

Call for Participation

ICDP Workshop on Scientific Drilling

Thawing of permafrost and cryosphere-associated gas hydrates by Arctic warming – THAW
(<https://www.icdp-online.org/projects/by-continent/the-americas/north-america/thaw-canada/>)

February 24-27, 2027, Yellowknife, NWT Canada

We invite applications for participation in an ICDP-sponsored scientific workshop on the project THAW. This workshop addresses gas hydrate (GH) and permafrost-related questions under current and future global warming scenarios with a regional emphasis on the Canadian Mackenzie-Beaufort region (CMB). The scientific underpinning of the project is based on vast regions of the Arctic margins having been either subaerially exposed or ice-covered during glacial times, that led to wide regions with on- and offshore permafrost. This permafrost hosts methane as either free gas, dissolved in unfrozen water, and as GH. The stability of GH requires low-temperature (T) and high-pressure (P); therefore, GH occurs within and below permafrost. Global warming changes the P-T conditions and thus endangers the stability of permafrost and GH, posing the risk of methane being released into the atmosphere, further amplifying climate change. GH dissociation may also amplify ground destabilization posing risks to infrastructure, human health, and widely affects all ecosystems. The response of terrestrial permafrost associated GH systems differs from those along the offshore continental shelf where marine transgression and warming of bottom water temperatures are expected to have a disproportional impact on the stability of the permafrost/GH system. Thus, a Land-to-Sea (L2S) scientific drilling transect is proposed to understand the geologic factors controlling the occurrence and stability of permafrost associated GH systems on Pan-Arctic continental margins. The aim is to calibrate numerical models through obtaining high-quality core-samples, in-situ measurements, and ground truth data that can only be obtained by scientific drilling. During the workshop, we will define locations and depths of boreholes along a L2S transect, as well as the technologies to be deployed, addressing the following scientific research questions:

- What is the extent and saturation of permafrost and GH along drilling transect?
- What controls the distribution of permafrost and GH?
- What types and how many greenhouse gases are present?
- What geochemical and microbiological processes contribute to the presence of these greenhouse gases?

We invite researchers from the international scientific community to participate in the workshop, covering the following disciplines of permafrost and gas hydrate studies: (1) organic/inorganic geochemistry, (2) geo-microbiology, (3) sediment physical and geo-mechanical properties, (4) site-surveying, (5) in situ measurements, pressure-coring, logging, and monitoring, (6) geo-spatial modeling, (7) Arctic Paleo-Climatology, and (8) systemic modeling of risks associated with cascading hazards. We strongly welcome contributions from indigenous communities to share their observational experience and historical knowledge linked to the THAW project. Government scientists and regulators on federal and provincial levels are also encouraged to participate.

The workshop is planned to be held at The Explorer Hotel Yellowknife, NWT, Canada. ICDP will partly support travel and expenses for selected participants, with financial support preferentially given to early career scientists, scientists from ICDP member countries, and low-income countries. Please submit your application with contact details, 2-page CV, and a 2-page summary of relevant expertise and intended contributions to the workshop to Michael Riedel (mriedel@geomar.de) and Judith Schicks (schick@gfz.de) by October 31st, 2026. Participants will be selected based on the relevance of their expertise to the aims of the project and workshop, and the need for a balanced representation of expertise, disciplines, and career stages.