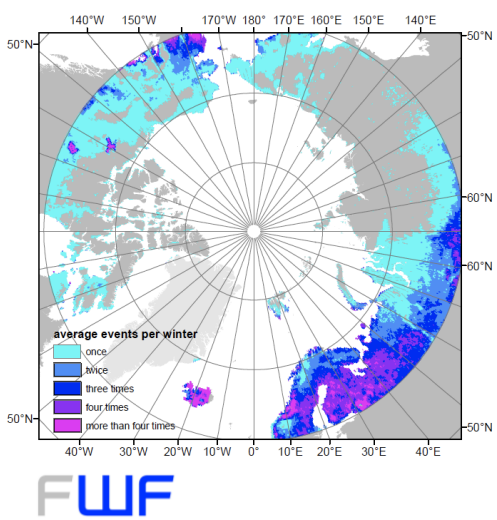
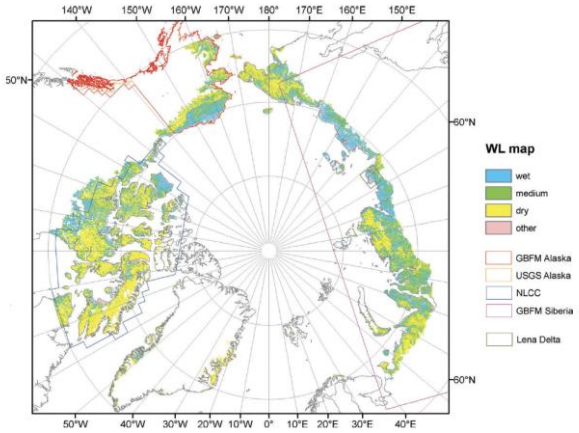
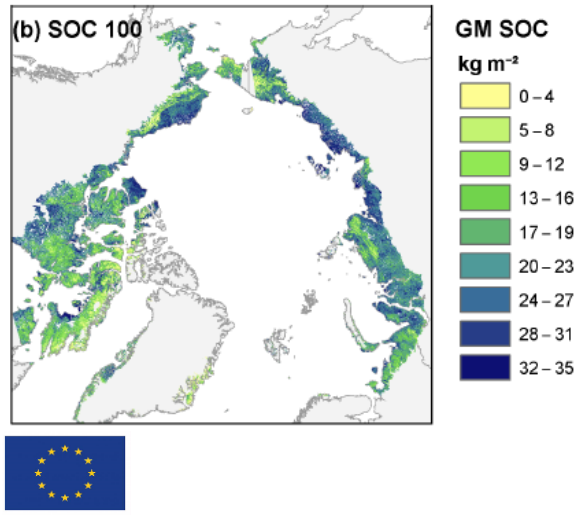
Rain on Snow, Bartsch (2010)



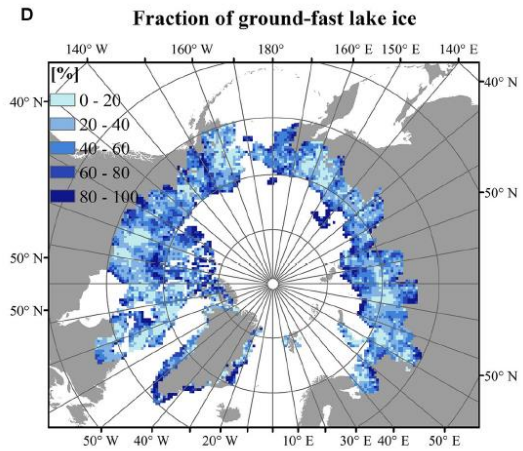
Wetlands, Widhalm et al. (2015)



SOC, Bartsch et al. (2016)

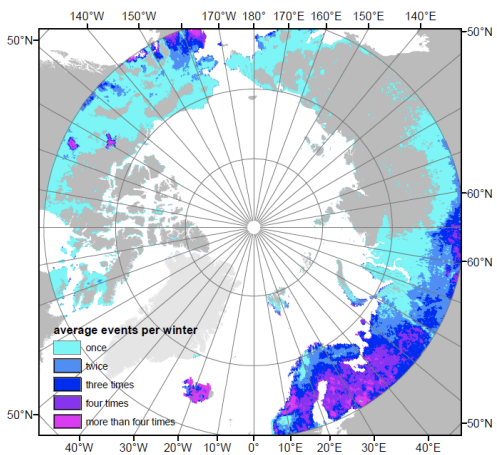


Ground fast ice, Bartsch et al. (2017)



