: Media Coverage Afforded to the Contributors to the *Channel 4* Programme

The following figures were obtained using the Google News and the Google News Archive Search, searching for “climate change” plus the name of one of the contributors to the *Channel 4* programme; and in the case of the Archive Search, setting the start date to May 13, 2006. The search was performed on May 13, 2007, so the two searches combined covered the news articles published during that 12 month period.

Google search results that referred to someone else of the same name (e.g. a different “Ian Clark”) were not included in the results below.

These figures show that **the views of most of the contributors to the *Channel 4* programme on climate change have received extensive press coverage during the past 12 months** – in fact, they have received a remarkable amount of coverage, given that their views on climate science represent a tiny minority view within the climate science community; that few of the contributors to the programme are climate scientists; and that some of them are not scientists at all.

Note also that the figures below are far from being exhaustive. For example, Nigel Calder recently wrote a much discussed and highly controversial opinion article in *The Sunday Times* (February 11, 2007, <http://tinyurl.com/2fhq57>; and see *Realclimate*: <http://tinyurl.com/2klpu6>); which *Google News* and *Google News Archive Search* fail to find. Also, doing a *LexisNexis* media search (<http://alacarte.lexisnexis.com>^[N473]) finds many articles that *Google* misses (and vice versa); but *Lexis Nexis* searches also find a lot of spurious and duplicate articles, because of which the authors of this complaint decided to use *Google News* searches for this research.

So the true figures could well be much higher than the figures shown below.

Thus the implied claim made by the *Channel 4* programme (see **Comment 33**, page 26 and **Comment 66**, page 61) that its contributors’ views are being “censored” by the press, and that they are being treated like “heretics” is directly and verifiably contradicted by the facts.

They must be aware of the media coverage they are receiving, especially as many of the articles were *written* by them; so this appears to have been an attempt to intentionally mislead the viewer.

E.1 Press Articles About Climate Change Annotations During the Past 12 Months Featuring Each Contributor to the *Channel 4* Programme

Contributor	Google News Search	Google News Archive Search	Total no. of articles on climate change in past 12 months
Richard Lindzen	28	139	167

Contributor	Google News Search	Google News Archive Search	Total no. of articles on climate change in past 12 months
Patrick Michaels	16	98	114
Pat Michaels	1	39	40
Total	17	137	154
Patrick Moore	31	75	106
S. Fred Singer	8	75	83
John Christy	8	69	77
Tim Ball	4	54	58
Roy Spencer	13	32	45
Nigel Lawson	2	42	44
Philip Stott	2	29	31
Willie Soon	1	27	28
Paul Reiter	7	20	27
Piers Corbyn	0	19	19
Paul Driessen	1	17	18
Ian Clark	2	10	12
Eigil Friis-Christensen	5	6	11
Nigel Calder	2	7	9
Syun-ichi Akasofu	2	2	4
James Shikwati	2	0	2
Nir Shaviv	1	1	2

E.2 Examples of Sympathetic Press Coverage of Contributors to the *Channel 4* Programme

Contrary to the impression that the film attempted to create, much of the media coverage of the contributors to the *Channel 4* programme – including in some of the major opinion-forming publications and television channels – has been sympathetic. Here are ten examples:

1. *Newsweek* (US), April 16, 2007: *Why So Gloomy?*, written by **Richard Lindzen**: <http://tinyurl.com/26962z>.
2. *The Sunday Telegraph* (UK), October 30, 2006: *The temperature is as likely to go down as up*, written by **Richard Lindzen**: <http://tinyurl.com/y8hezsm>.
3. *CNN* (US), August 19, 2002: featured **Patrick Michaels** on its *Capital Gang* program as its “Newsmaker of the Week” (<http://tinyurl.com/2zy2cv>).

4. *The Washington Post* (US), April 16, 2006: *Going Nuclear; A Green Makes the Case*, written by **Patrick Moore**: <http://tinyurl.com/3xmyzm>.
5. *The New York Times* (US), November 15, 2006: *Climate Plan Is Criticized As a Risky Bet*^[Nt74]: the abstract reads as follows:

Dennis Avery and **Fred Singer**, co-authors of the new book, “Unstoppable Global Warming: Every 1,500 Years,” discuss why they think Democratic leadership will not produce much change.
6. *The Calgary Sun* (Canada), June 4, 2006: *Public Warming To Kyoto Debate*, states states (see: <http://tinyurl.com/3xldtx>^[Nt75]):

Scientists – those men and women whose work is supposed to be the basis for all pro-Kyoto policy – continue to speak out more and more against the establishment view on climate change.

The article goes on to quote **Tim Ball** as saying:

Over the past 10 years, the public has been hoodwinked into thinking our emissions of carbon dioxide (CO₂) are leading to a climate catastrophe. In reality, CO₂ is essential for photosynthesis and its rise and fall has never been closely correlated with the warming and cooling of the planet.
7. *The Observer* (UK), May 13, 2007, *Watch out, Nigella: dad’s back in town*: profile of **Nigel Lawson** (<http://tinyurl.com/2sn4tc>). The introductory paragraph reads:

Nigel Lawson may be in idyllic semi-retirement in France – but, as he tells William Keegan, he still has the stomach for a battle over climate change that could keep him in the headlines alongside his celebrity offspring.
8. *The BBC* (UK), October 25, 1999, ‘Ignore global warming hype’ says scientist, written by **Philip Stott**: <http://tinyurl.com/38vcyb>.
9. *The Sunday Times* (UK), February 11, 2007: *An experiment that hints we are wrong on climate change*, written by **Nigel Calder**: <http://tinyurl.com/2fhq57>.
10. *The New York Times* (US), November 18, 2006: *Preaching Free-Market Gospel to Skeptical Africa*, a two page profile on **James Shikwati**: <http://tinyurl.com/35qu8k>.

