

AF2050 Panel Abstract
Emerging Research in the Arctic
Friday, September 6, 2019, 10:30 am

Panel: Hajo Eicken, International Arctic Research Center, University of Alaska Fairbanks
Gary Geernaert, Department of Energy
Stacy Rasmus, University of Alaska Fairbanks
Minik Rosing, University of Copenhagen
Moderator: Betsy Baker, North Pacific Research Board

Emerging Arctic research will be most effective if it combines science and indigenous knowledge (to support deeper and predictive understanding of human resilience-adaptation and the Arctic's role in global systems) with planning (for increasing and significant infrastructure, health, and social system changes).

Approaching emerging Arctic research as a challenge for ...

... **integrated Earth systems science** will require combining observations, analysis, and modeling to identify uncertainty ranges in environmental and societal projections that matter inside and outside the Arctic; better incorporating new findings into predictive models with ever finer resolutions of scale; using data testbeds such as increasingly sophisticated paleo evidence; and being prepared to fundamentally reassess and improve our understanding of the scale and timing of change.

... **resilience capacity building** will require drawing on current indigenous experience and millennia of surviving environmental change and managing trauma; and working upstream to mitigate mental and physical health and social impacts of change and support individual and community pathways to well-being.

... **planning** will require addressing public and mental health preparedness and, on geologic and other time scales, evolving patterns of extremes; ocean circulation changes and sea ice loss; permafrost thaw and biogeochemical changes to carbon, water, and nutrient flows, and require the prediction community to answer the question "What will life be like and how will it change between 2025 and 2050, and what will our social and physical infrastructure need to be locally and globally to assure the Arctic evolves as a healthy system for people and places?"