

An Inconvenient Present & Future

A 2004 book, a 2006 movie & a 2008 issue of GeoJournal

By

Douglas Yazell, Horizons contributor

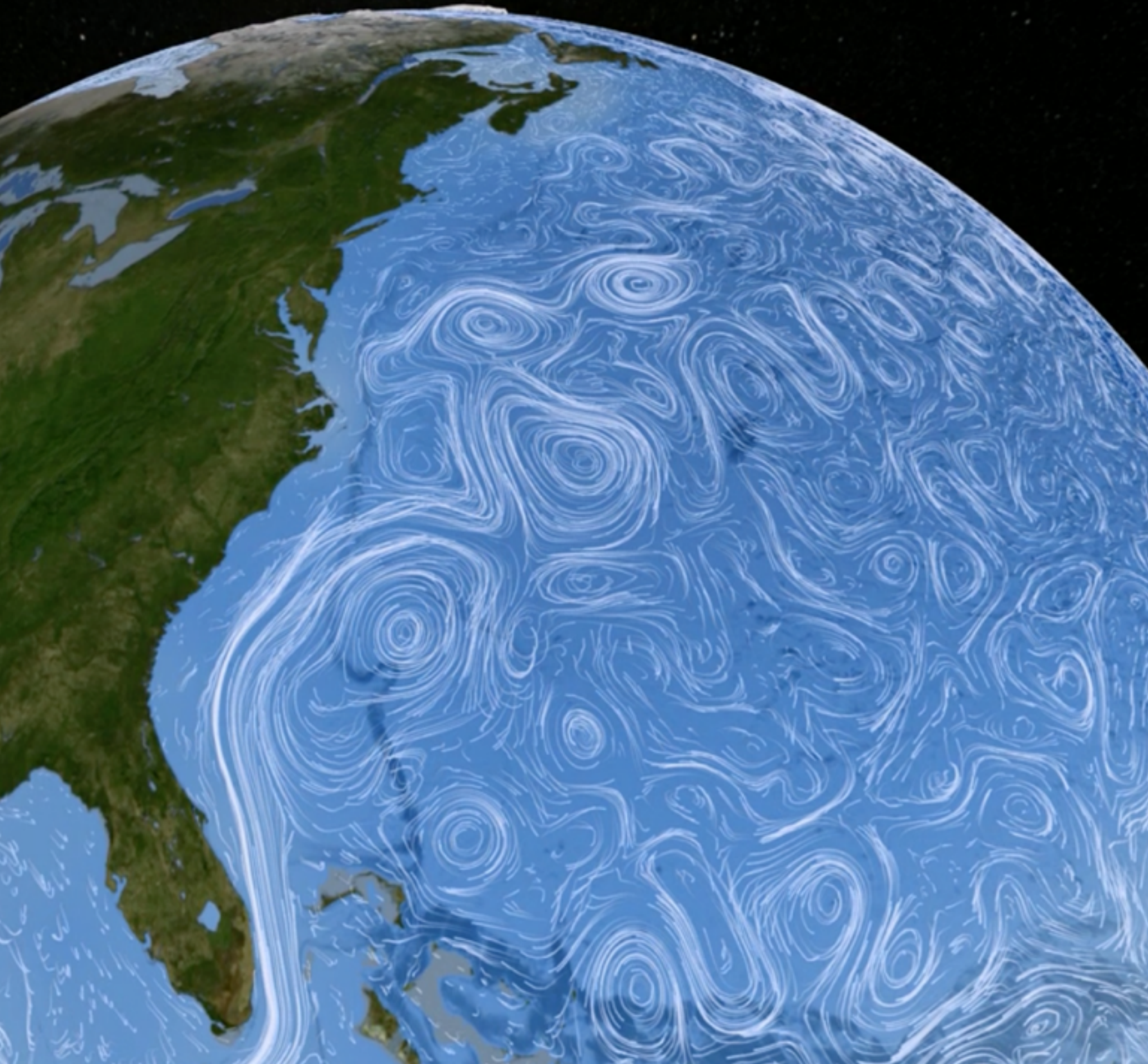
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www.aiaahouston.org/newsletter

Image credits: NASA

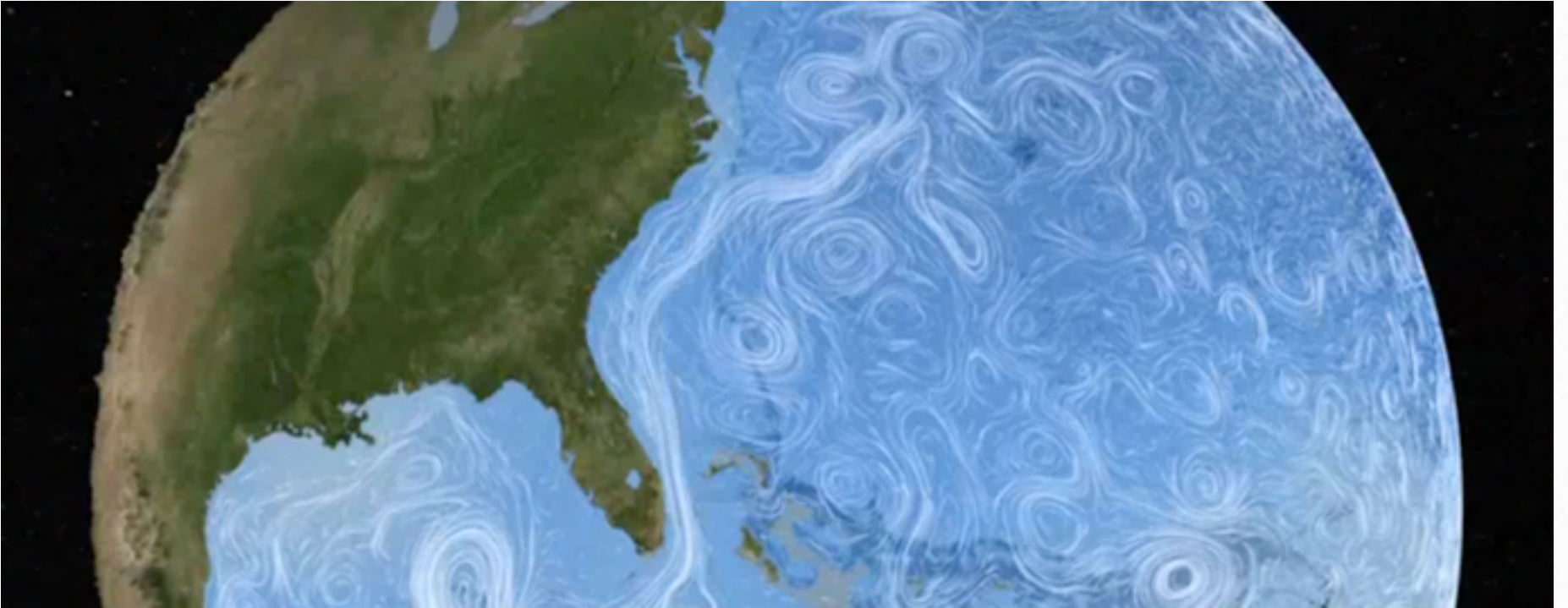
NASA does not endorse any particular climate policy.