Appendix F: Some Factors to Consider when Setting the Penalty

We refer to *Ofcom*'s draft penalty guidelines (<http://tinyurl.com/3ajn5x>):

F.1 General Criteria

6. In general, *Ofcom* is likely first to consider the following factors in determining the starting figure of any penalty:

- the seriousness of the contravention;
- any precedents set by previous cases; and
- the need to ensure that the threat of penalties will act as a sufficient incentive to comply.

This complaint cites 137 breaches of *Ofcom* regulations, indicating the seriousness of the contravention. Furthermore, the producers and broadcasters of the programme, *WagTV* Martin Durkin and *Channel 4*, were subject to a ruling by the Independent Television Commission (ITC) for a previous documentary, *Against Nature* (<http://tinyurl.com/2lcsvq>). Martin Durkin accepted the ruling (<http://tinyurl.com/2a9urq>). Given the repeat offences by Durkin and *Channel 4* in *The Great Global Warming Swindle*, *Ofcom* should pay special attention to deterring future breaches effectively, as the ITC ruling clearly did not act as a deterrent, or as a sufficient incentive to comply.

F.2 Specific Criteria which May be Relevant Depending on the Contravention

7. Certain specific criteria may be relevant to adjust the starting figure of any penalty depending on the type of contravention. This may include, but would not necessarily be limited to::

- any gain (financial or otherwise) made by the person in breach (or any connected person);

The film's production company *WagTV* is planning to release the film on DVD in September 2007 (see *Amazon*: <http://tinyurl.com/yrv6zf>), and therefore stands to make a considerable financial gain from it.

F.3 Factors Tending to Lead to an Increase in the Level of any Penalty

8. This may include, but would not necessarily be limited to:

- repeated contraventions by the same person;
- continuation of the contravention by the person concerned after either becoming aware of the contravention or being notified of an investigation by Ofcom;
- the degree of wilfulness or intentionality of the contravention;
- the complicity of senior management in any contravention; and
- the ineffectiveness or repeated failure of internal mechanisms or procedures intended to prevent contravention by the person concerned or other persons in the same group.

F.3.1 Post-programme Breaches of Ofcom's Penalty Guidelines by Martin Durkin

Points to consider:

1. As stated above, Martin Durkin from *WagTV* and *Channel 4* have been subject to a previous ITC ruling. The repetition of breaches should be taken into account.
2. Following the broadcast of *The Great Global Warming Swindle*, when publicly confronted for using misleading/falsified graphs in the documentary, Durkin responded, in correspondence with a scientist at Imperial College and a well-known science writer (see <http://tinyurl.com/2q6ngj>): "never mind an irresponsible bit of film-making," and seemed to justify his inaccuracies on the basis that he felt the BBC's coverage of the global warming issue was also biased ("wilfulness or intentionality").

In addition, even though Durkin was made aware on March 9, in the course of this correspondence, that the Friis- Christensen graph in the programme contained disputed and possibly faked data (see **Comment 60**, page 55), this section of the programme was broadcast unchanged on March 12 on *More4* ("continuation of the contravention by the person concerned after ... becoming aware of the contravention").

3. Since the broadcast, Durkin has also continued to present the *Channel 4* programme's viewpoints publicly as if they were uncontested facts. In a column in *The Daily Telegraph* on 17 March (<http://tinyurl.com/2clgy4>) he claims in that article that the so-called "hockey stick" temperature reconstruction has been discredited, that the Friis-Christensen solar-temperature graph hasn't been disputed, that the ice-core record indicates that carbon dioxide cannot drive temperature change, and that sulphur dioxide (SO₂) emissions are higher now than they were in the 1970s therefore we must experience cooling now.
- 3.1. A report by the US National Research Council's *Board on Atmospheric Sciences and Climate* reviewed all the research that has been done to date on surface temperature reconstructions for the last 2,000 years, including the Mann paper that Durkin referred to as the "hockey stick". The Committee published a report in 2006 that agreed that there

were statistical shortcomings in the MBH analysis, but concluded that they were small in effect. (<http://tinyurl.com/36dzh3>). See also Bob Ward's correspondence with Martin Durkin on this subject at <http://tinyurl.com/yr9ujs> (PDF).

- 3.2. The Friis-Christensen graphs have indeed been subject to significant dispute, as mentioned elsewhere in this complaint. The issue of the CO₂ temperature lag has also been disputed, as mentioned elsewhere in this complaint.
- 3.3. Global SO₂ emissions are not currently higher than they were in the 1970s. In 2000, they were roughly 20% lower than their 1975 peak. (<http://tinyurl.com/296hw9>, PDF, page 12, Fig 1).
- 3.4. In addition, the impact on the climate by SO₂ is much quicker than that of CO₂, so it is to be expected that emissions from early on in the 20th century (which caused SO₂ cooling post-World War II) are no longer masking CO₂-driven warming.
4. When one of the contributors to the programme, Carl Wunsch, publicly stated that he had been misrepresented by the film, Durkin threatened him with a defamation lawsuit in an apparent attempt to silence him (see <http://tinyurl.com/33x4qe>, PDF).
5. Durkin has also attempted to publicly discredit Wunsch by claiming that Wunsch attacked the way he was represented in the film only as a result of peer pressure to do so. For example in Durkin's radio interview with Charles Adler at <http://tinyurl.com/yv89bx>, Durkin states:

It would be unfair to Professor Wunsch to go into my analysis of his motives for distancing himself from the documentary now, but all I would say as a general rule is that scientists who stick their head above the parapet and say things that, you know, are against the grain, if you like, with global warming theory often find themselves under really, really vehement attack.

