

Shell Center for Sustainability • AIR QUALITY IN HOUSTON

Shell Center **for Sustainability** **RICE UNIVERSITY**

DUNCAN HALL • MCMURTRY AUDITORIUM
Directions: www.rice.edu/maps

AIR QUALITY IN HOUSTON

Fall 2003 Seminar Series

Air Monitoring
October 7

Regulatory Issues
October 21

Modeling
November 4

Health Effects
November 19



Sponsored by
The Environmental & Energy Systems Institute

Rice University • 6100 Main Street • Houston, Texas • 77005
Shell Center for Sustainability • <http://www.ruf.rice.edu/~eesi/scs>

Shell Center for Sustainability

RICE UNIVERSITY

Welcome

The Shell Center for Sustainability at Rice University welcomes you to the Fall 2003 Seminar Series on AIR QUALITY IN HOUSTON.

Over the next two months, the Shell Center will host four seminars. Each one will focus on a critical component of the overall effort to improve Houston's air quality: air monitoring, regulations, modeling, and health effects.

The seminars will seek to both educate and serve as forums for the expression of views by key stakeholders representing non-government organizations, business, government and academia. They will consist of presentations by eminent air quality experts, followed by discussions featuring outstanding panelists from Houston and Texas.

In order to gain the maximum educational benefit from the seminars, the Shell Center will place videos and texts from each seminar on its web site.

We appreciate your participation, and we hope the seminars will make a positive contribution to improving the quality of Houston's air.

Sincerely,

Christian Holmes

Christian Holmes
Executive Director
Shell Center for Sustainability
Rice University



This program is printed on an environment-friendly paper stock

About the Shell Center for Sustainability

In July 2002, Rice University and the Shell Oil Company Foundation announced the establishment of the Shell Center for Sustainability. The Center is an affiliate of Rice's Environmental & Energy Systems Institute and is directed by Christian R. Holmes.

The Center's mission is to create an interdisciplinary program of education, research, and outreach to address the role of the private sector in implementing a sustainable future. The Center will draw upon the various strengths of the university and will collaborate with other highly respected regional, U.S., and global institutions of higher learning and nongovernmental organizations (NGOs) in this endeavor.

The fundamental premise that corporate decision-making is critical to a successful strategy for improving social, environmental and economic welfare will underpin the Center's work. Development and evolution of technologies and business models will be focus areas since they help define the landscape within which private sector decision-making occurs. The Center is especially concerned with how public sector policies impact the ability of the private sector to implement a sustainable future, one that can provide people a cleaner environment and a better life.

An interdisciplinary approach is critical to understanding and improving the implementation of corporate sustainability strategies. There are roles for both national and international regulation, new technologies, and improved management, measurement, and reporting systems that drive corporate actions. Implementation of this vision requires contributions from the physical, social, and management sciences.

The Center will be enabled by fellowship support to attract top young scholars from around the world -- from both developed and developing nations -- to pursue graduate study and research on sustainability issues. The Center will also support outstanding visiting scholars and sponsor outreach programs designed to inform policy-makers, business leaders, NGOs, and the general public while stimulating better-informed dialogue.

OBJECTIVES of the Shell Center for Sustainability

- Create new technologies, processes, products, and market mechanisms that will advance sustainable economic growth and a sound public infrastructure;
- Develop new tools in engineering, the social sciences, and the natural sciences that enhance the understanding of requirements for sustainability, help remove institutional barriers to sensible environmental and social practices, and contribute to new policy instruments for achieving sustainability;
- Provide society with broadly educated environmental, technical, and natural resource experts to mold future decision-making in the private and public sectors to help assure a more sustainable future in both developed and developing nations;
- Enhance the exchange of information in the public and private sectors by serving as an independent forum for open discussion and constructive dialogue on sustainable development issues and policies across a broad spectrum of stakeholders, including U.S. and international business leaders, academia, NGOs, and senior policy makers;
- Research issues posed by environmental and societal impacts arising from economic activities;
- Develop new engineering and scientific curricula to educate a new generation of scientists who will incorporate sustainability concepts into business plans, designs, and processes;
- Advance thinking around market-based mechanisms that can be deployed to enhance sustainability;
- Develop linkages with other institutions and non-government organizations at a local, regional, national, and international level.