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Introduction

A False Balance



All images: NASA (Aquarius). NASA does not promote any particular climate policy.

The 2006 climate change documentary movie *An Inconvenient Truth*, featuring Al Gore with his climate change slideshow presentation and much more, won two 2006 Oscars, Best Original Song (*I Need to Wake Up*, music and lyrics by [Melissa Etheridge](#), with both the song and a video available on her album *The Road Less Traveled*) and Best Documentary Feature. But the 2004 thriller novel *State of Fear* (with nonfiction [additions](#)

at the end of the book) by bestselling author Michael Crichton greatly influenced public opinion, too, with the opposite effect.

State of Fear is not well-remembered in the presence of the 2007 Nobel Peace Prize (50% to Al Gore, and 50% to the Intergovernmental Panel on Climate Change, or [IPCC](#), a United Nations group assembling science and policy re-

ports every five or six years since its creation in 1988), the [NASA climate website](#), the climate change reports from every national science academy, and climate change articles in peer-reviewed science journals. *State of Fear* advocates science denial, even if the late author was honest about his conclusions. For example, a “short 1998 book” by Fred Singer is cited in Crichton’s long bibliography, and the 2010 book *Merchants of Doubt* presents convincing evidence about the dishonest work of Fred Singer on climate change and other subjects. (A mild example is, “*Singer’s claims were not only false, but had been shown to be false. Still, he wasn’t finished repeating them. Now he would claim that Fred Seitz was the real victim of the whole affair.*”) *Merchants of Doubt* also presents convincing evidence of science denial on the part of Patrick Michaels and Bjorn Lomborg, two authors included in Crichton’s bibliography. Crichton begins his bibliography, “*What follows is a list of books and journal articles I found most useful in preparing this novel. I found the texts by Beckerman, Chase, Huber, Lomborg, and Wildavsky to be particularly revealing.*” Both Beck-

erman and Singer are listed as being associated with the Independent Institute. Wildavsky is described as the author of a 1995 book and Crichton writes, “*Wildavsky concludes that nearly all environmental claims have either been untrue or wildly overstated.*” Crichton lists subjects in that book as including DDT, asbestos, ozone hole, global warming, and acid rain. Those subjects are included in the 2010 book *Merchants of Doubt*, a book I highly recommend.

Meanwhile, the Climate Reality Project, created in 2006 by Al Gore, continues to train Climate Reality Leaders in twice-a-year events such as the one I attended in Miami in September of 2015, a three-day event. The most important part of the training is the right and responsibility for us to volunteer to use the constantly updated slideshow. We can shorten it and add a few of our own slides and videos, but it will remain mostly the work of Al Gore.

GeoJournal is a magazine with a 2008 issue devoted to scientist-written reviews of the science of *An Inconvenient Truth*, the 2006 movie. In late 2015 I noticed [a Springer web page offering the](#)

[contents of this issue to journalists](#), and with those contents now at my disposal, I can return the favor by publishing this article. I will focus mainly on this issue of *GeoJournal* and on the good work of the 2006 movie *An Inconvenient Truth*. That Springer *GeoJournal* web page states, *Scientists debate the accuracy of Al Gore's documentary "An Inconvenient Truth."* Springer and *GeoJournal* are good professional groups, but that quote implies a balanced debate. By now, I know that quoting Roy Spencer about climate change is quoting from among the 3% of relevant scientists who are working on climate change. About 3% or less of them say Earth is not warming or the warming is not human-induced. The NASA climate website [describes the consensus](#) about climate change among relevant scientists.

This quote is from the *Wikipedia* Roy Spencer article, *"In February 2014 Spencer posted on his blog that he was going to start referring to those who referred to those questioning the mainstream view of global warming (such as Spencer himself) as 'climate change deniers' as 'global warming Nazis,' contend-*

ing that '...these people are supporting policies that will kill far more people than the Nazis ever did.'" A September 2015 Associated Press [blog entry](#) explains a change to their style guide, *"Our guidance is to use climate change doubters or those who reject mainstream climate science and to avoid the use of skeptics or deniers."* The 2010 book *Merchants of Doubt* demonstrates that the word denier is often appropriate. As one of thousands of examples available elsewhere, *Is the fossil fuel industry, like the tobacco industry, guilty of racketeering?* That is the headline of [a newspaper story from the Guardian dated September 29, 2015](#). It describes what Exxon-Mobil leaders and employees (and contractors) knew and did since 1977.

[I can submit this article to Horizons, the newsletter of the American Institute of Aeronautics and Astronautics (AIAA) Houston Section, my usual publisher at www.aiaahouston.org/newsletter, but we have no Editor at the moment, so I will publish this on another web page on that website (and maybe submit it elsewhere, such as the newsletter of AIAA Albuquerque Section). I was the Hori-

zons Editor for 2011 to 2014, and two 2015 issues were published by Acting Editor Dr. Michael Martin.

As an experiment, I am formatting this article in the epub format using the free Apple application iBooks Author, since at the moment, I no longer possess the software I used to create Horizons. In the past, I used Adobe Acrobat Pro and Adobe InDesign with OS X (and Microsoft Publisher with a Windows 7 partition before using InDesign) on my 2010 Apple MacBook Pro laptop computer with its 15-inch screen. Microsoft and Adobe donate software to non-profit groups, administered by [TechSoup](#).

So I am experimenting with free (bundled) Apple software to see if I can imitate a newsletter by using iBooks Author. At least the links in the Table of Contents will be automated! In the past (the latter part of 2011-2014), I created those links in the PDF file using Adobe Acrobat Pro. Four Apple Store helpers (in an education workshop) and I assumed the epub output format is as universal as the PDF format used until 2014 by Horizons. In fact, an initial experiment leads me to conclude that iBooks

Author epub output files can be read only by the Apple iBooks application.

I accepted the default option allowing the iBooks user to change the font size, making this article readable on my MacBook Pro, my iPad, and my iPhone.

I can easily include video in this eBook article, though it tends to increase file size too much, but I will create a PDF file from this article, too, and that will not include video.]

Climate change finally arrived on my radar in late 2011, but I was on the fence, so to speak, for about twelve months. A one-hour 2012 television show ended my twelve months of doubt, convincing me I could place a high degree of trust in climate change reports from the NASA climate website, the IPCC reports, reports from every national science academy, and related sources. This television show was the October 23, 2012 [Climate of Doubt episode](#) of Frontline, the Public Broadcasting System (PBS) investigative reporting series. The related web page provides excellent additional details.