However, not only do Wunsch's published writings on the subject make it clear that, despite having reservations about some press reporting and some modelling, he believes that global warming is a very serious threat and that models are essential to understanding climate change (see *The Economist*: <http://tinyurl.com/yqca4d>, Wunsch, C., 1999, *Bull. Am. Met. Soc.*, <http://tinyurl.com/2of3ca> and his email at <http://tinyurl.com/2lgtjr>, PDF); but he also emailed one of the authors of this report at 10:31am his time, and again at 11:35am, on March 9, 2007, the morning after the broadcast, stating that he had been misrepresented by the film – long before he could credibly have been pressured to do so by his peers. Those emails are at <http://tinyurl.com/2hh4jn>, PDF.

F.3.2 Post-programme Breaches of Ofcom's Penalty Guidelines by Channel 4

In correspondence between George Monbiot and Hamish Mykura (Head of History, Science and Religion, Channel 4), which was made public, it is apparent that senior management were complicit in the breach of regulations by *The Great Global Warming Swindle* (<http://tinyurl.com/ytygy5>). Mykura claims in the

correspondence that the film underwent "rigorous editorial scrutiny", and yet this complaint has found 137 separate breaches, in the *Channel 4* programme, of the *Broadcasting Code*, 105 of which were also apparent breaches of the *Communications Act*.

Mykura claims that *The Great Global Warming Swindle* was part of an environment season on *Channel 4*. This is incorrect: it was not announced on *Channel 4* at any time that it was part of any series of related programmes. In spite of the detailed and well-referenced allegations of falsifications of facts that Mykura received from Monbiot, Mykura justifies the programme simply by stating that the *Channel 4* programme is "polemical" and that it was intended to start a "debate".

Appendix G: Professor Bert Bolin’s Peer Review Comments

Comments to ‘IPCC WG 1 Section of the “The Great Global Warming Swindle” Transcript’

by
Bert Bolin
IPCC Chairman 1988 – 1997

I find this article exceedingly well and carefully written and cannot spot any inaccuracies. I wish here simply to add further factual information that I recall from my time as chairman for the IPCC, 1988 – 1997.

Comment 1. [Note by the authors of this complaint: this is **Comment 17 in the current document.**] I have seen this comment that that “the conclusions of the IPCC are “politically driven”. I have never seen this statement elaborated to show by whom such political initiatives have been taken, nor have any aims of such political motives been specified.

Comment 2. [Comment 19 in the current document.] I fully endorse the analysis made. On the other hand, in 1998 Professor Seitz, in his capacity of being President of the George Marshall Institute initiated a public appeal in the form of a Petition that was circulated widely across the US, in which case reference was made to 15 000 experts in the field that clearly was a fallacy, see further Comments 9.

Comments 3, 4, 5, 6: [Comments 20, 34, 23, and 72 in the current document.] I fully endorse the comments made.

Comment 7. [Comment 73 in the current document.] A somewhat longer quote from the Summary for Policy Makers seems most appropriate. ‘The size of the warming [so far] is broadly consistent with predictions of climate models, but it is also of the same magnitude as natural climate variability. Thus the observed increase could be largely due to this natural variability; alternatively this variability and other human factors could have offset a still larger human-induced greenhouse gas warming. The unequivocal detection of the enhanced greenhouse effect from observations is not likely for a decade or more.’ This statement describes very well the state of knowledge in 1990 and research during the fifteen years since then shows that this conclusion was indeed well expressed and largely correct.

Comment 8. [Comment 74 in the current document.] This is a very common criticism that still appears for example on the Internet. The last IPCC Assessment Report again shows the lack of credibility of such views, but of course recognises that variations of solar radiation probably plays some minor role

Comment 9. [Comment 114 in the current document.] The incident that is referred to occurred in 1996 in the aftermath of the appearance of the Second IPCC Assessment Report, SAR. I had been present at the Working Group 1 Plenary session in November 1995 in Madrid, when the conclusions referred to by Professor Seitz were agreed by representatives from about 90 countries. It is most appropriate to cite the key paragraph that repeatedly came up for discussion during the year and also on many occasions later:

Our ability to quantify the human influence on global climate is currently limited because the signal is still emerging from the noise of natural variability, and because there are uncertainties in key factors. These include the magnitude and patterns of long term variability and the time-evolving pattern of forcing by, and response to, changes in concentrations of greenhouse gases and aerosols, and land surface change. Nevertheless, the balance of evidence suggests that there is a discernable influence on global climate.

This carefully worded paragraph expresses very well the scientific uncertainty that at the time still prevailed about human induced climate change. No catastrophes were described. It was also agreed by the Working Group that the outcome of the discussions, in particular the statements made by the Principle Lead Authors of the chapter at the session, should be reflected in the modifications of the report to include the gist of the discussions at the session and in order to ascertain consistency between the Summary for Policy Makers and the bulk report presented to the session by the Lead Authors' team. It was also agreed that any objections that might arise before the IPCC Plenary Session in Rome (three weeks later) should be brought forward at that later time. No such later requests for change were made and the Summary for Policy Makers had therefore been unanimously agreed.

I readily verify that the description of the course of events in 1996 is correct but wishes also to draw the attention to another initiative taken by Professor Seitz in April 1998 in the form of a Petition that was circulated widely across the US with the aim to prevent the ratification of the Kyoto Protocol. The project was supported by an eight pages review of the "global warming" issue that had been prepared by four researchers at the Oregon Institute of Science and Medicine, and it was claimed that the petition had been signed by about 15,000 scientists. None of the authors had previously published anything dealing with the climate change issue, nor had the article appeared in any peer-reviewed journal. It was, however, printed with a lay-out that was identical to the one used in the Proceedings of the *National Academy of Sciences* (PNAS), presumably with the intension to enhance its credibility amongst potential supporters. The Academy took, however, the extraordinary step of disassociating itself from the initiative of one of its former presidents, expressing the view that the article "*does not reflect the conclusions of expert reports of the Academy*". A closer look at the endless list of names also revealed that few of those that had signed were working in the field of climatology and hardly anyone, as far as I know, was a leading scientist in the field. Actually, a large majority was laymen and had very little knowledge about the issue at stake. This indeed shows the lack of trustworthiness of the George Marshall Institute and its head Professor Fredrick Seitz.

