

# T-MOSAiC

Terrestrial Multidisciplinary distributed Observatories

for the Study of Arctic Connections



... stay connected

## Summary of the Activities

April, 25, 2022

*João Canário, Portugal*  
*Warwick Vincent, Canada*  
*Julia Boike, Germany*

# T-MOSAiC - Background

Terrestrial Multidisciplinary distributed Observatories for the Study of Arctic Connections

Sea ice decrease:

- extent
- volume
- duration



Terrestrial consequences:

- geosystems
- ecosystems
- human systems



# **T-MOSAIc - Background**

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Terrestrial Multidisciplinary distributed Observatories for the Study of Arctic Connections

**T-MOSAIc: “What are the implications of changing sea ice, oceanography and climate of Arctic seas for the surrounding land-based geosystems, ecosystems and human systems?”**

# T-MOSAiC - Background

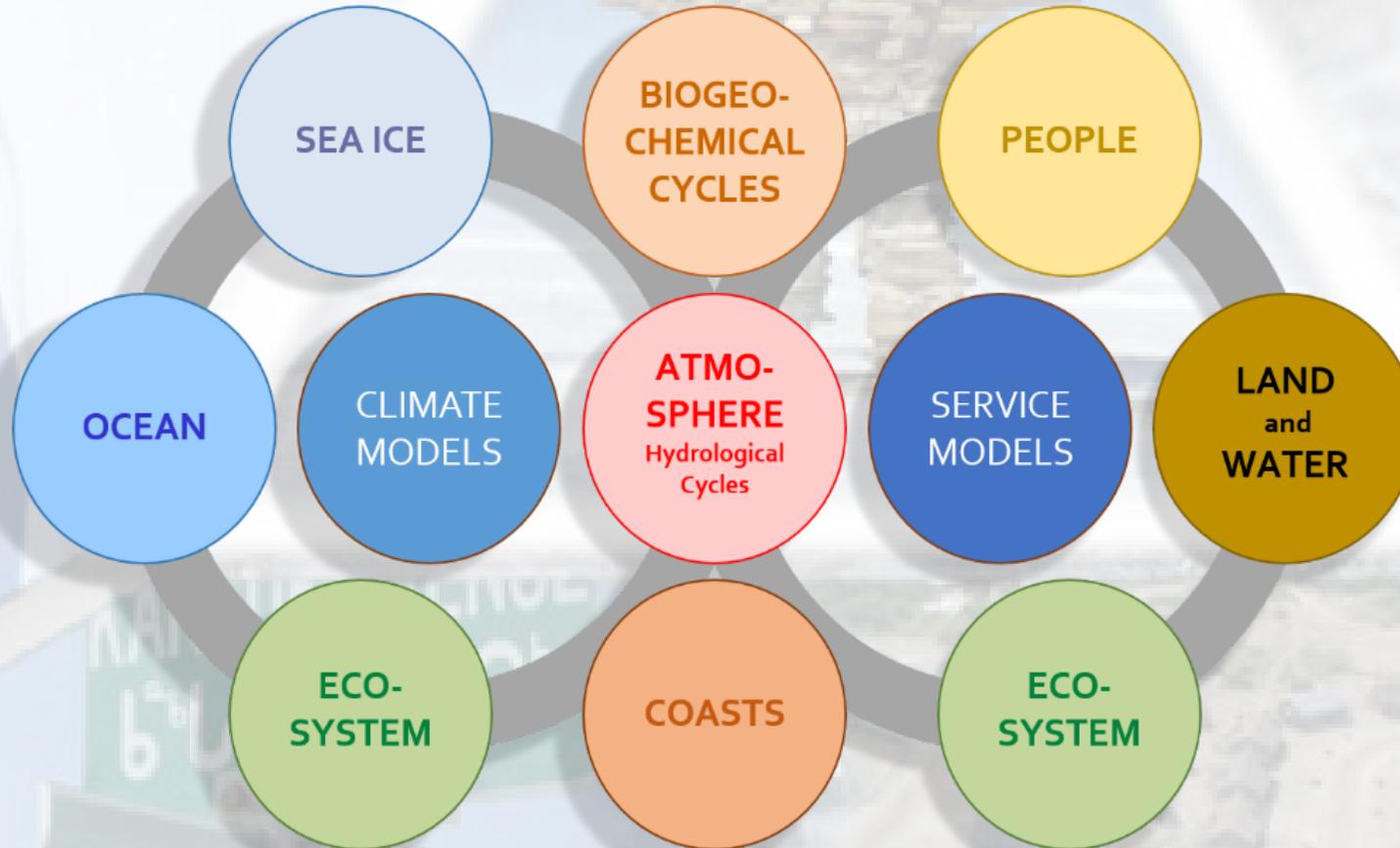
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## MOSAiC

