

SESSION 13

Permafrost and Society: how do changes in permafrost systems interact with social and cultural dynamics, economies, industries, and food systems

A web-based portal for serving geospatial information on permafrost disturbances to permafrost communities

Tillmann Lübker (Alfred Wegener Institute for Polar and Marine Research), Ingmar Nitze (Alfred Wegener Institute for Polar and Marine Research), Sebastian Laboor (Alfred Wegener Institute for Polar and Marine Research), Anna Irrgang (Alfred Wegener Institute for Polar and Marine Research), Hugues Lantuit (Alfred Wegener Institute for Polar and Marine Research) and Guido Grosse (Alfred Wegener Institute for Polar and Marine Research).

Abstract

Permafrost is warming at a global scale, yet land surface change associated with abrupt permafrost thaw strongly affects permafrost communities and Arctic research stations at the local scale. In the ERC PETA-CARB, ESA CCI Permafrost, and NSF Permafrost Discovery Gateway projects, remote sensing time series were used to detect and map permafrost disturbances at high spatial resolution across large regions to quantify landscape change, hydrological dynamics, and permafrost vulnerability. The multitude of geospatial datasets that were produced in these projects provide useful information also for local scales. Hence, the question arises how such large and complex science datasets can be made available for permafrost communities and Arctic research stations to deal with the issues and challenges they experience with land surface disturbances and permafrost thaw at the local scale. The geospatial datasets are published according to the FAIR principles and are available to the research community via well-established channels such as the GTN-P database, the PANGAEA world data centre, and the geodata portal Arctic Permafrost Geospatial Centre (APGC). Currently, the scientific data is not readily designed and presented to be interpreted by non-scientists and non-experts. We are designing a tailored web-based portal specifically targeting non-scientific user communities, stakeholders, and rightsholders. We will develop interactive maps and adequate cartographic visualizations for near real-time information on land surface changes, hot spots of disturbances, and potential areas of active permafrost thaw. While focusing on the local scale, the data will be explorable up to the panarctic scale and may open new avenues for understanding permafrost change for the general public. Through planned consultations with local permafrost communities and stakeholders we aim to ensure that their actual information needs are met.