Antarctic ice shelf cavity modelling with MOM6

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Ice shelf cavities



grounding line

Figure 1: Schematic of ice shelf cavity processes



Figure 2: Ice shelf cavity representations in models, modified from Mathiot et al. (2017), GMD

- Ice shelf cavities create a new water mass ice shelf water (water colder than surface freezing temperature)
- More physically realistic global and local ocean circulation, including ice pump circulation within the cavity
- More accurate Antarctic basal melt, heat budget and water mass mixing, and sea level rise predictions

Plans for MOM6/ACCESS-OM3

ACCESS-OM3 will use MOM6 and include ice shelf cavities

- 1. What **vertical coordinates** best simulate ocean circulation and minimise spurious errors?
- 2. How do **basal melt parameterisations** perform in different ocean conditions, and can we implement new ones?
- 3. Comparisons with **observations**?
- 4. How strong is the **ice pump circulation** in different regions?
- 5. How does the inclusion of ice shelf cavities affect the Antarctic shelf heat budget and water mass transformations?

Looking for more ideas – contact me!







