

# PROGRAM

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**January 16-18, 2008**

**Ronald Reagan Building and International Trade Center**  
1300 Pennsylvania Avenue, NW, Washington DC 20004

**The National Council for Science and the Environment (NCSE)** improves the scientific basis of environmental decisionmaking through collaborative programs with diverse communities, institutions and individuals.

The Council works for a society where environmental decisions are based on an accurate understanding of the underlying science, its meaning and limitations, and the potential consequences of action or inaction.

While an advocate for science and its use, the Council does not take value positions on environmental outcomes and is dedicated to maintaining and enhancing its reputation for objectivity, non-partisanship, and achievement.

The Council has programs in five strategic areas (for details please visit [www.NCSEonline.org](http://www.NCSEonline.org)).

#### **SCIENCE SOLUTIONS FOR ENVIRONMENTAL CHALLENGES**

The Council brings stakeholders together to develop and implement science-based solutions to specific environmental challenges. Programs in this area include:

- The **National Commission on Science for Sustainable Forestry** provides practical information and tools to serve the needs of forest managers and policymakers to improve sustainable forestry.
- The **Wildlife Habitat Policy Research Program** produces information and tools to accelerate the conservation of wildlife habitat in the United States through State Wildlife Habitat Plans.
- The **Outlook Forest Research Dialogue** enhances research coordination, collaboration, and partnership within the forestry community.

#### **STRENGTHENING EDUCATION**

NCSE brings members of the academic community together to improve their environmental programs and increase their value to society. Programs in this area include:

- The **University Affiliate Program** provides services to advance programs at 140 member schools ranging from large private and public research institutions to smaller liberal arts institutions.
- The **Council of Environmental Deans and Directors** brings academic leaders together to improve the quality and effectiveness of environmental programs on the nation's campuses.
- The **EnvironMentors Program** prepares high school students for college programs and careers in science and environmental professions.

#### **NATIONAL CONFERENCE ON SCIENCE, POLICY AND THE ENVIRONMENT**

The Council annually convenes a national conference that brings together over 800 leaders from science, government, corporate and civil societies to develop strategies to improve science-based decisionmaking on a major environmental theme. The conference includes the annual John H. Chafee Memorial Lecture on Science and the Environment. Following the conference the strategies are disseminated and used to catalyze new initiatives with stakeholder communities.

#### **PUBLIC EDUCATION – THE ENCYCLOPEDIA OF EARTH ([www.eoearth.org](http://www.eoearth.org))**

NCSE is committed to communicating science-based information to decisionmakers and the general public in a way that is comprehensive and accessible. Through the **Environmental Information Coalition**, the online **Encyclopedia of Earth** was launched in September 2006. Currently, more than 500 scholars from 30 countries had written, reviewed and published over 1,000 articles on a wide range of topics. The initiative is rapidly expanding, adding new resources such as electronic books and maps.

#### **SCIENCE POLICY**

NCSE builds understanding of, and support for, environmental science and its applications, and the programs that make it possible. The Council presents expert testimony to Congressional committees, consults regularly with key decisionmakers in government, and works to promote funding for environmental programs at numerous federal agencies.

# *Climate Change: Science and Solutions*

## 8<sup>th</sup> National Conference on Science, Policy and the Environment

### Agenda

**Wednesday, January 16, 2008**

8:00 am      **Registration Opens** (Atrium Hall)

9:30 am -      **Skill-building Workshops** (Registration Required)  
12:00 pm      *See page 11 for more information.*

*Meeting Rooms*

Meridian C  
Continental B  
Continental C  
Hemisphere B

Meridian B

Polaris C  
Horizon B  
Meridian D

EPA East Bldg, 1<sup>st</sup> Fl.  
Constitution Ave\*  
UMD Smith Center,  
Ground Level

UMD Smith Center,  
Concourse Level

Polaris B  
Continental A  
Oceanic B  
Classroom D  
Gateway  
Meridian E  
Meridian A

Oceanic A  
Classroom C  
Polaris A  
Horizon A  
Hemisphere A

EPA, 5<sup>th</sup> Floor  
Conf. Room 1\*\*

Atrium Hall

Campus-Based/University Initiatives

1. Renewable Energy Hedges: A Tool for Campus and Institutional Sustainability
2. Campus Solutions to Global Warming
3. Focus the Nation: Campus-based Education and Action
4. Developing Campus-Wide Initiatives on Climate Change, Energy Use, and Sustainability

5. Using the Clean Air-Cool Planet Campus Carbon Calculator

Government, Community, and Policy Solutions

6. Developing a Climate Change Reduction Plan for State & Local Governments
7. Building Local Community Support for State and Federal Climate Legislation
8. Tools to Assist State and Local Governments Make Sound Decisions Regarding Energy and Environmental Technology

9. Climate Change Risks, Challenges, and Opportunities: Equipping the Next Generation of Federal Leaders to Tackle It
10. People of Faith Respond to Climate Change

Climate Change Education: Formal and Informal

11. Integrating Climate Change into the K-12 Classroom

12. Teaching Climate Change to Undergraduates
13. An Abbreviated World Wildlife Fund (WWF) Climate Camp
14. Climate Careers: Finding Your Career Pathway
15. Earth Portal and the Encyclopedia of Earth: A Resource for Climate Change
16. Council of Energy Research and Education Leaders: Organizing Meeting
17. Developing a Framework for Climate Literacy
18. Addressing Human Population Growth with Accuracy and Confidence

Monitoring and Assessment Tools

19. Tools for Forest Carbon Inventory, Management, and Reporting
20. Carbon Footprint Calculators and Carbon Reduction Tools
21. Technical Methods to Inventory and Monitor GHG Emissions
22. Making Sense of Carbon Offsets
23. NASA Earth Observations and Models Informing Decision-making in Support of Climate Change Mitigation and Adaptation
24. Measurement Science for Climate Research

Communications

25. Communicating Climate Change Science and Solutions

*\*Participants for Session 9 meet at Constitution Ave Entrance to EPA East Building at 9:15am.*

*\*\*Participants for Session 34 meet at EPA Security Desk in Reagan Building (Ground Floor) at 9:15am*

- 12:00 pm **Showcase of Solutions – Exhibition and Scientific Poster Presentations Open** (Atrium)  
**Lunch** (on your own -- food court in the building)  
**Climate Change Photography by Gary Braasch**, from his website "World View of Global Warming.org" and book *Earth Under Fire: How Global Warming is Changing the World* (Atrium, projected – all day, between sessions)
- 1:00 pm **Climate Change: Science to Solutions – What Do We Know? How Do We Act in Time and in Appropriate Scale?** (Atrium Hall)  
**Welcome**  
*Amb. Richard Benedick*, President, National Council for Science and the Environment  
**Keynote Address**  
*Mohan Munasinghe*, Vice Chair, Intergovernmental Panel on Climate Change (IPCC); Chairman, Munasinghe Institute for Development (MIND)  
**Recorded Opening Remarks**  
*The Honorable Ólafur Ragnar Grímsson*, President of Iceland
- 2:00 pm **Plenary Presentation - Summarizing Global Change Science and the Likely Implications of Climate Change** (Atrium Hall)  
Moderator: *Mohan Munasinghe*, Vice Chair, Intergovernmental Panel on Climate Change (IPCC); Chairman, Munasinghe Institute for Development (MIND)  
The Atmosphere and the Cryosphere: *Michael MacCracken*, Chief Scientist for Climate Change Programs, The Climate Institute  
Biodiversity and Ecological Impacts: *Thomas Lovejoy*, President, The H. John Heinz III Center for Science, Economics, and the Environment  
Human (Health and Well-being) Impacts: *Sarah James*, Alaskan Gwitch'in Steering Committee and Goldman Environmental Prize Awardee  
National Security Impacts: *Sherri Goodman*, General Counsel, The CNA Corporation
- 3:30 pm **Plenary Presentation - Tackling Global Change: Key Social and Ecological Issues for Mitigation and Adaptation** (Atrium Hall)  
Moderator: *Arden Bement, Jr.*, Director, National Science Foundation (NSF)  
Oceans: Carbon Sink, or Sinking Ecosystems? *Margaret Leinen*, Chief Scientific Officer, Climos  
Forest Management Response to Climate Change: *Abigail Kimbell*, Chief, US Forest Service (USFS)  
Ecosystem and Health Challenges: *Mary Pearl*, President, Wildlife Trust  
People: The Solution: *Thomas Dietz*, Director, Environmental Science and Policy Program; Assistant Vice President for Environmental Research, Michigan State University
- 4:30 pm **Plenary Presentation - Tackling Global Change: Key Energy and Technology Issues for Climate Stabilization** (Atrium Hall)  
Moderator: *Mark Myers*, Director, US Geological Survey (USGS)  
Global Energy and Technology Strategy: *Jae Edmonds*, Global Energy Strategy Technology Program, Joint Global Change Research Institute (JGCRI), University of Maryland/Pacific Northwest National Laboratory  
Healthy Solutions for a Low Carbon Economy: *Paul Epstein*, Associate Director, Center for Health and the Global Environment, Harvard Medical School  
Role of Technology in Mitigating Global Climate Change: *Frank Princiotta*, Director, Air Pollution Prevention and Control Division, Office of Research and Development, US Environmental Protection Agency (EPA)  
A Post-Bali Framework for Climate Technology Innovation: *Lewis Milford*, President, Clean Energy Group  
Commentary on Energy and Technological Challenges: *David Rodgers*, Deputy Assistant Secretary, Energy Efficiency and Renewable Energy, US Department of Energy (DOE)

- 5:30 pm – **Youth Posters and Exhibitors Reception-Sponsored by Lighting Science, CLIF Bar, and Stonyfield Farms**  
 6:30 pm **Book Signings** (Atrium)  
*The Last Little Polar Bear* : *Timothy Foresman*, President, Global Water; President, International Center for Remote Sensing Education  
*Earth Under Fire: How Global Warming is Changing the World*, *Gary Braasch*, Environmental Photographer  
*Environment, 6<sup>th</sup> Edition*, *David Hassenzahl*, Chair and Associate Professor, Department of Environmental Studies, University of Nevada Las Vegas
- 6:30 pm – **Perspectives of the Next Generation of Climate Change Leaders** (Atrium Hall)  
 8:00 pm **Moderator: Douglas Cohen**, US Partnership for Education for Sustainable Development, National Youth Initiatives and Session Co-Organizer
- Opening remarks:  
*Eban Goodstein*, Project Director, Focus the Nation
- Speakers:  
 The Envirolution: *Alex Gamboa, Timothy Polmateer, Antuan Cannon*  
 DoRight Enterprises: *Scott Beall, Madeleine Skaller, James Smith*  
*Jessy Tolkan*, Energy Action Coalition
- 8:00 pm **\*\*Post Conference Social Outing (Atrium foyer)**  
**Interested students and young professionals meet in Atrium foyer**

## Thursday, January 17, 2008

- 8:00 am **Registration & Continental Breakfast** (Atrium Hall Foyer)  
**Showcase of Solutions: Exhibition and Poster Session** (Atrium)  
**Climate Change Photography by Gary Braasch**, from his website "World View of Global Warming.org" and book *Earth Under Fire: How Global Warming is Changing the World* (Atrium, projected – all day, between sessions)
- 9:00 am **Welcome** (Atrium Hall)  
*Amb. Richard Benedick*, President, National Council for Science and the Environment
- Climate Change: Science to Solutions – The Case for Business Leadership Introduction** (Atrium Hall)  
*Karim Ahmed*, Secretary/Treasurer, National Council for Science and the Environment
- Keynote Address**  
*James E. Rogers*, President and Chief Executive Officer, Duke Energy Corporation
- 10:00 am **Plenary Roundtable –Solutions: Engaging Communities Large and Small** (Atrium Hall)  
Moderator: *Peter Senge*, Founding Chairperson, Society for Organizational Learning  
Energizing the Faithful: *Rev. Richard Cizik*, Vice-President, National Association of Evangelicals  
Engaging the Campuses: *Michael Crow*, President, Arizona State University  
Engaging the Populace: *Bill McKibben*, Author, Scholar-in-residence in Environmental Studies at Middlebury College  
Bringing Together Jobs, Justice, Environment, and Community: *Jerome Ringo*, President, Apollo Alliance

11:00 am **Plenary Roundtable - Solutions: Engaging Communities Large and Small** (Atrium Hall)  
Moderator and Opening Remarks – Global Leadership for Climate Action: A Post-2012 Framework:  
Mohamed El-Ashry, Senior Fellow, The UN Foundation; Former CEO and Chairman, Global Environment Facility  
Post-Kyoto International Agreements: **Amb. Richard Benedick**, President, National Council for Science and the Environment  
IPCC: Future Role Beyond the 4<sup>th</sup> Assessment: **Stephen Schneider**, Melvin and Joan Lane Professor for Interdisciplinary Environmental Studies, Stanford University  
Global Energy Assessment: **Robert Corell**, Director, Global Change Program, The H. John Heinz III Center for Science, Economics, and the Environment  
Perspective on Bali and Beyond: **Jonathan Pershing**, Director, Climate, Energy and Pollution Program, World Resources Institute

12:15 pm **Lunch** (On your own - food court in the building)  
 \*\* Breakout Session Chairs and Volunteers meet in Polaris A

1:30 pm- **Concurrent Breakout Sessions**  
 5:00 pm *Please see page 14 for session descriptions and discussants.*

*Sessions at the Woodrow Wilson Center, Marriott Hotel, and the U.S. Department of the Interior meet at the Registration Desk at 1:15pm to walk to your session as a group.*

<u>Meeting Rooms</u>	<u>Strategies for Stabilization, Mitigation and Adaptation</u>
Compass	1. Green Buildings and Building Design
Meridian C	2. Moving Forward: Transportation & Emissions Reduction
Continental A	3. Animal Agriculture and Climate Change
Continental B	4. Minimizing Agricultural Impacts on Climate; Minimizing Climate Impacts to Agriculture
EPA 4 <sup>th</sup> Floor ORMA Conf Room 2*	5. Mitigating Greenhouse Gases other than CO <sub>2</sub>
Meridian D	6. Energy Efficiency and Conservation
Continental C	7. Biofuel Industry and CO <sub>2</sub> Emissions: Implications for Policy Development
Polaris C	8. Solar Energy: Scaling Up –Science and Policy Needs
Meridian E	9. How to Ensure Wind Energy is Green Energy
Oceanic A	10. Nuclear Energy: Using Science to Make Hard Choices
Oceanic B	11. Economics: Setting the Price for Carbon
Horizon B	12. Forests and Markets for Ecosystem Services
Horizon A	13. Policy: Challenges of GHG Rulemaking: Where the Rubber Meets the Road
Classroom A	14. Engaging China on a Pathway to Carbon Neutrality
Woodrow Wilson Center	15. Human Population & Demographics: Can Stabilizing Population Help Stabilize Climate?
Gateway	16. Urban Responses to Climate Change in Coastal Cities
Polaris B	17. Climate Change Adaptation for the Developing World: Expanding Africa’s Climate Change Resilience
Polaris A	18. Coastal Managers and Climate Change
Hemisphere B	19. Forest Management and Climate Change
Hemisphere A	20. Climate Change, Wildlife Populations & Disease Dynamics
Pavilion	<u>Guiding and Fostering Multi-Disciplinary Research</u> 21. The US Global Change Research Program – What do we want from the Next Administration?
EPA 4 <sup>th</sup> Floor ORMA Conf. Room 1*	22. Availability of Technology to Mitigate Climate Change
Classroom B	23. CO <sub>2</sub> Capture and Storage – How Can it Play a Major Role in Mitigating Climate Change?

