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Lessons Learned from “Climategate:” The Importance of I.C.E. (Information, Communication, Education) for Global Warming and Other Topics

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“Greenhouse Effect”

Svante Arrhenius

- “On the Influence of Carbonic Acid in the Air Upon the Temperature of the Ground,” *Philosophical Magazine* 1896 (41): 237-76
- CO₂ doubling would increase temperature 5-6°C (7-11°F)
 - IPCC 2007: 2-4.5°C
- Predicted CO₂ doubling would take 3,000 years
 - Current prediction: 100 years
- 1903 Nobel Prize Chemistry



Nov '09 ~ Apr '10



■ Hacked (aka “STOLEN) emails

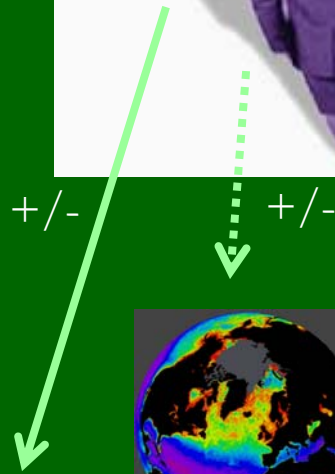
- Climatic Research Unit
 - UK University of East Anglia
 - Phil Jones steps down
- Michael Mann;s “hockey stick” questioned--AGAIN
- Data is “Hoax”
 - Mislead everyone
 - Eroded trust
 - Great Confusion
- Papers blocked from being published
- Ice-melting errors
- East Coast Snow Storms

Decisions

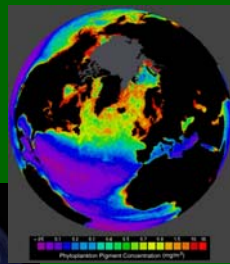


Decision Making Process

Data



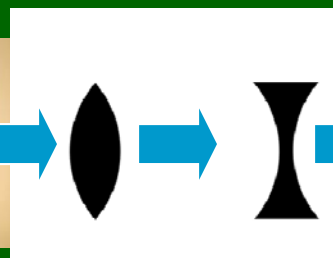
Real (objective)



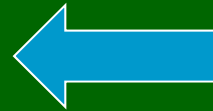
Perceived (subjective)



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HOME U.S. WORLD BUSINESS POLITI

Do E-Mails Reveal
Scientist Claims
On Climate
Change are...



BUNK?

NASA

Hackers break into servers of a major British climate change research facility and purportedly uncover e-mails urging scientists to 'hide the decline' of temperatures, manipulate data and silence skeptics.

The New York Times

An Editor in the White House

Environmental Security, appear on the draft reports by the Climate Change Science Program on Global Change Research. Mr. Cooney's changes were incorporated into later versions shown below with revisions in bold.

"STRATEGIC PLAN FOR THE U.S. CLIMATE CHANGE SCIENCE PROGRAM," DRAFT TEXT, OCT. 2002

~~Warming will also cause reductions in mountain glaciers and advance the timing of the melt of mountain snow peaks in polar regions. In turn, runoff rates will change and flood potential will be altered in ways that are currently not well understood. There will be significant shifts in the seasonality of runoff that will have serious impacts on native populations that rely on fishing and hunting for their livelihood. These changes will be further complicated by shifts in precipitation regimes and a possible intensification and increased frequency of extreme hydrologic events. Reducing the uncertainties in current understanding of the relationships between climate change and Arctic hydrology is critical~~

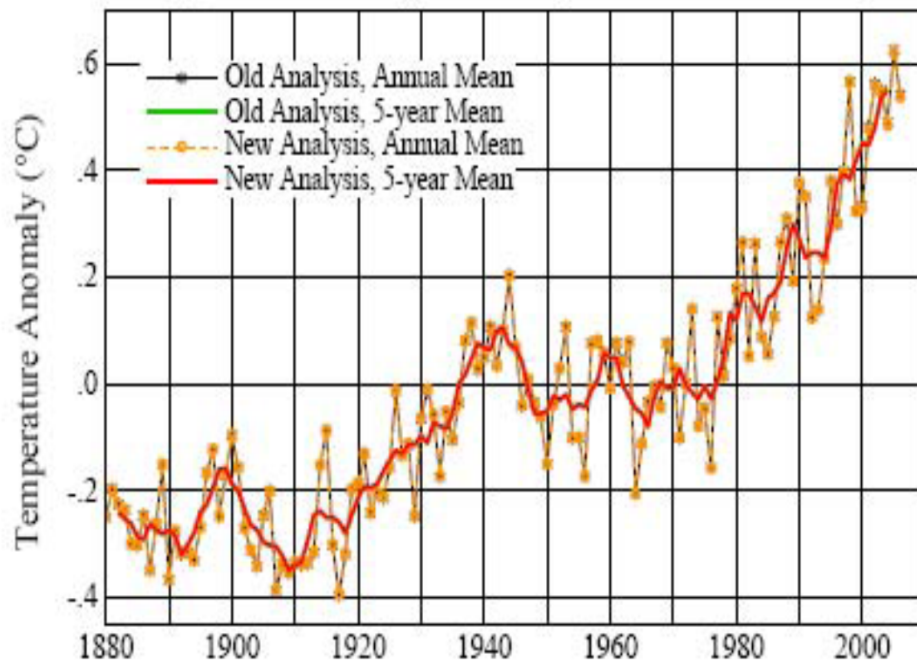
straying from research strategy into speculative findings findings here.

020 The challenge for the USGCRP is to provide the best possible scientific basis for documenting, *understanding*
 021 ~~diagnosing~~, and projecting changes in the Earth's life-support systems, and the role for CCRI is to
 022 facilitate full use of ~~the~~ scientific information in policy and decisionmaking on response strategies
 023 for adaptation and mitigation at the international, national, and regional scales. *possible*
 024
 025
 026 *might allow* From "Discovery" to "Comparative Analysis" *reduce the significant*
 027 *risks of* *persued.* *remaining uncertainties*
 028 Because of the scientific accomplishments of USGCRP and other research programs during the *associated with human-*
 029 last decade, a period that could be termed a productive "period of discovery and characterization," *induced*
 030 the CCRI, in coordination with the USGCRP, will move into a new "period of comparative *climate*
 031 *analysis of response strategies.*" In this new phase of the climate science programs, information *change*
 032 *that compare* the potential consequences of different responses to global changes, including *and*
 033 climate change, will be *developed in a form useful to national debate and decisionmaking. This*

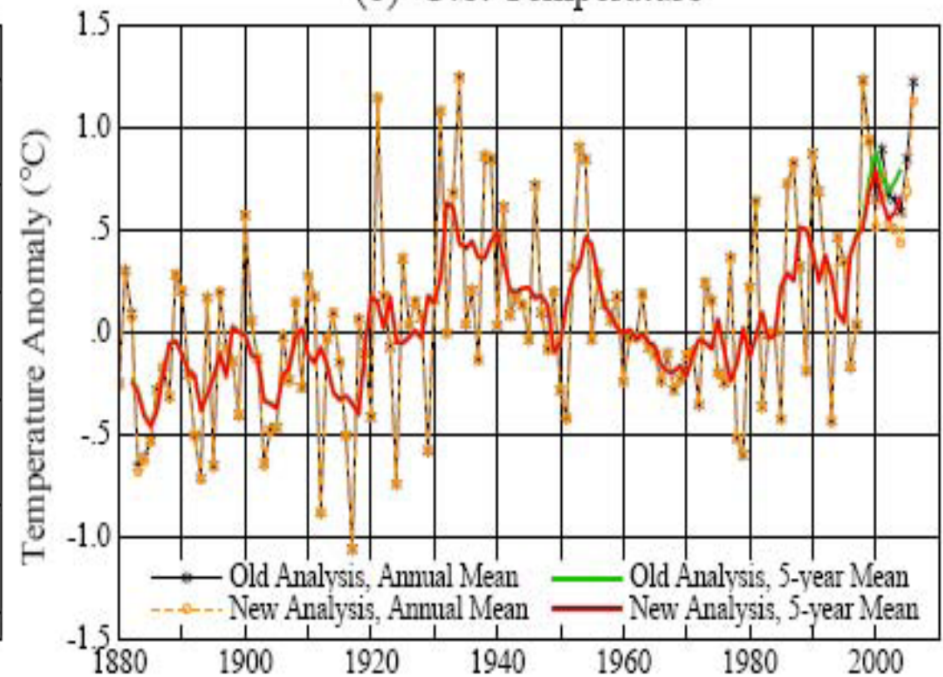
FINAL REPORT, 2003
 The challenge for the USGCRP is to provide the best possible scientific basis for documenting, **understanding**,
 and projecting changes in the Earth's life-support systems, and the role for CCRI is to **reduce the significant**
remaining uncertainties associated with human-induced climate change and facilitate full use of scientific
 information in policy and decisionmaking on **possible** response strategies for adaptation and mitigation.
 The New York Times