I have six separate GeoJournal PDF files from six scientist-authors. I provide a brief overview here, explaining the structure of my writing for this article. Steven Quiring writes a 3-page introduction, Gerald R. North writes a 5-page conclusion, and the Springer GeoJournal web page explains that the four movie reviews are presented in this order, Eric Steig (5 pages), John Nielsen-Gammon (6 pages), David Legates (5 pages), and then Roy Spencer (4 pages). Nielsen-Gammon's article is publicly available, as I recall, in a file called ait.pdf, in a Houston Chronicle blog post from Nielsen-Gammon's blog, [the Climate Abyss](#). I cannot find that public link now, but his 30 or 40 blog posts run from 2010 to 2014. Here is a [link](#) for that document from his place of employment, Texas A&M University, College Station.

Each GeoJournal scientist-author is listed as associated with a university, where they no doubt worked as full-time professors as of 2008:

- Steven Quiring, Texas A&M University, College Station

- Eric Steig, University of Washington, Seattle
- John W. Nielsen-Gammon, Texas A&M University, College Station
- David R. Legates, University of Delaware, Newark
- Roy W. Spencer, University of Alabama, Huntsville
- Gerald R. North, Texas A&M University, College Station

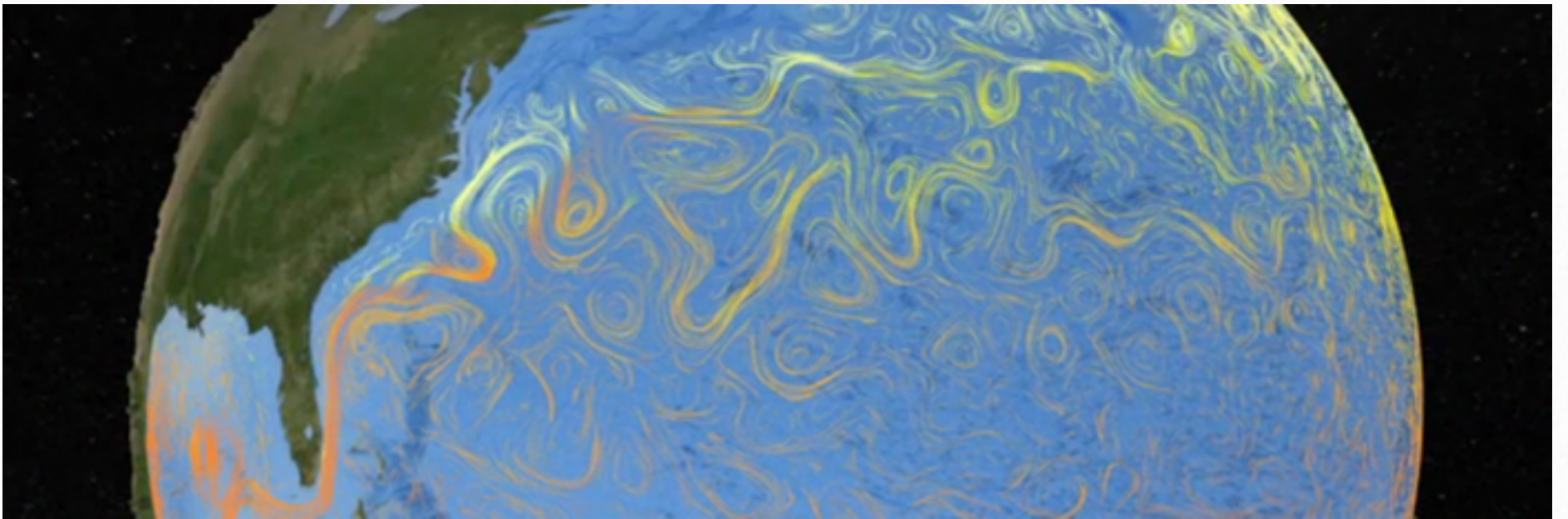
Quiring's introduction is titled Science and Hollywood: a discussion of the scientific accuracy of An Inconvenient Truth. He writes, "This forum contains four papers discussing the scientific accuracy of An Inconvenient Truth (AIT). The focus of this forum is to address whether AIT accurately presents the scientific argument that global warming is caused by human activities." He explains that by design, two of the four invited scientists generally agree with the IPCC reports and two of them generally disagree with the IPCC reports, and that while the four papers were submitted to peer review, they should be considered opinion pieces, since the

authors were encouraged to express their personal views. He summarizes the GeoJournal issue in a manner similar to my writing in this article, but he does not mention the false balance in this debate among the four invited scientists.

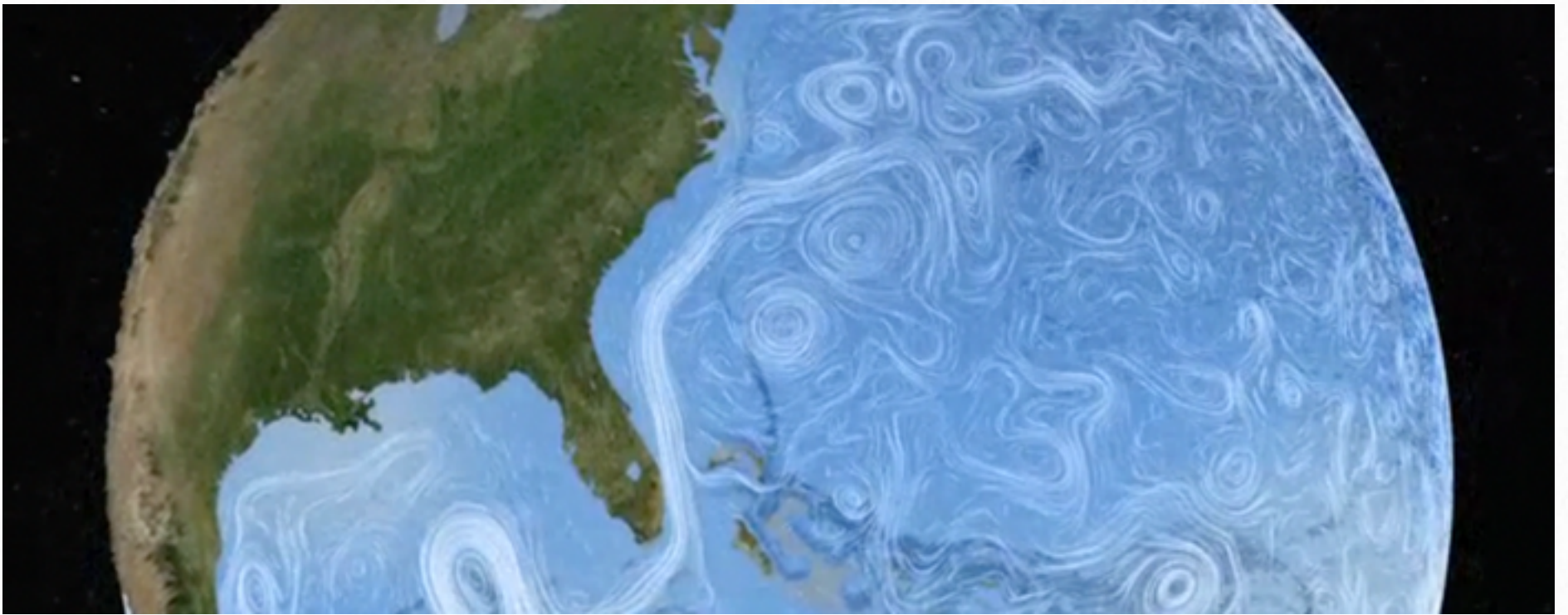
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Four 2008 reviews of the 2006 movie