Marriott Suite #1161	24. Counting Carbon: Tracking and Communicating Emitted and Embodied Greenhouse Gases in Products, Services, Corporations and Consumers
Classroom C	25. Ocean Fertilization for Carbon Sequestration
Meridian A	26. Geoengineering as Part of a Climate-Change Response Portfolio
Pavilion Foyer	27. Looking into the Past to Understand Future Climate Change
Fish & Wildlife Service , 7000B Main Interior Bldg.**	28. A National Strategy for Wildlife Adaptation to Climate Change: What Should it Include?
	<u>Expanding Understanding: Information, Education and Communication</u>
Marriott Suite #1153	29. Mass Action: How Scientists Can Engage the Public in Global Dialogue Toward Shared Policy & Behavior Change Solutions for Global Climate Change
Pavilion VIP Room	30. Should There be a National Climate Service? If So, What Should it do and Where Would it be?
Meridian B	31. Communicating Information for Decisionmakers: Climate Change at the Regional Scale
UMD Smith Center, Concourse Level	32. Adaptation & Ecosystems: What Information do Managers & Decisionmakers Need?
UMD Smith Center, Ground Level	33. Diverse Perspectives on Climate Change Education – Integrating Across Boundaries
Classroom D	34. Building People’s Capacities for Implementing Mitigation and Adaptation Actions
Atrium Hall	35. Climate Change and Human Health: Engaging the Public Health Community
	<i>*Participants for sessions at EPA will meet at the EPA Security desk on the Ground floor of the Reagan Building at 9:15am.</i>
	<i>**1849 C Street, NW. Contact: Dan Ashe, FWS</i>

5:30 pm **NCSE Lifetime Achievement Awards Ceremony** (Atrium Hall)  
*Robert W. Corell*, Global Change Director, The H. John Heinz III Center for Science, Economics and the Environment  
Presented by *Margaret Leinen*, NCSE Board of Directors

6:00 pm **8<sup>th</sup> John H. Chafee Memorial Lecture on Science and the Environment** (Atrium Hall)  
**Welcome**  
*Amb. Richard Benedick*, President, National Council for Science and the Environment  
**Introduction**  
*Stephen P. Hubbell*, Chairman, National Council for Science and the Environment  
**Lecture: Meeting the Climate Change Challenge**  
*John P. Holdren*, President and Director, Woods Hole Research Center

7:00 pm **Gala Reception** (Atrium Ballroom)

**Friday, January 18, 2008**

8:00 am **Continental Breakfast** (Atrium Hall Foyer)  
**Climate Change Photography by Gary Braasch**, from his website "World View of Global Warming.org" and book *Earth Under Fire: How Global Warming is Changing the World* (Atrium, projected – all day, between sessions)

8:40 am **Welcome**  
*Amb. Richard Benedick*, President, National Council for Science and the Environment

8:45 am **American Perspectives on Climate Change** (Atrium Hall)  
*Jon Krosnick*, Professor of Communication, Political Science, and Psychology, Stanford University

9:00 am **Plenary Roundtable – Developing Political Solutions to Climate Change** (Atrium Hall)  
Moderator: *Ray Suarez*, Senior Correspondent, The News Hour  
Speakers:  
*Ross C. "Rocky" Anderson*, Mayor, Salt Lake City, Utah (2000-2008)  
*Lynn Scarlett*, Deputy Secretary, U.S. Department of the Interior  
*Representative Jay Inslee*, U.S. House of Representatives, 1<sup>st</sup> District, Washington state

10:30 am-  
12:30 pm **Concurrent Symposia**  
**Beyond Kyoto: Elements of a 2020 International Agreement** (Hemisphere B)

Moderator

*Mohamed El-Ashry*, Senior Fellow, The UN Foundation; Former CEO and Chairman, Global Environment Facility

Speakers

*Dilip R. Ahuja*, Professor, Indian National Institute of Advanced Studies

*Scott Barrett*, Professor and Director, International Policy Program, Johns Hopkins University

*Malachy Hargadon*, Environment Counselor, Delegation of the European Commission

*Richard Moss*, Vice President and Managing Director for Climate Change for the United States, World Wildlife Fund

*Jonathan Pershing*, Director, Climate, Energy and Pollution Program, World Resources Institute

**Climate Change and International Development** (Atrium Hall)

Moderator

*Mohan Munasinghe*, Vice Chair, Intergovernmental Panel on Climate Change (IPCC); Chairman, Munasinghe Institute for Development (MIND)

Speakers

*Ralph Cicerone*, President, National Academy of Sciences

*Thomas Schelling*, Nobel Laureate (Economics); Distinguished University Professor, University of Maryland

*Adrian Vazquez*, Executive Director, Commission for Environmental Cooperation

**Role of Philanthropic Foundations: Promoting Strategic Initiatives on Climate Change** (Horizon A)

Moderator

*Sharon Alpert*, Program Officer of the Environmental Program, Surdna Foundation

Speakers

*Andrew Bowman*, Director of the Climate Change Initiative, Doris Duke Charitable Foundation

*Kathleen Welch*, Deputy Director of the Environmental Program, The Pew Charitable Trusts

*Eric Heitz*, President, The Energy Foundation

*Elizabeth Chadri*, Program Officer for Conservation and Sustainable Development Program on Global Security and Sustainability, The John D. and Catherine T. MacArthur Foundation

**Business and Finance: Opportunities and Challenges from Climate Change** (Meridian D & E)

Moderator

*H. Jeffrey Leonard*, President, and Chief Executive Officer, Global Environment Fund

Speakers

*Bruce Schlein*, Vice President, Environmental Affairs, Citibank

*Mindy Lubber*, President, CERES

*Ben Lashkari*, Director, Environmental and Commodity Markets, Swiss Re

*Mark Tercek*, Director, Goldman Sachs' Environmental Markets Initiative



## **Forging Alliances between Business and Society: US Climate Action Program (Polaris A)**

Moderator: *Tim Mealey*, Senior Partner, Meridian Institute

Speakers: Representatives from DuPont, Exelon, Shell, Pew Center on Climate Change, Environmental Defense, and the Nature Conservancy

## **Legislative Agenda for Addressing the Carbon Problem (Pavilion)**

Moderators

*L. Jeremy Richardson*, 2007-2008 AAAS Roger Revelle Fellow in Global Stewardship

*Margaret Turnbull*, Astrobiologist, Space Telescope Science Institute

Speakers

*Kenneth Colburn*, CCS Senior Consultant, Co-Director and Facilitator of Projects, Center for Climate Strategies

*Lexi Shultz*, Representative for Climate Policy, Union of Concerned Scientists

*Holmes Hummel*, AAAS Congressional Fellow, Office of Representative Inslee

*Alex Barron*, ACS Congressional Fellow, Office of Senator Lieberman

## **Engaging State and Local Government: Developing and Implementing Climate Action Plans (Oceanic A & B)**

Moderator

*Dan Kammen*, Professor, Energy Resources Group, University of California- Berkeley

Speaker

*Ross C. "Rocky" Anderson*, Mayor, Salt Lake City, Utah (2000-2008); *Anthony Eggert*, Policy Advisor to Mary Nichols, Chair of the California Air Resources Board

## **Climate Scientists and Decisionmakers: The Communication Interface (Hemisphere A)**

Moderator

*Rebecca J. Romsdahl*, Assistant Professor, Earth System Science & Policy program, University of North Dakota

Speakers

*Stacy Rosenberg*, Assistant Professor, Department of Politics & Environmental Studies, SUNY Potsdam

*Deborah Cowman*, Assistant Research Scientist, Institute for Science, Technology and Public Policy, Texas A&M University

*Chris Pyke*, Constructive Technologies Group, Inc. (CTG)

*Kit Batten*, Director of Environmental Policy, Center for American Progress

*David Bookbinder*, Senior Attorney, Sierra Club

*Roger Pulwarty*, Research Associate, National Drought Information System, NOAA

## **Communicating Climate Science to the Public Through the Media (Polaris B & C)**

Moderator

*Deborah Potter*, Executive Director, NewsLab

Speakers

*David Malakoff*, Editor/Correspondent, NPR Science Desk

*Stephen Schneider*, Melvin and Joan Lane Professor for Interdisciplinary Environmental Studies, Stanford University

*Joe Witte*, Meteorologist, WJLA-TV

*Doyle Rice*, Weather Editor, USA Today

*Sara Espinoza*, Program Manager, Earth Gauge, National Environmental Education Foundation

## **Science for Carbon Management (Horizon B)**

### Moderator

*Eric Sundquist*, Research Geologist, US Geological Survey

### Speakers

*Richard A. Birdsey*, Program Manager, Global Change Research, U.S. Forest Service

*Sandra Brown*, Senior Scientist, Ecosystems Services Unit, Winrock International

*Stephen Faulkner*, Wetland Research Ecologist, National Wetlands Research Center, U.S. Geological Survey

*Bryan Hannegan*, Vice President, Environment, Electric Power Research Institute

*Brian McPherson*, Associate Professor of Civil and Environmental Engineering, University of Utah

12:30 - **Buffet Lunch** (Atrium)  
2:00 pm \*\* Some tables reserved for mentor/young professional networking.

2:00 pm **Presidential Candidates Forum: What Will the Next President do to Manage Climate Change?** (Atrium Hall)  
Moderator:  
*Vijay Vaitheeswaran*, Global Correspondent, The Economist  
Representatives from Presidential Campaigns, including: Clinton, Edwards, Kucinich, Obama.  
(Note: All campaigns have been invited)

3:30 pm **Adjourn**  
**Concluding Remarks**  
*Amb. Richard Benedick*, President, National Council for Science and the Environment

## **Workshops** - Wednesday, January 16, from 9:30am to 12:00pm

### **Campus-based/University Initiatives:**

- 1. Renewable Energy Hedges: A Tool for Campus and Institutional Sustainability** (Meridian C)  
Session Chair: Karen Erickson, Southern New Hampshire University
- 2. Campus Solutions to Global Warming** (Continental B)  
Session Chair: Lisa Madry, National Wildlife Federation  
Discussants: Tom Kiser, Professional Supply Inc.; Dave Newport, University of Colorado
- 3. Focus the Nation: Campus-based Education and Action** (Continental C)  
Session Chair: Eban Goodstein, Focus the Nation, Lewis and Clark University  
Discussant: Tony Cortese, Second Nature
- 4. Developing Campus-Wide Initiatives on Climate-Change, Energy Use and Sustainability** (Hemisphere B)  
Session Organizers: Carl Koval, Paul Komor, and Alison Peters, Renewable and Sustainable Energy Initiative, University of Colorado at Boulder; Mark Starik, President's Sustainability Task Force, George Washington University
- 5. Using the Clean Air-Cool Planet Campus Carbon Calculator to Inventory and Monitor GHG Emissions at Colleges and Cultural Institutions** (Meridian B)  
Session Co-chairs: Brett N. Pasinella, University of New Hampshire, Office of Sustainability; Jennifer Andrews; Clean Air-Cool Planet

### **Government and Policy Solutions:**

- 6. Developing a Climate Change Reduction Plan for State and Local Governments** (Polaris C)  
Session Co-Chairs: C. Flint Webb, Air & Waste Management Association; Miriam Lev-On, The LEVON Group, LLC  
Discussants: Kambiz Agazi, Environmental Coordinator, Fairfax County; Stephanie Cutts, Cool Cities Program, Sierra Club; Robert B. McKinstry, Jr., Ballard Spahr Andrews & Ingersoll, LLP; Kim Lundgren, ICLEI
- 7. Building Local Community Support for State and Federal Climate Legislation** (Horizon B)  
Session Chair: Mike Tidwell, Chesapeake Climate Action Network

- 8. Tools to Assist State and Local Governments Make Sound Decisions Regarding Energy and Environmental Technology (Meridian D)**  
Session Co-Chairs: Joseph DeCarolis, National Center for Risk Reduction Management, EPA; Market Allocation Model (MARKAL) and the Global Environmental Verification Program  
Discussants: Dan Loughlin, EPA; Dave Kirchgnesser, EPA; Gary Kleinman, Northeast States for Coordinated Air Use Management (NESCAUM)
- 9. Climate Change Risks, Challenges and Opportunities: Equipping the Next Generation of Federal Leaders to Tackle It (EPA East building, Entrance on Constitution Ave) *Non-EPA participants meet at the Constitution Ave entrance at 9:15am.***  
Session Organizers: EPA Emerging Leaders Network

### **Community and Personal Initiatives:**

- 10. People of Faith Respond to Climate Change (University of Maryland Business School Smith Center, Reagan Building, Ground Level Classroom)**  
Session Co-Chairs: Peter Adriance, National Spiritual Assembly of the Bahá'ís and the U.S. & U.S. Partnership for Education for Sustainable Development; Cassandra Carmichael, Eco-justice Programs, National Council of Churches  
Discussants: Allison Fisher, Greater Washington Interfaith Power and Light; Dan Misleh, Catholic Coalition on Climate Change, U.S. Conference of Catholic Bishops; Fred Scherlinder Dobb, Rabbi, Adat Shalom Reconstructionist Congregation & Coalition on the Environment and Jewish Life; John Wood, Au Sable Institute of Environmental Studies

### **Climate Change Education: Formal and Informal:**

- 11. Integrating Climate Change into the K-12 Classroom (University of Maryland Business School Smith Center, Reagan Building, Concourse Level Classroom)**  
Session Chair: Roberta Johnson, UCAR and National Earth Science Teachers Association  
Discussants: Joan L. Aron, Science Communication Studies and USRA/ESSE; Lynne Cherry, Children's Author ; Sharon Katz Cooper, Joint Oceanographic Institutions; Anita Davis, NASA Goddard - National Parks and NASA; Roberta Hotinski, Princeton University; Tamara Ledley, TERC; Lynne Murdock, U.S. National Park Service; Theresa Schwerin, Institute for Global Environmental Strategies (IGES)
- 12. Teaching Climate Change to Undergraduates (Polaris B)**  
Session Co-chairs: David M. Hassenzahl, University of Nevada-Las Vegas; Tricia Mynster, University of Nevada- Las Vegas  
Discussant: Roberta Hotinski, Consultant to the Carbon Mitigation Initiative
- 13. An Abbreviated WWF Climate Camp for Conservationists (Continental A)**  
Session Co-Chairs: Michael Case and Lara Hansen, WWF Global Climate Change Program

- 14. Climate Careers: Finding Your Career Pathway (Oceanic B)**  
Session Chair: Kevin Doyle, Green Economy, Inc.
- 15. Earth Portal and the Encyclopedia of Earth: A Resource for Climate Change (Classroom D)**  
Session Co-Chairs: Stephen C. Nodvin, Wentworth Institute of Technology; Maggie L. Walser, National Council for Science and the Environment
- 16. Council of Energy Research and Education Leaders: Annual Meeting (Gateway)**  
Session Chair: Cutler Cleveland, Boston University
- 17. Developing a Framework for Climate Literacy (Meridian E)**  
Session Chair: Mark McCaffrey, University of Colorado- Boulder  
Discussants: Frank Niepold, NOAA
- 18. Addressing Human Population Growth with Accuracy and Confidence (Meridian A)**  
Session Chair: Kathleen Mogelgaard, National Audubon Society  
Session Organizers: Worldwatch Institute, National Audubon Society, Population Action International, Izaak Walton League of America, and the Sierra Club

## **Monitoring and Assessment Tools:**

- 19. Tools for Forest Carbon Inventory, Management, and Reporting (Oceanic A)**  
Session Chair: Richard Birdsey, Biological Scientist, U.S. Forest Service  
Discussants: Sandra Brown, Winrock International; Coeli M. Hoover, US Forest Service; David J. Nowak, US Forest Service; Stephanie Rebain, US Forest Service; Kenneth E. Skog, US Forest Service; Jim Smith, US Forest Service; Paul Van Deusen, NCASI
- 20. Carbon Footprint Calculators and Carbon Reduction Tools (Classroom C)**  
Session Chair: Deborah L. Williams, President, Alaska Conservation Solutions  
Discussants: Heather Benz, Stanford University; Kenneth A. Colburn, Center for Climate Strategies; Mark A. Foster, Mark A. Foster & Associates (MAFA); Anne Hambleton, Native Energy; Kim Lundgren, ICLEI- Local Governments for Sustainability
- 21. Technical Methods to Inventory and Monitor Greenhouse Gas Emissions (Polaris A)**  
Session Chair: Thomas J. Timbario, Vice President, Alliance Technical Services, Inc.
- 22. Making Sense of Carbon Offsets (Horizon A)**  
Session Co-Chairs: Derik Broekhoff and Kate Zyla, Climate and Energy Program, World Resources Institute

**23. NASA Earth Observations and Models Informing Decision Making in Support of Climate Change Mitigation and Adaptation (Hemisphere A)**

Session Chair: Richard Eckman, NASA Applied Sciences Program

Moderator: Teresa Fryberger, NASA Applied Sciences Program

Discussants: Jae Edmonds, Global Energy Strategy Technology Program, Joint Global Change Research Institute (JGCRI), University of Maryland/Pacific Northwest National Laboratory; Lawrence Friedl, NASA Applied Sciences Program; Paul Higgins, American Meteorological Society; Howard Diamond, U.S. Global Climate Observing System, World Data Center for Meteorology, National Climatic Data Center; Molly Macauley, Resources for the Future; Drew Shindell, NASA Goddard Institute for Space Studies; Steve Smith, JGCRI; Linda Wennerberg, Environmental Management Division, NASA Headquarters

**24. Measurement Science for Climate Research (EPA, 5<sup>th</sup> Floor Conference Room 1) \*Meet at the EPA Security Desk at 9:15am.**

Session Chair: Gerald T. Fraser, Optical Technology Division, National Institute of Standards and Technology (NIST)

Discussants: Katharine Gebbie, Physics Laboratory, NIST; Michael King, NASA Earth Observing System; George Ohring, NOAA/NESDIS; Judith Lean, Space Sciences Division, Naval Research Laboratory; Daniel Kirk-Davidoff, Department of Meteorology, University of Maryland, College Park; John Dykema, Division of Engineering and Applied Science, Harvard University

**Communicating Climate Change:**

**25. Communicating Climate Change Science and Solutions (Atrium Hall)**

Session Chair: Susan Joy Hassol, Director, Climate Communication

Discussants: Bill Blakemore, Senior Correspondent, ABC News; Stephen Schneider, Professor, Stanford University; Clayton Sandell, Producer, ABC News

## **Breakout Sessions – Thursday, January 17, from 1:30 to 5:00pm**

Global emissions of greenhouse gases are increasing at an unsustainable rate. Recent data show that the global annual growth from 2000 to 2004 was over 3% per year. If that rate would continue for the rest of the century, the average global temperature would be in the order of 4°C warmer in 2100 and increasing into the next century. If we are to limit warming to below 2 to 2.5° C, it will be necessary to reduce emissions annually and continually as soon as is practicable. Analysis suggests that even with 90 years of reducing greenhouse gas emissions by 1% per year starting in 2010, Earth's average surface temperature would be about 2.3°C warmer than during pre-industrial times.