An Earlier Data Challenge...

(a) Global Temperature (Land-Ocean Index)

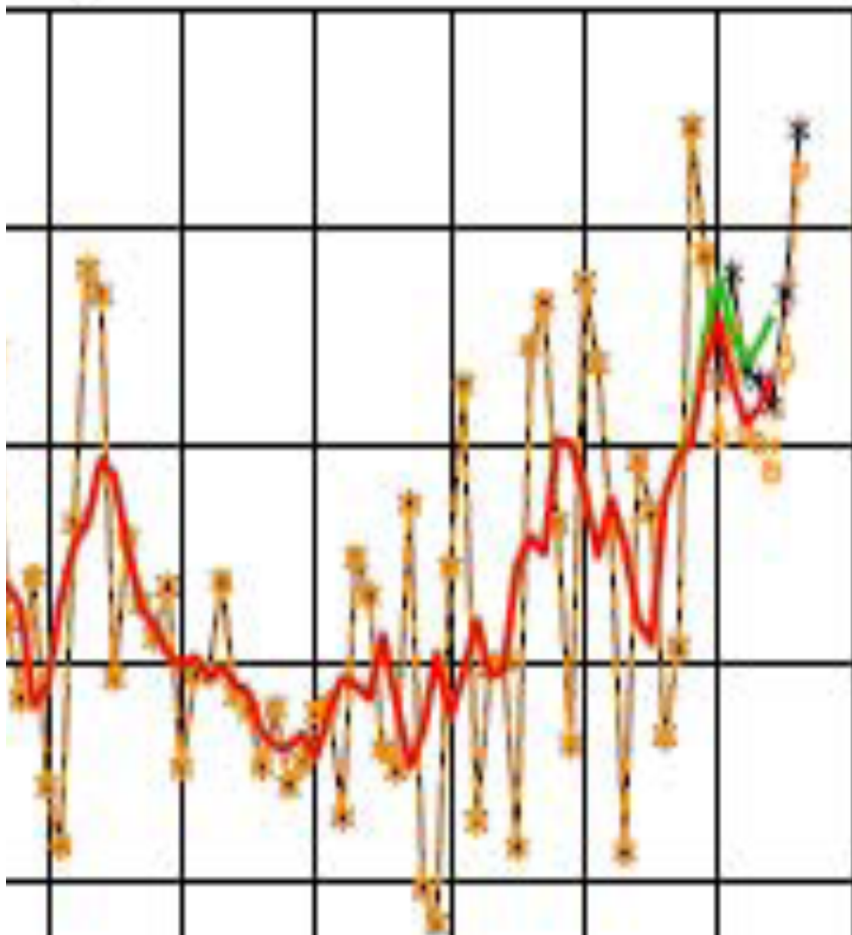


(b) U.S. Temperature



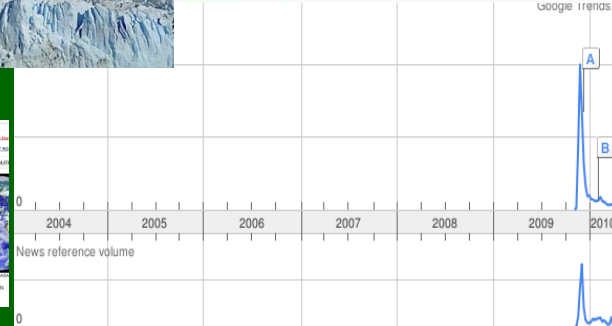
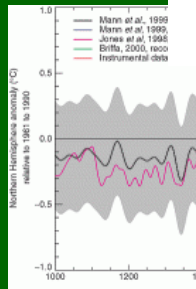
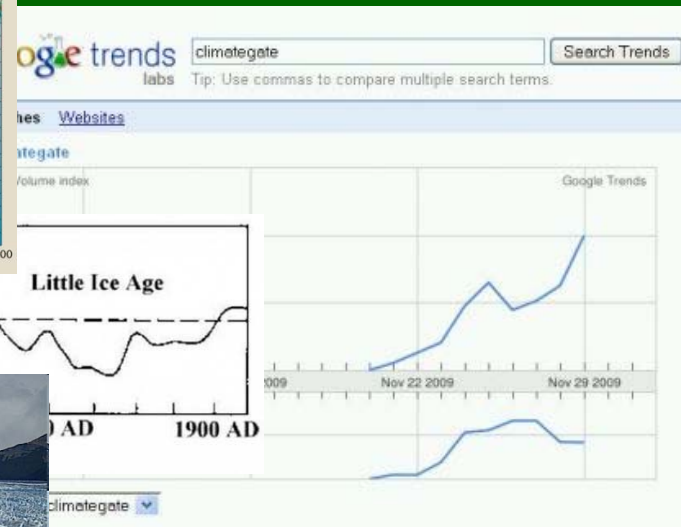
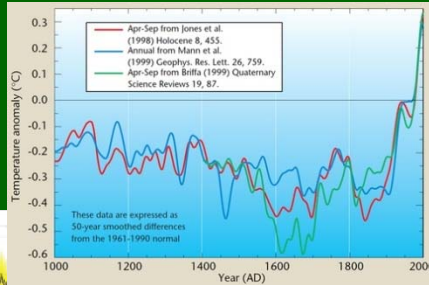
Jim Hansen, Ph.D., NASA