A false balance of 2-2 with 4 invited reviewer-scientists instead of 9 to 1 or 32 to 1 (as of 2015 the consensus is 97% to 3%)



Steig



In his introduction, Quiring summarizes Steig's review very concisely, quoting Steig in saying that any factual errors in the 2006 movie *An Inconvenient Truth* are minor and inconsequential. Steig gives his 2008 re-view the title, *Another Look at An Inconvenient Truth*. Steig calls attention to, "... the deeper question actually on the table, which is what to do (if anything) about carbon emissions." He mentions [his 2006 re-view of this movie](#) published at RealClimate.org, where he stated, "... for the most part ... Gore gets the science right." Steig writes in GeoJournal, "There are admittedly a number of factual errors in the film." He gives examples, but the next paragraph starts, "Yet the general points Gore is trying to make in these examples are not in dispute." A long paragraph defends Gore's discussion of Hurricane Ka-

trina in this movie. The next paragraph defends Gore's discussion of sea level rise in this movie.

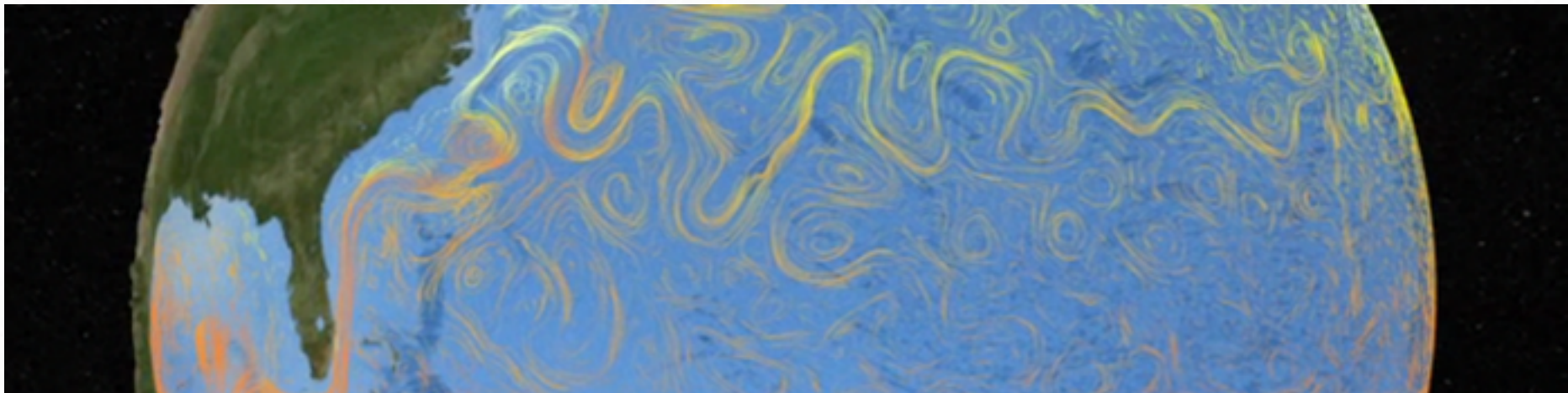
Steig then includes a paragraph saying that Gore does overstate his case in this movie in conflating global warming with other environmental problems that may be unrelated, but the next paragraph starts, "To those who would take the examples such I have given above to discredit the film, I would point out that there are many areas where Gore could have spent more time emphasizing the probably negative consequences of climate change."

Steig mentions, "... the scientist's mantra that no specific event can be attributed to global warming." He was writing in 2008, and I heard that often in 2012, but Gore

now includes in his 2015 slides this June 15, 2011 Kevin Trenberth (United States of America National Center for Atmospheric Research) quote, *“Global warming is contributing to an increased incidence of extreme weather because the environment in which all storms form has changed from human activities.”* I note that a web page from an NBC affiliate [reports](#) that in 2015, the Blanco River in Waverly Texas USA reached 43 feet during its flooding, and it reached 28.9 feet during 2001 flooding. I enjoyed short vacation visits there at least twice in the last ten years. From an NBC News [report](#) of May 26, 2015, *“When the flood struck, late Saturday night and early Sunday morning, the Blanco River rose 28 feet in an hour and a half. It crested at more than 40 feet. The house, built on stilts, broke off and was swept away.”* From another NBC News report of May 27, 2015, *“At least 14 people have died after rains soaked central and southeastern Texas, including Houston.”* Steig mentions the 2003 heat wave in Europe, an event not mentioned in the 2006 movie. He writes, *“Yet ironically, this event is perhaps the only one that could justifiably be used to flaunt this rule [the scientist’s mantra that no specific event can be attributed to global warming.]”*

Steig writes in his conclusion, *“How alarmed we should be about near term changes depends in large part on our concern about the developing world, or (more selfishly) about how problems elsewhere may affect us indirectly, through a flood of environmental refugees.”*

Nielsen-Gammon



This paper is titled *An Inconvenient Truth: the Scientific Argument*. Referring to the 2006 movie, Nielsen-Gammon writes, “*The message of the slideshow and documentary is that global warming is a serious problem caused by humanity, and that we have the capacity and are morally obligated to fix it.*” He lists 13 main points for the scientific arguments in the movie, labeled (a) through (m). He describes 7 of those 13 points as widely accepted and scientifically valid. To keep my article short, I will focus on the remaining 6 points.

