



## Permafrost Environments

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### 3C - Yedoma Landscapes in the Past, Present and Future

Alexandra Veremeeva<sup>1</sup>, Jens Strauss<sup>1</sup>, Scott Cocker<sup>2</sup>

<sup>1</sup>Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, Potsdam, Germany, <sup>2</sup>University of Alberta, Department of Earth and Atmospheric Sciences, Edmonton, Canada

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Late Pleistocene Yedoma deposits, a suite of ice-rich silty sediments that accumulated in vast lowlands of Beringia, are widespread in Siberia, Alaska and north-western Canada. The high ice content of Yedoma, due to the presence of large ice wedges and excess ice, has led to large-scale development of thermokarst lakes and drained lake basins across the Yedoma regions under climate warming conditions in the past and present time.

Interest in Yedoma landscapes has been driven by (1) the exceptional preservation of past environmental records, including the fossil remains of the mammoth steppe fauna and flora, biologically viable plants and microorganisms, cryostructures, stable water isotopes and biogeochemical characteristics; (2) the impact of thaw on these regions due to the Yedoma high ice content driving significant landscape changes; and (3) large amounts of buried freeze locked well-preserved organic matter in deposits which due to the permafrost thawing will be involved in modern biological processes and contribute to greenhouse gas formation. Significant questions remain about the origins and paleoenvironmental conditions of Yedoma formation, its microbiology, landscape changes and vulnerability to the climate warming. Embracing the Yedoma and deep disturbance processes in models has been slow so far.

In this session, we seek contributions focusing on paleoenvironmental records and microbiological studies of Yedoma, the current state and dynamics of Yedoma landscapes with local to circumarctic scope, and assessment of the future development under different warming scenarios that consider the temporal and geographic range of Yedoma regions.

**Keywords:** Yedoma, Paleoenvironment, Thermokarst, Drained Lake Basins

**Contact:** Alexandra Veremeeva: [aleksandra.veremeeva@awi.de](mailto:aleksandra.veremeeva@awi.de)