## Modeling Ice-shelf ocean interactions of West Antarctic and East Antarctic ice shelves Modeling Ice-shelf ocean interactions of West Antarctic and East Antarctic ice shelves

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In the Amundsen and Bellingshausen Seas (ABS), modified Circumpolar Deep Water (mCDW) intrudes into ice shelf cavities of West Antarctic Ice Sheet (WAIS), causing high ice shelf melting near the ice sheet grounding lines, accelerating ice flow, and controlling the pace of future Antarctic contributions to global sea level (~0.3mm/y). On the other side of Antarctica, recent studies are pointing out that the ice shelves of East Antarctic Ice Sheet (EAIS) may be beginning to shrink, which is crucial as the EAIS contains marine-based ice equivalent to 19 m of global sea-level rise. Recent oceanographic observations evidenced the inflow of mCDW (~-0.4°C) into the Totten ice shelf cavity.

Using MITgcm, we have conducted various regional ocean simulations for ice shelves in the ABS and off Sabrina coast with a focus on Pine Island,/Thwaites ice shelves and Totten ice shelf, respectively. Our ABS domain extends from the Antarctic Continent to 65°S and from 140°W to 65°W and our East Antarctic domain extends from the Antarctic Continent to 60°S and from 90°E to 150°E. Detailed comparison between model and observations are conducted. Pathways of mCDW towards grounding lines, temporal and spatial variabilities of ice shelf melt rates, mechanisms of simulated and observed interannual variabilities, etc., have been investigated.

In this presentation, we will summarize key findings and model capabilities from available ocean configurations. We introduce our various existing model outputs focusing on the eastern Amundsen Sea as an example, and demonstrate how to access these outputs and plot basic variables. We hope that these model outputs can be utilized for different aspects of oceanographic researches including observational planning, boundary conditions for ocean and ice sheet models, and data analysis for physical, biological and biogeochemical oceanography.

 $\neq - \nabla - \kappa$ : Ice shelf ocean interaction, West Antarctica, East Antarctica, Ocean modeling Keywords: Ice shelf ocean interaction, West Antarctica, East Antarctica, Ocean modeling