Therefore, a global effort, led by the U.S., to dramatically reduce GHGs is necessary. The effort must involve all sectors of society, led by scientific understanding and technological advances. These breakout sessions are designed to consider many of the key issues necessary for a rapid transition to a low carbon society and to develop recommendations to guide the U.S. and other nations in achieving this transformation.

### **Sessions on Strategies for Stabilization, Mitigation and Adaptation**

#### **1. Green Buildings and Building Design (Compass)**

*Building construction and operations account for about half of the national energy budget and a disproportionate amount of carbon emissions, since electrical power to light, heat and cool buildings is fueled principally by coal. Numerous design and construction practices, technologies and standards are currently available under the rubric of green building. They could reduce building energy use dramatically. However, most projections for building energy efficiency and GHG reductions show only modest improvements over the next 20+ years.*

##### ***Questions for Consideration:***

- *What barriers stand between the current trend and more rapid achievement of building energy efficiency and greenhouse gas emission reductions?*
- *What can be done to speed the deployment of existing green building practices and technologies into the marketplace?*
- *What emerging technologies offer the most promise to reduce building energy use and greenhouse emissions?*

Session Chair: Eric Carlson, E<sup>2</sup>C<sup>2</sup> -Energy/Environment Consulting/Communications

Discussants: Maurice Bechard, Johnson-Diversey; William Roper, Arlington County, VA

#### **2. Moving Forward: Transportation & Emissions Reduction (Meridian C)**

*According to the US Greenhouse Gas Emissions Inventory for Transportation, between 1990 and 2005, US GHG emissions from transportation sources grew by about 32%. As of 2005, transportation sources were nearly 28% of US GHG emissions overall. The three biggest segments of the transportation sector in terms of GHG emissions are light duty passenger vehicles, freight trucks, and aviation. Each of these segments has increased in overall emissions between 1990 and 2005. In this session, we will discuss emissions trends and underlying driving forces in more detail, along with current strategies and technology and policy options to reduce emissions. In addition, we will discuss relevant societal trends, such as land use patterns, manufacturing value chain changes, etc., as well as transportation system*

priorities that can relate to GHG emissions, such as congestion reduction and safety. Finally, we will discuss possible future scenarios for transportation with respect to GHG emissions.

Session Chair: Diana Bauer, EPA/DOT

Discussants: James Corbett, University of Delaware; John Davies, US EPA; Alex Farrell, UC Berkeley; Carl Bureson, Federal Aviation Administration; Marcy Schwartz, Chair, Transportation Research Board, Special Task Force on Energy and Climate Change

### **3. Animal Agriculture and Climate Change (Continental A)**

*Despite the findings reported in FAO's "Livestock's Long Shadow: Environmental Issues and Options," much of the recent discussion about climate change has focused on personal and business energy use, while failing to account for the gross contributions by the meat, egg, and dairy industries and supporting sectors, as well as the significance of intensive animal agricultural practices that have become the norm in western nations and increasingly are exported into lesser-developed countries. To enhance the discussion and address the direct connection between farm animal production and climate change, initial discussants will identify the ways in which energy use in confinement production facilities, deforestation and production of nitrogen fertilizers to grow feedcrops, and farm animal waste management systems contribute to greenhouse gas emissions. Initial discussants will also address agribusiness industries' existing mitigation techniques, as well as the impacts of converting to more sustainable production systems, and offer specific recommendations for governments, industry, large institutions (e.g., corporations, academic campuses), and consumers to mitigate climate change.*

Session Chair: Danielle Nierenberg, The Humane Society of the United States (HSUS)

Discussants: David Meisinger, U.S. Pork Center of Excellence, Iowa State University; Kate Clancy, former endowed chair, College of Agricultural, Food, and Environmental Sciences at the University of Minnesota; Eric Rice, Country Pleasures Farm; Roni Neff, Center for a Livable Future, Johns Hopkins School of Public Health.

### **4. Minimizing Agricultural Impacts on Climate; Minimizing Climate Impacts to Agriculture (Continental B)**

*Agriculture is subject to climate change, both directly (i.e. via temperature and precipitation effects), and indirectly (such as through changing pest and weed ranges). At the same time, agricultural management contributes to the atmospheric greenhouse gas concentrations responsible for climate change. That this is occurring over an already complex landscape of regional geographic considerations, changing land use patterns, innovations in adaptation, and a multifaceted socioeconomic environment suggest that multiple possibilities may exist for addressing the challenges that agriculture faces in maintaining widespread food security while preserving environmental integrity. However, the scale of information needed does not necessarily match the scale at which information is available, and the application of that information can face challenges related to specific production types, finances, and social acceptance of climate change as a fundamental management consideration.*

*This session seeks to: 1) Identify the main issues which characterize agriculture's relationship to climate change for major production types given regional considerations where possible; 2) Identify the information and technology necessary for land managers and producers to increase the resilience and decrease their vulnerability to changing climatic conditions; 3) Identify methods for distributing that information and technology and for encouraging its adoption.*

Session Chair: Margaret Walsh, USDA

Moderator: Jerry Hatfield, Agricultural Research Service

Discussants: Dave Miller, Iowa Farm Bureau; Pete Nowak, University of Wisconsin-Madison



## **5. Mitigating Greenhouse Gases other than CO<sub>2</sub> (EPA, 4<sup>th</sup> Floor ORMA**

**Conference Room 2) \*Meet at the EPA Security Desk at 1:15**

*Reducing emissions of non-CO<sub>2</sub> gases can help address global climate change and yield broader economic and environmental benefits. Recent analysis by the Massachusetts Institute for Technology indicates that feasible reductions in emissions of methane and other non-CO<sub>2</sub> gases over the next 50 years could make a contribution to slowing global warming that is as large as or even larger than similar reductions in CO<sub>2</sub>. □ This session will bring together representatives from the government and the private sector to discuss the current state of knowledge related to emissions, technology, and mitigation approaches/options for the non-CO<sub>2</sub> gases. We will explore the lessons learned from current efforts to reduce these gases both domestically and internationally and explore the implications for future efforts to reduce emissions and address global climate change.*

Session Chair: Paul Gunning, US EPA Air Office

Discussants: Dave Stirpe, Alliance for Responsible Atmospheric Policy; Ronald D. Sands, Joint Global Change Research Institute, Pacific Northwest National Laboratory; William G. Hohenstein, Global Change Program Office, US Department of Agriculture; Sally Rand; High-GWP Partnership Programs, US EPA

## **6. Energy Efficiency and Conservation (Meridian D)**

*This session brings concrete, quantitative focus to the general proposition that energy efficiency is the fastest and least expensive 'first step' in tackling carbon emissions. Drawing on analysis conducted for the Regional Greenhouse Gas Initiative and other specific climate policy efforts, it will provide a concentrated education on the analytical and policy issues that must be addressed if energy efficiency is to realize its very large potential contribution to the climate challenge. Drawing on leading experts with direct experience in the leading efforts in this field, this symposium will provide a spectrum of information and experience unavailable in any other forum.*

Session Chair: Bill Prindle, American Council for an Energy Efficient Economy (ACEEE)

## **7. Biofuel Industry and CO<sub>2</sub> Emissions: Implications for Policy Development (Continental C)**

*Various biofuel conversion options are being researched. These range from the biological platform to the thermal chemical platform, with different platforms affecting crop production system choices, conversion plant size and location, ecosystem service efficiencies, and logistic options. Collectively these components will impact energy efficiencies and the biofuel carbon footprint. We will propose considering four potential broad industry configurations relative to the emerging cellulosic industry in this discussion:*

- centralized or regional processing with only a single species serving as a feedstock;*
- centralized processing with a diverse set of materials as feedstock;*
- distributed processing (on farm or at the community scale) with a single species feedstock*
- distributed processing with a diverse set of materials as feedstock.*

*While carbon balance will be an overarching theme, we will also consider potential functionality and sustainability of these broad classifications. Broadly, we plan to address logistics, environmental impact, and the human dimension for these potential configurations (for the systems that seem to most favorably affect the carbon balance). From group discussions and polling, we hope to identify the best system(s) (most*

functional and sustainable) and then develop 6 – 10 recommendations that will allow the best, most functional system to move forward.

Session Chair: Rick Cruse, Iowa State University and the Ecological Society of America

Discussants: James Amonette, Pacific Northwest Laboratories; Pete Nowak, University of Wisconsin, Madison; Gary Radloff, Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP); Jill Auburn, Program Leader, SARE program, USDA/CSREES

## **8. Solar Energy: Scaling Up –Science and Policy Needs (Polaris C)**

*Solar energy is an important, but currently small, component of a low-carbon economy. Barriers to expansion of solar energy are economic, scientific and technological and educational. This session will develop recommendations for science, technology and informing policy on how to scale up solar energy. Technologies to be considered include large-scale concentrating solar power (CSP) plants, new solar and fuel cell manufacturing, solar thermal, non-silicon thermal, and related technologies for commercial and residential use in the US, other industrialized nations and in the developing world.*

Session Chair: Scott Sklar, The Stella Group, Ltd.

Discussant: Nancy Bacon, Energy Conversion Devices, Inc; Jigar Shah, SunEdison

## **9. How to Ensure Wind Energy is Green Energy (Meridian E)**

*At a time of growing concern over the rising costs and long-term environmental impacts of the use of fossil fuels and nuclear energy, wind energy has become an increasingly important sector of the electrical power industry, largely because it has been promoted as being emission-free and is supported by government subsidies and tax credits. However, large numbers of birds and bats are killed at utility-scale wind energy facilities, especially along forested ridgetops in the eastern United States. These fatalities raise important concerns about cumulative impacts of proposed wind energy development on bird and bat populations. This session will identify and evaluate research and informational needs to better inform researchers, developers, decisionmakers, and other stakeholders, and to help minimize adverse effects of wind energy development.*

Session Co-Chairs: Edward Arnett, Bat Conservation International; Michael Fry, American Bird Conservancy; Tom Kunz, Boston University

## **10. Nuclear Energy: Using Science to Make Hard Choices (Oceanic A)**

*The future of nuclear energy is most often set forth in absolutist terms: either “nuclear energy is necessary to combat climate change” or “nuclear energy is an unacceptable option.” A more fruitful debate might follow from a conversation that begins by establishing the set of characteristics that are important for future energy sources, and then evaluating nuclear energy in the context of these characteristics. In this session, we will develop guidelines for appropriate norms for discussing nuclear energy in the context of climate change. These may include, but will not be limited to, roles for economics, ethics, expertise, technical information, government funding, health and safety, and uncertainty.*

Session Chair: David Hassenzahl, University of Nevada- Las Vegas

Discussants: Nathan Hultman, Georgetown University; Robert O'Connor, National Science Foundation; Tom Cochran, Natural Resources Defense Council; Dan Kammen, University of California, Berkeley; Angelina Howard, Nuclear Energy Institute (NEI)

## **11. Economics: Setting the Price for Carbon (Oceanic B)**

*There is growing political momentum in the U.S. to set a price for carbon via a cap-and-trade mechanism. However, many substantive questions remain concerning the design of cap-and-trade and the role of complementary policies; and political questions remain on how to coalesce the political forces necessary to*

*enact national legislation (as well as ratify new international agreements applicable in the post-2012 period). This session will provide panel speakers and the audience a chance to explore a number of key topics including: 1) design issues such stringency, timing, and “cost containment” provisions (banking and borrowing mechanisms, price caps and floors, and the use of offsets); 2) whether to create a GHG emission standard for new power plants to accelerate deployment of carbon capture and sequestration, and to complement cap-and-trade; and 3) how the role of the coal industry in the public policy debate is likely to evolve, and how to get it more actively involved in finding solutions. The panel will also explore the likely interplay of: various ways to allocate and/or auction allowances, and the vastly different state regulatory systems for electrical utilities. This interplay impacts the both economics and politics of cap-and-trade.*

Session Chair: Karl Hausker, ICF International

Discussants: Joseph Kruger, National Commission on Energy Policy; Robert Sussman, Center for American Progress; James Heller, Hellerworx, Inc.; Dallas Burtraw, Resources for the Future

## **12. Forests and Markets for Ecosystem Services (Horizon B)**

*Land managers, owners, and users continue to explore new and innovative ways to accomplish land management objectives. Markets for ecosystem services provide opportunities and challenges for forestland stewardship; yet, a number of questions remain about what are, how-to engage in, and what are the challenges to implementing most ecosystem services markets. This session will provide panel speakers and the audience a chance to exchange up-to-date information and guidance on the forests and the markets for specific ecosystem services – conservation banking, water quality trading, wetlands banking, and carbon markets and identify recommendations to advance the research behind and implementation of ecosystem service markets.*

Session Chair: Sarah LaPlante, USDA Forest Service

Discussants: Sandra Brown, Ecosystem Services Unit, Winrock International; Robert Costanza, University of Vermont; Brian Murray, Nicholas Institute for Environmental Policy Solutions

## **13. Policy: Challenges of GHG Rulemaking: Where the Rubber Meets the Road (Horizon A)**

*A new GHG law will be a major milestone, yet much of the “fine print” requirements will be addressed later by agencies through detailed agency rules based on a public process. Complex, contentious rules, especially those impacting major swaths of the U.S. economy, can take five (5) years or more to implement. Given the need to “get it right the first time,” can federal agencies expeditiously issue numerous rules before they become obsolete? Focusing on cap and trade regimes along with offsets, this panel– featuring a multi-disciplinary array of experts versed in the regulatory aspects of science, economics, policy and law from agencies, industry, and NGOs–will discuss the applicability (e.g., what gases/sectors) and design (e.g., trading/offsets/agency discretion of future GHG regulation). Process issues examined in this videotaped session include expediting rulemaking without sparing analytic rigor given the: need to provide incentives to foster data sharing among key parties; culture clash between science and policy making; potential for increased use of dispute resolution; and role of states and the impacts of a regulatory “patchwork.”*

Session Chair: Alan W. Strasser, Federal Motor Carrier Safety Administration, US DOT

Discussants: Donald Arbuckle, University of Texas at Dallas; Philip J. Harter, University of Missouri; Granger Morgan, Carnegie Mellon University; Eric Schaeffer, The Environmental Integrity Project; Allison Wood, Hunton & Williams

## **14. Engaging China on a Pathway to Carbon Neutrality (Classroom A)**

*China will play a key role in the development of any global effort to address climate change. According to the International Energy Agency, China is now the world's number one emitter of carbon dioxide and its emissions are likely to continue growing strongly into the decades ahead. Importantly, China's climate stance will also influence the action or inaction that other countries consider. While the United States has emitted roughly twice the cumulative greenhouse gas emissions as China over the past century, it has noted China's potential to overwhelm other global mitigation efforts as at least one reason for not ratifying the Kyoto Protocol. China's success or failure in curbing emissions will also be a powerful example for other developing countries to follow or avoid.*

Session Chair: Jeff Logan, Congressional Research Service (CRS)

Discussants: Joanna Lewis, Pew Center on Global Climate; Trevor Houser, China Strategic Advisory; Bo Kong, Johns Hopkins University

## **15. Human Population & Demographics: Can Stabilizing Population Help Stabilize Climate? (Woodrow Wilson Center) Meet at the Registration area at 1:15 to walk over together**

*This session will focus on the role of population growth as one of several drivers of climate change. We will explore ways in which programs designed to improve access to reproductive health care and slow future growth of the world's population can serve as a long-term mitigation strategy at the global level and an adaptation strategy at the community level. After brief presentations from an expert panel, participants will discuss challenges and opportunities associated with making population policy a component of the climate change solution, and will jointly produce a set of recommendations for inclusion in the conference proceedings.*

Session Organizers: Population-Health-Environment Policy and Practice Coalition (Conservation International, Izaak Walton League of America, National Audubon Society, Population Action International, Population Institute, Population Reference Bureau, Sierra Club, United States Agency for International Development, Woodrow Wilson Center, World Wildlife Fund, Worldwatch Institute)

Moderator: Robert Engelman, Worldwatch Institute

Discussants: Frederick Meyerson, University of Rhode Island; Judy Oglethorpe, World Wildlife Fund; J. Joseph Speidel, University of California- San Francisco

## **16. Urban Responses to Climate Change in Coastal Cities (Gateway)**

*Coastal cities, especially in the southern portion of the United States, are particularly vulnerable to the consequences of climate change. Modest rises in sea level can have major impacts on coastal infrastructure, storm surge, drainage and sewage outfalls, and salt water intrusion to groundwater aquifers. Changes in rainfall intensity may complicate stormwater discharge and flooding parameters.*

*In response to these challenges, Florida coastal cities need to evaluate current building codes, develop new building and urban facilities design and locations, and conduct infrastructure vulnerability analysis among other actions. Other cities, such as New York, have begun this process and plans are being formulated for South Florida urban areas. The goal of this session is to present a range of potential risks and practical responses using New York City and Southeast Florida as examples.*

*Topics to be discussed include:*

- *Risk Assessment and Building Long-term Responses*
- *Urban Vulnerability Assessment and Infrastructure Adaptation*
- *Planning and Decision Making Structures*

Session Chair: Leonard Berry, Florida Atlantic University

Discussants: Ricardo Alvarez, Florida International University; David Major, Columbia University; Jaap Vos, Florida Atlantic University

## **17. Climate Change Adaptation for the Developing World: Expanding Africa's Climate Change Resilience (Polaris B)**

*The Fourth Assessment report of the Intergovernmental Panel on Climate Change states that Africa is one of the most vulnerable continents to climate change and climate variability. This session will bring together representatives from African and US-based research institutions, development institutions, and non-governmental organizations. We will discuss and identify through consensus the most salient research questions that need to be answered to improve Africa's ability to cope with projected impacts of climate change and the most practical solutions based on what we know to date.*