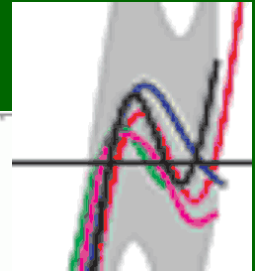
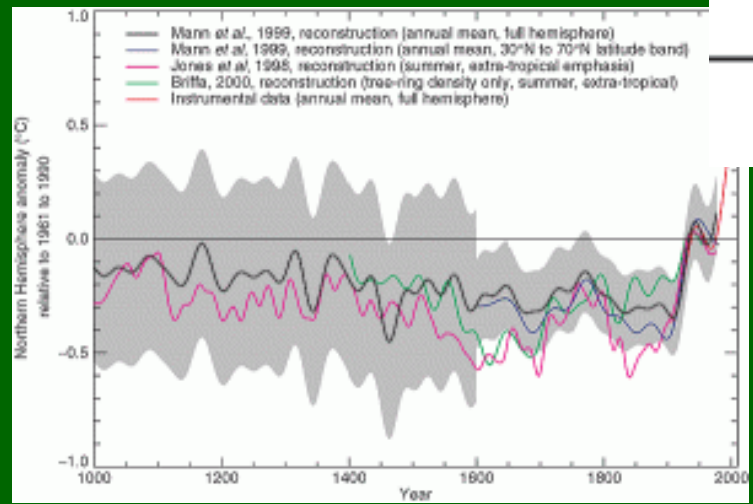
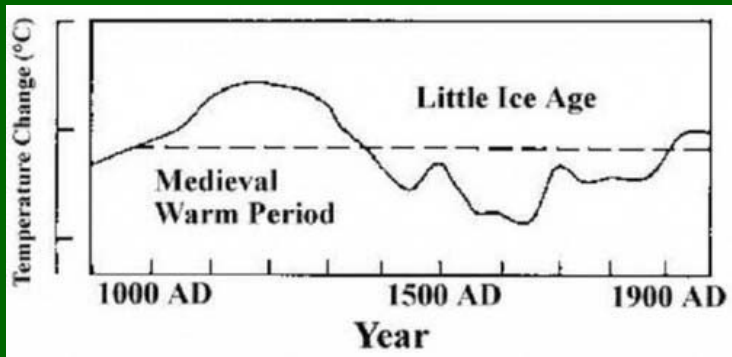
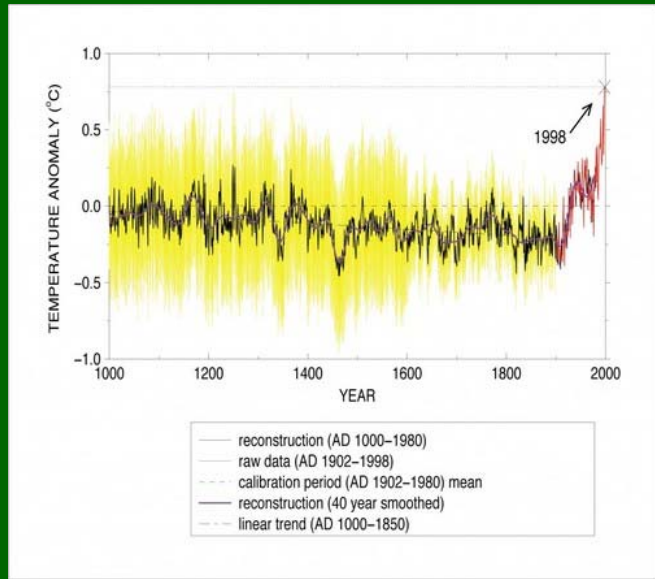
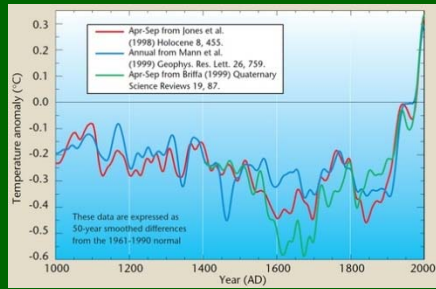
Temperature



- “The deceit behind the attempts to discredit evidence of climate change reveals matters of importance. This deceit has a clear purpose: to confuse the public about the status of knowledge of global climate change, thus delaying effective action to mitigate climate change.”

Unraveling Climategate





And in the end...



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House of Commons panel: Reputations of Phil Jones, CRU, climate science and data remain intact

Posted on Friday, April 02, 2010

The U.K. House of Commons Science and Technology Committee investigating allegations that scientists at the University of East Anglia's Climatic Research Unit headed by Prof. Phil Jones misrepresented data related to global warming announced on March 31 that it had found no evidence to support that charge. The committee's report emphasized that nothing in the more than 1,000 e-mail messages stolen from climate scientists or in the ensuing controversy challenge the scientific consensus that "global warming is happening and that it is induced by human activity." While exonerating Phil Jones and his colleagues of charges that have been levelled by a vitriolic climate change contrarian and denialist campaign, the committee criticized what it called a "culture of withholding information" about data and methodologies and called for greater transparency. It did not address the problem of what to do about those who have harassed and burdened climate scientists with dubious freedom of information requests, while themselves contributing precious little to the peer-reviewed scientific literature.

[Full text of the report](#): House of Commons, Science and Technology Committee, The Disclosure of climate data from the Climatic Research Unit at the University of East Anglia

[Associated Press](#): U.K. Panel Calls Climate Data Valid

[DeSmogBlog](#): Phil Jones Exonerated by British House of Commons

[Climate Progress](#): House of Commons exonerates Phil Jones

[London Guardian](#): Climate researchers 'secrecy' criticised – but MPs say science remains intact

Earlier CSW posts:
[March 10](#): Michael Mann interview: Denialists are waging "asymmetric warfare" against climate science
[December 1, 2009](#): Ben Santer: Open letter to the climate science community
[October 13, 2009](#): Phil Jones and Ben Santer respond to CEI and Pat Michaels attack on temperature data record

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CLIMATE PROGRESS

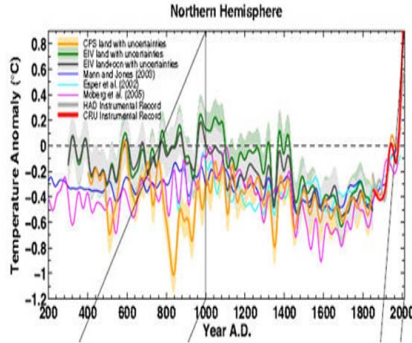
An insider's view of climate science, politics, and solutions

SEARCH

[Penn State inquiry finds no evidence for allegations against Michael Mann](#)

"Hockey Stick" scientist vindicated once again


February 4, 2010



[An academic inquiry into the so-called "climategate" email scandal has concluded that a well-known U.S. scientist did not directly or indirectly falsify data in his research.](#)

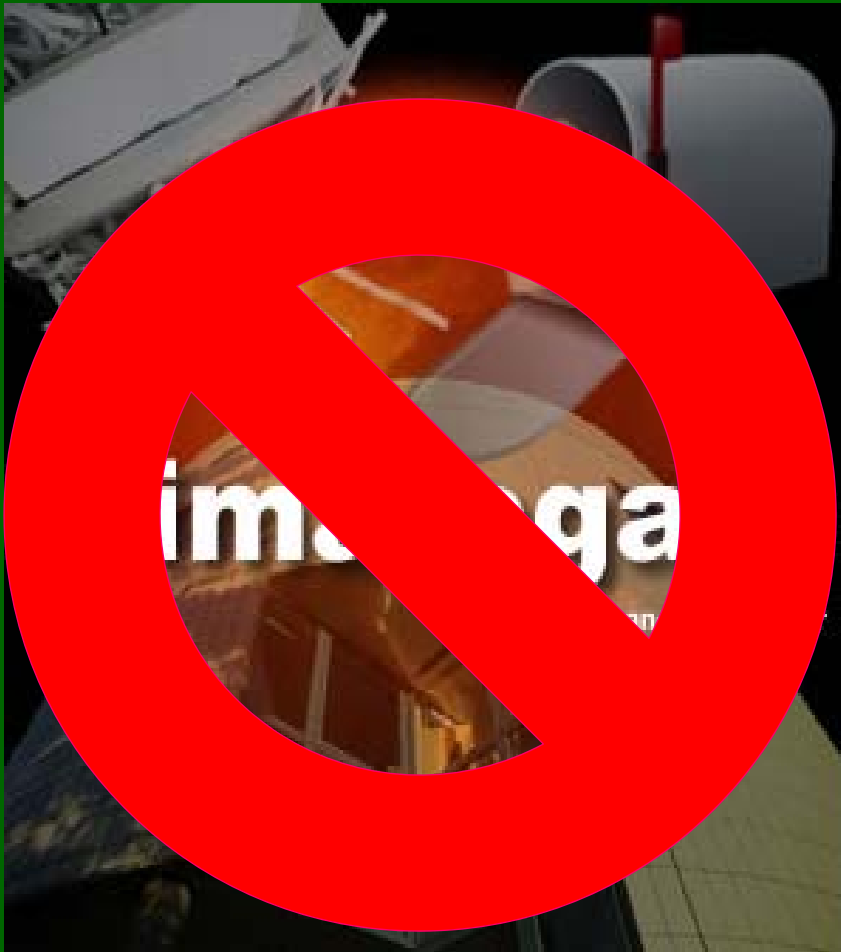
The review, by a panel of senior administrators at Pennsylvania State University, found no evidence that climatologist Michael Mann had manipulated research that indicates humans are causing global warming.

