

35 INCONVENIENT TRUTHS

THE ERRORS IN AL GORE'S MOVIE

by

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The errors in Al Gore's movie

A spokesman for Al Gore has issued a questionable response to the news that in October 2007 the High Court in London had identified nine “errors” in his movie *An Inconvenient Truth*. The judge had stated that, if the UK Government had not agreed to send to every secondary school in England a corrected guidance note making clear the mainstream scientific position on these nine “errors”, he would have made a finding that the Government’s distribution of the film and the first draft of the guidance note earlier in 2007 to all English secondary schools had been an unlawful contravention of an Act of Parliament prohibiting the political indoctrination of children.



Al Gore’s spokesman and “environment advisor,” Ms. Kalee Kreider, begins by saying that the film presented “thousands and thousands of facts.” It did not: just 2,000 “facts” in 93 minutes would have been one fact every three seconds. The film contained only a few dozen points, most of which will be seen to have been substantially inaccurate. The judge concentrated only on nine points which even the UK Government, to which Gore is a climate-change advisor, had to admit did not represent mainstream scientific opinion.

Ms. Kreider then states, incorrectly, that the judge himself had never used the term “errors.” In fact, the judge used the term “errors,” in inverted commas, throughout his judgment.

Next, Ms. Kreider makes some unjustifiable *ad hominem* attacks on Mr. Stewart Dimmock, the lorry driver, school governor and father of two school-age children who was the plaintiff in the case. This memorandum, however, will eschew any *ad hominem* response, and will concentrate exclusively on the 35 scientific inaccuracies and exaggerations in Gore’s movie.

Ms. Kreider then says, “The process of creating a 90-minute documentary from the original peer-reviewed science for an audience of moviegoers in the U.S. and around the world is complex.” However, the single web-page entitled “The Science” on the movie’s official website contains only two references to articles in the peer-reviewed scientific journals. There is also a reference to a document of the IPCC, but its documents are not independently peer-reviewed in the usual understanding of the term.

Ms. Kreider then says, “The judge stated clearly that he was not attempting to perform an analysis of the scientific questions in his ruling.” He did not need to. Each of the nine “errors” which he identified had been admitted by the UK Government to be inconsistent with the mainstream of scientific opinion.

Ms. Kreider says the IPCC’s results are sometimes “conservative,” and continues: “Vice President Gore tried to convey in good faith those threats that he views as the most serious.” Readers of the long list of errors described in this memorandum will decide for themselves whether Mr. Gore was acting in good faith. However, in this connection it is significant that each of the 35 errors listed below misstates the conclusions of the scientific literature or states that there is a threat where there is none or exaggerates the threat where there may be one. All of the errors point in one direction – towards undue alarmism. Not one of the errors falls in the direction of underestimating the degree of concern in the scientific community. The likelihood that all 35 of the errors listed below could have fallen in one direction purely by inadvertence is less than 1 in 34 billion.

We now itemize 35 of the scientific errors and exaggerations in Al Gore’s movie. The first nine were listed by the judge in the High Court in London in October 2007 as being “errors.” The remaining 26 errors are just as inaccurate or exaggerated as the nine spelt out by the judge, who made it plain during the proceedings that the Court had not had time to consider more than these few errors. The judge found these errors serious enough to require the UK Government to pay substantial costs to the plaintiff.



ERROR 1

Sea level “rising 6 m”

Gore says that a sea-level rise of up to 6 m (20 ft) will be caused by melting of either West Antarctica or Greenland.¹ Though Gore does not say that the sea-level rise will occur in the near future, the judge found that, in the context, it was clear that this is what he had meant, since he showed expensive graphical representations of the effect of his imagined 6 m (20 ft) sea-level rise on existing populations, and he quantified the numbers who would be displaced by the sea-level rise.

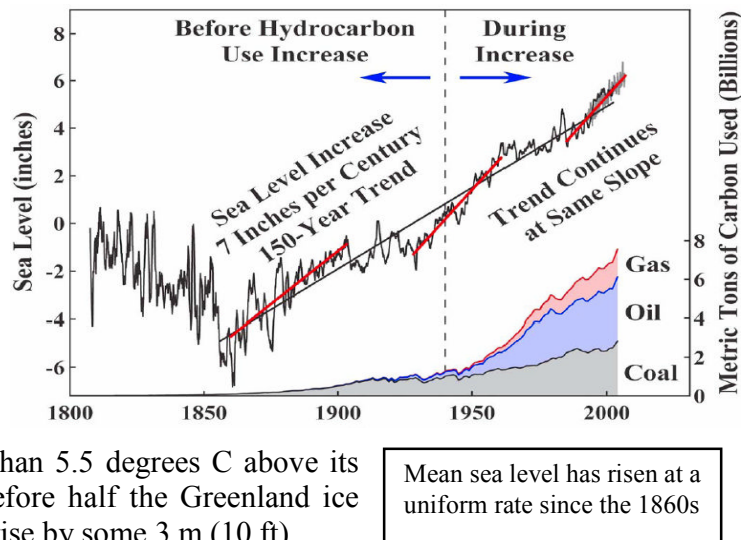
The IPCC says sea-level increases up to 7 m (23 ft) above today’s levels have happened naturally in the past climate, and would only be likely to happen again after several millennia. In the next 100 years, according to calculations based on figures in the IPCC’s 2007 report, these two ice sheets between them will add a little over 6 cm (2.5 inches) to sea level, not 6 m (this figure of 6 cm is 15% of the IPCC’s total central estimate of a 43 cm or 1 ft 5 in sea-level rise over the next century). Gore has accordingly exaggerated the official sea-level estimate by approaching 10,000 per cent.

