

# Key Questions:

How valid are the claims of skeptics of climate change?

What are the IPCC and USGCRP procedures and how can they be made more authoritative?

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**May 11, 2010**  
Hill Briefing on Climate Change



NCAR

I am expressing my own opinion.

# Outline of Presentation

- Role of skeptics in science
- Skeptics list of claims about climate change and its research community
- The IPCC processes and procedures: a brief history and its implementation
- America's Climate Choices Report
- Changes to the IPCC process

# Partial List of Skeptic Claims

- There is no global warming
- Humans are not causing observed changes
- The changes are small
- Temperature records are in error
- Hockey stick science is bad
- Climate is cooling
- Ice ages are returning
- Last winter proves there is no climate change
- Oceans are cooling
- Arctic sea ice has recovered
- Climategate proves fraud
- There is no consensus
- IPCC has made mistakes and the science is not "settled"

# The Peer Review Process

- Research, writing science papers, and journal reviews are part of most scientists' lives.
- The reviewers of the paper make comments and recommend to a journal editor whether the paper should be published. The editor is the arbiter. Many factors are taken into account, most importantly is the research new, correct, and worthy of publishing?
- If there are doubts about the results or error, there will be many other scientists in later papers that will either confirm or challenge any particular scientific result.
- Over time the peer review corrects unreliable results and advances the science.

# National Academy of Sciences

- 1975: Need for serious climate science to find out what is coming. (Understanding Climatic Change, U.S. Committee for the Global Atmospheric Research Program, Nat. Acad. Press, Washington, D.C., 239 pp.)  
I was part of the Committee ...35 years later I am still working at it!
- 1979: Doubling atmospheric  $CO_2$  warms more than 5°F; Charney, J. G., A. Arakawa, D.J. Baker, B. Bolin, R.E. Dickinson, R.M. Goody, C.E. Leith, H.M. Stommel and C.I. Wunsch, 1979: Carbon Dioxide and Climate: A Scientific Assessment. National Academy of Sciences, 22 pp.
- Many subsequent reports: essentially same message.

# National Academy of Sciences

"Greenhouse gases are accumulating in Earth's atmosphere as a result of human activities, causing surface air temperature and subsurface ocean temperature to rise. Temperatures are in fact rising.

The changes observed over the last several decades are likely mostly due to human activities, but we cannot rule out that some significant part of these changes is also a reflection of natural variability...

The committee generally agrees with the assessment of human-caused climate change presented in the IPCC Working Group I (WGI) scientific report" (p. 1, Climate Change Science: An Analysis of Some Key Questions, Committee on the Science of Climate Change, National Research Council, 2001, National Academy Press, Washington, DC, [www.nap.edu](http://www.nap.edu))

(the committee included climate change skeptic R. Lindzen of MIT)

# The Role of Skepticism in Science

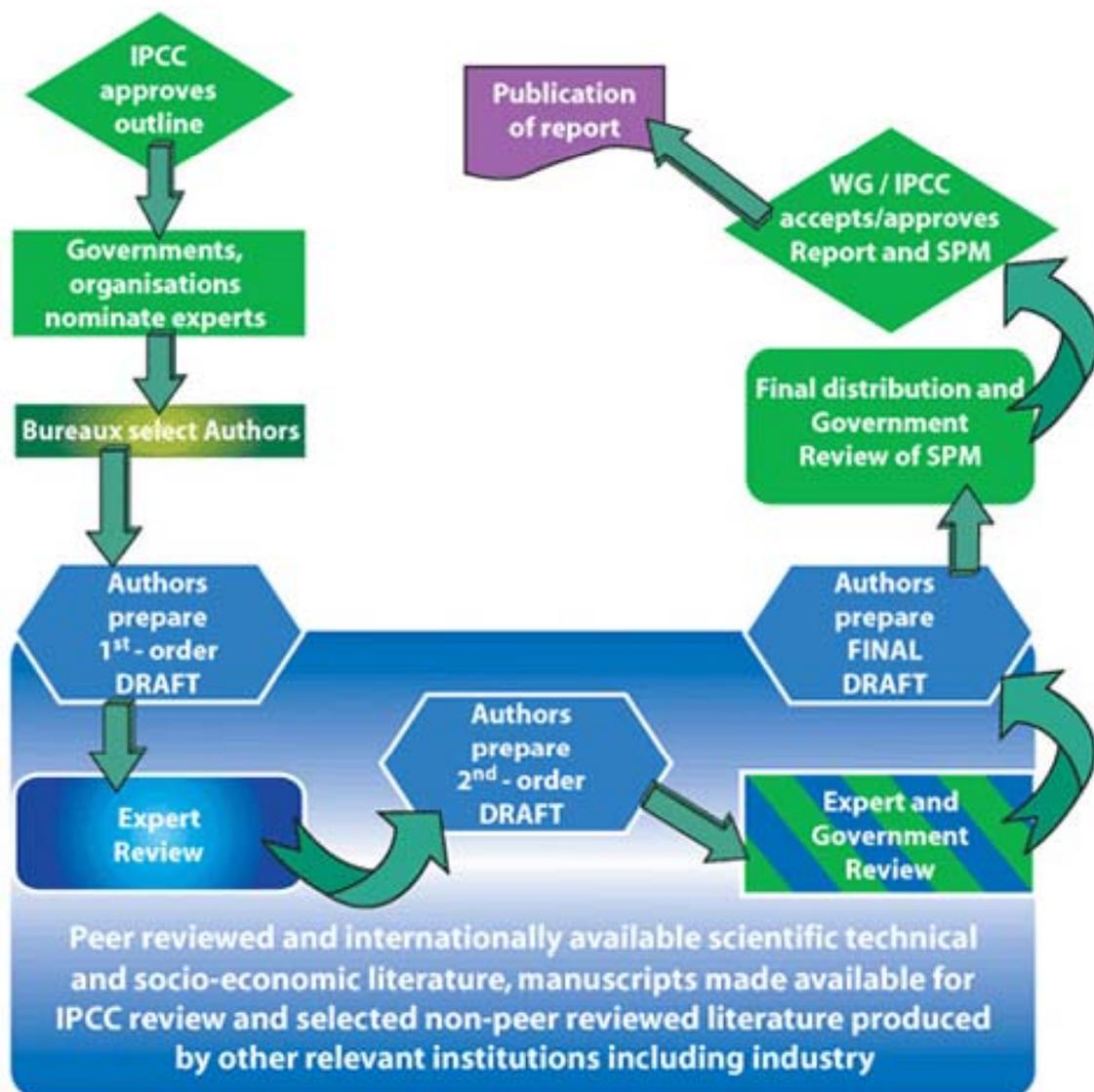
- Skepticism is an integral part of the progress of science and it helps keep the science on the correct path.
- However, skepticism without specifics, alternate hypotheses, and facts is worthless. It does not advance the science.