Appendix H: The Misquoting and Distortion of David King’s “Antarctica” Comment

The Great Global Warming Swindle ended with Dr Frederick Singer saying: “There will still be people who believe that this is the end of the world – particularly when you have, for example, the chief scientist of the UK telling people that by the end of the century, the only inhabitable place on the earth will be the Antarctic; and it may, humanity may survive, thanks to some breeding couples who moved to the Antarctic – I mean this is hilarious. It would be hilarious, actually, if it weren’t so sad.”

This is a serious distortion of the 2004 testimony of Professor Sir David King, the Chief Scientific Advisor to the Government, to a House of Commons Select Committee. In fact, he said (<http://tinyurl.com/2j2yt7> [British Parliament website, *Publications and Records*]):

Fifty-five million years ago was a time when there was no ice on the earth; the Antarctic was the most habitable place for mammals, because it was the coolest place, and the rest of the earth was rather inhabitable because it was so hot. It is estimated that it was roughly 1,000 parts per million then, and the important thing is that if we carry on business as usual we will hit 1,000 parts per million around the end of this century.

First of all, King said nothing about the survival of the humanity depending on breeding couples moving to the Antarctic. This is a complete fabrication.

Secondly, King was not predicting that Antarctica would be the only habitable place on Earth. He said that, if we continue emitting carbon dioxide under a business as usual scenario, then by the end of the century atmospheric levels would reach levels not seen for 55 million years. Extending the analogy, he then noted that the most habitable place for mammals at the time was Antarctica. Hence, Singer exaggerates by changing the “most habitable” to “the only inhabitable” place on Earth. Furthermore, King’s “prediction” was contingent on a particular scenario, and appears to have been meant to draw attention to the seriousness of the problem by analogy to the past, rather than a precise prediction of the future consequences of climate change.

Nevertheless, one could criticise King for not making it sufficiently clear that 1,000 ppm is a worst case scenario (see <http://tinyurl.com/3xuqxy> for the SRES scenarios used by the IPCC); or question the accuracy of an analogy to such ancient conditions, when, for example, the positions of the continents were rather different to today. Whilst King’s statement may be open to criticism, responsible journalism and responsible scientists would criticise what he actually said, rather than ridiculing an exaggerated caricature – especially when he was not given the opportunity to defend himself.

For a more detailed discussion of the origin of this oft-quoted myth about Sir David King, see <http://tinyurl.com/2unkmr>.

Appendix I: Backgrounds of the Authors of this Complaint

I.1 Lead Authors

I.1.1 *Nathan Rive*

PhD researcher at the Centre for Environmental Policy, Imperial College London and research fellow at Center for International Climate and Environmental Research, Oslo (CICERO), Norway. He has a background in physics (BSc) and energy policy (MSc).

Rive co-runs a weblog called “In the Green” (<http://tinyurl.com/3baz8a>) and was possibly the first person to write a refutation of the *Channel 4* programme, which he posted on March 9, 2007 (<http://tinyurl.com/397sy8>).

Mr Rive has written a joint memo with Dr. Eigil Friis-Christensen regarding the use of one of the solar-climate graphs in the programme. They stated that they had reason to believe that the graph included artificial data, and that the associated narration incorrectly ruled out anthropogenic greenhouse warming (see [Comment 60](#), page 55). The full statement is available online (<http://tinyurl.com/yvmatf>), and the story was subsequently covered in *The Independent* (<http://tinyurl.com/2x7rcc>).

I.1.2 *Dr Brian Jackson* ^[Nt76]

A theoretical physicist and postdoctoral research fellow, School of Mathematics and Statistics, University of Newcastle. PhD & BSc: Physics, University of Durham, see <http://tinyurl.com/27bwtb>. His interest in climate science is purely as an amateur, although he has studied the subject extensively in his spare time.

I.1.3 *Dave Rado*

A concerned layman who objects to the amount of distortion of science that occurs in the press. Has a sound layman’s understanding of the science behind climate change, and has the ability to communicate complex scientific ideas to other laymen. Mr Rado project-managed the compiling of this document and acted as editor.

I.2 Other Contributing Authors

I.2.1 *Dr Robert Marsh*

Research Scientist at the National Oceanography Centre, Southampton and IPCC Contributing Author. Research interests include ocean global ocean modelling, earth systems modelling and palaeoclimate modelling. See <http://tinyurl.com/252yek> and <http://tinyurl.com/33eksw>.

Dr Marsh has co-written (with the lead authors) those sections of this complaint that relate to *IPCC Working Group I* and to oceanography.

I.2.2 *Professor Alistair Woodward*

Head of the *School of Population Health, Medical and Health Sciences, University of Auckland*. Lead Author for the 3rd and 4th Assessment Reports of *IPCC Working Group II*. Areas of expertise include epidemiology, environmental health, the

social determinants of health, and the effects of tobacco. Has published on a wide range of population health issues, including the effects of climate change on health (see <http://tinyurl.com/25h7d7> and <http://tinyurl.com/2tdd5u>).

Professor Woodward has co-written (with the lead authors) those sections of this complaint that relate to *IPCC Working Group II* and to the epidemiology and entomology content of the IPCC WG2 reports.

1.2.3 *Dr Jonathan Kohler*

Dr Kohler is an economist, and a Senior Research Associate with the *Tyndall Centre for Climate Change Research*. Research interests include scenario-generation of urban land use, technological change, macroeconomic analysis of climate change policy and transport policy. See also <http://tinyurl.com/yqs2x3>.

Dr Kohler has co-written those sections of this complaint that relate to alternative energy and development economics.

