

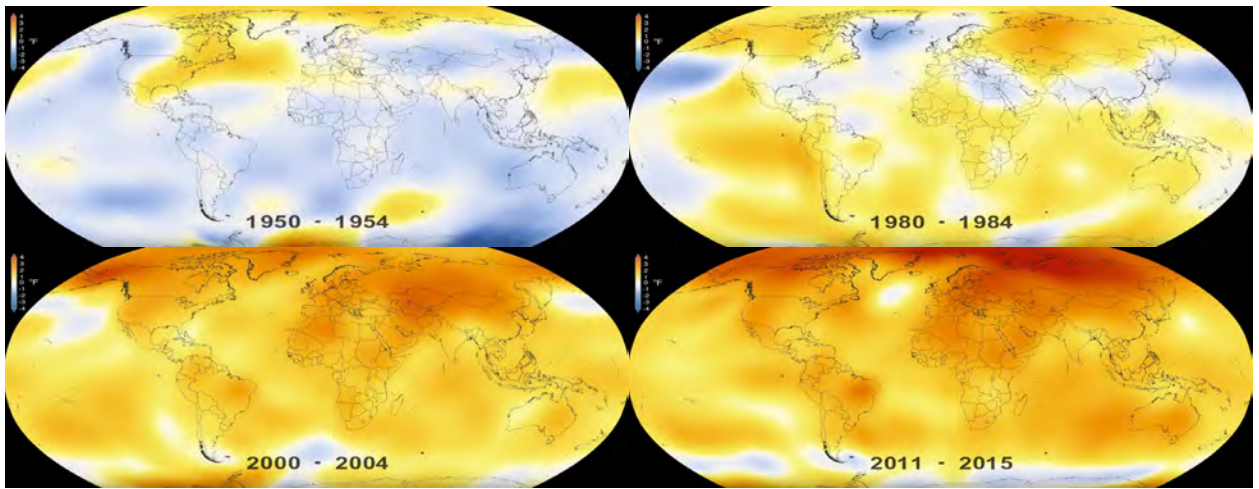


The Institute for Sustainability, Energy, and Environment
presents iSEE Congress 2017 ...



Sept. 18-20, 2017
Alice Campbell Alumni Center
University of Illinois at Urbana-Champaign

Welcome



Each year, the Institute for Sustainability, Energy, and Environment (iSEE) assembles the iSEE Congress, featuring top national and international scientists, policy experts, and industry leader representatives from different disciplines to present the latest on a particular grand world challenge.



In 2017, we are focusing on climate change. As you can see by the maps above, there is irrefutable evidence that the world is warming. And with that change comes a challenge to our very way of life: A growing population must be fed — and kept healthy and safe — as increasing temperatures affect agriculture and ecosystems, and extreme weather and other climate-related factors put homes and lives in danger.

For Congress 2017 — “Building Resilience to Climate Change” — iSEE has assembled leading national and international experts from different disciplines to advance scientific understanding on the impacts of climate change on the agricultural sector, on ecosystem services, and on human livelihoods and wellbeing, particularly among the most vulnerable sections of society.

This Congress will address the challenges posed by climate change, as well as areas for further research, education, and institutional development to adapt to it. We will discuss near- and medium-term options for building resilience to climate change — and policy directions that could offer long-term solutions.

I am pleased to welcome you to the discussion.

Madhu Khanna
Associate Director for Education and Outreach
Institute for Sustainability, Energy, and Environment (iSEE)
University of Illinois at Urbana-Champaign

Sept. 18-20, 2017, Alice Campbell Alumni Center
University of Illinois at Urbana-Champaign



Congress Schedule

Conference attendees, please note: You are invited to join us for coffee breaks and lunch (if you have signed up for lunch). However, dinners are by invitation only.

MONDAY, SEPT. 18

5-5:15 p.m. — Welcome

- Robert J. Jones, Chancellor, University of Illinois at Urbana-Champaign

5:15-6:30 p.m. — Keynote Address

Moderator Evan H. DeLucia, Baum Family Director of iSEE, University of Illinois at Urbana-Champaign

- John Holdren, Former Director of the White House Office of Science and Technology Policy — “The Case for Investing in Climate Change Resilience: Insights from Science, Engineering, and Economics”

6:30-7:15 p.m. — Reception and Student Poster Presentations

More on posters, presenters at <http://bit.ly/iSEECong17>

7:30-9 p.m. — Dinner for Speakers (invitation only)

TUESDAY, SEPT. 19

8-8:30 a.m. — Registration

8:30-8:45 a.m. — Opening Remarks

- Evan H. DeLucia, Baum Family Director of iSEE, University of Illinois at Urbana-Champaign

8:45-10:15 a.m. — Session I: “Regional Climate Effects: Building Resilience”

Moderator Lisa Ainsworth, Associate Professor of Plant Biology, University of Illinois at Urbana-Champaign

- Donald Wuebbles, Preble Professor of Atmospheric Sciences, University of Illinois at Urbana-Champaign — “The Climate Science Special Report: An Assessment of the Science of Climate Change”
- Thomas W. Hertel, Professor of Agricultural Economics, Purdue University — “Assessing the Inter-regional Incidence of Climate Impacts on Agriculture”
- Kaiyu Guan, Assistant Professor of Natural Resources and Environmental Sciences, University of Illinois at Urbana-Champaign — “Impact and Adaptation of Agroecosystems to Climate Change in the U.S. Corn Belt”

10:15-10:30 a.m. — Coffee Break

10:30 a.m.-noon — Session II: “Vulnerability of Agriculture and Ecosystems to Climate Change”

Moderator Carla Cáceres, Director of the School of Integrative Biology, University of Illinois at Urbana-Champaign

- Donald Ort, Emerson Professor of Plant Biology, University of Illinois at Urbana-Champaign — “More than Taking the Heat”
- Maximilian Auffhammer, Pardee Professor of Sustainable Development, University of California Berkeley — “Regional Crop Diversity and Weather Shocks in India”
- Amy W. Ando, Professor of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign — “Conservation Planning in the Face of Climate Change”



Congress Schedule

TUESDAY, SEPT. 19 (continued)

Noon-1:30 p.m. — Lunch and Keynote Address

Moderator Gillen D'Arcy Wood, Langan Professorial Scholar of Environmental Humanities of English, University of Illinois at Urbana-Champaign

- Justin Gillis, Global Climate Change Journalist and Author — “Climate Change: Where Do We Stand in 2017?”

1:30-3 p.m. — Session III: “Land Use and Ecosystem Impacts of Climate Change”

Moderator Jeffrey Brawn, Head of Department of Natural Resources and Environmental Sciences, University of Illinois at Urbana-Champaign

- Atul Jain, Professor of Atmospheric Sciences, University of Illinois at Urbana-Champaign — “Interactive and Cumulative Effects of Climate and Land-use Changes on Terrestrial Ecosystems”
- Daniel P. Schrag, Director of Center for the Environment and Director of Science, Technology, and Public Policy Program, Harvard University — “The Timescale of Climate Change Impacts on Land and Ocean”
- Brian Allan, Associate Professor of Entomology, University of Illinois at Urbana-Champaign — “Potential Consequences of Climate Change for Infectious Disease Dynamics”

3-3:15 p.m. — Coffee Break

3:15-5 p.m. — Session IV: “Adapting to Climate Change”

Moderator Sarah Taylor Lovell, Associate Professor of Crop Sciences, University of Illinois at Urbana-Champaign