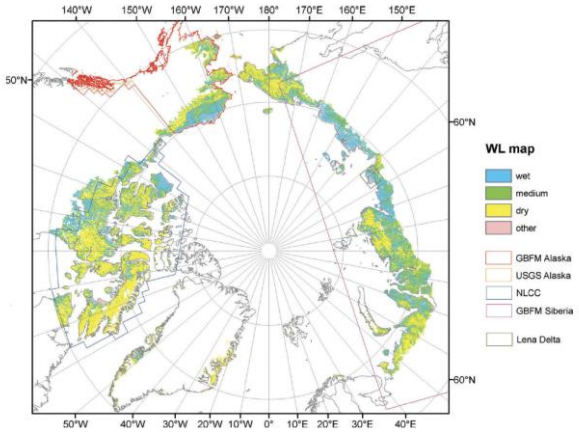
Novel methods & novel datasets

Rain on Snow, Bartsch (2010)



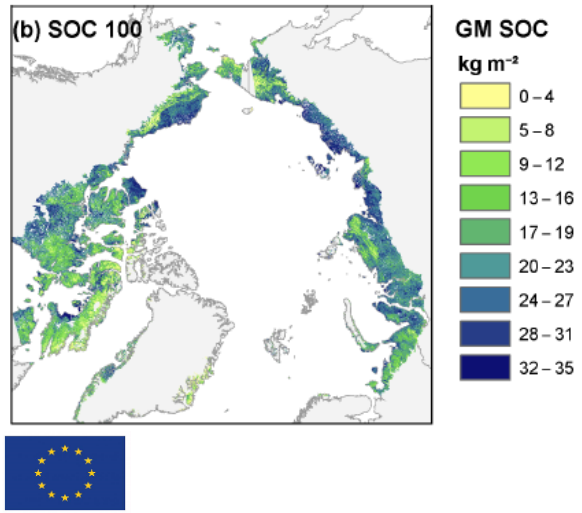
FWF

Wetlands, Widhalm et al. (2015)

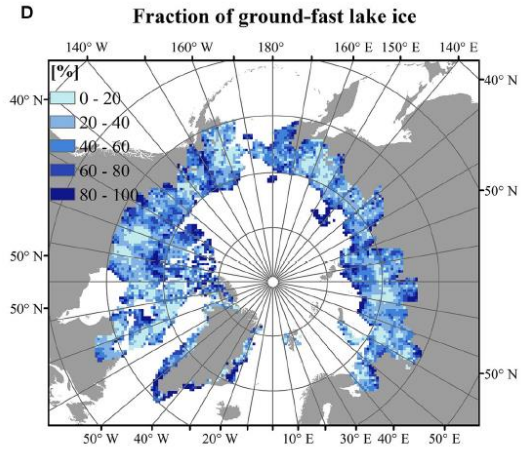


FWF

SOC, Bartsch et al. (2016)



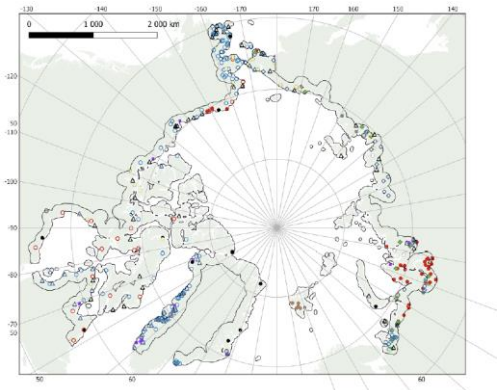
Ground fast ice, Bartsch et al. (2017)