1.2.4 *Monica Samec*

Monica Samec is a renewable energy consultant working in Nigeria. She holds degrees in chemistry, physics and international development from the University of Toronto. She has had first hand experience working with grass roots renewable energy projects in both Nigeria and Indonesia. She currently serves as an Advisor for the Council for Renewable Energy in Nigeria (<http://renewablenigeria.org>)

Ms Samec has co-written those sections of this complaint that relate to alternative energy and development economics.

1.2.5 *Dr Julie Doyle*

Dr Julie Doyle is a Senior Lecturer in Media and Communication Studies at the University of Brighton, UK. She has published work on environmental and science communication, with a specific focus upon the history of climate change communication by environmental NGO's. She has been involved in the environmental movement since 1994, initially as an active member of a local Greenpeace group, and from 1997-2003 as co-ordinator of Brighton and Hove Greenpeace local campaign group. In this capacity, she has been involved in local and national Greenpeace campaigns, and has also worked closely with other environmental NGOs, such as *Friends of the Earth*, on joint climate change campaigns. More recently she has contributed to work done by ‘Stop Climate Chaos’ – a coalition of environmental groups, campaign groups and international development agencies – through dialogue with MPs on climate change policies.. See also: <http://tinyurl.com/2sdo3m>.

Dr Doyle has co-written (with the lead authors) those sections of this complaint that relate to the *Channel 4* programme's criticisms of the media. She also peer reviewed those sections of this complaint that relate to the environmental movement (see Appendix **J.10**, page **172**).

Appendix J: Backgrounds of the Peer Reviewers of this Complaint

J.1 Professor John Shepherd

John Shepherd is Professor of Marine Sciences, School of Ocean and Earth Science, National Oceanography Centre, University of Southampton.

He is also a Deputy Director of the Tyndall Centre for Climate Change Research. He was elected a Fellow of the *Royal Society* in 1999. See also <http://www.jgshepherd.com>.

Professor Shepherd reviewed the entire complaint.

J.2 Dr William Connolley [Nt77]

Research interests include sea-ice modelling and comparison of climate models and observations (see <http://tinyurl.com/yqzox7>). A frequent contributor to Realclimate (www.realclimate.org), a weblog initiative to explain the latest climate science developments to laymen. Senior Scientific Officer and Climate Modeller in the Physical Sciences Division of the *British Antarctic Survey*, but reviewed this document in a personal capacity.

Dr Connolley reviewed the entire complaint.

J.3 Dr Robert Marsh

See also Appendix **I.2.1: Dr Robert Marsh**.

Dr Marsh reviewed those sections of this complaint that he did not write himself.

J.4 Dr Bert Bolin [Nt78]

Dr Bolin is a meteorologist and a climate researcher, who served as the first Chairman of the IPCC, from 1988 to 1997. He was Professor of Meteorology at Stockholm University between 1961-1990. He has been scientific director of the *European Space Research Organisation* (now known as *European Space Agency*) and has received many awards and honours for his meteorological and climate research, including the *Blue Planet Prize* (1995), often considered to be the “Nobel Prize for environmental sciences”. See also <http://tinyurl.com/2lj549> (PDF).

Dr Bolin reviewed those sections of this complaint that relate to *IPCC Working Group I*.

J.5 Professor James McCarthy

James J. McCarthy is Alexander Agassiz Professor of Biological Oceanography at Harvard University. His research interests relate to plankton productivity in the sea in regions that are strongly affected by seasonal and inter-annual variation in climate; and he is the author of many scientific papers. He served as co-chair of the *IPCC Working Group II* (2001) and was a Lead Author for the recently completed *Arctic Climate Impact Assessment*. For two decades he was the Director of Harvard’s *Museum of Comparative Zoology*, and he is President-Elect of the

American Association for the Advancement of Science. See also <http://tinyurl.com/2e56dq>.

Professor McCarthy reviewed those sections of this complaint that relate to *IPCC Working Group II* and to the epidemiology and entomology content of the IPCC WG2 reports.

J.6 Professor Tony McMichael

Professor McMichael is Director of the *National Centre for Epidemiology and Population Health*, in The Australian National University, Canberra. Previously he was Professor of Environmental Health at Adelaide University (1986-93) and Professor of Epidemiology at the London School of Hygiene and Tropical Medicine (1994-2001) – see <http://tinyurl.com/bnhbt>. He was a Convening Lead Author for the IPCC Working Group II chapter on Health, in the Second and Third Assessments, and Review Editor for that chapter in the Fourth Assessment (see <http://tinyurl.com/34y7tg> and <http://tinyurl.com/2jq8od>).

Professor McMichael reviewed those sections of this complaint that relate to *IPCC Working Group II* and to the epidemiology and entomology content of the IPCC WG2 reports.

J.7 Dr Chris Curtis ^[Nt79]

Dr Curtis is Emeritus Professor of Medical Entomology with the London School of Hygiene and Tropical Medicine. His research interests include insects, malaria and health inequalities, and especially the control of malaria mosquitoes, particularly by use of pyrethroid treated bednets. He has also published a number of papers on the role of DDT in malaria control. See also <http://tinyurl.com/22vn83>.

Professor Curtis reviewed those sections of this complaint that relate to the epidemiology and entomology content of the *IPCC Working Group II* reports.

J.8 Dr Jim Watson

Jim Watson is Co-Deputy Leader of the *Tyndall Centre for Climate Change Research's* Energy Programme (see: <http://tinyurl.com/375gel>), specifically researching carbon lock-in. He is also Senior Lecturer and Senior Fellow in the *Science and Technology Policy Research Unit* at Sussex University (see: <http://tinyurl.com/2o89k3>). His research interests include carbon lock-in, and the development and deployment of small-scale ‘distributed’ energy sources.

Dr Watson reviewed those sections of this complaint that relate to alternative energy and development economics.

