

# **“Much Ado About Nothing”**

## A Minority Review of the Majority’s Climate Science Investigation



Prepared by Democratic Staff of the House  
Committee on Science, Space & Technology for  
Democratic Members and Staff

March 2017

# **“Much Ado About Nothing”**

## **A Minority Review of the Majority’s Climate Science Investigation**



### **Table of Contents**

Purpose - Climate Science Hearing	Page 1
Key Points to Keep in Mind	Page 3
Background	Page 4
Majority Investigation Timeline	Page 8
The Bates Allegations and the Majority’s Manipulation of Facts	Page 9
Who’s Manipulating Whom?	Page 10
Scientific Support for the Karl Study	Page 14
APPENDIX of Studies Supporting the Karl Study Conclusions	Page 16

## Purpose - Climate Science Hearing

Science Committee Chairman Lamar Smith has called a Full Committee hearing for Wednesday, March 29, 2017, innocuously titled: “Climate Science: Assumptions, Policy Implications, and the Scientific Method.” This hearing is only the latest example of efforts by the Committee’s Majority over the past two Congresses to provide a forum for fringe science interests, climate change deniers, and oil and gas industry proxies to spread doubt and misinformation about climate science and the scientific process.

At Wednesday’s hearing, the Majority is likely to bring up their investigation of a scientific paper published in the journal *Science* in June 2015 and co-authored by nine scientists from the National Oceanic and Atmospheric Administration (NOAA). The study was led by Thomas Karl, a well-respected climate scientist and then Director of NOAA’s National Centers for Environmental Information (NCEI), headquartered in Ashville, North Carolina. The paper, known as the *Karl study*, was titled “Possible artifacts of data biases in the recent global surface warming hiatus.”<sup>1</sup> The study used new temperature data from 2013 and 2014 and improved methods to correlate the temperature data collected by buoys and ships. With these improved methods and added global temperature data, the study concluded that there had been no “hiatus” or pause in global warming over the preceding 15 years, as previous studies had suggested. Dr. Karl retired last year after a distinguished career at NOAA that lasted more than 40 years.

As this report outlines below, the Majority’s nearly two-year crusade to attempt to undermine and invalidate the Karl study, which underwent two separate peer-reviews over a period of six months by independent reviewers at the journal *Science* before it was published, is really ***Much Ado About Nothing***.

The Majority has never provided any evidence that NOAA or its scientists “manipulated” their data for political or other reasons, as they have consistently claimed. Recently, a former NOAA scientist named Dr. John Bates has emerged who has publicly disagreed with the Karl co-authors about how they stored and archived their climate data. However, he never disputed the actual findings of the Karl study and never made any allegations about “data manipulation.” The Majority, however, has misused his statements to suggest Dr. Bates has supported their fictional narrative about intentional manipulation of climate data for political purposes. Dr. Bates recently told the press he feared that his comments would be taken out of context. “I knew people would misuse this,” he said.<sup>2</sup> That is exactly what the Majority has done.

In fact, on February 5, 2017, the Science Committee Majority released a press release regarding comments made by Dr. Bates, titled: *Former NOAA Scientist Confirms Colleagues Manipulated Climate Records.*” The following day, however, Dr. Bates gave two press interviews to both

---

<sup>1</sup> Thomas R. Karl, et al., “Possible artifacts of data biases in the recent global surface warming hiatus,” *Science*, June 26, 2015, Vol. 348, Issue 6242, pp. 1469-1472, accessed here:

<http://science.sciencemag.org/content/348/6242/1469>; Supplemental material accessed here: <http://science.sciencemag.org/content/sci/suppl/2015/06/03/science.aaa5632.DC1/Karl-SM.pdf>

<sup>2</sup> Warren Cornwall and Paul Voosen, “How a culture clash at NOAA led to a flap over a high-profile warming pause study,” *ScienceInsider*, February 8, 2017, accessed here: [www.sciencemag.org/news/2017/02/how-culture-clash-noaa-led-flap-over-high-profile-warming-pause-study](http://www.sciencemag.org/news/2017/02/how-culture-clash-noaa-led-flap-over-high-profile-warming-pause-study)

*E&E News* and the *AP* clearly stating that there was no data ‘manipulation.’<sup>3</sup> He told the *AP* that there was “no data tampering, no data changing, nothing malicious” involved with the Karl study. “It’s not trumped up data in any way shape or form,” said Bates.<sup>4</sup> Dr. Bates did have disagreements with the Karl study authors about how they archived and stored the climate data related to their study. This portion of Dr. Bates’s claims has been widely described as an internal dispute between scientists at NOAA in multiple press stories.<sup>5</sup>

Dr. Bates also suggested the study was “rushed” to press for political reasons. That claim is simply not supported by any of the facts. The journal *Science* put the Karl study through two separate rounds of peer-review over a period of six months, hardly a “rushed” effort. In addition, the *AP* reported that on average a review of a paper at *Science* takes 109 days. In the case of the Karl study it took *Science* 185 days to review it before publication.<sup>6</sup>

The Science Committee Majority, however, has concocted their own politically useful tale about the Karl study, claiming repeatedly that NOAA scientists had “manipulated” data in the Karl study for political purposes. They have never provided any evidence supporting these claims and they have mangled Dr. Bates’s concerns about data archiving issues to support their unfounded allegations of data manipulation that Dr. Bates himself has clearly and strongly refuted.

This report provides background on the Majority’s unsubstantiated claims about the Karl study and their lengthy, politically motivated, investigation into this climate science paper. It also includes summaries and links to other scientific papers that have supported the methodologies used in the Karl study and corroborated the study’s findings that the global warming “hiatus” never actually occurred. Those findings were published in eight separate articles, in seven different scientific journals, co-authored by 35 individual scientists from six countries (including the United States, United Kingdom, Australia, Canada, Norway, and Switzerland). These climate scientists reached the same basic conclusion of the Karl study’s co-authors that the planet has continued to warm over the past few decades unabated. The investigations launched by the Majority, no matter how aggressive, forceful or persistent, will not change the scientific reality of climate change.

---

<sup>3</sup> See: Scott Waldman, “‘Whistleblower’ says protocol was breached but no data fraud,” *E&E News*, February 7, 2017, accessed here: [www.eenews.net/stories/1060049630](http://www.eenews.net/stories/1060049630) (Hereafter, “*E&E News* story”) and Seth Borenstein and Michael Biesecker, “Major global warming study again questioned, again defended,” *Associated Press (AP)*, February 7, 2017, accessed here: <http://bigstory.ap.org/article/3fc5d49a349344f1967aadc4950e1a91/major-global-warming-study-again-questioned-again-defended> (Hereafter, *Associated Press* story)

<sup>4</sup> *Associated Press* story.

<sup>5</sup> See, Hiroko Tabuchi, “How an Interoffice Spat Erupted Into a Climate-Change Furor,” *New York Times*, February 20, 2017, accessed here: [www.nytimes.com/2017/02/20/business/energy-environment/climate-change-dispute-john-bates.html?\\_r=0](http://www.nytimes.com/2017/02/20/business/energy-environment/climate-change-dispute-john-bates.html?_r=0); Scott Waldman, “‘Whistleblower’ says protocol was breached but no data fraud,” *E&E News*, February 7, 2017, accessed here: [www.eenews.net/stories/1060049630](http://www.eenews.net/stories/1060049630); Warren Cornwall and Paul Voosen, “How a culture clash at NOAA led to a flap over a high-profile warming pause study,” *ScienceInsider*, February 8, 2017, accessed here: [www.sciencemag.org/news/2017/02/how-culture-clash-noaa-led-flap-over-high-profile-warming-pause-study](http://www.sciencemag.org/news/2017/02/how-culture-clash-noaa-led-flap-over-high-profile-warming-pause-study); Seth Borenstein and Michael Biesecker, “Major global warming study again questioned, again defended,” *Associated Press (AP)*, February 7, 2017, accessed here: <http://bigstory.ap.org/article/3fc5d49a349344f1967aadc4950e1a91/major-global-warming-study-again-questioned-again-defended>

<sup>6</sup> *Associated Press* story.

