GCOS

GLOBAL CLIMATE OBSERVING SYSTEM

GCOS - WCRP TOPC Terrestrial Observation Panel for Climate

GTN-P Global Terrestrial Network for Permafrost

21th Session of the GCOS/WCRP Terrestrial Observation Panel for Climate (TOPC-21)

New governance structure and personnel

GTN-P governance structure (2018-2020)

STEERING COMMITTEE

Chair:
Dmitry Streletskiy

Co-Chairs:
Jeannette Noetzli
Sharon Smith

Philippe Schoeneich
Gonçalo Vieira
Alexey Maslakov (YNC)

SECRETARIAT

Executive Director:
Anna Irrgang, AWI

Executive Vice Director:
Karina Schollän, AWI/GFZ

Database Manager:
Alexander Smirnov, AP
Mark Jones, AP

IPA Representative:
Sarah M. Strand, UNIS

Technical Assistant:
William Cable, AWI

ADVISORY BOARD

Boris Biskaborn
Jerry Brown
Eduardo Cremonese
Hanne H. Christiansen
Barry Goodison
Wilfried Haeberli
Margareta Johansson
Halldor Johannsson
Hugues Lantuit
Paolo Pogliotti
Vladimir Romanovsky

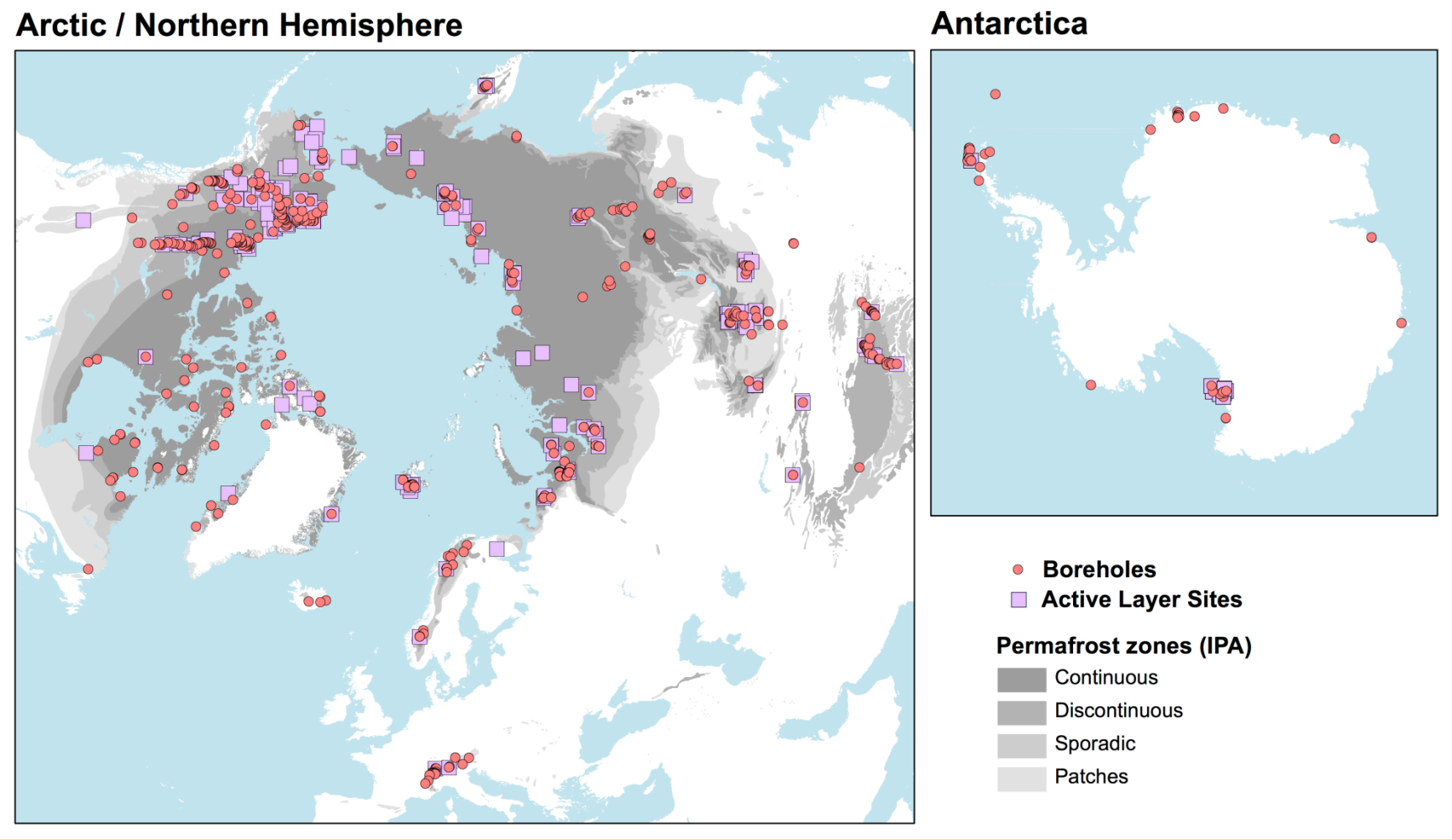
GTN-P National Correspondents

36 Representatives of 25 countries with permafrost, responsible for coordinating and sustaining national data upload

GTN-P Young National Correspondents

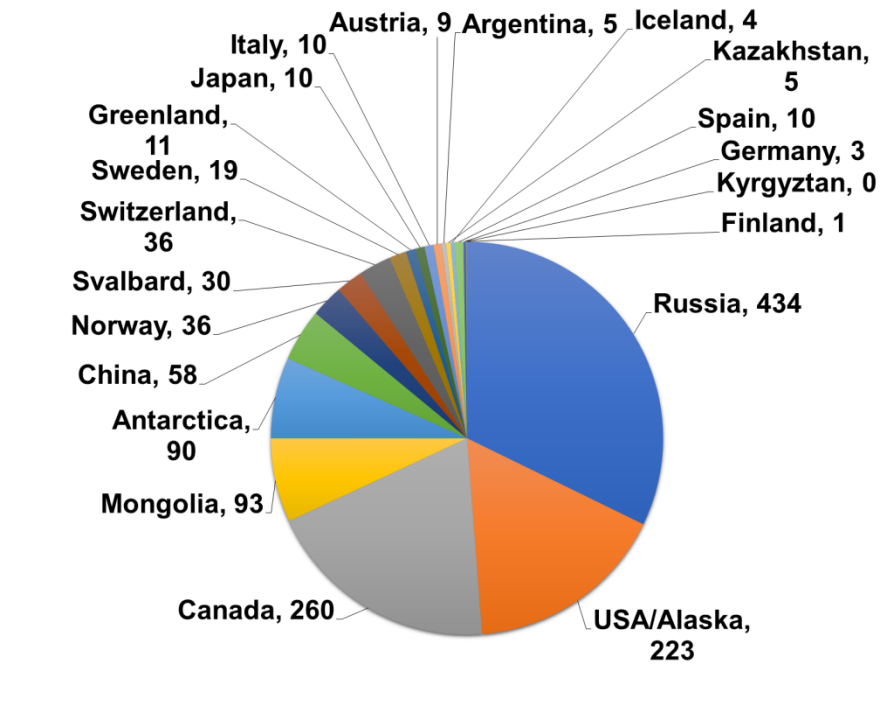
17 Representatives of 17 countries, support to NC responsibilities

Distribution of GTN-P sites



Distribution of GTN-P sites by country

TSP Sites



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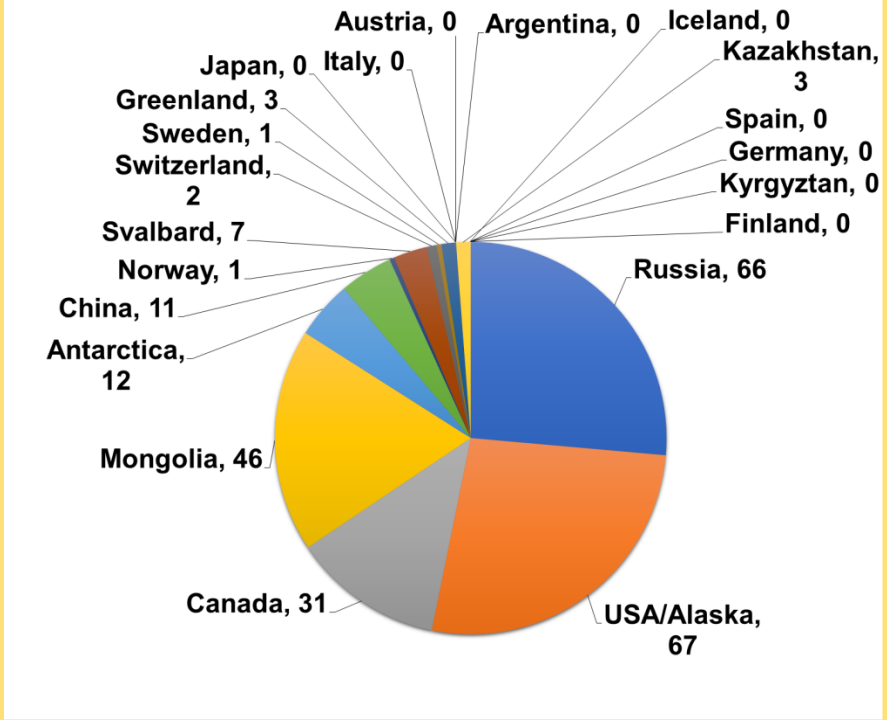
ALT Sites