Ms. Kreider says the IPCC estimates a sea-level rise of “59 cm” by 2100. She fails to point out that this amounts to less than 2 ft, not the 20 ft imagined by Gore. She also fails

to point out that this is the IPCC's upper estimate, on its most extreme scenario. And she fails to state that the IPCC, faced with a stream of peer-reviewed articles stating that sea-level rise is not a threat, has reduced this upper estimate from 3 ft in 2001 to less than 2 ft (i.e. half the mean centennial sea-level rise that has occurred since the end of the last Ice Age 10,000 years ago) in 2007.

Ms. Kreider says the IPCC's 2007 sea-level calculations excluded contributions from Greenland and West Antarctica because they could not be quantified. However, Table SPM1 of the 2007 report quantifies the contributions of these two ice-sheets to sea-level rise as representing about 15% of the total change.

The report also mentions the possibility that there may be an unquantified further contribution in future from these two ice sheets arising from "dynamical ice flow." However, the Greenland ice sheet rests in a depression in the bedrock created by its own weight, wherefore "dynamical ice flow" is impossible, and the IPCC says that temperature would have to be sustained at more than 5.5 degrees C above its present level for several millennia before half the Greenland ice sheet could melt, causing sea level to rise by some 3 m (10 ft).



Finally, the IPCC's 2007 report estimates that the likelihood that humankind is having any influence on sea level at all is little better than 50:50.

The judge was accordingly correct in finding that Gore's presentation of the imagined imminent threat of a 6 m (20 ft) sea-level rise, with his account of the supposed impact on the present-day populations of Manhattan, the Netherlands, Bangladesh, etc., etc, was not a correct statement of the mainstream science on this question.



ERROR 2

Pacific islands "drowning"

Gore says low-lying inhabited Pacific coral atolls are already being inundated because of anthropogenic global warming, leading to the evacuation of several island populations to New Zealand. However, the atolls are not being inundated, except where dynamiting of reefs or over-extraction of fresh water by local populations has caused damage.

Furthermore, corals can grow at ten times the predicted rate of increase in sea level. It is not by some accident or coincidence that so many atolls reach just a few feet above the ocean surface.



Ms. Kreider says, “The IPCC estimates that 150 million environmental refugees could exist by the year 2050, due mainly to the effects of coastal flooding, shoreline erosion and agricultural disruption.” However, the IPCC cannot be basing its estimate on sea-level rise, since even its maximum projected rise of just 30 cm (1 ft) by 2050 would not cause significant coastal flooding or shoreline erosion. There are

several coastlines (the east coast of England, for instance) where the land is sinking as a consequence of post-ice-age isostatic recovery, or where (as in Bangladesh) tectonic subduction is similarly causing the land to sink. But such natural causes owe nothing to sea-level rise.

There have been no mass evacuations of populations of islanders as suggested by Gore, though some residents of Tuvalu have asked to be moved to New Zealand, even though the tide-gauges maintained until recently by the National Tidal Facility of Australia show a mean annual sea-level rise over the past half-century equivalent to the thickness of a human hair.² The problem with the Carteret Islands, mentioned by Ms. Kreider, arose not because of rising sea levels but because of imprudent dynamiting of the reefs by local fishermen.

In the Maldives, a detailed recent study showed that sea levels were unchanged today compared with 1250 years ago, though they have been higher in much of the intervening period, and have very seldom been lower.

A well-established tree very close to the Maldivian shoreline and only inches above sea level was recently uprooted by Australian environmentalists anxious to destroy this visible proof that sea level cannot have risen very far.



ERROR 3

Thermohaline circulation “stopping”

Gore says “global warming” may shut down the thermohaline circulation in the oceans, which he calls the “ocean conveyor,” plunging Europe into an ice age. It will not. A paper published in 2006 says: “Analyses of ocean observations and model simulations suggest that changes in the thermohaline circulation during the last century are likely the result of natural multidecadal climate variability. Indications of a sustained thermohaline

circulation weakening are not seen during the last few decades. Instead, a strengthening since the 1980s is observed.”

Ms. Kreider, for Mr. Gore, says that “multiple scientists” have claimed that we cannot exclude the possibility of the disruption or shutdown of the Conveyor. Disruption, perhaps: shutdown, no. It is now near-universally accepted that the thermohaline circulation cannot be and will not be shut down by “global warming,” and the film should have been corrected to reflect the consensus.



ERROR 4 **CO₂ “driving temperature”**

Gore says that in each of the last four interglacial warm periods it was changes in carbon dioxide concentration that caused changes in temperature. It was the other way about. Changes in temperature preceded changes in CO₂ concentration by between 800 and 2800 years, as scientific papers including the paper on which Gore’s film had relied had made clear.³

Ms. Kreider says it is true that “greenhouse gas levels and temperature changes in the ice signals have a complicated relationship but they do fit.” This does not address Gore’s error at all. The judge found that Gore had very clearly implied that it was changes in carbon dioxide concentration that had led to changes in temperature in the palaeoclimate, when the scientific literature is unanimous (save only for a single paper by James Hansen, whom Gore trusts) to the effect that the relationship was in fact the other way about, with a carbon dioxide feedback contributing only a comparatively insignificant further increase to temperature after the temperature change had itself initiated a change in carbon dioxide concentration.