## Key Points to Keep in Mind:

- **The NOAA data in the Karl study was not “manipulated.”** The Majority has grossly distorted the facts of their unsubstantiated allegations about the Karl study, repeatedly claiming, with zero evidence, that NOAA’s scientists “manipulated” data used in the journal *Science*. Even Dr. John Bates, the former NOAA whose comments the Majority has recently relied on to re-energize their stalled investigation launched nearly two years ago has denied that data was manipulated, telling the *Associated Press* that there was “no data tampering, no data changing, nothing malicious” involved with his colleagues’ study.<sup>7</sup>
- **The Karl study was not “rushed” to publication.** The Majority has claimed the study was “rushed” to publication. In reality, the Karl study went through two separate, independent rounds of peer review by the journal *Science* that were conducted over a six-month period prior to publication. Calling the study “rushed” does not correspond with the actual facts.
- **Dr. Bates reportedly signed off on the Karl paper when he was at NOAA.** Dr. Bates was apparently in charge of reviewing the scientific integrity of the Karl study at NOAA and signed off on the original manuscript before it was submitted to *Science* in December 2014.
- **Dr. Bates was demoted by Tom Karl in 2012.** According to multiple media reports and former NOAA officials, Dr. Bates was removed from his supervisory position at NOAA in 2012 by Tom Karl because of personnel management issues and was given the position of Principal Scientist that included no supervisory responsibilities.<sup>8</sup>
- **Multiple scientific papers have confirmed the Karl study’s conclusions.** In their continuing efforts to undermine the mainstream consensus that climate change is a scientific reality, the Majority has attempted to paint the Karl paper as being politically motivated and scientifically manipulated. However, at least six scientific papers published since the Karl study appeared in *Science* in June 2015 have supported the study’s conclusions. At a previous Science Committee hearing last year, Chairman Smith also misconstrued a paper co-authored by Dr. Michael Mann in *Nature Climate Change* to suggest it is at odds with the Karl study and inaccurately said this paper found there had been a “halt in global warming” over the previous 18 years.<sup>9</sup> The paper by Dr. Mann, lead author Dr. John Fyfe, and others, however, actually found that there has not been a global warming “hiatus,” or “pause” in global temperatures. They described the most recent 15-year period ending in 2014 as a “warming slowdown,” not a “halt” as described by the Chairman of the Science Committee.

---

<sup>7</sup> Ibid.

<sup>8</sup> See, Seth Borenstein and Michael Biesecker, “Major global warming study again questioned, again defended,” *Associated Press*, Feb. 7, 2017: <http://bigstory.ap.org/article/3fc5d49a349344f1967aadc4950e1a91/major-global-warming-study-again-questioned-again-defended> and Warren Cornwall and Paul Voosen, “How a culture clast at NOAA led to a flap over a high-profile warming pause study,” *ScienceInsider*, Feb. 8, 2017,

[www.sciencemag.org/news/2017/02/how-culture-clash-noaa-led-flap-over-high-profile-warming-pause-study](http://www.sciencemag.org/news/2017/02/how-culture-clash-noaa-led-flap-over-high-profile-warming-pause-study)

<sup>9</sup> “An Overview of the Budget Proposal for the National Oceanic and Atmospheric Administration for Fiscal Year 2017,” Hearing Before the Subcommittee on Environment, Committee on Science, Space, and Technology, U.S. House of Representatives, March 16, 2016, accessed here: <https://www.gpo.gov/fdsys/pkg/CHRG-114hhrg20837/pdf/CHRG-114hhrg20837.pdf>



“We do not believe that warming has ceased,” the authors wrote.<sup>10</sup> Bates also misrepresented what this study concluded, writing “The [Karl] study drew criticism from other climate scientists, who disagreed with [the Karl paper’s] conclusion about the ‘hiatus,’” citing the *Nature* article by Dr. Mann and his co-authors.<sup>11</sup> That was inaccurate.

## Background

The Majority is long running investigation into the Karl study has been sown with falsehoods and fact-fewer accusations, almost from the moment the study was published in June 2015. The response to the Karl study from the Science Committee Majority was swift, sweeping and caustic in tone from the start, questioning the integrity of the NOAA scientists and eventually suggesting they had “manipulated” the data in the study for political purposes at the behest of President Obama’s administration. In his first letter to NOAA on July 14, 2015, Chairman Smith berated Dr. Kathryn Sullivan, a former astronaut and the NOAA Administrator under the Obama Administration, for not making the data used in the Karl study public, for instance, only to learn from NOAA that the data had been public for one year prior to publication of the Karl study.

Chairman Smith issued a subpoena to the Department of Commerce requesting internal communications between NOAA scientists regarding global temperature data on October 13, 2015. Dr. Sullivan pushed back on the subpoena. She said the Majority’s demands could chill communications between scientists and endanger the scientific process as a result. Although NOAA eventually did provide document productions in December 2015 and March 2016.

Science Committee Ranking Member Eddie Bernice Johnson also objected to the subpoena, but on different grounds. On October 23, 2017, Ms. Johnson sent a letter to Chairman Smith, writing, “This subpoena appears to be furthering a fishing expedition, rather than engaging in focused oversight with a legitimate goal in mind. Unfortunately, this is reflective of much of the Committee on Science, Space, and Technology’s oversight work this Congress, and it is a disturbing trend for the legitimacy of this Committee,” she wrote.<sup>12</sup> Nearly 18 months since the subpoena was issued the Majority still has no fish to show for their fishing expedition.

One month after the Majority issued this subpoena, on November 18, 2015, during a Science Committee hearing on the Paris climate talks (which took place from Nov. 30<sup>th</sup> to Dec. 1<sup>st</sup> 2015), Chairman Smith alleged that NOAA’s scientists involved in the Karl study “altered historical climate data to get politically correct results in an attempt to disprove the hiatus in global temperature increases.” Chairman Smith went even further, suggesting that the very timing of the release of the Karl study was somehow part of a grand government conspiracy. “NOAA

---

<sup>10</sup> John C. Fyfe, et al., “Making sense of the early-2000s warming slowdown,” *Nature Climate Change*, Vol. 6, March 2016, accessed here: <http://www.nature.com/nclimate/journal/v6/n3/full/nclimate2938.html>

<sup>11</sup> John Bates, “Climate scientists versus climate data,” *Climate Etc.*, posted on February 4, 2017, accessed here: <https://judithcurry.com/2017/02/04/climate-scientists-versus-climate-data/>

<sup>12</sup> Letter from Science Committee Ranking Member Eddie Bernice Johnson to Science Committee Chairman Lamar Smith regarding the Majority’s NOAA subpoena, October 23, 2015, accessed here: <http://democrats.science.house.gov/sites/democrats.science.house.gov/files/Ranking%20Member%20Johnson%20Letter%20to%20Chairman%20Smith%20on%20NOAA%20Subpoena.pdf>

conveniently issues its news release promoting this report just as the Obama administration was about to announce its extensive climate change regulations,” Chairman Smith asserted.<sup>13</sup>

On the same day as this hearing Chairman Smith sent his seventh (7) letter to the Administration about the Karl study, this one addressed to Secretary of Commerce Penny Pritzker. The investigative narrative from the Majority, however, began to shift. Rather than suggesting the data in the Karl paper had been “manipulated” the Chairman suggested that NOAA “rushed to publish” the study. The Majority also claimed, for the very first time, that the Committee had “whistleblowers” who allegedly raised concerns in e-mails about the study in April, May and June 2015. The very timing of these allegations raise questions. Dr. Karl and NOAA submitted its manuscript to the journal *Science* in December 2014, four months before these concerns from whistleblowers were apparently raised. The notion that the Karl study was “rushed” to publication also seems to be at odds with the facts. The manuscript was submitted to *Science* in December 2014 and underwent two separate rounds of peer-review. It was finally published more than six months after it was received, hardly a “rushed” effort in most people’s minds. In addition, the *AP* reported that on average a review of a paper at *Science* takes 109 days. In the case of the Karl study, it took 185 days to review it before publication.<sup>14</sup>

In December 2015, one month after the Majority sent this letter to Secretary of Commerce Penny Pritzker, Chairman Smith went further still in his allegations during an interview on *National Public Radio*.<sup>15</sup> Asked during his interview if the normal peer review process conducted at a major scientific journal like *Science* would have flagged any missing information or cherry picking of data, Chairman Smith said: “I don’t think *Science* magazine had access to a whistleblower like we did, saying it had been rushed and had not been sufficiently peer-reviewed.” He continued: “And, you know, *Science* magazine may have its own bias. I don’t know, maybe they wanted to rush it out before the Paris [climate change] summit as well.”<sup>16</sup>

The Chairman of the House Science Committee had just accused the well-respected publication *Science*, founded in 1880 with seed money from Thomas Edison and today published by the American Association for the Advancement of Science (AAAS), the world’s oldest and largest general science organization serving 10 million people, of potentially conspiring with NOAA and the Obama Administration to intentionally alter a climate change study for political purposes. These accusations were made with zero public evidence to support these bold and brazen claims. The Majority has never shared the e-mails they reportedly have that they believe justifies these claims with Democratic Members or staff, NOAA, or with the public.