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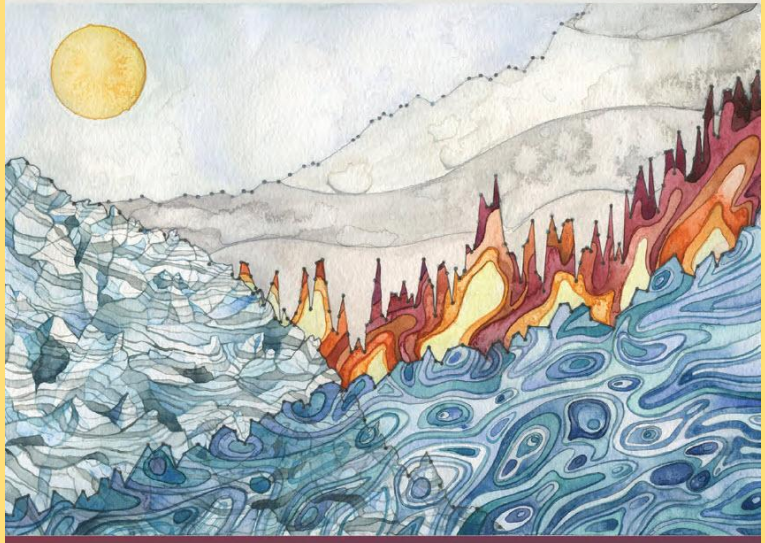
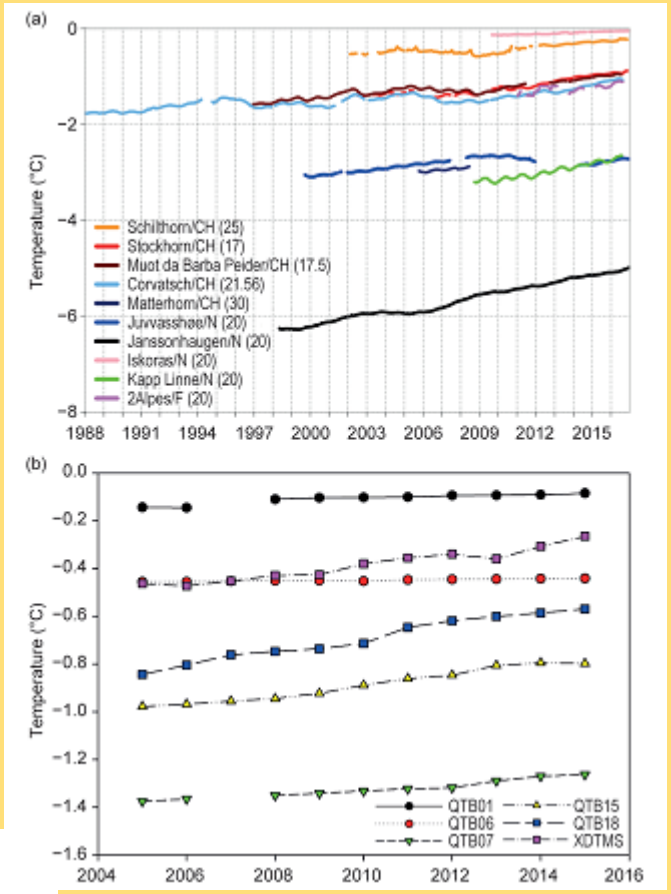
STATE OF THE CLIMATE IN 2015



Special Supplement to the
Bulletin of the American Meteorological Society
Vol. 97, No. 8, August 2016



c. *Cryosphere*

1) PERMAFROST THERMAL STATE—D. A. Streletskiy, B. Biskaborn, J. Noetzli, J-P. Lanckman, V. E. Romanovsky, P. Schoeneich, N. I. Shiklomanov, S. L. Smith, G. Vieira, and L. Zhao

The Global Terrestrial Network for Permafrost (GTN-P) provides systematic long-term measurements of permafrost temperature and active layer