The significance of this error was explained during the court proceedings, and was accepted by the judge. Gore says that the 100 ppmv difference between carbon dioxide concentrations during ice-age temperature minima and interglacial temperature maxima represents “the difference between a nice day and a mile of ice above your head.” This would imply a CO₂ effect on temperature about 10 times greater than that regarded as plausible by the consensus of mainstream scientific opinion (see Error 10).

Ms. Kreider refers readers to a “more complete description” available at a website maintained by, among others, two of the three authors of the now-discredited “hockey stick” graph that falsely attempted to abolish the Mediaeval Warm Period. The National Academy of Sciences in the US had found that graph to have “a validation skill not significantly different from zero” – i.e., the graph was useless.



ERROR 5

Snows of Kilimanjaro “melting”

Gore says “global warming” has been melting the snows of Mount Kilimanjaro in Africa. It is not.⁴

The melting of the Furtwangler Glacier at the summit of the mountain began 125 years ago. More of the glacier had melted before Hemingway wrote *The Snows of Kilimanjaro* in 1936 than afterward.

Temperature at the summit never rises above freezing and is at an average of -7 Celsius. The cause of the melting is long-term climate shifts exacerbated by imprudent regional deforestation, and has nothing to do with “global warming.”

Ms. Kreider says, “Every tropical glacier for which we have documented evidence shows that glaciers are retreating.” However, a recent survey of the glaciers in the tropical Andes shows that they were largely ice-free in the past 10,000 years, except on the very highest peaks. The mere fact of warming or melting, therefore, tells us nothing of the cause.

Ms. Kreider says, “Global warming exacerbates the stresses that ecosystems (and humans) are already experiencing.” However, since the temperature at the summit of Kilimanjaro remains below freezing and has not risen in 30 years, “global warming” is not “exacerbating the stresses” at the summit of Kilimanjaro.



ERROR 6

Lake Chad “drying up”

Gore says “global warming” dried up Lake Chad in Africa. It did not. Over-extraction of water and changing agricultural patterns dried the lake, which was also dry in 8500BC, 5500BC, 1000BC and 100BC. Ms. Kreider says, “There are multiple stresses upon Lake Chad.” However, the scientific consensus is that at present those “stresses” do not include “global warming.”



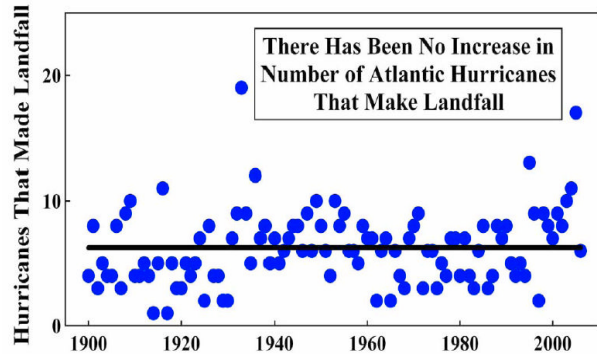
ERROR 7

Hurricane Katrina “manmade”

Gore says Hurricane Katrina, that devastated New Orleans in 2005, was caused by “global warming.” It was not. It was caused by the failure of Gore’s party, in the administration of New Orleans, to heed 30 years of warnings by the Corps of Engineers

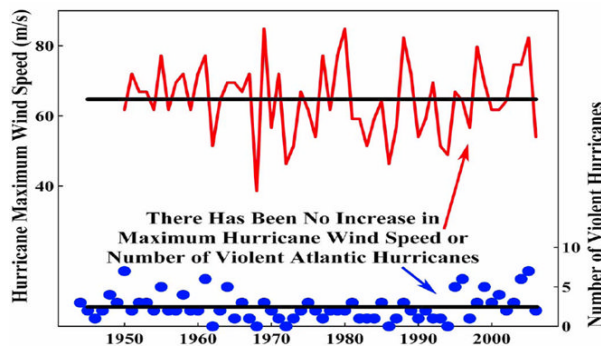
that the levees – dams that kept New Orleans dry – could not stand a direct hit by a hurricane. Katrina was only Category 3 when it struck the levees. They failed, as the Engineers had said they would. Gore’s party, not “global warming,” was to blame for the consequent death and destruction.

Ms. Kreider says, “Mr. Gore has never addressed the issue of climate change and hurricane frequency.” What Gore actually says, however, addresses the frequency not only of hurricanes but also of typhoons and tornadoes –



“We have seen in the last couple of years, a lot of big hurricanes.

Hurricanes Jean, Francis and Ivan were among them. In the same year we had that string of big hurricanes; we also set an all time record for tornadoes in the United States. Japan again didn’t get as much attention in our news media, but they set an all time record for typhoons. The previous record was seven. Here are all ten of the ones they had in 2004.”



For the record, however, the number of Atlantic hurricanes shows no trend over the past half century; the number of typhoons has fallen throughout the past 30 years; the number of tornadoes has risen only because of better detection systems for smaller tornadoes; but the number of larger tornadoes in the US has fallen.