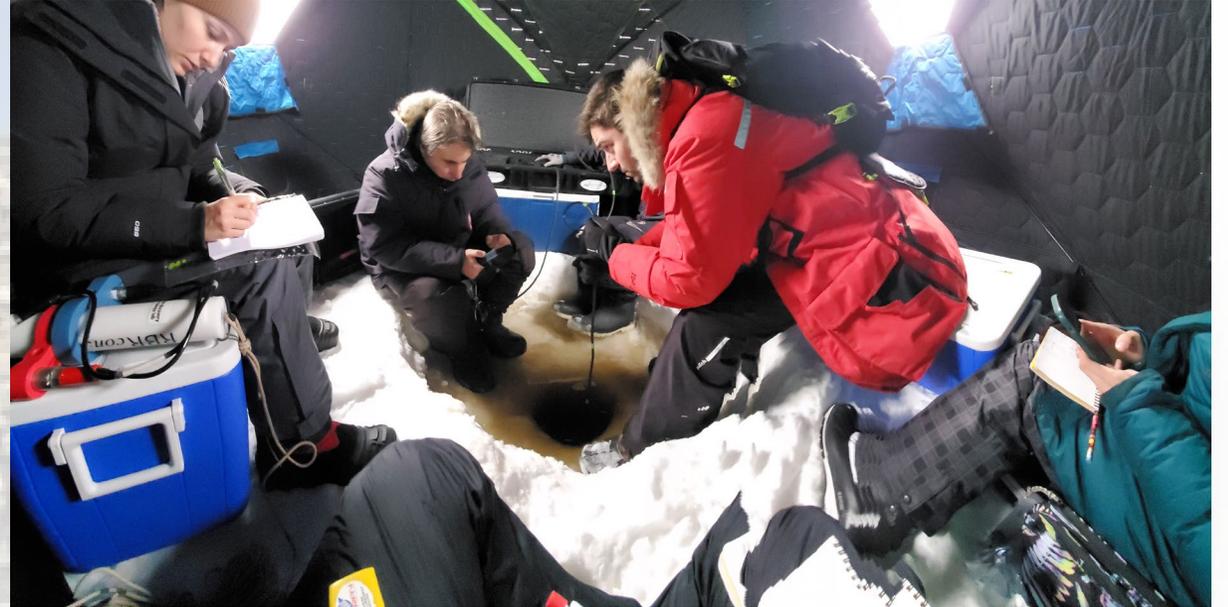
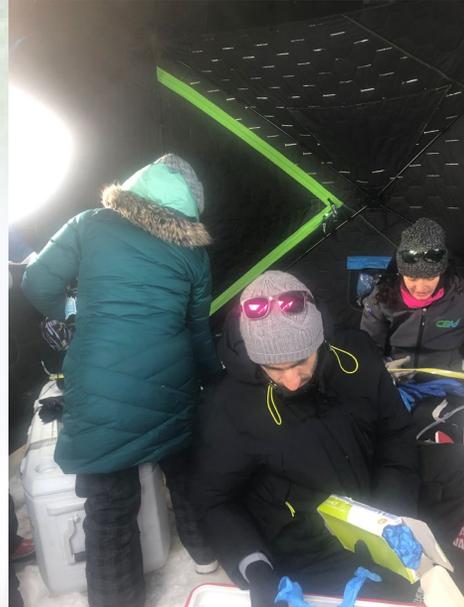
Multidisciplinary **drifting** Observatory  
for the Study of **Arctic Climate**

## T-MOSAiC

Terrestrial Multidisciplinary **distributed** Observatories for  
the Study of Arctic Connections



# Fieldwork



- Most field activities were cancelled or postponed
- One campaign took place in February and some activities with northern residents
- Limited maintenance of field and climate stations

# Action Group (AG) Activities

74 Activities reported from: scientific sessions in conferences; workshops



**GOLDSCHMIDT®**  
*Virtual 2020*  
21-26 JUNE



16 Workshops, 4 Keynotes, 12 Scientific sessions and > 150 scientific presentations (oral+posters)

# Arctic Science Special Issue

## Collection

### Terrestrial Geosystems, Ecosystems, and Human Systems in the Fast-Changing Arctic (T-MOSAiC)



This special virtual compilation brings together researchers from different countries and disciplines to examine the effects of environmental change on Arctic landscapes, terrestrial ecosystems, and northern communities. The reviews and research articles address themes within the circumpolar project "Terrestrial Multidisciplinary distributed Observatories for the Study of Arctic Connections" (T-MOSAiC).

