



Fostering permafrost research to the ends of the Earth

The International Permafrost Association

- Fosters dissemination of knowledge concerning permafrost
- Promotes international cooperation between scientists and engineers working with permafrost
- Coordinates projects and activities through committees, Action Groups, & Interest Groups
- Convenes the International Conference on Permafrost (ICOP) every 4 years, in addition to regional conferences



Executive Committee (2018-2020)



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The **IPA Secretariat** is based at the University Centre in Svalbard, run by **Executive Director**, Sarah Strand.

IPA Council



The IPA is governed by its Council consisting of representatives from 26 countries

Above: participants of the 27th IPA Council meeting at EUCOP5 in Chamonix, France. Right: inside the council meeting.



IPA Action Groups

- Receive up to 2500€ for two years towards a defined output

Active Action Groups:

- Rock glacier inventories and kinematics
- Towards a Permafrost Thaw Subsidence Product within the GTN-P database
- Permafrost and Culture (PaC)

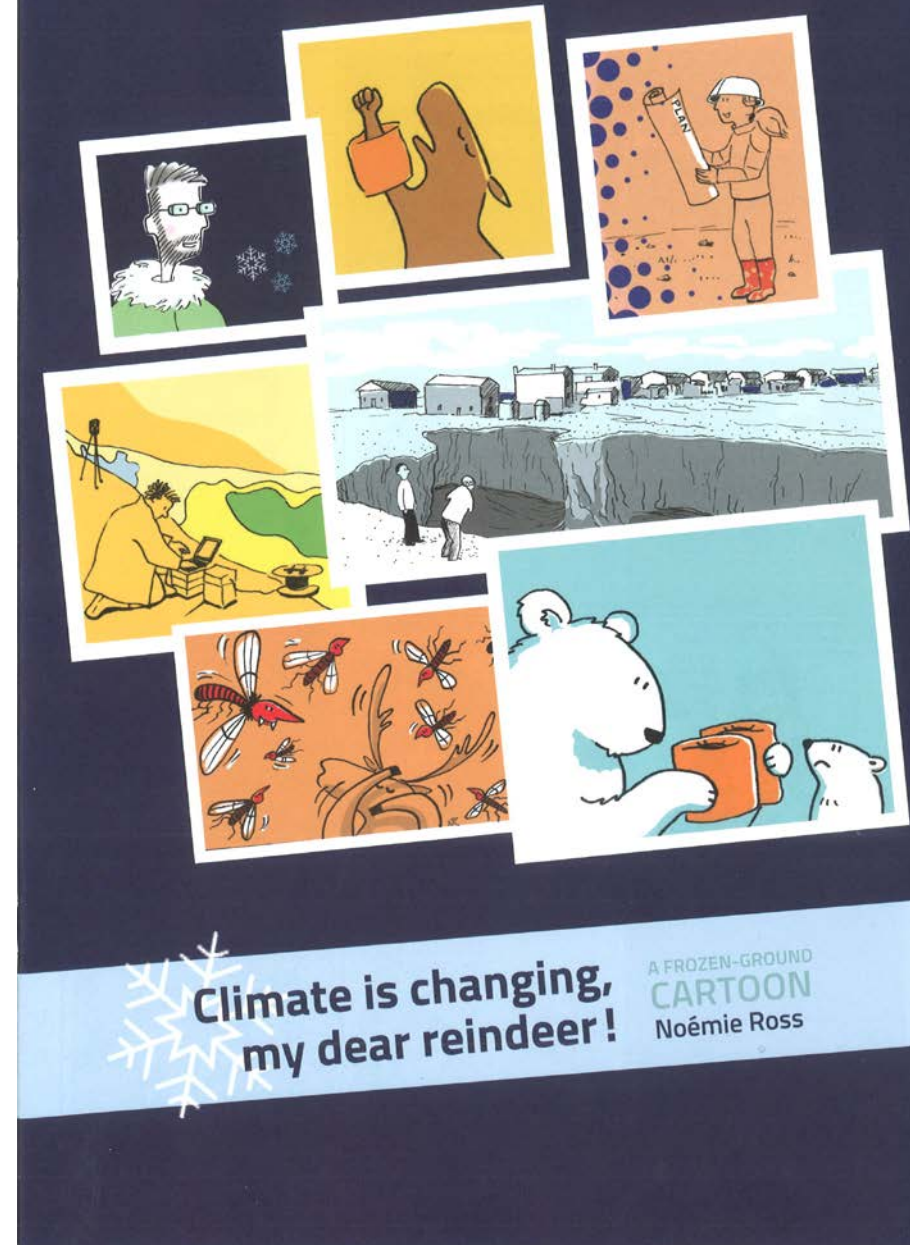
- The PaC AG held a workshop in March in Mongolia
- The rock glacier AG will hold a workshop in Switzerland the end of Sept.
- Next call late autumn 2019!

