

THE DAILY BEAST

VOLCANIC

Why Is a Climate Change Skeptic Headlining Science Conferences?

Peter Ward's arguments about the source of climate change have been denounced by scientists. That hasn't stopped him from presenting his ideas at prominent conferences.

This copy includes annotations by Peter Ward in an effort to bring genuine scientific debate back to global discussions about how to respond most effectively to a changing climate.

Bahar Gholipour

11.19.18 4:55 AM ET



Photo Illustration by The Daily Beast

The Geological Society of America—the country's premier research and professional organization for geologists—met in Indianapolis earlier this month.

Amidst the otherwise nerdy, sleepy lectures on volcanoes, rocks, and other natural formations was one from Peter L. Ward, a retired geophysicist, who delivered a talk on how volcanic eruptions—not greenhouse gases—are behind climate change.

That's odd, since the role of greenhouse gas emissions as the primary cause driving climate change is universally backed by scientists.

This well written article clearly describes a fundamental breakdown of the scientific method on an issue that is critically important to life on Earth. I (Peter Ward) am distributing this article widely, with annotation, in an effort to move the science of global warming constructively forward.

Essentially all reputable scientists, including me, agree that the world has warmed and that some of this warming may be caused by humans. New research and insight, however, shows clearly that greenhouse gases cannot physically be the cause. Greenhouse-warming theory has never been demonstrated by experiment. Experiments are a cornerstone of the scientific method. Greenhouse-warming theory is based on several assumptions that turn out to be mistaken. It is now crystal clear that greenhouse-warming theory, as currently formulated, is physically impossible.

Physically-Impossible.com explains succinctly the science behind this startling conclusion. All the other arguments or rationalizations about greenhouse gases are irrelevant. **It is simply physically impossible for greenhouse gases to cause observed global warming.** I cordially invite anyone to find any significant problem with the science described on that webpage. Rarely is science so clear.

Scientists have worked overtime for decades trying to demonstrate consensus behind greenhouse-warming theory in order to convince political leaders to take the very expensive steps necessary to reduce greenhouse-gas emissions. But consensus is the stuff of politics—debate is the stuff of science. This well-meaning political drive for consensus has limited scientific debate, closed many brilliant minds, and caused many scientists and media to focus on ad-hominem attacks rather than scientific arguments.

Greenhouse-warming theory is currently causing widespread economic and political damage rationalized by science that is now clearly mistaken. Don't you think we should re-evaluate the science promptly before more damage is done?

Ward sent a press release publicizing the talk, adorned by the logo of the GSA, photographs of the meeting venue, and background information about the society, with a concluding comment from Ward: “We are preparing to waste trillions of dollars reducing greenhouse-gas emissions even though greenhouse-warming theory is physically impossible.”

The [press release](https://bit.ly/2zoSI1b) (<https://bit.ly/2zoSI1b>) is quite standard, explaining that I will be giving a talk at the GSA meeting. It does show the meeting logo, not the GSA logo, and at the end, as background information, uses standard GSA words to describe what GSA is. But this press release does not imply GSA endorsement in any way. It simply describes one of 2,080 talks to be presented, much like dozens of other press releases issued for this meeting by government, academic, and private institutions. I have been a member of the Geological Society of America for fifty-two years, a [GSA Fellow](#) for forty years, and have spoken at GSA national and regional meetings since 1966.

But the GSA did not explicitly sponsor these statements. “This is definitely not our press release,” Christa Stratton, the director of education, communications, and outreach at the GSA, told The Daily Beast. She reiterated the official [position of the GSA](#) on climate change. “Our official stance is that climate change is man-made, it is happening now, and it needs to be stopped.”

In 2006, I discovered detailed published data from boreholes under Summit Greenland showing that the greatest volcanic activity recorded in Greenland ice was precisely at the time when the world warmed out of the last ice age. But major explosive volcanic eruptions are well-known to cause global cooling of 0.5°C for 2 to 4 years. How could volcanism also cause warming? I recognized that figuring this out could be important. I decided to put aside almost everything else in my life in order to focus on this enigma.