- Mark Rosegrant, Director of the Environment and Production Technology Division, International Food Policy Research Institute — “Climate Change Impacts on Agriculture and Adaptation and Mitigation Policies to 2050”
- Gernot Wagner, Research Associate in Engineering and Applied Sciences, Harvard University — “Solar Geoengineering as Part of an Optimal Climate Policy Portfolio?”
- Arun Agrawal, Dana Professor of Natural Resources and Environment, University of Michigan — “Everyday Adaptations to Climate Risks: How Well Do Climate Policies Take into Account What People Do?”
- Praveen Kumar, Lovell Professor of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign — “Role of Technology in Adaptation to Climate Change”

5-6 p.m. — Reception and Student Poster Presentations

More on posters, presenters at <http://bit.ly/iSEECong17>

6:30-8 p.m. — Dinner and Dance Performance for Speakers (invitation only)

- “bend the even (work in progress)” — Choreography by Jennifer Monson; performed by Monson and Mauriah Kraker; music composed by Zeena Parkins and Jeff Kolar
- Monson, a Professor of Dance at the University of Illinois at Urbana-Champaign, uses choreographic practice as a means to discover connections between environmental, philosophical and aesthetic approaches to knowledge and understandings of our surroundings. Read her full bio at <http://bit.ly/iSEECong17>*



Congress Schedule

WEDNESDAY, SEPT. 20

8 a.m. — Registration

8-9 a.m. — Session V: “The Human Impacts of Climate Change: Causes and Solutions”

Moderator Pradeep Dhillon, Associate Professor of Education Policy, Organization, and Leadership, University of Illinois at Urbana-Champaign

- Julian Reif, Assistant Professor of Finance, University of Illinois at Urbana-Champaign — “Air Pollution, Health, and Medical Spending”
- Christopher Preston, Professor of Philosophy, University of Montana — “Climate Justice and Community: A Care Approach to Impacts Identification”

9-10:15 a.m. — Session VI: “Economic and Social Vulnerabilities to Climate Change”

Moderator Ben Crost, Professor of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign

- Robin Leichenko, Professor and Chair of Geography, Rutgers University — “Economic Vulnerability to Climate Change in Coastal Regions: Opportunities and Challenges for Building Resilience”
- Jesse Ribot, Professor of Geography and Geographic Information Science and Director of Social Dimensions of Environmental Policy Program, University of Illinois at Urbana-Champaign — “Vulnerability and Migration: Climate of Distress in the West African Sahel”
- Sandy Dall’erba, Associate Professor of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign — “Measuring the Economic Impact of Climate Change: Recent Advances and Remaining Challenges”

10:15-10:30 a.m. — Coffee Break

10:30 a.m.-noon — Session VII: “Panel on Public-Private Actions to Adapt to Climate Change”

Moderator Madhu Khanna, ACES Distinguished Professor of Environmental Economics, University of Illinois at Urbana-Champaign

- Dion McBay, Vice President of Global Sustainable Development, Monsanto Co.
- Bill Northcott, Chief Innovation Officer, Agrible Inc.
- Stephen Smith, Technology Transfer Leader, Dow AgroSciences
- Jim Angel, State Climatologist, Illinois State Water Survey, Prairie Research Institute

Noon-1:30 p.m. — Lunch and Keynote Address

Moderator Don Fullerton, Gutsell Professor of Finance and Institute of Government and Public Affairs, University of Illinois at Urbana-Champaign

- Matthew E. Kahn, Professor of Economics and Spatial Science, University of Southern California — “A Microeconomic Perspective on the Adaptation Challenge”

1:30 p.m. — Closing Remarks

- Evan H. DeLucia, Baum Family Director of iSEE, University of Illinois at Urbana-Champaign



Our Expert Speakers

Keynote Address — 5-6:30 p.m. Monday, Sept. 18

John Holdren

Presentation Title: “The Case for Investing in Climate Change Resilience: Insights from Science, Engineering, and Economics”



Abstract: Insights about the magnitude and character of the need for building increased resilience against climate change emerge from reviewing what climate science is telling us about the changes that are ongoing and projected, what engineering and economics are telling us about how much reduction in the offending emissions is likely to be feasible, and what science and economics are telling us about the climate-related damages likely to ensue under best-plausible emissions reductions in the absence of a major effort to build resilience. Such an assessment makes plain that mitigation through emissions reductions and adaptation through increased resilience are not substitutes but complements. Minimizing the suffering in store from climate change will require maximizing both emissions reduction and resilience building.

Bio: Holdren served as President Obama’s Science Advisor and the Senate-confirmed Director of the White House Office of Science and Technology Policy (OSTP) from early 2009 until January 2017. From 1996 through 2008 he was at Harvard University as the Teresa & John Heinz Professor of Environmental Policy in the Kennedy School of Government and Professor of Environmental Science & Policy in Department of Earth & Planetary Sciences — positions to which he was reappointed in February 2017. Holdren is also Senior Advisor to the Director at the independent, non-profit Woods Hole Research Center. He is a member of the U.S. National Academy of Sciences, the U.S. National Academy of Engineering, the American Philosophical Society, the American Academy of Arts and Sciences, and the Council on Foreign Relations, as well as a foreign member of the Royal Society of London and the Indian National Academy of Engineering. From 1973 to ’96 he was on the faculty of the University of California Berkeley, where he co-founded and co-led the interdisciplinary graduate-degree program in energy and resources. He earned B.S. and M.S. degrees from the Massachusetts Institute of Technology and a Ph.D. from Stanford in Aerospace Engineering and Theoretical Plasma Physics.

More about Holdren: <https://www.hks.harvard.edu/faculty/john-holdren>



Our Expert Speakers

Session I — Regional Climate Effects: Building Resilience — 8:45-10:15 a.m. Tuesday, Sept. 19

Kaiyu Guan



Presentation Title: “Impact and Adaptation of Agroecosystems to Climate Change in the U.S. Corn Belt”

Abstract: Climate change will exert complex thermal and hydrological impacts on the agroecosystems in the U.S. Corn Belt, which currently accounts for ~40% and ~25% of the global corn and soybean production respectively. In this talk, I will examine the recent scientific advancements related to the projected impacts of different climate change scenarios on crop productivity and water uses for the Corn Belt agroecosystems. I will then discuss major adaptation options and assessments of their effectiveness. Finally, I will identify novel opportunities in technology and science that can stimulate further development for adaptation and sustainability of the Corn Belt agroecosystems.

Bio: Guan is an Assistant Professor in Ecohydrology and Geoinformatics in the Department of Natural Resources and Environmental Sciences at Illinois, with a joint appointment as a Blue Waters Professor affiliated with the National Center for Supercomputing Applications (NCSA). He uses satellite data, computational models, field work, and machine learning approaches to address how climate and human practices affect crop productivity, water resource availability, and ecosystem functioning. His lab also has keen interests in applying domain knowledge and large-scale computing in solving real-life problems, such as large-scale crop monitoring and forecasting, water management and sustainability, and global food security. Guan got his Ph.D. in Environmental Sciences/Engineering at Princeton University in 2013. Before joining the Illinois faculty, he was a Postdoctoral Scholar working with Professors David Lobell and Joe Berry at Stanford University.