The first of these six points is Nielsen-Gammon’s (b): *Global warming is caused by global warming pollution, which traps extra infrared radiation.* (AIT 09:34, at 9 minutes and 34 seconds into the 2006 movie.) Writing in 2008, Nielsen-Gammon quotes the 2007 IPCC report, “... *attribution of the bulk of the recent increase of global tem-*

peratures to anthropogenic effects (of which greenhouse gas increase is easily the largest component) is ‘very likely’ rather than certain ...” Very likely means a probability of 90-100% in the IPCC reports, based on my quick internet search. The negatives of carbon dioxide emissions far outweigh the positives, but two of my acquaintances tell me CO₂ is not a pollutant, and one man I met started something like a Limited Liability Corporation (LLC) in 2011 or earlier, naming it *CO₂ is Green!* Here is an update from the IPCC: *IPCC (2013) It is extremely likely (95–100% probability) that human activities caused more than half of the observed increase in global average surface temperature from 1951 to 2010.*

The second of these six points is Nielsen-Gammon’s (e): *Temperatures are unprecedented over the past 1,000 years, and the*

trend is intensifying. (AIT 23:20; AIT 22:03). No comment from me on this one.

The third of these six points is Nielsen-Gammon's (f): *Carbon dioxide concentrations are unprecedented over [the] past 650,000 years and going higher, and the ice cores show that when there's more CO₂, the temperature gets warmer.* (AIT 23:20; AIT 22:03). Nielsen-Gammon uses about seven paragraphs to describe related scenes from the movie as the most serious flaw in this 2006 movie, but I certainly have no argument with Nielsen-Gammon pointing out that climate sensitivity to doubled carbon dioxide concentration is about 2.5-4.0 degrees C. Nielsen-Gammon explains that Gore is inviting his audience to make their own projection of about five times that magnitude, 18 degrees C. (Multiply increases by 1.8 to convert to F.) Since 2009 or earlier, almost all nations agreed to a guardrail of 2 C (global average surface temperature increase compared to the start of the Industrial Age). As I recall, a result of 2 C is not described as safe, and a lower result is better, but mainly due to the long time that CO₂ remains active as a greenhouse gas (200 to 20,000 years, essentially irreversible), we already guaranteed that our increase of 0.8 C so far as of 2015 will increase to 1.4 C (an additional 0.6 C at a minimum), and we

are not stopping all of our greenhouse gas emissions anytime soon. The 2015 Paris France COP 21 meeting of 40,000 delegates (United Nations) will at best guarantee that we respect a guardrail of 3 C (maybe 2.7 C), so no matter what the result of the COP 21 (CMP 11) meeting from November 30 to December 11, 2015, we will work with urgency to make additional commitments to respect the guardrail of 2 C.

The fourth of these six points is Nielsen-Gammon's (g): *Consequently, hurricanes, rainstorms, and droughts are getting stronger.* (AIT 30:04; 36:50; 37:55). My only comment will be to repeat my quote from Chapter 1 Section 1, "... Gore now includes in his 2015 slides this June 15, 2011 Kevin Trenberth (United States of America National Center for Atmospheric Research) quote, '*Global warming is contributing to an increased incidence of extreme weather because the environment in which all storms form has changed from human activities.*'" That quote might not be directly relevant here, but I conclude that extreme droughts and extreme precipitation are now more likely to occur due to human-induced climate change.

The fifth of these six points is Nielsen-Gammon's (l): *Greenland & West Antarctic*

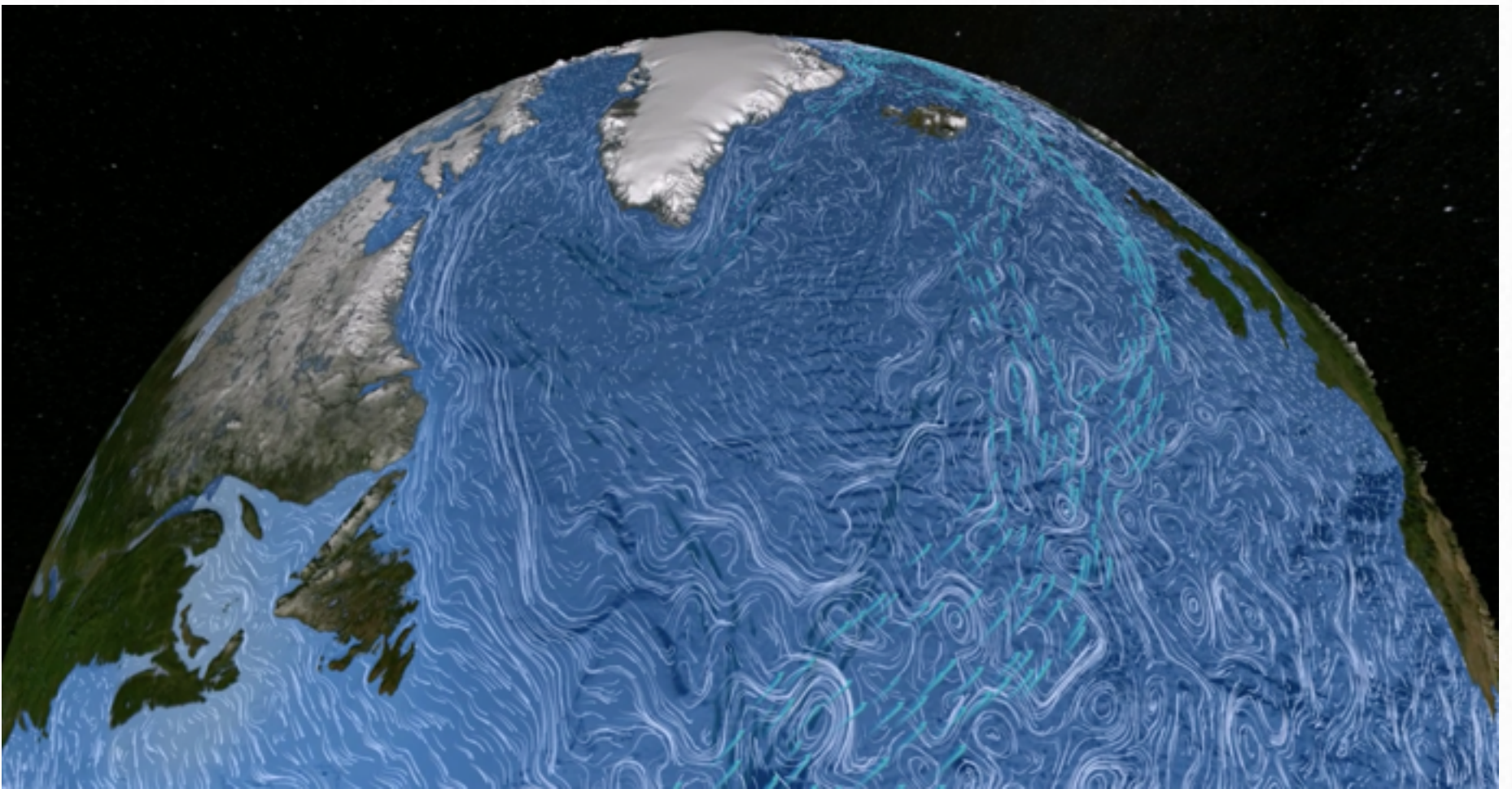
ice sheets are endangered; their melting would cause catastrophic sea level rise. (AIT 57:13). No comment from me.