ERROR 8 Polar bears “dying”

Gore says a scientific study shows that polar bears are being killed swimming long distances to find ice that has melted away because of “global warming.” They are not. The study, by Monnett & Gleason (2005), mentioned just four dead bears. They had died in an exceptional storm, with high winds and waves in the Beaufort Sea. The amount of sea ice in the Beaufort Sea has grown over the past 30 years. A report for the World Wide Fund for Nature shows that polar bears, which are warm-blooded, have grown in numbers where temperature has increased, and have become fewer where temperature has fallen. Polar bears evolved from brown bears 200,000 years ago, and survived the last interglacial period, when global temperature was 5 degrees Celsius warmer than the present and there was probably no Arctic ice-cap at all. The real threat to polar bears is

not “global warming” but hunting. In 1940, there were just 5,000 polar bears worldwide. Now that hunting is controlled, there are 25,000.⁵

Ms. Kreider says sea-ice “was the lowest ever measured for minimum extent in 2007.” She does not say that the measurements, which are done by satellite, go back only 29 years. She does not say that the North-West Passage, a good proxy for Arctic sea-ice extent, was open to shipping in 1945, or that Amundsen passed through in a sailing vessel in 1903.



ERROR 9

Coral reefs “bleaching”

Gore says coral reefs are “bleaching” because of “global warming.” They are not.⁶ There was some bleaching in 1998, but this was caused by the exceptional El Nino Southern Oscillation that year. Two similarly severe El Ninos over the past 250 years also caused extensive bleaching. “Global warming” was nothing to do with it.

Ms. Kreider says, “The IPCC and other scientific bodies have long identified increases in ocean temperatures with the bleaching of coral reefs.” So they have: but the bleaching in 1998 occurred as a result not of “global warming” but of a rare, though not unique, severe El Nino Southern Oscillation.

ERROR 10

100 ppmv of CO₂ “melting mile-thick ice”

Gore implies that the difference of just 100 parts per million by volume in CO₂ concentration between an interglacial temperature maximum and an ice-age temperature minimum causes “the difference between a nice day and having a mile of ice above your head.” It does not. Gore’s implication has the effect of overstating the mainstream consensus estimate of the effect of CO₂ on temperature at least tenfold.

Temperature changes by up to 12 degrees C between glacial minima and interglacial maxima, but CO₂ concentration changes by no more than 100 ppmv. Gore is accordingly implying that 100 ppmv can cause a temperature increase of up to 12 degrees C. However, the consensus as expressed by the IPCC is that 100 ppmv of increased CO₂ concentration, from 180 to 280 ppmv, would increase radiant energy flux in the atmosphere by 2.33 watts per square meter, or less than 1.2 degrees Celsius including the effect of temperature feedbacks.

ERROR 11

Hurricane Caterina “manmade”

Gore says that Hurricane Caterina, the only hurricane ever to strike the coast of Brazil, was caused by “global warming.” It was not. In 2004, Brazil’s summer sea surface temperatures were cooler than normal, not warmer. But air temperatures were the coldest in 25 years. The air was so much colder than the water that it caused a heat flux from the water to the air similar to that which fuels hurricanes in warm seas.

ERROR 12

Japanese typhoons “a new record”

Gore says that 2004 set a new record for the number of typhoons striking Japan. It did not. The trend in the number of typhoons, and of tropical cyclones, has fallen throughout the past 50 years. The trend in rainfall from cyclones has also fallen, and there has been no trend in monsoon rainfall.

ERROR 13

Hurricanes “getting stronger”

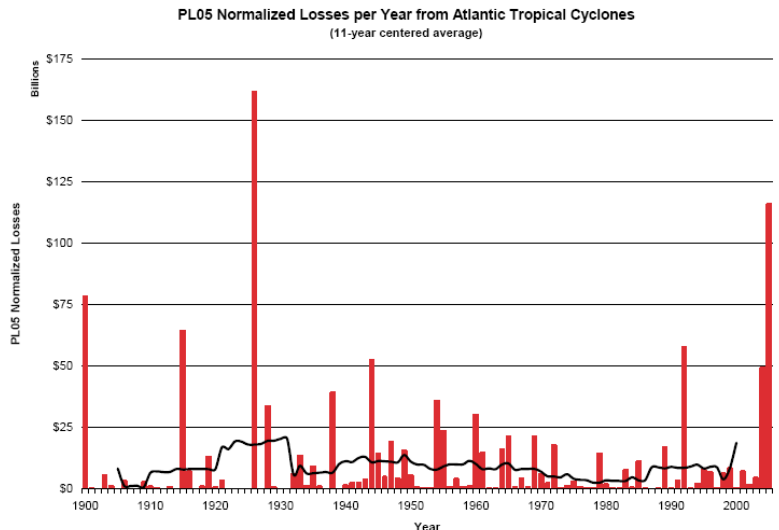
Gore says scientists had been giving warnings that hurricanes will get stronger because of “global warming.” They will not.⁷ Over the past 60 years there has been no change in the strength of hurricanes, even though hydrocarbon use went up six-fold in the same period. Research by Dr. Kerry Emanuel, cited by Ms. Kreider, has been discredited by more recent findings that wind-shear effects tend to nullify the amplification of hurricane strength which he had suggested, and, of course, by the observed failure of hurricanes to gain strength during the past 60 years of “global warming.”



