Arctic Terrestrial Infrastructures

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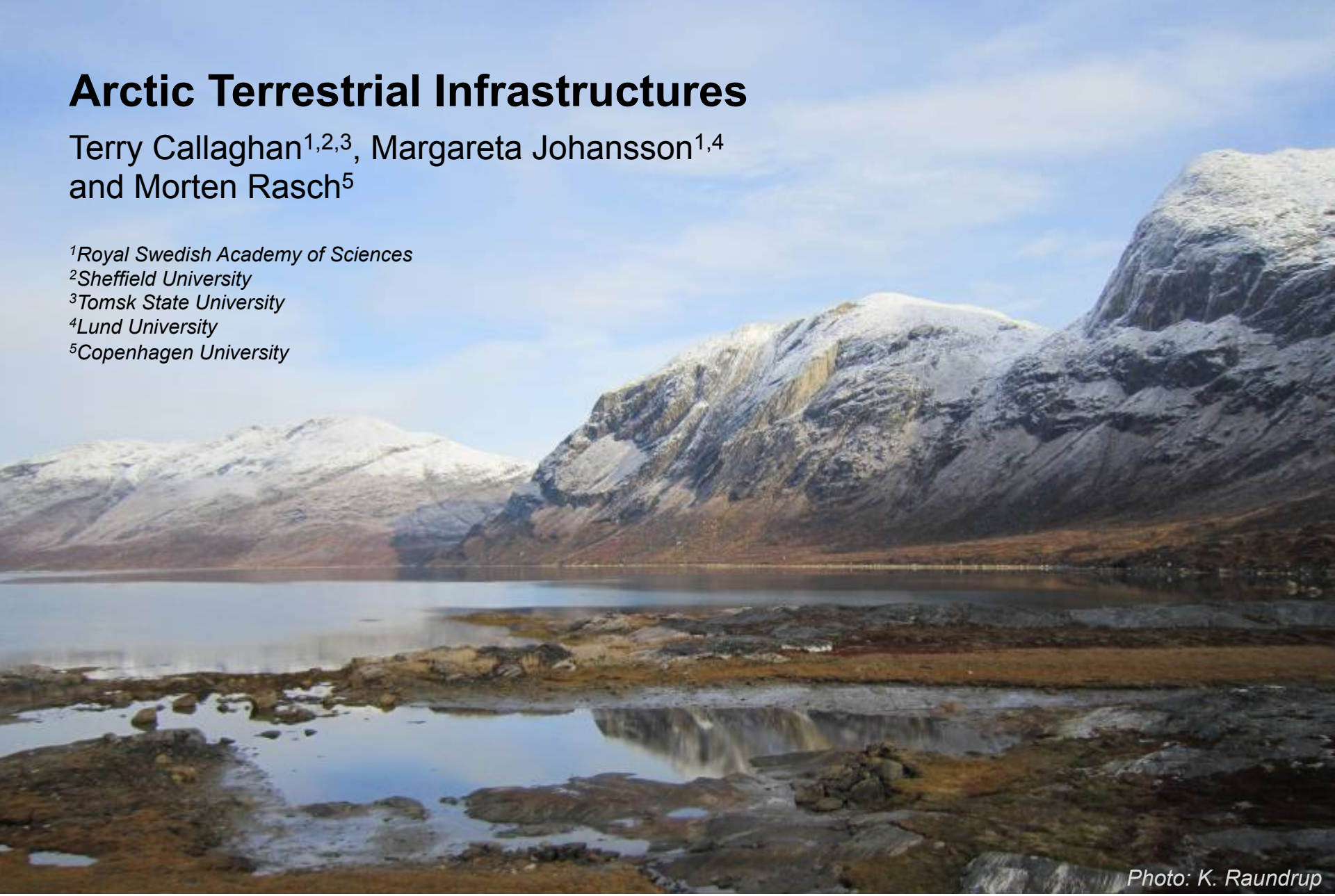


