

Category

GG Geology, Geophysics, Solid Earth & CR Cryosphere

Session Number

GG-2

Session Title

Arctic and Antarctic past ice sheet dynamics and paleoclimate evolution

Session Description

The Greenland Ice Sheet and marine-based parts of the Antarctic Ice Sheet have the potential to provide a major contribution to sea-level rise over the next centuries. Improved understanding of underlying processes, thresholds, rates and magnitudes of previous ice sheet retreats is essential to improve predictions of future sea-level rise and guide effective mitigation plans. In this regard, times when global temperatures and atmospheric CO₂ levels were higher than today are of particular interest. More recent warm intervals and times of glacial retreat, such as MIS 3 and the last glacial termination, also provide particular opportunities because of the spatial data coverage that is achievable. This session aims to bring together results of studies on past ice sheets across transects extending from the ice sheet interior to the deep sea, in both the Arctic and Antarctica and based on data-data (sedimentological and ice core archives) and data-model integration and intercomparison.

The session is highly interdisciplinary and welcomes contributions from fields including glaciology, ice sheet modeling, sedimentology, paleolimnology, and marine geology and geophysics, as well as climate and atmospheric sciences. We solicit presentations on linkages between continental, ice-proximal and far-field marine records and models. We aim to learn about polar linkages and teleconnections, and reconciling differences between local versus regional and global records.

Keywords: past ice-sheet dynamics, paleoclimate, paleoceanography

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