Thermal convection in polar environments

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Abstract

The coexistence of ice and liquid water-fresh or saline-in polar environments gives rise to a broad diversity of coupled melting and fluid-dynamical processes, which often involve thermal convection. In this presentation, I will provide an overview of ice–melt interactions relevant to polar oceanography and limnology. I will then focus on recent results concerning the large-scale dynamics of subglacial lakes, which are multistable freshwater systems, and the stability of meltwater layers forming at the base of ice shelves, the floating extensions of ice sheets, against thermal convection.

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