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Nov '09 ~ Apr '10



■ Hacked emails

- Climate Research Unit
- Phil Jones steps down
- Michael Mann's "hockey stick" questioned--AGAIN
- Data is "Hoax"
 - Mislead everyone
- Papers blocked from being published...

■ **March 31st**

- **Phil Jones Exonerated by UK House of Commons**
- **Needs further investigation on data sharing**

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Science Community Stands Behind Evidence for Climate Change, Top Scientists Say at AAAS

SAN DIEGO--A panel of influential U.S. and European scientists yesterday affirmed the overwhelming scientific consensus that the Earth's climate is changing, but said they and their colleagues should have responded more quickly and effectively to news about errors in a major climate report and hacked researcher e-mails.

In a discussion at the AAAS Annual meeting, the prominent scientific leaders acknowledged errors in a 2007 report from the Intergovernmental Panel on Climate Change and possibly impolitic email exchanges by East Anglia University climate researchers. But they expressed shock at the political effects of the disclosures and characterized the impact as far out of proportion to the overwhelming evidence that human activity is changing the Earth's climate.

"There has been no change in the scientific community, no change whatsoever," in the consensus that global average temperatures have been steadily climbing since the mid-20th century, "said Jerry North, a professor of atmospheric sciences at Texas A&M University

[Read full coverage of the 2010 Annual Meeting from AAAS.org and Science.](#)

What Did they Say?

- “In a discussion at the AAAS Annual meeting, the prominent scientific leaders acknowledged errors in a 2007 report from the Intergovernmental Panel on Climate Change...”

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- “Possibly impolitic email exchanges by East Anglia University climate researchers.”
- **“Expressed shock at the political effects of the disclosures and characterized the impact as far out of proportion to the overwhelming evidence that human activity is changing the Earth's climate.”**

What Makes a Consensus?

Climate Consensus?

How many US scientists* disagree with human-induced climate change?

total scientists in the US*
12,944,000



31,486
signed the Petition Project**
(0.24%)

source: PetitionProject.org, US Census Bureau (census.gov)

* Those with a degree or higher in Agricultural, Computer, Engineering, Health, Mathematical and Natural sciences
** Declaring their opposition to human-induced climate change theory

David McCandless and Helen Lawson Williams // v2.0 // Dec 09

InformationIsBeautiful.net

Treatment of Climate Scientists



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ScientificAmerican.com > News > Energy & Sustainability > Global Warming

March 1, 2010 | 76 comments

Cyber Bullying Intensifies as Climate Data Questioned

Researchers must purge e-mail in-boxes daily of threatening correspondence, simply part of the job of being a climate scientist

By Douglas Fischer and The Daily Climate



The e-mails come thick and fast every time NASA scientist [Gavin Schmidt](#) appears in the press.

Rude and crass e-mails. E-mails calling him a fraud, a cheat, a scumbag and much

E-MAIL
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Discover Interview **It's Gettin' Hot in Here: The Big Battle Over Climate Science**

Two eminent climatologists share much different views: Michael Mann—whose private emails were hacked—points a finger at skeptics. Judith Curry believes humans are warming the planet but criticizes her colleagues for taking shortcuts.

by Fred Guteri; photography by Imke Lass

From the **April 2010 issue**; published online March 10, 2010



Where does climate science go from here? The Copenhagen talks were a dud. [Stolen e-mail](#) correspondence has embarrassed some leading climatologists. If the science is settled and the threat is urgent, why has global warming become a soap opera? To find out, DISCOVER sought two different, important views, from Penn State's Michael Mann and Georgia Tech's Judith Curry.

Judith Curry

What was your reaction to the scandal over stolen e-mail?

I sympathize a bit with the guys who got caught out in the e-mail hack. I know what it's like to be under that kind of attack, and it's not pleasant. We were attacked pretty soundly in the media [for a 2005 paper showing that the frequency of intense hurricanes has almost doubled in the past 30 years]. We had firsthand experience dealing with climate skeptics, amplified by advocacy groups like the Competitive Enterprise Institute and a lot of the think tanks that were allegedly funded by ExxonMobil and other firms. Six months later, though, we had sorted things out and were talking to scientists on the other side of the debate. We ended up making pretty good progress on the hurricane story as a result. Compare that with the "hockey stick" story where there's been a war for six years



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Scientific Process

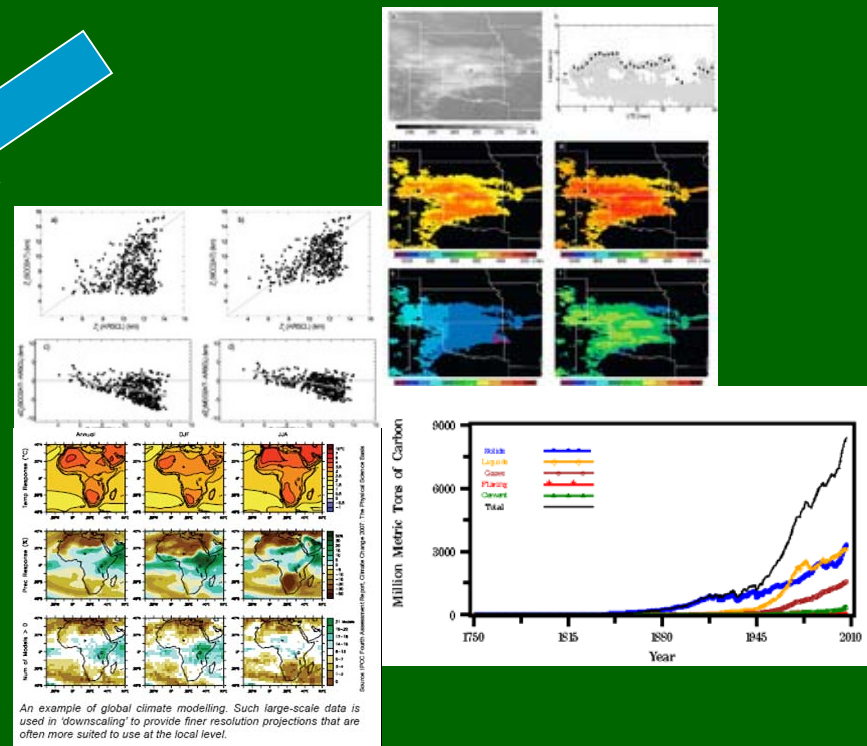
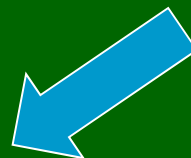
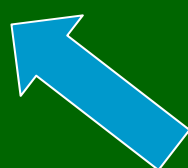