Being retired, I have been able to work full time, with very few distractions, consulting more than 10,000 scientific papers and shelves of books, just trying to understand. This caused me to re-examine carefully all the assumptions commonly made in climate theory. I am the first physicist to question the physics of greenhouse-warming theory since Ångström showed in 1900 that it had serious problems.

While I am a well-published author and was even an Associate Editor of the Bulletin of the GSA for a while, it has been difficult to get any major journal to send out for review any paper that questions greenhouse-warming theory.



whyclimatechanges • Follow

Dr. Ward worked w/the US Geological Survey for 27 yrs. studying volcanic eruptions and other geologic hazards worldwide. This insight should not be overlooked. #WhyClimateChanges #SciencelsNeverSettled



DECEMBER 29, 2015

Log in to like or comment.



Climate change is a highly politicized issue and hearing from both skeptics and denialists is nothing new. But Ward stands out. He is a self-described “independent scientist” who is not currently affiliated with any academic or professional organization. His attempts to publish his theory have met [numerous rejections](#) from scientific journals over the past decade.

How did he swing this?

I am not a skeptic. I argue that global warming is happening and that some of it is caused by humans. I provide extensive evidence, however, for why greenhouse gases cannot physically cause observed warming. I document how ozone depletion caused by humans manufacturing chlorofluorocarbon gases (CFCs) and by volcanoes emitting chlorine and bromine explains global warming throughout Earth history in far greater detail and with far greater precision than greenhouse-warming theory.

Ward argues that volcanic eruptions emit chlorine and bromine, depleting the protective ozone layer in the atmosphere that shields our planet from harmful UV radiation.

It’s true that major explosive volcanic eruptions—the most violent type of eruption that sends ash, gas and magma high up into the sky, like the Pinatubo eruption in 1991—can inject chlorine and bromine into the stratosphere and temporarily deplete ozone (the impact lasts between [two and six years](#)).

But not all volcanoes can emit enough chlorine or bromine to have a large effect on the ozone as Ward claims.

“Peter Ward has claimed that ‘all’ volcanic eruptions deplete ozone, including the type we call ‘effusive,’ like the eruption of Kilauea that occurred last summer in Hawaii,” volcanologist Simon Carn, an associate professor at Michigan Tech, told The Daily Beast.

Effusive eruptions, in which lava steadily flows out of a volcano onto the ground, typically inject gases to much lower altitudes than explosive eruptions. That means they’re highly unlikely to deplete ozone. “They don’t produce very much chlorine/bromine, and the emissions do not reach the stratosphere where the ozone layer is located,” Carn explained. “His ideas linking volcanic eruptions to ozone depletion and global warming are completely unsubstantiated.”

Effusive basaltic lava flows covering large areas of land are observed to deplete the ozone layer. Basaltic lavas have been shown to emit an order of magnitude more chlorine and bromine gases per volume of magma than explosive volcanic eruptions. There is still some work to be done determining precisely how these gases rise into the stratosphere within the very warm air convecting above extensive lava flows.

The primary conclusion of my GSA talk was that throughout Earth history, periods of major warming and mass extinction are contemporaneous with extensive basaltic lava flows, the larger the flows the greater the warming and the related mass extinctions.

Ward argues ozone depletion is the real cause behind the current global warming trends by letting in more UV radiation.

But here again, Ward is wrong. Ozone depletion and the subsequent extra UV radiation that reaches the Earth doesn't explain current trend of rising global temperatures, said astrophysicist Ken Rice, professor of computational astrophysics at the University of Edinburgh. "He suggests that a small change in the energy we receive in the UV range from the Sun can somehow have a large impact on our climate, while a much larger change in the energy fluxes due to increases in greenhouse gases has no impact at all," Rice said. "This is simply wrong."

As explained at Physically-Impossible.com, the thermal effect of radiation on an absorbing body is a function of the difference in temperature between the emitting and absorbing bodies, not the flux or amount of radiation per second, as currently assumed in all climate models. Sun is twenty times hotter than Earth, and UV is the hottest, most energetic solar radiation reaching Earth. Earth's temperature is controlled primarily by how much UV reaches Earth. You cannot get sunburned by absorbing a very large flux or amount of infrared radiation from Earth no matter how long you wait. Infrared radiation from Earth does not contain enough energy to burn your skin.