*Specifically, this session seeks to address:*

- 1. The role of research in developing a more coherent climate resilience strategy in Africa by answering the following: What research questions need to be addressed now to enable development and application of improved coping strategies? In what areas is pure research needed, where is action-research needed, and where is more research unlikely to yield actionable alternatives? How can research be used to prioritize investments in improving Africa's climate change resilience?*
- 2. What practical actions should be taken in the near future based on current knowledge to mitigate climate impact on food production and natural resources.*

Session Co-Chairs: Cristina Rumbaitis del Rio, Rockefeller Foundation; Lakhdar Boukerrou, Florida Atlantic University

Discussants: James W. Hansen, The Earth Institute at Columbia University; Jenny Olson, Michigan State University; Youba Sokona, Observatory of the Sahara and the Sahel; Pius Yanda, University of Dar Es Salaam

## **18. Coastal Managers and Climate Change (Polaris A)**

*State coastal management programs are on the front lines dealing with the impacts of climate change – sea-level rise, dropping water levels in the Great Lakes, ocean acidification, and changes in temperature and precipitation patterns. The National Coastal Zone Management Program requires states to balance competing uses of the coastal zone and to address the full range of coastal issues including managing development in high hazard areas, protecting natural resources, providing public access, redeveloping urban waterfronts and ports, siting energy facilities, protecting coastal water quality, and ensuring that the public and local governments have a role in coastal decision-making. This voluntary federal-state partnership was authorized under the Coastal Zone Management Act (CZMA) of 1972 and 34 states and territories participate in the program. In 1996, the CZMA was reauthorized and Congress called for coastal states to anticipate and plan for global warming, which may result in a substantial sea-level rise and fluctuating water level in the Great Lakes.*

*This session will explore how several state coastal programs are working to better incorporate climate change science into their decision making, the obstacles they have faced, and what they need to develop and implement better plans, policies, and regulations. We will develop recommendations on how to better address coastal managers' science needs and ways to improve the connection between science and coastal managers, decisionmakers, and the public*

Session Co-Chairs: Carrie Hall, National Oceanic and Atmospheric Administration (NOAA); Sarah van der Schalie, NOAA; Stephanie Fauver, NOAA

Discussants: Lesley Ewing, California Coastal Commission; Zoe Johnson, Maryland Coastal Program; Kristen Fletcher, Coastal States Organization

## **19. Forest Management and Climate Change (Hemisphere B)**

*Forests in the United States are managed for many goals on diverse ownerships, ranging from long-term environmental protection and biodiversity sustainability with new possibilities for carbon sequestration to*

*short-term production of fiber and biomass with new possibilities of biomass energy. Adapting to climate change impacts and mitigating anthropogenic drivers of climate change will require new practices for the full range of forest management goals. Changing climates complicate forest management because sequestration and emissions goals are added to the more traditional goals of protection and production.*

*In this session, we will provide an overview of the current understanding about climate change, forest ecosystem responses, and management adaptation and mitigation options. We will present diverse and concrete forest-management examples of climate-related challenges, engage break-out participants to develop and discuss adaptation and mitigation solutions to these examples and their particular situation, discuss synergies vs. tradeoffs (avoiding perverse incentives and outcomes as well as unintended consequences) and collectively recommend approaches to integrating adaptation and mitigation.*

Session Co-chairs: Linda Joyce, US Forest Service, Rocky Mountain Research Station; Connie Millar, US Forest Service, Pacific Southwest Research Station

Discussants: Geoffrey Blate, EPA; Mark Nechodom, US Forest Service

## **20. Climate Change, Wildlife Populations & Disease Dynamics (Hemisphere A)**

*The most scientific evidence related to climate change and its effects on biological organisms, exists on plant species and invertebrate animals. This breakout session will focus on terrestrial, aquatic and marine ecosystems and changes occurring in those systems due to variability in climate. From these discussions will yield information on changes in wildlife disease environs, vectors of disease, intermediate host alterations, and changes in susceptibility to disease associated with the effects of climate change.*

Session Co-Chairs: Leslie Dierauf, USGS National Wildlife Health Center; Scott D. Wright, USGS National Wildlife Health Center

Discussants: Andrew Dobson, Princeton University; Anthony DeGange, USGS, Alaska Science Center; Thierry Work, USGS, National Wildlife Health Center, Hawaii Field Station

## **Sessions on Guiding and Fostering Multi-Disciplinary Research**

### **21. The US Global Change Research Program – What do we want from the Next Administration? (Pavilion)**

*This session is intended to kick off a process of consultation and collaborative effort that will result in a well-developed proposal with recommendations on the future of the U.S. Global Change Research Program (USGCRP), to be communicated to the presidential candidates, to party platform committees, and to the transition team for the next administration.*

*The session will begin with discussion of key issues in a new scoping paper on the future of the USGCRP that is being prepared for this session. Some broad questions include: What leadership and institutional structure and process can best strengthen and integrate the program and its budget and focus it on key priorities? How can the program most effectively translate scientific advances into support for decisionmaking and risk management, and engage in effective two-way communication with policymakers and the public? How can the integrity and credibility of the program and its communications best be protected from inappropriate political interference?*

Session Chair: Bob Corell, The H. John Heinz III Center for Science, Economics and the Environment

Discussants: William J. Brennan, U.S. Climate Change Science Program; National Oceanic and Atmospheric Administration; Ari Patrinos, Synthetic Genomics Inc.

## **22. Availability of Technology to Mitigate Climate Change (EPA, 4<sup>th</sup> Floor ORMA Conference Room 1) \*Meet at the EPA Security Desk at 1:15**

*Global emissions of greenhouse are increasing at an unsustainable rate. The current driving forces for CO<sub>2</sub> emission growth are economic and population growth, which are powerful and not likely to change, it will be necessary to counteract these vectors by moving as quickly as possible toward technologies that that generate fewer greenhouse gas emissions per economic activity and per capita. This would need to be accomplished in all the key sectors: power generation, transportation, building and industrial. This session will consider the following issues:*

- *Which are the most important sectors for which technology has the greatest potential for mitigating GHG emissions?*
- *What are the most promising technologies by sector, what is their state of their development, and is the research community focusing on these most promising technologies?*
- *For these key technologies, what are the remaining technical, economic and environmental challenges?*
- *What has been the history of funding for such technologies, and is it deemed adequate to the challenge?*
- *What should the relative roles be for government, industry, and academia in developing and deploying key technologies?*
- *If additional resources were made available to accelerate technology development in a time scale consistent with the challenge, where should they be invested?*
- *How important is fundamental research versus pilot and full scale research/development/demonstration activities?*

*This session will bring together experts with strong backgrounds in the energy technology to discuss these questions and attempt to approach consensus on answers raised by these questions.*

Session Co-Chairs: Adel Sarofim, University of Utah

Discussants: Robert Marlay, Climate Change Technology Program, US Department of Energy; Joseph Romm, Center for Energy and Climate Solutions; Frank Princiotta, Office of Research and Development, EPA

## **23. CO<sub>2</sub> Capture and Storage – How Can it Play a Major Role in Mitigating Climate Change? (Classroom B)**

*In recent years there has been rapidly growing national and international interest in the use of carbon dioxide capture and storage (CCS) as part of a climate change mitigation strategy. CCS is especially attractive as a means of controlling CO<sub>2</sub> emissions from coal-fired power plants and other large industrial sources, including biomass energy sources (which could result in the net removal of CO<sub>2</sub> from the atmosphere by sequestering CO<sub>2</sub> taken up during biomass growth).*

*All three components of the CCS process – CO<sub>2</sub> capture, pipeline transport and geological sequestration – are found in industrial operations today, and there are now several major projects worldwide that are capturing and sequestering CO<sub>2</sub>. However, CCS technologies have not yet been applied to a large-scale power plant, nor has the integration of capture, transport and storage at a significant scale yet been demonstrated in the United States. Current CCS technologies also incur significant costs and energy penalties. A number of important technical, economic, legal, regulatory and public acceptance issues therefore must be resolved before CCS can be widely deployed as a part of a climate*

change strategy. Thus, the key issues to be discussed at this session include:

- What are the most important challenges that need to be overcome to allow for successful deployment of CCS technologies as part of a climate change mitigation strategy?
- Are resources in the current R,D&D program adequate to develop these technologies in a time frame consistent with the climate challenge? If not, what changes should be considered?
- For the critical underground sequestration (storage) component needed for CCS, what are the most critical concerns and are they being adequately addressed?

Session Chair: Ed Rubin, Professor of Engineering & Public Policy, and The Alumni Professor of Environmental Science & Engineering, Carnegie Mellon University

Discussants: Jim Dooley, Senior Staff Scientist, Joint Global Change Research Institute  
David Hawkins, Director, Climate Center, Natural Resources Defense Council  
Dennis Welch, Senior Vice President, Environment, Safety & Health, American Electric Power

## **24. Counting Carbon: Tracking and Communicating Emitted and Embodied Greenhouse Gases in Products, Services, Corporations and Consumers** (Marriott Suite #1161) Meet at 1:15 at the Registration area to walk to the session together.

*How can consumers, investors, regulators and producers know the climate footprint of a product or service and feel confident it is scientifically accurate and easily understood?*

*Recent reports by the Intergovernmental Panel on Climate Change (IPCC) and other on-going research and communication efforts have articulated a daunting challenge facing the world: the urgent need to significantly reduce the release of greenhouse gases, particularly carbon dioxide from the combustion of fossil fuels, at a time when trends in energy use, population, development and consumption are projected to continue rising into the foreseeable future.*

*This session will focus on efforts to measure carbon and other greenhouse gas emissions into the atmosphere including carbon dioxide and its equivalents embedded in products and services, and then communicate that information to consumers, investors, citizens and regulators who may have a vested interest in reducing greenhouse gases. Representatives from government, business, academia and non-governmental organizations will share their insights and discuss the challenges and opportunities of using strategies, such as education and outreach programs to convey the greenhouse gases hidden in the life cycle of various products or carbon labels that inform consumers about the amount of embedded carbon in a particular product. The panel and group discussion will explore how such information can assist individuals, companies, communities and nations in meeting specific goals and fostering more energy efficient and climatically savvy societies.*

Session Chair: Mark McCaffrey, University of Colorado at Boulder

Discussants: Jack Barkenbus, Center for Environmental Management Studies, Vanderbilt University; Pankaj Bhatia, World Resources Institute; Steven Davis, The Climate Conservancy; Adam Hirsch, NOAA Carbon Tracker Program; Jim Kohm, Federal Trade Commission; Barbara Lippiatt, Office of Applied Economics, NIST; Zoe Riddell, Carbon Disclosure Project; Bella Tonkonogy, Climate Leaders, US EPA

## **25. Ocean Fertilization for Carbon Sequestration (Classroom C)**

*Ocean iron fertilization is the process by which iron is deposited onto the surface of the ocean to stimulate a large bloom of phytoplankton. This mimics a natural process which happens via dust storms, coastal interaction and deep water upwelling. Iron is a necessary trace nutrient used in photosynthesis, and is the primary limiting factor to plankton growth in much of the world's open oceans far from land. Carbon*



sequestration occurs as dead phytoplankton or zooplankton fecal pellets sink into the deep ocean. This process of sequestration is known as the "biological pump" and it has been the earth's primary atmospheric carbon removal mechanism since photosynthesis first began over 1 billion years ago-- contributing to the storage of nearly 86% of the world's mobile carbon in the deep ocean.

Like all plants, Phytoplankton require various nutrients to grow. In the central ocean basins the scarcest of those nutrients is iron-only episodically supplied by large wind-driven dust events. Ocean fertilization involves the use of ships to apply trace amounts of iron to these iron-limited regions of the ocean. This process has been demonstrated in 12 publicly funded experiments since 1993 to effectively trigger large bloom events which may accelerate the migration of CO<sub>2</sub> to depth.

Recently several commercial entities have proposed the use of ocean iron fertilization to sequester CO<sub>2</sub> and to generate carbon offsets for sale in the voluntary carbon market and/or eventually the regulated market. This session will provide a perspective on this technique from the scientific community, the NGO community, and the US legislative community.

Session Chair: Margaret Leinen, Climos

Discussants: Tony Michaels, University of Southern California;; Ann Zulkosky, US Senate Commerce, Science and Transportation Committee

## **26. Geoengineering as Part of a Climate-Change Response Portfolio (Meridian A)**

Geoengineering refers to the deliberate modification of the environment. In order to reduce the magnitude of future anthropogenic (largely CO<sub>2</sub>-induced) warming, it has been suggested that we might deliberately change the net amount of incoming solar radiation received by the Earth, either by putting reflectors in orbit around the planet, by injecting aerosols or aerosol precursors into the stratosphere, or by changing the albedo of marine clouds using artificially produced cloud condensation nuclei. While these ideas have been around for many decades, they have recently received renewed attention because of the rapidity of current climate change and the increased confidence in projections of substantial future change. Geoengineering must be viewed, therefore, as a complement to mitigation, either held in reserve as a means to ward off major changes should the climate system be judged to be heading for an otherwise irreversible "melt down", or, if the technological challenges of timely mitigation be judged too difficult, as a way to gain time to develop and implement appropriate new climate-neutral technologies.

Session Chair: Tom Wigley, National Center for Atmospheric Research

Discussants: Ken Caldeira, Carnegie Institution; Michael MacCracken, The Climate Institute; Alan Robock, Rutgers University

## **27. Looking into the Past to Understand Future Climate Change (Pavilion Foyer)**

The Earth's climate history is invaluable to understanding future change and guiding policy. Paleoclimatology is a multi-disciplinary field that uses past geologic records to understand changes in climate that can help guide decisions about adaptation and mitigation.. For example, for sea level rise, the geological record provides information that enables us to determine realistic levels of risk in both time scale and magnitude. The past also reveals links between sea level rise and "rapid ice melt", between climate change and the ocean overturning circulation, and between atmospheric greenhouse gas concentrations and global and regional climate change. Changes in droughts and floods and their impact on past societies can indicate ecosystems ability to adapt to climate change. Understanding the sensitivity of Earth climate to Greenhouse gases will help us to determine levels of mitigation that will be required in the future.

In this session, a panel of academic and government scientists will present the key research questions and the current state of the art in using the geologic record to determine climate sensitivity. With these topics as background, they will facilitate discussions in the following areas: a) how to foster interdisciplinary research, b) how to promote scientific ocean drilling as one of the essential tools, c) expanding use of climate history in education, and d) improving communication between scientists and policymakers.

Session Chair: Catherine O'Riordan, Consortium for Ocean Leadership

Discussants: David Anderson, NOAA Paleoclimatology Program; David Feary, National Research Council, The National Academies; Jerry McManus, Woods Hole Oceanography Institution; Christina Ravelo, University of California, Santa Cruz

**28. A National Strategy for Wildlife Adaptation to Climate Change: What Should it Include?** (Fish and Wildlife Service, Conference Room 7000B, Main Interior Building, 1849 C St. NW -- Contact: Dan Ashe)

*Meet at 1:15 p.m. at Registration area to walk as a group to FWS*

*Current proposals for climate change legislation, such as S. 2191, the Lieberman-Warner cap and trade bill, call for development of a "national strategy" for assisting wildlife and ecosystems, both terrestrial and marine, adapt to the impacts of climate change,. Such legislation would provide significant new funding for conservation activities, land acquisition, etc. to implement such a strategy. Efforts to define a national strategy raise challenging scientific and policy questions. What should such a "national strategy" include? What should be its goals, and how should it measure progress toward achieving them? What does "adaptation" to the impacts of climate change mean? What actions and approaches should such a strategy include to help wildlife and ecosystems faced with disruption from a changing climate, and who should implement such actions? What scientific research is needed to help define such a national strategy, and to refine it as it is implemented over the course of decades? This break-out session will promote a dialogue among scientists and policy experts to explore these issues, and to begin laying the groundwork for development of such a national strategy.*

Session Chair: Bob Dreher, Defenders of Wildlife

Discussants: Dan Ashe, U.S. Fish and Wildlife Service; Mary Pearl, Wildlife Trust

## **Expanding Understanding: Information, Education and Communication**

**29. Mass Action: Public Voices for Climate Change -- How Scientists Can Engage the Public in Global Dialogue Toward Shared Policy & Behavior Change Solutions for Global Climate Change** (Marriott Suite #1153)

*Meet at 1:15pm the Registration area to walk to the session together*

*Can solutions for global climate change come from non-technical, democratic movements? Is climate science shared in such a way that the public can share both pain and hope in climate change actions? Panelists will address the need to present statistical, economic and technical materials in plain language, and across cultures, through the media and through changes to educational curricula and materials. Participants are encouraged to consider whether simply educating the public is enough, and whether scientists have a role in encouraging social action on energy and climate change.*

*The session::*

- *Encourages debate from participants on methods for shaping an energy future that is led by an informed, multi-national public rather than technical elites.*
- *Challenges participants to explore opportunities and approaches to communicating information so that the public in many countries is prepared, informed and empowered to shape policy.*
- *Asks participants to list and consider ways to speed public adoption of behavior changes (energy use, transportation choices, lifestyle and work resource demands) across cultures and economic models that will be needed to address energy and climate goals.*

