

## **Frontiers of Big Data, Modeling, and Simulation in Urban Sustainability**

***January 30-31, 2019***

***National Academy of Sciences Keck Center  
500 Fifth St NW  
Washington, DC  
Room 100***

*Organized by the  
Board on Mathematical Sciences and Analytics  
Committee on Applied and Theoretical Statistics  
Computer Science and Telecommunications Board  
Board on Energy and Environmental Systems*

*Made possible through the support from the  
George and Cynthia Mitchell Endowment for Sustainability Sciences  
at the National Academies*

### **Workshop Objectives**

Data, modeling and simulation resources are advancing rapidly, and so are the problems of sustaining human life in urban environments. This workshop and webcast will bring together the emerging interdisciplinary network of practitioners, business leaders, academics, and policy makers using data for urban sustainability. Participants will share the latest advances in data, modeling and simulation, and will develop an agenda for the community to form partnerships and take action on some of the biggest challenges in urban sustainability.

Workshop speakers and participants will:

- Highlight urban sustainability research and implementation underway to address challenges related to air and water quality, transportation and physical infrastructure, and sustainable inclusive communities, including those relevant to SDGs: 9 (Industry, innovation and infrastructure), 11 (Sustainable Cities and Communities), 17 (Partnerships for the Goals);
- Discuss challenges and opportunities to applying big data, modeling, and simulation to advance urban sustainability research and practice;
- Explore organizations, sectors, or application domains that have addressed similar big data, modeling, and simulation issues, and discuss how these experiences can help advance data-driven urban sustainability science in the future; and
- Identify an agenda of urban sustainability research and practice needs and opportunities that partnerships to use big data, modeling, and simulation can help address.

## **WEDNESDAY, JANUARY 30**

### **9:00am Introduction to the Workshop**

- [Kathy Ensor](#), Rice University
- [Ani Dasgupta](#), World Resources Institute

### **Session I: Framing the Problem**

### **9:15am Keynotes: Why is this workshop important?**

- [Auroop Ganguly](#), Northeastern University
- [Jeanne Holm](#), City of Los Angeles
- [Bill Fulton](#), Rice University

### **10:15am Break**

### **10:30am Framing Discussion amongst Panel and Workshop Participants**

- [Kathy Ensor](#), Rice University, *Moderator*
- [Auroop Ganguly](#), Northeastern University
- [Jeanne Holm](#), City of Los Angeles
- [Bill Fulton](#), Rice University

### **11:30am Lunch**

### **Session II: Advances in Data, Modeling and Simulation**

### **12:30pm Panel 1: Modeling, simulation and data**

- [David Maier](#), Portland State University, *Moderator*
- [Elena Craft](#), Environmental Defense Fund
- [Kaan Ozbay](#), New York University
- Bryan Lewis, University of Virginia

### **1:40pm Panel 2: Innovation in geospatial data sources and spatiotemporal analysis**

- [Kathy Ensor](#), Rice University, *Moderator*
- [Constantine Kontokosta](#), New York University
- [Rhiannan Price](#), Digital Globe

### **2:40pm Break**

### **3:00pm Panel 3: Privatization of data and data privacy: Two sides of one coin**

- [Ani Dasgupta](#), World Resources Institute, *Moderator*
- [Sallie Keller](#), University of Virginia
- John Eltinge, U.S. Census Bureau
- [Michael Hawes](#), U.S. Department of Education

**4:10pm Data Use Experiences Across Cities**

- [Amanda Eichel](#), Global Covenant of Mayors for Climate & Energy
- [Jessica Seddon](#), World Resources Institute, Discussant

**4:40pm Breakouts Preparing for Workshop Focus Areas for Day 2**

- Workshop 1: Air and Water Systems (Keck 100)
- Workshop 2: Transportation and Physical Infrastructure (Keck 101)
- Workshop 3: Sustainable Inclusive Communities (Keck 105)