What's more, ozone doesn't just block UV; it's also a greenhouse gas, and in fact it blocks infrared radiation more than it blocks UV. "Depleting it [ozone] actually leads to a net result of cooling, not warming," said climate scientist Gavin Schmidt, director of the NASA Goddard Institute for Space Studies in New York.

As explained at Physically-Impossible.com, greenhouse gases cannot physically cause global warming. When ozone is depleted, the temperature of the ozone layer is observed to decrease because it is absorbing less UV. More UV is measured to reach Earth and to be absorbed efficiently by oceans where heat content is clearly rising.

Ward further argues that scientists' understanding of the physics of radiation is wrong. The analogy he uses most frequently is that greenhouse gases can't increase the planet's temperature, just like "it is physically impossible for a blanket to cause the temperature of the body under the blanket to increase."

A blanket cannot cause your body temperature to increase above 98.6°F. The temperature of your body can only be increased above 98.6°F by a fever or by absorbing energy from a hotter body, with or without a blanket.

Ward faces harsh criticism from scientists, ranging from volcano experts, earth scientists and geologists, to climate scientists, physicists and astrophysicists. “I don’t even know if you can boil it all down to one thing—there are so many problems,” Walter Hannah, a climate scientist at Lawrence Livermore National Laboratory in California, told *The Daily Beast* of the claims.

Some scientists had harsher words. “He’s a crackpot that is not taken seriously in the scientific community,” Michael Mann, professor of atmospheric science and director of Earth System Science Center at Penn State University, said.

Ward is unfazed by these reactions. Where others see a “crackpot,” he sees a maverick scientist heralding “a revolution in science” and “going up against the world order.”

“There is a fundamental error in physics which turns out to show there is a major problem with greenhouse gas theory,” Ward told *The Daily Beast*, calling from the GSA meeting. “I’ve read up on all the revolutions in science and it almost always gets down to one person, two people, three people that make a discovery that will eventually begin to catch on. Those ideas always come from a single scientist who works day and night.”

Ward is a 75-year-old former volcanologist and geophysicist. He was born in Washington D.C. and completed a Ph.D. in seismology from Columbia University in New York in 1970. He then worked with the U.S. Geological Survey for 27 years before retiring in 1998, publishing [papers](#) on methods for collecting volcanic activity data in that time.

Ward’s solid scientific resume makes him a more effective and dangerous kind of skeptic, other scientists said. “As an ex-USGS scientist, Peter Ward unfortunately does have some credentials that make his claims appear worth listening to,” Carn said. “But he has no publications in any reputable scientific journals on his [climate change] theories.”

That’s not for lack of trying. In the past 10-12 years, Ward has been prolific, constantly submitting articles promoting his ideas to some of the most prestigious journals in the field.

But his submissions to journals get rejected **[without review]**, sometimes on the spot. In response to a recent submission of his in July, Minghua Zhang, the editor-in-chief of the *Journal for Geophysical Research Atmospheres*, wrote: “For the discussion on the role of greenhouse gases, you simply stated what you believed. You did not substantiate your arguments with rigorous quantitative calculations or analysis of measurements.”

To this, Ward [responded](#), “I am surprised that you do not give any valid scientific reason for rejecting my paper... You clearly do not understand the science as written in this paper.”

What I explained in the paper and later again to the Editor is that all existing “rigorous quantitative calculations or analysis of measurements” are based on mistaken mathematics.

Ward reiterated that scientists are ignoring him. “They will simply not spend any time considering there could be anything wrong with greenhouse gases theory,” he said.

But there are [multiple instances](#) of scientists engaging and debating him.

“He’s not critical about his own idea,” said Hannah, who’s had a lengthy back-and-forth with Ward on [his personal blog](#), which eventually hit an impasse. “When you try to explain to him why something is wrong, he just switches topics.”