More about Guan: <https://nres.illinois.edu/directory/kaiyug>

Our Expert Speakers

Session I — Regional Climate Effects: Building Resilience — 8:45-10:15 a.m. Tuesday, Sept. 19

Thomas W. Hertel

Presentation Title: “Assessing the Inter-regional Incidence of Climate Impacts on Agriculture”

Abstract: Literature has yet to fully account for the geography of international agricultural trade, which is characterized by surprisingly rigid bilateral relationships stemming from proximity, transport costs, colonial relationships, common language and other geopolitical considerations. In a recent study, my colleagues and I used meta-analysis to characterize global gridded climate impacts for corn, soybeans, wheat, and rice in the presence of a 2-degree C temperature increase. Yield impacts are incorporated into the GTAP model of international trade to evaluate the welfare impacts on 140 regions. Impacts are decomposed into five components: direct, allocative efficiency, world price, export, and import-specific effects. Countries that rely on imports from regions adversely affected by climate change experience greater-than-average welfare losses, whereas countries exporting to these hard-hit regions benefit from increased market access. Our results characterize the interplay between climate impacts on agriculture and the bilateral pattern of trade that ultimately determines the welfare effects of climate change. Drawing on these detailed global impacts, we conclude with a reassessment of the global social cost of carbon.



Bio: Hertel is Distinguished Professor of Agricultural Economics at Purdue, where his research and teaching focus on international trade, food and environmental security. He is a Fellow, and a Past President, of the Agricultural and Applied Economics Association (AAEA). He is also the Founder and Executive Director of the Global Trade Analysis Project (GTAP), which now encompasses more than 15,000 researchers in 170 countries around the world. This Project maintains a global economic database and an applied general equilibrium modeling framework that are documented in the book: *Global Trade Analysis: Modeling and Applications*, edited by Hertel, and published by Cambridge University Press. He has supervised more than 40 Ph.D. students and published more than 120 peer-reviewed journal articles, along with several dozen book chapters as well as four books. Hertel is the inaugural recipient of the Purdue University Research and Scholarship Distinction Award. Hertel earned a B.A. with honors in Economics in 1976 at University of North Carolina, an M.A. in Public and International Affairs in 1978 at Princeton University’s Woodrow Wilson School, and a Ph.D. in Applied Economics in 1983 at Cornell University.

More about Hertel: <https://ag.purdue.edu/agecon/Pages/Profile.aspx?strAlias=hertel&intDirDeptID=4>



Our Expert Speakers

Session I — Regional Climate Effects: Building Resilience — 8:45-10:15 a.m. Tuesday, Sept. 19

Donald Wuebbles



Presentation Title: “The Climate Science Special Report: An Assessment of the Science of Climate Change”

Abstract: As a prelude to the 4th National Climate Assessment, the Climate Science Special Report was developed to provide a comprehensive assessment of the science underlying the changes occurring in the Earth’s climate system, with a special focus on the United States. In summary, the science is clear: The climate on our planet is changing much more rapidly than occurs naturally, primarily because of human activities — especially from our use of fossil fuels but also from land use change. Documented evidence abounds: surface, atmospheric, and oceanic temperatures; melting glaciers; disappearing snow cover; shrinking sea ice; and rising sea level. Storms are changing in intensity, precipitation patterns are altering, and the occurrence of droughts is shifting. Humanity is already feeling the effects in extreme weather and in sea level rise. Many sectors of society are affected, including threats on human health and well-being. The U.S. is seeing effects, and they are likely to continue and get significantly larger in the future. But there is hope: The science also shows that the extent of future effects on human society depend on how we act to limit climate change and our response to potential impacts.

Bio: Wuebbles is the Preble Endowed Professor of Atmospheric Science and a Presidential Fellow at Illinois. From 2015 to January ’17, he was Assistant Director with the Office of Science and Technology Policy at the Executive Office of the President. An expert in atmospheric physics and chemistry, with more than 500 scientific publications, he has developed metrics used in national and international policy and has studied climate impacts on society, plus potential resilience and societal responses. He has co-authored numerous international and national scientific assessments, including those by the Intergovernmental Panel on Climate Change (IPCC), which was awarded the Nobel Peace Prize in 2007. He helped lead the 2013 IPCC international assessment of climate science and the 2014 National Climate Assessment, and he co-led a special assessment of climate science as a prelude to the 4th National Climate Assessment. His many awards include the American Meteorological Society’s Cleveland Abbe Award and the U.S. Environmental Protection Agency’s Stratospheric Ozone Protection Award, and he is a Fellow of three major professional science societies: the American Association for the Advancement of Science, the American Geophysical Union, and the American Meteorological Society.

More about Wuebbles: <https://www.atmos.illinois.edu/cms/One.aspx?siteId=127458&page-Id=151986>



The Institute for Sustainability, Energy, and Environment
presents “Building Resilience to Climate Change”

Our Expert Speakers

Session II — *Vulnerability of Agriculture and Ecosystems to Climate Change* — 10:30 a.m.-noon Tuesday, Sept. 19

Amy W. Ando

Presentation Title: “Conservation Planning in the Face of Climate Change”

Abstract: Climate change poses an existential threat to many species and ecosystem services, and uncertainty about climate change scenarios makes it hard for conservation scientists to know what future they should plan for. Risk averse decision makers benefit from conservation planning tools that find conservation strategies with less risk in their future total values. Previous research has found that Modern Portfolio Theory (MPT) can be adapted from finance to optimize spatial conservation targeting and reduce outcome risk with minimal loss of expected level of ecological benefits. However, no work has identified the types of spatial conservation cases for which the application of MPT will yield the greatest benefit. Our team assembled three distinct ecological spatial data sets from North America and evaluated the effectiveness of MPT as a prioritization tool in 26 widely different conservation cases. We found MPT is useful in a wide range of reserve selection cases, and works best when: (1) regions have negatively correlated outcomes across climate scenarios; (2) a second-best region has expected conservation returns almost as good as the returns in the best region; or (3) one or more regions have little uncertainty in ecological outcomes across climate scenarios.



Bio: Ando is a Professor of Agricultural and Consumer Economics at Illinois. She earned a B.A. in economics from Williams College in 1990 and a Ph.D. in economics from M.I.T. in 1996. Before joining Illinois, she worked as a Fellow at Resources for the Future, where she now serves as a University Fellow. Ando’s research focuses primarily on the economics of species and habitat conservation. That work includes research to inform optimal conservation planning, understand actual conservation behavior, improve aquatic habitat through better stormwater management policy, and develop planning tools reduce the uncertainty in conservation outcomes from climate change. Her research has been funded by grants from sources including the NSF, EPA, and USDA-NIFA and has been published in *Science*, the *Proceedings of the National Academy of Sciences*, the *Journal of Environmental Economics and Management*, and numerous other scholarly journals and books. Ando has served as a handling editor for three major journals in her field, worked on review panels for the NSF, and provided expert advisory service to agencies and NGOs including EPA, USDA, the City of Chicago, and the Doris Duke Charitable Foundation.

More about Ando: <http://ace.illinois.edu/directory/amyando>

Our Expert Speakers

Session II — *Vulnerability of Agriculture and Ecosystems to Climate Change* — 10:30 a.m.-noon Tuesday, Sept. 19

Maximilian Auffhammer



Presentation Title: “Regional Crop Diversity and Weather Shocks in India”

Abstract: Food production and hence farmer welfare are highly vulnerable to climatic variability particularly in the developing world, where fewer insurance mechanisms exist to buffer farmers against weather shocks. As climate change arguably exacerbates this vulnerability by gradually raising temperatures to crop-damaging levels and increasing precipitation extremes, there has been increased focus on adaptation mechanisms for farmers and other players in the food system. Diversification is often cited as a means of reducing vulnerability to weather shocks and has been argued to enhance the ability of farmers and food production systems to respond to climatic variability. However, while environmental benefits such as enhanced biodiversity, increased carbon sequestration, and improved soil fertility have been documented, evidence of economic returns to crop diversification is sparse. We seek to fill this gap by looking at Indian agriculture between 1956 and ’87, during which agricultural diversity generally fell through increased adoption of High-Yield Varieties (HYVs) and other inputs that facilitated a transition toward monoculture-based production systems. We use climate and agricultural price and yield data to see if district-level crop diversity is correlated with higher farm revenues in drought years. We also explore the impacts of diversity on an agricultural price index and on agricultural yields.