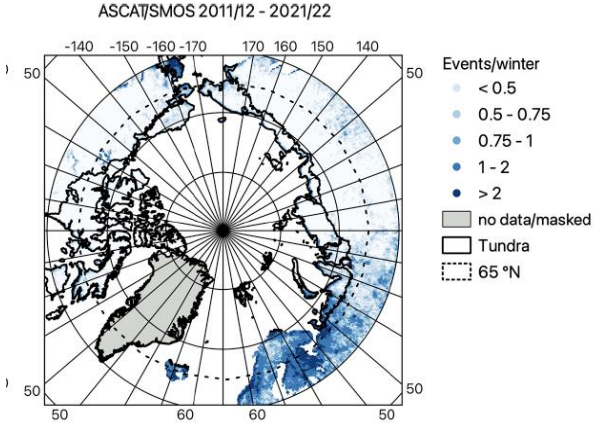
FWF

b·geos

Infrastructure (10m; AI) Bartsch (2021)

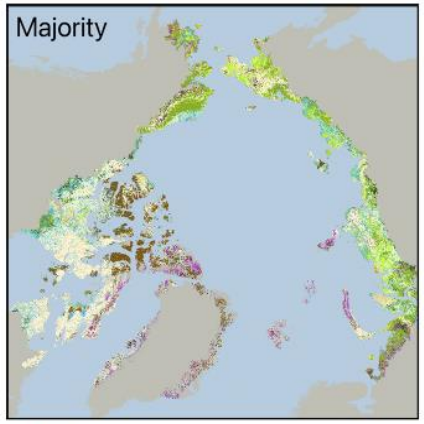


Rain on snow (icings), Bartsch et al. (2023)



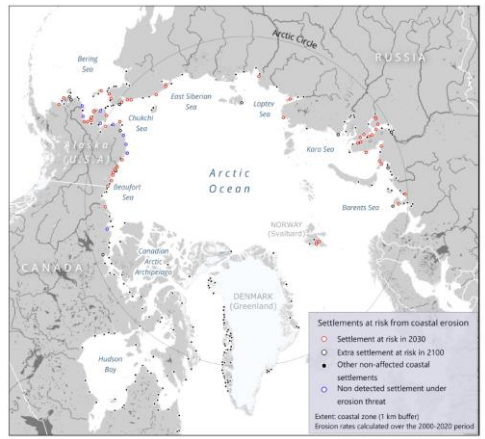
Use of > 500 snow pit records

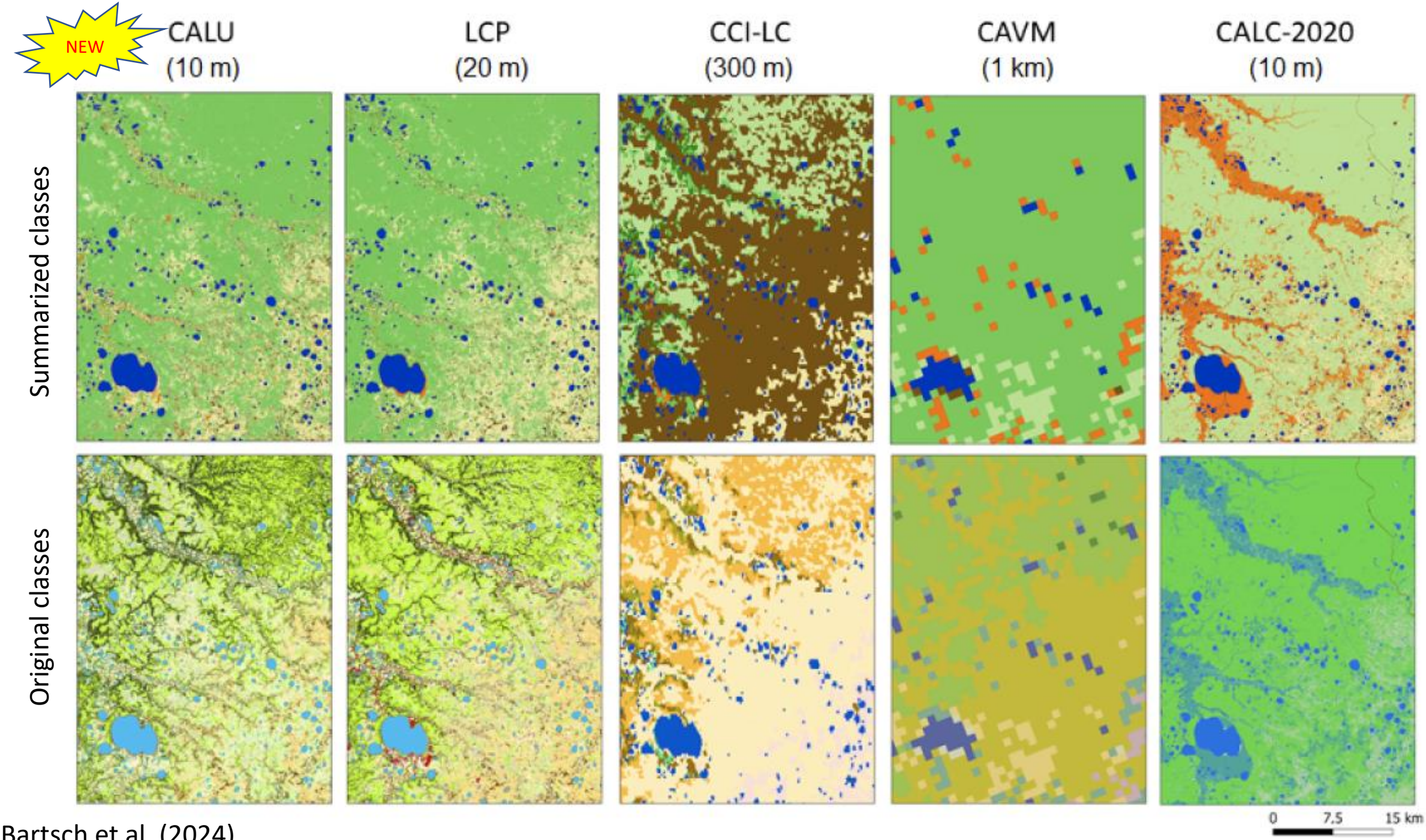
Landcover (10m), Bartsch et al. (2024)