nature COMMUNICATIONS

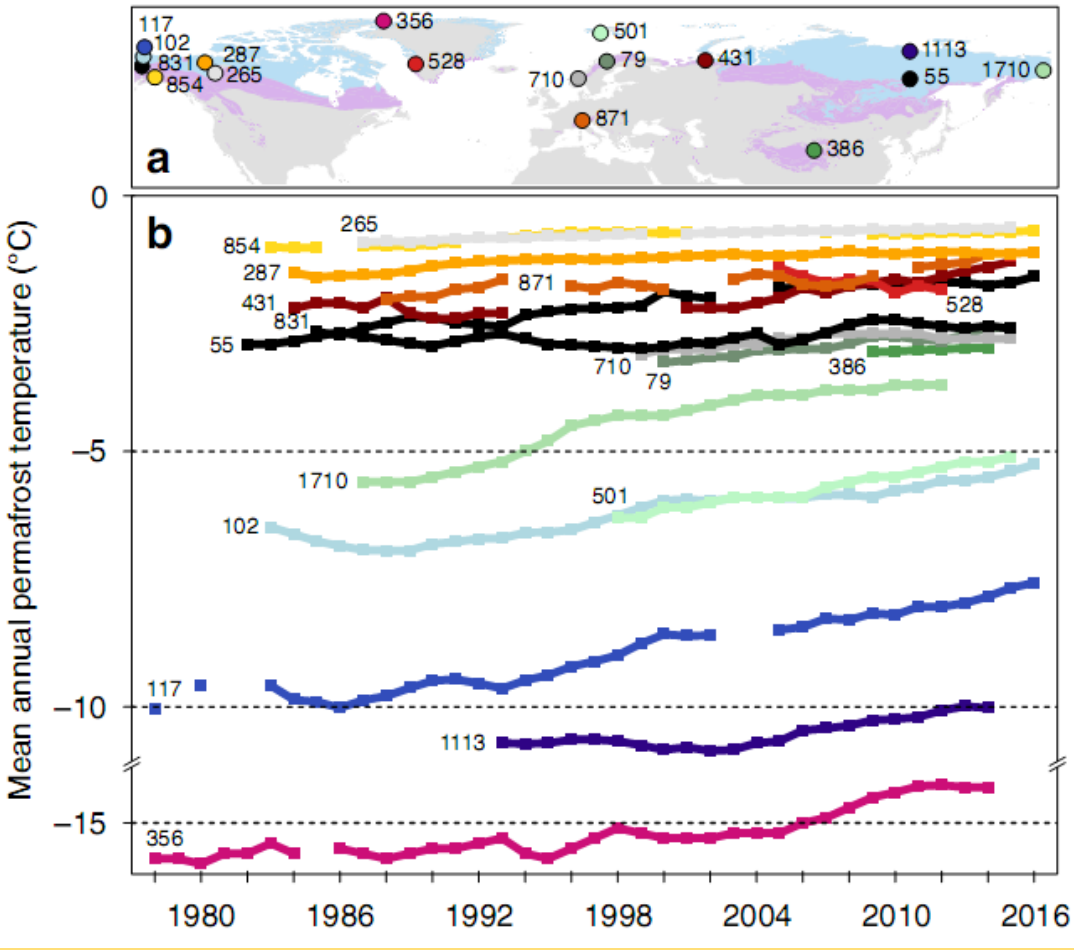
ARTICLE

https://doi.org/10.1038/s41467-018-08240-4 OPEN

Permafrost is warming at a global scale

Boris K. Biskaborn et al.#

Permafrost warming has the potential to amplify global climate cha
sediments thaw it unlocks soil organic carbon. Yet to date, no globa
of permafrost temperature change has been compiled. Here we
permafrost temperature time series from the Global Terrestrial N
evaluate temperature change across permafrost regions for the per
Polar Year (2007–2009). During the reference decade between
temperature near the depth of zero annual amplitude in the cor
increased by 0.39 ± 0.15 °C. Over the same period, discontinuou
0.20 ± 0.10 °C. Permafrost in mountains warmed by 0.19 ± 0.05 °C
± 0.10 °C. Globally, permafrost temperature increased by 0.29 ± 0.
follows the Arctic amplification of air temperature increase in the
the discontinuous zone, however, ground warming occurred due to
while air temperature remained statistically unchanged.



