

# *Climate Change in the Classroom*

Education or Indoctrination?

**Part 1:**

Why Al Gore Doesn't Belong in the Classroom



Background readings for parents, taxpayers, teachers, principals, and school board Members assembled by The Heartland Institute, an independent nonprofit organization. For more information, visit [www.heartland.org](http://www.heartland.org) or call 312/377-4000.

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### **School District Refuses to Show Al Gore Global Warming Film**

Author: James M. Taylor  
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In the weeks preceding Earth Day on April 22, schools nationwide showed Al Gore's 2006 global warming film *An Inconvenient Truth*--some as a club activity, as at Newtown Middle School in Council Rock, Pennsylvania; others as background for classroom debates on the topic, as at Russellville High School in Russellville, Arkansas.

But not in Federal Way, Washington. School administrators there took a stand against the film, saying it could not be shown unless "credible, legitimate" opposing views were also presented, the district's school board decided on January 9.

The school board emphasized that a preexisting policy requires teachers to provide balance when presenting controversial issues.

#### **Students Given Both Sides**

Diane Turner, chief of communications for Federal Way Public Schools, said the policy has been in place for three years and pertains both to controversial subjects and the use of films and videos in the classroom.

"It's the teacher's responsibility to present all points of view, and allow students to form their own opinions on controversial topics. Students can choose not to participate in those discussions. A teacher may not present his or her own personal position as the only acceptable one," Turner explained. "The ability to have your children think critically about the broad spectrum of ideas presented is the emphasis--making sure they get the whole picture.

"In terms of our electronic video use in the classroom, they wanted to make sure the material being presented was indeed part of the curriculum and it did indeed have a connection with curriculum and instruction, so it would be a useful tool for kids--in other words, use as much time as you can for teaching," Turner said.

#### **Film Criticized As Biased**

Gore's movie, while vigorously applauded by global warming alarmists, has been criticized for a selective and often inaccurate presentation of the science regarding global warming.

"Gore's film is a colorfully illustrated lawyer's brief--one-sided advocacy for climate alarmism and energy rationing," said Marlo Lewis, a senior fellow at the Competitive Enterprise Institute. "The only facts and arguments Gore presents are those that support his 'scare-'em-green' agenda, and he often distorts even the evidence he cites.

"Gore's film is not balanced, and Federal Way has ample reason to insist that teachers fairly present

the other side or not show the film at all," Lewis added.

### **Producer Outraged**

Laurie David, a co-producer of the film, expressed outrage that teachers are required to bring balance to the discussion if they choose to show the Gore film.

"I am shocked that a school district would come to this decision," David said in a news release. "There is no opposing view to science, which is fact, and the facts are clear that global warming is here, now."

### **Loaded with Inaccuracies**

Science, however, calls into question numerous misleading and inaccurate assertions presented in the film.

Asserting that global warming is clearly affecting his hometown of Carthage, Tennessee, Gore claims, "Here on this farm, the patterns are changing. In the course as defined by this river, it's happening very, very quickly." Yet temperature stations at the nearby communities of Clarksburg, Murfreesboro, and McMinnville all show cooling temperatures during recent decades.

Gore asserts global warming is causing alpine glaciers in Glacier National Park to recede. However, temperature readings in the nearby community of Kalispell, Montana show temperatures fell 5°Fahrenheit from 1933 to 2000.

Gore claims glaciers in the Himalayan Mountains are rapidly melting, threatening the water supplies of hundreds of millions of people. However, just months before Gore's movie was released, *Insurance Digest* reported Himalayan Mountain glaciers are as big as ever.

### **Rife with False Claims**

Also false is Gore's claim that declining rainfall (allegedly caused by global warming) is leading to a dramatic southern expansion of the Sahara Desert. *The New Scientist* reported as recently as 2002, "Africa's deserts are in 'spectacular' retreat," with vegetation reclaiming large expanses of barren land across the entire southern edge of the Sahara.

While showing an animated map of the planet purporting to depict ocean currents responding to a 5° F rise in temperatures, Gore claimed such an increase is "on the low end of the projections." In fact, a 5° rise in temperatures would be on the high end of projections offered by the United Nations Intergovernmental Panel on Climate Change.

Gore claims the Antarctic polar ice cap is melting and that this is a "canary in the coalmine" demonstrating dramatic global warming. Actually, Antarctica has been cooling for many decades, and its ice cap is expanding, not shrinking.

Lewis noted, "Gore warns that half the Greenland Ice Sheet could break up and slide into the sea, raising sea levels by 10 feet. Yet the current rate of ice mass loss on Greenland translates into about one inch of sea level rise per century."

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## Wash. school board restricts Gore's global-warming film

By The Associated Press  
01.12.07

FEDERAL WAY, Wash. — The school board in this suburb south of Seattle has restricted showings of Al Gore's movie on global warming, including requiring that it be balanced with an adequate opposing viewpoint.

The board also required Superintendent Tom Murphy to approve when the former vice president's film, "An Inconvenient Truth," can be presented.

The decision was sparked by complaints from parents who said their children were taking the film as fact after viewing it at school.

"Condoms don't belong in school, and neither does Al Gore. He's not a schoolteacher," said Frosty Hardison, a parent of seven children who doesn't want the film shown at all.

"The information that's being presented is a very cockeyed view of what the truth is," Hardison told the *Seattle Post-Intelligencer*. "The Bible says that in the end times everything will burn up, but that perspective isn't in the DVD."

Board President Ed Barney told *The News Tribune* of Tacoma on Jan. 10 that he had received about a half-dozen complaints from parents.

"We have to ensure that our schools are not being used to politically indoctrinate anyone," said board member Dave Larson, who with Barney and board member Charlie Hoff voted Jan. 9 for the requirements.

None of the board members has seen the movie. District policy, however, requires that an opposing view be aired whenever a controversial issue is examined in school.

"I am shocked that a school district would come to this decision," the movie's co-producer, Laurie David, said in a statement. "There is no opposing view to science, which is fact, and the facts are clear that global warming is here, now."

Gore's documentary has received approval from some of the nation's top climate scientists for its accuracy. In it, he presents scientists' findings on the catastrophic dangers of climate change.

Federal researchers with the National Academy of Sciences have said the planet's temperature has climbed to levels not seen in thousands of years, and has begun to affect plants and animals.

But Larson offered two opposing articles, including one by author John Stossel, that said many scientists discredit global-warming predictions. He also cited NASA and NOAA Web sites referring to debate and disagreement over climate change.

The film also has been denied a showing at Tacoma's Remann Hall, a high school for juvenile offenders, where Principal Rue Palmer rejected a teacher's request.

The film hasn't been approved by the Tacoma School District's curriculum committee. The school also focuses on core subjects and doesn't generally show films, said Patti Holmgren, Tacoma district spokeswoman.

The National Science Teachers Association turned down an offer from the film's producers for 50,000 free DVDs for classroom use. The association said it didn't want to be seen as politically endorsing the film or to open itself to requests from other special interests.

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### **Gore Film Is Partisan, Riddled with Errors, U.K. Court Rules**

Must be accompanied by disclaimer if shown to school children

Author: James M. Taylor

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Publication date: December 2007

Former Vice President Al Gore's movie, *An Inconvenient Truth*, is too "partisan" and "political" and riddled with misleading exaggerations and factual errors to be shown in public schools without an explicit disclaimer, a British High Court ruled on October 2.

The issue reached the courts after the U.K. Department for Education and Skills (DES) made a decision to purchase and distribute copies of *An Inconvenient Truth* to every public secondary school in the United Kingdom.

Stuart Dimmock, the father of a secondary school student who would have been subjected to the advocacy film, objected that the biases and factual errors in the film made it inappropriate for public schools without, at the very least, a disclaimer or the presentation of counter-evidence from the scientific community.

#### **Political Message, Goals**

The court began its discussion by noting, "It is now common ground that it is not simply a science film ... but that it is a political film."

The court referenced letters drafted by DES to be distributed to teachers suggesting, "The debate over the science of climate change is well and truly over. ... Our energies should now be channeled into ... moving to a low carbon future." The DES letter justified its assertion about the science being settled by referencing Gore's assertion that alpine glaciers atop Africa's Mount Kilimanjaro are retreating.

The DES letter added, "Children are the key to changing society's long term attitude to the environment. Not only are they passionate about saving the planet but children also have a big influence over their own family's lifestyles and behavior."

#### **Debate Isn't Over**

The court disagreed with the letter's assertion that the debate "is well and truly over."

Referencing nine specific topics on which Gore's film misrepresented or lied about the science--and noting evidence suggests many others may also exist--the court found presentation of *An Inconvenient Truth* in public schools must be accompanied by a notice that science does not support many of Gore's assertions, and that there are scientific views disputing Gore's overall premise that humans are causing dangerous global warming.

#### **Multitude of Falsehoods**

The court singled out Gore's assertions that sea levels may rise 20 feet in the foreseeable future due to West Antarctic and Greenland ice melt; that people are evacuating Pacific island nations due to sea level rise; that the oceanic "conveyor belt" is in danger of shutting down and triggering a new ice age; that changing levels of atmospheric carbon dioxide have historically caused changes in global temperature; that global warming is causing a retreat of Mount Kilimanjaro's alpine glacier; that global warming is causing Africa's Lake Chad to dry up; that global warming caused or contributed to Hurricane Katrina; that polar bears are dying due to receding sea ice; and that global warming is causing coral reefs to bleach and die.

The court noted evidence of "a long schedule of such alleged errors or exaggerations" in addition to the ones noted explicitly. However, the court limited its discussion to the exaggerations and errors that DES admitted to or that were explicitly refuted by the United Nations Intergovernmental Panel on Climate Change.

### **Gore Team Attacks Parent**

Gore refused to comment personally on the court's decision, but Gore spokeswoman Kalee Kreider responded with a personal attack on Stuart Dimmock, the parent who objected to the film. Writing in a *Washington Post* online blog, Kreider said Dimmock will not say whether any person or group helped cover his expensive court costs and legal fees, and therefore his "motives are quite suspect."

Kreider also justified Gore's distortion of science by stating, "particular points had to be truncated and shortened from the original research" to fit in a 90-minute movie. "We acknowledge that the wording of the film here is unfortunate," Kreider added.

"It is mean-spirited and reprehensible for a well-oiled, well-financed political machine to stoop so low as to make a bulldog assault on the integrity of a concerned parent simply because he objected to what a court of law determined to be a political, partisan, and factually erroneous film," responded Sterling Burnett, senior fellow at the National Center for Policy Analysis, in an interview for this story.

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### **For more information ...**

The full text of the British High Court's October 2 decision is available through *PolicyBot*<sup>™</sup>, The Heartland Institute's free online research database. Point your Web browser to <http://www.policybot.org> and search for document [#22161](#).