ERROR 14

Big storm insurance losses “increasing”

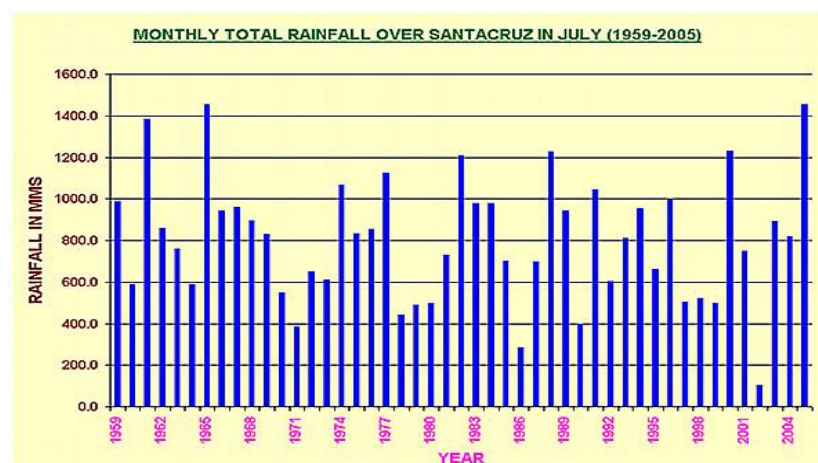
Gore says insurance losses arising from large storms and other extreme-weather events are increasing, by implication because of “global warming.” They are not. Insured losses, as a percentage of the population of coastal areas in the path of hurricanes, were lower even in 2005 than they had been in 1925. In 2006, a very quiet hurricane season, Lloyds of London posted their biggest-ever profit: £3.6 billion.⁸



ERROR 15

Mumbai “flooding”

Gore says flooding in Mumbai is increasing, by implication because of “global warming.” It is not. Rainfall trends at the two major weather stations in Mumbai show no increase in heavy rainfall over the past 48 years.

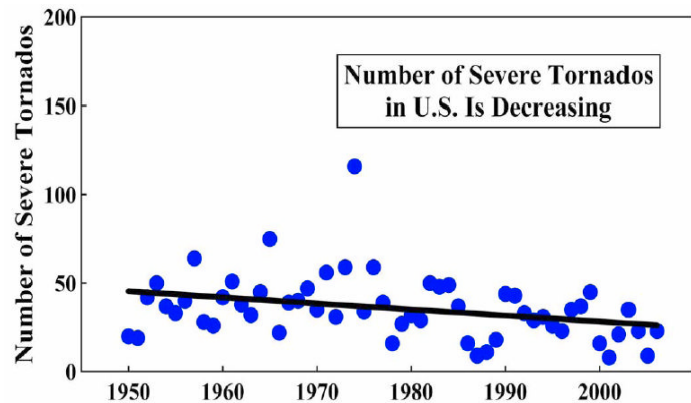


Rainfall recorded at the Santacruz weather station, Mumbai

ERROR 16

Severe tornadoes “more frequent”

Gore says that 2004 set an all-time record for tornadoes in the US. More tornadoes are being reported because detection systems are better than they were. But the number of severe tornadoes has been falling for more than 50 years.



ERROR 17

The sun “heats the Arctic ocean”

Gore says that ice-melt allows the Sun to heat the Arctic Ocean, and a diagram shows the Sun’s rays heating it directly. It does not. The ocean emits radiant energy at the moment of absorption, and would freeze if there were no atmosphere. It is the atmosphere, not the Sun that warms the ocean.⁹ Also, Gore’s diagram confuses the tropopause with the ionosphere, and he makes a number of other errors indicating that he does not understand the elementary physics of radiative transfer.

ERROR 18

Arctic “warming fastest”

Gore says the Arctic has been warming faster than the rest of the planet. It is not. While it is in general true that during periods of warming (whether natural or anthropogenic) the Arctic will warm faster than other regions, Gore does not



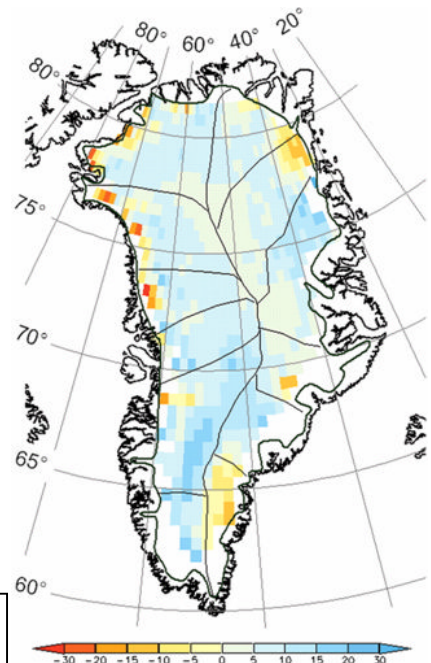
mention that the Arctic has been cooling over the past 60 years, and is now one degree Celsius cooler than it was in the 1940s. There was a record amount of snow cover in the Northern Hemisphere in 2001. Several vessels were icebound in the Arctic in the spring of 2007, but few newspapers reported this. The newspapers reported that the North-West Passage was free of ice in 2007, and said that this was for the first time since records began: but the records, taken by satellites, had only begun 29 years previously. The North-West Passage had also been open for shipping in 1945, and, in 1903, the great Norwegian explorer Amundsen had passed through it in a sailing ship.

