



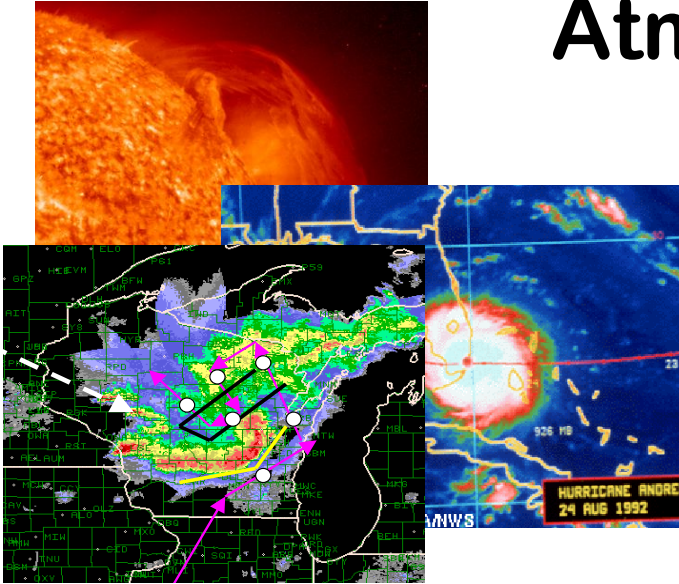
NCAR

Scientific Integrity at the AGU: What is it?

Tim Killeen

**Director, National Center for Atmospheric Research
President, American Geophysical Union**

National Center for Atmospheric Research



- National Science Foundation funded Center, >1,000 Scientists and engineers, 48 year history
- Earth System Sciences: Computational and Observational Science and facilities for Weather, Climate, Chemistry, Space Weather, Society-Environment Interactions

American Geophysical Union

- World's largest Geophysics Society (>49,900 members, 20% students, 130 countries)
- Interdisciplinary science for the atmospheric and ocean sciences; solid-Earth sciences; hydrologic sciences; and space science

Walter Orr Roberts



“I have a very strong feeling that science exists to serve human welfare. It’s wonderful to have the opportunity given us by society to do basic research, but in return, we have a very important moral responsibility to apply that research to benefiting humanity.”



AGU Mission
AGU Council, 2005
EOS, Vol. 86, No. 23, 219, 2005



- **AGU is a worldwide scientific community that advances, through unselfish cooperation in research, the understanding of Earth and space for the benefit of humanity.**
- **AGU is advancing the Earth and space sciences by catalyzing and supporting the efforts of individual scientists within and outside the membership. We are organizing and disseminating information for the scientific community. As a learned society we meet our obligation to serve the public good by fostering quality in the Earth and space sciences and bringing the results of research to the public. These efforts are yielding greater numbers and diversity of well-educated students and young professionals in the Earth and space sciences, and are increasing the public's understanding and appreciation of the value of science and support for it.**

AGU Goals
AGU Council, 2005
EOS, December 5, 2006



- **AGU is known for its world-class communication of scientific knowledge within and beyond the Earth and Space science community**
- **AGU activities drive the integration of the Earth and Space sciences and related disciplines to advance knowledge and foster application to societal issues.**
- **A planet-wide network of Earth and Space scientists is working together to advance scientific knowledge and its applications**
- **The number and diversity of Earth and Space scientists continues to grow through the flow of young talent into the field**
- **Policy makers and the public show a broad appreciation of Earth and Space sciences as central to strategic decision making and societal well-being**
- **The quality and extent of AGU resources are sufficient to meet our current and future responsibility to science and society**

Statement of Values adopted by AGU Council
December 2005



AGU's mission, goals, guiding principles, programs, policies and procedures are built on a foundation of widely shared values.