Recent Action Groups:

- Permafrost Engineering in a Warming Climate – Current State and Future Strategy
- Arctic Permafrost Transects
- A Frozen-Ground Cartoon
- The InterFrost Evaluation Platform
- The Yedomia Region
- Arctic Coastal Web Implementation



Example Action Group Output

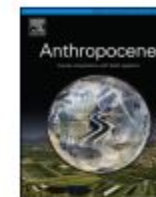




Contents lists available at ScienceDirect

Anthropocene

journal homepage: www.elsevier.com/locate/ancene



Review

Permafrost livelihoods: A transdisciplinary review and analysis of thermokarst-based systems of indigenous land use



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ARTICLE INFO

Article history:

Received 5 October 2016

Received in revised form 1 June 2017

Accepted 4 June 2017

Available online 13 June 2017

Keywords:

Human-environment interactions

Permafrost landscape dynamics

Climate change

Sakha

Siberia

Alaas

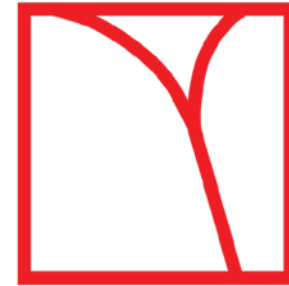
ABSTRACT

In a context of scientific and public debates on permafrost degradation under global climate change, this article provides an integrated review and analysis of environmental and socio-economic trends in a subarctic region. It focuses on Sakha (Yakut) animal husbandry as an example of indigenous land use. Within Sakha-Yakutia's boreal forests, animal husbandry takes place in thermokarst depressions containing grassland areas (alaas) that formed in the early Holocene in a complex interplay of local geological conditions, climate changes, and permafrost dynamics. The current scale and speed of environmental change, along with shifting socio-economic processes, increasingly challenges Sakha's adaptive capacity in use of alaas areas. The paper synthesizes information on the evolution of permafrost landscapes and on the local inhabitants' and scientific knowledge. It also probes land-use prospects for the near future. The imminence of challenges for alaas ecosystems requires a holistic understanding between researchers and stakeholder communities, which in turn depends on a comprehensive assessment of the dynamic interaction of physical and social drivers of change.

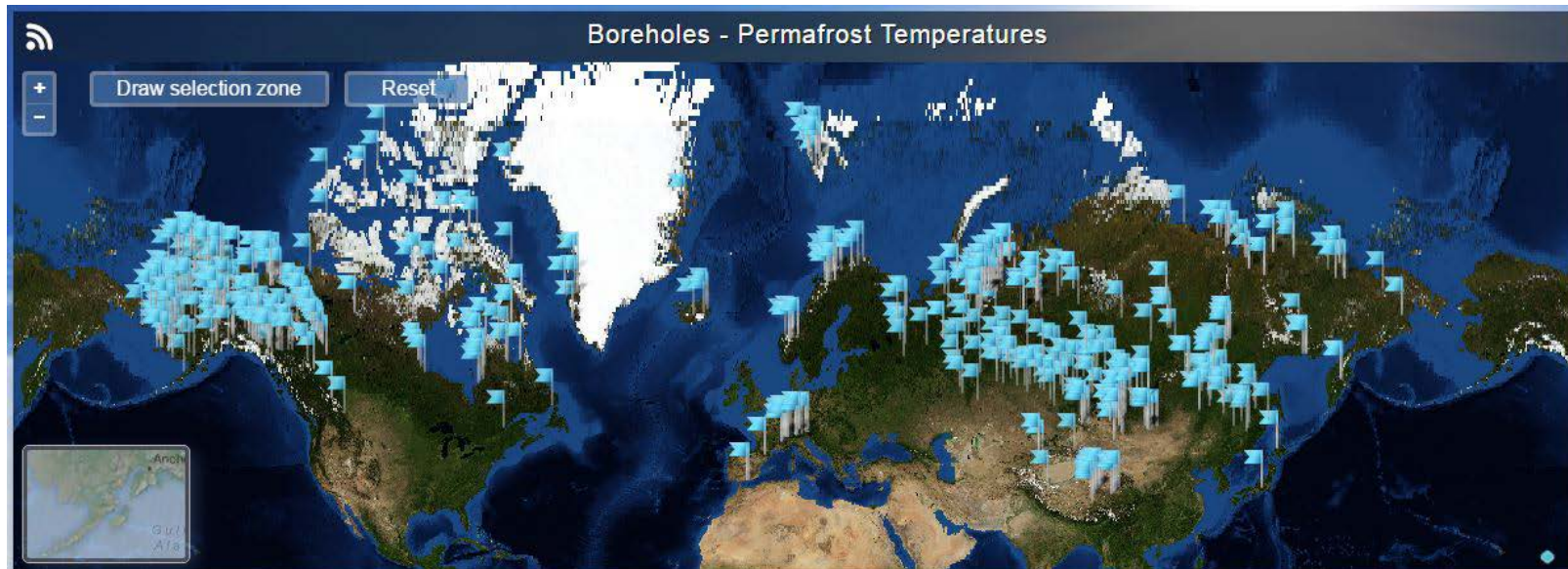
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Global Terrestrial Network for Permafrost (GTN-P)

