

# Priestley Lecture 2011

CSIRO Marine and Atmospheric Research

## Dr Stephen Schwartz

Senior Scientist

Atmospheric Sciences Division, Environmental Sciences Department

Brookhaven National Laboratory, New York

## Toward an Ecology of Climate and Climate Change

3.30 to 4.30 pm

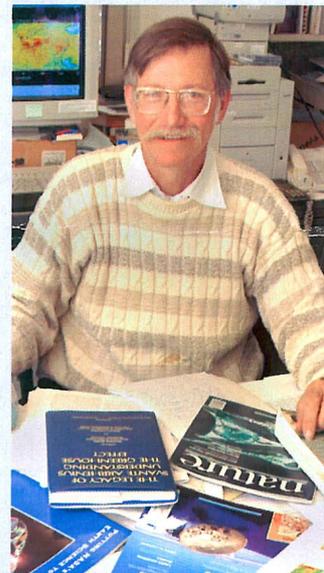
Wednesday 16 November 2011

Floor 6, Bureau of Meteorology

700 Collins St, Melbourne Docklands

The Priestley series of lectures began in 1995 in honour of Bill Priestley, founding Chief of CSIRO's former Atmospheric Division. This year's Priestley Lecture will be held as part of the Annual Workshop of The Centre for Australian Weather and Climate Research – a partnership between CSIRO and the Bureau of Meteorology.

The 2011 Priestley Lecture will be delivered by Dr Stephen Schwartz, an atmospheric scientist at Brookhaven National Laboratory. Dr Schwartz served from 2004 to 2009 as the Chief Scientist of the Atmospheric Science Program of the United States Department of Energy, charged with developing a comprehensive understanding of how the atmosphere processes energy related trace chemicals, such as nitrogen oxides, sulfur, aerosols and carbon dioxide.



Dr Stephen Schwartz

Dr Schwartz will describe an "ecological" approach to the study of Earth's climate system -- identifying the major compartments of Earth's climate system and quantifying the couplings among these compartments -- to advance understanding of the climate system and its responses to forcings. A primary objective of climate research is determination of the so-called equilibrium climate sensitivity, the normalized change in the global mean surface temperature that would ultimately result from a given sustained forcing.

>> If you plan to attend the lecture, please RSVP by  
10 November 2011 to Julie.Siedses@csiro.au

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This equilibrium sensitivity serves as a metric for assessing the amount of carbon dioxide that might be added to the atmosphere consistent with a given allowable increase in global temperature. An alternative, "ecological" approach examines the response of major compartments of the climate system to forcing over the industrial period. The transient and equilibrium sensitivities found for several published forcing data sets, which depend strongly on the forcing data set employed, are lower to well lower than the IPCC (2007) estimate for equilibrium sensitivity. The time scale for reaching the equilibrium temperature change following imposition of a forcing, about 500 years, suggests that the measure of climate sensitivity relevant to policy considerations is the lower, transient sensitivity.

Preceding the Priestley Lecture will be afternoon tea from 3.30pm, and the afternoon will conclude with refreshments.



**Bill Priestley (1915 - 1998)**

>>> If you plan to attend the lecture, please RSVP by 10 November 2011 to [Julie.Siedses@csiro.au](mailto:Julie.Siedses@csiro.au)

*The Priestley series of lectures began in 1995 in honour of Bill Priestley, founding Chief of CSIRO's former Atmospheric Division. Invited eminent scientists have been:*

- 1995: Akiva Yaglom from MIT, atmospheric turbulence
- 1996: Syukuro Manabe from Princeton, modelling global warming
- 1997: John Philip, CSIRO Environmental Mechanics, applying maths physics to environmental problems
- 1998: Susan Solomon, University of California, Berkeley, stratospheric ozone depletion
- 1999: Richard Goody, Harvard University, new observation techniques to validate climate models
- 2000: John Seinfeld, California Institute of Technology, organic atmospheric aerosols
- 2001: Stephen Schneider, Stanford University, climate change and sustainability
- 2002: Katepalli Sreenivasan, Maryland University, turbulent thermal convection
- 2003: Greg Carmichael, University of Iowa, the impact on acid deposition, air pollution and climate of changing trends in emissions in Asia
- 2004: Ronald G. Prinn, Massachusetts Institute of Technology, integrating science, economics and policy
- 2005: Tony McMichael, Australia National University, climate, environmental and ecosystem changes: challenges for health impact assessment
- 2006: Emeritus Professor Uri Shamir, Technion - Israel Institute of Technology, Water: Management under Uncertainty and Risk
- 2009: Professor Lawrence Mysak, President IAPSO, and Department of Atmospheric and Oceanic Sciences, McGill University, Montreal, Canada

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