Neutral Citation Number: [2007] EWHC 2288 (Admin)

Case No: CO/3615/2007

**IN THE HIGH COURT OF JUSTICE**  
**QUEEN'S BENCH DIVISION**  
**ADMINISTRATIVE COURT**

Royal Courts of Justice  
Strand, London, WC2A 2LL

Date: 10.10.2007

**Before :**

**MR JUSTICE BURTON**

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**Between :**

**Stuart Dimmock**

**Claimant**

**- and -**

**Secretary of State for Education and Skills**  
**(now Secretary of State for Children, Schools and**  
**Families)**

**Defendant**

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**Mr Paul Downes and Miss Emily Saunderson** (instructed by **Malletts**) for the **Claimant**  
**Mr Martin Chamberlain** (instructed by Treasury Solicitors) for the **Defendant**

Hearing dates: 27, 28 September, 1, 2 October 2007

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**Approved Judgment**

**Mr Justice Burton:**

1. Stuart Dimmock is a father of two sons at state school and a school governor. He has brought an application to declare unlawful a decision by the then Secretary of State for Education and Skills to distribute to every state secondary school in the United Kingdom a copy of former US Vice-President Al Gore's film, An Inconvenient Truth ("AIT"), as part of a pack containing four other short films and a cross-reference to an educational website ("Teachernet") containing a dedicated Guidance Note. In the event the film has already been distributed – no point is taken by the Defendant on any delay by the Claimant in bringing his claim – so that no injunction to restrain such distribution is possible. Plainly if the decision and/or the distribution is declared unlawful, the films could be recalled. Permission was refused on paper by Beatson J, but he ordered that the renewed application for permission be adjourned so as to come on as a "rolled-up" hearing at the same time as, and immediately prior to, the listing of the hearing of the application itself if permission were granted. In the event, after hearing argument, I granted permission, and this is the judgment on the application. I have had very considerable assistance from both the very able Counsel, Paul Downes for the Claimant and Martin Chamberlain for the Defendant, and their respective teams.
2. The context and nub of the dispute are the statutory provisions described in their side headings as respectively relating to "*political indoctrination*" and to the "*duty to secure balanced treatment of political issues*" in schools, now contained in ss406 and 407 of the Education Act 1996, which derive from the identical provisions in ss44 and 45 of the Education (No 2) Act 1986. The provisions read as follows:

*"406. The local education authority, governing body and head teachers shall forbid ...*

*the promotion of partisan political views in the teaching of any subject in the school.*

*407. The local education authority, governing body and head teacher shall take such steps as are reasonably practicable to secure that where political issues are brought to the attention of pupils while they are*

*(a) in attendance at a maintained school, or*

*(b) taking part in extra-curricular activities which are provided or organised for registered pupils at the school by or on behalf of the school*

*they are offered a balanced presentation of opposing views."*

3. I viewed the film at the parties' request. Although I can only express an opinion as a viewer rather than as a judge, it is plainly, as witnessed by the fact that it received an Oscar this year for best documentary film, a powerful, dramatically presented and highly professionally produced film. It is built round the charismatic presence of the ex-Vice-President, Al Gore, whose crusade it now is to persuade the world of the dangers of climate change caused by global warming. It is now common ground that

it is not simply a science film – although it is clear that it is based substantially on scientific research and opinion – but that it is a political film, albeit of course not party political. Its theme is not merely the fact that there is global warming, and that there is a powerful case that such global warming is caused by man, but that urgent, and if necessary expensive and inconvenient, steps must be taken to counter it, many of which are spelt out. Paul Downes, using persuasive force almost equivalent to that of Mr Gore, has established his case that the views in the film are political by submitting that Mr Gore promotes an apocalyptic vision, which would be used to influence a vast array of political policies, which he illustrates in paragraph 30 of his skeleton argument:

*“(i) Fiscal policy and the way that a whole variety of activities are taxed, including fuel consumption, travel and manufacturing ...*

*(ii) Investment policy and the way that governments encourage directly and indirectly various forms of activity.*

*(iii) Energy policy and the fuels (in particular nuclear) employed for the future.*

*(iv) Foreign policy and the relationship held with nations that consume and/or produce carbon-based fuels.”*

4. Martin Chamberlain, who, with equal skill, has adopted a very realistic position on the part of the Defendant, does not challenge that the film promotes political views. There is thus no need to consider any analysis or definition of the word ‘*political*’ (which is plainly not limited to party political) such as that in **McGovern v AG** [1982] Ch 321 at 340.
5. Channel 4 has produced a film which was referred to during the hearing, although I have not seen it, which presents a counter-view, a sceptical approach to the climate change debate called “The Great Global Warming Swindle”. This has not been sent to schools, although there is reference to it in the Guidance Note on the website, to which I have referred.
6. It is clear that the Defendant understandably formed the view that AIT was an outstanding film, and that schools should be enabled to show it to pupils. News releases were issued on 2 February 2007 by the Department for Education and Skills (I shall ignore its subsequent change of name) (“DES”) and by DEFRA, the Department for Environment, Food and Rural Affairs. The DES news release read in material part:

***“Climate change film distributed to all secondary schools.***

*The powerful Al Gore film “An Inconvenient Truth” will form part of a pack on climate change sent to every secondary school in England, Environment Secretary David Milliband and Education Secretary Alan Johnson announced today. The film documents former US Vice President Al Gore’s personal*

*mission to highlight the issues surrounding global warming and inspire actions to prevent it.*

*Mr Milliband said:*

*'The debate over the science of climate change is well and truly over, as demonstrated by the publication of today's report by the IPCC' [Intergovernmental Panel on Climate Change]. 'Our energies should now be channelled into how we respond in an innovative and positive way in moving to a low carbon future. I was struck by the visual evidence the film provides, making clear that the changing climate is already having an impact on our world today, from Mount Kilimanjaro to the Himalayan mountains. As the film shows, there is no reason to feel helpless in the face of this challenge. Everyone can play a part along with government and business in making a positive contribution and helping to prevent climate change.'*

*Mr Johnson added:*

*'With rising sea temperatures, melting icecaps and frequent reminders about our own 'carbon footprints', we should all be thinking about what we can do to preserve the planet for future generations. Children are the key to changing society's long term attitude to the environment. Not only are they passionate about saving the planet but children also have a big influence over their own family's lifestyles and behaviour. Al Gore's film is a powerful message about the fragility of our planet and I am delighted that we are able to make sure that every secondary school in the country has a copy to stimulate children into discussing climate change and global warming in school classes.'*

7. In the DEFRA leaflet there was the same quotation from Mr Milliband, but, instead of the quotation from Mr Johnson, there was this one sentence summary:

*"Mr Johnson said that influencing the opinions of children was crucial to developing a long term view on the environment among the public."*

8. After the pre-action correspondence from the Claimant, and on the very day the Judicial Review Claim Form was issued, a somewhat differently worded news release was issued by the Defendant dated 2 May 2007:

***"English Secondary Schools Climate Change Pack.***

*A resource pack to help teachers and pupils explore and understand the issues surrounding climate change was sent to every secondary school in England today. The pack, which includes the Al Gore film An Inconvenient Truth and a number of other resources, was developed by DEFRA and the*

*Department for Education and Skills. It is accompanied by online teaching guides showing how to use the resources in the pack in science, geography and citizenship lessons.*

*Schools Minister Jim Knight said:*

*‘Climate change is one of the most important challenges facing our planet today. This pack will help to give young people information and inspiration to understand and debate the issues around climate change, and how they as individuals and members of the community should respond to it.’*”

9. The explanation for the distribution to all schools is now given in these proceedings in the witness statement of Ms Julie Bramman of the DES:

*“8. ...I should say at once that it was recognised from the start that parts of the Film contained views about public policy and how we should respond to climate change. The aim of distributing the film was not to promote those views, but rather to present the science of climate change in an engaging way and to promote and encourage debate on the political issues raised by that science.”*

10. I turn to deal with the outstanding issues of law relating to the construction of the two relevant statutory provisions. These are, in s406, the meaning of *partisan*, as in *partisan political views*: and the meaning and ambit of the duty of the local education authority etc to “*forbid the promotion of partisan political views in the teaching of any subject in the school*”. In s407 the dispute has been as to the meaning of the duty to “*offer a balanced presentation of opposing views*” when “*political issues are brought to the attention of pupils*”.

### **Partisan**

11. Again there was not in the event much difference between the parties in this regard. Although there was some earlier suggestion on behalf of the Defendant that *partisan* might relate to ‘party political’, it soon became clear that it could not be and is not so limited. Mr Downes pointed to dictionary definitions suggesting the relevance of commitment, or adherence to a cause. In my judgment, the best simile for it might be “*one sided*”. Mr Downes, in paragraph 27 of his skeleton argument, helpfully suggested that there were factors that could be considered by a court in determining whether the expression or promotion of a particular view could evidence or indicate *partisan promotion* of those views:

*“(i) A superficial treatment of the subject matter typified by portraying factual or philosophical premises as being self-evident or trite with insufficient explanation or justification and without any indication that they may be the subject of legitimate controversy; the misleading use of scientific data; misrepresentations and half-truths; and one-sidedness.*

(ii) *The deployment of material in such a way as to prevent pupils meaningfully testing the veracity of the material and forming an independent understanding as to how reliable it is.*

(iii) *The exaltation of protagonists and their motives coupled with the demonisation of opponents and their motives.*

(iv) *The derivation of a moral expedient from assumed consequences requiring the viewer to adopt a particular view and course of action in order to do “right” as opposed to “wrong.”*

This is clearly a useful analysis.

### **Local educational authority to forbid the promotion of partisan views in the teaching of any subject in the school**

12. Mr Downes submits that, if the film, which is sent to schools in order to facilitate its showing, is itself a partisan political film, one that *promotes partisan political views*, and if schools then make available such film to its teachers, and if teachers then show such film to their pupils, then inevitably there is the *promotion of partisan political views* in the teaching of any subject in the school, which is thus not only not being *forbidden* by the local education authority (and the DES), but being positively facilitated by them. Thus he submits, irrespective of any publication of guidance, the breach of the statute is, as he puts it, irremediable. I do not agree, and prefer the submissions of Mr Chamberlain. The statute cannot possibly mean that s406 is breached whenever a partisan political film is shown to pupils in school time. Mr Downes has to assert that there is, depending on the context, an exception that can be made in respect of the teaching of history, but I cannot see how, on his interpretation of the statute, any such exception can be carved out. It must be as much of a breach of the statute, on his construction, for the school or a teacher to show in a history class a film for example of Nazi or Leninist/Stalinist propaganda, or for that matter to make available such literature in documentary form, or to show a racist or an anti-racist film in a history or a citizenship class, as it is to show or distribute any other film or document which promotes partisan political views. Such an approach however construes the word “*promotion*” as if it meant nothing more than ‘presentation’. What is forbidden by the statute is, as the side heading makes clear, “*political indoctrination*”. If a teacher uses the platform of a classroom to *promote* partisan political views *in the teaching of* any subject, then that would offend against the statute. If on the other hand a teacher, in the course of a school day and as part of the syllabus, presents to his pupils, no doubt with the appropriate setting and with proper tuition and debate, a film or document which itself promotes in a partisan way some political view, that cannot possibly in my judgment be the mischief against which the statute was intended to protect pupils. It would not only lead to bland education, but to education which did not give the opportunity to pupils to learn about views with which they might, vehemently or otherwise, either agree or disagree. I conclude that the mere distribution by the Defendant to schools to facilitate their showing the film, and accompanied by guidance, to which I shall refer, is not per se, or irremediably, a promotion of those partisan political views.