### Curators

**Warwick F. Vincent**  
Guest Editor

**Julia Boike**  
Guest Editor

**Victoria R. Buschman**  
Guest Editor

**Frédéric Bouchard**  
Guest Editor

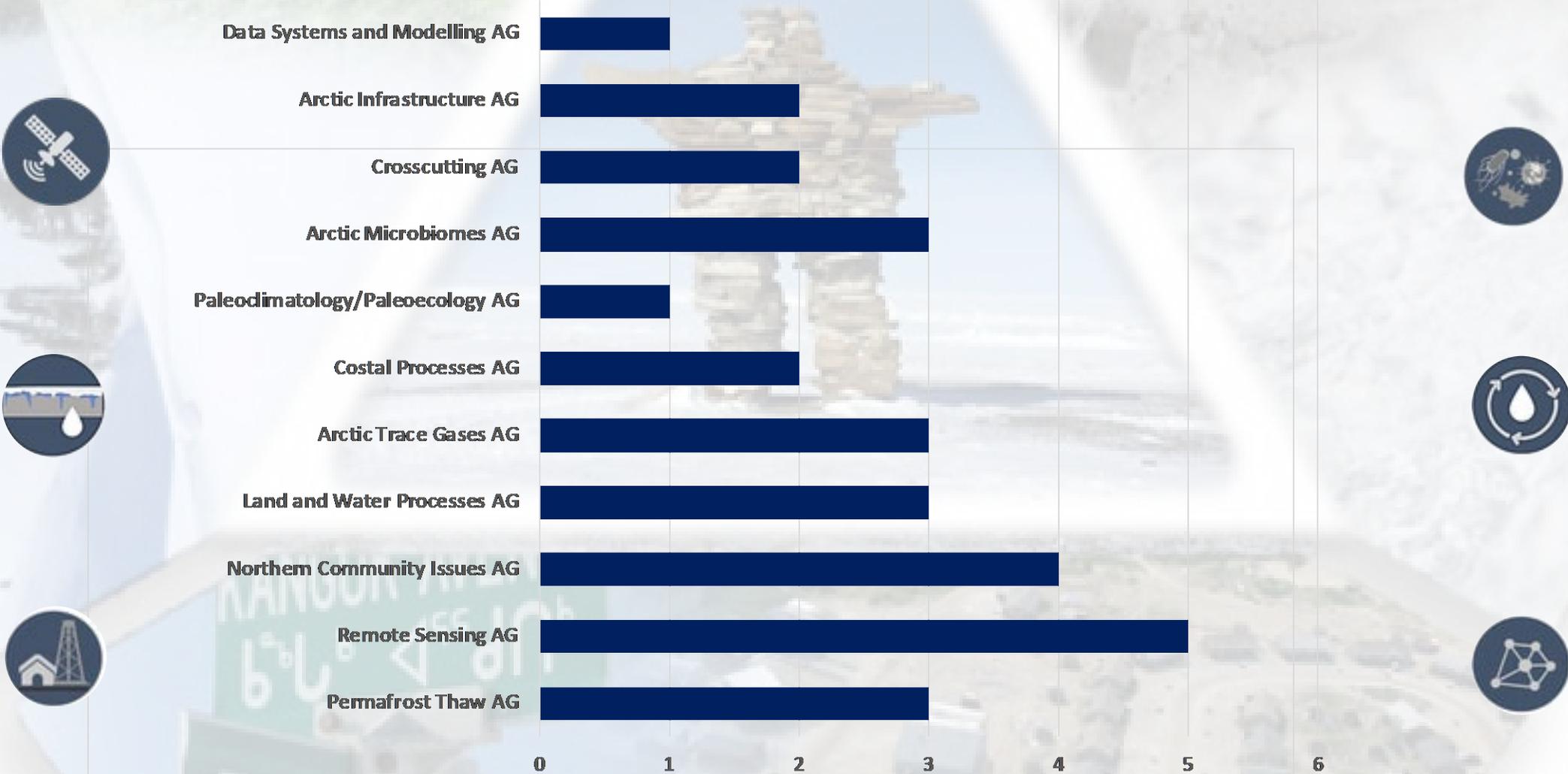
**Scott Zolkos**  
Guest Editor

**Gregory H. R. Henry**  
Guest Editor

**Brent B. Wolfe**  
Guest Editor

# Projects

29 Projects were endorsed by T-MOSAiC (by Action Groups themes)



# Projects: PERMAMERC

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## Mercury Biogeochemistry, Fate and Impact in Permafrost Thaw Ecosystems (2021-2024)