---

<sup>13</sup> “Smith Statement on Paris Climate Conference,” Majority Press Release, Committee on Science, Space and Technology, November 18, 2015, accessed here: <https://science.house.gov/news/press-releases/smith-statement-paris-climate-conference>

<sup>14</sup> Ibid.

<sup>15</sup> Nell Greenfieldboyce, “Is This Congressman’s Oversight An Effort To Hobble Climate Science?” Morning Edition, *National Public Radio*, December 7, 2015, accessed here: <http://www.npr.org/2015/12/07/458476435/is-this-congressmans-oversight-an-effort-to-hobble-climate-science>

<sup>16</sup> Ibid.

In December 2015 and January 2016, the Editorial Boards of three newspapers including *The Washington Post*, *Des Moines Register* and *New York Times* issued blistering editorials condemning the Majority’s investigation of NOAA and the Karl study.<sup>17</sup>

*The New York Times* wrote that the Majority’s “focus on a single study threatens to obscure a larger issue: The overwhelming majority of scientific evidence shows that the world climate is changing because of human activity. ... What is needed is action to mitigate climate change, not baseless criticisms of the scientific process.”<sup>18</sup>

*The Des Moines Register* pointed out how the actions of the Republican Chairman appear to have been intended to intimidate climate scientists. The paper’s editorial, titled: “*Lawmaker fights science with intimidation*,” said “Smith doesn’t have any reason to question the new findings [of NOAA’s Karl study] or the process by which the scientists reached their conclusions, all of which has been made public. He’s just looking for dirt that might call into question the scientists’ professionalism, or lend support to his unsubstantiated claim that they are distorting data to advance the political agenda of the president,” wrote the paper’s Editorial Board.<sup>19</sup>

Just last month, the *Boston Globe*’s Editorial Board also addressed the Majority’s investigation of the Karl study in its editorial titled, “*Pushing back against science deniers*.” The editorial focused on the Trump Administration’s war on science and observed, “In Congress, the House Committee on Science, Space, and Technology — which could theoretically be a check on any White House excess — is led by Representative Lamar Smith, a climate-change-denying Republican from Texas. Smith has used the panel’s subpoena power to try to obtain internal e-mails from government scientists about a global warming study he didn’t like in the journal *Science* — leading to a chill that has nothing to do with the weather.”<sup>20</sup>

Many major U.S science organizations, representing hundreds of thousands of scientists and engineers, including the American Association for the Advancement of Science (AAAS), American Chemical Society (ACS), American Geophysical Union (AGU), American Meteorological Society (AMS), American Statistical Association (ASA), Ecological Society of America (ESA), and Geological Society of America (GSA) also voiced their condemnation of the Majority’s investigation. In a letter to Chairman Smith signed by all seven of these organizations in November 2015, they said they had grave concerns about the Majority’s investigation into the Karl paper, describing it as an “inquest,” “despite a lack of public evidence

---

<sup>17</sup> See, “2015-A year of progress and buffoonery on climate change,” Editorial, *Washington Post*, January 2, 2016, accessed here: [https://www.washingtonpost.com/opinions/2015-a-year-of-progress-and-buffoonery-on-climate-change/2016/01/02/9ad6955c-af33-11e5-9ab0-884d1cc4b33e\\_story.html?utm\\_term=.cd34bb37fbc0](https://www.washingtonpost.com/opinions/2015-a-year-of-progress-and-buffoonery-on-climate-change/2016/01/02/9ad6955c-af33-11e5-9ab0-884d1cc4b33e_story.html?utm_term=.cd34bb37fbc0); “The Latest Attack on Climate Science,” Editorial, *New York Times*, December 4, 2015, accessed here: <http://www.nytimes.com/2015/12/04/opinion/the-latest-attack-on-climate-science.html>; “Editorial: Lawmaker fights science with intimidation,” Editorial, *The Des Moines Register*, December 2, 2015, accessed here: <http://www.desmoinesregister.com/story/opinion/editorials/2015/12/02/editorial-lawmaker-fights-science-intimidation/76581828/>

<sup>18</sup> “The Latest Attack on Climate Science,” Editorial, *New York Times*, December 4, 2015

<sup>19</sup> “Lawmaker fights science with intimidation,” *The Des Moines Register*, December 2, 2015

<sup>20</sup> “Pushing back against science deniers,” *The Boston Globe*, February 13, 2017, accessed here: <https://www.bostonglobe.com/opinion/editorials/2017/02/13/pushing-back-against-science-deniers/veuxtRZSY1Qa1S1hjNDjIN/story.html>



of scientific misconduct.” They also noted that the data and methodologies used in the Karl paper “have been publicly shared and discussed directly with the committee staff.”<sup>21</sup>

The letter went on to say: “Scientists and policymakers may disagree over the implications of scientific conclusions on climate change and other policy-relevant topics.

Disagreements about the interpretation of data, the methodology, and findings are part of daily scientific discourse. Scientists should not be subjected to fraud investigations or harassment simply for providing scientific results that some may see as politically controversial. Science cannot thrive when policymakers—regardless of party affiliation—use policy disagreements as a pretext to attack scientific conclusions without public evidence.”<sup>22</sup>

Eventually, the Majority’s investigation into NOAA and the Karl paper appeared to peter out in the spring of 2016 until the Majority’s interest in it was restarted again earlier this year.

*For a more detailed time-line of the Majority’s investigation of the Karl study see below.*

## Letter to Chairman Smith from Major U.S. Science Organizations, November 24, 2015

**“Disagreements about the interpretation of data, the methodology, and findings are part of daily scientific discourse. Scientists should not be subjected to fraud investigations or harassment simply for providing scientific results that some may see as politically controversial.”**

---

<sup>21</sup> Letter to Chairman Lamar Smith, Committee on Science, Space, and Technology, from American Association for the Advancement of Science (AAAS), American Chemical Society (ACS), American Geophysical Union (AGU), American Meteorological Society (AMS), American Statistical Association (ASA), Ecological Society of America (ESA), and Geological Society of America (GSA), November 24, 2015, accessed here: <https://sciencepolicy.agu.org/files/2013/07/Intersociety-NOAA-letter-11-24-2015.pdf>

<sup>22</sup> Ibid.

# Majority's NOAA Climate Investigation Timeline

<b>June 16, 2015</b> NOAA Staff Briefing	<ul style="list-style-type: none"><li>•NOAA provides a bipartisan briefing on the Karl study, explaining the datasets and methodologies in the Karl paper.</li></ul>
<b>July 14, 2015</b> Chairman Smith sends letter to NOAA Administrator Sullivan	<ul style="list-style-type: none"><li>•One month after Karl study published, Majority sends letter to NOAA requesting data used in study be made public. NOAA responds explaining data has been public since July 2014.</li></ul>
<b>September 10, 2015</b> Chairman Smith sends letter to NOAA Administrator Sullivan	<ul style="list-style-type: none"><li>•Majority reiterates previous request for data and says data not available in format the Chairman requested.</li></ul>
<b>September 25, 2015</b> Chairman Smith sends letter to NOAA Administrator Sullivan	<ul style="list-style-type: none"><li>•Chairman repeats previous requests, accuses NOAA of withholding data and threatens subpoena. NOAA responds Oct. 2, linking to public datasets, citing methodology in Karl study and lists seven other papers that used similar methods.</li></ul>
<b>October 13, 2015</b> Chairman Smith Issues Subpoena to NOAA	<ul style="list-style-type: none"><li>•Subpoena for all communication between NOAA employees regarding (publicly available) global temperature datasets used in Karl paper. NOAA provides 2nd briefing to Committee staff Oct. 19th and letter Oct. 27th reiterating NOAA has cooperated.</li></ul>
<b>November 4, 2015</b> Chairman Smith sends letter to NOAA Administrator Sullivan	<ul style="list-style-type: none"><li>•Letter requests documents, communications and datasets, as well as transcribed interviews with Dr. Karl and three other NOAA employees, including NOAA's Chief Scientist.</li></ul>
<b>November 13, 2015</b> Chairman Smith sends letter to Commerce Secretary Pritzker	<ul style="list-style-type: none"><li>•Chairman Smith accuses NOAA of a "public relations effort better suited to an advertising campaign," referring to a tweet sent by NOAA informing the public of the Karl study.</li></ul>
<b>November 18, 2015</b> Chairman Smith sends letter to Commerce Secretary Pritzker	<ul style="list-style-type: none"><li>•In this seventh letter the Majority says "whistleblowers" claim the Karl study was "rushed" to publication, although the timing does not make sense. Chairman also postpones the transcribed interviews. NOAA sends documents in Dec. and March.</li></ul>
<b>February 22, 2016</b> Chairman Smith sends letter to NOAA Administrator Sullivan	<ul style="list-style-type: none"><li>•The Majority demands additional search terms be used saying previous document production not adequate and claims Karl paper did not comply with Data Quality Act. NOAA provides more documents March 15th that refutes these accusations.</li></ul>
<b>March 15, 2016</b> Chairman Smith sends letter to NOAA Administrator Sullivan	<ul style="list-style-type: none"><li>•NOAA sends response letter to February 22nd letter on same day Chairman sends NOAA letter chastising them for missing the deadline in their response to the Feb. 22nd letter.</li></ul>
<b>February 14, 2017</b> Chairman Smith sends letter to Acting NOAA Administrator	<ul style="list-style-type: none"><li>•Reinvigorated by the Bates allegations about the Karl study Chairman Smith sends a new request for all documents and communications related to the Karl study. NOAA responds with a production of documents on February 28th.</li></ul>