J.9 Dr Joe Smith

Dr Smith is a Senior Lecturer in Environment at The Open University. He has written books on the green movement (2006) climate change (2003) and the media and global environmental issues (2000). He is currently developing an edited volume “Do good lives have to cost the Earth?”. Two current research projects explore the politics of consumption, and the media’s role in shaping public debate

about complex issues. He is Co-Director of the *Cambridge Media and Environment Programme* which, since 1996, has run seminars on environmental change and development issues for senior media decision makers, mainly from BBC news and TV. He has acted as academic consultant on a number of BBC projects including David Attenborough’s *BBC One* programmes for the 2006 climate change season and *BBC Two’s Coast* (2005). He is initiator and chair of *Interdependence Day*, a new communications and research project that takes a fresh look at global issues: www.interdependenceday.co.uk. He holds a BA degree in Social and Political Sciences and a PhD in Geography from the University of Cambridge. See also <http://tinyurl.com/yvao5r>.

Dr Smith reviewed those sections of this complaint that relate to the *Channel 4* programme’s criticisms of the media.

J.10 Dr Julie Doyle

See also Appendix **I.2.5: Dr Julie Doyle**, page 169.

Dr Doyle reviewed those sections of this complaint that relate to the environmental movement.

J.11 Cindy Baxter

Journalist, campaign and media strategist, Cindy Baxter began working on climate change in 1988 while press secretary for the New Zealand Prime Minister. She attended her first international climate change negotiations in 1991 for Greenpeace International. This was before the *UN Framework Convention* was signed in 1992. She has closely tracked the fossil fuel industry’s campaign with the lobby groups and global warming critics against action on climate ever since. She coordinated the *StopEsso* campaign in London 2001-2004 when, with Greenpeace USA’s Kert Davies, she set up the *ExxonSecrets.org* website, which she still works on today.

Ms Baxter reviewed the sections of this complaint that related to the credentials, funding and links to lobby groups of the contributors to the *Channel 4* programme.

J.12 Andy Rowell

Andy Rowell is a freelance writer and investigative journalist. He has written three books, including *Green Backlash – Global Subversion of the Environment Movement*. He is also one of the founders of *SpinWatch*, which tracks corporate and political PR. See also <http://www.andyrowell.com> and www.spinwatch.org.

Mr Rowell reviewed the section of this complaint that relates to the background of the film maker.

Appendix K: Alphabetical List of the References Used in this Complaint to Peer Reviewed Literature

[All URLs accessed June 1, 2007]

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Pop-up Notes

Cover sheet

[Nt1] With regard to the “last updated” date of 11 June 2007 (displayed in the footer of every page), the only differences between this document and the complaint that was submitted on that date are: (1) any urls (web addresses) that are linked to from the complaint, and which have relocated since the complaint was submitted, have been updated so as to show the new (current) web addresses; and (2) we have inserted some explanatory pop-up comments such as this one. We will continue to preserve the integrity of this as a faithful copy of our original complaint by making no changes to it that don’t fall into one or other of the above categories. (The text in these pop-up notes has also been appended to the end of this document, so that you can still read them if you are reading a printed copy.)

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[Nt2] When this complaint was submitted, we linked to <http://tinyurl.com/2ca6q>. However that web page now loads a new version of the paper in question that has been completely rewritten since our complaint was submitted. The current link is to an archived copy in PDF format of the paper as it was on 21 March 2007.

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[Nt3] See also the Addendum to this complaint at <http://tinyurl.com/39j4xf> (PDF), which was submitted to Ofcom on 09 June 2007.

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[Nt4] When this complaint was submitted, the link was to <http://tinyurl.com/25tb9q>. However that web page no longer exists and the current link is to an archived copy of that web page, taken from *Google cache*, as it was on the date this complaint was submitted

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[Nt5] It should also have been mentioned in our complaint that Dr Stott has never had any involvement with the IPCC, on which he commented as an “authority” in the film.

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[Nt6] After this complaint was submitted, the ECO website appears to have been shut down. We originally linked to their “Who we are” page, which was then located at <http://www.eco.freedom.org/whoweare.html>. The new link is to an archive of its “Who we are” page, which was archived by the *Wayback machine* on 15 April 2007.

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[Nt7] In our complaint we originally linked to <http://tinyurl.com/2xj7lj>, which was the page on the CEI website that listed Professor Michaels as a CEI Expert, but this page has since been taken down. The current link is to an archive copy of that CEI webpage, as it appeared at the time this complaint was submitted.

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[Nt8] In our complaint we originally linked to <http://tinyurl.com/3dxspv>, which is an archived copy of the “Staff Advisers” page of the *Consumer Alert* website, which was archived by the *Wayback Machine* website on 18 April 2005. However, after our complaint was submitted, the owners of the Consumer Alert domain name put a “robots.txt” file onto the *Wayback Machine*, in order to block access to their archived pages. The current link is to a *Center for Media and Democracy* article that lists Michaels on *Consumer Alert’s* Advisory Council.

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[N19] In addition to the seven lobby groups listed below, Dr Soon also has close links with the *Oregon Institute of Science and Medicine* – see the OISM entry on page 154 for details.

Page: 143

[N10] In our complaint we originally linked to <http://tinyurl.com/2f427u>, which was the page on the CEI website that listed Professor Reiter as a CEI Expert, but this page has since been taken down. The current link is to an archive copy of that CEI webpage, as it appeared at the time this complaint was submitted.

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[N11] Contributors to the film who have links with the ACSH: Dr Frederick Singer, Professor Patrick Michaels.

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[N12] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/26qodt> [ExxonSecrets].

Page: 145

[N13] Contributors to the film who have links with ALEC: Professor Patrick Michaels.

