

Workshop on “Gas Hydrates in Permafrost Regions”

Online workshop via zoom on May 10 and 11, 2023

Within a two-day digital workshop, the Association for the Promotion of Scientific-Technical Cooperation in the Raw Materials Sector (WTZ e.V.) in collaboration with the Helmholtz Centre Potsdam German Research Centre for Geosciences (GFZ) intend to examine gashydrate deposits in permafrost regions and the preconditions for gas hydrate formation in these soils. We would like to discuss the impact of global warming on gas hydrates in or beneath permafrost as well as the effects of global warming on permafrost and gashydrate stability. Another point of discussion will be the estimation of the expected amount of climate-active gases that can be released into the atmosphere by the decomposition of gas hydrates in permafrost regions.

The workshop is intended to provide a forum for professional exchange involving the expertise of international research institutions. Through this exchange, research needs will be identified and possible areas of joint research will be defined. Thus, the event will serve to identify relevant topics that require further examination and possibly lead to an international research project.

DAY 1: May 10, 2023, 03:00 – 05:30 p.m. (CET)

Greetings & Moderation

Judith Schicks, Helmholtz Centre Potsdam German Research Centre for Geosciences (GFZ)

Michael Riedel, GEOMAR Helmholtz Centre for Ocean Research Kiel

Assessment of gas hydrate deposits in permafrost regions

Permafrost and gas hydrate since the Last Glacial Maximum: Arctic Alaska offshore and onshore

- Carolyn Ruppel, U.S. Geological Survey (USGS)

Intrapermafrost and subpermafrost gas hydrate in terrestrial environments in the North American Arctic

- Timothy S. Collett, U.S. Geological Survey (USGS)

Permafrost and gas hydrate in the Southern Canadian Beaufort Sea

- Michael Riedel, GEOMAR Helmholtz Centre for Ocean Research Kiel
- Jefferson Bustamante Restrepo, Polytechnique Montreal

Gas hydrate deposits below terrestrial permafrost of low thickness

- Mengdi Pan, University College Dublin

(questions and answers after each presentation)

Concluding discussion and first summary

DAY 2: May 11, 2023, 03:00 – 05:30 p.m. (CET)

Greetings & Moderation

Judith Schicks, Helmholtz Centre Potsdam German Research Centre for Geosciences (GFZ)

Michael Riedel, GEOMAR Helmholtz Centre for Ocean Research Kiel

Impact of global warming and related thawing permafrost on gas hydrates located in or beneath permafrost

Decomposition of gas hydrates with regard to time scales

- Kehua You, University of Texas at Austin

(questions on the presentation and moderated discussion)

The influence of ice and methane hydrate on the shear strength of permafrost soils

- Erik Spangenberg, Helmholtz Centre Potsdam German Research Centre for Geosciences (GFZ)

Estimation of the expected amount of climate-active gases (CH₄, CO₂) that can be released into the atmosphere by the decomposition of gas hydrates in permafrost regions

Hydrate-sourced methane fate and microbial activity

- Maria De La Fuente Ruiz, Universite Libre de Bruxelles

(questions on the presentation and moderated discussion)

Summary & outlook