- Developed by the IPA under the Global Climate Observing System (GCOS) and the Global Terrestrial Observing Network (GTOS)
- Provides open-access data regarding the thermal state of permafrost (**TSP**) & active layer thickness (**ALT**), both identified as essential climate variables by GCOS and GTOS



GTN-P
Global Terrestrial
Network for
Permafrost

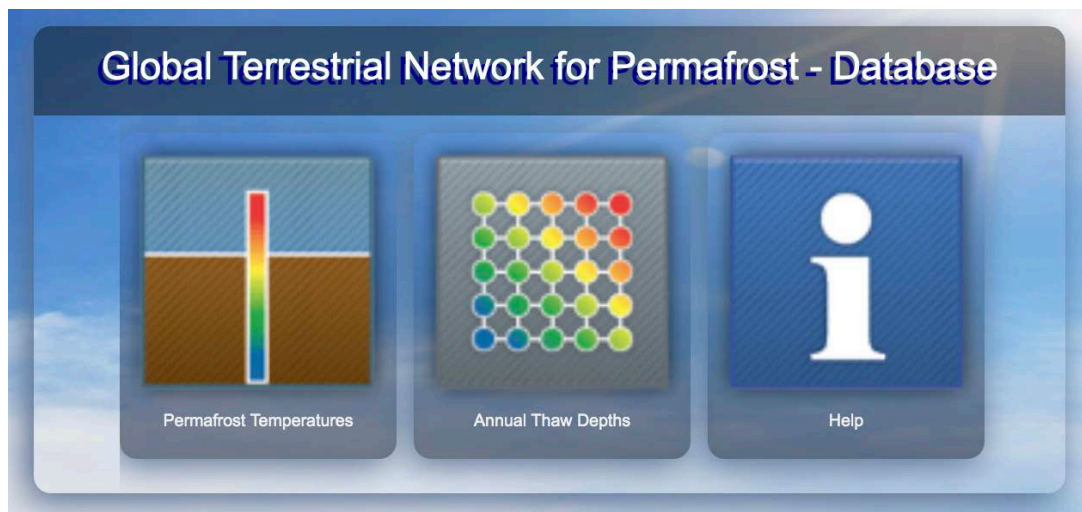


GTN-P Database

- Free, open-source, and ISO-compliant
- Many INTERACT stations have permafrost infrastructure; consider adding your data to the database if you do not do so already
- Two main types of data: ground temperature and active layer thickness (ALT)
- There are options regarding what is shared: only metadata, all data, certain data...