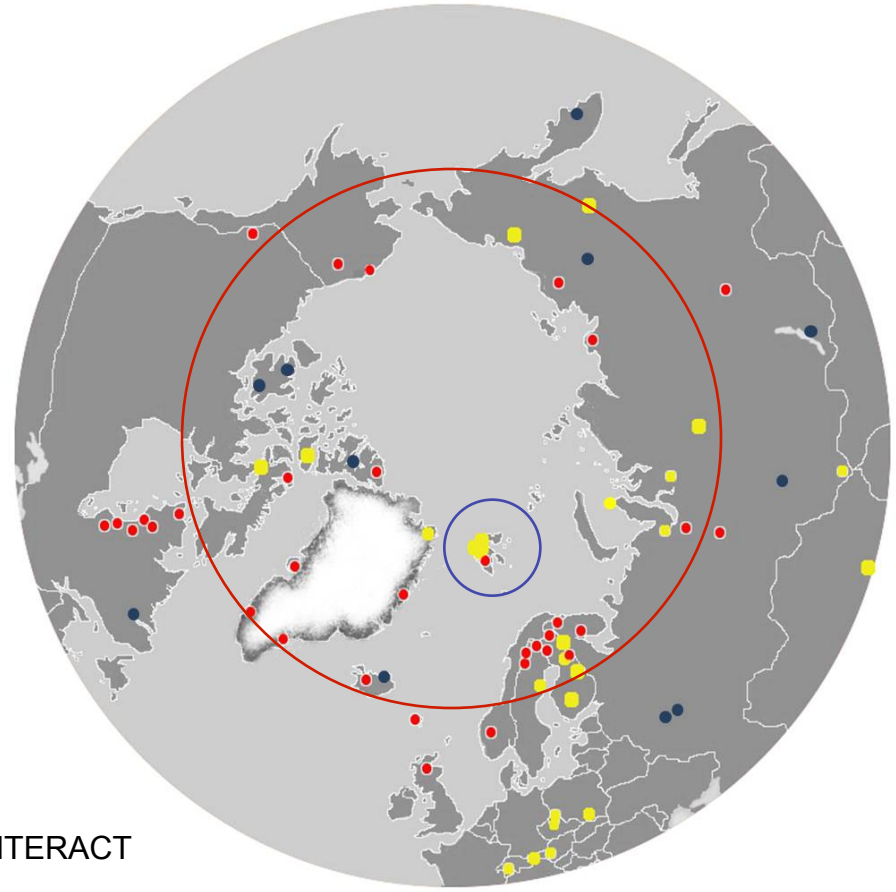
Photo: K. Raundrup

A geographically and disciplinary comprehensive network of infrastructures exists in the Arctic and neighbouring territories

INTERACT - 64 research stations and still growing

SIOS - an intensive node based around Svalbard

IASOA - pan-Arctic, 10 atmospheric observatories



INTERACT

- Partner stations
- Observer stations with MoU's signed
- Observer stations with MoU's in progress