## Balanced Presentation

13. On the case for the Defendant, with which, as can be seen, I agree, the issue of whether there is facilitated by the DES what is forbidden, namely the *promotion* by the school of *partisan political views*, depends in substantial part on the context, and in this case on its Guidance Note. Such Guidance Note is also obviously relevant in relation to s407. On occasions during the hearing, Mr Chamberlain indicated that there were matters that could be left to the good sense and the knowledge of teachers, whether of science, geography or of citizenship. Trust in such teachers is of course, one hopes, always a given. However:
  - i) in this case it is the DES itself which is putting teachers all over the country into this position by, unusually, supplying a film to every state secondary school and, as indeed the Defendant itself has recognised by supplying the very Guidance Note, it becomes the more important to give assistance to those teachers.
  - ii) all the more so where even the science and geography teachers are unlikely to be wholly familiar with the detailed questions which underlie the film, or indeed with the full analysis of the present scientific approach to climate change which is in detail set out in the IPCC reports; not to speak of the teachers of citizenship, who are bound to take the scientific and geographical aspects of the film on trust.
14. Hence, consideration of whether there is a breach of s407 must also be given in the light of the Guidance Note. It became quickly clear in the course of the hearing that my judgment was, and indeed remains, that it is, not least in the circumstances above described, insufficient simply to supply in the pack a reference to the website, given that all teachers must be enabled to realise how important the Guidance Note is, but rather that it should be essential that the Guidance Note itself should be a constituent part of the pack. The Defendant, though contending that it had been sufficient to put the guidance on “Teachernet” (from which there had been substantial downloads of it since its publication), readily accepted that it could and would easily be distributed in hard copy if I considered this necessary, which I do. But there remains another respect in which Mr Downes relies on what he submits to be an insurmountable hurdle for the Defendant. He submits that, in order to comply with its duty under s407 to “*offer a balanced presentation of opposing views*”, a school must give what he calls, by reference to the position in the media, “*equal air time*”.
15. He submits that, if the political issues, as per the content of AIT, are to be *brought to the attention of pupils*, then there must be an equivalent and equal presentation of counter-balancing views. Mr Chamberlain submits that that is misconceived, that the statute cannot possibly prescribe in relation to every political issue or political view, howsoever well founded or well reasoned, that there must be an identical presentation of the converse. He suggests that the nearest analogy would be the duty of a trial judge in setting out the prosecution and defence case before a jury. There is a helpful discussion in this regard in **R v Nelson** [1997] Crim LR 234 in the judgment of the Court given by Simon Brown LJ, as he then was. The suggestion was that there had been a ‘lack of balance’ in the judge’s summing up. After making it clear that a trial judge was entitled, if not obliged, not to rehearse the defence case blandly and uncritically in the summing up, Simon Brown LJ indicated that “*the truth usually is*

*that the lack of balance is to be found in the weight and worth of the rival cases, an imbalance which the summing up, with perfect propriety, then fairly exposes”.*

16. There is nothing to prevent (to take an extreme case) there being a strong preference for a theory – if it were a political one – that the moon is not made out of green cheese, and hence a minimal, but dispassionate, reference to the alternative theory. The balanced approach does not involve equality. In my judgment, the word “*balanced*” in s407 means nothing more than fair and dispassionate.

### **The Film**

17. I turn to AIT, the film. The following is clear:

- i) It is substantially founded upon scientific research and fact, albeit that the science is used, in the hands of a talented politician and communicator, to make a political statement and to support a political programme.
- ii) As Mr Chamberlain persuasively sets out at paragraph 11 of his skeleton:

*“The Film advances four main scientific hypotheses, each of which is very well supported by research published in respected, peer-reviewed journals and accords with the latest conclusions of the IPCC:*

*(1) global average temperatures have been rising significantly over the past half century and are likely to continue to rise (“climate change”);*

*(2) climate change is mainly attributable to man-made emissions of carbon dioxide, methane and nitrous oxide (“greenhouse gases”);*

*(3) climate change will, if unchecked, have significant adverse effects on the world and its populations; and*

*(4) there are measures which individuals and governments can take which will help to reduce climate change or mitigate its effects.”*

These propositions, Mr Chamberlain submits (and I accept), are supported by a vast quantity of research published in peer-reviewed journals worldwide and by the great majority of the world’s climate scientists. Ms Bramman explains, at paragraph 14 of her witness statement, that:

*“The position is that the central scientific theme of Al Gore’s Film is now accepted by the overwhelming majority of the world’s scientific community. That consensus is reflected in the recent report of the IPCC. The role of the IPCC is to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its*



*potential impacts and options and adaptation and mitigation. Hundreds of experts from all over the world contribute to the preparation of IPCC reports, including the Working Group I report on Climate Change 2007: The physical Science basis of climate change, published on 2 February 2007 and the most recent Mitigation of Climate Change, the Summary for Policy-makers published by Working Group III on 4 May 2007. A copy of both documents are annexed to the Witness Statement of Dr Peter Stott. The weight of scientific evidence set out by the IPCC confirms that most of the global average warming over the last 50 years is now regarded as “very likely” to be attributable to man-made greenhouse gas emissions.”*

For the purposes of this hearing Mr Downes was prepared to accept that the IPCC Fourth Assessment Report represented the present scientific consensus.

iii) There are errors and omissions in the film, to which I shall refer, and respects in which the film, while purporting to set out the mainstream view (and to belittle opposing views), does in fact itself depart from that mainstream, in the sense of the “consensus” expressed in the IPCC reports.

18. Mr Chamberlain persuasively pointed out in his skeleton (at paragraph 7(c)):

*“Scientific hypotheses (such as the hypothesis that climate change is mainly attributable to man-made emissions of greenhouse gases) do not themselves constitute “political views” within the meaning of s407, even if they are doubted by particular political groups. But, in any event, nothing in the 1996 Act (or elsewhere) obliged teachers to adopt a position of studied neutrality between, on the one hand, scientific views which reflect the great majority of world scientific opinion and, on the other, a minority view held by a few dissentient scientists.”*

19. Of course that is right, and ss406 and 407 are not concerned with scientific disputes or with the approach of teachers to them. However, as will be seen, some of the errors, or departures from the mainstream, by Mr Gore in AIT in the course of his dynamic exposition, do arise in the context of alarmism and exaggeration in support of his political thesis. It is in that context that the Defendant, in actively distributing the film to all schools, may need to make clear that:

- i) some or all of those matters are not supported/*promoted* by the Defendant [s406].
- ii) there is a view to the contrary, i.e. (at least) the mainstream view [s407].

20. Mr Chamberlain also rightly points out, at paragraph 7(a) of his skeleton that:

*“The Film is intended to be used by qualified teachers, not as a substitute for, but as a supplement to, other teaching methods*

*and materials. The original Guidance, prepared by a panel of experienced educationalists, identified those parts of the Film's scientific presentation where further context or qualification was required and provided it, with suitable references and links to other reputable sources of information. It encouraged teachers to use the Film as a vehicle for the development of analytic and critical skills. It did not attempt to hide the fact that some scientists do not agree with the mainstream view of climate change and even made reference to The Great Global Warming Swindle (together with a website containing a critique of it)."*

21. However, for those same two reasons set out in paragraph 19 above, the teachers must at least be put into a position to appreciate when there are or may be material errors of fact, which they may well not, save for the most informed science teachers.
22. I have no doubt that Dr Stott, the Defendant's expert, is right when he says that:

*"Al Gore's presentation of the causes and likely effects of climate change in the film was broadly accurate."*

Mr Downes does not agree with this, but to some extent this is because the views of the Claimant's expert, Professor Carter, do not accord with those of Dr Stott, and indeed are said by Dr Stott in certain respects not to accord with the IPCC report. But Mr Downes sensibly limited his submissions to concentrate on those areas where, as he submitted, even on Dr Stott's case there are errors or deviations from the mainstream by Mr Gore. Mr Downes produced a long schedule of such alleged errors or exaggerations and waxed lyrical in that regard. It was obviously helpful for me to look at the film with his critique in hand.

23. In the event I was persuaded that only some of them were sufficiently persuasive to be relevant for the purposes of his argument, and it was those matters – 9 in all – upon which I invited Mr Chamberlain to concentrate. It was essential to appreciate that the hearing before me did not relate to an analysis of the scientific questions, but to an assessment of whether the 'errors' in question, set out in the context of a political film, informed the argument on ss406 and 407. All these 9 'errors' that I now address are not put in the context of the evidence of Professor Carter and the Claimant's case, but by reference to the IPCC report and the evidence of Dr Stott.

### **The 'Errors'**

#### **1. 'Error' 11: Sea level rise of up to 20 feet (7 metres) will be caused by melting of either West Antarctica or Greenland in the near future.**

24. In scene 21 (the film is carved up for teaching purposes into 32 scenes), in one of the most graphic parts of the film Mr Gore says as follows:

*"If Greenland broke up and melted, or if half of Greenland and half of West Antarctica broke up and melted, this is what would happen to the sea level in Florida. This is what would happen in the San Francisco Bay. A lot of people live in these areas."*

*The Netherlands, the Low Countries: absolutely devastation. The area around Beijing is home to tens of millions of people. Even worse, in the area around Shanghai, there are 40 million people. Worse still, Calcutta, and to the east Bangladesh, the area covered includes 50 million people. Think of the impact of a couple of hundred thousand refugees when they are displaced by an environmental event and then imagine the impact of a 100 million or more. Here is Manhattan. This is the World Trade Center memorial site. After the horrible events of 9/11 we said never again. This is what would happen to Manhattan. They can measure this precisely, just as scientists could predict precisely how much water would breach the levee in New Orleans.”*

25. This is distinctly alarmist, and part of Mr Gore’s ‘wake-up call’. It is common ground that if indeed Greenland melted, it would release this amount of water, but only after, and over, millennia, so that the Armageddon scenario he predicts, insofar as it suggests that sea level rises of 7 metres might occur in the immediate future, is not in line with the scientific consensus.

**2. ‘Error’ 12: Low lying inhabited Pacific atolls are being inundated because of anthropogenic global warming.**

26. In scene 20, Mr Gore states “*that’s why the citizens of these Pacific nations have all had to evacuate to New Zealand*”. There is no evidence of any such evacuation having yet happened.

**3. ‘Error’ 18: Shutting down of the “Ocean Conveyor”.**

27. In scene 17 he says, “*One of the ones they are most worried about where they have spent a lot of time studying the problem is the North Atlantic, where the Gulf Stream comes up and meets the cold wind coming off the Arctic over Greenland and evaporates the heat out of the Gulf Stream and the stream is carried over to western Europe by the prevailing winds and the earth’s rotation ... they call it the Ocean Conveyor ... At the end of the last ice age ... that pump shut off and the heat transfer stopped and Europe went back into an ice age for another 900 or 1000 years. Of course that’s not going to happen again, because glaciers of North America are not there. Is there any big chunk of ice anywhere near there? Oh yeah [pointing at Greenland]*”. According to the IPCC, it is very unlikely that the Ocean Conveyor (known technically as the Meridional Overturning Circulation or thermohaline circulation) will shut down in the future, though it is considered likely that thermohaline circulation may slow down.

**4. ‘Error’ 3: Direct coincidence between rise in CO<sub>2</sub> in the atmosphere and in temperature, by reference to two graphs.**

28. In scenes 8 and 9, Mr Gore shows two graphs relating to a period of 650,000 years, one showing rise in CO<sub>2</sub> and one showing rise in temperature, and asserts (by ridiculing the opposite view) that they show an exact fit. Although there is general scientific agreement that there is a connection, the two graphs do not establish what Mr Gore asserts.

**5. ‘Error’ 14: The snows of Kilimanjaro.**

29. Mr Gore asserts in scene 7 that the disappearance of snow on Mt Kilimanjaro is expressly attributable to global warming. It is noteworthy that this is a point that specifically impressed Mr Milliband (see the press release quoted at paragraph 6 above). However, it is common ground that, the scientific consensus is that it cannot be established that the recession of snows on Mt Kilimanjaro is mainly attributable to human-induced climate change.

**6. ‘Error’ 16: Lake Chad etc**

30. The drying up of Lake Chad is used as a prime example of a catastrophic result of global warming. However, it is generally accepted that the evidence remains insufficient to establish such an attribution. It is apparently considered to be far more likely to result from other factors, such as population increase and over-grazing, and regional climate variability.