I have a complete transcript of my lengthy discussions with Walter. While I valued the discussion, I too felt that every time I began to pin him down, he switched topics. Now, the only topic that matters is that greenhouse-warming theory is [Physically-Impossible.com](#) and I look forward to Walter’s scientific evaluation.

When asked about his analogy of the greenhouse gases as a blanket, Ward told The Daily Beast, “If you put a blanket over you, you will slow the cooling, but you will not increase the temperature.” When pressed further—doesn’t slowing the cooling, along with trapping the heat generated by the body, increase the temperature of the space between the blanket and the body?— he disagreed. “Not necessarily. It doesn’t increase the temperature. It makes you feel warmer, but it doesn’t make you hotter.”

In fact, it does both: Just consider the first-aid treatment for a hypothermic patient, which is to wrap them in a blanket to help increase their core body temperature.

This important first-aid treatment reduces the loss of heat from the body so that the body can warm itself back to 98.6°F. A blanket cannot cause your body temperature to increase above 98.6°F unless it is an electric blanket adding heat from elsewhere.

His blanket idea would be true for a hot stone, but not for the body, which constantly generates heat by burning calories, and certainly not for the Earth, which constantly receives radiation from the Sun. In the Earth’s case, the blanket is not see-through to the same extent on both sides. The Earth re-emits sun’s radiation back but at wavelengths that greenhouse gases in the atmospheric blanket happen to be good at capturing.

“What he’s getting wrong in that analogy is that the energy from the Sun can mostly penetrate the atmosphere and heat the surface. Since the surface then emits at longer

wavelengths than the energy coming from the Sun, the atmosphere prevents it from simply being radiated directly back into space,” Rice said.

The fact that the Earth’s atmosphere does this is fortuitous, by the way; without this phenomenon, our planet would have been a cold dead rock. We just don’t want too much greenhouse gases and too much heat trapped under. “Of course, our emission of greenhouse gases into the atmosphere is currently pushing us out of energy balance and causing the system to warm,” Rice said.

What keeps Earth warm is the stratosphere, heated by solar UV. Temperatures decrease with altitude throughout the troposphere but increase with altitude throughout the stratosphere. Greenhouse gases absorbing infrared energy have never been demonstrated by experiment in the laboratory or in the field to warm air, a fundamental breakdown of the scientific method (See JustProveCO2.com).

The core disagreement between Ward and other scientists is his claim that the way the heat energy of incoming and outgoing radiation is calculated is wrong. But these calculations are not something that climate scientists have come up with recently—they are related to principles of radiation and thermodynamics, the physics of which have been fully established for over a 100 years now, Hannah said. If Ward could ever prove what he says, it would be earth shattering.

As explained at Physically-Impossible.com, current concepts of energy balance turn out to be mistaken. The flux of thermal energy is clearly observed to be a function of the difference in temperature between the emitting and absorbing bodies, not the amount of radiation in watts per square meter as currently assumed.

Ward doesn’t need the scientific journals or the attention of other scientists to get his word out. He is extremely active on social media to communicate his ideas. His Twitter [account](#) has 13,000 followers. He has a PR agent who works at Farrow PR, The Daily Beast has confirmed.

He has created multiple websites—Physically Impossible, Why Climate Changes, Just Prove CO2—and has written books devoted to his theories. He has a Wikipedia page, which, according to Wikipedia, [is written by himself or someone connected to him](#), in the style of a personal argumentative essay without citing sufficient facts and sources.

And then there are conferences, where he rents a space in the exhibit hall and hands out pamphlets and his books. In the case of the GSA, Ward presented a talk on his ideas. The GSA doesn’t officially back any one who presents, according to the organization, which allows Ward to not only present his ideas at a GSA-backed event but also to use that event to augment his argument as legitimate.

“I have to say I can’t do anything about other people who want to hire a press agent and promote their work,” Stratton, the GSA’s communications director, said. “That

said, I'm not crazy about the fact that he's using the boilerplate off of our press releases and our logo."