Scientists Generate Data

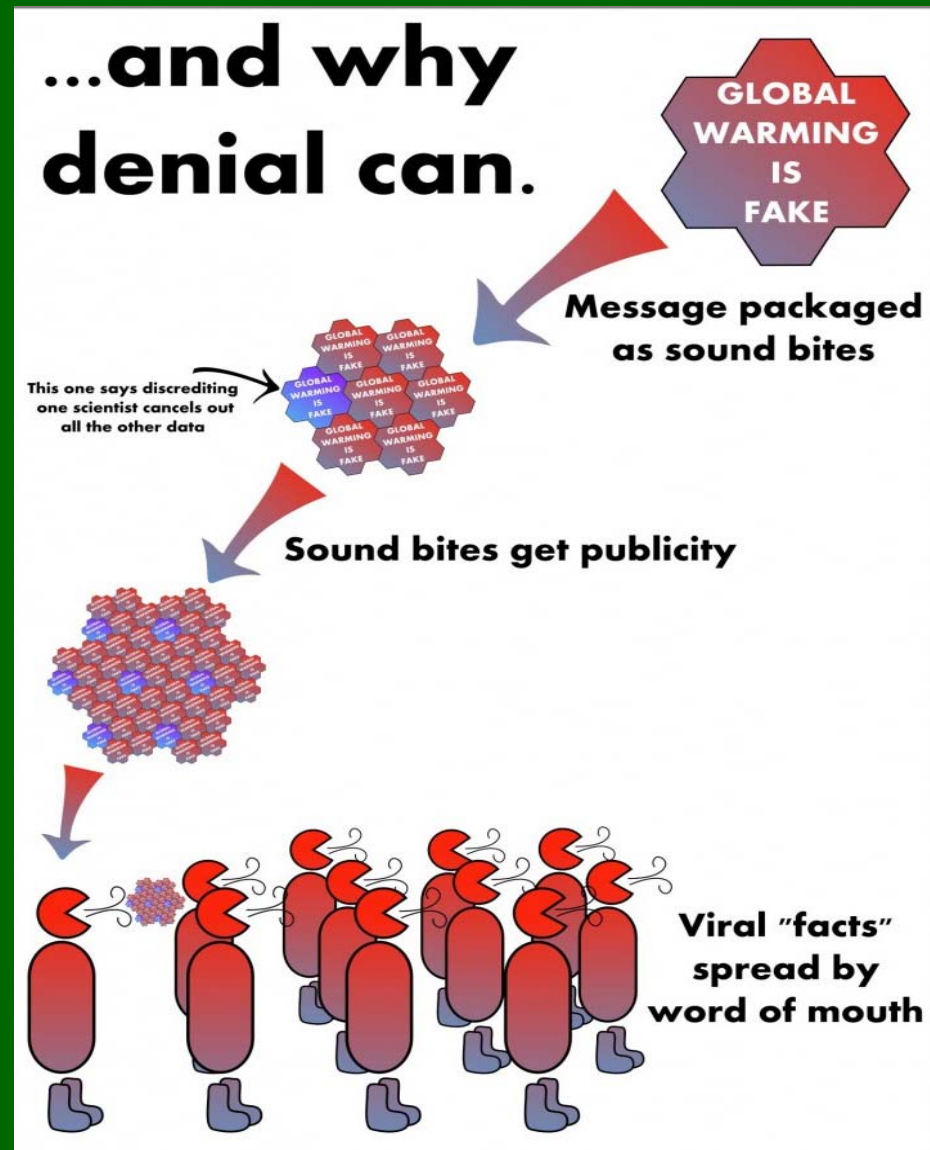
Data is Analyzed and Evaluated

Scientist Read Journals

Published in Peer-Reviewed Science Journals



Deniability: Not Science-based



The misconception about the science
is an illusion deliberately created
by those who oppose government action.

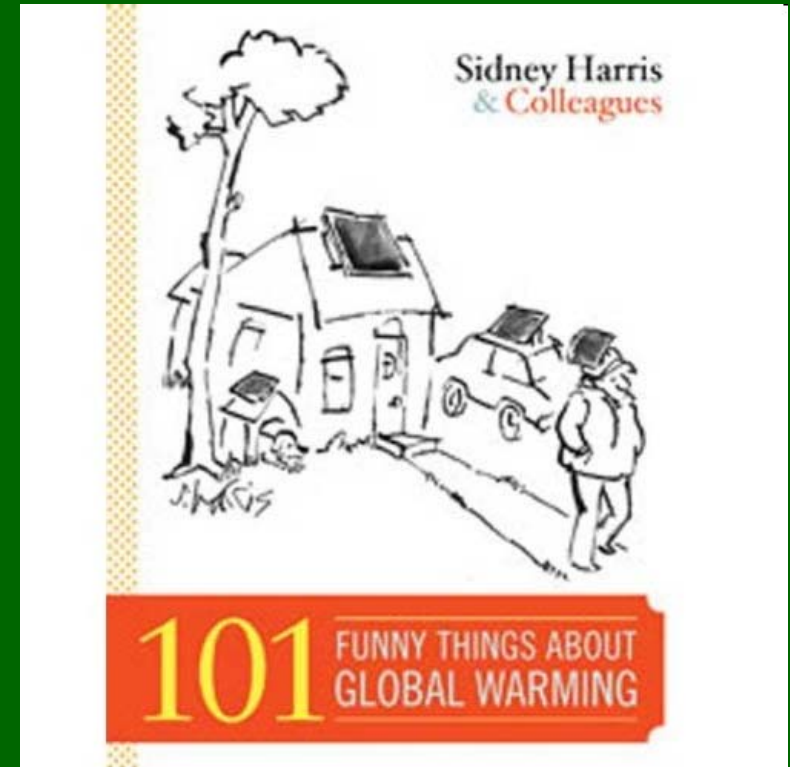
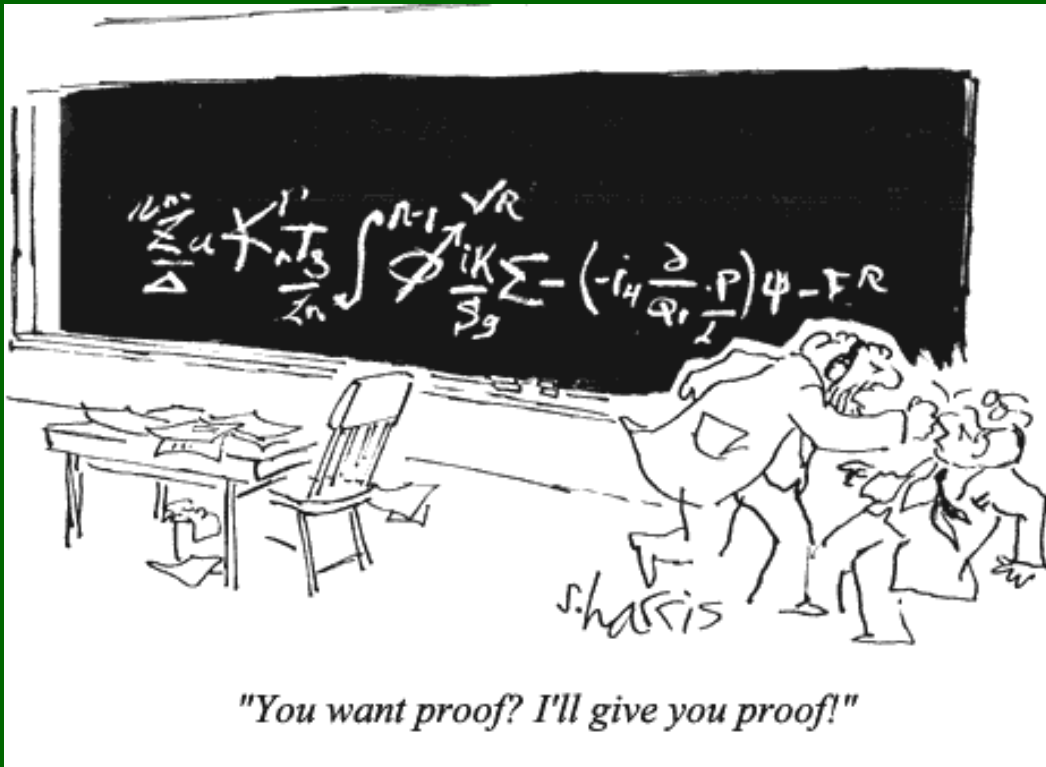
Their cynical objective, as stated in a
secret memo leaked to the press, is to:

**“Reposition Global Warming As
Theory rather than Fact.”**

Challenge: Science Literacy

- “Some scientists were also not prepared to discuss the data in ways that were useful to the press and public. While the diversity of data--from pollen samples to satellite data to computer modeling--is a key strength of climate change conclusions, the ‘culture’ of each discipline is equally varied. Some of these [groups] are not really well organized to handle relations with the press.’ ”
- **A Failure to Communicate Effectively**

So, HOW Do You I.C.E. This? Inform, Communicate, Educate Dazzle Students with Science-based Data



Keeping Current with the Debate climatedebatedaily.com/

The screenshot shows the homepage of Climate Debate Daily. At the top, there is a navigation bar with the URL <http://climatedebatedaily.com/> on the left and the date 'APR 14, 2009' on the right. The main header features the site's name 'Climate Debate Daily' in a large, serif font, set against a background image of a large crowd of people. Below the header, the page is organized into three vertical columns:

- Climate News:** This column lists various news sources and topics, including 'Climate Change News', 'BBC climate', 'CBS Weather climate', 'Discovery climate', 'CNN climate', 'Guardian climate', 'Financial Times climate', 'Independent climate', 'ITV climate', 'Nature climate', 'New Scientist climate', 'New York Times climate', 'Science Daily climate', 'Spiegel Online climate', 'Tempe', 'Times of London', and 'USA Today climate'.
- Call to action:** This column contains several articles with titles such as 'Scientists have produced further compelling evidence showing that Monday's climate change is not caused by changes in the Sun's activity or by natural cycles...', 'Expanded methane is a natural and predictable source of Western Arctic's warming that the region's methane could on average and drive up sea levels by 1 meter...', 'Why spend billions mitigating CO2 emissions when our best climate option is very simple?', 'A giant, man-made volcano being unearthed in the bottom of a hole in Northern India is the first in the world to have erupted from the sea...', 'This is the only CO2 capture-while burning plant to emit 2000 tons a day with zero emissions - in case you're interested in sort of climate solutions...', 'This is how far in the Arctic the way climate change is speeding with the volume of melting of sea-ice...', 'The world's most powerful natural sources of greenhouse energy is being able to read our minds. It can read them every time you go. So why the national eye of surveillance?', 'Another mile (and 100,000 tons) warming starts every day like the sun. The sun's temperature does indeed have a way to melt the icecaps...', and 'Antarctica absolutely refuses to cooperate with global warming hysteria. Never mind the media's obsession to say in regard that the continent is melting away...'.
- Dissenting voices:** This column features articles with titles like 'Just because you don't see it in the atmosphere have a much greater impact on earth temperatures than the CO2 has we'll be something to fear...', 'The WMO's "no 90%" has begun to on other sources of top climate change is a "backsliding" sign of a "backsliding" evidence of man-made global warming? (Part 1)...', 'Last year the New York Times dramatically reported a new "global" heat record - global warming had broken 5 of the months. Another 10 of global warming...', 'The scientists are right climate change is a serious threat. But they have the temperature of the air mostly wrong. The earth will soon be getting a lot hotter...', and 'The Amazon was the only non-forest of the 1980s. Now climate change has begun, and in the case of the Amazon is getting worse the slow...'.



Skeptical Science

Getting skeptical about global warming skepticism



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What the Science Says

...an even greater argument. But not even that is the only version.

Science Says

35 years of global warming, the sun has
light cooling trend. Sun and climate have
gone in opposite directions.

Climate change in the past proves that climate
is not an energy imbalance. If the planet
was heating, global temperatures would go up.
CO2 is imposing an energy imbalance and
causing greenhouse effect. Past climate
change proves that global warming is not caused
by CO2.

...are causing global warming. In the
...ing. According to Science, there is

Search...



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Skeptic Arguments and

Here is a summary of the top skeptic
arguments sorted by frequency of use.

Skeptic Argument vs Science

1. "The sun"
2. "Climate's changed
historically"

MOST USED
Skeptic Arguments
and what the science really says...

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Ensuring the Integrity, Accessibility, and Stewardship of Research Data in the Digital Age



Status: Available Now
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Publication Year: 2009

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Authors:

Committee on Ensuring the Utility and Integrity of Research Data in a Digital Age; National Academies of Sciences, Engineering, and Medicine

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Description:

As digital technologies are expanding the reach of research, they are also raising complex issues. These include complications in ensuring the validity of research data; standards that do not pace with the high rate of innovation; restrictions on data access; and the need for new research practices. This report examines these issues and offers recommendations for ensuring the integrity, accessibility, and stewardship of research data in the digital age.

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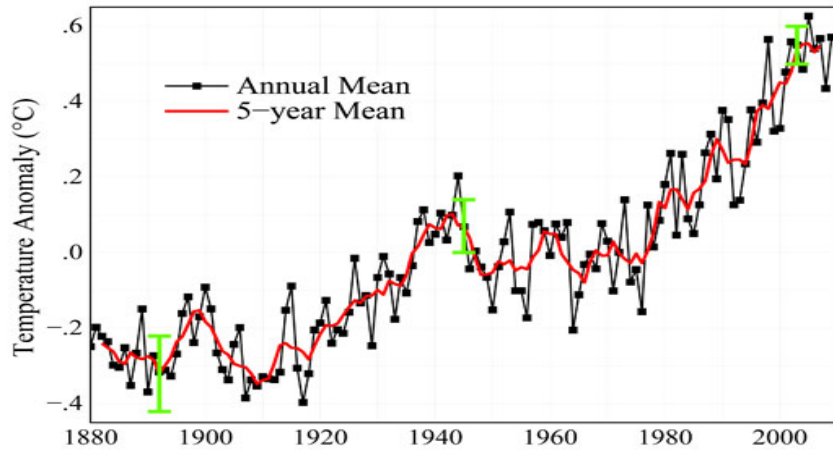
Piecing together the temperature puzzle

Each year, scientists at NASA'S Goddard Institute for Space Studies analyze global temperature data. The past year, 2009, tied as the second warmest year since global instrumental temperature records began 130 years ago. Worldwide the mean temperature was 0.57°C (1.03°F) warmer than the 1951-1980 base period. And January 2000 to December 2009 came out as the warmest decade on record.

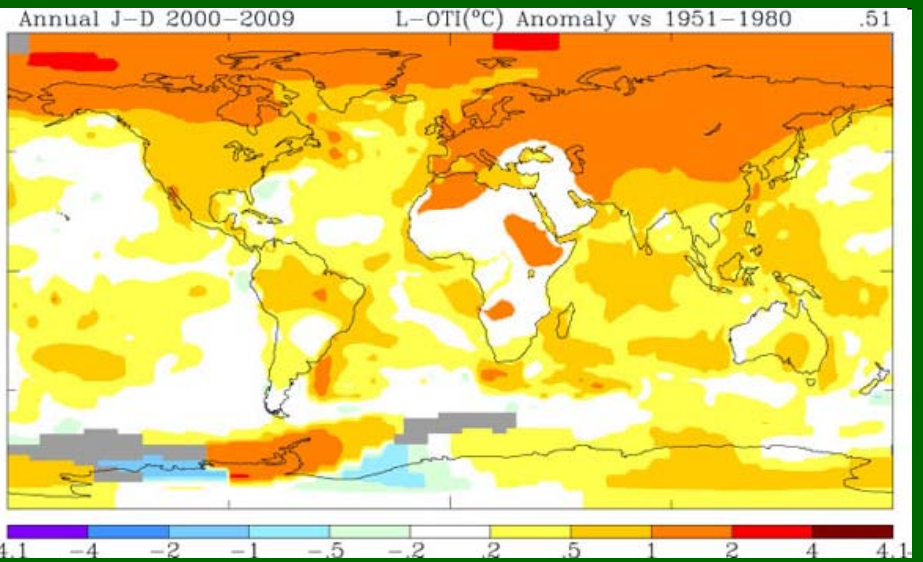
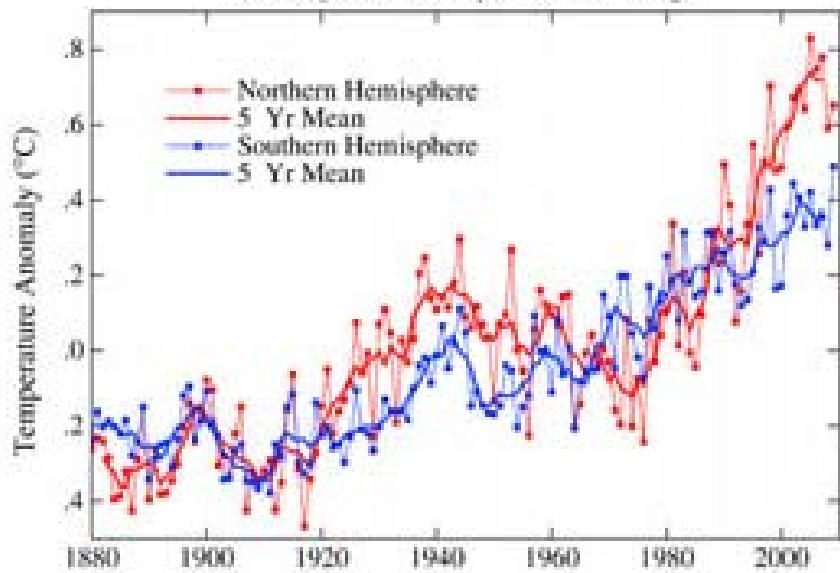
Take a look below at NASA's collection of videos, articles and imagery designed to help tell the story of our warming world.