GTN-P
Global Terrestrial
Network for
Permafrost



<http://gtnpdatabase.org/>



130°W

140°W

150°W

160°W

170°W

180°

170°E

160°E

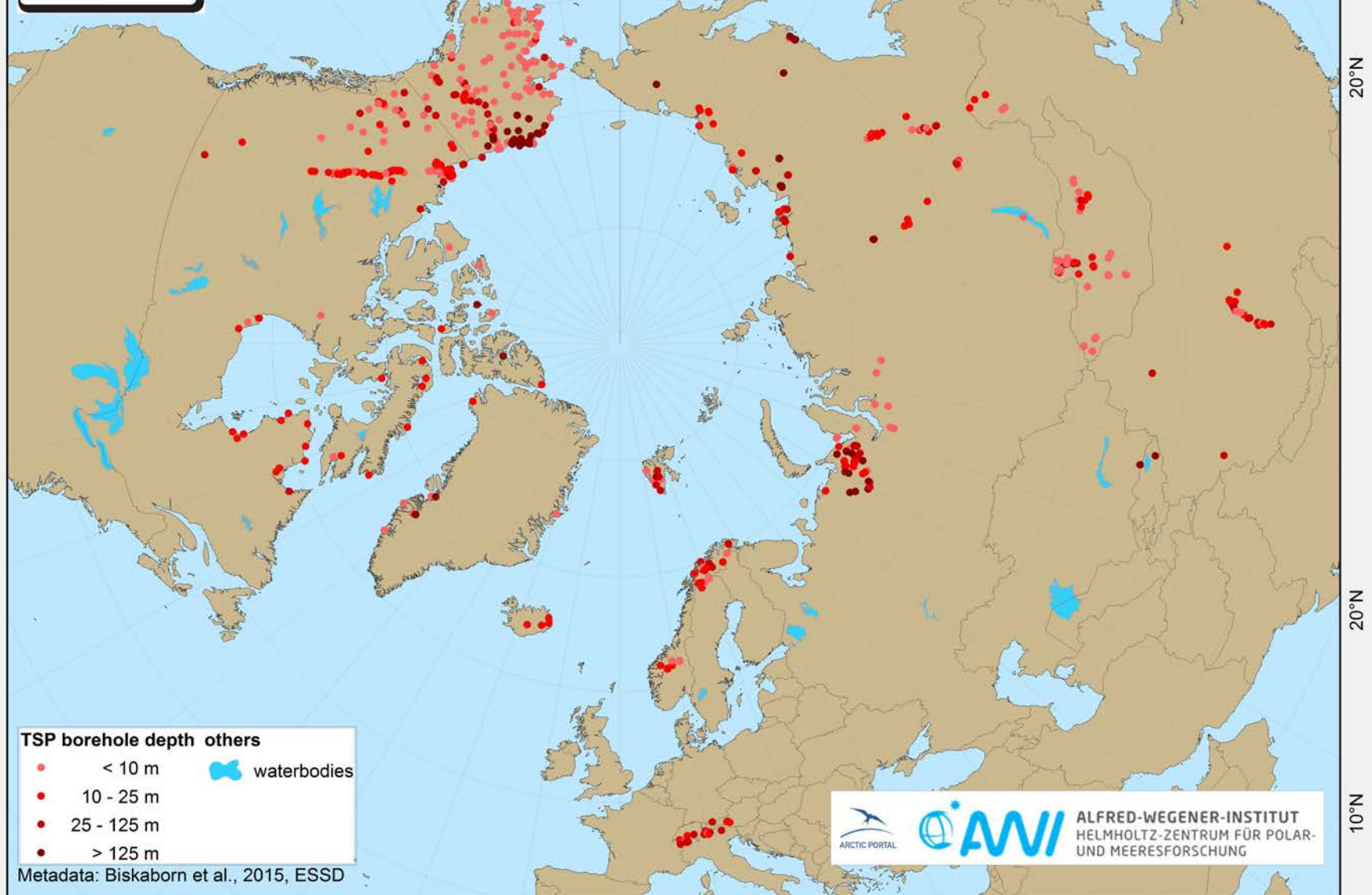
150°E

140°E

130°E



GTN-P Borehole Locations



TSP borehole depth others

