



Shell Energy Security and Climate Change Seminar Series

The Science of Climate Change: A synthesis of observations, theory, and modeling

Lecture by

Keith W. Dixon

NOAA / Geophysical Fluid Dynamics Laboratory

Thursday, April 21, 2011

1:00 - 2:00 pm

Reception 2:00 - 2:30 pm

Biosciences 2.168

Engineering-Science Complex

Abstract

Over the past few decades, increased scientific knowledge of the physical climate system has led to compelling conclusions about how and why the global climate system is changing. Observations, theory, and computer modeling together send a consistent and scientifically robust message: our planet is warming, most of the warming of the past 50 years is due to human activity (mainly greenhouse gases), and it is reasonable to expect that these global-scale climate change trends will continue, and even accelerate, through the 21st century. Large-scale, human-induced climate trends are not limited to warming surface air temperatures, but can also be seen in other aspects of the physical climate system, including the hydrologic cycle, ocean, sea ice, and land surface features. Presented with these conclusions regarding changes in the global-scale physical climate on timescales of several decades to a century, it is not uncommon for stakeholders to ask about potential future climate change impacts for smaller regions, for factors other than the physical climate, and for shorter time scales. However, the transfer of relevant knowledge from the climate science community to decision-makers is not trivial. Scientific and communication challenges and uncertainties exist when making projections across the many time scales, spatial scales, and topics of interest to stakeholders. This presentation primarily will describe the underlying climate science, but will also touch on the topic of to what extent the demand for climate information intended to help people make better informed decisions can be met by the supply of credible, scientifically sound information.



Keith W. Dixon is a research meteorologist and climate modeler at the National Oceanic and Atmospheric Administration's (NOAA's) Geophysical Fluid Dynamics Laboratory (GFDL) in Princeton, New Jersey. His work involves the use of state-of-the-art computer models to simulate the Earth's global climate – past, present, and future – often with an emphasis on the ocean's role on decadal to centennial time scales. He has participated in national and international climate change assessment projects. In recognition of his contributions, Keith has received both an individual NOAA Research Employee of the Year Award and was twice awarded U.S. Department of Commerce (DoC) Silver Medals as a member of GFDL's global climate modeling teams.

Keith regularly participates in outreach activities, giving presentations on the science of climate change, collaborating with museums, and helping develop graphics, animations, and text that have appeared in numerous media outlets. He also has delivered briefings on Capitol Hill. His work was recognized in late 2008, when Keith was named by NOAA's Office of Oceanic & Atmospheric Research as the first winner of the Dr. Daniel L. Albritton Outstanding Science Communicator Award for achievement in communicating NOAA's science and research to non-scientific audiences.

Keith earned his undergraduate and graduate degrees in meteorology from Rutgers University. His early career experiences include working as a radio broadcast meteorologist in the northeastern US and teaching at Rutgers University.

For more information please visit
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