Session Chair: Chris Nichols, Academy for Educational Development

### **30. Should There be a National Climate Service? If So, What Should it do and Where Would it be? (Pavilion VIP Room)**

*As the nation advances its policy-making and scientific activities related to global climate change, the federal government must ensure that agency programs are administered and organized effectively. Edward Miles and colleagues at the University of Washington recently proposed the establishment of a National Climate Service (NCS) "to connect climate science to decision-relevant questions and support building capacity to anticipate, plan for, and adapt to climate fluctuations." (An Approach to Designing a National Climate Service, Proceedings of the National Academy of Sciences, vol 103, no. 52, pp. 19616-19623 (December 26, 2006; available at [www.pnas.org](http://www.pnas.org) in pdf).*

*Legislation is being considered in the United States Senate to establish a NCS. Section 4 of the proposed Global Change Research Improvement Act of 2007 (S. 2307) establishes such a Service within the National Oceanic and Atmospheric Administration to "produce and deliver authoritative, timely, and usable information about climate change, climate variability, trends, and impacts on local, State, regional, national, and global scales."*

*We will examine the arguments for establishing a NCS and the range of activities it would be charged to undertake. We will also discuss broader organizational issues associated with climate change policy and research.*

Session Chair: Mark Schaefer, Foundation for our Future

Discussants: Fred Anderson, McKenna Long & Aldridge LLP; D. James Baker, former Administrator, NOAA; Nancy Colleton, Institute for Global Environmental Strategies; Chester Koblinsky, NOAA; Edward Miles, University of Washington

### **31. Communicating Information for Decisionmakers: Climate Change at the Regional Scale (Meridian B)**

*Societal impacts of climate change and climate variability are experienced most acutely at regional (subcontinental), state, and local levels. Likewise, planning for adaptation to climate change and climate variability over the next 30 years most likely will be done by decision-makers focusing on these scales. Many regions of the US have shown trends in climate variables over the last 30 years that may or may not be related to global climate change. This session will present the current status and preliminary results of the North American Regional Climate Change Assessment Program, an inter-agency regional-climate modeling program for creating future-scenario climates at regional scales for impacts assessments. Discussants also will provide overview and examples of how NOAA's Regional Integrated Sciences and Assessments (RISA) program and regional climate centers communicate climate science to decision-makers. The goal of this breakout session is to explore methods to enhance two-way communication between decision-makers who require climate change information on regional scales and scientists who generate climate change information on those scales.*

Session Co-Chairs: Eugene S. Takle, Iowa State University; Linda Mearns, National Center for Atmospheric Research; Hannah Campbell, Climate Program Office of NOAA

Discussants: Brad Udall, Director, CU-NOAA Western Water Assessment; Ken Kunkel, Director, Midwest Regional Climate Center; Ray Arritt, Iowa State University

### **32. Adaptation & Ecosystems: What Information do Managers & Decisionmakers Need? (University of Maryland Business School Smith Center in the Reagan Building-Concourse Level Classroom)**

*Over the next 50-100 years, the nation's ecosystems will be changing at unprecedented rates, partly as the result of shifting climate. Society will face challenges from changes such as increased sea level, higher temperatures, and changes in rainfall, and their effects on municipal water supply, agriculture, forestry, fishing, wildlife and other areas. Successful adaptation requires sound feedback about changing conditions,*

*but the nation's environmental observation systems are both fragmented and incomplete. A useful, integrated, and efficient system will not evolve piecemeal, through spontaneous and uncoordinated development, but will require deliberate and proactive planning.*

*To help address this need, The Heinz Center has embarked on a new project designed to help ensure that high quality, unbiased information concerning changes in ecosystems in response to shifting climate is gathered and reported in an efficient, timely manner. Our basic approach involves respectful but highly-focused dialog among all sectors, based in sound science, designed to identify critical information needed to describe major trends upon which sound decisions can be based, and then to communicate those findings to the larger community. Through a number of activities, the project is addressing three key challenges:*

- 1. Identify strategic areas that managers and scientist believe should be tracked as climate change interacts with other driving forces*
- 2. Determine how best to deliver this information to managers, policy-makers, and investors; identify and tailor products, product lines, and delivery mechanisms to these needs*
- 3. Pinpoint key gaps and provide priorities and proposed strategies for filling these gaps (which may include better coordination and/or increased data collection)*

*This NCSE session is an early component of The Heinz Center's new project and will help test and refine our early conclusions and provide a forum for beginning to address the most effective strategies for improving the ability to describe crucial environmental changes. It is expected this session will help set the stage for structuring what is likely to be an important and fast-moving conversation in the new administration.*

Session Co-Chairs: Robin O'Malley and David Bernard, The H. John Heinz III Center for Science, Economics and the Environment

Discussants: Thomas Armstrong, USGS; Honorable Sherwood Boehlert, The Accord Group; Chester Koblinsky, NOAA; Alan Lucier, National Council for Air and Stream Improvement; Edward Miles, University of Washington

### **33. Diverse Perspectives on Climate Change Education - Integrating Across Boundaries** (University of Maryland Business School Smith Center in the Reagan Building)

*The need to integrate climate change education, both formal and informal, into existing initiatives, businesses, programs and curricula, is increasingly recognized as the urgency and seriousness of climate change grows. Different organizations involved in climate change education have different target audiences and face a diversity of challenges, and need to work together to ensure that climate education is coordinated enough to be broadly effective. Opportunities for cross-sectoral collaboration aimed at improving climate education strategies are rare. This breakout session provides a forum for representatives from government, NGOs, business, and education to reflect on and compare challenges, strategies, and opportunities in climate change education. Each discussant will briefly introduce the key challenges they face with climate change education, present emerging strategies and best practices that seem to be most effective in their area, and have the opportunity to interact with educators/practitioners in other sectors. The discussion to follow will afford a unique opportunity for building coherence and strength across sectors. The session will yield comparisons, recommendations, and suggestions to advance integrated approaches to climate change education.*

Session Co-Chairs: Jennie C. Stephens, Clark University; Amanda Graham, MIT

Discussants: Brenda Ekwurzel, Union of Concerned Scientists; Karin Jakubowski, Clean Air ~ Cool Planet; Jeremy Kranowitz, The Keystone Center; Frank Niepold, NOAA; Peter Schultz, U.S. Climate Change Science Program Office; Jean Margaret Smith, Nickelodeon; Mitch Thomashow, Unity College; David Ucko, National Science Foundation (NSF)

### **34. Building People's Capacities for Implementing Mitigation and Adaptation Actions (Classroom D)**

*This session will bring together people and specialists interested in creating and discussing efficient climate change education and/or communication strategies. The questions addressed will be: How do we educate people of all ages to climate change? How do we design messages about climate change? Which barriers limit people's intention to get involved in mitigation and adaptation actions? Which people's capacities should be reinforced in order to help them in proposing and implementing adaptation measures?*

Session Co-Chairs: Diane Pruneau and Omer Chouinard, Université de Moncton, Canada  
Discussants: Mélanie Demers and Jimmy Therrien, Université de Moncton, Canada; Lynne Cherry, Children's Author

### **35. Climate Change and Human Health: Engaging the Public Health Community (Atrium Hall)**

*Develop recommendations for dealing with the health The immense implications of climate change for health and well-being are still not sufficiently recognized. The American Public Health Association will launch a major public education campaign featuring "Climate Change: Our Health in the Balance" for National Public Health Week in April, 2008. In the interim APHA will use coordinate a national conversation to develop a list of key recommendations for dealing with the health impacts of climate change.*

*Building on NCSE's 2007 National Conference: Integrating Environment and Human Health, this breakout session will develop a set of recommendations that will be fed into the APHA process. The session will feature some of the leading public health scholars and professionals is open to any conference participant interested in the interplay between climate change and health.*

Session Chair: Mary Martin Gant, NIEHS  
Discussants: John Balbus, Environmental Defense; Georges Benjamin, APHA; Paul Epstein, Harvard University; Howard Frumkin, NCEH, CDC/ATSDR; Dennis McBride, Milford, Connecticut Health Department and National Association of County and City Health Officials

# Biographies of Plenary Lecturers

## Wednesday Morning Keynote Address:

**Mohan Munasinghe** is Vice Chair, UN Intergovernmental Panel on Climate Change (IPCC), which shared the 2007 Nobel Peace Prize for work on climate change. He was born in Sri Lanka, and earned post-graduate degrees in engineering, physics and development economics from Cambridge University (UK), Massachusetts Institute of Technology (USA), and McGill University and Concordia University (Canada). He has also received several honorary doctorates (*honoris causa*). Currently, he is Chairman of the Munasinghe Institute of Development (MIND); Colombo; Honorary Senior Advisor to the Sri Lanka Government, and Visiting Professor, United Nations University, Tokyo. During 35 years of distinguished public service, he has served as Senior Energy Advisor to the President of Sri Lanka, Advisor to the United States President's Council on Environmental Quality, and Senior Advisor/Manager, World Bank. He has taught as Visiting Professor at a number of leading universities worldwide and won many international prizes and medals for his research and its applications. He has authored 90 books and over three hundred technical papers on economics, sustainable development, climate change, power, energy, water resources, transport, environment, disasters, and information technology. He is a Fellow of several internationally recognized Academies of Science, and serves on the editorial boards of a dozen academic journals.

## Wednesday Morning Recorded Opening Remarks

**Ólafur Ragnar Grímsson**, the 5th President of the Republic of Iceland is completing his third four-year term. President Grímsson was chairman and later International president of the International Association Parliamentarians for Global Action (PGA) - an association of over 1,800 parliamentarians in about 80 countries. He sat on the executive committee of the PGA's "Six Nations Peace Initiative" 1984-1989, which included the late premiers Olav Palme of Sweden and Rajiv Gandhi of India. initiative. He accepted the Indira Gandhi Peace Prize on behalf of the association in 1987 and has himself received international prizes.

President Grímsson has a Ph.D. in Political Science. He was a professor at the University of Iceland, served as Member of Althingi (parliament), was Minister of Finance 1988-1991 and served as chairman of the People's Alliance Party.

President Grímsson has been a member of various public bodies. He was a member of the Economic Council 1966-1968, on the board of the Icelandic Broadcasting Service 1971-1975, was chairman of a committee concerned with the relocation of public institutions 1972-1975 and chairman of the Icelandic Social Sciences Association, 1975. Dr. Grímsson was vice-chairman of the Icelandic Security Commission from 1979-1990 and sat on the board of the National Power Company from 1983-1988.

Iceland, a former Chair of the Arctic Council, is transforming to a hydrogen economy – a crucial issue of national security. President Grímsson is providing international leadership in assisting other nation's in their transition to sustainability and carbon-free energy. Iceland is also a leader in research, both on climate change impacts and on mitigation and adaptation technologies.

### Thursday Morning Keynote Address:

**James E. Rogers** is chairman of the board, president and chief executive officer of Duke Energy.

Rogers has more than 19 years of experience as a chief executive officer in the electric utility industry. He was named president and chief executive officer of Duke Energy following the merger of Duke Energy and Cinergy in April 2006 and was named chairman in January 2007. Before the merger, Rogers served as Cinergy's chairman and chief executive officer for more than 11 years. Prior to the formation of Cinergy, he joined PSI Energy in 1988 as the company's chairman, president and chief executive officer. He previously served as executive vice president of interstate pipelines for the Enron Gas Pipeline Group and was a partner in the Washington, D.C., office of Akin, Gump, Strauss, Hauer & Feld.

Before joining that firm, Rogers was deputy general counsel for litigation and enforcement for the Federal Energy Regulatory Commission (FERC). Previously, Rogers served as assistant to the chief trial counsel at FERC, as a law clerk for the Supreme Court of Kentucky, and as assistant attorney general for the Commonwealth of Kentucky. He was a reporter for the Lexington (Kentucky) Herald-Leader from 1967 to 1970.

He is immediate past chairman and ex officio member of the Executive Committee of the Edison Electric Institute; and is chairman of the Institute for Electric Efficiency. He serves as a member of the board of directors and the Executive Committee of the Nuclear Energy Institute, and is a board member of the Institute of Nuclear Power Operations. Rogers also serves on the boards of the U.S. Chamber of Commerce, The Business Roundtable, National Coal Council, American Gas Association, National Petroleum Council, and the Nicholas Institute for Environmental Policy Solutions.

Rogers is chairman of the Edison Foundation and co-chair of the National Action Plan for Energy Efficiency and the Alliance to Save Energy. He serves on the board of directors and the Executive Committee of the World Business Council for Sustainable Development. He has testified more than 15 times on energy and environmental policies before congressional committees.

In 2007, Rogers was named the energy industry's CEO of the Year by Platts and Business Person of the Year by the Charlotte Business Journal.

Rogers also serves on numerous civic boards and has published numerous articles on energy and environmental issues. He currently co-chairs an Arts & Science Council (ASC) initiative to enrich cultural resources in the Charlotte area.

Rogers attended Emory University and earned a B.B.A. and a J.D. degree from the University of Kentucky.

Duke Energy, one of the largest electric power companies in the United States, supplies and delivers energy to approximately 4 million U.S. customers. The company has approximately 36,000 megawatts of electric generating capacity in the Midwest and the Carolinas, and natural gas distribution services in Ohio and Kentucky. In addition, Duke Energy has more than 4,000 megawatts of electric generation in Latin America, and is a joint-venture partner in a U.S. real estate company.

Headquartered in Charlotte, N.C., Duke Energy is a Fortune 500 company traded on the New York Stock Exchange under the symbol DUK. More information about the company is available on the Internet at: <http://www.duke-energy.com>.

**NCSE Lifetime Achievement Award Recipient:**

**Dr. Robert W. Corell** is the Global Change Director for the H. John Heinz III Center for Science, Economics and the Environment. Before coming to The Heinz Center, Dr. Corell served as a Senior Policy Fellow at the Policy Program of the American Meteorological Society and an Affiliate of the Washington Advisory Group. He recently completed an appointment as a Senior Research Fellow in the Belfer Center for Science and International Affairs at Harvard University's Kennedy School of Government.

Dr. Corell is actively engaged in research concerned with the sciences of global change and the connection between science and public policy, particularly research activities that are focused on global and regional climate change, related environmental issues, and science to promote understanding of vulnerability and sustainable development. Dr. Corell was recently honored with a National Conservation Award for Science, in recognition of his more than four decades of environmental science work.

In addition to his work with the American Meteorological Society, Dr. Corell co-chairs an international strategic planning group that is developing a strategy designed to harness science, technology, and innovation for sustainable development, serves as the Chair of the Arctic Climate Impact Assessment, counsels as Senior Science Advisor to ManyOne.Net, and is Chair of the Board of the Digital Universe Foundation. Dr. Corell was Assistant Director for Geosciences at the National Science Foundation where he had oversight for the Atmospheric, Earth, and Ocean Sciences and the global change programs of the National Science Foundation (NSF). He also led the United States Global Change Research Program from 1987-2000. He was formerly a professor and academic administrator at the University of New Hampshire.

Dr. Corell is an oceanographer and engineer by background and training, having received Ph.D., M.S., and B.S. degrees at Case Western Reserve University and Massachusetts Institute of Technology (MIT).

**John H. Chafee Memorial Lecturer:**

**John P. Holdren**, is Teresa and John Heinz Professor of Environmental Policy and Director of the Program on Science, Technology, and Public Policy at the Kennedy School of Government, Harvard University, as well as President and Director of the Woods Hole Research Center. He is also Professor of Environmental Science and Policy in Harvard's Department of Earth and Planetary Sciences and the immediate past President and current Chair of the Board of the American Association for the Advancement of Science (the largest general science society in the world). His work has focused on causes and consequences of global environmental change, sustainable development, energy technology and policy, nuclear arms control and nonproliferation, and science and technology policy.

Dr. Holdren is a member of the National Academy of Sciences, the National Academy of Engineering, the American Academy of Arts and Sciences, and the Council on Foreign Relations. Since 2002 he has been Co-Chair of the independent, bipartisan National Commission on Energy Policy, and since 2004 he has served as a coordinating lead author of the Scientific Expert Group on Climate Change and Sustainable Development, reporting to the Commission on Sustainable Development and the Secretary-General of the United Nations. From 1993 through 2004 he



served as Chair of the Committee on International Security and Arms Control of the National Academy of Sciences, and from 1994 to 2001 he was a member of President Clinton's Committee of Advisors on Science and Technology.

He has been the recipient of a MacArthur Foundation Prize Fellowship (1981-6), the Volvo International Environment Prize (1993), the Tyler Environment Prize (2000), and the John Heinz Prize in Public Policy (2001), among other awards. In 1995 he gave the acceptance speech for the Nobel Peace Prize on behalf of the Pugwash Conferences on Science and World Affairs (which he served as Chair of the Executive Committee from 1987 to 1997).

## Plenary Speakers

### **1. Summarizing Global Change Science and the Likely Implications of Climate Change**

**Michael C. MacCracken** is chief scientist for climate change programs with the Climate Institute, a non-partisan, non-governmental organization established in 1986 to heighten national and international awareness of climate change and to identify practical ways for responding. Dr. MacCracken is completing a four-year term as president of the International Association of Meteorology and Atmospheric Sciences, and serves on the executive committees of the International Union of Geodesy and Geophysics and Scientific Committee for Oceanic Research. He was a lead author of *Confronting Climate Change: Avoiding the Unmanageable and Managing the Unavoidable*, which was prepared for the UN's Commission on Sustainable Development. Previously, Dr. MacCracken was the leader of climate change research at the Lawrence Livermore National Laboratory (1968-93) and executive director of the Office of the U.S. Global Change Research Program (1993-97). Supreme Court Justice Stevens favorably cited his affidavit relating global climate change to impacts on particular regions in his 2007 decision in *Massachusetts et al. versus EPA*.