We value:

The scientific method

The generation and dissemination of scientific knowledge

Excellence and integrity in everything we do

Free exchange of ideas and information

A diversity of backgrounds, scientific ideas, and approaches

The worth and dignity of individuals

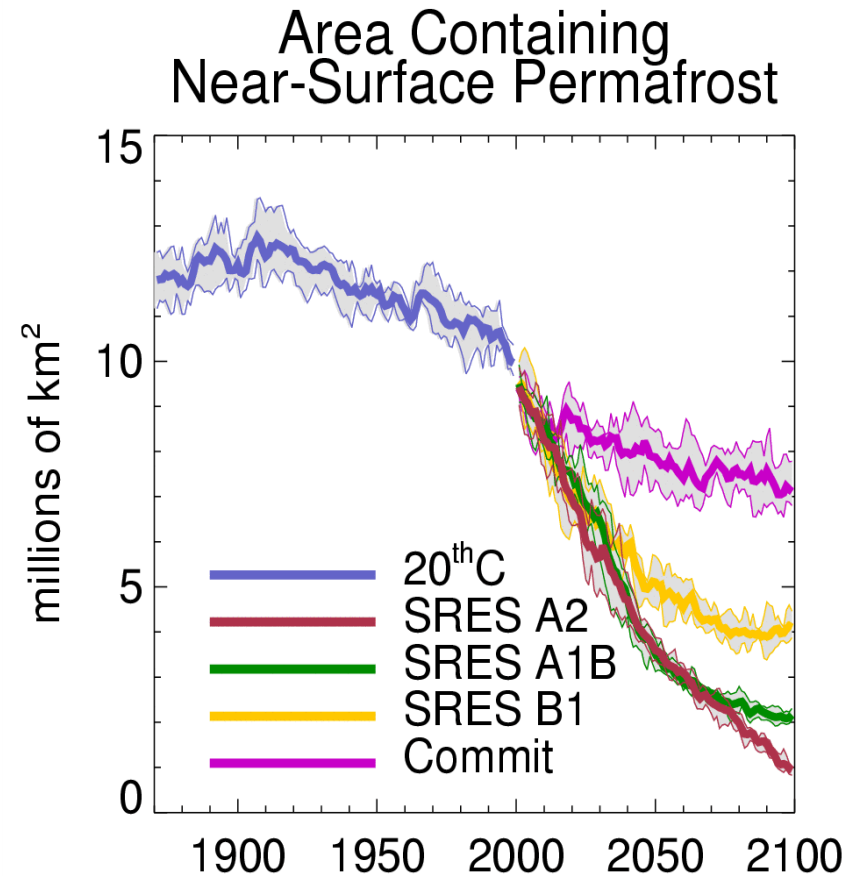
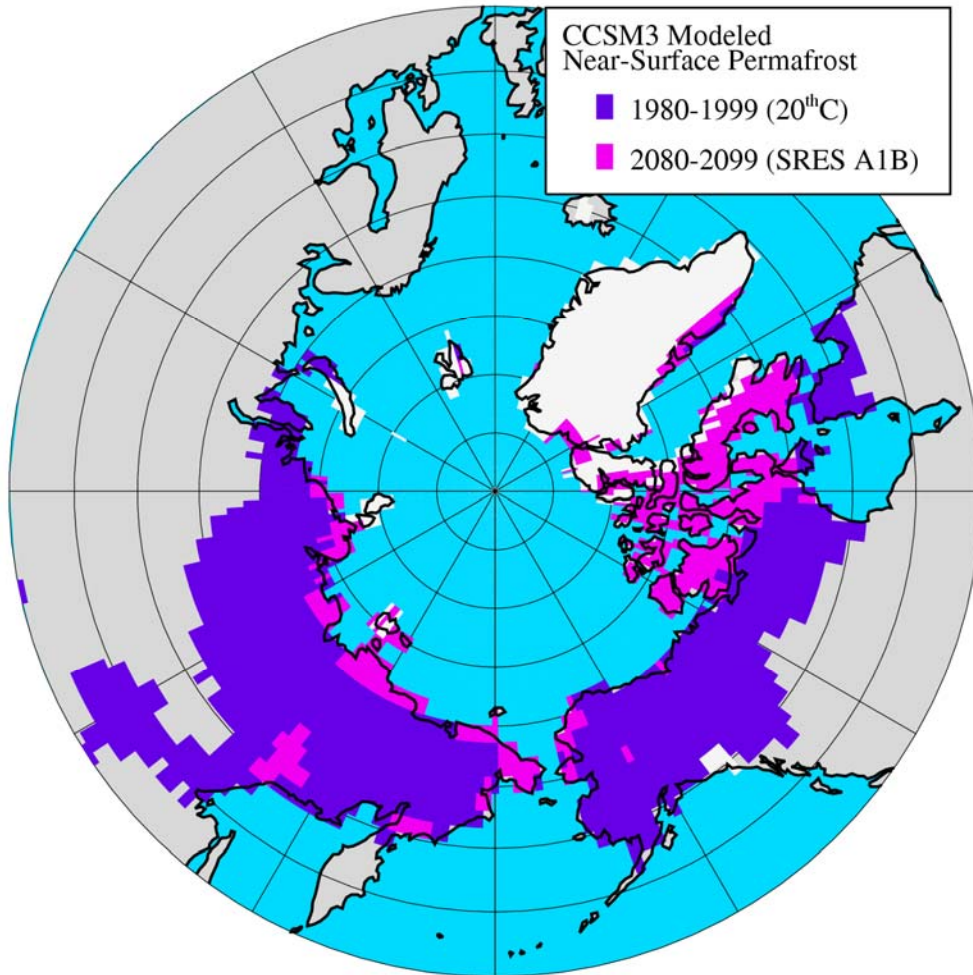
The volunteerism of members and the dedication of staff