AGENDA

Moderator:

Christian R. Holmes, Executive Director
Shell Center for Sustainability/
Environmental & Energy Systems Institute, Rice University

AIR MONITORING

*Regional Strategies for Meeting Ozone Standards:
What Do We Need in Houston?*

TUESDAY, OCTOBER 7, 2003 • 7:00 PM

Speaker:

Dr. Peter Daum
Head, Atmospheric Sciences
Brookhaven Nat'l Laboratory
Department of Energy

Panelists:

Mr. Walter Crow, URS
Dr. Dave Sullivan, TCEQ
Dr. Matthew Fraser, Rice University
Mr. John Wilson, Galveston-Houston
Association for Smog Prevention

REGULATORY ISSUES

*How will Current Regulations be Revised to
Improve Air Quality?*

TUESDAY, OCTOBER 21, 2003 • 7:00 PM

Speaker:

Mr. Randy Wood
Deputy Director
Environmental Policy Analysis
Texas Commission on
Environmental Quality

Panelists:

Mr. Jim Blackburn, Blackburn & Associates
Mr. Ed Feith, Reliant Energy
Mr. David Crossley, Gulf Coast Institute
Mr. David Hitchcock, HARC
Mr. Rob Barrett, Harris Cty Pollution Cntrl

MODELING

*How Well Do Quality Models Simulate Air Pollution Emissions &
Corresponding Reductions Needed to Protect Health and the Environment?*

TUESDAY, NOVEMBER 4, 2003 • 7:00 PM

Speaker:

Dr. Harvey Jeffries
Professor, Environmental
Sciences and Engineering
University of North Carolina

Panelists:

Industry Representative (to be announced)
Dr. Katherine Ensor, Rice University
Dr. Daewon Byun, University of Houston
Mr. Chuck Mueller, TCEQ

HEALTH EFFECTS

*What are the Health problems caused or exacerbated by
Houston's Air Pollution?*

WEDNESDAY, NOVEMBER 19, 2003 • 7:00 PM

Speaker:

Dr. Winifred J. Hamilton
Director, Environ. Health
Chronic Disease Prevention &
Control Research Center
Baylor College of Medicine

Panelists:

Dr. Alvin Tarlov, Baker Inst. for Public Policy
Ms. Jane J. Laping, Mothers for Clean Air
Industry Representative (to be announced)
Dr. Stuart Abramson, Baylor College of
Medicine

SPEAKERS

Peter H. Daum, *Brookhaven National Laboratories*

Dr. Peter H. Daum is Division Head of the Atmospheric Sciences Division, Brookhaven National Laboratory and also a chief scientist for the Department of Energy Atmospheric Sciences Program. He has a B.S. in Chemistry from Drexel Institute of Technology and a Ph.D. from Michigan State University. His scientific work has focused on the effects of emission of energy -related pollutants on the atmosphere. Dr. Daum was the principal scientist of the DOE funded 1991 expedition to the Middle East to study environmental effects of oil-fires set by the retreating Iraqi Army during the 1991 Gulf War. He has led studies of photochemical air pollution in Texas, Nashville, New York, Phoenix, Philadelphia, and the Northeast. The results, particularly from the Texas study, have had direct impact on strategies being proposed and implemented to control the Nation's air quality.

Randy Wood, *Texas Commission on Environmental Quality*

Mr. Randy Wood is Deputy Director for the Office of Environmental Policy, Analysis & Assessment of TCEQ (Texas Commission on Environmental Quality), where he oversees regulations and policy positions in air, water, and waste management. He has a B.S. from the University of Texas at Austin and M.S from Southern Methodist University. He has served on various task forces and was appointed to the Strategic Environmental Research and Development Program Scientific Advisory Board by the Secretary of Defense, the Environmental Health and Safety Advisory Committee by the Secretary of Energy, and the Nebraska Environmental Trust Board. Mr. Wood has served as Executive Secretary of the Wyoming Governor's Acid Rain Coordinating Committee and was elected President of the State Air Pollution Control Administrators Association.

Harvey Jeffries, *University of North Carolina at Chapel Hill*

Dr. Harvey Jeffries is Professor of Atmospheric Chemistry at the University of North Carolina-Chapel Hill. His research focuses on gas-phase atmospheric chemistry and mathematical modeling of urban air chemistry. He has been lead investigator in creating and implementing a new photochemical reaction simulation methodology to simulate complex organic chemistry. With researchers from UNC School of Medicine, he is now conducting gas-phase and particle experiments to test air quality effects on human lung cells and has been active in using these models to plan public policy. In Texas, Dr. Jeffries is a scientific advisor to Houston's Business Coalition for Clean Air Appeal Group, a member of the Research Advisory Committee for the Texas Air Research Center at Lamar University, and a member of the Science Advisory Committee of the Texas Environmental Research Consortium.

