

Melting Ice and Thawing Permafrost: Local, Regional, and Global Implications

- *Moderator: Gifford Wong, IDA Science and Technology Policy Institute*
- *Panel: David Behar, San Francisco Public Utilities Commission*
- *Matthew Druckenmiller, National Snow and Ice Data Center*
- *Maija Lukin, United States National Park Service*
- *Twila Moon, National Snow and Ice Data Center*
- *Ted Schuur, Northern Arizona University*

The Arctic is warming two to three times faster than the global average, which poses challenges for people inside and outside of the Arctic. The rapid warming is transforming the Arctic environment, and it is clear that the Arctic we know – one with extensive year-round sea ice, expansive permafrost, and relatively stable land ice – is likely coming to an end. A new and very different Arctic is emerging, one adjusting to the ever-increasing global concentration of carbon dioxide – currently on track to cross 500 ppm by 2050 (and reach 750 ppm by 2100). Communities in the Arctic and around the world are developing informed policy solutions to address the consequences. These policy actions must be closely connected to scientific knowledge about current and future changes in the physical climate system, as well as their impacts on the ecosystem and human wellbeing.

We will discuss how the broad SEARCH community has contributed to knowledge about how and why sea ice, permafrost, and land ice are changing across the Arctic, as well as the consequences of these changes on local communities to global society. We will also explore the impacts of these changes already being felt both within and beyond the Arctic. We hope to aid understanding and spur discussion on how science (and scientists) can support Arctic and global communities to develop solutions and informed policies that address the rapidly changing Arctic environment.