# The IPCC Process and Procedures

# Important points about the IPCC

- It is run by participating countries and not the science community
- The governments set up the rules and select the author teams and reviewers to perform the assessment of the scientific literature.
- Authors teams are picked based on range of views, expertise, and geographical representation.
- "Review by the governments and experts is an essential element of the preparation of IPCC reports."

# The IPCC Process (AR4)



**2500+ SCIENTIFIC EXPERT REVIEWERS**  
**800+ CONTRIBUTING AUTHORS AND**  
**450+ LEAD AUTHORS FROM**  
**130+ COUNTRIES**  
**6 YEARS WORK**  
**1 REPORT**

**2007**

The IPCC 4th Assessment Report is coming out  
**A picture of climate change**  
the current state of understanding

WMO INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE UNEP

# Criticism of the IPCC Process

- Too much power given to the lead authors
- Lead authors seen as getting the “final word” in the reports
- Lead authors seen as favoring their own work and work of their friends

# Criticism of the IPCC Report

- Google "IPCC Criticism" and you come up with a claimed list of 36 "errors, distortions, and exaggerations" in The Physical Science Basis (Working Group I) report.
- There is an error regarding Himalayan glaciers in Working Group II. Clearly there needs to be a process that can correct errors that are later found in a massive document.
- The main conclusions of the report are not in doubt.

# Independent Review of IPCC

- UN Secretary-General announced on March 10, 2010 a new InterAcademy Council to do an independent review of IPCC policies and procedures.
- The Committee of experts will present recommendations of changes by August 30, 2010 with the purpose of strengthening the IPCC process and improving the quality of its reports.
- The recommendations will be in place for the October 2010 launch of 5<sup>th</sup> IPCC Assessment Process
- Sample issues: How to insert corrections and updates of new science into the IPCC procedures?

# Charge to the Independent Review Committee

- More regional balance in the assessment activities
- More scientific credibility and policy relevance of IPCC products as well as improvements of IPCC policies, institutions, and management functions
- Improved access to IPCC work by experts, media, and the general public

# Concerns of those that took part in the IPCC process

- Personal threats of harm, or prosecution
- Attacks on the research
- Continuous Freedom of Information requests

**America's**  
**CLIMATE CHOICES**  
AT THE NATIONAL ACADEMIES



## **America's Climate Choices**

**Independent, expert consensus advice to  
guide the nation's response to climate change**

**<http://americasclimatechoices.org>**

# Request from Congress

The Department of Commerce Appropriations Act of 2008 (Public Law 110-161) calls for the National Oceanic and Atmospheric Administration (NOAA) to execute an agreement with the National Academy of Sciences to:

“...investigate and study the serious and sweeping issues relating to global climate change and make recommendations regarding what steps must be taken and what strategies must be adopted in response to global climate change, including the science and technology challenges thereof.”