- IASOA
- SIOS

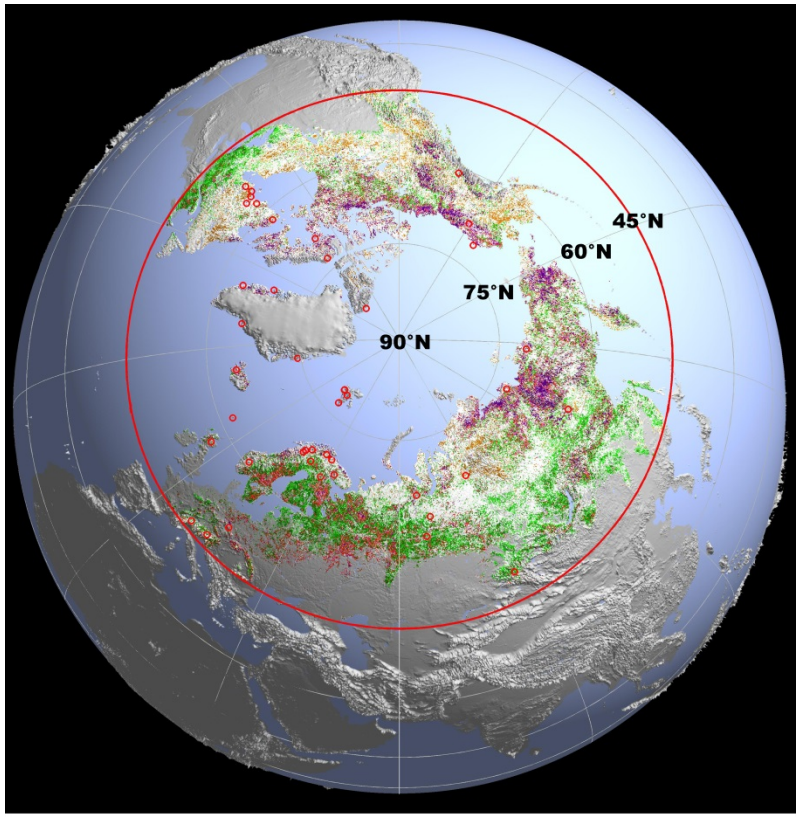
A need is to maximise national and international investments by ensuring long-term sustainability and linking infrastructures.



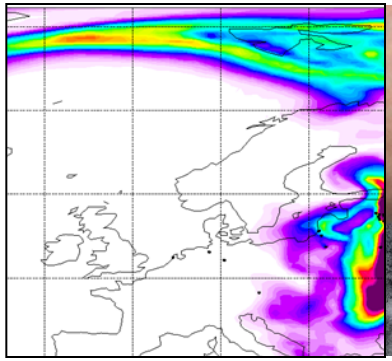


The infrastructure includes facilities in all types of northern environments and in the most remote and environmentally harsh locations. They can forewarn of damaging hazards.

- Radionuclides
- Contaminants
- Extreme weather
- Pathogens
- Invasive species
- Etc.

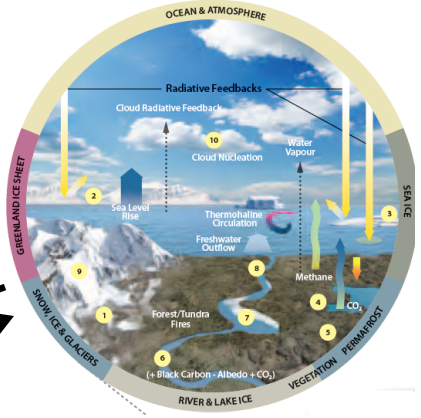


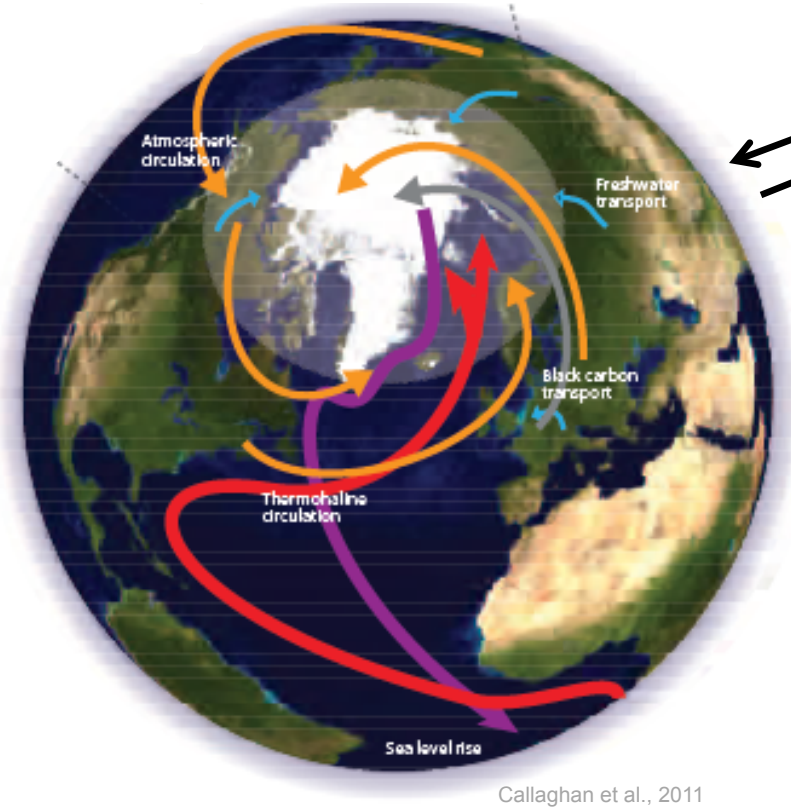
A need is to develop interfaces and protocols to enable the infrastructure to become a northern rapid response tool for observing and sampling potential hazards.