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[N14] This was the total *ExxonMobil* donations figure received from *ExxonSecrets* researchers at the time that this complaint was submitted in June 2007. Subsequently, new data has been uploaded and data entry and programming errors have been corrected, causing the total figures for some organizations, including ALEC, to be somewhat overstated or understated in this complaint. For the accurate updated figures and links to *Exxon* source documents, see: <http://tinyurl.com/25dzty> [ExxonSecrets].

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[N15] Contributors to the film who have links with the API: Dr Willie Soon.

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[N16] Contributors to the film who have links with the *American Spectator*: Professor Patrick Michaels.

Page: 145

[N17] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/2663d6> [ExxonSecrets].

Page: 145

[N18] Contributors to the film who have links with the AERF: Paul Driessen.

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[N19] This was the total *ExxonMobil* donations figure received from *ExxonSecrets* researchers at the time that this complaint was submitted in June 2007. Subsequently, new data has been uploaded and data entry and programming errors have been corrected, causing the total figures for some organizations, including the AERF, to be somewhat overstated or understated in this complaint. For the accurate updated figures and links to *Exxon* source documents, see: <http://tinyurl.com/3bnrjh> [ExxonSecrets].

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[N20] Contributors to the film who have links with the *Cato Institute*: Dr Frederick Singer, Professor Patrick Michaels, Professor Richard Lindzen.

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[N121] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/32428h> [ExxonSecrets].

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[N122] Contributors to the film who have links with the CDFE: Paul Driessen.

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[N123] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/2rb9wj> [ExxonSecrets].

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[N124] Contributors to the film who have links with the *Centre for the New Europe*: Dr Frederick Singer.

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[N125] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/yty46r> [ExxonSecrets].

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[N126] Contributors to the film who have links with CFACT: Paul Driessen, Professor Patrick Michaels.

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[N127] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/2zxbu7> [ExxonSecrets].

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[N128] Contributors to the film who have links with the CEI: Professor Patrick Michaels, Professor Paul Reiter.

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[N129] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/yvbmzt> [ExxonSecrets].

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[N130] Contributors to the film who have links with CORE: Paul Driessen.

Page: 148

[N131] This was the total *ExxonMobil* donations figure received from *ExxonSecrets* researchers at the time that this complaint was submitted in June 2007. Subsequently, new data has been uploaded and data entry and programming errors have been corrected, causing the total figures for some organizations, including CORE, to be somewhat overstated or understated in this complaint. For the accurate updated figures and links to *Exxon* source documents, see: <http://tinyurl.com/3ceww7> [ExxonSecrets].

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[N132] Contributors to the film who have links with CA: Professor Patrick Michaels.

Page: 148

[N133] These links are to archived copies of the now defunct Consumer Alert website, on the *Wayback Machine*'s internet archiving server. However, after this complaint was submitted, the owners of the Consumer Alert domain name put a "robots.txt" file onto the *Wayback Machine*, in order to block access to their archived pages.

Page: 148

[Nt34] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/2xa3ot> [ExxonSecrets].

Page: 148

[Nt35] Contributors to the film who have links with the ECO: Dr Frederick Singer.

Page: 148

[Nt36] After this complaint was submitted, the ECO website appears to have been shut down. We originally linked to their home page, www.eco.freedom.org. The new link is to an archive of its home page, which was archived by the *Wayback Machine* on 15 April 2007.

Page: 148

[Nt37] Contributors to the film who have links with *The Federalist Society*: Dr Frederick Singer.

Page: 148

[Nt38] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/you2aj6> [ExxonSecrets].

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[Nt39] Contributors to the film who have links with the *Fraser Institute*: Dr Willie Soon.

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[Nt40] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/3348tj> [ExxonSecrets].

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[Nt41] Contributors to the film who have links with FoS: Dr Tim Ball.

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[Nt42] Contributors to the film who have links with the FoF: Paul Driessen, Dr Singer.

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[Nt43] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/ysyp49> [ExxonSecrets].

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[Nt44] Contributors to the film who have links with the GMI: Dr Willie Soon, Professor Richard Lindzen, Dr Roy Spencer.

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[Nt45] This was the total *ExxonMobil* donations figure received from *ExxonSecrets* researchers at the time that this complaint was submitted in June 2007. Subsequently, new data has been uploaded and data entry and programming errors have been corrected, causing the total figures for some organizations, including the GMI, to be somewhat overstated or understated in this complaint. For the accurate updated figures and links to *Exxon* source documents, see: <http://tinyurl.com/26xkau> [ExxonSecrets].

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[Nt46] Contributors to the film who have links with the *Heartland Institute*: Dr Willie Soon, Professor Richard Lindzen, Dr Roy Spencer.

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[Nt47] This was the total *ExxonMobil* donations figure received from *ExxonSecrets* researchers at the time that this complaint was submitted in June 2007. Subsequently, new data has been uploaded and data entry and programming errors have been corrected, causing the total figures for some organizations, including the *Heartland Institute*, to be somewhat overstated or understated in this complaint. For the accurate updated figures and links to *Exxon* source documents, see: <http://tinyurl.com/33hllf> [ExxonSecrets].

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[Nt48] Contributors to the film who have links with the *Heritage Foundation*: Professor Patrick Michaels.

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[Nt49] This was the total *ExxonMobil* donations figure received from *ExxonSecrets* researchers at the time that this complaint was submitted in June 2007. Subsequently, new data has been uploaded and data entry and programming errors have been corrected, causing the total figures for some organizations, including the *Heritage Foundation*, to be somewhat overstated or understated in this complaint. For the accurate updated figures and links to *Exxon* source documents, see: <http://tinyurl.com/259uh5> [ExxonSecrets].

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[Nt50] Contributors to the film who have links with the *Hoover Institution*: Dr Frederick Singer.

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[Nt51] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/3cwue9> [ExxonSecrets].

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[Nt52] Contributors to the film who have links with the *Independent Institute*: Dr Frederick Singer, Professor John Christy.

