

**Advancing a Systems Approach to  
Studying the Earth:  
A Strategy for the National Science  
Foundation**



***Integrating Earth Systems Science and Engineering: A Virtual Workshop***

**Public Agenda**

**Friday November 20, 2020**

**Start time: 11am ET / 10am CT / 9am MT / 8am PT**

**End time: 3:30pm ET / 2:30pm CT / 1:30pm MT / 12:30pm PT**

Complementing the National Academies consensus study [\*Advancing a Systems Approach to Studying the Earth: A Strategy for the National Science Foundation\*](#), this workshop will bring together experts working at the intersection of engineering and earth systems science to share successful strategies and to identify important considerations for bridging these increasingly-connected fields.

11:00 AM **Welcome and purpose for the workshop**

11:15 AM **Session 1: What can earth systems science and engineering provide for each other?**

Goal: This opening session will hear from researchers working at the boundary of engineering and earth systems science about the opportunities and challenges of work at this intersection. Discussion will be held on how to build effective two-way partnerships between engineering and earth systems science (e.g. what can engineering bring that would be useful to earth systems science, and what can earth systems science research bring which would be useful to engineering?)

*Moderator: George Hornberger, Vanderbilt University*

Ana P. Barros, Duke University

Jennifer Jacobs, University of New Hampshire

Tom McKone, Lawrence Berkeley National Laboratory

12:15 PM **BREAK - 30 minutes**

12:45 PM **Session 2: Approaches to systems thinking: similarities and differences between the sciences and engineering**

Goal: Delving deeper into systems as a way of thinking and approaching problems. This session will examine how systems thinking approaches may vary between systems thinking in engineering versus systems thinking in the natural and social sciences. There will be discussion on how to bridge gaps between these perspectives, and how to develop informed and inclusive systems views.

*Moderator: Royce Francis, The George Washington University*

Danielle Wood, Massachusetts Institute of Technology

Dustin Schroeder, Stanford University

Wei-Ning Xiang, UNC Charlotte

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1:45 PM      **BREAK - 30 minutes**

2:15 PM      **Session 3: Lessons and opportunities for integrated engineering and earth systems science at scale**

Goal: Exploring how to undertake and operationalize opportunities for larger projects connecting earth systems science and engineering. This session will draw on lessons learned from those who managed multi-disciplinary and interdisciplinary projects at scale. There will be discussion of how institutions undertaking research connecting engineering and earth systems science can do so in a way that provides equitable opportunities, and is robust to an uncertain world.

*Moderator: Costa Samaras, Carnegie Mellon University*

Riley Duren, The University of Arizona  
Joshua Fu, The University of Tennessee Knoxville  
Lilia Abron, PEER Consultants, P.C.

3:15 PM      **Closing remarks**

3:30 PM      **Adjourn**