PI: João Canário (University of Lisbon)

- **PERMAMERC** intends to contribute to understand the Hg cycle in permafrost thaw systems: from Hg methylation processes to gas exchange in permafrost thaw surface waters, and the photochemical and microbiological processes involved.
- **PERMAMERC** will contribute to understand the importance permafrost thaw in the global Hg cycle and to provide scientific based knowledge related to impacts on Arctic ecology, ecosystem services and human health.



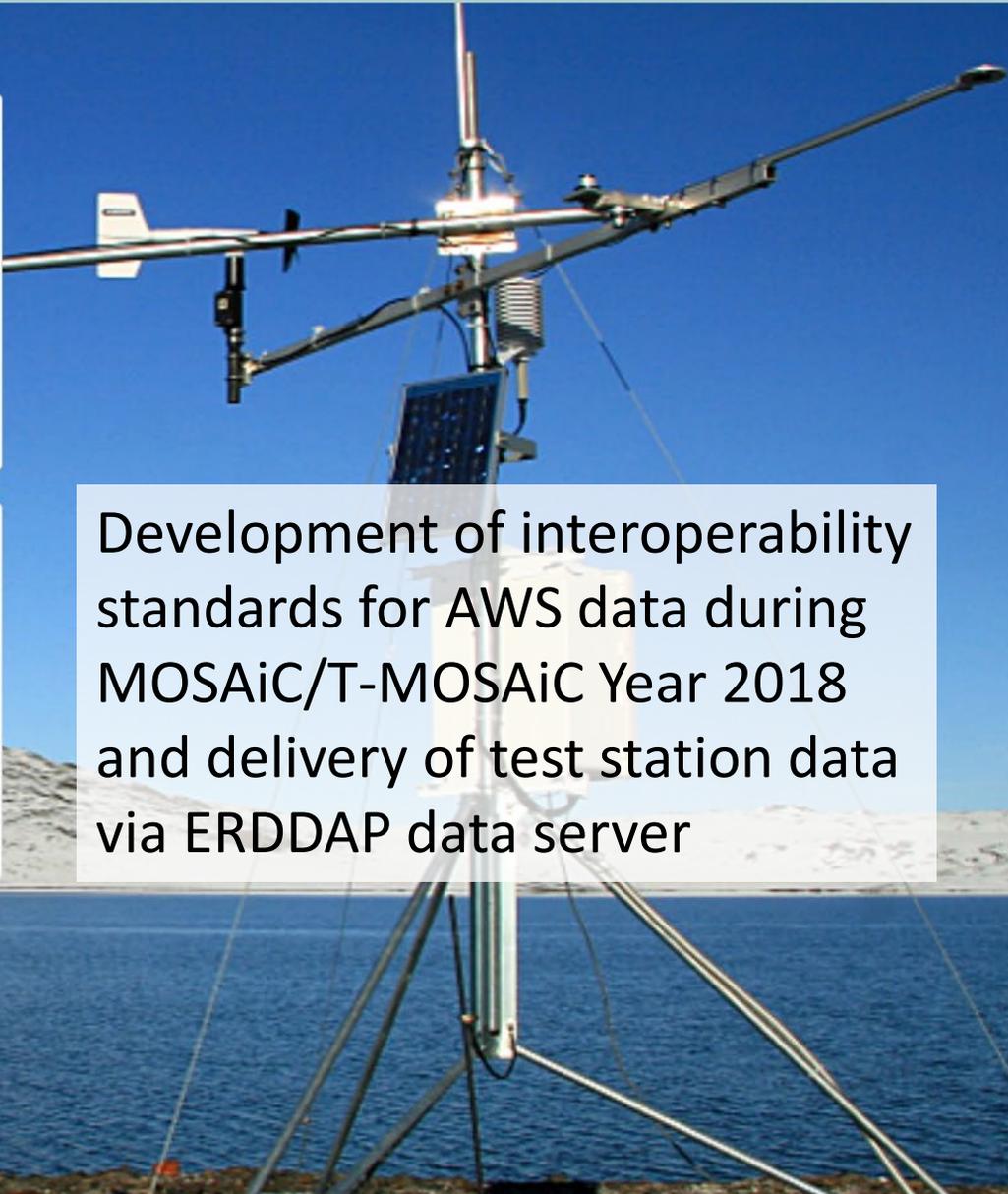
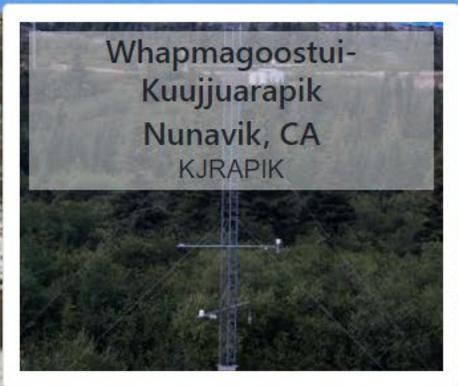
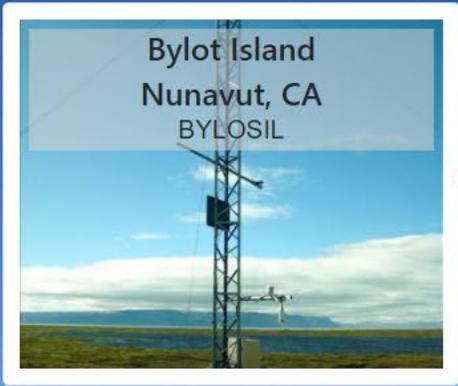
**U LISBOA** | UNIVERSIDADE DE LISBOA