**7. ‘Error’ 8: Hurricane Katrina.**

31. In scene 12 Hurricane Katrina and the consequent devastation in New Orleans is ascribed to global warming. It is common ground that there is insufficient evidence to show that.

**8. ‘Error’ 15: Death of polar bears.**

32. In scene 16, by reference to a dramatic graphic of a polar bear desperately swimming through the water looking for ice, Mr Gore says: “*A new scientific study shows that for the first time they are finding polar bears that have actually drowned swimming long distances up to 60 miles to find the ice. They did not find that before.*” The only scientific study that either side before me can find is one which indicates that four polar bears have recently been found drowned because of a storm. That is not to say that there may not in the future be drowning-related deaths of polar bears if the trend of regression of pack-ice and/or longer open water continues, but it plainly does not support Mr Gore’s description.

**9. ‘Error’ 13: Coral reefs.**

33. In scene 19, Mr Gore says: “*Coral reefs all over the world because of global warming and other factors are bleaching and they end up like this. All the fish species that depend on the coral reef are also in jeopardy as a result. Overall specie loss is now occurring at a rate 1000 times greater than the natural background rate.*” The actual scientific view, as recorded in the IPCC report, is that, if the temperature were to rise by 1-3 degrees Centigrade, there would be increased coral bleaching and widespread coral mortality, unless corals could adopt or acclimatise, but that separating the impacts of climate change-related stresses from other stresses, such as over-fishing and polluting, is difficult.

**The Guidance**

34. As set out in paragraph 14 above, I am satisfied that, in order to establish and confirm that the purpose of sending the films to schools is not so as to “*influence the opinions*

of children” (paragraph 7 above) but so as to “stimulate children into discussing climate change and global warming in school classes” (paragraph 6 above) a Guidance Note must be incorporated into the pack, and that it is not sufficient simply to have the facility to cross-refer to it on an educational website. The format of the Guidance Note put on the website is helpful, in splitting up consideration by reference to the three different categories of teachers who may make use of the film, those teaching science, geography and citizenship, and to include a chart, by reference to the various scenes of the film, which both includes descriptive passages and raises questions for potential discussion. I have no doubt that some teachers of science or geography will have a much broader knowledge of the subject than is simply contained in the film and in the existing Guidance Note, and will be in a position to assist in the stimulation of such discussion. However, as set out in paragraph 13 above, that is plainly not so for the majority of teachers. In any event it is important that, in such guidance, any serious apparent errors should be identified, not only so as to encourage informed discussion, but also so that it should not appear that the Defendant, and, as a result of the Defendant sending the film to schools, schools, are promoting partisan views by giving their imprimatur to it. That is not to say of course that there needs to be comment on every single aspect in the film in the Guidance Note nor discussion of every scientific dispute. However, it is noteworthy that in the (unamended) Guidance Note there is no or no adequate discussion at all, either by way of description or by way of raising relevant questions for discussion, in relation to any of the above 9 ‘errors’, the first two of which are at any rate apparently based on non-existent or misunderstood evidence, and the balance of which are or may be based upon lack of knowledge or appreciation of the scientific position, and all of which are significant planks in Mr Gores’s ‘political’ argumentation.

35. The introduction to the Guidance Note, as it stands, indicated that “the pack seeks to help teachers to engage pupils with ... questions, discuss the facts and test the science”. But the absence of comment about and correction of the ‘errors’ detracts from that prospect. Attention was drawn to ss406 and 407, but that simple reference to the statutory provisions would not, without identifying the problematic areas, enable the teachers to identify, as they were encouraged to do:

*“Areas where there is undisputed scientific consensus ...*

*Areas where there is a strong scientific consensus but where a small minority of scientists do not agree ...*

*Areas where there is political debate.”*

36. The lack of addressing of the ‘errors’ in the existing Guidance Note was exacerbated, as Mr Downes submitted, by other passages in it:
- i) In a discussion of the relationship between carbon dioxide and rising temperature, a question was raised for “possible teaching activities” namely: “Is CO<sub>2</sub> the cause of rising temperatures or is rising CO<sub>2</sub> caused by rising temperatures? Sceptics say we don’t know – what is the explanation in AIT?” Plainly this is unsatisfactory, since it is common ground that the explanation in AIT is at best materially incomplete (see the fourth ‘error’ above).

- ii) In the part of the Guidance Note which relates to discussion in citizenship classes, teachers are encouraged to raise the questions:

*“Consider the reason why politicians may have wanted to ignore climate change? ...*

*What pressures can be put on politicians to respond to climate change?”*

- iii) In the suggested planning of a whole day event on climate change for citizenship classes, there is no suggestion at all of the discussion of opposing views to that of Mr Gore, and the list of *“Suggested Organisations for the Climate Change Fair and as Guest Speakers”* is limited to organisations which support his views.

37. As a result of considerable discussion in Court, which I, and both Counsel, strained to avoid becoming a drafting session, a new Guidance Note has now been produced which the Defendant proposes to include in the pack, and which, to my satisfaction, addresses all of the above 9 ‘errors’, both by drawing specific attention to where Mr Gore may be in error and/or in any event where he deviates from the consensus view as set out in the IPCC report, and by, where appropriate, raising specific questions for discussions. I need only refer, by way of example, to the insertion in respect of scene 21, of the following passage relating to the first ‘error’, with regard to sea level rise:

*“Note: Pupils might get the impression that sea-level rises of up to 7m (caused by the complete melting of Greenland or half of Greenland and half of the West Antarctic shelf) could happen in the next decades. The IPCC predicts that it would take millennia for rises of that magnitude to occur. However, pupils should be aware that even small rises in sea level are predicted to have very serious effects. The IPCC says that “many millions more people are projected to be flooded every year due to sea-level rise by the 2080s” (i.e. within pupils’ own lifetimes).”*

References are helpfully now given to the IPCC report.

38. It may also be interesting to note what the Defendant has inserted in relation to the second of the above ‘errors’, with regard to the evacuation to New Zealand:

*“Note: It is not clear what “Pacific nations” Gore is referring to in the section dealing with evacuations to New Zealand. It is not clear that there is any evidence of evacuations in the Pacific due to human-induced climate change. Teaching staff may wish to use this as an example of the need in scientific presentation to give proper references for evidence used. However, the IPCC does predict that for small islands sea level rises will exacerbate storm surges and other coastal hazards and that, by the middle of this century, climate change will reduce water resources to the point where they become insufficient to meet demands in low-rainfall periods.”*

39. As for the particular matters in the original Guidance Note set out in paragraph 36 above:

- i) With regard to the first example, the last question “*What is the explanation in AIT?*” is now to be replaced by “*What does the IPCC say?*”
- ii) The discussion topics so far as concerns citizenship are altered. The first question has now become:

*“Consider the reasons why politicians may have chosen not to act on climate change?”*

Significantly the reference to ‘putting pressures on politicians’ is removed.

- iii) The reference to the suggested organisations is to be changed and balanced.

One particular change in the section on “*Citizenship: Planning a whole day event on climate change*” is of some significance:

*“Invite in a guest speaker to go over the issues raised across the day and discuss solutions ... But please remember that teaching staff must **not** promote any particular political response to climate change and, when such potential responses are brought to the attention of pupils, must try to ensure that pupils are offered a balanced presentation of opposing views.”*

40. The amended Guidance Note contains in its introduction a new and significant passage:

*“[Schools] must bear in mind the following points*

- *AIT promotes partisan political views (that is to say, one sided views about political issues)*
- *teaching staff must be careful to ensure that they do not themselves promote those views;*
- *in order to make sure of that, they should take care to help pupils examine the scientific evidence critically (rather than simply accepting what is said at face value) and to point out where Gore’s view may be inaccurate or departs from that of mainstream scientific opinion;*
- *where the film suggests that views should take particular action at the political level (e.g. to lobby their democratic representatives to vote for measures to cut carbon emissions), teaching staff must be careful to offer pupils a balanced presentation of opposing views and not to promote either the view expressed in the film or any other particular view.*

***The sceptical view***

*Teaching staff will be aware that a minority of scientists disagree with the central thesis that climate change over the past half-century is mainly attributable to man-made greenhouse gases. However, the High Court has made clear the law does not require teaching staff to adopt a position of neutrality between views which accord with the great majority of scientific opinion and those which do not [this was anticipatory of my decision].*

*The notes set out in this guidance have been drafted in accordance with the Fourth Assessment Reports of the [IPCC], published in 2007 under the auspices of the United Nations and the World Meteorological Organisation. AIT was made before these latest reports had been published, but it is important that pupils should have access to the latest and most authoritative scientific information. The IPCC derives its credibility from the fact that its conclusions are drawn from a “meta-review” of a massive number of independently peer-reviewed journal articles, and from the expertise and diversity of those on the reviewing panels.”*

This is in my judgment necessary and judicious guidance.

41. There were four other 2-minute “Climate Change” films in the pack, about two of which Mr Downes made complaint, but I am satisfied that they gave rise to no separate complaint of breach of s406 or s407 and that their continued inclusion in the pack is of no materiality.
42. There are two fundamental questions for me to answer:
  - i) Whether, by dispatching the film, with the cross-reference in the pack to the Guidance Note, as it then stood on the website, the Defendant was not taking steps to *forbid* but rather itself *promoting partisan political views*.
  - ii) Whether, by distributing/not withdrawing the film but accompanying it by a hard copy of the Guidance Note, amended in accordance with what has been fully discussed during the hearing and referred to in my judgment, the Defendant is now complying with ss406 and 407.
43. The Defendant does not intend now to continue with the old position, but has already amended the Guidance Note on the website, and stands ready to distribute it in hard copy if my judgment permits. There is no longer therefore any need for relief in respect of the film otherwise than as accompanied by the present Guidance Note. Mr Chamberlain submits that, even without the changes, the Defendant was not in breach of ss406 or 407. Mr Downes submits, as set out in paragraph 12 above, that the breach of s406 is irremediable, by virtue of the simple sending to schools of the film, irrespective of any accompanying Guidance Note, and in any event does not accept that the amendments to the Guidance Note are sufficient to comply with any palliative under s406 or duty under s407.



44. I am satisfied that, with the Guidance Note, as amended, the Defendant is setting the film into a context in which it can be shown by teachers, and not so that the Defendant itself or the schools are *promoting partisan views* contained in the film, and is putting it into a context in which a balanced presentation of opposing views can and will be offered. There is no call for the Defendant to support the more extreme views of Mr Gore – indeed the Government’s adherence is to the IPCC views - but the present package in my judgment does enough to make it clear both what the mainstream view is, insofar as Mr Gore departs from it, and that there are views of “sceptics” who do not accept even the consensus views of the IPCC. The Defendant will not be *promoting partisan political views* by enabling the showing of AIT in the context of the discussions facilitated by the Guidance Note, and is not under a duty to *forbid* the presentation of it in that context.
45. As for the position prior to the hearing and the changes in the Guidance Note, as I have indicated, it is not necessary for me to grant any relief in relation to it, but I must express a conclusion about it. It is plain that the original press releases of February were enthusiastically supportive of the film, and did initially indicate an intent to “*influence*”. However there is no mention at that stage of any accompanying Guidance Note. When the film was actually sent out, it was accompanied by the reference to the website where the Guidance could be found, and to that extent some discussion was facilitated. However the Guidance had the flaws to which I have referred in paragraphs 34 to 36 above. As Mr Downes has pointed out, if it has taken this hearing to identify and correct the flaws, it is impossible to think that teachers could have done so untutored. I am satisfied that, because insufficient attempt was made to counter the more one-sided views of Mr Gore, and, to some extent, by silence in the Guidance Note, those views were adopted, or at any rate discussion of them was not facilitated (and no adequate warning was given), there would have been a breach of ss406 and 407 of the Act but for the bringing of these proceedings and the conclusion that has now eventuated. Indeed the spirit of co-operation in which this hearing has been carried through is a tribute to constructive litigation.
46. In the circumstances, and for those reasons, in the light of the changes to the Guidance Note which the Defendant has agreed to make, and has indeed already made, and upon the Defendant’s agreeing to send such amended Guidance Note out in hard copy, no order is made on this application, save in relation to costs, on which I shall hear Counsel.