## The Bates Allegations and the Majority's Manipulation of Facts

Despite the long lull in the Majority's NOAA investigation, last month the Majority's interest in the Karl study was reignited. On Saturday, February 4, 2017, the blog *Climate Etc.* run by Majority hearing witness and climate skeptic Dr. Judith Curry, published a blog-post by former NOAA scientist, Dr. John Bates.<sup>23</sup> The post alleged that the Karl paper violated scientific integrity guidelines and publishing standards related to how its data was stored and archived.

Importantly, Dr. Bates reportedly was in charge of the Karl manuscript's review at NOAA and signed off on the scientific integrity of the paper before it was submitted to *Science*. He has not questioned the scientific integrity of the paper but did reportedly raise issues internally at NOAA after the paper was published regarding the format and accessibility of the study's climate data, although this data was publicly available a year before the Karl study was published in *Science*.

The controversial British reporter David Rose also published a story in the British tabloid, *The Mail on Sunday* (a sister publication of *The Daily Mail*), on the evening of February 4<sup>th</sup> that was updated on Sunday, February 5<sup>th</sup>, with an explosive headline: "**Exposed: How world leaders were duped into investing billions over manipulated global warming data.**" The story was based around an interview with Dr. Bates and focused on the Karl study.<sup>24</sup> In neither Judith Curry's blog-post or *The Mail on Sunday* story did Dr. Bates question the conclusions of the Karl study or suggest that data had been "manipulated." But that is the narrative that took hold and spread amongst the climate denial network. It was also touted by the Science Committee Majority as justification for their nearly two-year long investigation of the Karl study.

David Rose, the author of *The Mail on Sunday* story has been repeatedly criticized by climate scientists for relying on questionable data and misinterpreting scientific findings. He has also peddled some unconventional scientific views, writing in 2010, for instance, that the world was about to enter a mini ice age.<sup>25</sup> The United Kingdom's National Weather Service, known as the Met Office, has issued public responses to erroneous information provided by Mr. Rose in his reporting regarding climate change issues on at least four separate occasions in 2012, 2013 and 2014.<sup>26</sup> Responding to a story written by David Rose in a January 29, 2012 press release the Met Office wrote: "This article includes numerous errors in the reporting of published peer reviewed

---

<sup>23</sup> John Bates, "Climate scientists versus climate data," *Climate Etc.*, posted on February 4, 2017, accessed here: <https://judithcurry.com/2017/02/04/climate-scientists-versus-climate-data/>

<sup>24</sup> David Rose, "Exposed: How world leaders were duped into investing billions over manipulated global warming data," *The Mail on Sunday*, February 4, 2017, (Hereafter, *The Mail on Sunday* story), accessed here: [www.dailymail.co.uk/sciencetech/article-4192182/World-leaders-duped-manipulated-global-warming-data.html](http://www.dailymail.co.uk/sciencetech/article-4192182/World-leaders-duped-manipulated-global-warming-data.html)

<sup>25</sup> David Rose, "The mini ice age starts here," *The Mail on Sunday*, January 9, 2010, accessed here: <http://www.dailymail.co.uk/sciencetech/article-1242011/DAVID-ROSE-The-mini-ice-age-starts-here.html>

<sup>26</sup> See: "Met Office in the Media: 29 January 2012," Met Office Press Office, accessed here: <https://blog.metoffice.gov.uk/2012/01/29/met-office-in-the-media-29-january-2012/>;

"Met Office in the Media: 14 October 2012," Met Office Press Office, accessed here: <https://blog.metoffice.gov.uk/2012/10/14/met-office-in-the-media-14-october-2012/>;

"Met Office in the Mail on Sunday," posted on 15 September, 2013 by Met Office Press Office, accessed here: <https://blog.metoffice.gov.uk/2013/09/15/met-office-in-the-mail-on-sunday/>; and

"Met Office in the Media: 16 February 2014, response by Professor Mat Collins and the Met Office," Posted on 17 February, 2014 by Met Office Press Office, accessed here: <https://blog.metoffice.gov.uk/2014/02/17/met-office-in-the-media-16-february-2014-response-by-professor-mat-collins-and-the-met-office/>

science undertaken by the Met Office Hadley Centre and for Mr. Rose to suggest that the latest global temperatures available show no warming in the last 15 years is entirely misleading.”<sup>27</sup>

In his blog post and *The Mail on Sunday* story, Dr. Bates claimed the *Science* article was “rushed” to publication, primarily by Dr. Karl, that the Obama Administration wanted it released prior to the U.N. sponsored Paris Climate Conference, and he suggested that Dr. Karl cut corners to push the paper out. These allegations have been examined by multiple media outlets who have seen documents provided by Dr. Bates reportedly supporting his claims and they have suggested these critiques of the Karl paper amount to nothing more than an inter-office spat.<sup>28</sup> Multiple scientists, some associated with NOAA, and others not, have also suggested to the media that some of Dr. Bates’ criticisms are simply inaccurate and others grossly overstated.

### Who’s Manipulating Whom?

The Science Committee Majority was quick to seize on this new flurry of media attention to the



#### Former NOAA Scientist Confirms Colleagues Manipulated Climate Records

Feb 5, 2017 | Press Release

earlier. They wasted no time. One day after Dr. Bates was featured in *The Daily Mail* story and wrote his own blog on Judith Curry’s blog-post, the Science Committee Majority sent out a press release, on February 5, 2017, with the headline: “Former NOAA Scientist Confirms Colleagues Manipulated Climate Records.”<sup>29</sup>

However, the following day, on February 6, 2017, Dr. Bates gave two interviews to *E&E News* and the *Associated Press*. Perhaps not surprisingly, in both interviews Dr. Bates strongly denied the

NOAA study. Finally, perhaps, this new media attention could provide the Majority with some sort of justification for the sweeping and unsubstantiated claims they had been making against NOAA and the NOAA-scientists involved in the publication of the Karl study that began more than 18 months

**Dr. John Bates, former NOAA scientist**

**“It's not trumped up data in any way shape or form.”**

<sup>27</sup> “Met Office in the Media: 29 January 2012,” Official blog of the Met Office news team, January 29, 2012, accessed here: <https://blog.metoffice.gov.uk/2012/01/29/met-office-in-the-media-29-january-2012/>;

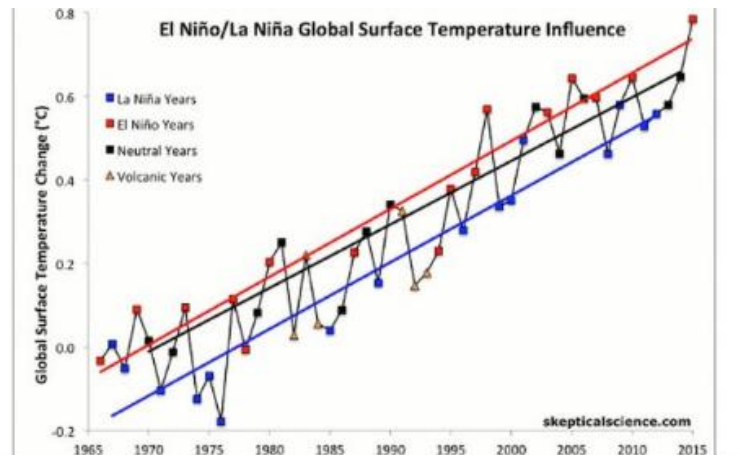
<sup>28</sup> See, Hiroko Tabuchi, “How an Interoffice Spat Erupted Into a Climate-Change Furor,” *New York Times*, February 20, 2017, accessed here: [https://www.nytimes.com/2017/02/20/business/energy-environment/climate-change-dispute-john-bates.html?\\_r=0](https://www.nytimes.com/2017/02/20/business/energy-environment/climate-change-dispute-john-bates.html?_r=0); Scott Waldman, “‘Whistleblower’ says protocol was breached but no data fraud,” *E&E News*, February 7, 2017, accessed here: <http://www.eenews.net/stories/1060049630>; Warren Cornwall and Paul Voosen, “How a culture clast at NOAA led to a flap over a high-profile warming pause study,” *ScienceInsider*, February 8, 2017, accessed here: <http://www.sciencemag.org/news/2017/02/how-culture-clash-noaa-led-flap-over-high-profile-warming-pause-study>; Seth Borenstein and Michael Biesecker, “Major global warming study again questioned, again defended,” *Associated Press (AP)*, February 7, 2017, accessed here: <http://bigstory.ap.org/article/3fc5d49a349344f1967aadc4950e1a91/major-global-warming-study-again-questioned-again-defended>;