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[Nt53] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/yuk854> [ExxonSecrets].

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[Nt54] Contributors to the film who have links with the ISA: Dr Roy Spencer

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[Nt55] Contributors to the film who have links with the IREA: Professor Patrick Michaels.

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[Nt56] Contributors to the film who have links with the IREN: James Shikwati.

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[Nt57] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/2hzwnm> [ExxonSecrets].

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[Nt58] Contributors to the film who have links with the NCPA: Dr Frederick Singer.

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[Nt59] This was the total *ExxonMobil* donations figure received from *ExxonSecrets* researchers at the time that this complaint was submitted in June 2007. Subsequently, new data has been uploaded and data entry and programming errors have been corrected, causing the total figures for some organizations, including the NCPA, to be somewhat overstated or understated in this complaint. For the accurate updated figures and links to *Exxon* source documents, see: <http://tinyurl.com/ydbza3> [ExxonSecrets].

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[Nt60] Contributors to the film who have links with the NRSP: Dr Tim Ball.

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[Nt61] Contributors to the film who have links with the OISM: Dr Willie Soon.

Page: 155

[Nt62] Contributors to the film who have links with SEPP: Dr Frederick Singer.

Page: 155

[Nt63] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/2awexa> [ExxonSecrets].

Page: 155

[Nt64] Contributors to the film who have links with the *Tech Central Science Foundation*: Paul Driessen, Dr Tim Ball, Professor Patrick Michaels, Dr Willie Soon, Professor Ian Clark, Professor Richard Lindzen, Professor Paul Reiter, Dr Roy Spencer.

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[Nt65] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/2ffueo> [ExxonSecrets].

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[Nt66] Contributors to the film who have links with TASSC: Dr Frederick Singer, Professor Patrick Michaels.

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[Nt67] This figure was accurate when this complaint was submitted. For the up-to-date figure, see: <http://tinyurl.com/ysmsk9> [ExxonSecrets].

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[Nt68] Contributors to the film who have links with *The Annapolis Center*: Professor Richard Lindzen, Professor Paul Reiter.

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[Nt69] This was the total *ExxonMobil* donations figure received from *ExxonSecrets* researchers at the time that this complaint was submitted in June 2007. Subsequently, new data has been uploaded and data entry and programming errors have been corrected, causing the total figures for some organizations, including *The Annapolis Center*, to be somewhat overstated or understated in this complaint. For the accurate updated figures and links to *Exxon* source documents, see: <http://tinyurl.com/ywptzr> [ExxonSecrets].

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[Nt70] Contributors to the film who have links with the *Weidenbaum Center*: Professor Patrick Michaels.

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[Nt71] This was the total *ExxonMobil* donations figure received from *ExxonSecrets* researchers at the time that this complaint was submitted in June 2007. Subsequently, new data has been uploaded and data entry and programming errors have been corrected, causing the total figures for some organizations, including the *Weidenbaum Center*, to be somewhat overstated or understated in this complaint. For the accurate updated figures and links to *Exxon* source documents, see, see: <http://tinyurl.com/ywrrpwf> [*ExxonSecrets*].

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[Nt72] Contributors to the film who have links with the WCR: Professor Patrick Michaels, Dr Willie Soon.

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[Nt73] After this complaint was submitted, LexisNexis discontinued its *AlaCarte* service.

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[Nt74] In this complaint we forgot to provide a link to the article being cited, for some reason; but the abstract seems to have been obtained from the *LexisNexis AlaCarte* database, which has since been discontinued. However, the *LexisNexis* database appears to have been confusing two articles with each other. The November 15, 2006 article that the abstract refers to is actually the transcript of an E&ETV interview with Avery and **Singer**, which is at <http://tinyurl.com/2rdu8r>; whereas *The New York Times* article *Climate Plan Is Criticized As a Risky Bet*, which also quotes **Fred Singer**, was in fact published on February 26, 2002, and is at <http://tinyurl.com/323d9d>.

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[Nt75] The link we provided in our complaint was to a version of the article that was in the now discontinued *LexisNexis AlaCarte* database. The article itself no longer appears to be on the web. However, there are many other similar press articles on the web, such as the *Edmonton Sun*'s article "'Granddaddy' of Canadian heat waves", at <http://tinyurl.com/yshb4e>, which also quotes Tim Ball extensively.

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[Nt76] Sadly, Brian died in August 2007. He had his whole life before him, having just accepted his first lectureship, at Nottingham University. He will be greatly missed. Brian put an extraordinary amount of work into this complaint, both in terms of writing sections of it, and reviewing and editing what others had written. He showed a tremendous attention to detail, and great forensic ability in tracking down links to web pages that contained supporting evidence for the points we were making; and his primary concern throughout was to ensure that nothing slipped through that was not indisputably accurate.

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[Nt77] Subsequent to this complaint being submitted, Dr Connolley retired from climate science, BAS and Realclimate, in order to pursue a career in software engineering. See also <http://tinyurl.com/2rtvlt>.

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[Nt78] Sadly, Bert Bolin died of cancer on December 30, 2007. He was a remarkable man as well as being an outstanding scientist. There are obituaries at <http://tinyurl.com/2t9vaq> [The Guardian, UK], <http://tinyurl.com/36qeh9> [The New York Times], <http://tinyurl.com/37s2v4> [The Times, UK], and <http://tinyurl.com/2js3z5> [The Independent, UK].

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[Nt79] Chris Curtis passed away on 13 May 2008 after a brief and unexpected illness. He made a major contribution to this complaint, and struck its authors as being an exceptionally compassionate person, and a down to earth but rigorous scientist. One of his colleagues at the *London School of Hygiene & Tropical Medicine* wrote to us: “He is sorely missed at the School where he was greatly respected and liked by staff and students.”

There is an obituary at <http://tinyurl.com/6gct6f>.