Winifred J. Hamilton, *Baylor College of Medicine*

Dr. Winifred J. Hamilton is an Assistant Professor at Baylor College of Medicine with joint appointments in Neurosurgery and Medicine. She is Director of the Environmental Health Section within the Chronic Disease Prevention and Control Research Center, which focuses on: (1) geospatial modeling and biostatistics, and (2) community outreach and education. The section is currently working on a pilot study analyzing relationships between Harris County hospital admissions and exposure to air pollution. It is also working with HISD on a pilot study to define environmental health hazards in elementary schools and their surrounding neighborhoods. Dr. Hamilton is author or co-author of over 40 publications and has served on the Board of Directors of the Galveston-Houston Association of Smog Prevention, Mothers for Clean Air, and the Gulf Coast Institute.

MODERATOR

Christian Holmes, *Shell Center for Sustainability, Rice University*

Mr. Christian Holmes serves as Executive Director of both the Rice University Shell Center for Sustainability and the Environmental & Energy Systems Institute. He has held a number of senior executive positions including: Vice President for Environment, Safety and Health at Tenneco Energy; Chief Financial and Administrative Officer for the U.S. Environmental Protection Agency; Director of the U.S. Trade and Development Agency (TDA); Executive Director of the President's Task Force on International Private Enterprise; and Principal Deputy Assistant Secretary of State for Refugee Programs.

PANELISTS

Stuart Abramson, *Baylor College of Medicine*

Stuart Abramson, M.D., Ph.D. is Assistant Professor of Pediatrics and of Microbiology and Immunology at Baylor College of Medicine. He is locally involved in a study of multiple triggers in middle school children with hard-to-control asthma, a surveillance and intervention program for asthmatic children who visit area emergency centers, and "Stop Asthma," a computer-aided program to help minority children better manage their asthma. He chairs a task force that hopes to create a collaborative children's environmental health center at the Texas Medical Center.

Ramón Alvarez, *Environmental Defense*

Dr. Ramón Alvarez is a scientist in the Global and Regional Air Program of the Texas Office of Environmental Defense, promoting attainment of air quality standards in Texas cities and cleaner air in Big Bend National Park. He has worked with industries on the US-Mexico border to find cost-effective methods of reducing waste and pollution, and he serves on the Pollution Prevention Advisory Committee of the Texas Commission on Environmental Quality. He has a B.S. in Chemistry from Duke University and Ph.D. in Physical Chemistry from UC-Berkeley.

Rob Barrett, *Harris County Pollution Control*

Mr. Rob Barrett serves as Director of Harris County Pollution Control, which relies on citizens to report pollution incidents and illegal solid waste dumping. Pollution Control successfully intervened against a move to strike air pollution nuisance provisions from the Texas Clean Air Act that would have made it impossible for citizens to complain about noxious odors and air contaminants. Pollution Control also oversees the Harris County Supplemental Environmental Project, which enables Texas inmates to perform community services benefiting the environment.

Jim Blackburn, *Galveston Bay Conservation and Preservation Association*

Mr. Jim Blackburn is an environmental attorney with a M.S degree. in Environmental Science from Rice University. He has practiced environmental law in Houston for thirty years and teaches in the Civil & Environmental Engineering Department at Rice. He is an environmental activist, Chair of the Galveston Bay Conservation and Preservation Association, and a member of the board of the Matagorda Bay Foundation. His book on Texas Bays is forthcoming from Texas A&M Press in winter, 2003.

Daewon Byun, *University of Houston*

Dr. Daewon Byun is Professor of Geosciences and Chemistry at the University of Houston and Director for the UH Institute for Multidimensional Air Quality Studies (IMAQS). He was technical leader of the EPA Models-3 Community Multiscale Air Quality (CMAQ) project. He serves as a committee member for NCAR, NOAA, the Community Modeling and Analysis System (CMAS), Texas Commission for Environmental Quality (TCEQ), Houston Advanced Research Center (HARC), and the American Meteorological Society.

David Crossley, *Gulf Coast Institute*

Mr. David Crossley is President and founder of the Gulf Coast Institute, which focuses on urban growth issues relating to the economy, community, and environment, as well as leader of the Livable Houston/Smart Growth Initiative. He has served as President of the Citizens' Environmental Coalition, on the transportation policy panel for the Houston-Galveston Area Council, and as Chair of the Urban Structure Task Force for the City of Houston Planning Department's City-Wide Committee for Clean Air.

Walt Crow, *URS*

Mr. Walt Crow is Senior Project Manager at URS (formerly Radian) and manages the Houston Regional Monitoring Network, which measures air quality in the Houston Ship Channel industrial corridor. He has participated in a number of chemical fate studies used to assess environmental impacts of urban/industrial pollution, including the Houston Area Oxidant Study, the Houston Aerosol Characterization Study, the TNRCC Houston Oxidant Study, and the Coastal Oxidant Study for Southeast Texas (COAST).