The reader is reminded of the [link](#) provided in Chapter 1 for Nielsen-Gammon's paper.

The sixth of these six points is Nielsen-Gammon's (m): *Scientists agree that global warming is a serious problem.* (AIT 72:18). Nielsen-Gammon writes, "... and the American Geophysical Union (AGU 2008) refers to 'disruptions,' with the possibility of 'dramatic disruptions.' While I personally believe that global warming is a serious problem, it is not known to what extent this opinion is held by relevant scientists." With the benefit of hindsight, we can now write that the AGU says since 2013, "*Human-induced climate change requires urgent action.*" That is the title of the position statement, and it is a document endorsed in three paragraphs by the American Astronomical Society (AAS). In fact, Gerald R. North was the leader of a panel of 14 AGU scientists who voted 13-1 to adopt that language in 2013, after giving AGU members a chance to comment.

Nielsen-Gammon concludes, "*The IPCC reports remain the best available comprehensive summary of the scientific basis of global warming causes and effects.*" I agree, but those reports are extremely cautious about raising alarms, with almost 200 countries agreeing on every word.

Legates



Looking at the *Wikipedia* David Legates article and comparing that to the 2010 book *Merchants of Doubt*, I note that Legates signed the Oregon Petition, which first started in 1997, and he is linked with the Marshall Institute and the Competitive Enterprise Institute. The *Wikipedia* article also mentions his links to the Independent Institute, which I mention in relation to Singer and Beckerman in Chapter 1 while discussing Crichton's bibliography. This is the climate science denial community.

Legates gives his review the title *An Inconvenient Truth: A Focus on its Portrayal of the Hydrologic Cycle*.

Legates writes, "... a compelling call to action or misleading propaganda." A climate science denier or two writing in the *Bay Area Citizen* (in the area of Houston Texas USA) in the past year or two complained about United Nations propaganda. A current PBS television series, *The Brain*, written and hosted by Houston resident Dr. David Eagleman, also talks about propaganda.

Surprisingly, the second footnote used by Legates explains that a British judge ruled that the 2006 movie was broadly accurate but contained errors in the context of alarmism and exaggeration. The link in that footnote no longer works, but an [article from the Guardian](#) contains the same 2007 news story.

In his conclusions, Legates writes, “The film gives a false impression that, ‘The science is settled.’” In June of 2013, President Obama said in a major climate change speech to Georgetown University, “*Nobody has a monopoly on what is a very hard problem, but I don’t have much patience for anyone who denies that this challenge is real.*” As I recall, James Hansen recently said that we know climate science as well as we know the science of the human body. When Legates was writing this review in 2008, the 2007 Nobel Peace Prize had already been awarded to Al Gore (50%) and the IPCC.

Legates writes of this 2006 movie, “... *errors may be intentional,*...” Citing Roberts (2006) in Grist interviewing Al Gore, Legates quotes Gore saying, “... *I believe it is appropriate to have an over-representation of factual presentations on how dangerous it is, ...*” (I use less of Gore’s quote than Legates used of Gore’s quote.)

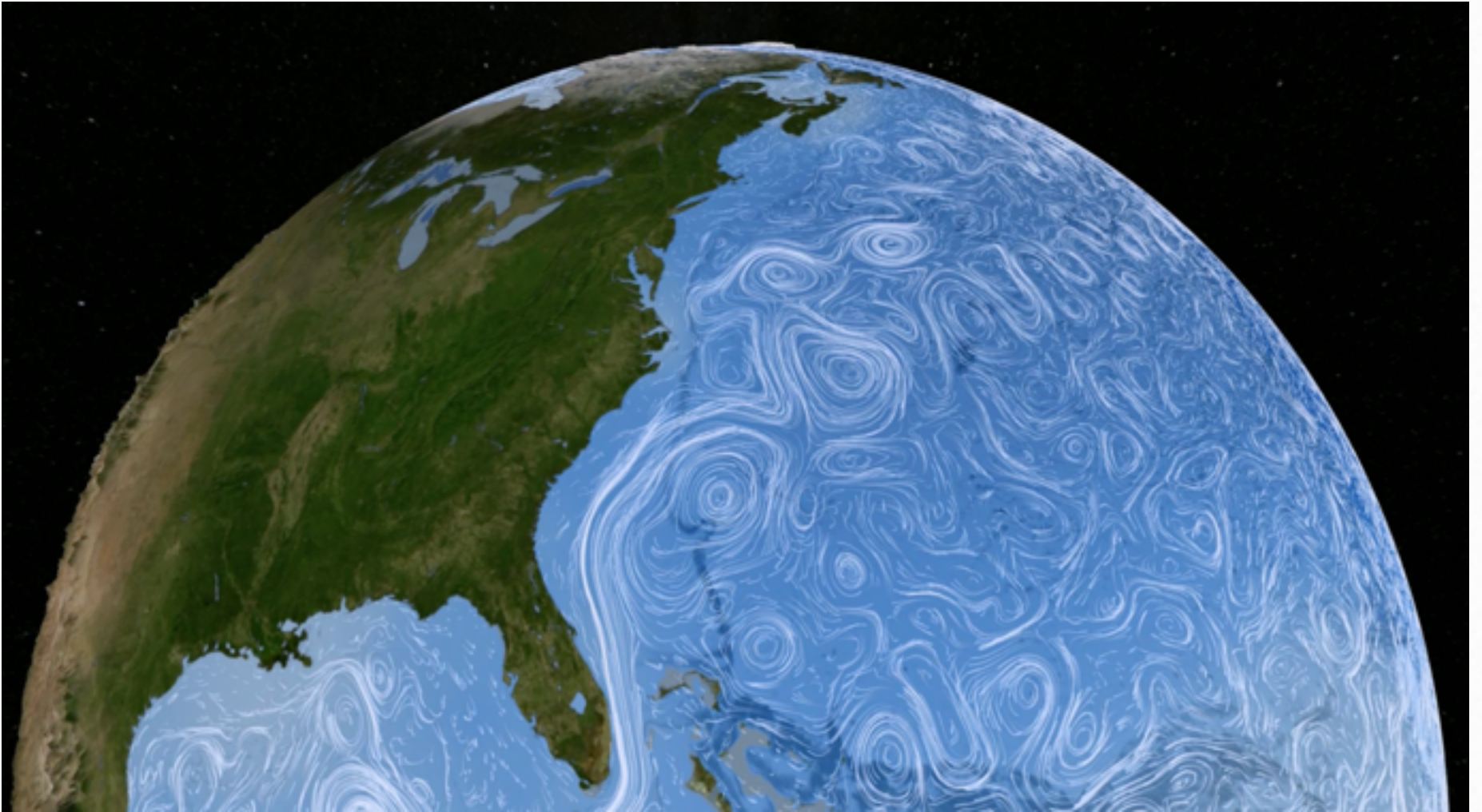
That is an accurate quote, though I had trouble with the link provided by Legates, and I found the interview at Grist using this [link](#), but the Gore quote is taken out of context. Gore sounds better when the question is included:

Roberts: “*There’s a lot of debate right now over the best way to communicate about global warming and get people motivated. Do you scare people or give them hope? What’s the right mix?*”

Gore: “... *I believe it is appropriate to have an over-representation of factual presentations on how dangerous it is, ...*”

An over-representation of factual presentations (with more focus on solutions left for later presentations) is not an example of intentional errors (lies), and in the context of this question, it is talk about scaring people initially rather than giving them hope; scaring people who live with denial, so many people in the USA who still live in a bubble of unreality.