Others are concerned that spinning a conference talk in this way is a misrepresentation and would cast a sheen of credibility to false claims. This can make it more likely for journalists and the public to take a scientist's word at face-value, other scientists said.

Ward has written several op-eds in local and national publications, including [USA Today magazine](#), [The Hill](#) and [R&D magazine](#), and a [long list](#) of TV and radio appearances, in which he details [his alternative theory](#) for climate change. Last year, he went on [regional public radio](#) to say science may support the Trump administration's backing away from the Paris agreement and scaling back on the efforts to change climate.

Just last spring, during the eruption of Hawaii's Kilauea volcano, he was featured as the lone expert in a [video](#) on NBC News' science vertical MACH, in which he discussed the link between Kilauea eruption and global warming, an idea dismissed as myth by other scientists.

An uproar by volcanologists and climate scientists followed on Twitter and [elsewhere](#). NASA's climate scientist Gavin Schmidt tweeted the claims in the video were "totally bogus and without foundation." Carn called it "[B.S. of the highest order](#)," and that the NBC should be "ashamed" of publishing the piece without consulting other scientists.

Months later, that NBC video is still up. NBC did not comment on why the video still remains on their site.

But how did Ward end up delivering a talk at the premier academic conference for geologists?

The session, on plate tectonics, was organized by geologist Yildirim Dilek, professor at Miami University in Ohio, and Eldridge Moores, an icon in the geologists community, who passed away in late October.

Neither Dilek or Moores had known Ward's work prior to his submission.

The rest of the speakers in the session had been handpicked by Dilek and Moores in the Spring. After the submissions deadline, Ward's abstract showed up.

"It popped in our system out of nowhere," Dilek said. The first red flag, Dilek said, was the "absurdly long" title of the [abstract](#)—Moving Plate Tectonics to the Next Level of Detail by Understanding How Plate Tectonics Controls Sudden Global Warming, Slow Incremental Global Cool, Air Temperatures, ocean Temperatures, Ocean Acidification, Dominant Species, Mass Extinction, and the Major and Minor Subdivision of the Geologic Time Scale.

“That was just so abnormal and unusual,” Dilek said. “I immediately called Eldridge and asked, ‘Do you know him?’” He didn’t. “I’m looking at his abstract title and shaking my head... But you can’t reject somebody based on that,” Dilek said. The rest of the abstract seemed fine, just a historical review of volcanic eruptions and their aftermath. Dilek and Moores thought it could make for a light wrapping-up talk at the end of the session.

The talk went smoothly, Dilek said. Much of the historical review wasn’t new to the scientific community, according to Dilek, and no one from the audience had a question or any objection.

Dilek was surprised when told about Ward’s press release and how it had connected the GSA presentation to bigger claims about climate change. “I don’t appreciate that,” he said.

For those in the audience who were more tuned into Ward’s previous communications, hearing the subtler message through the historical review was easier.

“His thoughts on volcanic emissions, atmospheric heating, etc. were not supported with a single slide of data,” said John Wakabayashi, professor at Earth and Environmental Sciences at California State University, Fresno, who also presented at the same session and heard Ward’s presentation. But the topic of the session was plate tectonics, not climate change, he added. “The majority of the audience there undoubtedly disagreed with Peter Ward’s conclusions but did not feel that this was the forum to debate him.”

The topic of my talk was how plate tectonics determines the balance between explosive and effusive volcanism at each moment in Earth history, how this balance controls global cooling and warming, and how understanding this balance provides a new paradigm for understanding and cross-correlating global climate change even for periods as short as every few thousand years. One slide states clearly that “greenhouse-warming theory is not even physically possible” and that “recognizing that warming is caused by ozone depletion due to basaltic lavas unlocks whole new vistas into understanding the geologic record.”

The GSA stood by its decision to host Ward.

“Our meeting is extremely open, and we encourage inclusion and diversity of thought,” the GSA’s Stratton said. “That said, we know sometimes science can be controversial and we leave it up to scientists at the meeting to review it.”

Others weren’t so sure. “He is using it to lend some credibility to his terrible science,” Karin Kirk, a geologist and science communicator, told The Daily Beast.