- < 10 m
 - 10 - 25 m
 - 25 - 125 m
 - > 125 m
- waterbodies

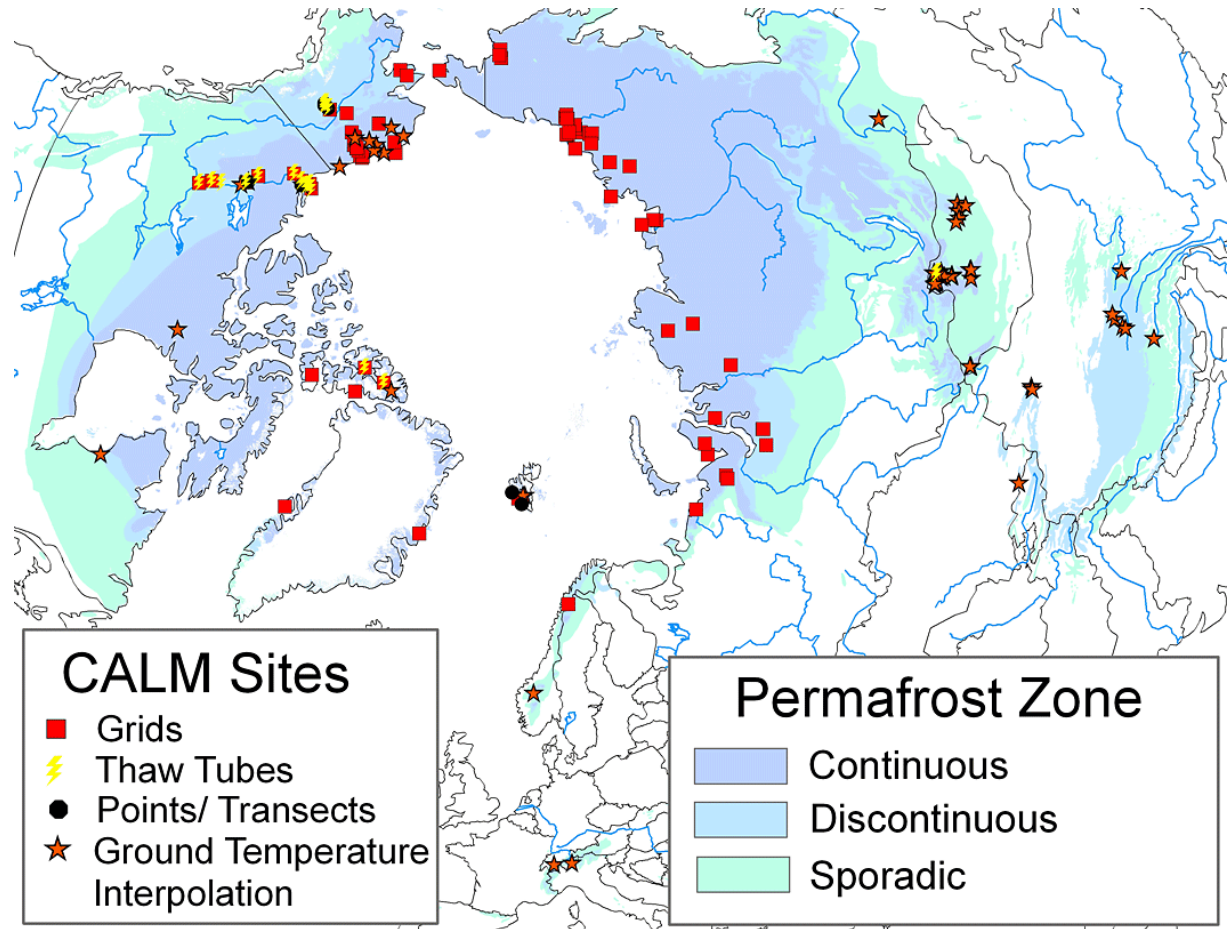
Metadata: Biskaborn et al., 2015, ESSD



ALFRED-WEGENER-INSTITUT
HELMHOLTZ-ZENTRUM FÜR POLAR-
UND MEERESFORSCHUNG

Circumpolar Active Layer Monitoring (CALM)

