Permafrost Coastal Systems Network (PerCS-Net)

The Permafrost Coastal Systems Network accelerates the process of scientific discovery, facilitates public access to scientific data, and promotes convergence through an international, transdisciplinary network focused on science, engineering, and societal issues associated with permafrost-affected coasts and communities in the Arctic.

Summer 2021

Photos of Permafrost Coasts from around the Arctic

Members of the PerCS-Net community have been providing photos of permafrost coasts from around the Arctic. The network continues to develop online education and outreach resources to highlight the diversity and complexity of this rapidly changing region. Here are a few highlights below (Link to Crowdsource Map here):

Laptev Sea Coast, Siberia (Photo - Pier Paul Overduin)

Beaufort Sea Coast, Canada (Photo - Goncalo Vieira)

Herschel Island, Canada (Photo - Justine Ramage)

Barter Island, AK, USA (Photo - Benjamin Jones)

Adventfjorden, Svalbard (Photo - Emily Guégan)

Calypsostranda, Svalbard (Photo - Piotr Zagórski)

New Special Issue!

Call for papers focused on "Multi-Scale Analysis for Detecting the Processes, Causes, and Impacts of Permafrost Change and of Disruptive Events" in the journal Remote Sensing. Permafrost landscapes are extensive in area and potentially dynamic in behaviour, producing a complex mix of landforms, materials and process interactions that are subjected to increasingly intense forcing by rising temperatures, changing weather patterns and declining ice seasons.This Special Issue welcomes all contributions that consider the nature and rate of changes occurring in permafrost landscapes, the disruption of cryospheric, terrestrial, coastal or oceanic process dynamics or the resultant impacts utilising remotely sensed data at a range of spatial and temporal scales.

Guest Editors:

Dr. Michael Lim, University of Northumbria, UK

Dr. Gonçalo Vieira, University of Lisbon, Portugal

Dr. Dustin Whalen, Geological Survey of Canada, Canada

Submission deadline: 30 November 2021

Currently, PerCS-Net includes 178 members from 21 countries, with nearly half of the network consisting of early career researchers! Please help us continue to bring together the international coastal permafrost community by providing material for future quarterly newsletters and by spreading the word through your own networks.

Vision Statement

PerCS-Net envisions building:

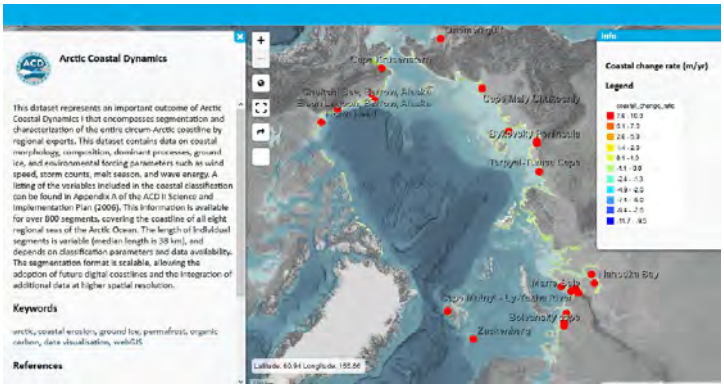
A sustainable, pan-Arctic permafrost coastal observatory network providing coordinated and timely information to researchers, managers, indigenous stakeholders, and the general public

A transdisciplinary research network that fosters linkages in order to amplify the broader impacts of each individual network and maintain a circumpolar alliance for Arctic coastal community information exchange

An international community that fosters and empowers the next generation of students, early-career researchers, and indigenous communities faced with the known and unknown challenges of the future Arctic System.

New European Space Agency Project Focused on Earth Observations for Permafrost-Dominated Arctic Coasts

Annett Bartsch (b.geos, Austria), Guido Grosse (AWI, Germany), Hugues Lantuit (AWI, Germany), Julia Boike (AWI, Germany), Goncalo Vieira (IGOT, Portugal), Benjamin Jones (UAF, USA), Dustin Whalen (NRC, Canada), Isla Myers-Smith (Univ. of Edinburgh, Scotland), and Jeff Kerby (Aarhus Univ., Denmark) were recently awarded a grant from the European Space Agency (ESA) Polar Science Cluster to develop the next generation of the Arctic Coastal Dynamics database, a geospatial product on Arctic coastal erosion initially released in 2012. The project, Earth Observation for Permafrost dominated Arctic Coasts (EO4PAC), will run from 2021-2023. The focus is on complementation of in situ records with satellite data across the entire Arctic. Products will include updated coastal erosion rates as well as infrastructure information along Arctic coasts based on Sentinel-1/2 remote sensing data. For the first time, consistent information across the entire Arctic will be made available and will be used to create synthesis products and risk assessments for the entire Arctic coastline. This will be enabled through networking, synthesis and analysis activities of different inputs and contributions across the community. The EO4PAC effort will reinforce collaboration between existing projects funded by ESA (CCI Permafrost), EU Horizon 2020 (Nunataryuk), the International Arctic Research Council (IASC) program T-MOSAIC, and two US National Science Foundation awards (the Permafrost Discovery Gateway and the Permafrost Coastal Systems Network (PerCS-Net)).



New Network Member Publications

Ford, J.D., Pearce, T., Canosa, I.V. and Harper, S., The rapidly changing Arctic and its societal implications. Wiley Interdisciplinary Reviews: Climate Change, p.e735.

Frederick, J., Mota, A., Tezaur, I. and Bull, D., 2021. A thermo-mechanical terrestrial model of Arctic coastal erosion. Journal of Computational and Applied Mathematics, 397, p.113533.

Huntington, H.P., Zagorsky, A., Kaltenborn, B.P., Shin, H.C., Dawson, J., Lukin, M., Dahl, P.E., Guo, P. and Thomas, D.N., 2021. Societal implications of a changing Arctic Ocean. Ambio, pp.1-9.

Jarosz, K., Zagórski, P., Moskalik, M., Lim, M., Rodzik, J. and Mędrek, K., 2021. A New Paraglacial Typology of High Arctic Coastal Systems: Application to Recherchefjorden, Svalbard. Annals of the American Association of Geographers, pp.1-22.

Rolph, R., Overduin, P.P., Ravens, T., Lantuit, H. and Langer, M., 2021. ArcticBeach v1. 0: A physics-based parameterization of pan-Arctic coastline erosion. Geoscientific Model Development Discussions, pp.1-26.

Sander, L., Kirdyanov, A., Crivellaro, A. and Büntgen, U., 2021. Driftwood provides reliable chronological markers in Arctic coastal deposits. Geochronology, 3(1), pp.171-180.

Tran, J., Divine, L.M. and Heffner, L.R., 2021. "What are you going to do, Protest the Wind?": Community Perceptions of Emergent and Worsening Coastal Erosion from the Remote Bering Sea Community of St. Paul, Alaska. Environmental Management, 67(1), pp.43-66.

For more information, please consider joining PerCS-Net to keep informed about upcoming activities and new products – https://permafrostcoasts.org. We are very excited to build this International Network of Networks with the community!