Responsible stewardship of AGU resources

Accountability to the public

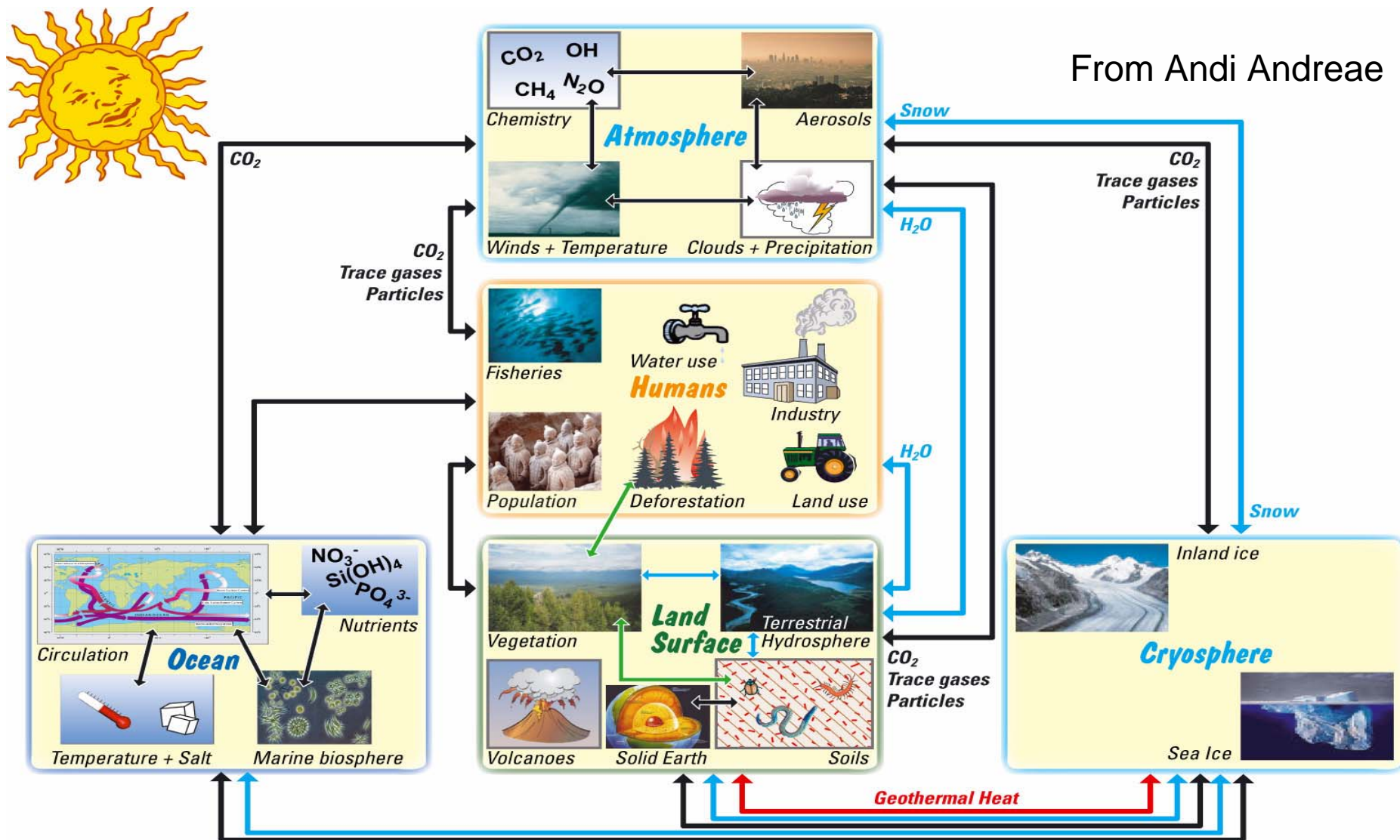
Unselfish cooperation in research

Projections of Degradation of Near-Surface Permafrost

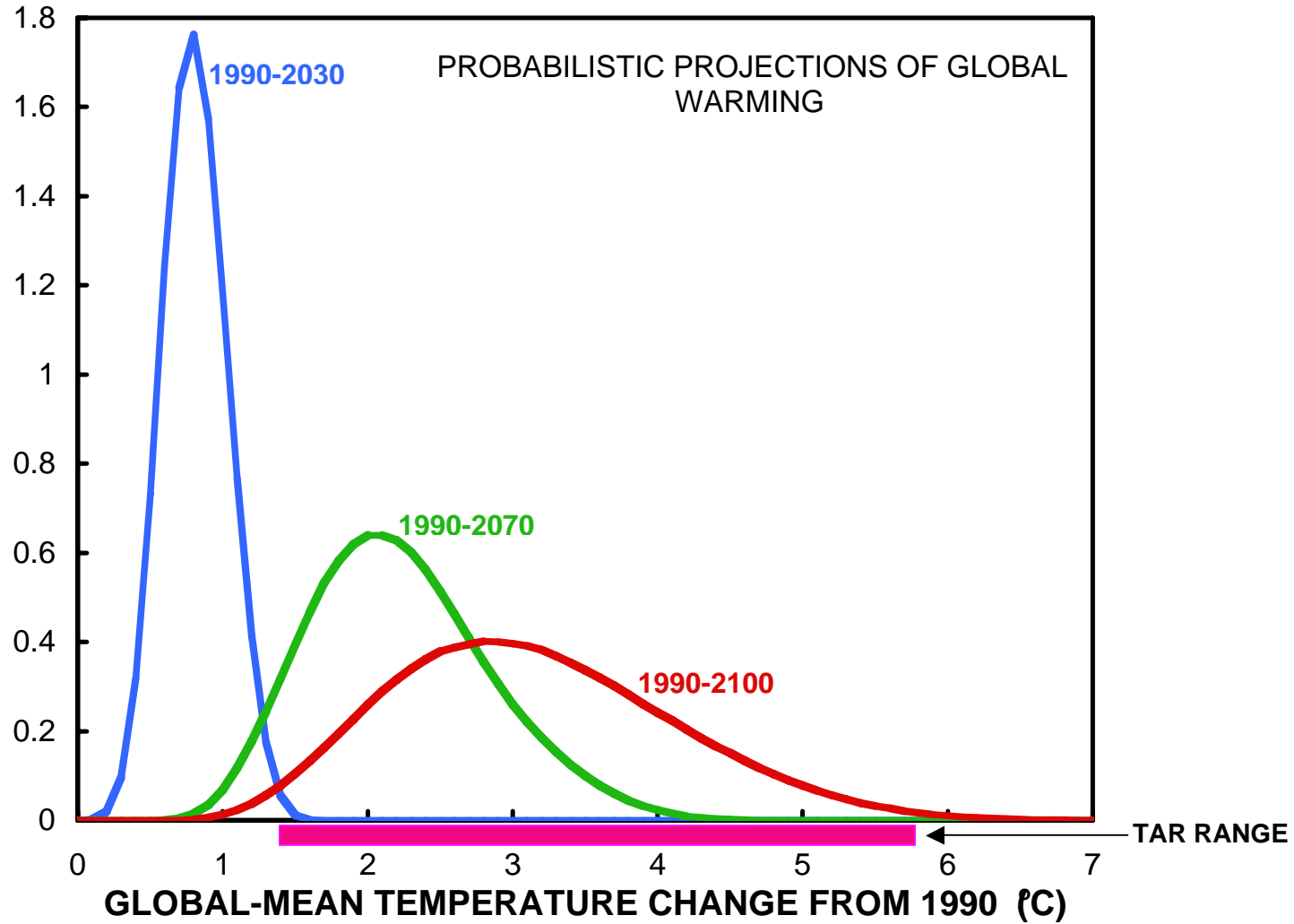


Lawrence and Slater, 2005

The Earth System



Probabilistic Outcomes



Wigley

Tony Blair

“What is now plain is that the emission of greenhouse gases...is causing global warming at a rate that began as significant, and is simply unsustainable in the long-term. And by long-term I do not mean centuries ahead, I mean within the lifetime of my children certainly; and possibly within my own. And by unsustainable I do not mean a phenomenon causing problems of adjustment. I mean a challenge so far-reaching in its impact and irreversible in its destructive power, that it alters radically human existence.”

The Two Cultures

- C. P. Snow

What scientists say:

- **90% of scientists think few members of the press understand the nature of science and technology**
- **66% said most press members have no idea how to interpret scientific results**
- **69% said most reporters have no understanding of scientific method**
- **More than 50% have had a bad experience**

What journalists say:

- **85% of reporters think scientists are somewhat or not at all accessible**
- **62% think scientists are so intellectual or immersed in their jargon that they cannot communicate**

So, It's getting more and more important

- **Our science directly affects policy and the economy: for example, all people are dependent on ecosystem services**