**U. PORTO**

 UNIVERSITÉ LAVAL

**TRENT** UNIVERSITY 

**INRS** Institut national de la recherche scientifique



Development of interoperability standards for AWS data during MOSAiC/T-MOSAiC Year 2018 and delivery of test station data via ERDDAP data server

<https://sig-gis.cen.ulaval.ca/modaat>

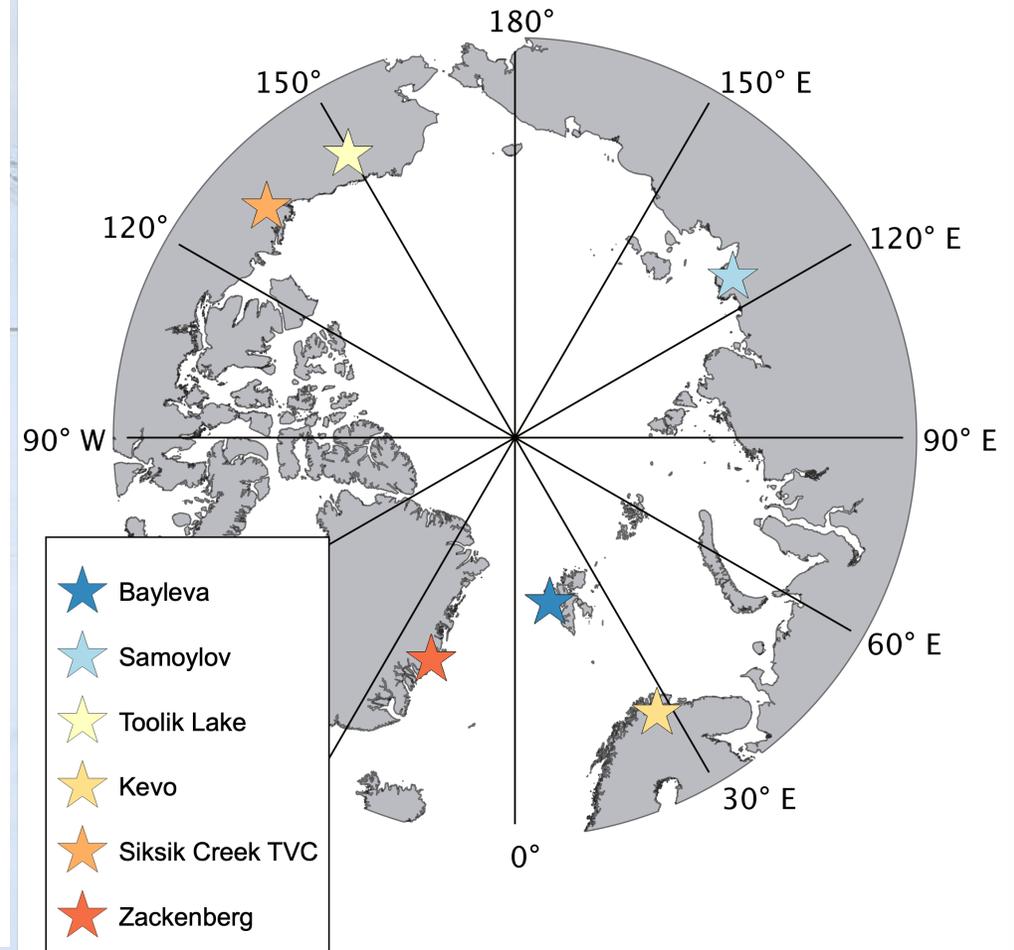
# Standardized Monitoring of Permafrost Thaw (Julia Boike)