Scientists Respond to Gore's Warnings of Climate Catastrophe

**"The Inconvenient Truth" is indeed inconvenient to alarmists**

*By Tom Harris*

**Monday, June 12, 2006**

"Scientists have an independent obligation to respect and present the truth as they see it," Al Gore sensibly asserts in his film "An Inconvenient Truth", showing at Cumberland 4 Cinemas in Toronto since Jun 2. With that outlook in mind, what do world climate experts actually think about the science of his movie?

Professor Bob Carter of the Marine Geophysical Laboratory at James Cook University, in Australia gives what, for many Canadians, is a surprising assessment: "Gore's circumstantial arguments are so weak that they are pathetic. It is simply incredible that they, and his film, are commanding public attention."

But surely Carter is merely part of what most people regard as a tiny cadre of "climate change skeptics" who disagree with the "vast majority of scientists" Gore cites?

No; Carter is one of hundreds of highly qualified non-governmental, non-industry, non-lobby group climate experts who contest the hypothesis that human emissions of carbon dioxide (CO<sub>2</sub>) are causing significant global climate change. "Climate experts" is the operative term here. Why? Because what Gore's "majority of scientists" think is immaterial when only a very small fraction of them actually work in the climate field.

Even among that fraction, many focus their studies on the impacts of climate change; biologists, for example, who study everything from insects to polar bears to poison ivy. "While many are highly skilled researchers, they generally do not have special knowledge about the causes of global climate change," explains former University of Winnipeg climatology professor Dr. Tim Ball. "They usually can tell us only about the effects of changes in the local environment where they conduct their studies."

This is highly valuable knowledge, but doesn't make them climate change cause experts, only climate impact experts.

So we have a smaller fraction.

But it becomes smaller still. Among experts who actually examine the causes of change on a global scale, many concentrate their research on designing and enhancing computer models of hypothetical futures. "These models have been consistently wrong in all their scenarios," asserts Ball. "Since modelers concede computer outputs are not "predictions" but are in fact merely scenarios, they are negligent in letting policy-makers and the public think they are actually making forecasts."

We should listen most to scientists who use real data to try to understand what nature is actually telling us about the causes and extent of global climate change. In this relatively small

community, there is no consensus, despite what Gore and others would suggest.

Here is a small sample of the side of the debate we almost never hear:

Appearing before the Commons Committee on Environment and Sustainable Development last year, Carleton University paleoclimatologist Professor Tim Patterson testified, "There is no meaningful correlation between CO<sub>2</sub> levels and Earth's temperature over this [geologic] time frame. In fact, when CO<sub>2</sub> levels were over ten times higher than they are now, about 450 million years ago, the planet was in the depths of the absolute coldest period in the last half billion years." Patterson asked the committee, "On the basis of this evidence, how could anyone still believe that the recent relatively small increase in CO<sub>2</sub> levels would be the major cause of the past century's modest warming?"

Patterson concluded his testimony by explaining what his research and "hundreds of other studies" reveal: on all time scales, there is very good correlation between Earth's temperature and natural celestial phenomena such changes in the brightness of the Sun.

Dr. Boris Winterhalter, former marine researcher at the Geological Survey of Finland and professor in marine geology, University of Helsinki, takes apart Gore's dramatic display of Antarctic glaciers collapsing into the sea. "The breaking glacier wall is a normally occurring phenomenon which is due to the normal advance of a glacier," says Winterhalter. "In Antarctica the temperature is low enough to prohibit melting of the ice front, so if the ice is grounded, it has to break off in beautiful ice cascades. If the water is deep enough icebergs will form."

Dr. Wibjörn Karlén, emeritus professor, Dept. of Physical Geography and Quaternary Geology, Stockholm University, Sweden, admits, "Some small areas in the Antarctic Peninsula have broken up recently, just like it has done back in time. The temperature in this part of Antarctica has increased recently, probably because of a small change in the position of the low pressure systems."

But Karlén clarifies that the 'mass balance' of Antarctica is positive - more snow is accumulating than melting off. As a result, Ball explains, there is an increase in the 'calving' of icebergs as the ice dome of Antarctica is growing and flowing to the oceans. When Greenland and Antarctica are assessed together, "their mass balance is considered to possibly increase the sea level by 0.03 mm/year - not much of an effect," Karlén concludes.

The Antarctica has survived warm and cold events over millions of years. A meltdown is simply not a realistic scenario in the foreseeable future.

Gore tells us in the film, "Starting in 1970, there was a precipitous drop-off in the amount and extent and thickness of the Arctic ice cap." This is misleading, according to Ball: "The survey that Gore cites was a single transect across one part of the Arctic basin in the month of October during the 1960s when we were in the middle of the cooling period. The 1990 runs were done in the warmer month of September, using a wholly different technology."

Karlén explains that a paper published in 2003 by University of Alaska professor Igor Polyakov

shows that, the region of the Arctic where rising temperature is supposedly endangering polar bears showed fluctuations since 1940 but no overall temperature rise. "For several published records it is a decrease for the last 50 years," says KarlÈn.

Dr. Dick Morgan, former advisor to the World Meteorological Organization and climatology researcher at University of Exeter, U.K. gives the details, "There has been some decrease in ice thickness in the Canadian Arctic over the past 30 years but no melt down. The Canadian Ice Service records show that from 1971-1981 there was average, to above average, ice thickness. From 1981-1982 there was a sharp decrease of 15% but there was a quick recovery to average, to slightly above average, values from 1983-1995. A sharp drop of 30% occurred again 1996-1998 and since then there has been a steady increase to reach near normal conditions since 2001."

Concerning Gore's beliefs about worldwide warming, Morgan points out that, in addition to the cooling in the NW Atlantic, massive areas of cooling are found in the North and South Pacific Ocean; the whole of the Amazon Valley; the north coast of South America and the Caribbean; the eastern Mediterranean, Black Sea, Caucasus and Red Sea; New Zealand and even the Ganges Valley in India. Morgan explains, "Had the IPCC used the standard parameter for climate change (the 30 year average) and used an equal area projection, instead of the Mercator (which doubled the area of warming in Alaska, Siberia and the Antarctic Ocean) warming and cooling would have been almost in balance."

Gore's point that 200 cities and towns in the American West set all time high temperature records is also misleading according to Dr. Roy Spencer, Principal Research Scientist at The University of Alabama in Huntsville. "It is not unusual for some locations, out of the thousands of cities and towns in the U.S., to set all-time records," he says. "The actual data shows that overall, recent temperatures in the U.S. were not unusual."

Carter does not pull his punches about Gore's activism, "The man is an embarrassment to US science and its many fine practitioners, a lot of whom know (but feel unable to state publicly) that his propaganda crusade is mostly based on junk science."

In April, sixty of the world's leading experts in the field asked Prime Minister Harper to order a thorough public review of the science of climate change, something that has never happened in Canada. Considering what's at stake - either the end of civilization, if you believe Gore, or a waste of billions of dollars, if you believe his opponents - it seems like a reasonable request.

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### Gore Movie Is Gorgeous Propaganda, Misrepresentation

Author: Joseph Bast

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A friend invited me to attend a screening of "An Inconvenient Truth," Al Gore's new film about global warming, when it first arrived in Chicago a few weeks ago. The event was sponsored by an environmental advocacy group and the theater was filled with Gore fans. They seemed to love it. I found it frightening.

In the style of a previous generation of propaganda films, Gore substitutes vivid images of the alleged effects of global warming for an accurate account of the scientific debate. We see glaciers calving into the sea, giant storms sweeping through resort areas, burning deserts, and even a cartoon polar bear swimming aimlessly, searching for a place to rest.

Problem: All of the events pictured in this movie have been occurring since before human activities could possibly have caused them. Glaciers have calved into seas for millions of years, storms obviously predate modern civilization and our emissions, and real-life polar bears know better than to head out into open water during the Arctic summer. At any given time in Earth's history, some glaciers have been expanding while others have been shrinking.

Early in the movie, Gore shows us images of Mount Kilimanjaro's disappearing snow cap and blames the loss on global warming. Wrong. Scientists say the disappearing snow is due to changes in land use at the bottom of the mountain, causing drier air to rise up the mountain's side.

Later we see ice melting in the Arctic, Greenland, and the Antarctic. More evidence of global warming? Not necessarily. Scientists say temperatures in the Arctic were higher during the 1930s and the current melting is probably part of a natural cycle caused by ocean currents, not greenhouse gases. And only small parts of Greenland and the Antarctic are melting: Snow and ice are accumulating as rapidly in other parts, for a net loss of around zero.

Gore ignores these inconvenient facts because, he says, the only people who disagree with him are oil company stooges. At one point he compares scientists who disagree with him with apologists for the tobacco industry.

So what are we to make of (in alphabetical order) Dr. Tim Ball at the University of Winnipeg, Dr. Robert Balling at Arizona State University, Dr. Sallie Baliunas at Harvard-Smithsonian Center for Astrophysics, Dr. Bob Carter at James Cook University in Australia, Dr. Randall Cerveny at Arizona State University, Dr. John Christy at the University of Alabama, Dr. Robert Davis at the University of Virginia, Dr. Christopher Essex at the University of Western Ontario, Dr. Oliver Frauenfeld at the University of Colorado, Dr. Wibiörn Karlén at Stockholm University, and Dr. Christopher Landsea at the National Oceanic and Atmospheric Administration (NOAA)?

And what about Dr. David Legates at the University of Delaware, Dr. Henry Linden at IIT, Dr. Richard Lindzen at MIT, Dr. Ross McKittrick at the University of Guelph, Dr. Patrick Michaels at the University of Virginia, Dr. Dick Morgan at the University of Exeter, Dr. Tim Peterson at Carleton University, Dr. Roger Pielke Jr. at the University of Colorado, Dr. Eric Posmentier at Dartmouth College, Dr. Willie Soon at Harvard-Smithsonian Center for Astrophysics, Dr. Roy Spencer at the University of Alabama, and Dr.

Boris Winterhalter at the University of Helsinki?

All are respected authorities on climatology, working at respected universities, who appear regularly in peer-reviewed science journals. Some, like Richard Lindzen, are undisputed leading thinkers in their fields. Yet all dispute Gore's alarmist claims.

So who are you going to believe, politician Al Gore or real scientists?

There are plenty of other errors and exaggerations in Gore's movie, which people more expert than I are documenting and exposing. Suffice it to say, "An Inconvenient Truth" contains very little truth, and a big helping of propaganda.

What frightens me is the probability that Al Gore himself really believes the hype he tries to sell in this movie. Those who have watched him give his PowerPoint presentation and have discussed it with him say he does.

Everyone has the right to run for president of the United States, even multiple times, and apparently Gore plans to seek his party's nomination in 2008. While this film will put Gore's name back in lights for awhile, it also raises serious concerns about his fitness to serve as the nation's top executive.