Bio: Auffhammer is the George Pardee Jr. Professor of International Sustainable Development and Associate Dean in the Division of Social Sciences at Berkeley. He received his B.S. in Environmental Science from the University of Massachusetts at Amherst in 1996, a M.S. in Environmental and Resource Economics at the same institution in 1998 and a Ph.D. in Economics from UC San Diego in 2003. Auffhammer’s research focuses on environmental and resource economics, energy economics and applied econometrics. He is a Research Associate at the National Bureau of Economic Research in the Energy and Environmental Economics group, a Humboldt Fellow, and a lead author for the Intergovernmental Panel on Climate Change (IPCC). His research has appeared in *The American Economic Review*, the *Review of Economic Studies*, *The Review of Economics and Statistics*, *The Economic Journal*, the *Proceedings of the National Academies of Sciences*, the *Journal of Environmental Economics and Management*, *The Energy Journal* and other academic journals. Most recently, he is the recipient of the 2017 Cheit Teaching Award in the Haas School of Business.

More about Auffhammer: <http://vcresearch.berkeley.edu/faculty/maximilian-auffhammer>



The Institute for Sustainability, Energy, and Environment
presents “Building Resilience to Climate Change”

Our Expert Speakers

Session II — *Vulnerability of Agriculture and Ecosystems to Climate Change* — 10:30 a.m.-noon Tuesday, Sept. 19

Donald Ort

Presentation Title: “More than Taking the Heat”

Abstract: The CO₂ concentration in the Earth’s atmosphere, the main driver of global warming, has accelerated to an average annual rate of >2.1 μmol mol⁻¹. Despite global and regional importance, few studies have evaluated the interactive effects of elevated CO₂ and temperature on crop photosynthetic physiology, agronomic traits or biomass and seed yield — and no previous work has been done to evaluate the impact of elevated CO₂ and temperature under open field conditions. That C4 photosynthesis has a warmer temperature optimum than C3 crops has led to prediction that warming will have less impact on crops like maize compared to C3 crops grown within a region. However, recent modeling and time series studies do not fully support this projection. We have conducted experiments to understand and quantify the effects of increasing [CO₂] (200 μmol mol⁻¹ above ambient) and/or temperature (+3.5 °C above ambient) across the full growing season on maize and soybean photosynthesis, biomass and yield. In addition to season long warming we have simulated heat waves during vegetative and reproductive stages. In addition to the direct effects that warmer growing seasons may have on growth and reproduction, warmer temperatures in the Corn Belt have increased vapor pressure deficit — which in turn lowers the amount of production that precipitation can support.



Bio: Ort is the Robert Emerson Professor of Plant Biology and Crop Sciences at Illinois and Research Leader of the USDA/ARS Global Change and Photosynthesis Research Unit in Urbana. He has a B.S. in Biology/Chemistry from Wake Forest University and a Ph.D. in Plant Biochemistry from Michigan State University. He served as President of International Society of Photosynthesis Research, President of the International Association of Plant Physiology, President of the American Society of Plant Biologists and as Editor-in-Chief of *Plant Physiology*, and he is an Associate Editor of *Annual Review of Plant Biology*. Among his many awards, he was elected to the National Academy of Sciences in 2017. He is the Director of the SoyFACE project at Illinois, a unique open-air laboratory investigating the impacts of rising carbon dioxide and tropospheric ozone and their interactions with temperature and precipitation on crop systems of the Midwest. His laboratory is engaged in three lines of research: i) Redesigning photosynthesis for improved efficiency; ii) Molecular and biochemical basis of environmental interactions with crop plants; and iii) Ecological genomics — interactive effects of CO₂, temperature and drought on plant, plant canopy and plant ecosystem performance.

More about Ort: <http://www.life.illinois.edu/plantbio/People/Faculty/Ort.htm>

Our Expert Speakers

Lunchtime Keynote Address — Noon-1:30 p.m. Tuesday, Sept. 19

Justin Gillis



Presentation Title: “Climate Change: Where Do We Stand in 2017?”

Abstract: In Miami Beach not long ago, an octopus was found stranded on the floor of a parking garage. In Fort Lauderdale, giant vacuum trucks have to be sent out nowadays to suck salt water off the streets. In Norfolk, rulers are going up at major intersections, so people can judge how deep the water is before they drive through it. Yet even as the impacts of climate change become obvious, the political impulse to deny that anything is happening is as strong as it has ever been. How much longer can the politics of climate change remain divorced from physical reality?

Bio: Gillis is an environmental science journalist and author, with a special focus on climate change. In his recent work as a reporter for *The New York Times*, he authored a series called “Temperature Rising” that ran from 2010 to ’13 and updated readers on major developments in climate science, winning the John B. Oakes Award for Distinguished Environmental Journalism from Columbia University. He was also the principal author in 2014 of a series called “The Big Fix” that critically examined proposed solutions to climate change, and he was part of the *Times* team that covered the Paris climate conference in December 2015. More recently, he traveled to Antarctica twice last year to produce a recent series of articles on the risk that the West Antarctic Ice Sheet will collapse in a warming world. Gillis began as an environmental science reporter in 2010 after three years as a *Times* editor in charge of the paper’s energy and food coverage. He is a native of southern Georgia and a graduate of the University of Georgia with a degree in journalism. Earlier in his career he worked at the Associated Press, *The Miami Herald*, and *The Washington Post*. For the latter newspaper, he covered genetics, biotechnology, and the completion of the Human Genome Project.

Gillis on Facebook: <https://www.facebook.com/JustinHGillis/>

Gillis on Twitter: <https://twitter.com/JustinHGillis>

Our Expert Speakers

Session III — Land Use and Ecosystem Impacts of Climate Change — 1:30-3 p.m. Tuesday, Sept. 19

Brian Allan

Presentation Title: “Potential Consequences of Climate Change for Infectious Disease Dynamics”

Abstract: Despite widespread scientific and media interest in the impacts of climate change on human health, studies have been relatively scarce that directly connect climate change to altered infectious disease transmission dynamics. Early work in this field focused on incorporating climate parameters into mathematical predictions of infectious disease transmission, generating a range predictions. At present, increasingly sophisticated theoretical and now empirical studies are emerging, many of which indicate geographic and temporal shifts in the distribution of environmentally-transmitted infectious diseases are likely. These changes in infectious disease transmission are occurring via a variety of biological mechanisms, including shifting distributions of hosts and vectors, as well as changing human demographics and vulnerabilities under climate change. A primary impact of climate change may be that infectious disease transmission dynamics will become more unpredictable, complicating efforts to prevent or mitigate human illness. A successful response will require collaboration among a diversity of scientific fields to prevent significant public health impacts.



Bio: Allan is an Associate Professor of Entomology at Illinois. His research combines interests in the ecology of infectious diseases, conservation biology, and the influence of global change on human and animal health. His primary research interest is in understanding the consequences of anthropogenic change to ecosystems on the abundance, distribution, and behavior of wildlife that influence the transmission of vector-borne diseases to humans. His studies are conceptually linked through the phenomenon of changes in disease risk resulting from human activities that cause climate change, habitat loss and reductions in biodiversity. Allan’s research laboratory investigates the consequences of anthropogenic change for a diversity of vector-borne disease systems, including tick-borne diseases in East Africa, Panama, and the Midwestern United States, mosquito-borne diseases — particularly West Nile Virus — in the U.S., and triatomine-borne Chagas disease in Central America. A recent research focus is the “invasion ecology” of vector-borne pathogens, including Lyme disease in the U.S. and Zika virus in the Americas. Allan investigates vector-borne disease invasions from the perspective of fundamental ecological processes, including the effects of landscape and habitat configuration on the probabilities of pathogen introduction and establishment.