ERROR 19

Greenland ice sheet “unstable”

Gore says “global warming” is making the Greenland ice sheet unstable. It is not.¹⁰ Greenland ice grows 2in a year. The Greenland ice sheet survived each of the previous three interglacial periods, each of which was 5 degrees Celsius warmer than the present. It survived atmospheric CO₂ concentrations of up to 1000 ppmv (compared with today’s 400 ppmv). It last melted 850,000 years ago, when humankind did not exist and could not have caused the melting. There is a close correlation between variations in Solar activity and temperature anomalies in Greenland, but there is no correlation between variations in CO₂ concentration and temperature changes in Greenland. The IPCC (2001) says that to melt even half the Greenland ice sheet would require temperature to rise by 5.5 degrees C and remain that high for several thousand years.

“Colours indicate ice-sheet elevation change rate in cm/year ... from ... satellite altimeter data, 1992-2003. The spatially averaged increase is 5.4 ± 0.2 cm/year.”



ERROR 20

Himalayan glacial melt waters “failing”

Gore says 40% of the world’s population get their water supply from Himalayan glacial melt waters that are failing because of “global warming.” They don’t and they are not. The water comes almost entirely from snow-melt, not from ice-melt. Over the past 40 years there has been no decline in the amount of snow-melt in Eurasia.

ERROR 21

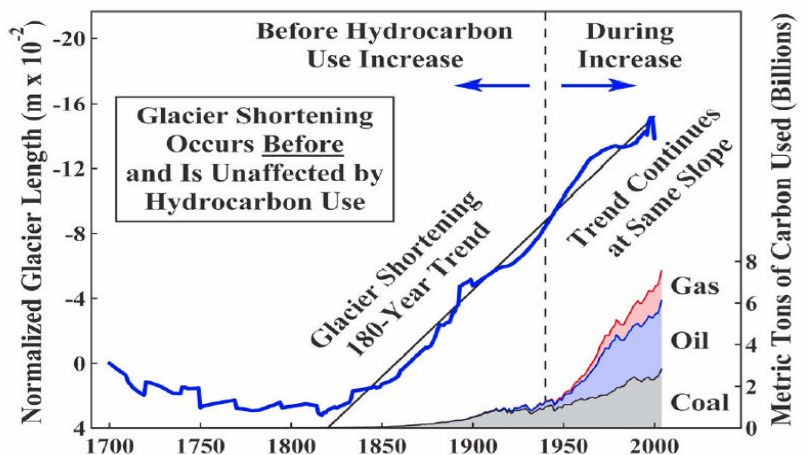
Peruvian glaciers “disappearing”

Gore says that a Peruvian glacier is less extensive now than it was in the 1940s, implying that “global warming” is the cause. It is not. Except for the very highest peaks, the normal state of the Peruvian cordilleras has been ice-free throughout most of the past 10,000 years.

ERROR 22

Mountain glaciers worldwide “disappearing”

Gore says that “the ice has a story to tell, and it is worldwide.” He shows several before-and-after pictures of glaciers disappearing. However, the glacial melt began in the 1820s, long before humankind could have had any effect, and has continued at a uniform rate since, showing no acceleration since humankind began increasing the quantity of CO₂ in the atmosphere. Total ice volumes in three of the last four Ice Ages were lower than they are today, and “global warming” had nothing to do with that.



ERROR 23

Sahara desert “drying”

Gore says terrible tragedies are occurring in the southern Sahara because of drought which he blames on “global warming.” There is no drought caused by “global warming.” In 2007 there were record rains across the whole of the southern Sahara. In the past 25 years the Sahara has shrunk by some 300,000 square kilometers because of additional rainfall. Some scientists think “global warming” may actually mitigate pre-existing droughts because there will be more water vapor in the atmosphere. Before 1200 AD there were frequent, prolonged and severe droughts in the Great Plains. Since 1200 AD,

there has been more rainfall. Likewise, the US has had more rainfall since the 1950s than it had in the earlier part of the 20th Century, when the great droughts which were then common were described by John Steinbeck in *The Grapes of Wrath*. South African rainfall was also more stable in the second half of the 20th Century, when human effect on climate is said to have become significant, than in the first half.

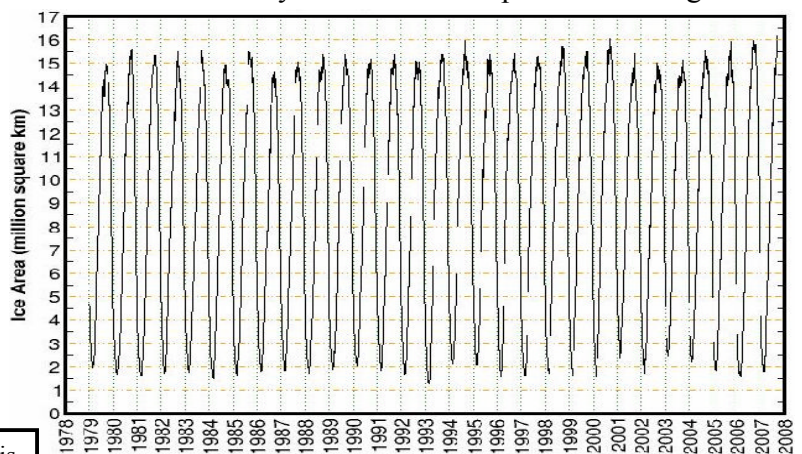


ERROR 24

West Antarctic ice sheet “unstable”

Gore says disturbing changes have been measured under the West Antarctic ice sheet, implicitly because of “global warming.” Yet most of the recession in this ice sheet over the past 10,000 years has occurred in the absence of any sea-level or temperature forcing.