Do we want to put the incredible powers of the presidency of the United States in the hands of what Eric Hoffer called a "true believer," someone who ignores evidence and opinions that contradict his faith?

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## **A Skeptic's Primer on Al Gore's *An Inconvenient Truth* One-Sided, Misleading, Exaggerated, Speculative, Wrong**

**By Marlo Lewis, Jr.\***

Former Vice President Al Gore's Oscar-winning film, *An Inconvenient Truth* (*AIT*) and its companion book purport to be a non-partisan, non-ideological exposition of climate science. In reality, the film is a computer-enhanced lawyer's brief for global warming alarmism and energy rationing. The only facts and studies Gore considers are those convenient to his scare-them-green agenda. And in numerous instances, he distorts the evidence he cites.

This *On Point* is organized as follows. Section I highlights some of the many distortions in *AIT*. Sections II, III, and IV examine Gore's scariest claims. He blames the devastation of Hurricane Katrina on global warming and warns of a warming-triggered mini-Ice Age in Europe and of catastrophic sea-level rise. Section V challenges the moral bona fides of carbon-suppression schemes like the Kyoto Protocol. Sections II through V are referenced to the book version of *AIT*.

**I. Distortions.** Some distortion is inevitable in any popular presentation of technical scientific and economic issues. But in *AIT* we find example after example—and all serve to promote alarm and regulatory activism. *AIT* is not a balanced assessment of the issues. Following is a partial list of *AIT*'s many distortions grouped by category.

### **One-Sided**

- Never acknowledges the indispensable role of fossil fuels in alleviating hunger and poverty, extending human life spans, and democratizing consumer goods, literacy, leisure, and personal mobility.<sup>1</sup>
- Never acknowledges the environmental, health, and economic benefits of climatic warmth and the ongoing rise in the air's carbon dioxide (CO<sub>2</sub>) content.<sup>2</sup>

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- Never acknowledges the role of natural variability in shrinking mountain glaciers.<sup>3</sup>
- Presents a graph tracking CO<sub>2</sub> levels and global temperatures during the past 650,000 years, but never mentions the most significant point: Global temperatures were warmer than the present during each of the past four interglacial periods, even though CO<sub>2</sub> levels were lower.<sup>4</sup>
- Neglects to mention that aggregate mortality and mortality rates related to extreme weather events fell dramatically during the 20<sup>th</sup> century.<sup>5</sup>
- Mentions that the greenhouse effect keeps the planet habitably warm but not that weather processes keep the planet habitably cool, creating the false impression that greenhouse gases have an unlimited power to warm the atmosphere.<sup>6</sup>
- Ignores the large role of natural variability in Arctic climate, never mentioning that Arctic temperatures in the 1930s equaled or exceeded those of the late 20<sup>th</sup> century,<sup>7</sup> and that the Arctic during the early- to mid-Holocene was significantly warmer than it is today.<sup>8</sup>
- Neglects to mention the circumstances that make it reasonable rather than blameworthy for America to be the biggest CO<sub>2</sub> emitter: the world's largest economy, abundant fossil energy resources, markets integrated across continental distances, and the world's most mobile population.

### **Misleading**

- Implies that, throughout the past 650,000 years, changes in carbon dioxide levels preceded and largely caused changes in global temperature, whereas the causality runs mostly the other way, with CO<sub>2</sub> changes trailing global temperature changes by hundreds to thousands of years.<sup>9</sup>
- Cites increases in insurance payments to victims of hurricanes, floods, drought, tornadoes, wildfires, and other natural disasters as evidence of a global warming-ravaged planet, ignoring research that finds no long-term trend once weather-related damages are adjusted for changes in population, wealth, and inflation.<sup>10</sup>
- Re-labels as “major floods” (a category defined by physical magnitude) a chart of “damaging floods” (a category defined by socioeconomic and political criteria), inflating the importance of climate factors in flood risk.<sup>11</sup>
- Reports that many U.S. cities and towns broke summer heat records in 2005 but does not mention that cities and towns get warmer as they grow—the urban heat island effect.<sup>12</sup>
- Cites increases in the annual number of Thames River barrier closings as evidence of increased flood risk from global warming. However, in recent years the barriers were often closed to keep tide water in as well as tidal surges out.<sup>13</sup>
- Blames global warming for the increase of “invasive alien species” in Switzerland. The species in question were “exotic” plants deliberately introduced into Swiss parks and gardens as long as 200 years ago.<sup>14</sup>
- Blames global warming for the decline “since the 1960s” of the Emperor Penguin population in Antarctica, implying an ongoing warming-related threat. In fact, the decline took place in the 1970s—possibly due to the advent of Antarctic ecotourism—and the population has been stable since the late 1980s.<sup>15</sup>
- Falsely implies that a survey, which found that none of 928 science articles



- (actually abstracts) disputed the IPCC's conclusion that most recent warming is likely due to rising greenhouse gas levels,<sup>16</sup> shows that Gore's apocalyptic view of global warming and call for regulatory action are the scientific "consensus."
- Reports that 48 Nobel Prize-winning scientists accused Bush of distorting science, without mentioning that the scientists acted as members of a 527 political group set up to promote the Kerry for President Campaign.<sup>17</sup>
  - Confuses fuel efficiency (the amount of useful work per unit of fuel consumed) with fuel economy (miles per gallon),<sup>18</sup> falsely portraying U.S. cars and trucks as inefficient compared to their European and Japanese counterparts.

### **Exaggerated**

- Hypes the importance of the National Oceanic and Atmospheric Administration (NOAA) running out of names (21 per year) for Atlantic tropical storms in 2005. Yet the practice of naming storms only goes back to 1953,<sup>19</sup> and storm detection capabilities have improved dramatically since the 1950s. Non-land-falling storms that once would have gone undetected are recorded today.
- Claims that polar bears "have been drowning in significant numbers," but this is based on a single report that four polar bears drowned in one month of one year, following an abrupt windstorm.<sup>20</sup>
- Portrays the collapse in 2002 of the Larson-B ice shelf—a formation the "size of Rhode Island"—as a harbinger of doom. For perspective, the Larson-B was 180<sup>th</sup> the size of Texas and 1/246<sup>th</sup> the size of the West Antarctic Ice Sheet (WAIS).

### **Speculative**

- Blames global warming for the record-breaking 37-inch downpour in Mumbai, India, in July 2005, even though there has been no long-term increase in Mumbai rainfall for the month of July in 45 years.<sup>21</sup>
- Blames global warming for recent floods in China's Shandong and Sichuan provinces, even though far more damaging floods struck those areas in the 19<sup>th</sup> and early 20<sup>th</sup> centuries—Shandong in 1887 and 1931 and Sichuan in 1954.<sup>22</sup>
- Warns of water shortages in Asia as Tibetan glaciers recede, even though Asia's river systems are fed by annual snowmelt, and snow cover increased in southern China (the Tibetan plateau) during the latter half of the 20<sup>th</sup> century.<sup>23</sup>
- Blames global warming for the disappearance of Lake Chad, a disaster more likely stemming from a combination of regional climate variability and societal factors such as overgrazing.<sup>24</sup>
- Blames global warming for the severe drought that hit the Amazon in 2005. RealClimate.Org—a website set up by Gavin Schmidt of NASA, Michael Mann of the University of Virginia, and others to debunk global warming "skeptics"—concluded that it is not possible to link the drought to global warming.<sup>25</sup>
- Blames global warming for Europe's killer heat wave of 2003—an event caused by an atmospheric circulation anomaly.<sup>26</sup>
- Claims that global warming is "disrupting millions of delicately balanced ecological relationships among species" based on a study showing that, in the Netherlands, caterpillars are hatching two weeks earlier than the peak arrival season of caterpillar-eating migratory birds. *AIT* claims the birds' "chicks are in

- trouble,” yet the same researcher whom Gore cites found “no demonstrable effect” on the bird population during the past 20 years.<sup>27</sup>
- Warns that global warming is destroying coral reefs, even though today’s main reef builders evolved and thrived during periods when the world was 10-15°C warmer than the present.<sup>28</sup>
  - Asserts without evidence that global warming is causing more tick-borne disease (TBD). An Oxford University study found no relationship between climate change and TBD in Europe.<sup>29</sup>
  - Blames global warming for outbreaks of toxic blue-green algae blooms in the Baltic Sea in 2005—a phenomenon that an international panel of experts attributed to record-high phosphorus levels, record-low nitrogen-to-phosphorus levels, and regional wind patterns.<sup>30</sup>
  - Claims ocean temperatures are “way above” the range of natural variability—yet proxy data indicate that the Atlantic Ocean off the West Coast of Africa and the Bermuda Rise were warmer during the Medieval Warm Period.<sup>31</sup>
  - Insinuates that global warming is a factor in the emergence of some 30 “new” diseases over the last three decades, but cites no supporting research or evidence.
  - Warns that half the Greenland Ice Sheet and half the West Antarctic Ice Sheet could break off and slide into the sea or melt, raising sea levels by 20 feet in our lifetimes or those of our children. No scientific studies support this claim.

## Wrong

- Claims there is a “strong, new emerging consensus” linking global warming to an increase in hurricane intensity and duration. The World Meteorological Organization recently stated that, “no consensus has been reached on this issue.”<sup>32</sup>
- Claims that Nairobi, Kenya, was above the mosquito line and thus malaria-free until recent global warming. In fact, malaria epidemics were common in Nairobi during the 1920s to the 1940s.<sup>33</sup> The resurgence of malaria in East Africa is due to decreased spraying of homes with DDT, anti-malarial drug resistance, and inadequate public health programs.<sup>34</sup>
- Claims that glaciologist Lonnie Thompson’s reconstruction of climate history from Tibetan and Andean ice cores proves the Medieval Warm Period was “tiny” compared to the warming of recent decades. It doesn’t. Four of Thompson’s six ice cores indicate that several decades of the Medieval Warm Period were as warm as or warmer than any recent decade.<sup>35</sup>
- Calls carbon dioxide the “most important greenhouse gas.” Water vapor is the leading contributor to the greenhouse effect.<sup>36</sup>
- Claims the rate of global warming is accelerating. In fact, the rate has been remarkably constant—roughly 0.17°Celsius per decade from 1976 to 2005.<sup>37</sup>
- Blames global warming for Hurricane Catarina, the first South Atlantic hurricane on record, which struck Brazil in 2004. Catarina formed not because the South Atlantic was unusually warm—sea temperatures were cooler than normal—but because the air was so much colder that it produced the same kind of heat flux from the ocean that fuels hurricanes in warmer waters.<sup>38</sup>
- Claims that 2004 set an all-time record for the number of tornadoes in the United States. Tornado frequency has not increased; rather, the detection of smaller

tornadoes has increased. If we consider the tornadoes that have been detectable for many decades, there is actually a downward trend since 1950.<sup>39</sup>

## II. Is Global Warming Making Hurricanes Stronger?

**AIT:** “And then came Katrina...The consequences were horrendous. There are no words to describe them.” (pp. 94-95)

To blame global warming for Hurricane Katrina is sheer demagoguery. Kerry Emanuel of the Massachusetts Institute of Technology, the very scientist whose work Gore cites to claim a “strong...emerging consensus” that global warming is increasing hurricane power (see below), cautioned against attempts to link Katrina and other recent Atlantic storms to global warming.<sup>40</sup> More importantly, Katrina was the worst natural disaster in U.S. history not because the hurricane was so powerful—it was a category 3 storm by the time it made landfall—but because the federal government had failed to build adequate flood defenses for New Orleans.<sup>41</sup>

**AIT:** “[T]here is now a strong, new emerging consensus that global warming is indeed linked to a significant increase in both the duration and intensity of hurricanes.” (p. 81)

The scientific jury is still out. Kerry Emanuel found that hurricane strength—a combination of wind speed and storm duration, which he calls the “power dissipation index” (PDI)—increased by 50 percent since the mid-1970s, and that the increase is highly correlated with rising sea surface temperatures.<sup>42</sup> However, other experts question these results.