iOS



Android



**Standardized monitoring of permafrost thaw: a user-friendly, multi-parameter protocol (2021).**

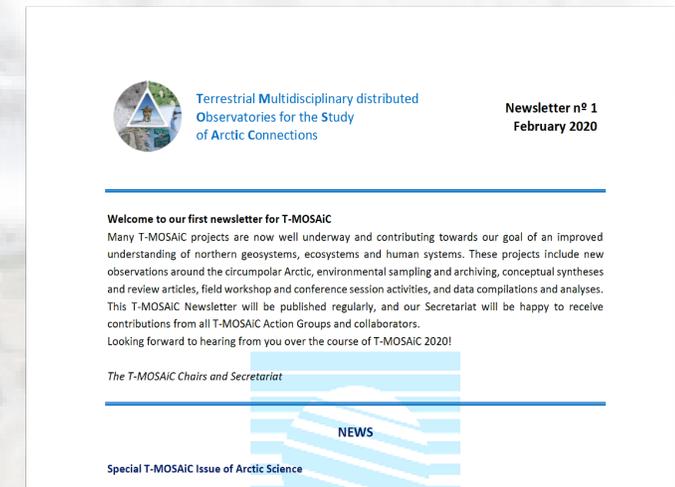
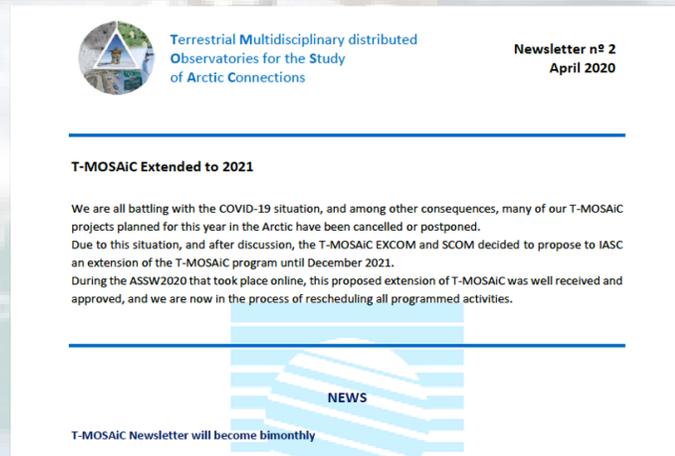
Boike, J., Chadburn S., Martin, J., Zwieback, S., Althuizen, I. H. J., Anselm N., Cai, L., Coulombe, S., Lee, H., Liljedahl, A. K., Schneebeli, M., Sjöberg, Y., Smith, N., Smith, S. L., Streletskiy, D. A., Stuenzi, S. M., Westermann, S. and Wilcox, E. J. . *Arctic Science*.

<https://doi.org/10.1139/AS-2021-0007>

# Newsletters



## 14 Newsletters (last to be released in April/May 2022)





# T-MOSAiC 2.0 discussion points

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- 🌐 Flexibility in governance
- 🌐 Focus on big research questions and not in Action Groups
- 🌐 Science Plan revision and update
- 🌐 Closer interaction with IASC WG
- 🌐 Stronger involvement of other organizations (SAON, INTERACT, IPA, APECS, etc)
- 🌐 Apply for specific funding (EU, NSF, ESA, Bilateral calls, Erasmus+, etc)
- 🌐 T-MOSAiC <-> H-MOSAiC

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**(Executive Secretary)**

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