<sup>29</sup> “Former NOAA Scientist Confirms Colleagues Manipulated Climate Records,” (Republican) Press Release, Committee on Science, Space & Technology, February 5, 2017, accessed here: <https://science.house.gov/news/press-releases/former-noaa-scientist-confirms-colleagues-manipulated-climate-records>



claims of data “manipulation” being touted by the Science Committee Majority. “The issue here is not an issue of tampering with data,” Bates told *E&E News*, “but rather really of timing of a release of a paper that had not properly disclosed everything it was,” he said. Bates did suggest the Karl paper was “rushed” to publication and that NOAA data was not properly archived.<sup>30</sup> Bates had stronger words for the *Associated Press* regarding the lack of manipulation, however. He told the *AP* his concerns centered on the way the data was handled, documented and stored. Bates, who acknowledged to the *AP* that man-made carbon dioxide emissions are contributing to global warming, said that there was “no data tampering, no data changing, nothing malicious,” regarding the Karl study. “It’s really a story of not disclosing what you did,” Bates said in the interview. “It’s not trumped up data in any way shape or form,” he said.<sup>31</sup> No wonder the Majority did not invite Dr. Bates as a witness to the March 29<sup>th</sup> Climate Science hearing.

Interestingly, although there is no specific connection to the publishing of the Bates story, on February 8, 2017, four days after *The Daily Mail* published its story on Bates’ criticisms of the Karl study, the editors of Wikipedia voted to bar *The Daily Mail* as a source of reference in its entries. They said the media outlet was “generally unreliable” and had a “reputation for poor fact checking, sensationalism and flat-out fabrication,” according to a story published by *Fox News*.<sup>32</sup> Wikipedia also notes that *The Daily Mail* “has been accused of racism, and printing sensationalist and inaccurate scare stories of science and medical research.”<sup>33</sup>



**The Weather Channel**   [Follow](#)  
@weatherchannel

Note to @BreitbartNews: Earth Is Not Cooling, Climate Change Is Real and Stop Using Our Video to Mislead Americans  
[wxch.nl/2gzJpQG](http://wxch.nl/2gzJpQG)  
2:38 PM - 6 Dec 2016

The Majority, however, seems consistently unperturbed by the sources they rely upon to justify their “investigations” or to attempt to validate their political positions. They often go to great lengths to cling onto stories, regardless of the source or the validity of the contents, that appear to align with their political viewpoints, regardless of how unscientific or fraught with falsehoods they may be. One example of this occurred last December when *Breitbart News* published a story with the misleading headline, “Global Temperatures Plunge. Icy Silence from Climate

<sup>30</sup> Scott Waldman, “Whistleblower’ says protocol was breached but no data fraud,” *E&E News*, February 7, 2017, accessed here: <http://www.eenews.net/stories/1060049630>

<sup>31</sup> Seth Borenstein and Michael Biasecker, “Major global warming study again questioned, again defended,” *Associated Press*, February 7, 2017, accessed here: <http://bigstory.ap.org/article/3fc5d49a349344f1967aac4950e1a91/major-global-warming-study-again-questioned-again-defended>

<sup>32</sup> “Wikipedia bans editors from citing Daily Mail as source,” *Fox News*, February 9, 2017, accessed here: <http://www.foxnews.com/tech/2017/02/09/wikipedia-bans-editors-from-citing-daily-mail-as-source.html>

<sup>33</sup> [https://en.wikipedia.org/wiki/Daily\\_Mail](https://en.wikipedia.org/wiki/Daily_Mail)



Alarmists.”<sup>34</sup> Even the staid Weather Channel weighed in on the misleading *Breitbart News* article tweeting, “Note to @BreitbartNews: Earth is Not Cooling, Climate Change is Real and Stop Using Our Video to Mislead Americans.”<sup>35</sup> The Weather Channel’s response, including a video response, was to point out how those that deny climate change often use misleading or simply false information in an attempt to validate their opinions. Indeed, it is well established that the vast majority of climate scientists (97% or more) agree that global warming is real and largely the result of human caused fossil fuel production. These scientists may disagree on specific analyses or conclusions, but they agree that there is a solid scientific consensus regarding the reality of climate change and its causes.<sup>36</sup>

The tweet condemning the *Breitbart News* story could have easily been directed to the Science Committee Majority, who re-tweeted the misleading *Breitbart News* story multiple times. The irony of the Science Committee re-tweeting misleading scientific information from *Breitbart News* was not lost on the media, including *Scientific American*, *The Boston Globe*, *New York Times*, and *NBC News*.<sup>37</sup>

The *Breitbart News* story had in fact been repackaged from a story originally reported by David Rose of *The Daily Mail*. The author of the *Breitbart* story, however, James Delingpole, had his own shoddy climate change history, according to a story in *Ars Technica* by Scott Johnson titled: “US House Science Committee tweets *Breitbart* climate misinformation. “Global temperatures plunge,” the article falsely exclaims.” Johnson wrote that “Delingpole famously admitted” in an

---

<sup>34</sup> James Delingpole, “Global Temperatures Plunge. Icy Silence from Climate Alarmists,” November 30, 2016, accessed here: <http://www.breitbart.com/london/2016/11/30/global-temperatures-plunge-icy-silence-climate-alarmists/>

<sup>35</sup> The Weather Channel’s print and video response to *Breitbart News* story and re-tweeting of the story by the Committee on Science, Space & Technology, December 6, 2016, accessed here:

[https://weather.com/news/news/breitbart-misleads-americans-climate-change?cm\\_ven=T\\_WX\\_CD\\_120616\\_2](https://weather.com/news/news/breitbart-misleads-americans-climate-change?cm_ven=T_WX_CD_120616_2)

<sup>36</sup> See, for example: The Consensus Project, accessed here: <http://theconsensusproject.com> and James Lawrence Powell, Science and Global Warming, accessed here: [www.jamespowell.org/methodology/newmethodology.html](http://www.jamespowell.org/methodology/newmethodology.html)

<sup>37</sup> See, Ryan F. Mandelbaum, “The 9 Best Reactions to the House Science Committee’s *Breitbart* Tweet; Experts condemn lawmakers’ decision to promote fallacious article from conservative news site,” *Scientific American*, December 2, 2016, accessed here: <https://www.scientificamerican.com/article/the-9-best-reactions-to-the-house-science-committees-breitbart-tweet/>;

Aimee Ortiz and Nicole Hernandez, “House committee feels the heat after *Breitbart* tweet,” *The Boston Globe*, December 2, 2016, accessed here:

<https://www.bostonglobe.com/news/nation/2016/12/02/house-science-committee-feeling-heat-after-breitbart-tweet/vnFgs7BvZdQMTMzqiSQU5N/story.html>;

Henry Fountain, “News Report on Global Temperatures is Wrong, Scientists Say,” *The New York Times*, December 2, 2012, accessed here:

<https://www.nytimes.com/2016/12/02/science/global-warming-daily-mail-breitbart.html>;

Phil McCausland, “House Science Committee Tweets Climate-Change Denying *Breitbart* Article,” *NBC News*, December 2, 2016, accessed here: <http://www.nbcnews.com/news/us-news/house-science-committee-tweets-climate-change-denying-breitbart-article-debunked-n690986>

interview with the *BBC* show *Horizon* “that he never reads scientific papers and called himself “an interpreter of interpretations.”<sup>38</sup>

None of this should be surprising. One week before *The Daily Mail* ran its February 4<sup>th</sup> story on the Karl study the Chairman of the House Science Committee, Lamar Smith, walked onto the House floor and berated the “national liberal media” and suggested to Americans that it is better to “get your news directly from the President” if they wanted “to get the unvarnished truth.”<sup>39</sup> The notion that the Chairman of the House Science Committee believes that Donald Trump is more ‘truthful’ than the mainstream media is deeply disturbing, but is important to understand in evaluating the Majority’s positions regarding important scientific issues, such as climate change.