use of >3500 in situ samples

Coastal erosion, Tanguy et al. (2024), Irrgang et al. in prep

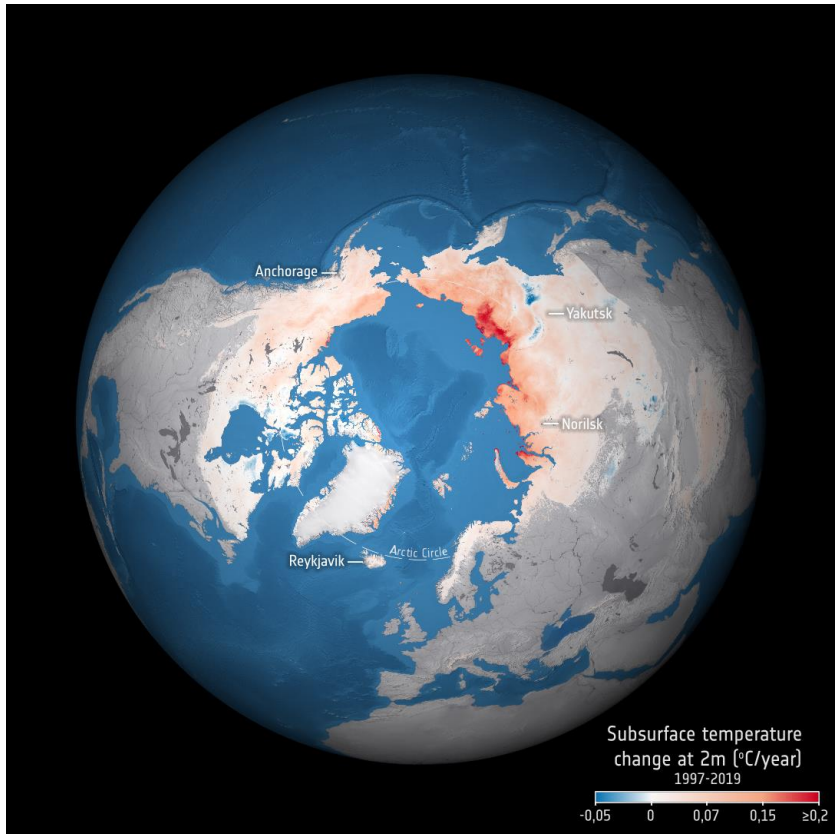




Bartsch et al. (2024)

+ Coordination, evaluation, benchmarking …

permafrost cci



Westermann et al. (2024): V4

PANGAEA.