More about Allan: <http://www.life.illinois.edu/entomology/faculty/allan.html>

Our Expert Speakers

Session III — Land Use and Ecosystem Impacts of Climate Change — 1:30-3 p.m. Tuesday, Sept. 19

Atul Jain



Presentation Title: “Interactive and Cumulative Effects of Climate and Land-use Changes on Terrestrial Ecosystems”

Abstract: To date, human activities have been the primary source of land-use and land-cover changes. However, climate change is expected to affect the distributions, conditions, and vulnerability of terrestrial ecosystems — including forests, grasslands, shrublands, tundra, and managed ecosystems (e.g. agricultural lands). These changes, in return, influence climate through physical, chemical, and biological processes that affect planetary energetics, the hydrologic cycle, and atmospheric composition. Predicted increases in precipitation and temperature extremes will exacerbate the changes in many of these processes, and they will increase stressors on terrestrial ecosystems. Interdisciplinary science that integrates knowledge of the many interactive human activities and climate processes (and their impacts on terrestrial ecosystems) is necessary to identify and understand as-yet-unexplored feedbacks in the Earth system — and the potential for reducing uncertainties in projections of our future climate.

Bio: Jain is a Professor in the Department of Atmospheric Sciences at Illinois. His research focuses on understanding how interactions among the climate system alter the carbon cycle, and to provide useful projections of future changes in global carbon and resultant future climate change. His research goal is to provide the required scientific understanding about how the components of Earth’s climate system interact; it is motivated by the practical and pressing issue of human induced climate change. Jain has won numerous awards and honors, including the National Science Foundation’s Faculty Early Career Development Award. He has served as a lead and contributing author for major assessments of the Intergovernmental Panel on Climate Change (IPCC). He is the author of more than 150 scientific articles, including highly cited articles in *Nature* and *Science*, most relating to global climate change as affected by both human activities and natural phenomena. He also directs a number of research projects primarily oriented toward improving our understanding of the impacts that man-made and natural trace gases may be having on the Earth’s climate. Jain received a Ph.D. in Atmospheric Sciences from the Indian Institute of Technology.

More about Jain: <https://www.atmos.illinois.edu/cms/One.aspx?siteId=127458&pageId=151962>

Our Expert Speakers

Session III — Land Use and Ecosystem Impacts of Climate Change — 1:30-3 p.m. Tuesday, Sept. 19

Daniel P. Schrag

Presentation Title: “The Timescale of Climate Change Impacts on Land and Ocean”

Bio: Schrag is the Sturgis Hooper Professor of Geology, Professor of Environmental Science and Engineering at Harvard University, and Director of the Harvard University Center for the Environment. He also co-directs the Program on Science, Technology, and Public Policy at the Harvard Kennedy School. His interests include climate change, energy technology, and energy policy. He has studied climate change over the broadest range of Earth’s history, including how climate change and the chemical evolution of the atmosphere influenced the evolution of life in the past, and what steps might be taken to prepare for impacts of climate change in the future. He helped to develop the hypothesis that the Earth experienced a series of extreme glaciations, called “Snowball Earths,” that may have stimulated a rise in atmospheric oxygen and the proliferation of multicellular animals. He is also interested in how we can use climate events in the geologic past to understand our current climate challenges. Schrag has worked on a range of issues in energy technology and policy, including advanced technologies for low-carbon transportation fuel, carbon capture and storage, and risks and opportunities of shale gas. He was named a MacArthur Fellow in 2000. He served on President Obama’s Council of Advisors on Science and Technology (PCAST), contributing to many reports to the President, including energy technology and national energy policy, agricultural preparedness, climate change, and STEM education.



More about Schrag: <https://eps.harvard.edu/people/daniel-schrag>

Our Expert Speakers

Session IV — Adapting to Climate Change — 3:15-5 p.m. Tuesday, Sept. 19

Arun Agrawal



Presentation Title: “Everyday Adaptations to Climate Risks: How Well Do Climate Policies Take into Account What People Do?”

Abstract: Anthropogenic climate change is recent; human adaptation is as old as humanity itself. Understanding how to adapt to current and future climate risks requires both an understanding of the nature of unfolding climate changes, and the range of ways in which human societies have adapted and continue to adapt to past and contemporary climate-related stresses. Societal inertia makes it particularly important to craft future-oriented adaptation strategies on the basis of ongoing everyday adaptations. We use evidence on adaptation strategies rooted in distinct socio-economic organizational forms to identify and characterize a suite of adaptation strategies that enable households and communities to address climate risks effectively. Such everyday adaptations, we suggest, can serve as the bedrock of future adaptation planning.

Bio: Agrawal, the Samuel Trask Dana Professor of Natural Resources & Environment at Michigan, emphasizes the politics of international development, institutional change, and environmental conservation in his research and teaching. He has written critically on indigenous knowledge, community-based conservation, common property, population resources, and environmental identities. Agrawal is the coordinator for the International Forestry Resources and Institutions network and is currently carrying out research in central and east Africa as well as South Asia. Since 2013, Agrawal has served as the editor-in-chief of *World Development* and his recent work has appeared in *Science*, *PNAS*, *Conservation Biology*, *Development and Change*, among other journals. Preceding his work at Michigan, Agrawal received a B.A. in History at Delhi University, an M.B.A. at the Indian Institute of Management, and an M.A. and Ph.D. in Political Science at Duke University and has held teaching and research positions at Yale, Florida, McGill, University of California Berkeley, and Harvard.

More about Agrawal: http://seas.umich.edu/research/faculty/arun_agrawal

Our Expert Speakers

Session IV — Adapting to Climate Change — 3:15-5 p.m. Tuesday, Sept. 19

Praveen Kumar

Presentation Title: “Role of Technology in Adaptation to Climate Change”

Abstract: Climate change is expected to introduce significant uncertainty in our ability to project local and regional outcomes. As a result, informed decisions will be required with increased agility both for reducing the impact and adapting to a new environment. This challenge will be further conflated due to the lack of understanding about human behavior, particularly under stress. To what extent can information from emergent technological advances help us manage in a climate of change? This talk will discuss issues pertaining to technology and climate change adaptation.



Bio: Kumar, the Lovell Endowed Professor of Civil and Environmental Engineering at Illinois, holds a B.Tech. (Indian Institute of Technology, Bombay, India 1987), M.S. (Iowa State University 1989), and Ph.D. (University of Minnesota 1993), all in Civil Engineering, and has been on the Illinois faculty since 1995. He is also an Affiliate in the Department of Atmospheric Science. His research focus is on complex hydrologic systems bridging across theory, modeling, and informatics. He serves as the Director of the National Science Foundation-funded Critical Zone Observatory for Intensively Managed Landscapes, which is part of a national and international network. He has been an Associate of the Center for Advanced Studies, and a two-time Fellow of the National Center for Super Computing Applications at Illinois. He is an AGU Fellow and the recipient of the Xerox Award for Research, and Engineering Council Award for Excellence in Advising. From 2002 to '08, he served as a founding Board member for CUAHSI, a consortium of more than 110 universities for the advancement of hydrologic science. From 2009 to '13, he served as the Editor-in-Chief of Water Resources Research. Prior to that he also served as the Editor of Geophysical Research Letters.