Roger Pielke, Jr. of the University of Colorado found that once hurricane damage is normalized for changes in population, wealth, and the consumer price index, there is no long-term change in hurricane damage—evidence against the hypothesis that hurricanes are becoming more destructive.<sup>43</sup> Christopher Landsea of NOAA, noting no trend in the PDI for land-falling U.S. hurricanes, suggests that Emanuel’s finding may be an “artifact of the data”—a consequence of advances in satellite technology, which have improved detection and analysis of non-land-falling hurricanes.<sup>44</sup>

Philip Klotzbach of Colorado State University found “a large increasing trend in tropical cyclone intensity and longevity for the North Atlantic basin and a considerable decreasing trend for the North Pacific,” but essentially no trend in other tropical cyclone-producing ocean basins.<sup>45</sup> Similarly, Kossin et al. (2007) found an upward trend in hurricane intensity in the Atlantic basin during the past 23 years but not in any of the world’s other five hurricane basins.<sup>46</sup>

**AIT:** “The emerging consensus linking global warming to the increasingly destructive power of hurricanes has been based in part on research showing a significant increase in the number of category 4 and 5 hurricanes.” (p. 89)

Peter Webster and colleagues found a significant increase in the number of major hurricanes during 1970-2004.<sup>47</sup> In contrast, Klotzbach found only a “small increase in global Category 4-5 hurricanes from the period 1986-1995 to the period 1996-2005,” and considers it likely that “improved observational technology” accounts for that small increase.

Klotzbach, Webster, and Kossin all found an increase in hurricane intensity in recent decades only in the Atlantic. But the Atlantic basin accounts for less than 15 percent of the world’s hurricane activity, so if *global* warming is the cause, why is the Atlantic the only basin where hurricanes are unequivocally getting stronger?

Note also that the study periods in Klotzbach, Webster, and Kossin are of fairly short duration. How do we know that the increase in Atlantic hurricane intensity is a linear trend rather than the upswing of a natural oscillation?

Virginia State climatologist Patrick Michaels investigated Atlantic storm intensity using pre-1970 data from the National Hurricane Center.<sup>48</sup> He found that the “trend” observed by the Webster team disappears once data going back to 1940 are included. The number and percentage of intense Atlantic storms from 1940 to 1970 were about equal to the number and percentage of intense storms from 1970 to 2004.<sup>49</sup>

In reality, the “consensus” of the scientific community is that there is “no consensus” about the relationship between global warming and hurricane strength. That was the verdict of some 120 scientists at a meeting of the World Meteorological Organization:

“The possibility that greenhouse gas induced global warming may have already caused a substantial increase in some tropical cyclone indices has been raised (e.g. Mann and Emanuel, 2006), but no consensus has been reached on this issue.”<sup>50</sup>

### III. Will Global Warming Cause a Mini-Ice Age?

**AIT:** Gore describes the functioning of Atlantic branch of the thermohaline circulation (THC), the oceanic “conveyor belt” that, along with the Gulf Stream, help keep Europe relatively warm in the wintertime. The sinking of dense (cold and salty) water at the northern end of the belt pulls warm surface water up towards Europe from the equator. Gore worries that “the rapid melting of Greenland ice” will decrease the density of North Atlantic surface water to the point where it sinks too slowly to drive the conveyor. According to Gore, such an event happened “10,000 years ago,” and “The Gulf Stream virtually stopped...Consequently, Europe went back into an ice age for another 900 to 1,000 years.” Gore worries that it could happen again. (p. 149)

Gore assumes that it is the THC that keeps London and Paris 15-20°F warmer than New York City during the winter. Richard Seager of Columbia University’s Lamont-Doherty Earth Observatory and his colleagues contend that oceanic heat transport is simply not strong enough to account for Europe’s milder winters. The key factor, they contend, is a

difference in the warmth of the prevailing winds that blow across northeastern North America and Western Europe. During the winter, “South-westerlies bring warm maritime air into Europe and north-westerlies bring frigid continental air into north-eastern North America.”<sup>51</sup> If this finding is correct, then Europe should continue to enjoy mild winters even if global warming weakens the THC.<sup>52</sup>

Seager also questions the theory that a shutdown of the THC triggered the Younger Dryas, the mini-ice age of “10,000 years ago” or so, to which Gore refers. Some scientists have speculated that a sudden release of fresh water into the Labrador Sea, following the collapse of a giant ice dam in North America, shut down the THC and caused the Younger Dryas. “But,” says Seager, “the Younger Dryas was not a purely North Atlantic phenomenon: Manifestations of it also appeared in the tropical and southern Atlantic, in South America, and in Asia.” Moreover, “evidence has emerged that the Younger Dryas began long before the breach that allowed freshwater to flood the North Atlantic.”<sup>53</sup>

Even if a freshening of the North Atlantic did shut down THC thousands of years ago, the recurrence of such an event today is highly implausible. The rupture of the Laurentide ice dam allowed more than 100,000 cubic kilometers of fresh water to pour into the North Atlantic.<sup>54</sup> The rate of fresh water infusion from Greenland today is a comparative trickle—an estimated 224±41 cubic kilometers per year.<sup>55</sup>

Northern Hemisphere climate during the last interglacial period (roughly 130,000 to 118,000 years ago) was relatively stable, even though Greenland experienced summertime temperatures 4° to 5° Celsius warmer than the present for several millennia, and even though sea levels rose to several meters higher than present.<sup>56</sup> These conditions may eventually have produced a “deep-water reorganization” that began the transition to the next ice age—but only after 8,000 years of comparative climate stability.<sup>57</sup>

Is the THC slowing down? Bryden et al. (2005)<sup>58</sup> found that it is, but Meinen et al. (2006)<sup>59</sup> and Schott et al. (2006)<sup>60</sup> found that it isn't. Latif et al. (2006)<sup>61</sup> observed a “strengthening” of the THC since 1980. There certainly is no indication that Europe is cooling due to any modification of the THC.

Finally, Gore erroneously conflates the THC with the Gulf Stream. The THC is a convective system driven chiefly by the sinking of dense (cold and salty) surface water in the high northern latitudes. The Gulf Stream, on the other hand, is a wind-driven system, energized primarily by the Earth's spin. As one scientist put it, the Gulf Stream is safe as long as the Earth turns and the wind blows.<sup>62</sup> Thus, even in climate models that project a weakening of the THC in the 21<sup>st</sup> century, Europe continues to warm, “albeit more slowly than the rest of the world.”<sup>63</sup>

#### **IV. Will Sea Levels Rise by 20 Feet?**

**AIT:** “The East Antarctic ice shelf is the largest ice mass on the planet and had been thought to be still increasing in size. However, two new studies in 2006

showed overall volumes of ice in Antarctica appear to be declining, and that 85 percent of the glaciers there appear to be accelerating their flow toward the sea.” (p. 190)

Of the two studies to which Gore alludes, I can identify only one. Isabella Velicogna and John Wahr of the University of Colorado used satellite measurements of gravity fluctuations to infer ice-mass changes in Antarctica.<sup>64</sup> Gore gives the impression that all of Antarctica, including the East Antarctic Ice Sheet (EAIS), is losing ice mass. In fact, almost all the ice loss observed by Velicogna and Wahr comes from the smaller West Antarctic ice sheet (WAIS).<sup>65</sup> Gore neglects to mention that the study looked at only three years of data—from mid-2002 to mid-2005.

Davis et al. (2005) examined Antarctic ice mass balance changes over a somewhat longer period, from May 1992 to May 2003.<sup>66</sup> The Davis team also found that the WAIS was losing mass. However, the larger EAIS was gaining mass, from snow accumulation, at a faster rate, yielding a net increase in Antarctic ice. The overall effect was to *reduce* sea-level rise by 0.09 mm/year.

As Patrick Michaels points out, Velicogna and Wahr begin their analysis at the peak of ice mass accumulation in the Davis study’s longer record. “This means that the apparent decline in the record of Velicogna and Wahr may simply be the short-term correction to an anomalously high mass gain during a period of long-term mass growth,” says Michaels. “But who is to know for sure? It is impossible to tell anything about a trend in a system as vast as Antarctica with less than three years worth of data.”<sup>67</sup>

Two other recent studies—both from 2006—also indicate a positive mass balance in Antarctica. Chen et al. found that, during April 2002 to November 2005, ice mass gains in the EAIS exceeded ice mass losses in the WAIS.<sup>68</sup> Wingham et al. found that, during 1992-2003, mass gains from accumulating snow on the Antarctic Peninsula and within East Antarctica exceeded ice mass loss in West Antarctica.<sup>69</sup>

Also in 2006, Van den Broeke et al. found no net change in the size of Antarctica’s ablation zones (areas where ice mass losses in the summer exceed winter snow accumulations), and no change in the rate of ice mass loss, during the 25-year period from 1980 to 2004.<sup>70</sup> In other words, global warming appears to have had no impact on overall Antarctic ice mass balance during the past quarter century.

**AIT:** “East Antarctica is still considered far more stable over long periods of time than the West Antarctic ice shelf, which is propped up against the tops of islands. This peculiar geology is important for two reasons: first, its weight is resting on land and therefore its mass has not displaced seawater as floating ice would. So if it melted or slipped off its moorings into the sea, it would raise sea levels worldwide by 20 feet. Second, the ocean flows underneath large sections of this ice shelf, and as the ocean has warmed, scientists have documented significant and alarming structural changes on the underside of the ice shelf.” (p. 190)

Gore provides no information allowing the reader to assess whether the “structural changes on the underside of the ice sheet” are “significant” or “alarming.” He probably refers to research by NASA’s Robert Bindschadler showing that water from the intermediate depths—the warmest water in polar oceans—is melting the submarine base of the glaciers, accelerating their flow towards the sea.<sup>71</sup>

Bindschadler is careful to point out “the absence of any indication of increasing sea surface temperature” in the polar oceans, and notes that “warmth in the ocean arriving from lower latitudes would raise the temperature of this intermediate water a fraction of a degree, hardly enough to initiate a sudden glacier acceleration.” So why are glaciers accelerating?

According to Bindschadler, once the intermediate layer penetrates the moraine, or sill—the barrier-like accumulation of boulders, gravel, and other debris deposited by the glacier as it retreats from its maximum extent—the water reaches the “grounding line”—the boundary of the ice sheet’s base on the sea floor. “Increased pressure at these greater depths lowers the melting point of this ice, increasing the melting efficiency of the warmer water. Rapid melting results.” This explanation suggests a process that would occur with or without global warming. It also suggests a process that cannot be stopped.

How long has this process been going on? For roughly 8,000 years, according to Conway et al. (1999). The Conway team mapped the retreat of the Ross Ice Shelf grounding line—the southernmost boundary of the WAIS—since the last glacial maximum. They found that “most recession occurred in the middle to late Holocene in the absence of substantial sea level or climate forcing.”<sup>72</sup> The Ross Ice Shelf today is approximately one-third its original size. They concluded that current grounding line retreat is natural and will continue even in the absence of greenhouse forcing:

“We suggest that modern grounding-line retreat is part of ongoing recession that has been under way since the early to mid-Holocene time. It is not a consequence of anthropogenic warming or recent sea level rise. In other words, the future of the WAIS may have been predetermined when grounding-line retreat was triggered in early Holocene time. Continued recession and perhaps even complete disintegration of the WAIS within the present interglacial period could well be inevitable.”