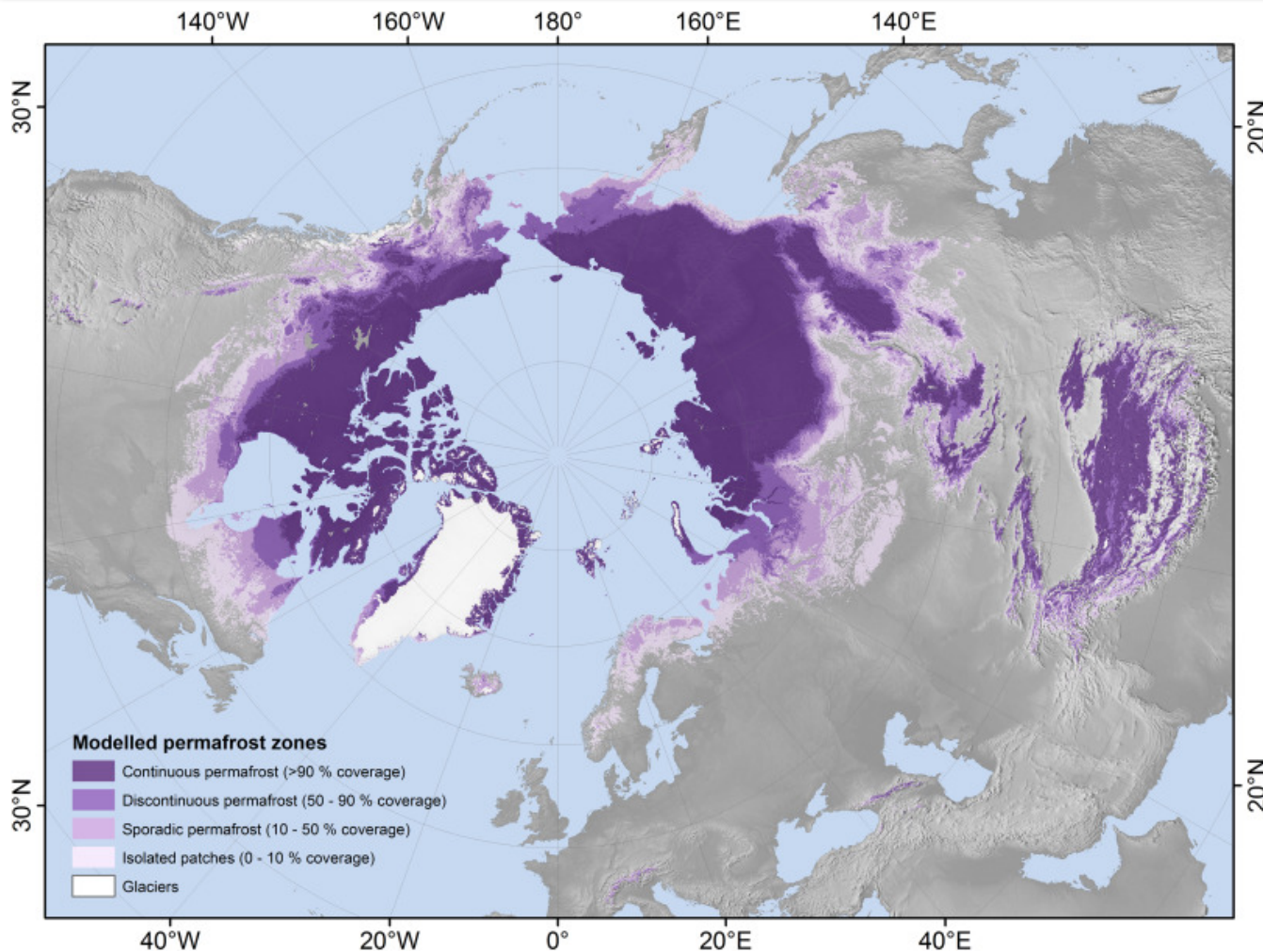
- CALM currently headquartered at George Washington University, administered by Dmitry Streletskiy and Nikolay Shiklomanov
- CALM data available through the CALM website and the GTN-P database
- Many INTERACT stations also have CALM activity



<https://www2.gwu.edu/~calm/>



Permafrost Mapping



The IPA has coordinated with the ESA initiative GlobPermafrost (2016-2019) and will continue to be involved in the ESA Permafrost Climate Change Initiative (CCI+) (2018-2021). Exciting permafrost mapping developments are underway, combining remote sensing, modeling, and in-situ data.

