

SEPT. 21-27, 2023
CHENGDU, CHINA

The XIV Congress of the International Association for Engineering Geology and the Environment



Session 2-3

Changes in the permafrost eco-environment and its adaptive protection

Conveners



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Brief Introduction of the Session:

Permafrost is a notion closely associated with a periglacial environment and as a result it is usually characterized as an element accompanying forms and processes that take place in it. Where present, permafrost exerts a primary control on water fluxes, ecosystems, carbon dynamics, as well as climate feedbacks. The study of various characteristics, bio-elimination processes, evolutionary mechanisms, paleoenvironmental records, interactions with other spheres, and the impact on human society of various components of the permafrost belong to the scope of permafrost science. Permafrost interacts closely with water, soil, greenhouse gases emission and biosphere. Therefore, the permafrost degradation greatly affects the regional hydrology, ecology and even the global climate system. In recent years, considerable progress has been made in understanding the changes in the permafrost. There are also increasing numbers of scientists who contribute to the study of adaptive measures and policies for permafrost change. However, in the face of the frequent occurrence of extreme weather and climate events (i.e., strong precipitation, heatwaves, extreme hot events), these studies may not be enough for the permafrost. This topic will discuss the following issues, but not limited to:

- Characteristics and degrading modes, degrees and extents, and eco-hydrological effects of permafrost
- Identification and risk evaluation of thermokarst phenomena related to permafrost
- Changes of growth and metabolism of microbes, and decomposition and release of organic carbon and nitrogen across the permafrost regions
- Variations of vegetation community composition and disturbance of the ecosystem linked with permafrost change
- Changes of local, regional and global water resource, rising of sea level, coastal residents, ocean currents, and water circulation patterns by the degradation of permafrost
- Ecological restoration of degraded permafrost systems
- Research and policy planning on adaptive measures for degraded permafrost systems

IMPORTANT DATES



Abstract for Oral Presentation and
Poster Submission Deadline

Jun. 30, 2023



Early Bird Registration Deadline

Aug. 10, 2023



Online Registration Deadline

Sept. 21, 2023

◆ SUBMISSION ◆

► For the full-length submission

The submission system is now open for full-length papers. The deadline for submission of full-length paper has been extended to May 31, 2023. Please read the guidelines for paper submittal prior to submitting your full-length paper.

Please read the guidelines prior to submitting your full-length paper or long abstract at <https://www.iaeg2023.org/cfp.html>

► For the abstract submission

The abstract submission system for oral presentations and posters is open! If you would rather prepare an abstract for an oral or poster presentation, rather than submitting a full paper, please submit your abstract for consideration by June 30, 2023.

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Brief Introduction of the Session:

The cryosphere refers to the part of the earth's surface where water exists in solid form, including all kinds of frozen phenomena, such as glaciers (including mountain glaciers, ice caps, polar ice sheets, ice shelves, etc.), snow cover, frozen soils (permafrost and seasonally frozen ground), sea ice, river ice, lake ice, etc. It is considered to be one of the five major layers affecting the climate system along with the atmosphere, hydrosphere, lithosphere (land surface), and biosphere due to its high sensitivity to climate and strong feedback. The study of various characteristics, bio-elimination processes, evolutionary mechanisms, paleoenvironmental records, interactions with other spheres, and the impact on human society of various components of the cryosphere belong to the scope of cryosphere science. In recent years, considerable progress has been made in understanding the changes in the cryosphere. There are also increasing numbers of scientists who contribute to the study of adaptive measures and policies for cryosphere change. However, in the face of the frequent occurrence of extreme weather and climate events (i.e., strong precipitation, heatwaves, extreme hot events), these studies may not be enough for the cryosphere. This topic will discuss the following issues, but not limited to:

- Characteristics and degrading modes, degrees and extents, and eco-hydrological effects of permafrost
- Identification and risk evaluation of thermokarst phenomena related to cryosphere
- Changes of growth and metabolism of microbes, and decomposition and release of organic carbon and nitrogen across the cryosphere
- Variations of vegetation community composition and disturbance of the ecosystem
- Changes of local, regional and global water resource, rising of sea level, coastal residents, ocean currents, and water circulation patterns by the retreat of cryosphere
- Ecological restoration of degraded cryosphere systems
- Research and policy planning on adaptive measures for degraded cryosphere systems

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