# Key Aspects of the Study

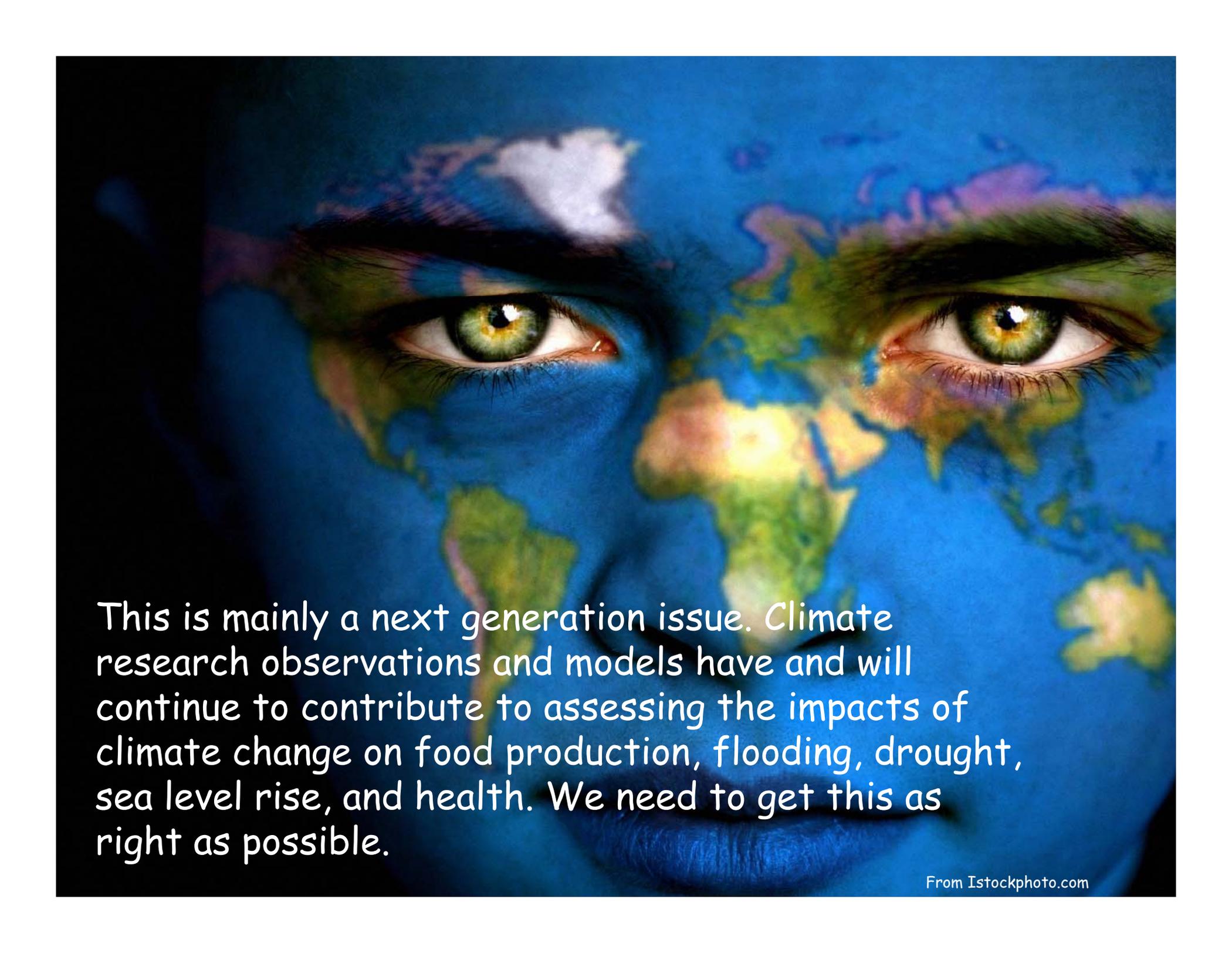
- Future and action-oriented
- Utilizes and builds on existing information
- U.S. focus, recognizing international context
- Emphasizes short-term / long-term timeframes
- Includes stakeholder input through special meetings, calls for direct input to the committees
- Suite of communication and outreach activities:
  - Summit on America's Climate Choices, March 30-31, 2009
  - Five Town Hall meetings held in first half of 2009
  - Opportunities for web-based input and public participation
  - Final Symposium planned for Summer 2010

# Some Developing NRC Projects

- An integrated strategy for climate monitoring and observations
- Next-generation climate modeling
- Ice sheet modeling
- "Geo-engineering"

# Measures to make climate change research more trustworthy

- We have to continue to improve the methods and accuracy of scientific information that is given to the policymaker. (e.g. by independent reviewers, obtain input of skeptics)
- The information must be based on solid scientific principles
- All climate data should be freely available for testing by others.
- Skeptics must be encouraged and allowed to publish their results in the scientific literature
- Verification and validation procedures must be transparent
- The scientific results must have reproducibility

A composite image showing a person's face with a world map overlay. The person's eyes are green and looking forward. The world map is in shades of blue, green, and yellow, with the continents clearly visible. The background is dark blue.

This is mainly a next generation issue. Climate research observations and models have and will continue to contribute to assessing the impacts of climate change on food production, flooding, drought, sea level rise, and health. We need to get this as right as possible.

**The End**

**Thank you for your attention!**