More about Kumar: <http://cee.illinois.edu/directory/profile/kumar1>

Our Expert Speakers

Session IV — Adapting to Climate Change — 3:15-5 p.m. Tuesday, Sept. 19

Mark Rosegrant



Presentation Title: “Climate Change Impacts on Agriculture and Adaptation and Mitigation Policies to 2050”

Abstract: Climate change is projected to reduce agricultural production growth in much of the world, resulting in higher food prices and increased hunger compared to a constant climate case. Many developing countries with limited adaptive capacity are expected to be especially hard hit by climate change. Climate adaptation and mitigation in agriculture will require institutional, policy, and investment improvements. Sustainably improving

agricultural productivity growth to substantially improve food security requires major progress in six areas: (1) increasing crop and livestock productivity through enhanced investment in agricultural research; (2) development and use of climate-smart technologies; (3) increased investment in rural infrastructure, including roads and irrigation; (4) improved legal and regulatory systems for agricultural technologies; (5) reformed economic policies, including phasing out fertilizer, energy, and water subsidies that distort production decisions and encourage excess use of inputs and increased carbon emissions; and (6) policies to increase diet diversity and promote reduced-carbon diets.

Bio: Rosegrant is Director of the Environment and Production Technology Division at the International Food Policy Research Institute (IFPRI). With a Ph.D. in Public Policy from the University of Michigan, he has extensive experience in research and policy analysis in agriculture and economic development, with an emphasis on water resources and other critical natural resource and agricultural policy issues as they impact food security, rural livelihoods, and environmental sustainability. He currently directs research on climate change, water resources, sustainable land management, genetic resources and biotechnology, and agriculture and energy. He is the author or editor of 15 books and more than 100 refereed papers in agricultural economics, water resources and food policy analysis. Rosegrant, who has won numerous awards, is a Fellow of the American Association for the Advancement of Science and a Fellow of the Agricultural and Applied Economics Association.

More about Rosegrant: <http://www.ifpri.org/profile/mark-rosegrant>



Our Expert Speakers

Session IV — *Adapting to Climate Change* — 3:15-5 p.m. Tuesday, Sept. 19

Gernot Wagner

Presentation Title: “Solar Geoengineering as Part of an Optimal Climate Policy Portfolio?”

Abstract: In the long chain from greenhouse gas emission to climatic impacts, only mitigation tackles the root cause. Carbon geoengineering breaks the link between emissions and concentrations. Solar geoengineering breaks the link between concentrations and temperatures. Adaptation breaks the link between temperature and damages. Solar geoengineering is by far the most controversial such intervention. What makes it so? In particular, what is its interaction with mitigating emissions in the first place, and how does it matter?



Bio: Wagner is a Research Associate at Harvard’s School of Engineering and Applied Sciences, a Lecturer on Environmental Science and Public Policy, the Executive Director of Harvard’s Solar Geoengineering Research Program, and an Associate at the Harvard University Center for the Environment. He wrote *Climate Shock* with Harvard’s Martin Weitzman (Princeton University Press 2015, paperback 2016), a Top 15 *Financial Times* McKinsey Business Book of the Year 2015, now also Austria’s Natural Science Book of the Year 2017; and *But will the planet notice?* (Hill & Wang/Farrar Strauss & Giroux 2011, paperback 2012). Wagner served as an Economist at the Environment Defense Fund (2008-16), most recently as its lead senior economist (2014-16) and member of its Leadership Council (2015-16). He holds a joint B.S. in Environmental Science, Public Policy, and Economics, and an M.S. and Ph.D. in Political Economy and Government from Harvard, as well as a M.S. in Economics from Stanford. Wagner also serves as a term member of the Council on Foreign Relations and a consultant for EDF.

More about Wagner: <https://heep.hks.harvard.edu/people/gernot-wagner>



Our Expert Speakers

Session V — The Human Impacts of Climate Change: Causes and Solutions — 8-9 a.m. Wednesday, Sept. 20

Christopher Preston



Presentation Title: “Climate Justice and Community: A Care Approach to Impacts Identification”

Abstract: When considering the ethical aspects of climate change — and various attempts to deal with it — much has been made of the distributive elements of justice. Who gets the greatest burdens, who gets the benefits, and is this distribution fair? Another important element of justice is procedural. Who gets to make the big decisions and are procedures in place to ensure fairness in how these decisions are made? In addition to procedural and distributive justice, recognitional justice is an increasingly important element of climate justice. Recognition is a particularly important lens when non-economic harms (and benefits) are in play. Such harms include loss of community, destruction of traditional practices, the instigation of undesirable power dynamics, and threats to senses of place and security. In attempting to account for these non-economic harms, the utilitarian framing of standard risk assessment often falls short. This presentation explores how care ethics can provide a helpful lens for spotting recognitional injustices. A focus on relationships, context, power, dependency, and narrative can shed new light on a host of morally significant climate impacts.

Bio: Preston is a Professor of Philosophy and a Research Fellow at the Mansfield Center’s Program on Ethics and Public Affairs at the University of Montana. He works in environmental philosophy, climate ethics, the ethics of emerging technologies, and feminist philosophy. His books include *Saving Creation: Nature and Faith in the Life of Holmes Rolston, III* (Trinity University Press 2009) and *Grounding Knowledge: Environmental Philosophy, Epistemology, and Place* (University of Georgia Press 2003). He is editor of the first collection on the ethics of geoengineering, *Engineering the Climate: The Ethics of Solar Radiation Management* (Lexington Press 2012) and more recently *Climate Justice and Geoengineering: Ethics and Policy in the Atmospheric Anthropocene* (Rowman and Littlefield International 2016). His introductory monograph *The Synthetic Age: How Humans are Making and Remaking the Earth* will be released by MIT Press in March 2018. An author of more than three dozen articles in environmental philosophy, Preston has been co-PI on two National Science Foundation grants on ethics and emerging technologies. He has been an external reviewer for the IPCC and the Convention on Biological Diversity. He is also the recipient of a Templeton Foundation grant.

More about Preston: <http://hs.umt.edu/philosophy/people/faculty.php?s=Preston>



The Institute for Sustainability, Energy, and Environment
presents “Building Resilience to Climate Change”

Our Expert Speakers

Session V — The Human Impacts of Climate Change: Causes and Solutions — 8-9 a.m. Wednesday, Sept. 20

Julian Reif

Presentation Title: “Air Pollution, Health, and Medical Spending”

Abstract: Accurately quantifying the health effects of pollution reduction matters greatly for determining optimal environmental policy — especially for countries like the United States, where current pollution levels are relatively low and further reductions may be very costly. I present new evidence from the first large-scale, quasi-experimental investigation of the effects of short-term fine particulate matter exposure on mortality and medical costs among the elderly.



Bio: Reif is an Assistant Professor of Finance and Economics in the College of Business and the Institute of Government and Public Affairs (IGPA) at Illinois. He is also a Research Associate at the U of I's Center for Business and Public Policy, and a Research Economist at the National Bureau of Economic Research. His work has been funded by the National Institutes of Health, the Robert Wood Johnson Foundation, and JPAL North America. His research interests include population health, health care, and public finance. His recent work includes research on the value of health and longevity, the effectiveness of social insurance programs, and the health effects of air pollution.