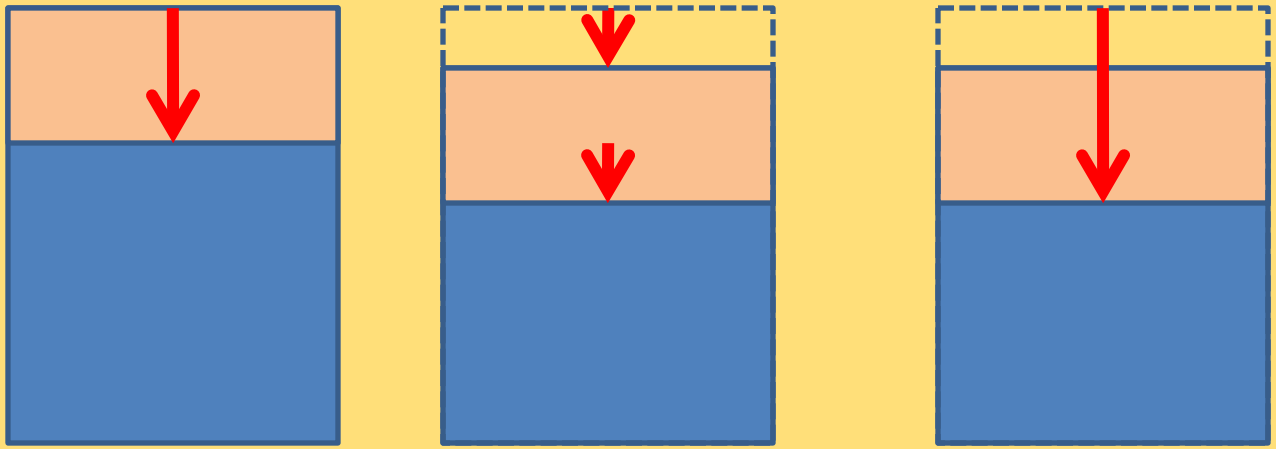
Based on 154 boreholes

ACTION GROUP REPORT

Towards a permafrost thaw subsidence product within the GTN-P database

BY ACTION GROUP LEADER, FRANK GÜNTHER, AWI POTSDAM, GERMANY

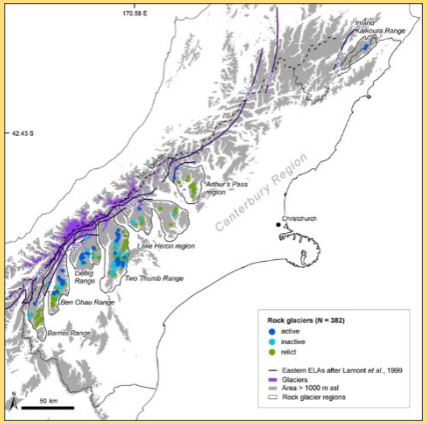
- Existing product: ALT = Active Layer Thickness
- New proposed product: thaw subsidence
- Ideal product:
  thaw penetration = ALT + thaw subsidence



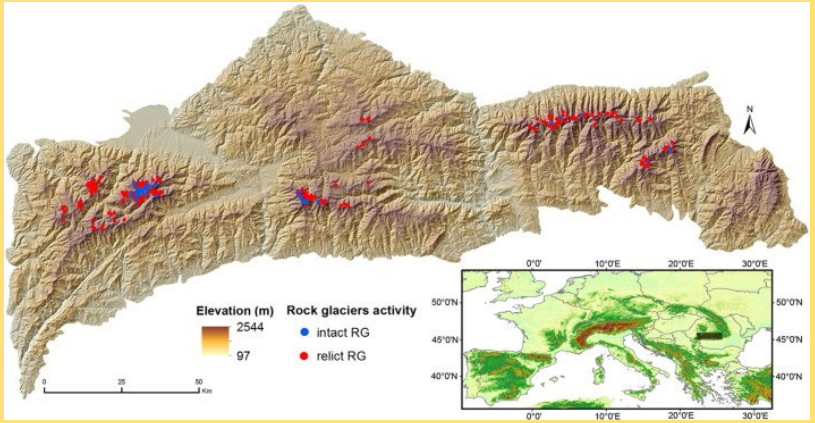
Rock glacier inventories and kinematics : *a new IPA Action Group* *(2018-2020)*

R. Delaloye, C. Barboux, X. Bodin, A. Brenning, L. Hartl, Y. Hu, A. Ikeda, V. Kaufmann, A. Kellerer-Pirklbauer, C. Lambiel, L. Liu, M. Marcer, B. Rick, R. Scotti, H. Takadema, D. Trombotto, S. Vivero, M. Winterberger

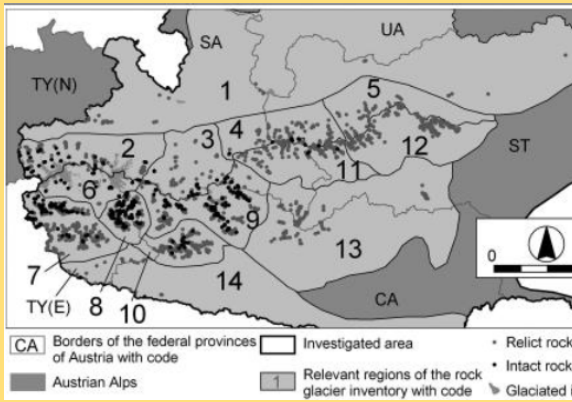
Rock glaciers inventories have been set up in many regions over the world for decades but without any real coordination.



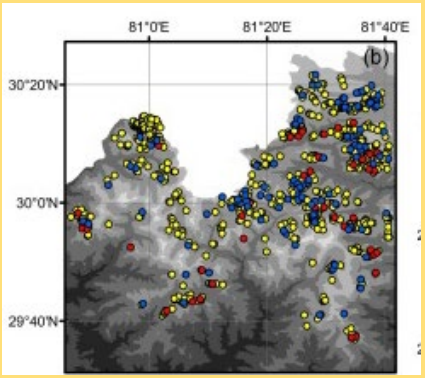
Canterbury Range, New Zealand
Sattler et al. (2016)
Front. Earth Sci.