- **The Media and the scientific enterprise use quite different standards and approaches**

AGU Fall Meeting 2006

AGU Committee on Public Affairs



- **143 technical sessions sponsored solely or jointly by AGU Committee on Public Affairs**
- **At least 1 talk per session examines policy or management implications of scientific research under discussion**
- **16 different AGU sections or focus groups involved**
- **14 Union sessions include policy- and management-relevant talks**

AGU's Climate Statements

1998 (reaffirmed in 2002)

AGU believes that the present level of scientific uncertainty does not justify inaction in the mitigation of human-induced climate change and/or the adaptation to it.

2003:

The global climate is changing and human activities are contributing to that change.

2007:

Planned

AGU speaks out:

WASHINGTON - On 27 May 2005, the AGU Council adopted the position statement, "NASA: Earth and Space Sciences at Risk." The statement describes the impact of NASA's strategic plan, "A New Age of Exploration: NASA's Direction for 2005 and Beyond," on Earth and space science research at the agency. The cuts proposed to science programs at NASA in the Administration's Fiscal Year 2006 budget will severely affect our ability to understand natural hazards, map changes in Earth's surface, forecast space weather, understand Earth-Sun connections, and explore the solar system.

Harvey Leifert, AGU Press Officer

AGU Statement of Policy adopted by
AGU Council
May 1982



AGU is an association of scientists, scholars, and interested lay public for the purpose of advancing geophysical science. The Union shares a collateral sense of responsibility to assure that the results of geophysical research are made available to benefit all mankind. The Union encourages its members to exercise their individual sense of responsibility in addressing political and social issues. Should they choose to act collectively on such issues, other organizations exist for such purposes. The American Geophysical Union, as a society, should preserve its unique position as an objective source of analysis and commentary for the full spectrum of geophysical science.

So - AGU should not take or advocate public positions on judgmental issues that extend beyond the range of available geophysical data or recognized norms of legitimate scientific debate.

We are not social engineers.....

Yet, we have a growing and urgent responsibility to communicate the implications of our science cogently, clearly - and in a timely fashion

A Few Challenges for AGU

Creating and disseminating scientific knowledge with the utmost integrity

Dealing with changes to the Earth/Human system: adaptation and mitigation

Creating the pool of human capital able to meet the scientific and societal challenges

Responsibly informing societal decision makers with the best available science

Providing a venue for sound - and sometimes fallacious - theories to be aired - always with a focus on good science and the scientific method.

AGU must always take the “high road” - to preserve and enhance its reputation for excellence, credibility and integrity - but it’s going to be Mr. Toad’s Wild Ride.