Meanwhile, the criticisms by Dr. Bates of the Karl study are problematic not just because they have been so contorted by the Majority and renounced by many independent scientists. But there are other reasons to assess these claims cautiously. In 2012, when Dr. Bates was the Director of the Remote Sensing and Applications Division at NOAA’s National Climatic Data Center (NCDC) and was in charge of about one dozen other scientists and staff, there were multiple complaints against him regarding his demeanor to his colleagues and subordinates. In one case he was reportedly barred from entering another employee’s office because she felt threatened by him. Dr. Karl was the Director of NCDC at the time and Dr. Bates’ second line supervisor, but made the decision based on these complaints to remove Dr. Bates’s from his supervisory management position.<sup>40</sup> Dr. Bates became one of two Principal Scientists at the center and, according to some former NOAA scientists, Dr. Bates was bitter about this demotion and told some colleagues that he believed he was demoted because Dr. Karl was “jealous” of him. He also reportedly said that he, not Dr. Karl, should be the one running the center. It is unclear if any of these issues played any role in Dr. Bates comments about the Karl paper or not.

In addition, according to several former NOAA scientists, at the time the Karl paper was being produced for publication, in 2014, as Principal Scientist Dr. Bates was in charge of reviewing the scientific integrity of the actual manuscript that would be submitted to the journal *Science*. Dr. Bates, according to these former NOAA employees, never raised issues with the paper and did not suggest that data was being manipulated or the publication rushed. After the study’s publication, however, he did raise concerns about the type of format the climate data in the study

---

<sup>38</sup> Scott Johnson, “US House Science Committee tweets Breitbart climate misinformation. “Global temperatures plunge,” the article falsely exclaims,” *Ars Technica*, December 2, 2016, accessed here:

<https://arstechnica.com/science/2016/12/us-house-science-committee-tweets-breitbart-climate-misinformation/>

<sup>39</sup> See, David Weigel, “House Science Committee Chairman: Americans Should Get News From Trump Not Media,” *The Washington Post*, January 25, 2017, accessed here:

[https://www.washingtonpost.com/news/powerpost/wp/2017/01/25/house-science-committee-chairman-americans-should-get-news-from-trump-not-media/?utm\\_term=.1ef0b9a17314](https://www.washingtonpost.com/news/powerpost/wp/2017/01/25/house-science-committee-chairman-americans-should-get-news-from-trump-not-media/?utm_term=.1ef0b9a17314); Theodore Schleifer, “House science chairman: ‘Get your news directly from the president’,” *CNN*, January 25, 2017, accessed here:

<http://www.cnn.com/2017/01/25/politics/lamar-smith-donald-trump-news/>; Kevin Freking, “Texas Rep. Lamar Smith: Get news from Donald Trump, not media,” Associated Press, January 26, 2017, accessed here:

<http://www.chron.com/news/politics/article/House-Science-chairman-Get-news-from-Trump-not-10886187.php>

<sup>40</sup> See, Hiroko Tabuchi, “How an Interoffice Spat Erupted Into a Climate-Change Furor,” *New York Times*, February 20, 2017, accessed here: [www.nytimes.com/2017/02/20/business/energy-environment/climate-change-dispute-john-bates.html?\\_r=0](http://www.nytimes.com/2017/02/20/business/energy-environment/climate-change-dispute-john-bates.html?_r=0); and Warren Cornwall and Paul Voosen, “How a culture clast at NOAA led to a flap over a high-profile warming pause study,” *ScienceInsider*, February 8, 2017, accessed here:

[www.sciencemag.org/news/2017/02/how-culture-clash-noaa-led-flap-over-high-profile-warming-pause-study](http://www.sciencemag.org/news/2017/02/how-culture-clash-noaa-led-flap-over-high-profile-warming-pause-study)

was in and how accessible it was, although the data had been publicly available for one year prior to the Karl study being published in *Science*.

Dr. Bates retired from NOAA in November 2016. In February 2017, just before he posted his blog-post on Judith Curry's website and *The Mail on Sunday* story came out Dr. Bates apparently ran into Dr. Tom Peterson, one of the co-authors of the Karl study, who was also a Principal Scientist at NOAA before he retired in 2015, at a play in Asheville, North Carolina. The two chatted during intermission and Dr. Peterson asked Dr. Bates how retirement was going. "It's about to get interesting," Dr. Bates reportedly replied. Soon after he returned to his seat Dr. Peterson began getting e-mails about Dr. Bates' blog-post on Judith Curry's website and *The Mail on Sunday* story. The play that Dr. Bates and Dr. Peterson attended that evening was William Shakespeare's *Much Ado About Nothing*. "That just strikes me as perfect," Dr. Peterson told *ScienceInsider*.<sup>41</sup>

### Scientific Support for The Karl Study

The Science Committee has come a long way in the past decade. It was once viewed as a bastion of nonpartisan support for science, and science-related issues. Back in 2005, the Chairman of the Energy and Commerce Committee, Joe Barton, had launched an investigation into climate scientist Michael Mann, not because of evidence of wrong doing, apparently because the Chairman appeared to disagree politically with Dr. Mann's conclusions regarding the reality of climate change. The Republican Chairman of the Science Committee at the time Sherwood Boehlert came to Dr. Mann's defense. On July 14, 2005, he wrote to Chairman Barton saying: "I am writing to express my strenuous objections to what I see as the misguided and illegitimate investigation you have launched concerning Dr. Michael Mann, his co-authors and sponsors." He went on, "My primary concern about your investigation is that its purpose seems to be to intimidate scientists rather than to learn from them, and to substitute Congressional political review

Former Republican Chairman of the Science Committee, Sherwood Boehlert in a 2005 letter to Joe Barton, Chairman of the Energy & Commerce Committee

"The precedent your investigation sets is truly chilling. . . . There are numerous scientific debates ongoing about climate change. Data and conclusions get challenged all the time. Are we going to launch biased investigations each time a difference appears in the literature?"

<sup>41</sup> Warren Cornwall and Paul Voosen, "How a culture clash at NOAA led to a flap over a high-profile warming pause study," *ScienceInsider*, February 8, 2017, accessed here: [www.sciencemag.org/news/2017/02/how-culture-clash-noaa-led-flap-over-high-profile-warming-pause-study](http://www.sciencemag.org/news/2017/02/how-culture-clash-noaa-led-flap-over-high-profile-warming-pause-study)

for scientific peer review,” wrote Chairman Boehlert. “The precedent your investigation sets is truly chilling. . . . There are numerous scientific debates ongoing about climate change. Data and conclusions get challenged all the time. Are we going to launch biased investigations each time a difference appears in the literature?” Boehlert asked.<sup>42</sup>

Chairman Boehlert’s letter was written twelve years ago this coming July and he probably never thought his words would so aptly apply to his own Committee.

More than anything, the Majority’s prolonged and tenuous investigation of the Karl study demonstrates not just a willingness to use their oversight authority to pursue a clearly political agenda, but also a fundamental misunderstanding of the scientific process. Legitimate disputes about scientific findings happen all the time among scientists. Divergent scientific conclusions do not point to some sort of conspiratorial plot or intentional efforts to mislead one’s peers or the public. Making those sorts of serious allegations, as the Majority has done about the Karl study, should be based on substantial facts and not idle speculation, preconceived personal beliefs, or vague accusations of unsupported misconduct.

The *Associated Press* interviewed the former editor of *Science* at the time the Karl paper went through the peer-review process and was published, Marica McNutt, who is now president of the National Academy of Sciences. She “praised Bates for wanting to highlight the importance of data archiving, but said his criticisms have little to do with the main part of the paper and chastised the House [Science Committee] for using issues of data archiving to try to discredit the 2015 study,” the *AP* reported. “The study has been reproduced independently of Karl et. al. — that’s the ultimate platinum test of whether a study is to be believed or not,” McNutt said. “And this study has passed.”<sup>43</sup>

The Karl study is based on verifiable data, and its well-respected scientist co-authors are not part of a nefarious conspiracy to deceive the world and trick them into believing in the reality of climate change. The Karl paper is a twice peer-reviewed scientific study that underwent six months of review by one of the world’s oldest and well-established scientific publications, the prominent journal *Science*. Its findings have been confirmed by at least six independent studies.

It is troubling that the Majority appears unable or unwilling to distinguish between politically motivated falsehoods supported by no factual evidence and legitimate scientific studies that may run counter to their political narrative about climate change. In the end, the Majority’s inquiry into the various allegations they have espoused about the Karl paper should be named after that Shakespeare play Dr. Bates attended, *Much Ado About Nothing*.