Environmental interactions are complex and often a system-wide approach is needed, both the Arctic System and the Earth System





Callaghan et al., 2011

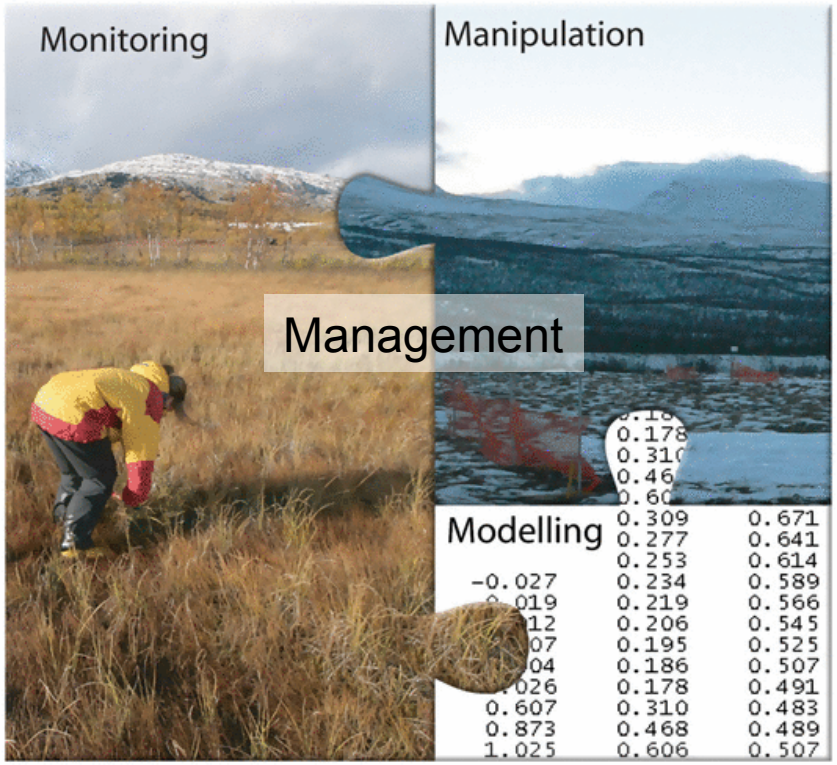
A need is to better link the terrestrial with marine and atmospheric domains and the Arctic with the global scale, making all data more accessible.



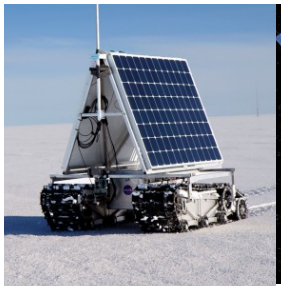


Arctic-wide and Earth-system observations and experiments are required to motivate mitigation measures while place-based studies are needed to help local people adapt to change.

- Mobile laboratories
- Drones
- Data mules
- Light aircraft
- Citizen science



A need is to close the gap between remote sensing and research station communities. This will extend the footprint of the research stations and bring process-based understanding to remote sensing observations for implementation of informed management.







INTERACT is working with all the major Arctic organisations and several regional governments. It is a co-lead of GEO/GEOSS Cold Regions and Ecosystems activities and is keen to cooperate!

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