Permafrost zonation based on classified modelled permafrost probabilities which correspond with the fraction of each 1 km² pixel underlain by permafrost. Figure from **Obu et al., 2019. "Northern Hemisphere permafrost map based on TTOP modelling for 2000–2016 at 1 km² scale." *Earth-Science Reviews*.**



International Conferences on Permafrost (ICOPs)

The next ICOP:

12th International Conference on Permafrost

22-26 June 2020 in Lanzhou, China

scientific sessions, local field trips, and
regional post-conference field trips



Regional Conferences

Coming up:

**1st Southern Hemisphere
Conference on Permafrost
(SouthCOP 2019)**

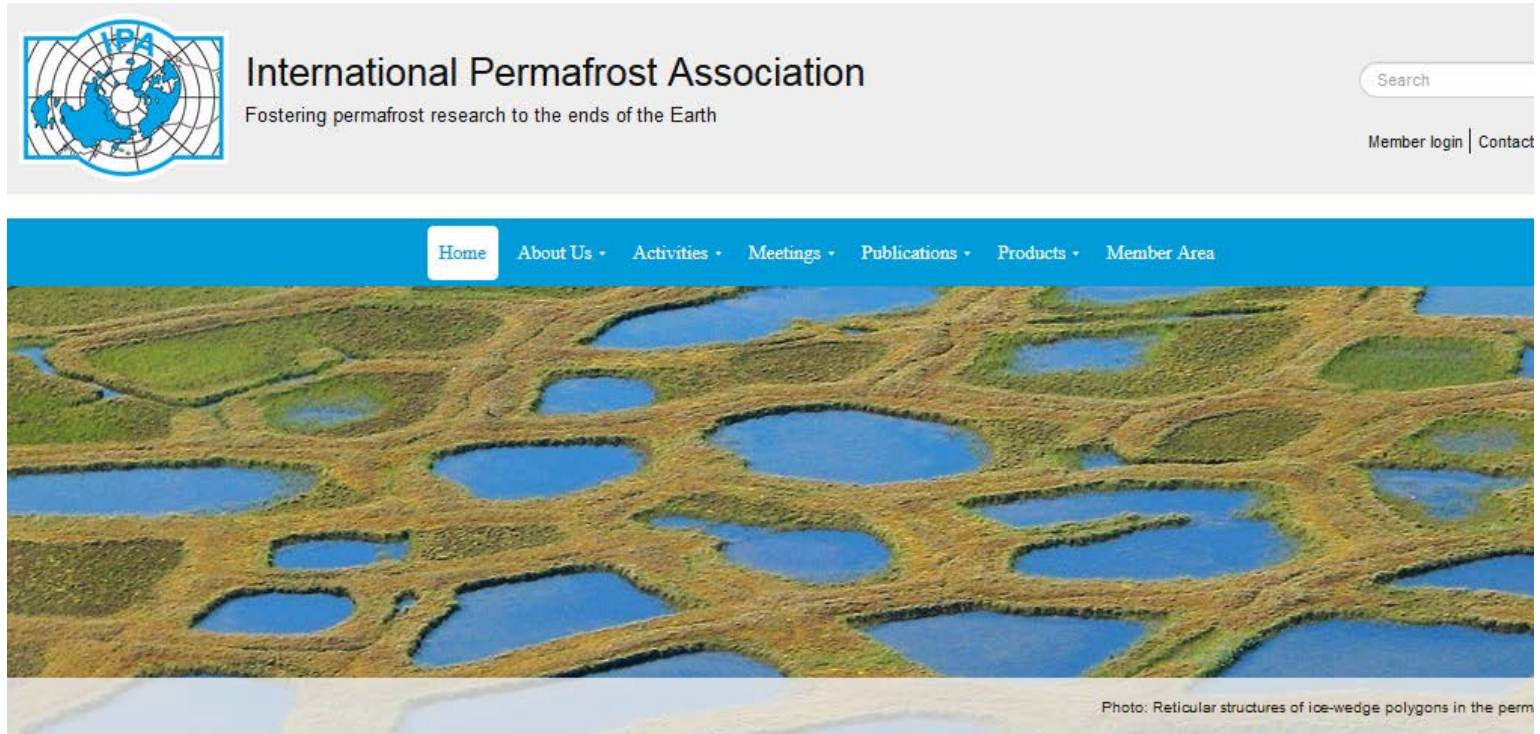
4-14 December 2019 in
Queenstown, New Zealand



5th European Conference on Permafrost
23 June-1 July 2018 in Chamonix, France
more than 460 participants from 29 countries



More information



<https://ipa.arcticportal.org/>