VOTE FOR US!

Global Land–Ocean Temperature Index



Hemispheric Temperature Change



NOAA Climate Data Directory



NOAA Satellite and Information Service
National Environmental Satellite, Data, and Information Service (NESDIS)



National Climatic
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[Important Notes](#)

[Climatology & Extremes](#)

[Related links](#)

Normals, Storm Events, Climate Monitoring, Publications, etc.



Surface Data

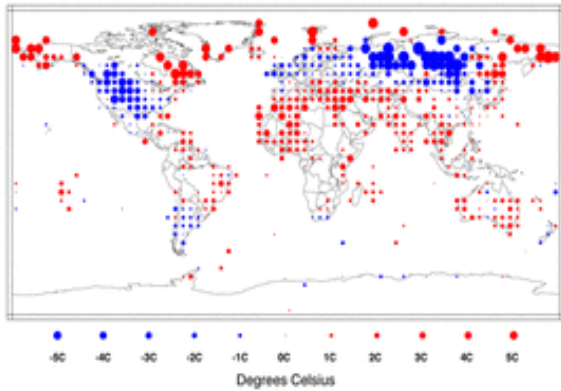


NOAA

Temperature Anomalies December 2009

(with respect to a 1961-1990 base period)

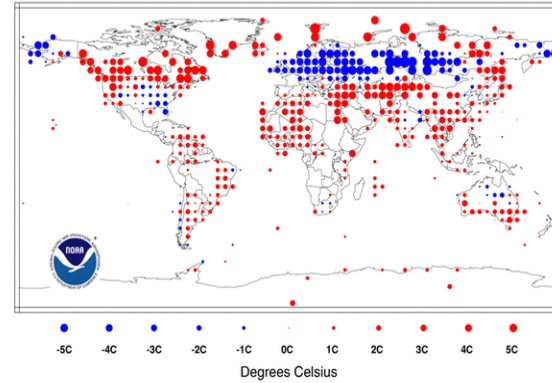
National Climatic Data Center/NESDIS/NOAA



Temperature Anomalies January 2010

(with respect to a 1961-1990 base period)

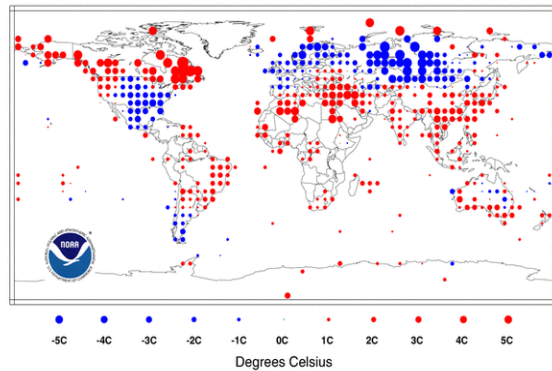
National Climatic Data Center/NESDIS/NOAA



Temperature Anomalies February 2010

(with respect to a 1961-1990 base period)

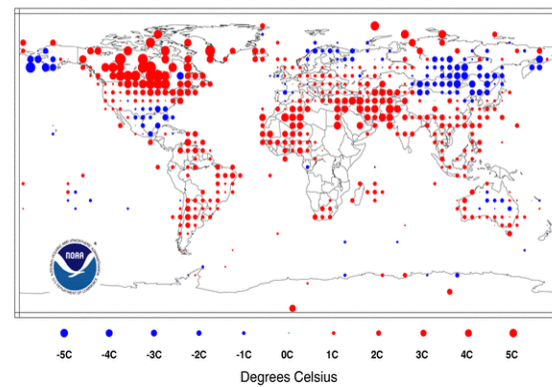
National Climatic Data Center/NESDIS/NOAA



Temperature Anomalies March 2010

(with respect to a 1961-1990 base period)

National Climatic Data Center/NESDIS/NOAA



EPA

The screenshot shows the EPA website's "Climate Change" page. At the top, the EPA logo is on the left, and the text "U.S. ENVIRONMENTAL PROTECTION AGENCY" is on the right. Below the logo is a navigation menu with links like "Climate Change Home", "Basic Information", "Frequent Questions", "Science", "Greenhouse Gas Emissions", "Health and Environmental Effects", "Regulatory Initiatives", "U.S. Climate Policy", "What You Can Do", "Climate Economics", "Where You Live", "Newsroom", "Related Links Directory", "About the Site", and "Glossary". At the bottom of the menu is a "Climate Change For Kids!" logo. The main content area has a dark blue header with "Climate Change" and a "Share" button. Below this is a search bar with "Search:" and radio buttons for "All EPA" and "This Area", followed by a text input field and a "Go" button. A breadcrumb trail reads "You are here: EPA Home » Climate Change » Climate Change Indicators in the United States". The main heading is "Climate Change Indicators in the United States". The text explains that environmental indicators play a critical role in understanding climate change and lists examples like temperature, precipitation, sea level, and greenhouse gas concentrations. It then introduces EPA's "Climate Change Indicators in the United States (PDF)" report, which contains 24 indicators. A "Related Links" box lists external resources from NASA, NOAA, and the State of California. A note at the bottom right states that Adobe Acrobat Reader is required to view PDF files. At the bottom, there is a section for "Climate Change Indicators in the United States Report" with a "View the Indicators Report Slideshow" button and a filmstrip image.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Climate Change [Share](#)

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You are here: [EPA Home](#) » [Climate Change](#) » Climate Change Indicators in the United States

Climate Change Indicators in the United States

Collecting and interpreting environmental indicators play a critical role in our understanding of climate change and its causes. An indicator represents the state of certain environmental conditions over a given area and a specified period of time. Examples of climate change indicators include temperature, precipitation, sea level, and greenhouse gas concentrations in the atmosphere.

