

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

**Developing a Research Agenda and Research Governance Approaches for
Climate Intervention Strategies that Reflect Sunlight to Cool Earth**

Workshop: August 7-8, 2019

University of Colorado Boulder
Sustainability, Energy and Environment Community Building

The goal of this workshop is gather a broad array of information and perspectives from the scientific community regarding the current status of, and future research directions for, research on solar climate intervention strategies (specifically, stratospheric aerosol injection, marine cloud brightening, and cirrus cloud thinning).

Wednesday, August 7, 2019

8:00 A.M. *Breakfast*

8:30 A.M. **Introductions and Goals of the Workshop** Chris Field, *Committee Chair*
Stanford University

9:00 A.M. **Reflections on Decision-Maker Webinar Outcomes** Andrew Light, [*remote*]
George Mason University
World Resources Institute

9:30 A.M. **SESSION 1: Modeling Studies to Understand Effects of Engineered Changes in Aerosol on the Climate System**

Moderator: Lynn Russell, Scripps Institution of Oceanography*

Panelists:

- Phil Rasch, PNNL
- Ulrike Lohmann, ETH Zurich [*remote*]
- Isla Simpson, NCAR
- Brian Soden, University of Miami [*remote*]

10:30 A.M. *Break*

11:00 A.M. **Discussion of Session 1**

12:00 P.M. *Lunch*

* committee member

1:15 P.M. **SESSION 2: Observation-Based Studies to Understand Effects of Engineered Changes in Aerosol on the Climate System**

Moderator: Paul Wennberg, California Institute of Technology*

Panelists:

- David Fahey, NOAA ESRL
- Allison McComiskey, Brookhaven National Laboratory
- Rob Wood, University of Washington
- Steve Platnick, NASA/GSFC

2:00 P.M. **Discussion of Session 2**

3:00 P.M. *Break*

3:30 P.M. **SESSION 3: Research to Estimate Impacts and Risks, Positive and Negative, of Solar Climate Interventions on Human and Environmental Systems**

Moderator: Lisa Dilling, University of Colorado, Boulder*

Panelists:

- Alan Robock, Rutgers University
- Waleed Abdalati, University of Colorado, Boulder
- Cheryl Harrison, University of Texas, Rio Grande Valley
- Colin Carlson, Georgetown University

4:15 P.M. **Discussion of Session 3**

5:15 P.M. *Adjourn*

5:45 P.M. *Reception for committee members and workshop guests*

Thursday, August 8, 2019

8:00 A.M. *Breakfast*

8:30 A.M. **Goals for Today's Sessions**

Chris Field

8:45 A.M. **SESSION 4: Research Questions for Solar Climate Intervention: Engineering and Implementation Challenges**

Moderator: Rob McHenry, PARC*

Panelists:

- Frank Keutsch, Harvard University
- Simone Tilmes, NCAR

- Gernot Wagner, New York University
- Sean Garner, PARC

9:30 A.M. **Discussion of Session 4**

10:30 A.M. *Break*

11:00 A.M. **SESSION 5: Social Science Perspectives on Solar Climate Intervention Research, Including Public Perception, Public Engagement, and Approaches to Risk and Uncertainty**

Moderator: Marion Hourdequin, Colorado College

Panelists:

- Jane Flegal, Arizona State University
- Karen Parkhill, University of York
- Jack Stilgoe, University College London [*remote*]
- Rob Bellamy, University of Manchester

12:00 P.M. *Lunch*

1:15 P.M. **Discussion of Session 5**

2:15 P.M. **Roundtable Discussion with all Session Panelists**

Chris Field

- Identify/discuss any critical issues that cut across the previous panels – i.e., research that involves intersections among atmospheric/climate modeling, observational studies, environmental impacts research, engineering/implementation issues, and social sciences

3:00 P.M. *Workshop adjourns*

NOTE FOR PUBLIC MEETINGS: This meeting is being held to gather information to help the committee conduct its study. This committee will examine the information and material obtained during this, and other public meetings, in an effort to inform its work. Although opinions may be stated and lively discussion may ensue, no conclusions are being drawn at this time; no recommendations will be made. In fact, the committee will deliberate thoroughly before writing its draft report. Moreover, once the draft report is written, it must go through a rigorous review by experts who are anonymous to the committee, and the committee then must respond to this review with appropriate revisions that adequately satisfy the Academies' Report Review Committee and the NAS president before it is considered an official Academies report. Therefore, observers who draw conclusions about the committee's work based on today's discussions will be doing so prematurely.

Furthermore, individual committee members often engage in discussion and questioning for the specific purpose of probing an issue and sharpening an argument. The comments of any given committee member may not necessarily reflect the position he or she may actually hold on the subject under discussion, to say nothing of that person's future position as it may evolve in the course of the project. Any inference about an individual's position regarding findings or recommendations in the final report is therefore also premature.