\*\*\*\*\*

A summary and links to some of the papers that have both used similar methodologies as the Karl study, which was criticized by the Majority, and to studies that have corroborated the study’s key finding that the global warming hiatus never actually occurred, are provided on the following pages.

---

<sup>42</sup> Letter from former Science Committee Chairman Sherwood Boehlert (R-NY) to Energy & Commerce Committee Chairman Joe Barton (R-TX), July 14, 2005, accessed here: <https://www.geo.umass.edu/climate/Boehlert.pdf>

<sup>43</sup> *Associated Press* story.

ABSTRACT	HIGHLIGHTS
<p>Observational data show a continued increase of hot extremes over land during the so-called global warming hiatus. This tendency is greater for the most extreme events and thus more relevant for impacts than changes in global mean temperature.</p>	<p><b>Based on existing observational evidence, we highlight that the term pause, as applied to the recent evolution of global annual mean temperatures, is ill-chosen and even misleading in the context of climate change. Indeed, an apparently static global mean temperature can mask large trends in temperatures at both regional and seasonal scales. More importantly, it is land-based changes in extreme temperatures, particularly those in hot extremes in inhabited areas, that have the most relevance for impacts. It seems only justifiable to discuss a possible pause in the Earth’s temperature increase if this term applies to a general behaviour of the climate system, and thus also to temperature extremes.</b></p> <p style="text-align: center;">*****</p> <p><b>However, we show that analyses based on observational data reveal no pause in the evolution of hot extremes over land since 1997.</b></p>





Boyin Huang, Viva F. Banzon, Eric Freeman, Jay Lawrimore, Wei Liu, Thomas C. Peterson, Thomas M. Smith, Peter W. Thorne, Scott D. Woodruff, Huai-Min Zhang, “**Extended Reconstructed Sea Surface Temperature Version 4 (ERSST.v4). Part I: Upgrades and Intercomparisons,**” *Journal of Climate*, American Meteorological Society, February 1, 2015, p. 911-930, accessed here:

<http://journals.ametsoc.org/doi/pdf/10.1175/JCLI-D-14-00006.1>

ABSTRACT	HIGHLIGHTS
<p>The monthly Extended Reconstructed Sea Surface Temperature (ERSST) dataset, available on global grids, has been revised herein to version 4 (v4) from v3b. Major revisions include updated and substantially more complete input data from the International Comprehensive Ocean–Atmosphere Data Set (ICOADS) release 2.5; revised empirical orthogonal teleconnections (EOTs) and EOT acceptance criterion; updated sea surface temperature (SST) quality control procedures; revised SST anomaly (SSTA) evaluation methods; updated bias adjustments of ship SSTs using the Hadley Centre Nighttime Marine Air Temperature dataset version 2 (HadNMAT2); and buoy SST bias adjustment not previously made in v3b. Tests show that the impacts of the revisions to ship SST bias adjustment in ERSST.v4 are dominant among all revisions and updates. The effect is to make SST 0.18–0.28C cooler north of 30S but 0.18–0.28C warmer south of 30S in ERSST.v4 than in ERSST.v3b before 1940. In comparison with the Met Office SST product [the Hadley Centre Sea Surface Temperature dataset, version 3 (HadSST3)], the ship SST bias adjustment in ERSST.v4 is 0.18–0.28C cooler in the tropics but 0.18–0.28C warmer in the midlatitude oceans both before 1940 and from 1945 to 1970.</p> <p>*****</p> <p>Comparisons indicate that SSTs in ERSST.v4 are as close to satellite-based observations as other similar SST analyses.</p>	<p><b>Sea surface temperature (SST) is one of the most important indicators of climate variability and long-term climate change.</b></p> <p>*****</p> <p><b>Large-scale multidecadal variations in the SST products are critically dependent on the bias adjustment of historical ship-based SST observations, since buoys and other automated platforms measuring SST were not introduced widely until the 1970s. The historical ship SST data were measured by a range of methods that have changed through time.</b></p> <p>*****</p> <p><b>To bias adjust for the changing measurement methodologies, quantitative estimates have been made of these various biases by different groups.</b></p>



**Thomas R. Karl**, Anthony Arguez, Boyin Huang, Jay H. Lawrimore, James R. McMahon, Matthew J. Menne, Thomas C. Peterson, Russell S. Vose, Huai-Min Zhang, *“Possible artifacts of data biases in the recent global surface warming hiatus,”* *Science*, 26 Jun 2015, Vol. 348, Issue 6242, pp. 1469-1472, accessed here:

<http://science.sciencemag.org/content/348/6242/1469>; Supplemental material accessed here: <http://science.sciencemag.org/content/sci/suppl/2015/06/03/science.aaa5632.DC1/Karl-SM.pdf>

ABSTRACT	HIGHLIGHTS
<p>Much study has been devoted to the possible causes of an apparent decrease in the upward trend of global surface temperatures since 1998, a phenomenon that has been dubbed the global warming “hiatus.” Here, we present an updated global surface temperature analysis that reveals that global trends are higher than those reported by the Intergovernmental Panel on Climate Change, especially in recent decades, and that the central estimate for the rate of warming during the first 15 years of the 21st century is at least as great as the last half of the 20th century. These results do not support the notion of a “slowdown” in the increase of global surface temperature.</p> <p style="text-align: center;">*****</p> <p>Editor’s Summary</p> <p><b>Walking back talk of the end of warming</b></p> <p>Previous analyses of global temperature trends during the first decade of the 21st century seemed to indicate that warming had stalled. This allowed critics of the idea of global warming to claim that concern about climate change was misplaced. Karl et al. now show that temperatures did not plateau as thought and that the supposed warming “hiatus” is just an artifact of earlier analyses. Warming has continued at a pace similar to that of the last half of the 20th century, and the slowdown was just an illusion.</p>	<p><b>“Newly corrected and updated global surface temperature data from NOAA’s NCEI do not support the notion of a global warming “hiatus.” As shown in Fig. 1, there is no discernable (statistical or otherwise) decrease in the rate of warming between the second half of the 20<sup>th</sup> century and the first 15 years of the 21st century. Our new analysis now shows that the trend over the period 1950–1999, a time widely agreed as having significant anthropogenic global warming, is 0.113°C decade, which is virtually indistinguishable from the trend over the period 2000–2014 (0.116°C decade). Even starting a trend calculation with 1998, the extremely warm El Niño year that is often used as the beginning of the “hiatus,” our global temperature trend (1998–2014) is 0.106°C decade—and we know that is an underestimate because of incomplete coverage over the Arctic. Indeed, according to our new analysis, the IPCC’s statement of 2 years ago—that the global surface temperature “has shown a much smaller increasing linear trend over the past 15 years than over the past 30 to 60 years”—is no longer valid.”</b></p>



Kevin Cowtan<sup>1</sup>, Zeke Hausfather, Ed Hawkins, Peter Jacobs, Michael E. Mann, Sonya K. Miller, Byron A. Steinman, Martin B. Stolpe, Robert G. Way, “**Robust comparison of climate models with observations using blended land air and ocean sea surface temperatures,**” August 2015, *American Geophysical Union*, accessed here:

[https://www.researchgate.net/publication/280571227\\_Robust\\_comparison\\_of\\_climate\\_models\\_with\\_observations\\_using\\_blended\\_land\\_air\\_and\\_ocean\\_sea\\_surface\\_temperatures](https://www.researchgate.net/publication/280571227_Robust_comparison_of_climate_models_with_observations_using_blended_land_air_and_ocean_sea_surface_temperatures)

ABSTRACT	HIGHLIGHTS
<p>The level of agreement between climate model simulations and observed surface temperature change is a topic of scientific and policy concern. While the Earth system continues to accumulate energy due to anthropogenic and other radiative forcings, estimates of recent surface temperature evolution fall at the lower end of climate model projections. Global mean temperatures from climate model simulations are typically calculated using surface air temperatures, while the corresponding observations are based on a blend of air and sea surface temperatures. This work quantifies a systematic bias in model-observation comparisons arising from differential warming rates between sea surface temperatures and surface air temperatures over oceans. A further bias arises from the treatment of temperatures in regions where the sea ice boundary has changed. Applying the methodology of the HadCRUT4 record to climate model temperature fields accounts for 38% of the discrepancy in trend between models and observations over the period 1975-2014.</p>	<p><b>The new dataset of Karl et al. [2015] incorporates adjustments to SSTs to match nighttime marine air temperatures [Huang et al., 2015] and so may be more comparable to model air temperatures. The difference between air and sea surface temperature trends diagnosed here provides support for an increase in temperature trends when using marine air temperatures, as reported in Karl et al. [2015].</b></p>