**Thomas E. Lovejoy** has been President of The H. John Heinz Center for Science, Economics and Environment since May 2002. Previously, he was the World Bank's Chief Biodiversity Advisor and Lead Specialist for Environment for Latin America and the Caribbean and Senior Advisor to the President of the United Nations Foundation. Dr. Lovejoy has been Assistant Secretary and Counselor to the Secretary at the Smithsonian Institution, Science Advisor to the Secretary of the Interior, and Executive Vice President of the World Wildlife Fund-U.S. He conceived the idea for the Minimum Critical Size of Ecosystems project originated the concept of debt-for-nature swaps, and is the founder of the public television series *Nature*. In 2001 he was awarded the prestigious Tyler Prize for Environmental Achievement. Dr. Lovejoy served on science and environmental councils or committees under the Reagan, Bush, and Clinton administrations. He received his B. S. and Ph.D. (biology) degrees from Yale University.

**Sarah James** is the board chairperson for the Gwich'in Steering Committee, which works on behalf of the Gwich'in Nation to protect Iizhik Gwats'an Gwandaii Goodlit, sacred territories that are used for caribou calving and act as nursery grounds of the Arctic National Wildlife Refuge. In 1988 when the Gwich'in Nation learned of the threat of oil development in the coastal plain of the Arctic Refuge, the Gwich'in tribe unanimously agreed to oppose any oil and gas development in sacred territories. In 2002, Sarah was awarded the Goldman Environmental Award for her work to educate the public and decision makers on the need to protect the Gwich'in Nation's sacred territories, and for upholding the Nation's human rights.

**Sherri W. Goodman** is Senior Fellow at the Center for Naval Analyses, a non-profit research organization. She provides strategic advice and counseling on environmental and national security matters including sustainability, long-term stewardship, homeland security, environmental science and technology, risk communication and environmental management systems. From 1993-2001, she served as the Deputy Under Secretary of Defense for Environmental Security, where, as chief environmental officer, she was responsible for environmental safety and occupational health policies and programs within the Department of Defense. She oversaw an annual budget of \$5 billion and set policies for several thousand military environmental professionals. Ms. Goodman has twice received the Secretary of Defense award for Distinguished Public Service, and she has also received EPA's Climate Change Award. She practiced law at the Boston law firm, Goodwin Procter. She also served on the staff of the Senate Armed Services Committee, 1987-90, working for the Chairman, Senator Sam Nunn, where she oversaw the Department of Energy's Defense and Environmental Programs, including nuclear weapons research and development production, waste management and environmental remediation. She received her BA from Amherst College, her J.D. from the Harvard School of Law and her MA in Public Policy from Harvard's John F. Kennedy School of Government.

## **2. Tackling Global Change: Key Social and Ecological Issues for Mitigation and Adaptation**

**Dr. Arden L. Bement, Jr.** was confirmed as the Director for the National Science Foundation on November 24, 2004, after having served as Acting Director since February of that year. He joined NSF from the National Institute of Science and Technology (NIST), where he had been Director since December 7, 2001. He had previously served both organizations in an advisory capacity, including a term on the NSF's National Science Board from 1989-1995. The board guides NSF activities and also serves as a policy advisory body to the President and Congress. As NSF director, Bement now serves as an ex officio member of the NSB. He currently serves as a member of the U.S. National Commission for UNESCO and serves as the vice-chair of the Commission's Natural Sciences and Engineering Committee. Prior to his appointment as NIST director, Dr. Bement served as the David Ross Distinguished Professor of Nuclear Engineering and head of the School of Nuclear Engineering at Purdue University. He had joined the Purdue faculty in 1992 after a 39-year career in industry, government, and academia.

**Margaret S. Leinen** is the Chief Scientific Officer of Climos, which is exploring processes for naturally removing large amounts of CO<sub>2</sub> from the atmosphere. From 2000-2006, Dr. Leinen served as Assistant Director for Geosciences at the National Science Foundation. In addition to her responsibilities as the Assistant Director, Dr. Leinen was responsible for coordinating environmental science, engineering and education programs within the National Science Foundation (NSF), and for environmental cooperation and collaborations between NSF and other Federal agencies. She also served as the chair of the Joint Subcommittee on Ocean Science and Technology, the federal interagency committee that coordinates ocean science among the participating federal agencies and as Vice-Chair of the Subcommittee on Global Change, the federal interagency committee that coordinates global change science among the participating federal agencies.

At NSF, Dr. Leinen was involved in a wide range of international activities. She was Chair of the International Group of Funding Agencies for Global Change Research (IGFA). Dr. Leinen led NSF cooperation in global change and environment research with the European Commission and with Japan. She represented the United States in the Inter-American Institute

for Global Change Research (IAI), and served until as Vice-Chair of the IAI Executive Council. In 2007, Dr. Leinen joined the NCSE Board of Directors.

**Abigail R. Kimbell** is the 16th Chief and first female Chief of the US Forest Service. A career USFS employee, she became Chief on February 5, 2007. She began as a seasonal employee with the Bureau of Land Management in 1994, joining USFS in 1997, serving as a forester, district planner, district ranger, forest supervisor, associate deputy chief and regional forester. As Chief, her areas of emphasis include climate change, children, and forest health.

Kimbell received a bachelor's degree in forest management from the University of Vermont in 1974 and later a master's degree in forest engineering from Oregon State University.

**Mary C. Pearl** is the President of Wildlife Trust, a global organization dedicated to innovative conservation science, linking ecology and health, and building careers of local scientists and educators in 20 high-biodiversity countries in North America, Asia, Africa, and Latin America. She is the co-founder of the Center for Conservation Medicine, a consortium of Wildlife Trust with Johns Hopkins University Bloomberg School of Public Health, Tufts University School of Veterinary Medicine Center for Conservation Medicine, The University of Pittsburgh Graduate School of Public Health, The University of Wisconsin-Madison Gaylord Nelson Institute for Environmental Studies, and the USGS National Wildlife Health Center. She is also a co-founder of the Center for Environmental Research and Conservation at Columbia University, where she serves as an adjunct research scientist. She is editor of the series "Methods and Cases in Conservation Science" at Columbia University Press, and is co-editor of *Conservation Medicine* (Oxford 2002) and *Conservation for the 21st Century* (Oxford 1990). She has published numerous scientific papers and is Associate Editor of the academic journal *Ecohealth* (Springer) and on the editorial board of *Conservation in Practice*.

**Thomas Dietz** is Director of the Michigan State University Environmental Science and Policy Program and Assistant Vice President for Environmental Research. He is also Professor of Sociology and of Crop and Soil Sciences. Dr. Dietz is a National Associate of the National Academy of Sciences, a Fellow of the American Association for the Advancement of Science, and has been awarded the Sustainability Science Award of the Ecological Society of America, the Distinguished Contribution Award of the American Sociological Association Section on Environment, Technology and Society, and the Outstanding Publication Award, also from the American Sociological Association Section on Environment, Technology and Society. He currently chairs the U.S. National Research Council Panel on Public Participation in Environmental Assessment and Decision Making. Dr. Dietz also serves as Secretary of Section K (Social, Economic, and Political Sciences) of the American Association for the Advancement of Science (AAAS) and is the former President of the Society for Human Ecology. His current research examines the human driving forces of environmental change, environmental values and the interplay between science and democracy in environmental issues.

### **3. Tackling Global Change: Key Energy and Technology Issues for Climate Stabilization**

**Mark Myers** became the US Geological Survey Director in 2006. He is an internationally recognized geologist and former State Geologist and head of Alaska's Geological Survey. Dr. Myers is an expert on North Slope sedimentary and petroleum geology and served as survey chief for field programs in the MacKenzie Delta, Cook Inlet, and North Slope. He also served as sedimentologist for 13 other North Slope field programs. He leads the nation's largest water, earth, and biological science and civilian mapping agency.

**Jae Edmonds** is a Chief Scientist and Laboratory Fellow at the Pacific Northwest National Laboratory's (PNNL) Joint Global Change Research Institute, and Adjunct Professor of Public Policy at the University of Maryland at College Park. Dr. Edmonds is the principal investigator for the Global Energy Technology Strategy Program to Address Climate Change, an international, public-private research collaboration. His research spans more than 25 years and focuses on the long-term effects of climate change.

Dr. Edmonds has served as a Lead Author for all three major assessments of the Intergovernmental Panel on Climate Change (IPCC) and numerous interim assessment reports. He has frequently testified before Congress and briefed the Executive Branch of the United States Government including the Vice President of the United States and the Cabinet of the President of the United States, and has prepared and conducted numerous briefings and lectures to a wide range of audiences.

**Paul R. Epstein** is Associate Director of the Center for Health and the Global Environment at Harvard Medical School and is a medical doctor trained in tropical public health. Dr. Epstein has worked in medical, teaching and research capacities in Africa, Asia and Latin America and, in 1993, coordinated an eight-part series on Health and Climate Change for the British medical journal, *Lancet*.

He has worked with the Intergovernmental Panel on Climate Change (IPCC), the National Academy of Sciences (NAS), the National Oceanic and Atmospheric Administration (NOAA) and the National Aeronautics and Space Administration (NASA) to assess the health impacts of climate change and develop health applications of climate forecasting and remote sensing. He also served as a reviewer for the health chapter of the Millennium Ecosystem Assessment, and is coordinating the international project Climate Change Futures: Health, Ecological and Economic Dimensions. This project involves scientists, UN agencies, NGOs and corporate/financial sector leaders in the assessment of the new risks and opportunities presented by a changing climate. He is working with the NCSE on a report "Healthy Solutions for a Low Carbon Economy."

**Frank T. Princiotta** is EPA Office of Research and Development's Director of the Air Pollution Prevention and Control Division of the National Risk Management Research Lab at Research Triangle Park, North Carolina. He is responsible for research, development and demonstration of methods and technologies for controlling air pollution from stationary sources. Previously, Dr. Princiotta was Director of the Energy Processes Division in EPA Headquarters in Washington, DC, where he directed EPA efforts to develop and improve technology for controlling pollution associated with the production and use of energy.

Dr. Princiotta has received three EPA bronze medals and a gold medal for management and technical performance. He has often testified before House and Senate Committees on air pollution control.

**Lewis Milford**, an attorney, is the founder of two national nonprofit clean energy organizations, Clean Energy Group (CEG) where he is President and Clean Energy States Alliance (CESA) where he is Executive Director. Mr. Milford works to increase investment in low carbon technologies and to develop innovative approaches to accelerate commercialization of clean energy. His articles on climate and clean energy have appeared in national publications including the *New York Times* and the *Boston Globe*. Previously, Mr. Milford was Vice President of Conservation Law Foundation, New England's leading environmental organization where he managed the Energy Project and negotiated electric restructuring laws that created new public clean energy investment funds. He previously was New York Assistant Attorney General representing the State of New York in the Love Canal hazardous waste case and was a law professor and Director of the Public Interest Law Clinic at the American

University Law School. At the law school Mr. Milford represented Vietnam veterans exposed to Agent Orange. He also is the co-author of *Wages of War*, a social history of American war veterans.

**David E. Rodgers** is Deputy Assistant Secretary for Energy Efficiency within the Office of Energy Efficiency and Renewable Energy (EERE) at the U.S. Department of Energy. As Deputy Assistant Secretary, Rodgers supports the Assistant Secretary in day-to-day management of the EERE portfolio of energy efficiency programs including industrial, buildings, and vehicle technologies.

Rodgers has been with the U.S. Department of Energy for 16 years and has served in the Department's energy efficiency programs for buildings, industry, and transportation. Previously, Rodgers served as Acting Deputy Assistant Secretary for Technology Development. From July 2005 through July 2006, David was Program Manager for the Building Technologies Program.

During his career at the Department of Energy, David has worked on regulatory development, R&D management, deployment activities, partnership development, business systems, and planning and analysis. David earned degrees in chemical engineering and computer science from Washington University in St. Louis, and a masters in public management from the University of Maryland. He is a former Presidential Management Fellow. In the private sector, he has experience in the chemical, petroleum, and computer industries.

#### **4. Solutions: Engaging Communities Large and Small**

**Peter M. Senge** is a Senior Lecturer at the Massachusetts Institute of Technology (MIT). He is also Founding Chair of the Society for Organizational Learning (SoL), a global community of corporations, researchers, and consultants committed to increase collective action. His special interest is on decentralizing the role of leadership in organizations so as to enhance the capacity of all people to work productively toward common goals.

Dr. Senge is the author of several books, including the widely acclaimed, *The Fifth Discipline: The Art and Practice of the Learning Organization* (1990). This book, which provides the knowledge for organizations to transform rigid hierarchies into more fluid and responsive systems, is widely credited with creating a revolution in the business world. Senge has lectured extensively throughout the world, translating the abstract ideas of systems theory into tools to create economic and organizational change. He has worked with leaders in business, education, health care and government. *The Financial Times* (2000) and *Business Week* (2001) named Dr. Senge as one of the world's "top management gurus."

**The Reverend Richard Cizik** is Vice President for Governmental Affairs of the National Association of Evangelicals. His primary responsibilities, as the most senior staff member of the Association with 24 years of service, include providing direction over the Association's public-policy stands and advocacy before the Congress of the United States, the White House and the Supreme Court. Rev. Cizik has been involved in international religious liberty causes for the Association since 1980, when he urged policy-makers to add "religion" to the annual human rights report. He is regularly called upon to speak on topics as diverse as the Bush Administration's "Faith-Based & Community Initiatives," Evangelicals and Human Rights, and "The New Evangelicals: Who Are They?" Following his participation in Climate Forum 2002 in Oxford, England, which produced the Oxford Declaration on Global Warming, Rev. Cizik has been outspoken in raising awareness of climate change as a moral and spiritual issue, and in educating the evangelical community, and others.

**Michael M. Crow** became the 16th president of Arizona State University in 2002. He is guiding the transformation of ASU into one of the nation's leading public metropolitan research universities, one that is directly engaged in the economic, social, and cultural vitality of its region. Under Dr. Crow's direction the university pursues teaching, research, and creative excellence focused on the major challenges and questions of our time, as well as those central to the building of a sustainable environment and economy for Arizona.

Since Dr. Crow took office, ASU has marked a number of important milestones, including the establishment of major interdisciplinary research initiatives such as the Biodesign Institute and the Global Institute for Sustainability. Prior to joining ASU, Dr. Crow was executive vice provost of Columbia University, where he also was professor of science and technology policy in the School of International and Public Affairs. He played the lead role in the creation of the Columbia Earth Institute (CEI). He is also the author of books and articles relating to the analysis of research organizations, technology transfer, science and technology policy, and the practice and theory of public policy.

Dr. Crow is the Chair of the Steering Committee for the American College & University Presidents Climate Commitment - a high-visibility effort to address global warming by garnering institutional commitments to neutralize greenhouse gas emissions, and to accelerate the research and educational efforts of higher education to equip society to re-stabilize the earth's climate. Currently more than 460 college and university presidents have signed the commitment. See <http://www.presidentsclimatecommitment.org/>

**Bill McKibben** is an American environmentalist and writer who frequently writes about global warming, alternative energy, and the risks associated with human genetic engineering. Beginning in the summer of 2006, he led the organization of the largest demonstrations against global warming in American history. Beginning in January 2007, he founded StepItUp.org, which is working to organize rallies in hundreds of American cities and towns to demand that Congress enact curbs on carbon emissions that would cut global warming pollution 80 percent by 2050. His first book, *The End of Nature*, was published in 1989 by Random House after being serialized in the *New Yorker*. It is regarded as the first book for a general audience about climate change, and has been printed in more than 20 languages. Several editions have come out in the United States, including an updated version published in 2006.

**Jerome Ringo** is the president of the Apollo Alliance, a coalition of organized labor, environmental, business and civil rights leaders determined to free the United States of its dependence on foreign oil. The alliance is trying to educate the public and lobby the Capitol Hill about the need to invest in alternative clean-energy sources, energy-efficient technology and jobs.

In 1996, Mr. Ringo was elected to serve on the National Wildlife Federation board of directors and, in 2005, he became the chair of the board. In so doing, he also became the first African American to head a major conservation organization. Mr. Ringo was the United States' only black delegate at the 1998 Global Warming Treaty Negotiations in Kyoto, Japan. Ringo represented the National Wildlife Federation at the United Nations conference on sustainable development in 1999.

#### 4. Solutions: Science and Policy on a Global Scale

**Mohamed T. El-Ashry** currently serves as a Senior Fellow at the United Nations Foundation. Prior to joining the foundation, Dr. El-Ashry served as Chief Executive Officer and Chairman of the Global Environment Facility (GEF). He served as the GEF Chairman between 1991 and 2002, and was appointed the first CEO and Chairman of the GEF in 1994. Under his leadership, GEF grew from a pilot program with less than 30 members to the largest single source of

funding for the global environment with 173 member countries. Dr. El-Ashry came to the GEF from the World Bank, where he was the Chief Environmental Advisor to the President and Director of the Environment Department. Prior to joining the World Bank, he served as Senior Vice President of the World Resources Institute and as Director of Environmental Quality with the Tennessee Valley Authority.