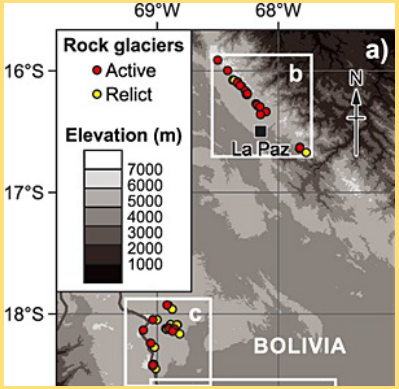
Southern Carpathian rock glaciers
Onaca et al. (2017)
Geomorphology



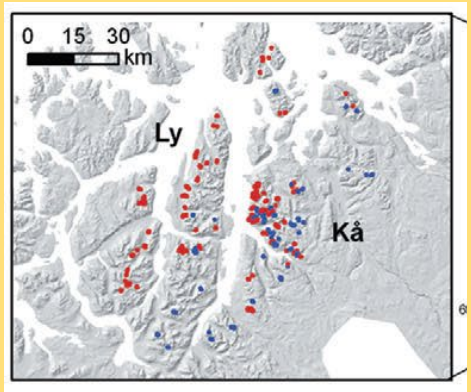
Central and eastern Austria
Kellerer-Pirklbauer et al. (2012)
Austrian Journal of Earth Sciences



Nepalese Himalaya
Jones et al. (2018)
Global and Planetary Change



Bolivian Andes
Rangercroft et al. (2014)
PPP

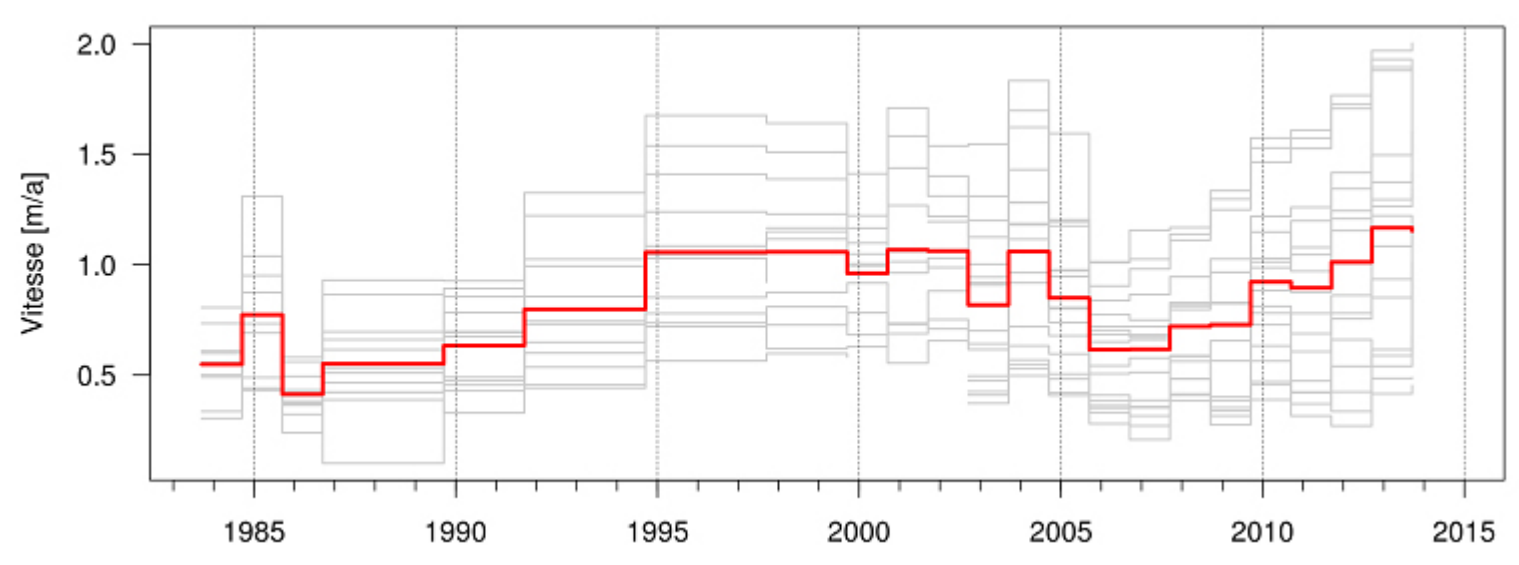


Norway
Lilleøren and Etzelmüller (2011)
Geografiska Annaler

Objectives and scope of the Action Group (2018-2020)

The Action Group intends to sustain the **first steps** toward the organization and the management of an open-access database dedicated to rock glacier mapping and monitoring in all relevant mountain regions on Earth **including definition of the necessary standards**.