More about Reif: <https://business.illinois.edu/profile/julian-reif/>

Our Expert Speakers

Session VI — Economic and Social Vulnerabilities to Climate Change — 9-10:15 a.m. Wednesday, Sept. 20

Sandy Dall'erba



Presentation Title: “Measuring the Economic Impact of Climate Change: Recent Advances and Remaining Challenges”

Abstract: Despite the increasing popularity of econometric models assessing the impact of climate change on agriculture, few carefully examine the role of spatial dependence and heterogeneity in this framework. Early studies ignored spatial dependence or, at best, treated it as part of the error terms. Recent works have included actual interregional spillovers, but they are often limited to geographical proximity. While different forms of spillovers are relevant to agricultural impacts from climate change, this presentation focuses on two of them: interregional trade; and the network of irrigated surface water flows. Applied to the U.S., they highlight how agriculture in one location is sensitive to local weather events, but also among trade partners and upstream neighbors. An important challenge is to understand how interregional linkages will evolve in the future. When it comes to spatial heterogeneity, the tradition has been to work on large but few groups and to rely on nonlinear models. More attention could be given to modeling techniques that explicitly account for the hierarchical nature of the data and provide place-specific marginal effects that capture better the local capacity to adapt to new climate conditions.

Bio: Dall'erba, an Associate Professor of Agricultural and Consumer Economics at Illinois, holds a Ph.D. in Economics from the University of Pau, France. After an Assistant and Associate Professor position with tenure at the University of Arizona, he arrived at Illinois in 2015. His research interests focus on regional science in general and economic growth, regional development policies, innovation and the economic impact of climate change in particular. In addition to the traditional estimation of the dynamics at work, he studies each of these fields by modeling and measuring the spatial interactions that take place between regions. An example would be the presence of spillover effects when regional policies are implemented to correct economic imbalances. In that purpose, he uses various tools of regional science but mostly spatial statistics, spatial econometrics and interregional input-output. He has published several articles on these topics and with those tools — some of them co-authored with past and current graduate students — and he has been awarded various grants by NSF, NASA and USDA for his work. His research attempts to provide a range of exposure to new curricula materials, methods of conducting interdisciplinary and international collaborative research and guidance in the preparation of material for dissemination in the public policy arena.

More about Dall'erba: <http://ace.illinois.edu/directory/dallerba>



Our Expert Speakers

Session VI — Economic and Social Vulnerabilities to Climate Change — 9-10:15 a.m. Wednesday, Sept. 20

Robin Leichenko

Presentation Title: “Economic Vulnerability to Climate Change in Coastal Regions: Opportunities and Challenges for Building Resilience”

Abstract: Enhancing resilience has become a key element of preparedness for extreme events and climate change. While much progress has been made in defining components of resilience, many questions remain about appropriate strategies for building resilience, barriers to implementation of these strategies, and limits to the potential effectiveness of these efforts. New questions are also emerging about limitations of resilience-based

approaches, suggesting that efforts must be coupled with broader transformations of the social and political conditions that create and perpetuate vulnerabilities. Investigation of options and barriers has particular resonance for urbanized coastal communities, many of which face significant climate hazards and development-related pressures and are also encountering a suite of technical, political, financial, legal, and policy hurdles to adaptation. These issues were explored in coastal New Jersey; methodology entailed a co-production approach, whereby stakeholders and researchers collaborated in the development of climate risk and vulnerability information and identification of resilience options and barriers. The collaboration provided important insights into barriers, limits, and limitations of ongoing resilience-building efforts — but also revealed potential openings for transformation.



Bio: Leichenko is Professor and Chair of Geography at Rutgers University and co-Director of the Rutgers Climate Institute. She earned an M.A. in Geography from the University of Colorado, and an M.A. in Economics and a Ph.D. in Geography from Penn State University. Her current research explores economic vulnerability to climate change, equity implications of climate adaptation, and the interplay between climate extremes and urban spatial development. Leichenko served as a review editor for the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report and as a contributing author on the IPCC Special Report on Extreme Events. She is a member of the editorial boards of *Economic Geography*, *Growth and Change*, *Anthropocene*, *Urban Climate*, and *Journal of Extreme Events*, and she is past chair of the Economic Geography Specialty Group of the Association of American Geographers. Leichenko has authored or co-authored two books and more than 70 peer-reviewed journal articles and book chapters. Her book, *Environmental Change and Globalization: Double Exposures* (2008, Oxford University Press), won the Meridian Book Award for Outstanding Scholarly Contribution from the Association of American Geographers.

More about Leichenko: <http://geography.rutgers.edu/people/faculty-core/87-faculty-leichenko>



Our Expert Speakers

Session VI — Economic and Social Vulnerabilities to Climate Change — 9-10:15 a.m. Wednesday, Sept. 20

Jesse Ribot



Presentation Title: “Vulnerability and Migration: Climate of Distress in the West African Sahel”

Abstract: Causal analysis of vulnerability aims to explain crises so that transformative solutions might be found. Yet root-cause analysis is absent from most climate response assessments. Most analysts of climate risk continue to locate causality in hazards while attributing some causal weight to proximate social variables such as poverty or lack of capacity. They rarely ask why assets are inadequate, capacity is lacking, or social protections fail. I will frame vulnerability and security as matters of access to assets and social protections, which each have their own context-contingent causal chains. A key recursive element in those causal chains is the ability — means and powers — of vulnerable people to influence the political economy that shapes their assets and social protections. Vulnerability is, as Amartya Sen observed, linked to the lack of freedom — the freedom to influence the political economy that shapes entitlements. In the Anthropocene, human causes of climate hazard must also now be accounted for in etiologies of disaster. However, attention to anthropogenic climate change should not occlude social causes of (and responsibility for) vulnerability — vulnerability is still social. I will illustrate these arguments with the case of migrants leaving the drylands of Eastern Senegal for Europe.

Bio: Ribot is Professor of Geography, Anthropology and Natural Resources and Environmental Sciences at Illinois, where he is affiliated with the Unit for Criticism and Interpretive Theory and the Women and Gender in Global Perspective program, and he directs the Social Dimensions of Environmental Policy Program. Before 2008, he worked at the World Resources Institute, taught in the Urban Studies and Planning department at MIT and was a fellow at the Department of Politics in The New School for Social Research, Agrarian Studies at Yale University, the Center for the Critical Analysis of Contemporary Culture at Rutgers, the Max Planck Institute for Social Anthropology, the Woodrow Wilson Center and Harvard Center for Population and Development Studies. Most recently, he has been a Fellow at the Stanford Center for Advanced Studies in Behavioral Sciences and an Affiliate of the Department of Anthropology at Columbia University and of the Institute for Public Knowledge at New York University. Ribot is an Africanist studying local democracy, resource access and social vulnerability.

More about Ribot: <https://www.geog.illinois.edu/people/ribot>



The Institute for Sustainability, Energy, and Environment
presents “Building Resilience to Climate Change”

Our Expert Panelists

Session VII — Panel on Public-Private Actions to Adapt to Climate Change — 10:30 a.m.-noon Wednesday, Sept. 20

Jim Angel

Bio: Angel has been the Illinois State Climatologist since 1997. He began working at the Illinois State Water Survey, a Division of the Prairie Research Institute, in 1984. His areas of interest include drought, extreme rainfall events, Great Lakes storms, past and potential future climate change, and climate tool development. As State Climatologist, he works with a range of users, including farmers, teachers, engineers, state and local officials, and the media. Angel has B.S. (1982) and M.S. (1984) degrees in atmospheric science from the University of Missouri and earned his Ph.D. (1996) in Geography at the University of Illinois at Urbana-Champaign.