**Ambassador Richard E. Benedick** has played a major role in global environmental affairs as chief U.S. negotiator and a principal architect of the historic Montreal Protocol on protection of the ozone layer, and as Special Advisor to Secretaries-General of both the United Nations Conference on Environment and Development (Rio de Janeiro, 1992) and the International Conference on Population and Development (Cairo, 1994). After serving several years on Battelle's International Advisory Board, in 1998 he became Deputy Director in the Environmental and Health Sciences Division at their Washington D.C. office of Pacific Northwest National Laboratory, and since 2001 is Senior Advisor to Battelle's Joint Global Change Research Institute at the University of Maryland. Since 1994 Dr. Benedick has been President of the National Council for Science and the Environment. He has lectured at more than 50 universities and professional bodies, serves on several boards, and is consulted by international agencies, governments, foundations and industry. He has organized and/or presided over numerous international conferences and negotiations.

**Stephen H. Schneider** is the Melvin and Joan Lane Professor for Interdisciplinary Environmental Studies, Professor of Biological Sciences, and a Senior Fellow in the Woods Institute for the Environment at Stanford University. He served as an NCAR scientist from 1973-1996, where he co-founded the Climate Project. He focuses on climate change science, integrated assessment of ecological and economic impacts of human-induced climate change, and identifying viable climate policies and technological solutions. He has consulted for federal agencies and White House staff in six administrations. Involved with the IPCC since 1988, he was Coordinating Lead Author, WG II, Chapter 19, "Assessing Key Vulnerabilities and the Risk from Climate Change" and a core writer for the Fourth Assessment Synthesis Report. He along with four generations of IPCC authors received a collective Nobel Peace Prize for their joint efforts in 2007. Elected to the US National Academy of Sciences in 2002, Dr. Schneider received the American Association for the Advancement of Science/ Westinghouse Award for Public Understanding of Science and Technology and a MacArthur Fellowship for integrating and interpreting the results of global climate research. Founder/ editor of *Climatic Change*, he has authored or co-authored over 500 books, scientific papers, proceedings, legislative testimonies, edited books and chapters, reviews and editorials. Dr. Schneider counsels policy makers, corporate executives, and non-profit stakeholders about using risk management strategies in climate-policy decision-making, given the uncertainties in future projections of global climate change and related impacts. He is actively engaged in improving public understanding of science and the environment through extensive media communication and public outreach.

**Jonathan Pershing** is the Director of the Climate, Energy and Pollution Program at the World Resources Institute. He is active in work on climate and energy issues, including the evolving architecture of domestic and international climate policy. In the US, he has served as the facilitator for the negotiation of the Northeast states' emissions trading initiative (RGGI) and the IL state climate advisory group, sits on the Market Advisory Committee for California, has testified before the US Senate, and provided input to the design of the US Administration's climate programs. In addition, Dr. Pershing has served as an advisor to major US and multinational companies on the design of business strategies for climate change and provides regular input to the UN Climate Convention (UNFCCC), its Kyoto Protocol, the UN Commission on Sustainable Development (UNCSD), and the G8.

Previously, Dr. Pershing was Head of the Energy and Environment Division at the International Energy Agency where he served as the agency representative to the negotiations at the UNFCCC and the UNCSD. From 1990 – 1998, he served as Deputy Director and Science Advisor for the US State Department's Office of Global Change where he was a key US negotiator for the 1992 UNFCCC and its 1997 Kyoto Protocol, worked on the Rio Earth Summit, the Montreal Protocol on Ozone Depletion and the Coral Reef Initiative.

Dr. Pershing is the author of several books and articles on environmental policy and has served as a Review Editor and Lead Author for the Intergovernmental Panel on Climate Change (IPCC).

## 5. Developing Political Solutions to Climate Change

**Ray Suarez** is a Senior Correspondent for The NewsHour with Jim Lehrer. Suarez joined the NewsHour in October 1999 from National Public Radio (NPR), where he hosted the nationwide call-in news program Talk of the Nation since 1993. Suarez brought almost twenty years experience in the news business to his daily broadcast. During his seven years as a reporter with NBC affiliate WMAQ-TV in Chicago, Suarez covered local, national and international stories. Before going to Chicago, he was a Los Angeles correspondent for CNN, a producer for the ABC Radio Network in New York, a reporter for CBS Radio in Rome and a reporter for various London based American and British news services.

Suarez is currently a contributing editor for Si Magazine, a new national magazine for Latinos. The Utne Reader named him one of its "Visionaries" for 1996 and Hispanic business called him one of the "100 Influentials" among American Latinos. Suarez's essays and criticisms have been published in The Washington Post, The New York Times and The Chicago Tribune, among other publications.

**Ross C. "Rocky" Anderson** served as Mayor for Salt Lake City, Utah from 2000 until January 2008. Mayor Anderson has been an outspoken advocate for protecting the environment. As Mayor, he committed Salt Lake City, in its own operations, to abide by the Kyoto Protocol, and implemented numerous programs to improve air quality and reduce emissions of global warming pollutants. By 2005, Salt Lake City far exceeded its Kyoto goal, seven years before the Protocol's 2012 target date. To date, in its municipal operations, Salt Lake City has reduced greenhouse gas emissions by 31% from 2001 levels.

Anderson is a proponent of transit-oriented urban housing and walkable, mixed-use neighborhoods that do not perpetuate dependence on the automobile or further sprawl development. He has implemented an extensive pedestrian safety program, which garnered Salt Lake City the Surface Transportation Policy Project's 2004 award for most improved city for pedestrian safety, and the 2006 America Walks "City at Your Feet" award. Anderson has also signed a complete streets executive order, requiring Salt Lake City to accommodate the transportation needs of bicyclists and pedestrians in future road construction or reconstruction projects.

The many awards Mayor Anderson received include the Climate Protection Award from the U.S. Environmental Protection Agency, "Political Leader of the Year" award from the Utah chapter of the Sierra Club (2002), Distinguished Service Award from the national Sierra Club, Environmental Stewardship Award from the Utah Medical Association. Mayor Anderson was also named by Business Week as one of the top twenty international figures working to combat climate change.

Under Mayor Anderson's leadership, Salt Lake City received a Green Power Leadership Award from the EPA, an award from the Association for Commuter Transportation Leadership for the development of alternatives to commuting by automobile and the World Leadership Award for the environment for its Salt Lake City Green Program, perhaps the most comprehensive environmental program in the United States.



**Jay Inslee** has served as Representative for the 1st Congressional District of Washington State since 1999. Since 1992, he has worked at the federal level to protect the environment of Washington state and address the problem of global warming, serving as representative for the 4th Congressional District from 1992-1994. Previously, he was a state legislator and prosecutor in Selah, Wash.

He fought to restore protections for roadless areas in national forests and led a successful campaign in the House to keep limits on oil-tanker traffic in Puget Sound. Since 2005, Inslee has used his seat on the powerful House Energy and Commerce Committee to promote his vision for a clean energy future, the New Apollo Energy Act, and to advance other legislation that would reduce greenhouse-gas emissions. In March 2007, he was appointed to the 15-member Select Committee on Energy Independence and Global Warming. Congressman Inslee recently published a new book with co-author Bracken Hendricks, titled *Apollo's Fire: Igniting America's Clean Energy Economy*.

**Lynn Scarlett** was confirmed as Deputy Secretary of the Department of the Interior on November 2005, after 4 years as the Department's Assistant Secretary for Policy, Management and Budget. She served as Acting Secretary of the Department upon the resignation of former Secretary Gale Norton effective April 1, until the confirmation of Secretary Dirk Kempthorne on May 26, of 2006. She serves on the Executive Committee of the President's Management Council.

Ms. Scarlett coordinates Interior's environmental policy initiatives to implement the President's executive order on cooperative conservation, serving on the White House Cooperative Conservation Task Force. From June 2003-2004, she chaired the federal Wildland Fire Leadership Council, an interagency and intergovernmental forum for implementing the National Fire Plan and 10-Year Implementation Plan. She co-chairs the President and First Lady's Preserve America initiative on historic preservation and heritage tourism. She also co-chairs the Recreation Fee Leadership Council, a federal interagency group to coordinate recreation fee policy and practices on federal lands. She serves on the Board of Trustees of the Udall Foundation as the Department of the Interior representative.

Prior to joining the Bush Administration in July 2001, she was President of the Los Angeles-based Reason Foundation, a nonprofit current affairs research and communications organization.

## **6 Presidential Candidates Forum: What Will the Next President do to Manage Climate Change?**

**Vijay Vaitheeswaran** is the Global Correspondent for The Economist, covering developments in politics, economics, business, and technology as they relate to energy issues. He joined the magazine's staff as the London-based Latin America Correspondent in 1992. Two years later, he opened its first bureau in that region in Mexico City. He wrote about political, financial and cultural developments in that part of the world until 1997, when he returned to the editorial headquarters in London.

He is a commentator on NPR and Marketplace radio, and a regular guest on the BBC, PBS's NewsHour, ABC's Nightline and other television programs. He is also the author of a new book on the future of energy, "Power to the People: How the Coming Energy Revolution will Transform an Industry, Change our Lives, and Maybe Even Save the Planet." (2007) Harvard's John Holdren, reviewing the book in Scientific American, called it "by far the most helpful, entertaining, up-to-date and accessible treatment of the energy-economy-environment problematique available." Vijay holds a degree in mechanical engineering from the Massachusetts Institute of Technology. He lives in New York.

## Exhibition

The Exhibition will take place Wednesday, January 16 from 12:00 pm- 8:00 pm and Thursday, January 17 from 8:00 am- 8:00 pm. Exhibits are located in the Atrium.

### *Booth #*

103	<b>Ecological Society of America</b>
105	<b>National Institute of Environmental Health Sciences (NIEHS)</b>
107	<b>U.S. Department of Agriculture (USDA)</b>
109	<b>Clark Laboratory</b>
200	<b>U.S. Geological Survey (USGS)</b>
201	<b>ESRI</b>
202	<b>Strategic Environmental Research and Development Program</b>
203	<b>Florida A &amp; M University</b>
204	<b>National Aeronautics and Space Administration (NASA)</b>
205	<b>National Oceanic and Atmospheric Administration (NOAA)</b>
206	<b>U.S. Forest Service</b>
207	<b>Centers for Disease Control and Prevention (CDC)</b>
209	<b>Environmental Protection Agency (EPA)</b>
211	<b>U.S. Agency for International Development (USAID)</b>
300	<b>Earth Portal</b>
302	<b>National Council for Science and the Environment (NCSE)</b>
304	<b>National Institute of Standards and Technology (NIST)</b>
306	<b>Island Press</b>
308	<b>National Environmental Education Foundation (NEEF)</b>
310	<b>Commission for Environmental Cooperation (CEC)</b>
401	<b>Toyota Motor Sales, U.S.A., Inc.</b>

## Poster Session Titles & Authors

The Poster Session will take place Wednesday, January 16 from 12:00 noon -- 8:00 pm and Thursday, January 17 from 8:00 am- 8:00 pm. in the Atrium. .

Donato Acero-Hall, Chris Schumacher, and Jeff Wright. Fleming College School of Environmental and Natural Resource Science. **The Boreal Forest: Global Carbon Sink.**

Ricardo A. Alvarez. Florida Atlantic University Center for Environmental Studies. **Climate Change Adaptation through Building Design Criteria.**

James E Amonette<sup>1</sup>, J Lehmann<sup>2</sup>, and S Joseph<sup>3</sup>. <sup>1</sup>Pacific Northwest National Laboratory, <sup>2</sup>Cornell University, <sup>3</sup>University of New South Wales. **Biomass carbonization: The dark side of terrestrial carbon sequestration.**

WM Post III<sup>1</sup>, JE Amonette<sup>2</sup>, RA Birdsey<sup>3</sup>, JD Jastrow<sup>4</sup>, RC Izaurralde<sup>2</sup>, GH Marland<sup>1</sup>, BA McCarl<sup>5</sup>, SD Wullschleger<sup>1</sup>, FB Metting<sup>2</sup>, and RL Graham<sup>1</sup>. <sup>1</sup>Oak Ridge National Laboratory, <sup>2</sup>Pacific Northwest National Laboratory, <sup>3</sup>United States Forest Service, <sup>4</sup>Argonne National Laboratory, <sup>5</sup>Texas A&M University. **Terrestrial carbon sequestration: A new assessment of its technical and economic potential for greenhouse-gas mitigation.**

Robin L. Graham<sup>1</sup>, Julie Jastrow<sup>2</sup>, Mac Post<sup>1</sup>, Cesar Izaurralde<sup>3</sup>, Blaine Metting<sup>3</sup>, and Jim Amonette<sup>3</sup>. <sup>1</sup>Oak Ridge National Laboratory, <sup>2</sup>Argonne National Laboratory, <sup>3</sup>Pacific Northwest National Laboratory. **Carbon sequestration in terrestrial ecosystems (CSiTE): An integrated research approach to soil C sequestration under a cellulosic crop.**

Lindsay Baxter, Dave Deal, and Stanley Kabala. Duquesne University. **Counting Carbon in Pittsburgh.**

Franco Biondi<sup>1</sup>, Tomasz J. Kozubowski<sup>2</sup>, Anna K. Panorska<sup>2</sup>, and Scotty Strachan<sup>1</sup>. <sup>1</sup>DendroLab, University of Nevada- Reno, <sup>2</sup>Department of Mathematics and Statistics, University of Nevada- Reno. **Estimating the likelihood of eco-hydro-climatic episodes from tree-ring records.**

Shampa Biswas and Harald Vacik. Institute of Siviculture, University of Natural Resources and Applied Life Sciences. **Evaluating coastal forest management strategies to adopt upcoming climate impacts at Cox's Bazar, Bangladesh.**

Peter E. Black. State University of New York, College of Environmental Science and Forestry. **Natural Resources' Universal Pattern and Sustainability.**

Chad Briggs and Dork Sahagian. Lehigh University. **Risk and National Security Implications of Global Climate Change Models.**

Kim J. Brown. Ohio University. **Innovation in the Greenhouse Gas Inventory Process: Lessons Learned from a Service-Learning Course at Ohio University.**

Mark E. Capron. PODenergy. **Producing methane and liquid carbon dioxide simultaneously in water supported structures.**

Michael Hoffmann<sup>1</sup>, Art DeGaetano<sup>2</sup>, and Lauren Chambliss<sup>1</sup>. <sup>1</sup>Cornell University Agricultural Experiment Station (CUAES), <sup>2</sup>Cornell University. **A Vision for Climate Impacts, Assessment and Adaptation Strategies.**

Thomas C. Chesnes, Samuel Joeckel, and Joshua Firestone. Palm Beach Atlantic University. **The “Lynn White” Hypothesis Forty Years Later: Is Christianity Still at the Root of our Ecological Crisis?**

Susan A. Crate, George Mason University. **Assessing Knowledge, Resilience & Adaptation and Policy Needs in Northern Russian Villages Experiencing Unprecedented Climate Change.**

Amy E. Daniels<sup>1</sup>, Valerie Esposito<sup>2</sup>, Kenneth Bagstad<sup>2</sup>, Azur Moulaert<sup>2</sup>, Carlos Manuel Rodriguez<sup>3</sup>, and Olman Segura-Bonilla<sup>4</sup>. <sup>1</sup>School of Natural Resources and the Environment, Land Use and Environmental Change Institute, University of Florida, <sup>2</sup>Gund Institute for Ecological Economics, University of Vermont, <sup>3</sup>Conservation International, <sup>4</sup>Universidad Nacional (Costa Rica). **A decade of PES (payments for environmental services): building on Costa Rica's model and applying lessons learned.**

L. J. Davenport, Vulcan Materials Center for Environmental Stewardship and Education, Samford University. **Potential Effects of Climate Change on Alabama's Plant Life.**

Yves Gagnon<sup>1</sup>, Mathieu A. Landry<sup>1</sup>, and Denny Richard<sup>2</sup>. <sup>1</sup>K.C. Irving Chair in Sustainable Development, Université de Moncton; <sup>2</sup>Municipality of Bouctouche. **Community Wind Energy Projects to Reduce Greenhouse Gas Emissions.**

Julia M Gohlke, Melissa Chan, and Christopher J Portier. Environmental Systems Biology Group, Laboratory of Molecular Toxicology, National Institute of Environmental Health Sciences. **A Systems Approach for Bridging the Gap between Human Health Research and Climate Change Research.**

Healy Hamilton<sup>1</sup>, Lindsay Irving<sup>1</sup>, Guillermo Duran<sup>1</sup>, and Miguel Fernandez<sup>2</sup>. <sup>1</sup>Center for Biodiversity Research & Information, California Academy of Sciences; <sup>2</sup>Department of Engineering, University of California, Merced. **Shifting Life and Landscapes:**

**Modeling species distributions under future climate regimes supports connectivity conservation.**

J.Hoyos-Santillán<sup>1</sup>, A.Sepúlveda<sup>1</sup>, F. J. Gutierrez-Mendieta<sup>2</sup>, M. R. Torres-Alvarado<sup>2</sup>, E. Razo-Flores<sup>3</sup>, L. Dendooven<sup>1</sup>, F. Thalasso<sup>1</sup>. <sup>1</sup>Department of Biotechnology and Bioengineering, Cinvestav (Mexico); <sup>2</sup>Hydrobiology Department, Universidad Autonoma Metropolitana; <sup>3</sup>Environmental Sciences Division, Instituto Potosino de Investigacion Cientifica y Tecnologica. **Greenhouse gases emissions from a subtropical eutrophicated lake.**