“What we should probably be doing is more forcefully rebutting these flawed ideas,” Rice said. “I do think the media has a role to play in terms of making the public more

aware of what we regard as credible scientific information, and what is regarded as nonsense.”

On YouTube, Ward has a channel where he uploads videos of his conference talks, and he plans to produce a series of videos outlining his climate change theory, he said.

Has Ward changed anyone’s mind yet? “I’m getting close,” he said.

How can we move forward most constructively?

Most climate scientists are convinced beyond a reasonable doubt that extensive observations demonstrate that greenhouse-warming theory must be the primary explanation for observed global warming. These scientists have spent their careers using greenhouse-warming theory to frame their thoughts, to seek new observations, to interpret data, and to publish results. Many are genuinely convinced, on scientific grounds, that the world will become dangerously hot in the next few decades and that we must reduce greenhouse emissions promptly to reduce inevitable harm.

Most climate scientists have been frustrated by the “climate wars” with many vocal climate skeptics who often appear more motivated by political philosophy than by scientific evidence. Many of the most vocal skeptics are libertarians who do not want to admit that human-caused global warming might be happening because this would justify new government regulations. These “climate wars” have become bitter, often filled with ad-hominem attacks that do nothing but fan the flames.

Since formation of the Intergovernmental Panel on Climate Change (IPCC) in 1988, a very large number of climate scientists have worked hard to demonstrate widespread consensus behind greenhouse-warming theory in order to convince political leaders to take action. Many of these scientists and their supporters have come to view this consensus as proof that greenhouse-warming theory is correct. They use this consensus to dismiss anyone who disagrees. They genuinely cannot conceive of the possibility that there could be the slightest problem with greenhouse-warming theory.

But science is not done by consensus. It is now clear that greenhouse-warming theory is mistaken because of a fundamental misunderstanding in physics about what heat is and how heat flows. Furthermore, it can now be shown that greenhouse-warming theory is not physically possible. As for the skeptics, global warming is clearly happening and some of it appears caused by humans. Yet, we have already partially corrected that problem through the United Nations Montreal Protocol. Greenhouse-warming theory has become a liability that is currently causing widespread economic and political damage rationalized by science that is clearly mistaken.

The problem now is how can we bring all sides together to determine the best-informed actions for dealing with observed climate change and for minimizing the negative effects of humans on global climate. We need prompt, thoughtful re-evaluation of the science.

Again, I cordially invite anyone to find any significant problem with the science summarized at Physically-Impossible.com.

More information is available at my other websites:

WhyClimateChanges.com

OzoneDepletionTheory.info

JustProveCO2.com

In my paper:

Ward, P. L., 2016, *Ozone depletion explains global warming*: Current Physical Chemistry, v. 6, no. 4, p. 275-296. doi: [10.2174/1877946806999160629080145](https://doi.org/10.2174/1877946806999160629080145).

In my book:

Ward, P.L., 2016, *What really causes global warming? Greenhouse gases or ozone depletion?* Morgan James, New York, 237 p. available at WhyClimateChanges.com and most Internet book sellers.

I have made scientific presentations and have been the only scientist to rent a booth to discuss science in the Exhibit Hall of major national meetings for four years at the **Geological Society of America**, the **American Geophysical Union**, and the **American Meteorological Society**, plus one year at the **American Association of Petroleum Geologists**, typically interacting with more than 500 scientists at each meeting. Nearly all interactions have been very thoughtful and constructive.

I am open to any relevant, serious, scientific discussion. I am sure that I will learn from such discussion and detailed reviews of my book and the many papers listed on my websites. I am even more certain, however, that the principal conclusions at Physically-Impossible.com will stand up to intense scrutiny by many scientists determined to prove me wrong.

What do you think?

peward@wyoming.com

“New scientific ideas never spring from a communal body, however organized, but rather from the head of an individually inspired researcher who struggles with his problems in lonely thought and unites all his thought on one single point, which is his whole world for the moment.”

Max Planck, Nobel Laureate and one of the fathers of modern physics