Spencer



Roy Spencer gives his review the title, *An Inconvenient Truth: Blurring the Lines Between Science and Science Fiction*.

The Wikipedia Roy Spencer [article](#) mentions that he is on the Board of Directors of the George C. Marshall Institute. A website (archive.org) shows that he first appeared on that website in that role in late 2008.

The Marshall Institute is well described in the 2010 book *Merchants of Doubt*. When Marshall Institute members talk about climate change, they join the science denial community.

Naomi Oreskes published a 2004 [article](#) in Science magazine about consensus among relevant scientists about climate change. None of the 928 papers disagreed with the consensus position, including, “... *[M]ost of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations.*”

Maybe the 2008 *GeoJournal* editors were supposed to know how to avoid the false balance in this debate, but a large part of the science denial community is not making an honest mistake. Their tactics are ef-

fective, they are smart, wealthy, and well-organized, and they sometimes engage in free market fundamentalism, as described in the 2010 book *Merchants of Doubt*. As I recall, Katharine Hayhoe and Naomi Klein have both said or written that some of these deniers understand the science but are obsessed with their opposition to government regulations and growth, so they deny the science with all of their energy.

The Wikipedia Roy Spencer article includes these words: “*Andrew Dessler later published a paper opposing the claims of Spencer and Braswell (2011) in Geophysical Research Letters. He stated, among other things: ‘First, [they] analyzed 14 models, but they plotted only six models and the particular observational data set that provided maximum support for their hypothesis. Plotting all of the models and all of the data provide a much different conclusion.’*”

Andrew Dessler is a Texas A&M University professor at College Station Texas USA.

Looking at the Roy Spencer quote in the February 2014 issue of *Aerospace America*, the monthly magazine of the American Institute of Aeronautics and Astronautics, the quote is not as bad as I remembered it. I disliked the words on the cover, “*Target:*

Climate Change. Two Satellites that could Cool the Debate.” That seemed to echo the words I recalled from President Obama’s June 2013 speech at Georgetown University, “*Nobody has a monopoly on what is a very hard problem, but I don’t have much patience for anyone who denies that this challenge is real. We don’t have time for a meeting of the Flat Earth Society. Sticking your head in the sand [denial] might make you feel safer, but it’s not going to protect you from the coming storm. And ultimately, we will be judged as a people, and as a society, and as a country on where we go from here.*” Those words of that magazine cover story seemed to say, “*We need more data before we can know if this challenge is real.*”

Roy Spencer is quoted in only one paragraph in that 2014 article, and the paragraph after that is relevant to his inclusion in the article. Here are those two paragraphs:

“*There are some scientists who question the causes of climate change, but even they agree that the climate is changing, and that the efforts to study climate are valid and valuable. Roy Spencer, a vocal skeptic [denier] on the issue of man-made causes of global warming, serves as science team leader for one of the instru-*

ments flying on NASA's Aqua satellite, the mission dedicated to studying the Earth's water cycle. 'I think our Earth observational satellites are indispensable for understanding the climate system, partly because only satellite can provide truly global coverage. The data collected in the last 10 to 30 years will be providing new research insights for decades to come,' says Spencer.

"According to the 2013 report by the [IPCC], 'Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and the ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased.'"

Spencer writes in his 2008 movie review, "First, most if not all of the studies of these ice core-based relationships between temperature and CO2 suggest that the temperature changes preceded the CO2 changes, by at least several hundred years. This suggests the possibility that the temperature changes caused the carbon dioxide changes, rather than the other way around as is the claim for global warming theory." This Skeptical Science blog [link](#) explains that denial on the part of Spencer.

James Hansen addresses that denial on this subject in [his only TED talk](#). The 2012 transcript is provided, and several paragraphs are of interest:

"Now consider Earth's climate history. These curves for global temperature, atmospheric CO2 and sea level were derived from ocean cores and Antarctic ice cores, from ocean sediments and snowflakes that piled up year after year over 800,000 years forming a two-mile thick ice sheet. As you see, there's a high correlation between temperature, CO2 and sea level. Careful examination shows that the temperature changes slightly lead the CO2 changes by a few centuries. **Climate change deniers like to use this fact to confuse and trick the public** by saying, 'Look, the temperature causes CO2 to change, not vice versa.' But that lag is exactly what is expected.

09:31

"Small changes in Earth's orbit that occur over tens to hundreds of thousands of years alter the distribution of sunlight on Earth. When there is more sunlight at high latitudes in summer, ice sheets melt. Shrinking ice sheets make the planet darker, so it absorbs more sunlight and becomes warmer. A warmer ocean releases CO2,

just as a warm Coca-Cola does. And more CO₂ causes more warming. So CO₂, methane, and ice sheets were feedbacks that amplified global temperature change causing these ancient climate oscillations to be huge, even though the climate change was initiated by a very weak forcing.

10:18

“The important point is that these same amplifying feedbacks will occur today. The physics does not change. As Earth warms, now because of extra CO₂ we put in the atmosphere, ice will melt, and CO₂ and methane will be released by warming ocean and melting permafrost. While we can't say exactly how fast these amplifying feedbacks will occur, it is certain they will occur, unless we stop the warming. There is evidence that feedbacks are already beginning. Precise measurements by GRACE, the gravity satellite, reveal that both Greenland and Antarctica are now losing mass, several hundred cubic kilometers per year. And the rate has accelerated since the measurements began nine years ago. Methane is also beginning to escape from the permafrost.

11:17

“What sea level rise can we look forward to? The last time CO₂ was 390 ppm, to-

day's value, sea level was higher by at least 15 meters, 50 feet. Where you are sitting now would be under water. Most estimates are that, this century, we will get at least one meter. I think it will be more if we keep burning fossil fuels, perhaps even five meters, which is 18 feet, this century or shortly thereafter.