Data Publisher for Earth & Environmental Science

SEARCH SUBMIT HELP ABOUT CONTACT

Citation: **Wieczorek, Mareike; GTN-P; Lewkowicz, Antoni G; Kholodov, Alexander L; Romanovsky, Vladimir E; Streletskiy, Dmitry A; Boike, Julia; Heim, Birgit; Bartsch, Annett; Biskaborn, Boris K; Christiansen, Hanne Hvidtfeldt; Elger, Kirsten; Irrgang, Anna Maria:** GTN-P: 41 years of Mean Annual Ground Temperature (MAGT) across latitudinal and elevational gradients in the Northern Hemisphere [dataset]. *PANGAEA*, https://doi.pangaea.de/10.1594/PANGAEA.972992 *(dataset in review)*

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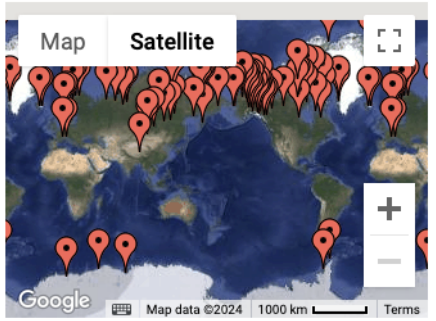


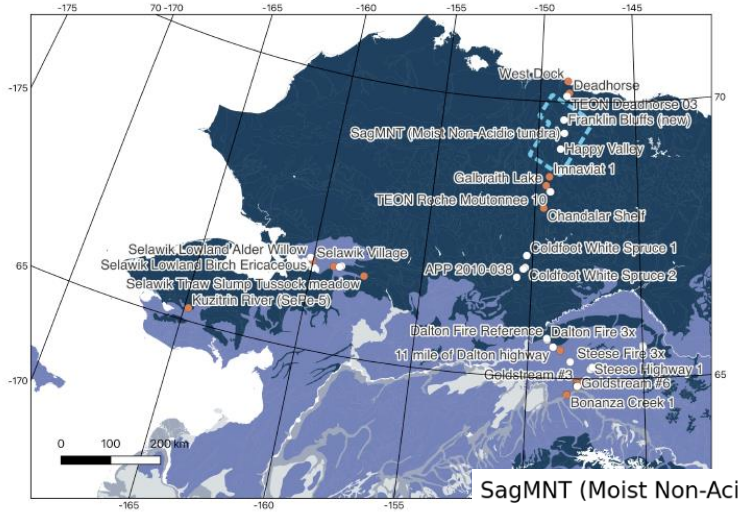
Abstract: The Global Terrestrial Network for Permafrost (GTN-P) established by the International Permafrost Association (IPA) and WMO under the GCOS and GTOS networks is the primary international global program for monitoring the permafrost Essential Climate Variables (ECVs). Permafrost temperature (Ground Temperature, GT) is formulated as one important ECV by WMO and GCOS. The presented data collection consists of 41 years (1980 - 2021) of annual time series of Mean Annual Ground Temperature (MAGT) from 311 stations and in various depths from 0 to 20 m covering the Northern Hemisphere. It is built from various sources, namely GTN-P GT, exported from the GTN-P database (http://gtnpdatabase.org/boreholes) with last access May 2024, GTN-P MAGT close to the Zero Annual Amplitude ZAA (GTN-P (2018, 2021)), Boike et al (2019, 2020) and data from A. Lewkowicz (University of Ottawa, CA) and A. Kholodov (University of Fairbanks, AK). While field work, station installation and data read-out and the processing to specific temporal averages is being conducted by GTN-P members, the presented data collection of MAGT time series were created from the wide range of the available specific temporal measurement frequencies and calculated averages and measurement depths. The data consists of standardised MAGT per Depth (GTD) from 1980 to 2021, with depths at 0, 0.1, 0.2, 0.25, 0.4, 0.5, 0.6, 0.75, 0.8, 1.0, 1.2, 1.5, 1.6, 2.0, 2.4, 2.5, 3.0, 3.2, 4.0, 5.0, 10.0, 15.0 and 20.0 m. Yearly means were not calculated if >20 % of yearly values are not available or if more than one complete month is missing. An exception was made for data at the depth of Zero Annual Amplitude (ZAA) that represents a valid annual value as there is zero seasonal variation in GT at this depth. The data provided here has been assembled from the original data sources and optimized by the validation team in the ESA Permafrost_cci project for the validation of the Permafrost_cci GTD time series maps.