When might the “inevitable” occur? Conway and colleagues state that, “if the grounding line continues to pull back at the present [i.e. 1990s] rate, complete deglaciation will take about 7,000 years.”

Such estimates are uncertain, because ice sheets are dynamic systems that can change in unpredictable ways. Nonetheless, the “significant and alarming structural changes” to which Gore alludes have likely been going on for millennia, with no help from man-made global warming. Gore cites no specific evidence to justify fears of an impending collapse of the WAIS, or any significant portion of it.

**AIT:** “These pools [of meltwater on the top of the Greenland glacier] have always been known to occur, but the difference now is that there are many more of them covering a far larger area of the ice...[T]his meltwater is now believed to keep sinking all the way down to the bottom, cutting deep crevasses and vertical tunnels that scientists call ‘moulins.’ When the water reaches the bottom of the ice, it lubricates the surface of the bedrock and destabilizes the ice mass, raising fears that the ice mass will slide more quickly toward the ocean.” (p. 192)

To illustrate these points, Gore presents a photograph and a diagram from a study of “moulins” by Zwally et al. (2002), published in the journal *Science*.<sup>73</sup> The study found that moulins accelerate glacial movement in Greenland in the summertime, but only by a few percentage points. For example, glacial flow in 1998 increased from 31.3 centimeters per day in winter to 40.1 in July, falling back to 29.8 in August, increasing annual glacial movement by 4.7 meters. Were it not for satellite sensing systems, nobody would even notice!

Moulins in numbers equal to or surpassing those observed today probably occurred during the first half of the 20<sup>th</sup> century, because Greenland during most of the decades between 1915 and 1965 was as warm as or warmer than the decade from 1995 to 2005.<sup>74</sup> This means there should have been the same or greater acceleration in glacial flow. Yet there was no catastrophic loss of grounded ice.

**AIT:** “If Greenland melted or broke up and slipped into the sea—or if half of Greenland and half of Antarctica melted or broke up and slipped into the sea, sea levels worldwide would increase by between 18 and 20 feet.” (p. 196) More than 100 million people living in Beijing, Shanghai, Calcutta, and Bangladesh would be “displaced, “forced to move,” or “have to be evacuated.” (pp. 204-206)

“The Greenland ice sheet cannot slip into the sea,” as one reviewer, William Robert Johnston, a physics doctoral student at the University of Texas at Dallas, explains, “since it is resting in a bowl-shaped depression produced by its own weight, surrounded by mountains which permit only limited glacier outflow to the sea.”<sup>75</sup> Also, as just noted, there is no evidence that “moulins” are breaking up the ice sheet.

How long would it take to melt half of Greenland? A modeling study reviewed by the IPCC found that a sustained 5.5°C warming of Greenland would melt about half the glacier and increase sea level by 3 meters—about 10 feet—“over a thousand years.”<sup>76</sup>

Nobody knows how warm Greenland is going to be over the next thousand years. We do have data on the net rate of ice mass loss in Antarctica and Greenland. Greenland’s glaciers are thinning at the edges and thickening in the interior. If the gains are subtracted from the losses, the net volume of ice lost during 2003 to 2005 was ~101 gigatons a year.<sup>77</sup> At that rate, Greenland is contributing 0.28 mm of sea-level rise per year—about 1 inch per century.

Zwally et al. (2005) used satellite altimetry to examine ice mass changes in Greenland,



East Antarctica, and West Antarctica during 1992-2002.<sup>78</sup> They found a combined sea-level-rise-ice-loss-equivalent rate of 0.05 mm per year. At that rate, comments the Center for the Study of Carbon Dioxide and Global Change, “it would take a full millennium to raise global sea level by just 5 cm.”<sup>79</sup>

## V. Is Carbon Suppression Moral?

**AIT:** “We can’t afford inaction any longer, and frankly, there’s just no excuse for it. We all want the same thing: for our children and the generations after them to inherit a clean and beautiful planet capable of supporting a healthy human civilization. That goal should transcend politics....This isn’t an ideological debate with two sides, pro and con. There is only one Earth, and all of us who live on it share a common future.” (p. 287) “And that is what is at stake. Our ability to live on Planet Earth—to have a future as a civilization. I believe this is a moral issue.” (p. 298)

Nothing is more political than the claim to transcend politics, because it implies that anyone who actually represents truth (science) and virtue (morality) deserves to rule. Gore castigates his political opponents while posing as an apolitical Mr. Science. When Gore calls global warming a “moral issue,” he implies those who disagree with him have no ideas worth considering or motives worth respecting. How moral is that?

Gore never considers the obvious moral objection to his agenda—its potentially catastrophic impacts on the world’s poor. Stabilizing atmospheric carbon dioxide levels is not even remotely possible unless China, India, and other developing countries restrict their use of carbon-based energy.<sup>80</sup> Consequently, the Kyoto Protocol’s advocates view the treaty as just a “first step.”<sup>81</sup> But the global economy is moving in exactly the opposite direction. Demand for fossil energy is growing, especially in developing countries. The Energy Information Administration projects a 71 percent increase in global energy consumption between 2003 and 2030, with three quarters of the increase occurring in developing countries.<sup>82</sup> And in 2030 as in 2003, fossil fuels are projected to supply about 86 percent of world energy consumption.<sup>83</sup>

Energy poverty is a scourge, shortening the lives and impairing the health of untold millions of people around the globe. An estimated 1.6 billion people lack access to electricity, and some 2.4 billion people still rely on traditional biomass—wood, crop waste, and dung—for cooking and heating.<sup>84</sup> Daily indoor air pollution for these people is many times dirtier than outdoor in the world’s most polluted cities, and kills about 2.8 million people a year, most of them women and children.<sup>85</sup> Reliance on traditional biomass also takes a heavy toll on forests and wildlife habitat.

The real inconvenient truth is that nobody knows how to meet current much less future global energy needs with low- and non-emitting technologies.<sup>86</sup> It is not moral to put an energy-starved world on an energy diet.

Even in wealthy countries like the United States, energy taxes or their regulatory

equivalent can inflict hardship on low-income households.<sup>87</sup> Millions of families already feel pinched by the high cost of gasoline, natural gas, and home heating oil. A Kyoto-style system would make energy even more costly for consumers.

Many U.S. politicians professed outrage in 2005 when gasoline prices spiked above \$3.00 a gallon. Consumers pay twice as much for gasoline in some European countries, due to heavy motor fuel taxes.<sup>88</sup> Yet from 1990 to 2004, EU transport sector CO<sub>2</sub> emissions increased almost 26 percent and are projected under current policies to be 35 percent above 1990 levels in 2010.<sup>89</sup> How much higher than European-level gasoline prices does Gore think Americans should have to pay? Gore should at least admit that the pursuit of carbon stabilization has the potential to do more harm than good.

**Conclusion.** *An Inconvenient Truth* purports to be a non-ideological exposition of climate science and common sense morality. As this *On Point* shows, *AIT* uses science selectively and often dubiously to advance a political agenda of alarm and energy rationing.

Gore calls global warming a “moral issue” but somehow he sees nothing immoral in the attempt to make fossil energy scarcer and more costly in a world where 1.6 billion people have never flipped a light switch and billions more are too poor to own an automobile.

Nearly every significant statement that Vice President Gore makes regarding climate science and climate policy is either one-sided, misleading, exaggerated, speculative, or wrong. In light of these numerous distortions, *AIT* is ill suited to serve as a guide to climate science and climate policy for the American people.

## Notes

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<sup>4</sup> On the greater warmth of previous interglacial periods, see Petit, J.R., J. Jouzel, D. Raynaud, N.I. Barkov, J.-M. Barnola, I. Basile, M. Bender, J. Chappellaz, M. Davis, G. Delaygue, M. Delmotte, V.M. Kotlyakov, M. Legrand, V.Y. Lipenkov, C. Lorius, L. Pepin, C. Ritz, E. Saltzman, and M. Stievenard, “Climate and Atmospheric History of the Past 420,000 Years from the Vostok Ice Core, Antarctica,” *Nature* 399 (1999): 429–36, reviewed by the Center for the Study of Carbon Dioxide and Global Change, <http://www.co2science.org/scripts/CO2ScienceB2C/articles/V2/N12/C1.jsp>

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- <sup>88</sup> In August 2005, gasoline cost \$6.77 in the Netherlands, \$6.56 per gallon in Norway, \$6.29 per gallon in Denmark, and \$6.02 per gallon in Belgium and the UK. Rachel Elbaum, “What if you had to pay \$6.02 a gallon for gas?” MSNBC, <http://www.msnbc.msn.com/id/8994313>.
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### Commentary: British Documentary Counters Gore Movie

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Al Gore's movie *An Inconvenient Truth* (AIT) has met its match--a major documentary recently shown on British television.

In spite of its flamboyant title, *The Great Global Warming Swindle* (TGGWS) is based on sound science, presenting the statements of real climate scientists, including myself. AIT, by contrast, consists mainly of the personal beliefs of Al Gore.

#### Warming Probably Natural

The scientific arguments presented in TGGWS can be stated quite briefly:

There is no real proof that the current warming is caused by the rise of greenhouse gases from human activities, such as the generation of energy from the burning of fuels. On the contrary, the evidence we have supports natural causes.

The current warming is likely part of a natural cycle of climate warming and cooling that has been traced back almost a million years. It accounts for the Medieval Warm Period around 1100 AD, when the Vikings were able to settle Greenland and grow crops. It also accounts for the Little Ice Age, from about 1400 to 1850 AD, that brought severe winters and cold summers to Europe, accompanied by failed harvests, starvation, disease, and general misery.

If the cause of warming is mostly natural, then there is little we can do about this. We cannot influence the inconstant sun, which is the likely origin of most climate variability. None of the schemes of mitigation currently bandied about will do any good--they are all useless and wildly expensive.

#### Warmer Climate Beneficial

The film goes on to point out that schemes such as carbon dioxide rationing, a government-directed switch to alternative energy sources, or carbon sequestration would all be ineffective even if carbon dioxide were responsible for the observed warming trend--unless we can persuade every nation, including China, to cut fuel use by 80 percent! Ironically also, most global warming worriers oppose nuclear power, the only realistic alternative to energy from fossil fuels.

Finally, no one can show that a warmer climate would produce net negative impacts. In fact, many economists argue the opposite is more likely--they say warming creates net benefits that will raise incomes and standards of living.

Virtually all economists agree a colder climate would be bad. So why would the present climate necessarily be the optimum? Surely, the chances for this must be vanishingly small.

## Resources, Efforts Wasted

The main message of TGGWS is much broader: Why should we devote our scarce resources to what is essentially a non-problem and ignore the real problems the world faces?

We would have a much more positive impact by devoting our resources to reducing hunger, disease, human rights violations, and restrictions on human freedom. Yet so many politicians and environmental activists prefer to toy with and devote our limited resources to fashionable issues rather than concentrate on real ones.

I imagine that in the not-too-distant future all of the hype will have died down, particularly if the climate should decide to cool as it did during much of the past century. We should take note that the planet has not warmed since 1998.

Future generations will look back on the current madness and wonder what it was all about. They will have movies like AIT and documentaries like TGGWS to remind them.

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