The Action Group expects that in the long run **rock glacier kinematics** could be recognized by the permafrost community (e.g. **GTN-P**) and later by the WMO as a **new associated parameter to the ECVs of Permafrost**.



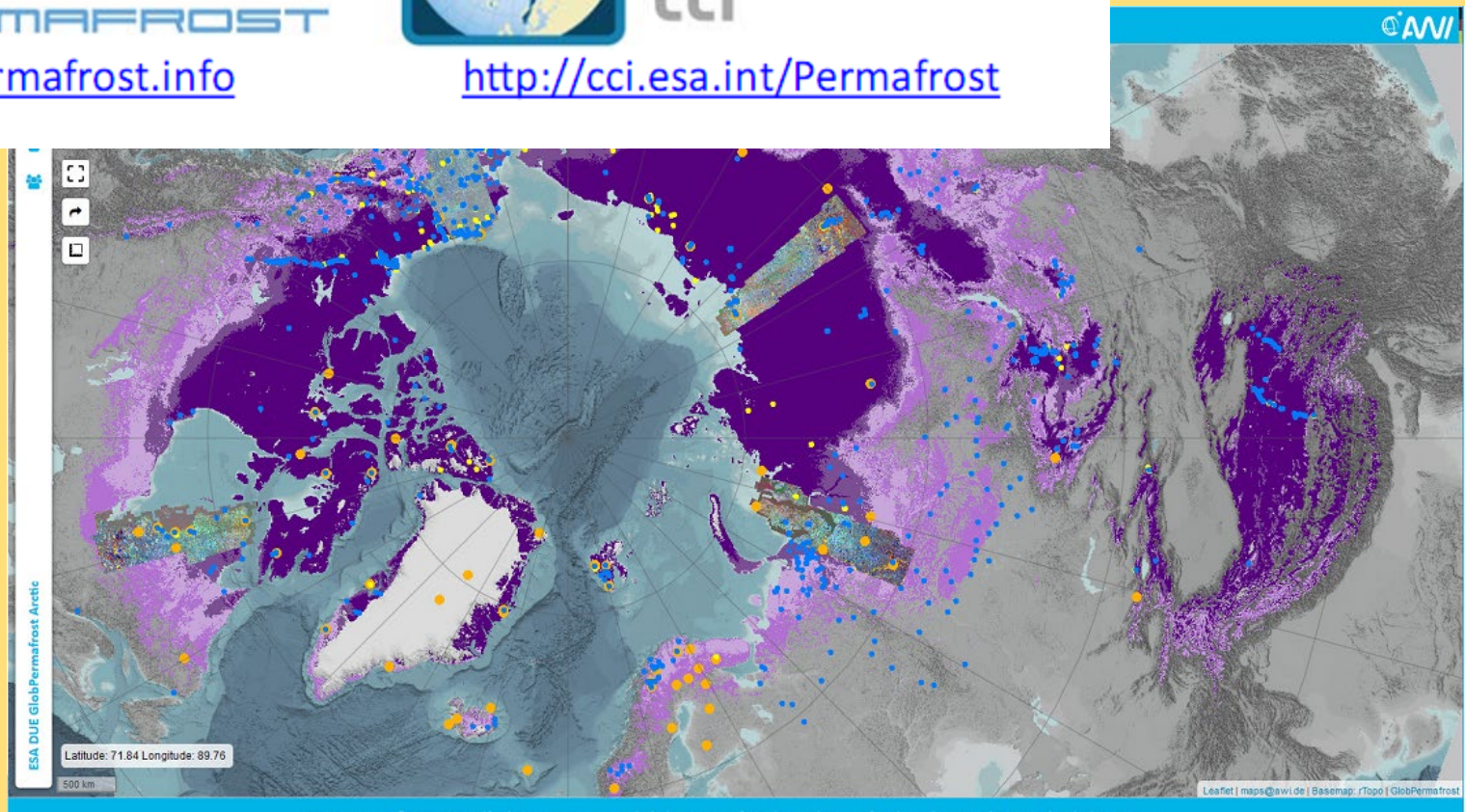
PROJECT UPDATE

GlobPermafrost & CCI+ Permafrost

BY PROJECT LEADER, ANNETT BARTSCH, CENTRAL INSTITUTION FOR METEOROLOGY AND GEODYNAMICS (ZAMG), AUSTRIA

www.globpermafrost.info

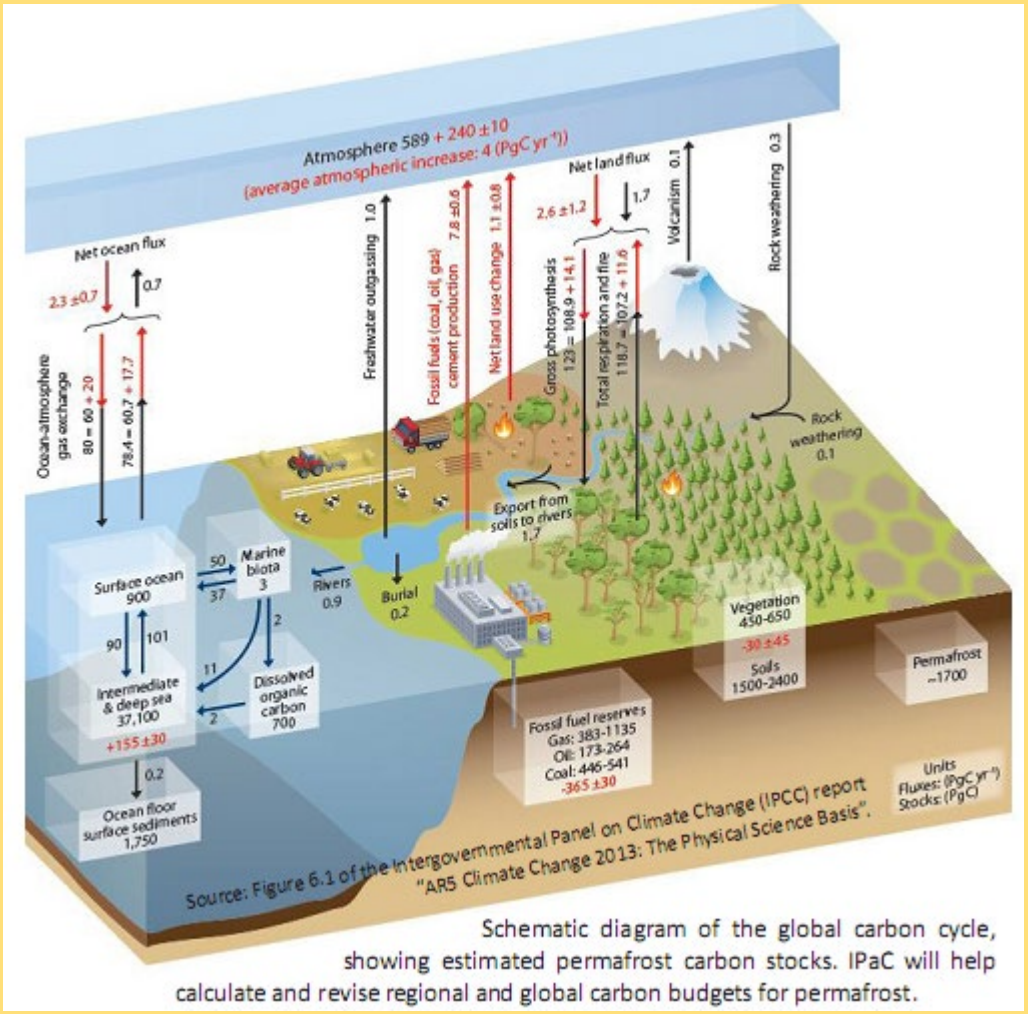
http://cci.esa.int/Permafrost



NEW IPA INTEREST GROUP

Permafrost and Carbon Budgets

BY GUSTAF HUGELIUS, STOCKHOLM UNIVERSITY, AND JUSTINE RAMAGE, STOCKHOLM UNIVERSITY & NORDREGIO, SWEDEN



Schematic diagram of the global carbon cycle, showing estimated permafrost carbon stocks. IPaC will help calculate and revise regional and global carbon budgets for permafrost.

PROJECT UPDATE

NUNATARYUK

BY PROJECT LEADER, HUGUES LANTUIT,
AWI POTSDAM, GERMANY

NUNATARYUK is a 5-year project (2017-2022) funded with 11.5 M€ by the Horizon 2020 program of the European Union. The project brings together world-leading specialists in natural science and socio-economics to develop quantitative understanding of the fluxes and fates of organic matter released from thawing coastal and subsea permafrost. The project assesses the risks posed by thawing coastal permafrost and pollution to infrastructure, indigenous and local communities, and people's health, and will use this understanding to estimate the long-term impacts of permafrost thaw on global climate and the economy. The first NUNATARYUK general assembly took place in Venice in October 2018 and provided the opportunity to review the activities performed in the project over the first twelve months. During 2018, several consultations took place with local communities in the Nordic countries, Greenland and Canada. These consultations were followed by field campaigns throughout the year. The project is now analyzing the results from the field and integrating the results across sites. The products being developed include new soil maps, infrastructure mapping products, health assessments related to permafrost, socio-economical surveys in communities located on permafrost and contaminant studies in permafrost areas. 2019 will be a defining year for the project as major campaigns will be carried out in the Nordic countries, Greenland and Canada. Additional partnerships with American projects are currently being developed to integrate activities across borders.

Permafrost indicator ?

- Synthetic indicator of permafrost evolution vs climate change

- A single figure
- Annual update