Foster, G. and Abraham, J, **“Lack of evidence for a slowdown in global temperature,”** *US Climate Variability and Predictability (CLIVAR) Variations, Vol. 13, No. 3, page 6-9, Summer 2015, accessed here:*

[https://usclivar.org/sites/default/files/documents/2015/Variations2015Summer-1\\_0.pdf](https://usclivar.org/sites/default/files/documents/2015/Variations2015Summer-1_0.pdf)

ABSTRACT	HIGHLIGHTS
<p>The climate science community has reached a near consensus that the warming rate of global surface temperature has exhibited a slowdown over the last decade to decade and a half. However, genuine robust statistical evidence of its existence is lacking. We test the hypothesis by numerous statistical tests applied to global temperature time series and find no evidence to support claims of a slowdown in the trend.</p>	<p><b>“Our results show that the widespread acceptance of the idea of a recent slowdown in the increase of global average surface temperature is not supported by analytical evidence.”</b></p> <p style="text-align: center;">*****</p> <p><b>“... those who deny that manmade global warming is a danger have actively engaged in a public campaign to proclaim not just a slowdown in surface temperature increase, but a complete halt to global warming. Their efforts have been pervasive, so that in spite of lack of evidence to back up such claims, they have effectively sown the seeds of doubt in the public, the community of journalists, and even elected officials.”</b></p>



Rajaratnam, B., Romano, J., Tsiang, M. et al., “*Debunking the climate hiatus,*” *Climatic Change*. Vol. 133, Issue 2, pp 129 – 140, November 2015, accessed here: <http://link.springer.com/article/10.1007/s10584-015-1495-y>

ABSTRACT	HIGHLIGHTS
<p>The reported “hiatus” in the warming of the global climate system during this century has been the subject of intense scientific and public debate, with implications ranging from scientific understanding of the global climate sensitivity to the rate in which greenhouse gas emissions would need to be curbed in order to meet the United Nations global warming target. A number of scientific hypotheses have been put forward to explain the hiatus, including both physical climate processes and data artifacts. However, despite the intense focus on the hiatus in both the scientific and public arenas, rigorous statistical assessment of the uniqueness of the recent temperature time-series within the context of the long-term record has been limited. We apply a rigorous, comprehensive statistical analysis of global temperature data that goes beyond simple linear models to account for temporal dependence and selection effects. We use this framework to test whether the recent period has demonstrated i) a hiatus in the trend in global temperatures, ii) a temperature trend that is statistically distinct from trends prior to the hiatus period, iii) a “stalling” of the global mean temperature, and iv) a change in the distribution of the year-to-year temperature increases. We find compelling evidence that recent claims of a “hiatus” in global warming lack sound scientific basis. Our analysis reveals that there is no hiatus in the increase in the global mean temperature, no statistically significant difference in trends, no stalling of the global mean temperature, and no change in year-to-year temperature increases.</p>	<p><b>“We find compelling evidence that recent claims of a “hiatus” in global warming lack sound scientific basis. Our analysis reveals that there is no hiatus in the increase in the global mean temperature, no statistically significant difference in trends, no stalling of the global mean temperature, and no change in year-to-year temperature increases.”</b></p> <p style="text-align: center;">*****</p> <p><b>“Our rigorous statistical framework yields strong evidence against the presence of a global warming hiatus.”</b></p>





ABSTRACT	HIGHLIGHTS
<p>Recent public debate and the scientific literature have frequently cited a “pause” or “hiatus” in global warming. Yet, multiple sources of evidence show that climate change continues unabated, raising questions about the status of the “hiatus”. To examine whether the notion of a “hiatus” is justified by the available data, we first document that there are multiple definitions of the “hiatus” in the literature, with its presumed onset spanning a decade. For each of these definitions we compare the associated temperature trend against trends of equivalent length in the entire record of modern global warming. The analysis shows that the “hiatus” trends are encompassed within the overall distribution of observed trends. We next assess the magnitude and significance of all possible trends up to 25 years duration looking backwards from each year over the past 30 years. At every year during the past 30 years, the immediately preceding warming trend was always significant when 17 years (or more) were included in the calculation, alleged “hiatus” periods notwithstanding. If current definitions of the “pause” used in the literature are applied to the historical record, then the climate system “paused” for more than 1/3 of the period during which temperatures rose 0.6K.</p>	<p><b>“In this article, we show that even putting aside possible artifacts in the temperature record, there is no substantive evidence for a “pause” or “hiatus” in warming. We suggest that the use of those terms is therefore inaccurate.”</b></p> <p>*****</p> <p><b>“When one extends the period looking backwards in time, the warming trend is always significant, and the most recent vantage point(s) do not differ systematically from earlier vantage points. It follows that the data do not permit identification of a “pause” or “hiatus” during the last 10–20 years.”</b></p> <p>*****</p> <p><b>“We conclude that the evidence does not support the notion of a “pause” or “hiatus” as an identifiable phenomenon....”</b></p>



Lewandowsky, S., Risbey, J.S., and Oreskes, N, *“The “pause” in global warming – turning a routine fluctuation into a problem for science,”* *Bulletin of the American Meteorological Society (BAMS)*, May 2016, Vol. 97, No. 5. (in final form on August 27, 2015), published online on June 3, 2016, accessed here: <http://dx.doi.org/10.1175/BAMS-D-14-00106.1>

ABSTRACT	HIGHLIGHTS
<p>There has been much recent published research about a putative “pause” or “hiatus” in global warming. We show that there are frequent fluctuations in the rate of warming around a longer-term warming trend, and that there is no evidence that identifies the recent period as unique or particularly unusual. In confirmation, we show that the notion of a pause in warming is considered to be misleading in a blind expert test. Nonetheless, the most recent fluctuation about the longer-term trend has been regarded by many as an explanatory challenge that climate science must resolve. This departs from long-standing practice, insofar as scientists have long recognized that the climate fluctuates, that linear increases in CO<sub>2</sub> do not produce linear trends in global warming, and that 15-yr (or shorter) periods are not diagnostic of long-term trends. We suggest that the repetition of the “warming has paused” message by contrarians was adopted by the scientific community in its problem-solving and answer-seeking role and has led to undue focus on, and mislabeling of, a recent fluctuation. We present an alternative framing that could have avoided inadvertently reinforcing a misleading claim.</p>	<p><b>“Concerning the recent fluctuation, we have shown that its framing as a pause or hiatus that constitutes a problem for greenhouse warming is incorrect, because it is not meaningfully different from other fluctuations in warming rate.”</b></p> <p style="text-align: center;">*****</p> <p><b>“The claim that global warming uniquely “stopped” during any recent 15-yr period is therefore not sustainable.”</b></p>

Hausfather, Z. et al, “Assessing recent warming using instrumentally homogenous sea surface temperature records,” *Science Advances*, Vol. 3, no. 1, January 4, 2017, accessed here: <http://advances.sciencemag.org/content/3/1/e1601207.full>

ABSTRACT	HIGHLIGHTS
<p>Sea surface temperature (SST) records are subject to potential biases due to changing instrumentation and measurement practices. Significant differences exist between commonly used composite SST reconstructions from the National Oceanic and Atmospheric Administration’s Extended Reconstruction Sea Surface Temperature (ERSST), the Hadley Centre SST data set (HadSST3), and the Japanese Meteorological Agency’s Centennial Observation-Based Estimates of SSTs (COBE-SST) from 2003 to the present. The update from ERSST version 3b to version 4 resulted in an increase in the operational SST trend estimate during the last 19 years from 0.07° to 0.12°C per decade, indicating a higher rate of warming in recent years. We show that ERSST version 4 trends generally agree with largely independent, near-global, and instrumentally homogeneous SST measurements from floating buoys, Argo floats, and radiometer-based satellite measurements that have been developed and deployed during the past two decades. We find a large cooling bias in ERSST version 3b and smaller but significant cooling biases in HadSST3 and COBE-SST from 2003 to the present, with respect to most series examined. These results suggest that reported rates of SST warming in recent years have been underestimated in these three data sets.</p>	<p><b>“We find a large cooling bias in ERSST version 3b and smaller but significant cooling biases in HadSST3 and COBE-SST from 2003 to the present, with respect to most series examined. These results suggest that reported rates of SST warming in recent years have been underestimated in these three data sets.</b></p> <p><b>Overall, these results suggest that the new ERSSTv4 record represents the most accurate composite estimate of global SST trends during the past two decades and thus support the finding that previously reported rates of surface warming in recent years have been underestimated.”</b></p>