In most of Antarctica, the ice is in fact growing thicker. Mean Antarctic temperature has actually fallen throughout the past half-century. In some Antarctic glens, environmental damage has been caused by temperature decreases of up to 2 degrees Celsius. Antarctic sea-ice spread to a 30-year record extent in late 2007.¹¹



The Antarctic sea ice is at a record extent

ERROR 25

Antarctic Peninsula ice shelves “breaking up”

Gore says half a dozen ice shelves each “larger than Rhode Island” have broken up and vanished from the Antarctic Peninsula recently, implicitly because of “global warming.” Global warming is unlikely to have been the cause. Gore does not explain that the ice shelves have melted before, as studies of seabed sediments have shown. The Antarctic Peninsula accounts for about 2% of the continent, in most of which the ice is growing thicker. All the recently-melted shelves, added together, amount to an area less than one-fifty-fifth the size of Texas.

ERROR 26

Larsen B Ice Shelf “broke up because of ‘global warming’”

Gore focuses on the Larsen B ice shelf, saying that it completely disappeared in 35 days. Yet there has been extensive ice-shelf break-up throughout the past 10,000 years, and the maximum ice-shelf extent may have been in the Little Ice Age in the late 15th century.

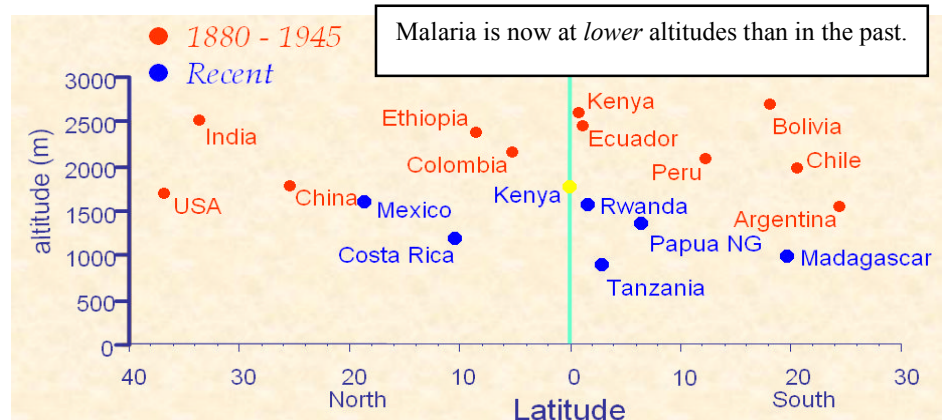
ERROR 27

Mosquitoes “climbing to higher altitudes”

Gore says that, because of “global warming”, mosquitoes are climbing to higher altitudes. They are not.¹² Most recent outbreaks have been at lower levels than those of a century and more ago. He says that Nairobi was founded 1000 m above sea level so as to be above the mosquito line. It was not. In the period before anthropogenic warming could

have had any significant effect, there were ten malaria outbreaks in Nairobi, one of which reached as far up as Eldoret, almost 3000 m above sea level. Malaria is not a tropical disease. Mosquitoes do not need tropical temperatures: they need no more than 15 degrees Celsius to breed. The largest

malaria outbreak of modern times was in Siberia in the 1920s and 1930s, when 13 million were infected, 600,000 died and 30,000 died as far north as Arkhangelsk, on the Arctic Circle. There is no reason to suppose that malaria will spread even if the climate continues to become warmer.



ERROR 28

Many tropical diseases “spreading through ‘global warming’”

Gore says that, as well as malaria, “global warming” is spreading dengue fever, Lyme disease, West Nile virus, arena virus, avian flu, Ebola virus, E. Coli 0157:H7, Hanta

virus, legionella, leptospirosis, multi-drug-resistant TB, Nipah virus, SARS and Vibrio Cholerae 0139. It is doing no such thing.¹³ Only the first four diseases are insect-borne, but none is tropical. Of the other diseases named by Gore either in his film or in the accompanying book, not one is sensitive to increasing temperature. They are spread not by warmer weather but by rats, chickens, primates, pigs, poor hygiene, ill-maintained air conditioning, or cold weather.

ERROR 29
West Nile virus in the US “spread through ‘global warming’”

Gore says that West Nile virus spread throughout the US in just two years, implicitly because of “global warming.” It did not. The climate in the US ranges from some of the world’s hottest deserts to some of its iciest tundra. West Nile virus flourishes in any climate. Warming of the climate, however caused, does not affect its incidence or prevalence.

ERROR 30
Carbon dioxide is “pollution”

Gore describes carbon dioxide as “global warming pollution.” It is not. It is food for plants and trees. Tests have shown that even at concentrations 30 times those of the present day even the most delicate plants flourish. Well-managed forests, such as those of the United States, are growing at record rates because the extra carbon dioxide in the atmosphere is feeding the trees. Carbon dioxide, in geological timescale, is at a very low concentration at present. Half a billion years ago it was at 7000 parts per million by volume, about 18 times today’s concentration.

ERROR 31
The European heat wave of 2003 “killed 35,000”

Gore says, “A couple of years ago in Europe they had that heat wave that killed 35,000.” Though some scientists agree with Gore, the scientific consensus is that extreme warm anomalies more unusual than the 2003 heat wave occur regularly; extreme cold anomalies also occur regularly; El Niño and volcanism appear to be of much greater importance than any general warming trend; and there is little evidence that regional heat

or cold waves are significantly increasing or decreasing with time. In general, warm is better than cold, which is why the largest number of life-forms are in the tropics and the least number are at the poles. A cold snap in the winter following the European heat wave killed 20,000 in the UK alone. Though the IPCC says 150,000 people a year are being killed worldwide by “global warming,” it reaches this figure only by deliberately excluding the number of people who are not being killed because there is less cold weather. In the US alone, it has been estimated that 174,000 fewer people are being killed each year because there are fewer episodes of extreme cold.