More about Angel: <https://climateillinois.wordpress.com/about/>

Dion McBay

Bio: McBay is the Global Sustainable Development Lead at Monsanto Co. His team brings innovative agriculture technologies to help farmers around the world increase their crop yields and profitability while reducing their impact on the environment and ecosystems. McBay and his team are responsible for Monsanto's environmental sustainability strategy and oversee the company's climate change initiatives, carbon neutral commitments, soil health focus, water quality efforts, and biodiversity programs. McBay grew up on his family's farm in Tennessee and Alabama and has spent much of his life in cotton, corn, sorghum, and soybean fields. He began his career with Monsanto more than 22 years ago and has held positions in global technology development, commercial sales, and marketing leadership. As an advocate for sustainable agriculture, McBay is passionate about driving adoption of carbon smart systems and innovative solutions that allow the farmer to help feed the world in the most sustainable and profitable ways possible. McBay holds an M.B.A. from Baylor University and a B.S. from the University of Alabama, both with honors. He and his family have resided in St. Louis for the past 16 years.



More about Monsanto's approach to climate change: <https://monsanto.com/company/sustainability/climate-change/>

Our Expert Panelists

Session VII — Panel on Public-Private Actions to Adapt to Climate Change — 10:30 a.m.-noon Wednesday, Sept. 20

Bill Northcott



Bio: Northcott is a Co-founder and Chief Innovation Officer of Agrible, Inc., where he works on developing and researching the science and feasibility of new products. He has a B.S. and Ph.D. in Agricultural Engineering and an M.S. in Agronomy and Soil Science, all from the University of Illinois at Urbana-Champaign. Northcott is an expert in agricultural hydrology and crop water use. His expertise lies in soil hydrology, chemistry and fertility, agricultural meteorology and the impacts of climate change on agricultural production systems, data science, and software development. Prior to Agrible, he was a faculty member at Michigan State University, where he also served as the state Extension specialist in Irrigation, Drainage and Water Management.

More about Northcott and Agrible: <http://www.agrible.com/agnews/2016/9/20/leading-with-science-bill-northcott>

Stephen Smith



Bio: Smith is the Global Technology Transfer Leader for Dow AgroSciences. He develops training curricula and strategies for new product and technology launches for both the internal sales organization as well as for external audiences. In addition, he is a member of the Dow AgroSciences' Sustainability Steering Team. During his 10 years with the company, he has held roles in Agronomy Services, Marketing, Product Management, and was previously the U.S. National Sales Manager for Mycogen Seeds. Smith serves on the steering team of the Hunger Solutions Network, a Dow AgroSciences employee network, and leads the Indianapolis-based employee engagement efforts. He is also Chairman of the Board of Directors of the Indy Hunger Network (IHN), a nonprofit, collaborative impact organization that promotes access for all to nutritious food through a sustainable hunger relief system for Indianapolis. Smith's educational background includes B.S. and M.S. degrees in Agronomy from Penn State University.

More about Dow AgroSciences' approach to sustainability: <http://www.dowagro.com/en-US/Sustainability>



The Institute for Sustainability, Energy, and Environment
presents "Building Resilience to Climate Change"

Our Expert Speakers

Lunchtime Keynote Address — Noon-1:30 p.m. Wednesday, Sept. 20

Matthew E. Kahn

Presentation Title: “A Microeconomic Perspective on the Adaptation Challenge”

Abstract: This talk will focus on the incentives of households and firms to invest in climate resilience. Special attention will be given to identifying factors that inhibit adaptation efforts. The intended and unintended adaptation consequences of local and federal government policy will be explored.



Bio: Kahn is a Professor of Economics at USC, a Research Associate at the National Bureau of Economic Research and a research fellow at the Institute of Labor Economics (IZA). He also serves as a Non-Resident Scholar at the New York University Stern School of Business at the Urbanization Project and as a Non-Resident Scholar at the University of Pennsylvania Institute for Urban Research. Kahn has taught at Columbia, the Fletcher School at Tufts University and UCLA and has served as a Visiting Professor at Harvard and Stanford and as the Low Tuck Kwong Distinguished Visiting Professor at the National University of Singapore. He holds a Ph.D. in Economics from the University of Chicago and is the author of *Green Cities: Urban Growth and the Environment* (Brookings Institution Press 2006) and the co-author of *Heroes and Cowards: The Social Face of War* (Princeton University Press 2009). In September 2010, Basic Books published his book titled *Climatopolis*, and in January 2016, he published an updated e-book titled *Fundamentals of Environmental and Urban Economics*. In May 2016, Princeton University Press published his book *Blue Skies over Beijing: Economic Growth and the Environment in China* (co-authored with Siqi Zheng). His research focuses on environmental and urban economics.

More about Kahn: <https://www.ioes.ucla.edu/person/matthew-kahn/>

Acknowledgments

iSEE is grateful for the assistance it received from the University of Illinois at Urbana-Champaign to bring together quality speakers and passionate participants for iSEE Congress 2017.

SPONSORSHIP HELP

iSEE Congress 2017 is supported by generous funding from the Office of the Vice Chancellor for Research as a symposium in recognition of the Illinois Sesquicentennial — “The Research University at 150: Celebrating the History and the Future of Interdisciplinary Research at Illinois.”



We are also grateful to the Alice Campbell Alumni Center, a wonderful venue for our annual event!

CONGRESS ORGANIZERS & FACILITATORS — UNIVERSITY OF ILLINOIS FACULTY

- Madhu Khanna[^], Professor of Agricultural and Consumer Economics and iSEE Associate Director
- Lisa Ainsworth[^], Associate Professor of Plant Biology
- Brian Allan*, Associate Professor of Entomology
- Jeffrey Brawn[^], Head of Department of Natural Resources and Environmental Sciences
- Carla Cáceres[^], Director of the School of Integrative Biology
- Ben Crost[^], Professor of Agricultural and Consumer Economics
- Evan H. DeLucia[^], Professor of Plant Biology and iSEE Director
- Pradeep Dhillon[^], Associate Professor of Education Policy, Organization, and Leadership
- Don Fullerton[^], Professor of Finance
- Atul Jain*, Professor of Atmospheric Sciences
- Stephen P. Long, Professor of Plant Biology and Crop Sciences
- Sarah Taylor Lovell[^], Associate Professor of Crop Sciences
- Jesse Ribot*, Professor of Geography, Anthropology, and Natural Resources and Environmental Sciences
- Gillen D’Arcy Wood[^], Professor of English

[^] *Congress session moderator*; * *Congress speaker*

iSEE DIRECTORS AND STAFF

- Evan H. DeLucia, Director
- Madhu Khanna, Associate Director for Education & Outreach
- Ximing Cai, Associate Director for Campus Sustainability
- Ben McCall, Assistant Director for iSEE Special Projects
- Jenny Kokini, Managing Director
- Morgan Johnston, Associate Director of Facilities & Services (F&S)/Director of Sustainability, F&S
- Micah Kenfield, Sustainability Programs Coordinator
- Tony Mancuso, Communications and Public Affairs Coordinator
- Amy Rosenbery, Office Administrator
- Olivia Harris, Communications Specialist
- Cathy Liebowitz, Student Sustainability Committee Coordinator
- **Student Interns:** Katie Watson, Julia Chang, Claire Kredens, Vince Spagnola

RESEARCH POSTER PRESENTERS

A special thanks to the student and postdoctoral researchers who presented posters at iSEE Congress 2017. Read about them — and their poster titles and abstracts — at <http://bit.ly/iSEECong17>





Updates on Twitter at #iSEECongress2017

**University of Illinois
at Urbana-Champaign**



**Office of the Vice
Chancellor for Research**