

Workshop on Tipping Points, Cascading Impacts, and Interacting Risks in the Earth System

TUESDAY, JANUARY 17, 2023

10:00–10:10 **Welcome and Housekeeping**

Kristen St. John (Chair), Margo D. Corum (NASEM), Patricia Razafindrambinina (NASEM)
Candace Major and Anjuli Bamzai (NSF)

10:10–10:40 **Background, Introduction. Pre-Workshop Poll**

Kristen St. John (Chair)

10:40–11:40 **Overview on Tipping Points and Expert Response**

Tim Lenton (University of Exeter) – 20 min, Jeffrey N. Rubin (NAS – BESR) – 5 min response, Bob Kopp (Rutgers University) – 5 min response

Remaining time for Q+A

11:40–12:15 **Break**

12:15–1:15 **Session 1: Historical Analysis of Past Biogeophysical and Social Tipping Points**

10-minute speaker remarks, remaining time for Q+A

Lee Kump (Pennsylvania State University), Victor Brovkin (Max Planck Institute for Meteorology),
Ilan Noy (Victoria University of Wellington), Benjamin I. Cook (NASA Goddard Institute for Space
Studies)

1:15–2:00 **Breakout Activity 1 & Report Out**

30-minute breakout questions to answer questions below, remaining time to report out and close the day

(1) What are the key outstanding research questions on biogeophysical and social tipping points, the interacting risks of these tipping points, and their cascading impacts?

(2) What are the major barriers and opportunities to accelerate progress to advance these areas of research?

WEDNESDAY, JANUARY 18, 2023

10:00–10:10 Welcome and Housekeeping

Kristen St. John (Chair), Margo D. Corum (NASEM), Patricia Razafindrambinina (NASEM)

10:00–11:30 Session 2: Regional Perspectives on Climate Tipping Points and Cascading Impacts

15-minute remarks, remaining time for Q+A

- Coastal US: Curt Storlazzi (U.S. Geological Survey)
- American West: Gordon Grant (USDA Forest Service)

11:30–12:00 Break

12:00–1:20 Session 2: Regional Perspectives on Climate Tipping Points and Cascading Impacts

15-minute remarks, remaining time for Q+A

- Arctic: Terry Chapin (University of Alaska), Michelle C. Mack (Northern Arizona University)
- Great Plains: Craig Allen (University of Nebraska – Lincoln)

1:20–2:00 Breakout Session 2 + Report Out

30-minute breakout, remaining time for reporting out and session closing

What are the tipping points, cascading effects and interacting risks critical to these geographic regions? Identify transdisciplinary research opportunities.

THURSDAY, JANUARY 19, 2023

10:00–10:05 **Welcome and Housekeeping**

Kristen St. John (Chair), Margo D. Corum (NASEM), Patricia Razafindrambinina (NASEM)

10:05–11:05 **Session 3: Interdisciplinary Research Priorities and Opportunities**

20-minute remarks, remaining time for Q+A

- Insights from Indigenous Knowledge: Kyle Whyte (University of Michigan)
- Cascading Impacts and Environmental Justice: Michael Méndez (University of California, Irvine)

11:05–11:30 **Break**

11:30–1:00 **Breakout Session 3 + Report Out**

3 x 20 minute rotating breakout rounds. Remaining time to report out

- (1) How can research priorities be identified, studies be conducted, and response strategies be designed in a manner that is inclusive and equitable for a diversity of participants and engaged stakeholders?
- (2) What new capabilities--computational, experimental, and organizational, etc.--would lead to transformational advances in the understanding and prediction of tipping points, cascading impacts, and interacting risks?
- (3) How can advances across the natural, social, computational, and engineering sciences be integrated to build practical understanding?

1:00–1:45 **Summary, Synthesis, and Next Steps**

MEETING ADJOURNS