ERROR 32

Pied flycatchers “cannot feed their young”

Gore says “The peak arrival date for migratory birds 25 years ago was April 25. Their chicks hatched on June 3, just at the time when the caterpillars were coming out: Nature’s plan. But 20 years of warming later the caterpillars peaked two weeks earlier. The chicks tried to catch up with it, but they couldn’t. So they are in trouble.” Yet adaptation is easy for the flycatchers: they merely fly a few tens of kilometers further north and they will find caterpillars hatching at the appropriate time. Besides, though Gore does not say so, what is bad news for the pied flycatchers is good news for the caterpillars, and for the butterflies they will become.

ERROR 33

Gore’s bogus pictures and film footage

In the book accompanying Gore’s film, the story of the pied flycatchers and the caterpillars is accompanied by a picture of a bird feeding her hungry chicks. However, closer inspection shows that the bird is not a pied flycatcher but a black tern; and that she is not carrying a caterpillar in her beak, but a small fish. Gore similarly misuses spectacular footage of a glacier apparently calving off enormous slabs of ice into the sea – footage that is often shown on television to accompany stories about “global warming.” However, the glacier in question is one that is known to be advancing – and to be doing so more rapidly and more often than previously. It is in southern Argentina, where its snout crosses – and eventually dams, Lake Argentino. Water builds up behind the ice dam and eventually bursts it, causing the spectacular collapse of ice into the lake that is so misleadingly used as the iconic image of the effect of “global warming” on glaciers. The breaking of the ice dam used to occur every eight years or so: now, however, it occurs every five years, not because of “global warming” because of the regional cooling of the southern Atlantic.

ERROR 34

The Thames Barrier “closing more frequently”

Gore says that rising sea levels are compelling the operators of the Thames Barrier to close it more frequently than when it was first built. They are not. The barrier is indeed closed more frequently than when it was built, but the reason has nothing to do with “global warming” or rising sea levels. The reason is a change of policy by which the barrier is closed during exceptionally *low* tides, so as to retain water in the tidal Thames rather than keeping it out. Yet even the present leader of the official Opposition in the UK Parliament recently used a major speech as the opportunity to mention today’s more frequent closing of the Thames Barrier as though it were a matter of grave concern.

ERROR 35

“No fact ... in dispute by anybody.”

Gore says that his prediction that the atmospheric concentration of carbon dioxide will rise to more than 600 parts per million by volume as soon as 2050 is “not controversial in any way or in dispute by anybody.” However, not one of the half-dozen official projections of growth in CO₂ concentration made by the IPCC shows as much as 600 parts per million by 2050.

CONCLUSION

35 serious scientific errors

As many as 35 serious scientific errors or exaggerations, all pointing towards invention of a threat that does not exist at all, or exaggerations of phenomena that do exist, do not reflect credit on the presenter of the movie or on those who advised him. The movie is unsuitable for showing to children, and provides no basis for taking policy decisions. Schools that have shown the movie to children are urged to ensure that the errors listed in this memorandum are drawn to the children’s attention.

¹ For a detailed discussion, see (http://scienceandpublicpolicy.org/sppi_originals/current_issues_in_climate_science_focus_on_the_poles.html) and also (http://scienceandpublicpolicy.org/sppi_reprint_series/the_role_of_greenland_in_sea_level_rise_a_summary_of_the_current_literature.html)

² See (http://www.ff.org/centers/csspp/pdf/20060331_issues.pdf)

³ See: (http://ff.org/index.php?option=com_content&task=view&id=336&Itemid=77)

⁴ See discussion at: (<http://www.ff.org/centers/csspp/pdf/Kiliman-MAC-4-8-04.pdf>)

⁵ For a serious examination of this issue, see (http://scienceandpublicpolicy.org/sppi_reprint_series/polar_bears_of_western_hudson_bay_and_climate_change.html)

⁶ Are Coral Reefs Endangered by Global Warming?
(http://ff.org/index.php?option=com_content&task=view&id=382&Itemid=77)

⁷ For a discussion of future hurricane trends for Florida, see:
(http://scienceandpublicpolicy.org/sppi_originals/current_issues_in_climate_science_focus_on_the_poles.html)

⁸ For an in depth look at these issues, see (<http://scienceandpublicpolicy.org/originals/hurricanethreat.html>)

⁹ For a discussion of the sun's role in climate, see
(http://scienceandpublicpolicy.org/sppi_originals/the_unruly_sunne_cannot_be_ruled_out_as_a_cause_of_recent_climate_variation.html)

¹⁰ See:
(http://scienceandpublicpolicy.org/sppi_originals/current_issues_in_climate_science_focus_on_the_poles.html)

¹¹ For fuller discussion of Polar regions and Greenland, see:
(http://scienceandpublicpolicy.org/sppi_originals/current_issues_in_climate_science_focus_on_the_poles.html)

¹² Discussion by world-class expert and IPCC reviewer: (<http://ff.org/centers/csspp/pdf/reiter-climate-change-mbd.pdf>)