**5:10pm Adjourn Day 1**

**THURSDAY, JANUARY 31**

**9:00am Urban Theory to Understand City Challenges and Opportunities**

- [Luis Bettencourt](#), University of Chicago

**9:40am Report out of plans for mini-workshops, made during previous day's breakouts**

**Session III: Mini-Workshops Identifying Directions for Partnership**

**10:10am Workshop 1: Air and Water Systems (Keck 100)**

- [Anu Ramaswami](#), University of Minnesota
- [Elena Craft](#), Environmental Defense Fund
- [Kathy Ensor](#), Rice University

**10:10am Workshop 2: Transportation and Physical Infrastructure (Keck 101)**

- [Kaan Ozbay](#), New York University
- [Auroop Ganguly](#), Northeastern University
- [Christine Ehlig-Economides](#), University of Houston

**10:10am Workshop 3: Sustainable Inclusive Communities (Keck 105)**

- [Bill Fulton](#), Rice University
- [Ani Dasgupta](#), World Resources Institute
- Seth Schultz, Urban Breakthroughs

**12:20pm Lunch**

**12:50pm Report Back from Workshops**

**1:20pm Concluding Panel Discussion**

- [Ani Dasgupta](#), World Resources Institute
- [Jeanne Holm](#), City of Los Angeles
- [Sallie Keller](#), University of Virginia
- [Kathy Ensor](#), Rice University

**3:00pm Adjourn Workshop**

## Remote Participant Login Instructions

This workshop will be webcast from: <https://livestream.com/accounts/7036396/events/8517750>. Please submit your comments or questions regarding this mini workshop to Beth Zeitler at [ezeitler@nas.edu](mailto:ezeitler@nas.edu).

To access one of the three mini workshops held from 10:10am-12:20pm ET on January 31<sup>st</sup>, please follow the instructions below:

### **Air and Water Quality Mini Workshop (NEW INSTRUCTIONS)**

This mini workshop will be webcast from main webcast link: <https://livestream.com/accounts/7036396/events/8517750>.

Please submit your comments or questions regarding this mini workshop to Beth Zeitler at [ezeitler@nas.edu](mailto:ezeitler@nas.edu).

### **Transportation and Physical Infrastructure Mini Workshop (NEW INSTRUCTIONS)**

Join from PC, Mac, Linux, iOS or Android: <https://nasem.zoom.us/j/836629435>

Or Telephone:

US: +1 646 558 8656 or +1 669 900 6833 or +1 888 475 4499 (Toll Free) or +1 877 853 5257 (Toll Free)

Meeting ID: 836 629 435

International numbers available: <https://zoom.us/j/adqn6cVAem>

*\*Please submit your comments or questions during this mini workshop using the Zoom chatbox.*

### **Sustainable Inclusive Communities**

Join from PC, Mac, Linux, iOS or Android: <https://nasem.zoom.us/j/287475185>

Or Telephone:

US: +1 646 558 8656 or +1 669 900 6833 or +1 877 853 5257 (Toll Free) or +1 855 880 1246 (Toll Free)

Meeting ID: 287 475 185

International numbers available: <https://zoom.us/j/au3ZDdn1u>

*\*Please submit your comments or questions during this mini workshop using the Zoom chatbox.*

## **Workshop Planning Committee**

### ***Co-Chairs***

**Katherine Bennett Ensor**, Rice University (*co-chair*)

**Aniruddha Dasgupta**, World Resources Institute (*co-chair*)

### ***Committee***

**John Birge**, University of Chicago

**Lillian Coral**, Knight Foundation

**Christine Ehlig-Economides**, University of Houston

**Jeanne Holm**, City of Los Angeles

**Lucas Joppa**, Microsoft

**Constantine Kontokosta**, New York University

**David Maier**, Portland State University

**José Moura**, Carnegie Mellon University

### ***Staff***

**Michelle Schwalbe**, [mschwalbe@nas.edu](mailto:mschwalbe@nas.edu)

**Elizabeth Zeitler**, [ezeitler@nas.edu](mailto:ezeitler@nas.edu)

**Shenae Bradley**, [sbradley@nas.edu](mailto:sbradley@nas.edu)

**Linda Casola**, [lcasola@nas.edu](mailto:lcasola@nas.edu)