11:50

“The important point is that we will have started a process that is out of humanity's control. Ice sheets would continue to disintegrate for centuries. There would be no stable shoreline. The economic consequences are almost unthinkable. Hundreds of New Orleans-like devastations around the world. What may be more reprehensible, if climate denial continues, is extermination of species. The monarch butterfly could be one of the 20 to 50 percent of all species that the Intergovernmental Panel on Climate Change estimates will be ticketed for extinction by the end of the century if we stay on business-as-usual fossil fuel use.

12:36

“Global warming is already affecting people. The Texas, Oklahoma, Mexico heat-wave and drought last year, Moscow the year before and Europe in 2003, were all

exceptional events, more than three standard deviations outside the norm. Fifty years ago, such anomalies covered only two- to three-tenths of one percent of the land area. In recent years, because of global warming, they now cover about 10 percent -- an increase by a factor of 25 to 50. So we can say with a high degree of confidence that the severe Texas and Moscow heatwaves were not natural; they were caused by global warming. An important impact, if global warming continues, will be on the breadbasket of our nation and the world, the Midwest and Great Plains, which are expected to become prone to extreme droughts, worse than the Dust Bowl, within just a few decades, if we let global warming continue.”

I end the quotes from James Hansen there, including that last paragraph since it talks about Texas. I end this Section by repeating part of that quote from James Hansen: “***Climate change deniers like to use this fact to confuse and trick the public*** by saying, ‘Look, the temperature causes CO2 to change, not vice versa.’ But that lag is exactly what is expected.”

That is not honest behavior on the part of some of the deniers. Knowing the lag is expected, some deniers, including some scientists, use this fact to confuse and trick

the public! Some of the most effective deniers are not honest about their own conclusions.

3

Conclusion

Human-induced climate change requires urgent action. (AGU, 2013)



Gerald R. North titled his 5-page 2008 conclusion article *An Inconvenient Truth and the Scientists*. After his abstract, his first paragraph explains the false balance among the four invited scientists, 2 to 2 instead of 9 to 1. As of 2015, the consensus is usually stated as 97 to 3, or, for comparison here, 9.7 to 0.3. Balance means that inviting 10 scientists to a debate of this kind is still not enough to invite 1 scientist saying Earth is not warming or it the warming is not human-induced.

North explains that the subject is anthropogenic global warming (AGW), and paragraph two lists groups publishing reports in support of that conclusion, noting that such reports have been published with stronger and stronger evidence for twenty years. Earth is warming and the warming is mostly human-induced. Paragraph three gives more details about the pertinent AGW issues.

North describes *positive* and *normative* by connecting the former to ever-tentative

facts obtained from the work of science and connecting the latter to morality or what needs to be done about the future (Dessler and Parson, 2006), stating that politicians must deal with both in equal doses. North quotes Thomas Kuhn (1970) to explain that climate science has evolved into a “paradigm” and “normal science.”

North states that climate models have real predictive power since they are based on physical principles, unlike many disciplines such as economics where models help with past and present situations. A few people doubt the new paradigm and are expert in the old paradigm, such as Einstein rejecting quantum mechanics. Most paradigms are overthrown, but this is not likely soon with climate science, since these are the same old physical laws simulated in the design of an airplane, not newly discovered physical laws.

North then turns his attention to Al Gore in this 2006 movie, describing Gore as a politician working equally well with positive and normative aspects of science, as noted above, but with Gore not emphasizing uncertainty because talking about that subject implies the speaker has no core principles and no convictions.

North agrees with Steig about the movie (bulk and sense correct scientifically), and North states that Nielsen-Gammon and Steig found the movie powerful and mostly faithful to the scientific consensus.

I describe Legates and Spencer as dishonest deniers, and North finds Spencer’s views a bit more problematic here. North addresses the timing of the Pleistocene glaciations with the timing of the CO₂ minima in the records. Admittedly, North states that for some reason Gore brushes over this important detail, but North then explains that the science was well understood in 2008 after many years of work to solve this problem.

North ends by writing, “... [Spencer’s] view is shared by only a handful of active scientists in the field. We see these same outspoken representatives time and again on the cable news networks. They are often very good debaters and they know the business of appearing in the media. I could of course be wrong, but I think we are far from one of Kuhn’s ‘scientific revolutions.’”

As for my own conclusions, I am volunteering in 2015 to make presentations based on Al Gore’s 2015 slideshow, as well as engaging in related volunteer leadership actions, so the scientific accuracy and overall

worth of this 2006 movie and Gore's 2006 slideshow are of interest to me. Of course I agree with Steig and North that the movie and Al Gore looked great in 2008, and in the light of a few more criticisms from Nielsen-Gammon (who referred readers to the IPCC for science reports), the 2006 movie looks better as time goes by. For example, as I wrote above, in 2013 the AGU position statement title became *Human-induced climate change requires urgent action*.

I dismiss Legates and Spencer as dishonest science deniers, keeping in mind the James Hansen TED talk and the 2010 book *Merchants of Doubt*, whose 4 main characters are villainous scientists whose early decades of work were very successful, followed by decades of work best described as dishonest science denial; Fred Singer and 3 other late scientists, Fred Seitz, Bill Nierenberg, and Robert Jastrow. Here is a quote from the Wikipedia *Merchants of Doubt* [article](#): “Seitz and Singer [have] been involved with institutions such as The **Heritage Foundation**, **Competitive Enterprise Institute** and George C. **Marshall Institute** in the United States. *Funded by corporations and conservative foundations, these organizations have opposed many forms of state intervention or regulation of U.S. citizens. The book lists*

similar tactics in each case: ‘discredit the science, disseminate false information, spread confusion, and promote doubt.’”

Comparing that to the 2013 AGU statement, *Human-induced climate change requires urgent action*, it is clear which organizations and individuals are most honest and accurate about global warming and climate change. An IPCC document describes the impact of human-induced climate change on business until the year 2100, with a few scenarios ranging from aggressive mitigation to mostly adaptation. None of those scenarios are inconsequential. As the trailer for the 2015 movie *This Changes Everything* ends, narrator Naomi Klein says, **“Change or be changed!”**

The group *350.org* and others (such as the *Guardian*, an excellent newspaper) explain that four fifths of fossil fuel reserves must remain unused forever if the guardrail of 2 C is to be respected. Radical changes are coming on an urgent schedule.

Naomi Klein explained in her 2014 book *This Changes Everything* that climate change is connected to the Industrial Revolution, which is connected to slavery, colonialism, and capitalism. These subjects are relevant to international negotiations.

A climate change organization with a conservative nature (limiting the growth of government) is [Citizens' Climate Lobby](#), with a Board of Advisors including Bob Inglis, George Shultz, James Hansen, and Katharine Hayhoe. I prefer the [Climate Reality Project](#). Two more excellent groups are [350.org](#) and the [Guardian's climate change campaign](#).

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The Front Cover

“Change or Be Changed!”
– Naomi Klein