Matthew D. Hurteau<sup>1</sup>, George W. Koch<sup>2</sup>, and Bruce A. Hungate<sup>2</sup>. <sup>1</sup>National Institute for Climatic Change Research, Western Region, Northern Arizona University; <sup>2</sup>Department of Biological Sciences, Northern Arizona University. **Carbon Protection and Fire Risk Reduction: Toward A Full Accounting of Forest Carbon Offsets.**

Fobissie B. Kalame, Johnson Nkem, Monica Idinoba and Markku Kanninen. Center for International Forestry Research – CIFOR, Burkina Faso. **National forest policies and the provisioning of ecosystem goods and services for adaptation to climate change in West Africa.**

A R Khan and L. Al-Awadi. Kuwait Institute for Scientific Research. **Future solutions to housing problem, Green Building Design of New Oil Sector Complex at an Old Salt-Chlorine Industrial Site.**

Carmelo León, Jorge Araña and Ana Rodriguez Zubiaurre.. University of Las Palmas de Gran Canaria. **Climate change, oil spills and other public policy problems in the perception of human minds: the role of information.**

Fred Loxsom. Eastern Connecticut State University. **Sustainable Energy Studies.**

Brennan Hutchinson, Melaika Soule, Karen Tomkins, Annette Maher, Patrick Gilhooly, Lucas Dyk, Mark Bishop, and Matt Stewart. **Attitudes on Climate Change: a Comparative Study between Urban and Rural Populations.**

Raghu Murtugudde. UMCP Earth System Science Interdisciplinary Center (ESSIC) **Regional Earth System for the Chesapeake Bay Program.**

Robinah K. Nanyunja. Pilot International Ltd., Environment, Climate Change & Natural Resource Consultants. **Clean Development Mechanisms (CDM): An Untapped Investment Opportunity on the African Continent .**

Brian A. Needelman. University of Maryland. **Coastal wetland restoration for carbon offsets: Science and policy.**

Chelsie Papiez. The Evergreen State College. **Evergreen's Commitment to Climate Change.**

John H. Perkins. The Evergreen State College. **Climate Change, Chernobyl, and the Nuclear Renaissance: Teaching Connections.**

Nicky Phear, University of Montana. **Cycle the Rockies: A College Field Course about Energy and Climate Change in Montana.**

Dr. Anand Prem Rajan<sup>1</sup> and M. Gunashekar<sup>2</sup>. <sup>1</sup>VIT University, School of Biotechnology, Chemical and Biomedical Engineering; <sup>2</sup>Salim Ali Centre for Ornithology and Natural History. **Changes On Bio-Diversity Of South India's Sacred River Noyyal Due To Alterations In Micro- Environment.**

Rebecca J. Romsdahl. University of North Dakota. **Adaptation planning for climate change impacts in the Northern Great Plains: a case study of North Dakota.**

Stanley Scher<sup>1</sup> and Gregg R. Dietzman<sup>2</sup>. <sup>1</sup>Native Yew Conservation Council; <sup>2</sup>White Point Systems. **A Geographic Information System (GIS)-based model to identify optimum habitat for yew (Taxus) and, in principle, other long-lived conifers as repositories for long-term carbon storage.**

Keith Schimmel and Solomon Bililign. North Carolina A&T State University. **NOAA Interdisciplinary Scientific Environmental Technology Cooperative Science Center.**

Douglas Dwyer, Greg Stevens, Derek Loftis, Catey Lavagnino, and Aleks Janjic. NASA Langley Research Center. **Climate Change in Virginia and its impact on the Hampton Roads Region.**

Maggie Surface. Allegheny College. **Solar at Allegheny: Model for the Future.**

James F. Sweeney Jr and Steven J. Davis. The Climate Conservancy. **Using Market Forces to Reduce Greenhouse Gas Emissions Through Product-Level Life Cycle Analysis and Eco-Labeling.**

James Toledano, Ronald Eastman, and Florencia Sangermano. Clark University. **Conserving Bolivia's Critical Resources Through GIScience.**

Nadine Unger<sup>1</sup>, Daniel Tong<sup>2</sup>, and Drew Shindell<sup>1</sup>. <sup>1</sup>NASA GISS at Columbia University <sup>2</sup>Science and Technology Corporation, Research Triangle Park. **Climate Forcing and Human Health Impacts of an Electric Vehicle Fleet in the United States.**

Kate White<sup>1</sup>, Rolf Olsen<sup>2</sup>, and Kevin Knuuti<sup>3</sup>. <sup>1</sup>US Army Corps of Engineers (USACE) ERDC -Cold Regions Research and Engineering Laboratory; <sup>2</sup>USACE Institute for Water

Resources; <sup>3</sup>USACE Sacramento District. **Comprehensive Systems Approach to Temporal and Spatial Changes.**

Kate White<sup>1</sup>, Bill Curtis<sup>2</sup>, Stu Townsley<sup>3</sup>, Rolf Olsen<sup>4</sup>, and Seshu Vaddey<sup>5</sup>. <sup>1</sup>USACE ERDC -Cold Regions Research and Engineering Laboratory; <sup>2</sup>USACE ERDC-Coastal and Hydraulics Laboratory; <sup>3</sup>USACE Sacramento District; <sup>4</sup>USACE Institute for Water Resources; <sup>5</sup>USACE Portland District. **Climate Impacts and Water Control: US Army Corps of Engineers R&D.**

Andrew J. Whittle, David S. Maehr, and Songlin Fei. University of Kentucky, Forestry Department. **Global Climate Change and Its Effects on Florida Panther and Black Bear Habitat in Florida.**

Joe Witte. WJLA-TV. **How big is YOUR CO2 bubble as you drive 25 miles?: The car exhaust bubble is immense, the aerial ocean is thin, and the atmosphere is twice as important as the sun.**

Shuang- Ye Wu, Lance Greene and Kori Murray. University of Dayton. **Potential impacts of climate change on flooding in the Great Miami Watershed, Ohio.**

Rebecca Wynne<sup>1</sup>, Gary Braasch<sup>2</sup>, and Betsy Beardsley<sup>1</sup>. <sup>1</sup>Alaska Wilderness League, <sup>2</sup>Gary Braasch Photography. **Communicating Needs for Protecting America's Arctic from Climate Change in Conjunction with Oil and Gas Development.**

## **Collaborating Organizations**

*NCSE thanks the following organizations for joining us in advancing solutions to the challenge of climate change by helping us by participating in the program and spreading the word about our conference.*

**1 Sky**

**American Council for an Energy-Efficient Economy**

**American Institute of Biological Sciences**

**Au Sable Institute of Environmental Studies**

**Biogeosciences.org**

**Chesapeake Climate Action Network**

**The Climate Conservancy**

**Climate Counts**

**Environment for the Americas**

**EPA Emerging Leaders Network**

**Focus the Nation**

**Gary Braasch Photography**

**The Geological Society of America**

**The H. John Heinz III Center for Science, Economics, and the Environment**

**The Humane Society of the United States**

**National Spiritual Assembly of the Baha'is of the United States**

**The Population-Health-Environment Policy and Practice Coalition**

**SoL Sustainability Consortium**

**US Partnership for Education for Sustainable Development**

NCSE also thanks the scores of people who have helped by participating as volunteers, notetakers, reporters, assistants, and discussants.



**8th National Conference on Science, Policy and the Environment**  
*Climate Change: Science and Solutions*  
**Advisory Committee**

**D. James Baker**, Former Administrator, NOAA and former President and CEO, Academy of Natural Sciences, Philadelphia

**Ambassador Richard Benedick**, President, National Council for Science and the Environment

**Leonard Berry**, Director, Florida Center for Environmental Studies, Florida Atlantic University

**Lakhdar Boukerrou**, Coordinator, Research Programs & Services, Florida Center for Environmental Studies, Florida Atlantic University

**Jim Buizer**, Executive Director, Office of Sustainability Initiatives, Arizona State University

**Virginia Burkett**, Chief Scientist for Global Change Research, US Geological Survey

**Robert Corell**, Director, Global Change Program, The H. John Heinz III Center for Science, Economics, and the Environment

**Mohamed El-Ashry**, Senior Fellow, The UN Foundation; Former CEO and Chairman, Global Environment Facility

**Paul Epstein**, Associate Director, Center for Health and the Global Environment, Harvard Medical School

**Mary Gant**, Program Analyst, National Institute of Environmental Health Sciences

**Martha Garcia**, Priority Ecosystems Science Coordinator, US Geological Survey

**Eban Goodstein**, Chair, Environmental Studies Program, Lewis and Clark College; Project Director, Focus the Nation

**R. Juge Gregg**, Associate Attorney at Law, Sidley Austin LLP

**Susan Haseltine**, Associate Director for Biology, US Geological Survey

**David Hassenzahl**, Chair and Associate Professor, Department of Environmental Studies, University of Nevada- Las Vegas

**Philip Hill**, Natural Resources of Canada, Geological Survey of Canada

**Elaine Hoagland**, Senior Consultant on Invasive Species, NOAA

**Dan Kammen**, Director, Renewable and Appropriate Energy Laboratory, University of California- Berkeley

**Margaret Leinen**, Chief Scientific Officer, Climos

**Tim Mealey**, Senior Partner, Meridian Institute

**Barbara Morehouse**, Acting Director, Institute for the Study of Planet, University of Arizona

**Jonathan Patz**, Director, Global Environmental Health Center for Sustainability and the Global Environment (SAGE), University of Wisconsin

**Frank Princiotta**, Director, Air Pollution Prevention and Control Division, Office of Research and Development, US EPA

**Scott Sklar**, President, The Stella Group, Ltd. and Chair, Sustainable Energy Coalition Steering Committee

**Luis Tupas**, National Program Leader, Natural Resources and Environment, CSREES, USDA

**Leigh Welling**, Director, Crown of the Continent Research & Learning Center, Glacier National Park

# Conference Room Locations

Wednesday, January 16, 9:30-12:00pm

Skill Building Workshops (Concurrent)

## Meeting Rooms

Meridian C

Continental B

Continental C

Hemisphere B

Meridian B

Polaris C

Horizon B

Meridian D

EPA, 4th Floor

Conf. Rooms 1&2\*

UMD Smith Center,

Ground Level

UMD Smith Center,

Concourse Level

Polaris B

Continental A

Oceanic B

Classroom D

Gateway

Meridian E

Meridian A

Oceanic A

Classroom C

Polaris A

Horizon A

Hemisphere A

EPA, 5th Floor

Conf. Room 1\*

Atrium Hall

## Campus-Based/University Initiatives

1. Renewable Energy Hedges: A Tool for Campus and Institutional Sustainability

2. Campus Solutions to Global Warming

3. Focus the Nation: Campus-based Education and Action

4. Developing Campus-Wide Initiatives on Climate Change, Energy Use, and Sustainability

5. Using the Clean Air-Cool Planet Campus Carbon Calculator

## Government, Community, and Policy Solutions

6. Developing a Climate Change Reduction Plan for State & Local Governments

7. Building Local Community Support for State and Federal Climate Legislation

8. Tools to Assist State and Local Governments Make Sound Decisions Regarding Energy and Environmental Technology

9. Climate Change Risks, Challenges, and Opportunities: Equipping the Next Generation of Federal Leaders to Tackle It

10. People of Faith Respond to Climate Change

## Climate Change Education: Formal and Informal

11. Integrating Climate Change into the K-12 Classroom

12. Teaching Climate Change to Undergraduates

13. An Abbreviated World Wildlife Fund (WWF) Climate Camp

14. Climate Careers: Finding Your Career Pathway

15. Earth Portal and the Encyclopedia of Earth: A Resource for Climate Change

16. Council of Energy Research and Education Leaders: Organizing Meeting

17. Developing a Framework for Climate Literacy

18. Addressing Human Population Growth with Accuracy and Confidence

## Monitoring and Assessment Tools

19. Tools for Forest Carbon Inventory, Management, and Reporting

20. Carbon Footprint Calculators and Carbon Reduction Tools

21. Technical Methods to Inventory and Monitor GHG Emissions

22. Making Sense of Carbon Offsets

23. NASA Earth Observations and Models Informing Decision-making in Support of Climate Change Mitigation and Adaptation

24. Measurement Science for Climate Research

## Communications

25. Communicating Climate Change Science and Solutions

*\*Participants for sessions at EPA will meet at the EPA Security desk on the Ground floor of the Reagan Building at 9:15am.*

## Thursday, January 17, 1:30-5:00pm

### Breakout Sessions (Concurrent)

Sessions at the Woodrow Wilson Center, Marriott Hotel, and the U.S. Department of the Interior meet at the Registration Desk 1:15pm to walk to your session as a group.

#### Meeting Rooms

Compass  
Meridian C  
Continental A  
Continental B  
EPA 4<sup>th</sup> Floor ORMA  
Conf Room 2\*  
Meridian D  
Continental C  
Polaris C  
Meridian E  
Oceanic A  
Oceanic B  
Horizon B  
Horizon A  
Classroom A  
Woodrow Wilson Center  
Gateway  
Polaris B  
  
Polaris A  
Hemisphere B  
Hemisphere A

Pavilion  
EPA 4<sup>th</sup> Floor ORMA  
Conf. Room 1\*  
Classroom B  
Marriott Suite #1161

Classroom C  
Meridian A  
Pavilion Foyer  
Fish & Wildlife Service,  
7000B  
Main Interior Bldg.\*\*

Marriott Suite #1153

Pavilion VIP Room

Meridian B  
UMD Smith Center,  
Concourse Level.  
UMD Smith Center,  
Ground Level  
Classroom D  
Atrium Hall

#### Strategies for Stabilization, Mitigation and Adaptation

1. Green Buildings and Building Design
2. Moving Forward: Transportation & Emissions Reduction
3. Animal Agriculture and Climate Change
4. Minimizing Agricultural Impacts on Climate; Minimizing Climate Impacts to Agriculture
5. Mitigating Greenhouse Gases other than CO<sub>2</sub>
6. Energy Efficiency and Conservation
7. Biofuel Industry and CO<sub>2</sub> Emissions: Implications for Policy Development
8. Solar Energy: Scaling Up – Science and Policy Needs
9. How to Ensure Wind Energy is Green Energy
10. Nuclear Energy: Using Science to Make Hard Choices
11. Economics: Setting the Price for Carbon
12. Forests and Markets for Ecosystem Services
13. Policy: Challenges of GHG Rulemaking: Where the Rubber Meets the Road
14. Engaging China on a Pathway to Carbon Neutrality
15. Human Population & Demographics: Can Stabilizing Population Help Stabilize Climate?
16. Urban Responses to Climate Change in Coastal Cities
17. Climate Change Adaptation for the Developing World: Expanding Africa's Climate Change Resilience
18. Coastal Managers and Climate Change
19. Forest Management and Climate Change
20. Climate Change, Wildlife Populations & Disease Dynamics

#### Guiding and Fostering Multi-Disciplinary Research

21. The US Global Change Research Program – What do we want from the Next Administration?
22. Availability of Technology to Mitigate Climate Change
23. CO<sub>2</sub> Capture and Storage – How Can it Play a Major Role in Mitigating Climate Change?
24. Counting Carbon: Tracking and Communicating Emitted and Embodied Greenhouse Gases in Products, Services, Corporations and Consumers
25. Ocean Fertilization for Carbon Sequestration
26. Geoengineering as Part of a Climate-Change Response Portfolio
27. Looking into the Past to Understand Future Climate Change
28. A National Strategy for Wildlife Adaptation to Climate Change: What Should it Include?

#### Expanding Understanding: Information, Education and Communication

29. Mass Action: How Scientists Can Engage the Public in Global Dialogue Toward Shared Policy & Behavior Change Solutions for Global Climate Change
30. Should There be a National Climate Service? If So, What Should it do and Where Would it be?
31. Communicating Information for Decisionmakers: Climate Change at the Regional Scale
32. Adaptation & Ecosystems: What Information do Managers & Decisionmakers Need?
33. Diverse Perspectives on Climate Change Education – Integrating Across Boundaries
34. Building People's Capacities for Implementing Mitigation and Adaptation Actions
35. Climate Change and Human Health: Engaging the Public Health Community

\*Participants for sessions at EPA will meet at the EPA Security desk on the Ground floor of the Reagan Building at 9:15am.

\*\*1849 C Street, NW. Contact: Dan Ashe, FWS

**Friday, January 18, 10:30 am - 12:30pm**

**Symposia (Concurrent)**

Meeting Rooms

Hemisphere B  
Atrium Hall  
Horizon A  
Meridian D & E  
Polaris A  
Pavilion  
Oceanic A & B  
Hemisphere A  
Polaris B & C  
Horizon B

Symposium

1. Beyond Kyoto: Elements of a 2020 International Agreement
2. Climate Change and International Development
3. Role of Philanthropic Foundations: Promoting Strategic Initiatives on Climate Change
4. Business and Finance: Opportunities and Challenges from Climate Change
5. Forging Alliances between Business and Society: US Climate Action Program
6. Legislative Agenda for Addressing the Carbon Problem
7. Engaging State and Local Government: Developing and Implementing Climate Action Plans
8. Climate Scientists and Decisionmakers: The Communication Interface
9. Communicating Climate Science to the Public Through the Media
10. Science for Carbon Management