

Rapid Arctic Transitions due to Infrastructure and Climate Workshop, 26 May 2019

Workshop Description

The impacts of climate change, infrastructure, and the interactions between them in vulnerable Arctic landscapes are both complex and urgent. The Rapid Arctic Transitions due to Infrastructure and Climate (RATIC) initiative was created in 2014-15 as a forum to promote sustainable infrastructure as a key theme in Arctic research planning—one that requires multidisciplinary collaboration by scientists, local communities, governments and industry to be successful. The 4th RATIC workshop was held at Arctic Science Summit Week (ASSW) 2019 in Arkhangelsk, Russia. This full-day workshop brought together 51 participants from 11 countries to share their work and identify research priorities. The group also discussed opportunities to advance RATIC goals through participation in the three-year, circumpolar T-MOSAIC (*Terrestrial Multidisciplinary distributed Observatories for the Study of Arctic Connections*) project. The workshop was sponsored by the International Arctic Science Committee (IASC) as a cross-cutting activity of the Terrestrial, Cryosphere, and Social & Human Working Groups. Workshop presentations, abstracts, and a summary report are available at www.geobotany.uaf.edu/ratic/workshop2019.

Highlights

At the May 2019 workshop in Arkhangelsk, RATIC participants:

- Prioritized key scientific questions related to sustainable Arctic infrastructure in natural, social and built environments.
- Identified a range of data products that would help answer these questions, including a pan-Arctic geospatial database of existing and planned infrastructure, a time-series analysis based on available imagery, and an update to the International Permafrost Association (IPA) Circum-Arctic map of permafrost and ground-ice conditions.
- Developed a conceptual approach for pan-Arctic infrastructure research that would use a classification of infrastructure types to inform selection of monitoring and observation sites in collaboration with local communities and in places where access and resources exist.
- Agreed to form an Arctic Infrastructure Action Group under T-MOSAIC as the nexus for RATIC activities in 2019-2021. More on the goals and members of the action group can be found at www.t-mosaic.com/infrastructure.html.



RATIC Workshop 2019 Participants

Agenda



Rapid Arctic Transitions due to Infrastructure and Climate Workshop

Arctic Science Summit Week 2019
26 May 2019, 9:00–18:00
Room 502, NArFU Intellectual Centre
Smolny Buyan, 1, Arkhangelsk



Goal: Promoting sustainable Arctic infrastructure as a key research theme requiring a collaborative multidisciplinary approach involving scientists, local communities, governments and industry.

9:00 Welcome and introductions

9:20 Presentations: Impacts and interactions of climate and infrastructure in the Arctic
(15 min + 5 min Q&A *except as noted*)

- Response of permafrost environment to natural changes and human impact in the north of West Siberia (Yamal-Nenets Autonomous Okrug) (Leibman & Khomutov, Russia)
- Modeling circumpolar permafrost and permafrost thaw-related geohazards affecting infrastructure (Karjalainen, Finland)
- Impacts of climate change and infrastructure on reindeer herding in the Yamal peninsula (Laptander & Kumpula, Finland) (25 min + 5 min Q&A)

10:30 Coffee and posters

11:00 Presentations: Approaches to research and adaptation (15 min + 5 min Q&A each)

- T-MOSAiC and RATIC: Connections and opportunities (Vincent, Canada)
- Navigating the new Arctic: Landscape evolution and adapting to change in ice-rich permafrost (Walker, USA)
- Sustainable housing in rural Alaska (Garber-Slaght, USA)
- Infrastructure stability estimation: Usage of GTN-P data and permafrost forecasting (Sergeev & Utkina, Russia)
- Social science perspectives on Arctic infrastructure (Schweitzer et al., Austria)

13:00 Lunch

14:00 Research directions: Prague workshop synthesis

14:20 Breakout groups: Natural and social/built environment perspectives on research needs

What are the existing initiatives and projects in each sphere related to RATIC? What are some upcoming opportunities? What questions do we need to answer to achieve sustainable Arctic infrastructure? Which are most important? Which may be answered soon? Which will take longer or are unlikely to be answered in the foreseeable future?

15:30 Coffee and posters

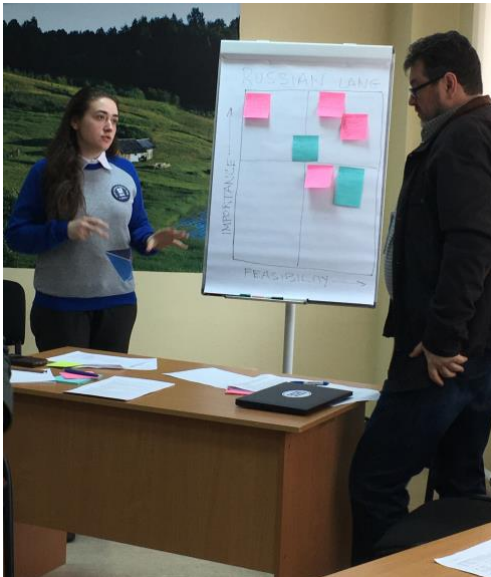
16:00 Panel 1: Research priorities (report from breakout groups)

16:30 Panel 2: Advancing RATIC through linkages with T-MOSAiC and other opportunities

What are the opportunities for advancing the goal of sustainable Arctic infrastructure through participation in T-MOSAiC? What are some specific ideas for systems-level observation, monitoring and modeling related to infrastructure? What are the challenges from the social science perspective? How do we better engage indigenous communities, business and industry in this work? What T-MOSAiC data products can be used to answer some of the key questions identified earlier in the day?

17:30 RATIC/T-MOSAiC: Planning the next steps

18:00 Adjourn



Breakout groups: (Top row) Natural Environment, (middle) Social and Built Environment, (bottom) Russian Language.