Keyword(s): ESA CCI; GTN-P; MAGT

Harmonized GTN-P dataset for cal/val and benchmarking

+ Coordination, evaluation, benchmarking …

borehole dataset for cal/val



Benchmarking passive microwave satellite derived freeze/thaw datasets

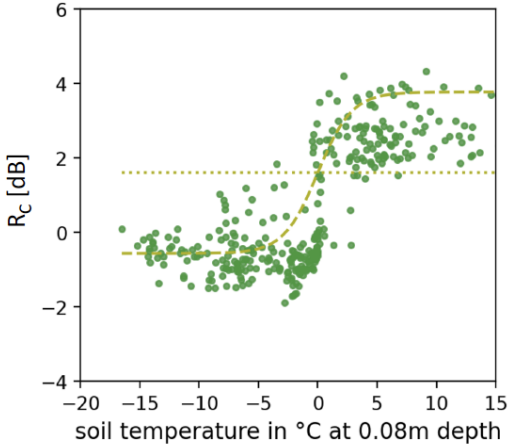
Annett Bartsch[1], Xaver Muri[1], Markus Hetzenecker[2], Kimmo Rautiainen[3], Helena Bergstedt[1], Jan Wuite[2], Thomas Nagler[2], and Dmitry Nicolsky[4]

[1]b.geos, Industriestrasse 1, 2100 Korneuburg, Austria
[2]ENVEO, Innsbruck, Austria
[3]FMI, Helsinki, Finland
[4]University of Alaska Fairbanks, Fairbanks, 99775, USA

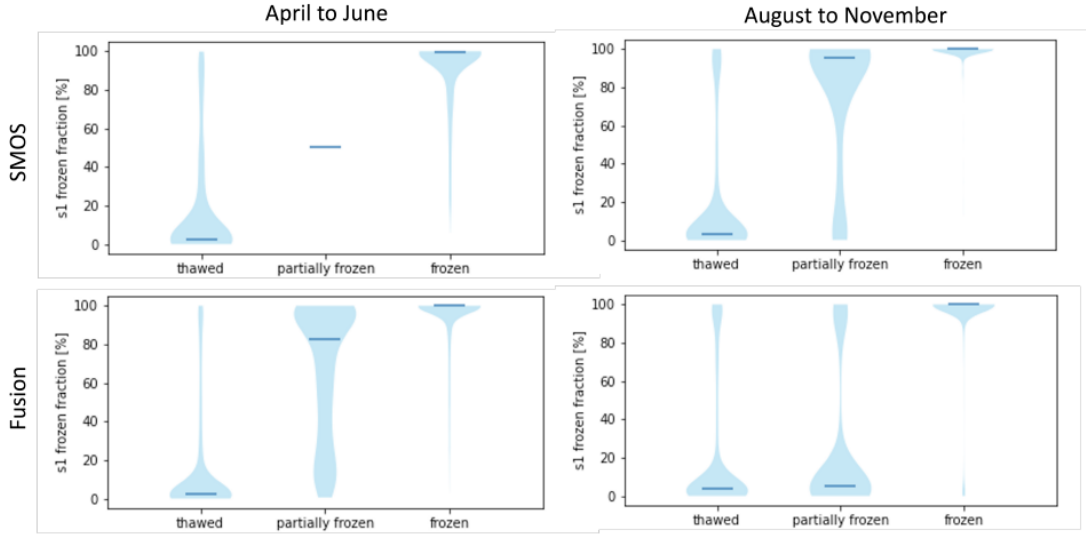
SagMNT (Moist Non-Acidic tundra) - 69.4330°N -148.6738°W

enveo

Intermediate dataset of operational wet snow detection



Benchmark dataset: frozen fraction



Sentinel-1 for benchmarking of circumpolar records of soil freeze/thaw with 9 – 25 km gridding, & fusion scheme development