Katherine Ensor, *Rice University*

Dr. Katherine Ensor is Professor and Chair of the Department of Statistics at Rice University and a faculty member of the Computational and Informational Technology Institute (CITI), Keck Center for Computational Biology, and Environmental & Energy Systems Institute. Her research centers on categorical time series, spatial statistics, spatial-temporal methods, estimation for stochastic process and environmental statistics. She received a B.S.E. and M.S. from Arkansas State University and a Ph.D. from Texas A&M University.

Ed Feith, *Reliant Resources*

Mr. Ed Feith is Managing Director of Environmental Safety & Industrial Health for Reliant Resources. He serves as leader of the Reliant team addressing White House and Congressional initiatives to pass multi-pollutant legislation. He has led successful negotiations on a lawsuit over Houston air control rules, and has integrated legislative, judicial and regulatory aspects to lower costs by \$100+ million. He has an M.S. in Civil Engineering from The University of Houston and a B.S. in Civil Engineering from The University of Texas.

Matthew Fraser, *Rice University*

Dr. Matthew Fraser is an Assistant Professor of Civil & Environmental Engineering at Rice University and is Rice's first air-quality researcher. He received his B.S. in Chemical Engineering from Carnegie Mellon University and his Ph.D. in Environmental Engineering from California Institute of Technology. He is the co-principal investigator of a \$3.65-million EPA grant together with Dr. David Allen of the University of Texas-Austin, studying atmospheric fine particles in Houston.

Shell Center for Sustainability • AIR QUALITY IN HOUSTON

David Hitchcock, Houston Advanced Research Center

Mr. David Hitchcock is an urban and regional planner involved in transportation, air quality and energy programs affecting sustainable development, and he serves as Deputy Director of the Environmental Group at the Houston Advanced Research Center (HARC). He also manages a \$4.5 million air quality research program for the Texas Environmental Research Consortium (TERC), and directs a project analyzing deployment of hybrid electric trucks in Texas and a program addressing effects of urban heat island on air quality.

Jane J. Laping, Mothers for Clean Air

Ms. Jane J. Laping is Executive Director of Mothers for Clean Air. She is the City of Houston citizens' representative on the Houston-Galveston Area Council-Regional Air Quality Planning Committee and a board member of the Galveston-Houston Association for Smog Prevention (GHASP). She serves on the advisory boards of the Environmental Institute of Houston and Texans for Alternatives to Pesticides (TAP). Ms. Laping has an MPH from the University of Texas and an MS in microbiology from Emory University.

Chuck Mueller, Texas Commission on Environmental Quality

Chuck Mueller is a Senior Policy Analyst in the Office of Environmental Policy Analysis and Assessment with TCEQ. He has been extensively involved with the development of the Texas State Implementation Plan for the last eleven years. For the last five years, he has also been involved in the development and implementation of the Total Maximum Daily Load program for water quality, the state's Municipal Solid Waste Capacity Plans, and the Texas Emission Reduction Program (diesel retrofit and replacement program).

Dave Sullivan, Texas Council on Environmental Quality

Dr. Dave Sullivan has worked in air quality monitoring and modeling for TCEQ since 1993, and he currently serves as manager of the Monitoring Data Management & Analysis Section in the Monitoring Operations Division. He has written or co-authored numerous papers on the use of statistics and mathematical models to plan emission controls, to site monitors, and to evaluate ambient data. He has an A.B. from Harvard University, and M.S. in Industrial Engineering and Ph.D. in Management Science & Information Systems from the University of Texas at Austin.

Alvin Tarlov, James A. Baker III Institute for Public Policy

Alvin Tarlov, M.D. is a Professor at the University of Texas School of Public Health and the Sid Richardson and Taylor and Robert H. Ray Senior Fellow in Health Policy at the James A. Baker III Institute for Public Policy at Rice University. In 1999, he became Director of the multi-university Texas Program for Society and Health. He has directed health education and disease prevention programs at the Kaiser Family Foundation, Tufts University, Harvard University, the University of Chicago, and the New England Medical Center.

John Wilson, Galveston-Houston Association for Smog Prevention

Mr. John D. Wilson is Executive Director of the Galveston-Houston Association for Smog Prevention. Previous work experience includes transportation consulting, environmental policy analysis for the Florida Legislature, and leadership of the Houston Foresight program at the Houston Advanced Research Center. Foresight created a comprehensive report evaluating risks associated with environmental problems facing the Houston region. Mr. Wilson has a B.S. from Rice University and Masters in Public Policy from Harvard University.

⋮