EPA's [Climate Change Indicators in the United States \(PDF\)](#) (80 pp, 13.2MB) report will help readers interpret a set of important indicators to better understand climate change. The report presents 24 indicators, each describing trends related to the causes and effects of climate change. It focuses primarily on the United States, but in some cases global trends are presented to provide context or a basis for comparison. EPA will use these indicators to collect data and generate analyses to:

- Monitor the effects/impacts of climate change in the United States
- Assist decision-makers on how to best use policymaking and program resources to respond to climate change
- Assist EPA and its constituents in evaluating the success of their climate change efforts

Climate Change Indicators in the United States Report

[View the Indicators Report Slideshow](#)

Related Links

- NASA - Global Climate Change: [NASA's Eyes on the Earth](#)
- NOAA - Global Climate [Dashboard](#)
- NOAA - Annual State of the [Climate Report](#)
- NOAA - Arctic Change [Indicators](#)
- State of California - [Indicators of Climate Change in California](#)

You will need Adobe Acrobat Reader, available as a free download, to view some of the files on this page. See [EPA's PDF page](#) to learn more about PDF, and for a link to the free Acrobat Reader.

Climate Change For Kids!

RealClimate.org (GISS)



Claude Allègre: The Climate Imposter

Filed under: [Climate Science skeptics](#) — group @ 28 April 2010

Guest Commentary by Georg Hoffmann

In mathematical proofs, it's a well-known fact that if at some point you divide by zero accidentally or on purpose, then you end up being able to prove absolutely anything you want – for instance, that $2+2=5$ or that $1+1=0$. The same phenomena appears to govern any number of publications that conclude that climate science is all a fraud – at some point, an impossible calculation is performed and from then on, anything (and everything) can be proven. Critical thinking appears to vanish.

The latest example is that of Claude Allègre – whose recent book "The climate imposture" would have you believe at least six impossible things before breakfast and a great many more before dinner. This is notable because Allègre is one of the most eminent figures in science

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U.S. GCRP

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**US Global Change
Research Program**

www.usgcrp.gov



Wednesday, April 28, 2010

Helping to understand, assess and predict global change

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[Final Report of Synthesis and Assessment Product 5.2](#) (Best practice approaches for characterizing, communicating, and incorporating scientific uncertainty in decisionmaking) is posted. See also [press release](#) from the National Oceanic and Atmospheric Administration (NOAA). (posted 16 Jan 2009)



[Final Report of Synthesis and Assessment Product 4.1](#) (Coastal Sensitivity to Sea-Level Rise: A Focus on the Mid-Atlantic Region) is posted online. See also [press release](#) from the Environmental Protection Agency (EPA), and [EPA web-page](#). (posted 16 Jan 2009)



[Final Report of Synthesis and Assessment Product 4.2](#) (Thresholds of Climate Change in Ecosystems) is posted. See also [press release](#) from the U.S. Geological Survey (USGS). (posted 16 Jan 2009)



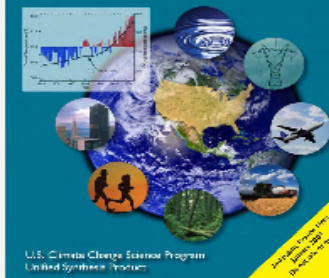
[Final Report of Synthesis and Assessment Product 2.3](#) (Aerosol properties and their impacts on climate) is posted online. See also [press release](#) from the National Aeronautics and Space Administration (NASA). (posted 16 Jan 2009)



[Final Report of Synthesis and Assessment Product 1.2](#) (Past Climate Variability and Change in the Arctic and at High Latitudes) is posted. See also [press release](#) from the U.S. Geological Survey (USGS). (posted 16 Jan 2009)

New Reports

Global Climate Change Impacts in the United States



Second Public review draft of the Unified Synthesis Product (Global Climate Change in the United States) is posted. Comments will be accepted from 13 January through 27 February 2009. See also [Federal Register notice](#). (posted 13 January 2009)

[For reports by the U.S. Climate Change Science Program ...](#)

Quick Links

- [Synthesis & Assessment Products](#)
- [Unified Synthesis Product](#)
- [S&A Product Final](#)

Alliance for Climate Education

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DECLARE YOUR ENERGY INDEPENDENCE

FROM: THE WORLD'S YOUTH
TO: BARACK OBAMA AND KEY LEADERS

We want action on climate change now to save the planet for our generation! [Learn More >](#)

SIGN NOW first name* email*
cell zip*

YES - send me occasional entertaining emails/texts about fighting climate change

Brie S - W Springfield, MA
Jeff G - Belchertown, MA
Brittany M - W Springfield, MA
... and 44111 other students

crush global warming

Make your friends the star of a music video and declare your energy independence!

[Watch it Now >](#)

Watch the assembly trailer

hot planet / cool solutions

ACE performs 45-60 minute interactive assembly presentations for high school students that explain global climate change and its effect on our planet, while offering solutions. Our program is scientifically based, interactive

BOOK an ASSEMBLY

Done Internet 100%

Data Mining



The screenshot shows the homepage of the National Science Digital Library (NSDL). At the top, there is a navigation bar with the NSDL logo and the tagline 'THE NATIONAL SCIENCE DIGITAL LIBRARY'. To the right of the logo are four panels with the words 'EXPLORE', 'SHARE', 'LEARN', and 'CREATE'. Below the navigation bar is a search box with the text 'Search The National Science Digital Library' and a 'Search' button. The main content area features a 'Highlights' section for 'Earth Day 2010: April 22', which includes a paragraph about the 40th anniversary of Earth Day and links to 'events', 'outdoor activities', 'lesson plans', and 'resources'. To the right of the highlights is a box for 'NSDL Pathways' with a link to 'Learn More' and a section for 'Ensemble: Computing Pathway' which describes the pathway's support for computing education. At the bottom, there is a link to 'View Highlight Archives' and a box for 'Submitting a grant to NSF?' with the NSDL and NSF logos. The footer includes the text 'Funded By The National Science Foundation' and the NSF logo.

NSDL
THE NATIONAL SCIENCE DIGITAL LIBRARY

EXPLORE SHARE LEARN CREATE

NSDL Home Larger Text

Home

- Advanced Search
 - General
 - K-12
 - Higher Education
- Browse
 - Science Literacy Maps
 - Science Refreshers
 - NSDL on iTunes U
 - Collections
- Resources for
 - K-12 Teachers
 - Higher Education
 - Librarians
- News and Information
 - Expert Voices Blogs
 - New in NSDL
 - NSDL Wiki
 - Publications
- Participate in NSDL
 - Partnering with NSDL
 - Community Network Site
 - Meetings
 - Contribute Collections
 - Recommend Resources
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 - Classic Articles
 - NSDL Brown Bags
 - NSTA Web Seminars
 - Outreach Materials
- About NSDL

Search The National Science Digital Library

Search

NSDL is the Nation's online library for education and research in Science, Technology, Engineering, Mathematics.

Highlights
Earth Day 2010: April 22

This year is the 40th anniversary of Earth Day. It all started on April 22, 1970, when Senator Gaylord Nelson of Wisconsin hired a small staff, led by [Denis Hayes](#), to coordinate a series of 'teach-in' activities throughout the country. Those teach-ins expanded and evolved into an energetic grassroots effort, and effectively, the beginning of the modern environmental movement. 20 million Americans participated in the first Earth Day, in multiple events nationwide, ultimately leading to environmental protection laws including the Clean Water Act, the Endangered Species Act, and amendment to the Clean Air Act of 1963. The [Earth Day Network](#) site contains links to [events](#), [outdoor activities](#), [lesson plans](#), fact sheets, and [resources](#) for participating in Earth Day activities, and links to partner organization activities. The US Environmental Protection Agency's [Earth Day site](#) and [NASA's Earth Day site](#) also contains information, multimedia, and activities. NSDL partners providing [a range of Earth Day resources](#) include the following: [\(more...\)](#)

[View Highlight Archives](#)

NSDL Pathways
Learn More

Ensemble: Computing Pathway
The Ensemble Computing Pathway will support computing education across the full range of computing communities: computer science, computer engineering, software engineering, information systems, and information technology, and will serve the full range of audiences.

[NSDL Pathways News](#)

Submitting a grant to NSF?  

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