Interannual hydrographic variability beneath Thwaites Eastern Ice Shelf, West Antarctica

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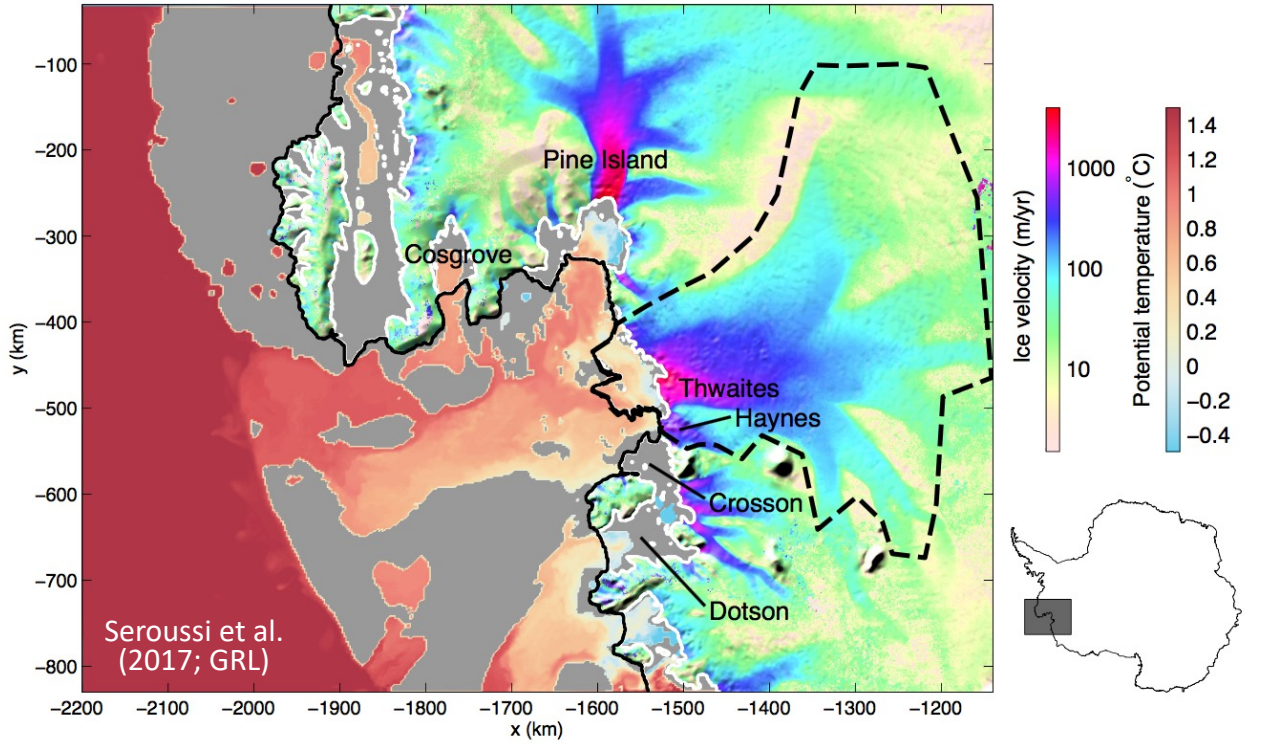
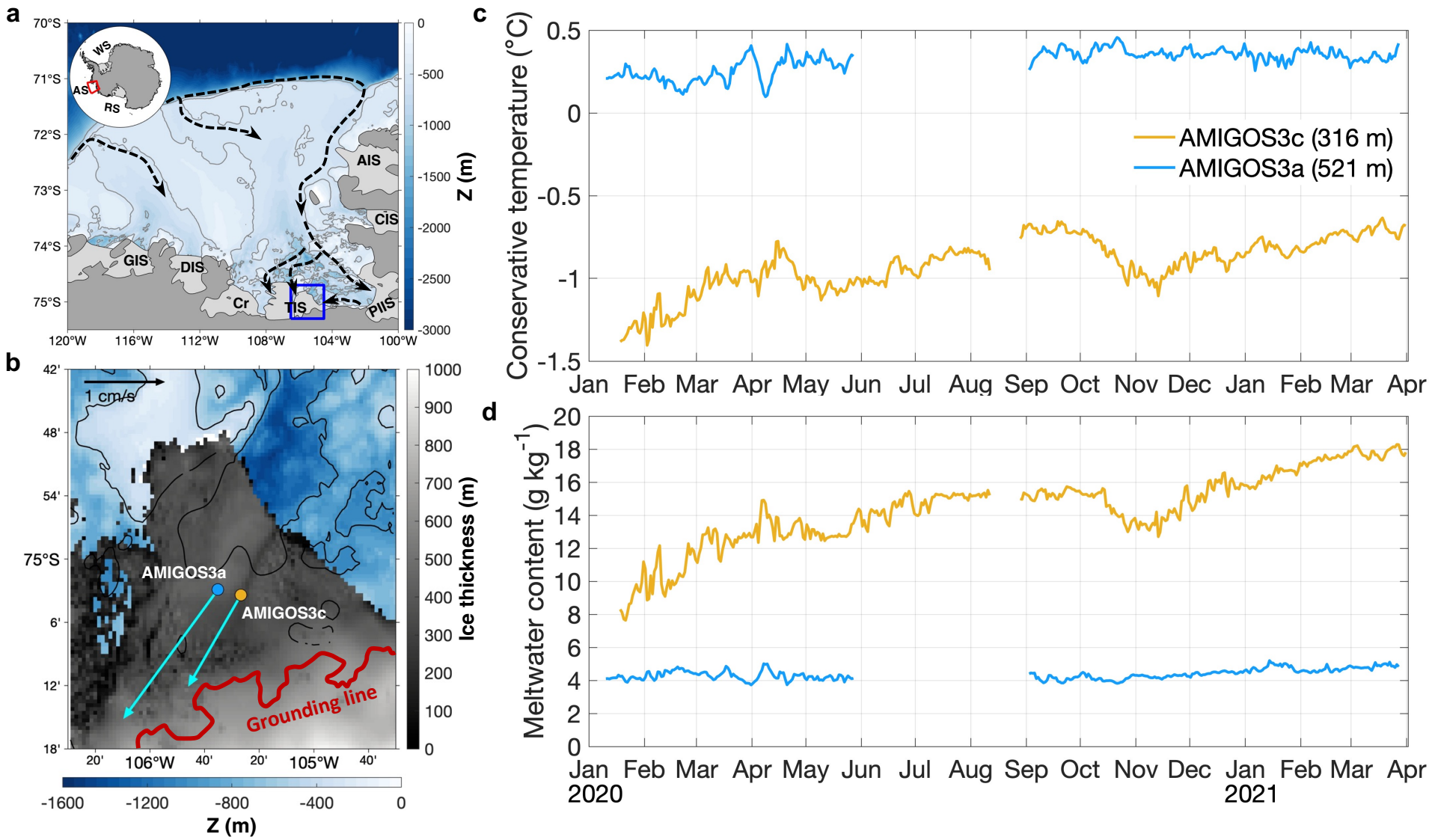


EGU General Assembly 2022

Results and discussion: TARSAN project (https://thwaitesglacier.org/projects/tarsan)



The moorings beneath Thwaites Eastern Ice Shelf show warmer conditions along time and higher meltwater fraction --> *ancillary datasets show no evidence of local melting*

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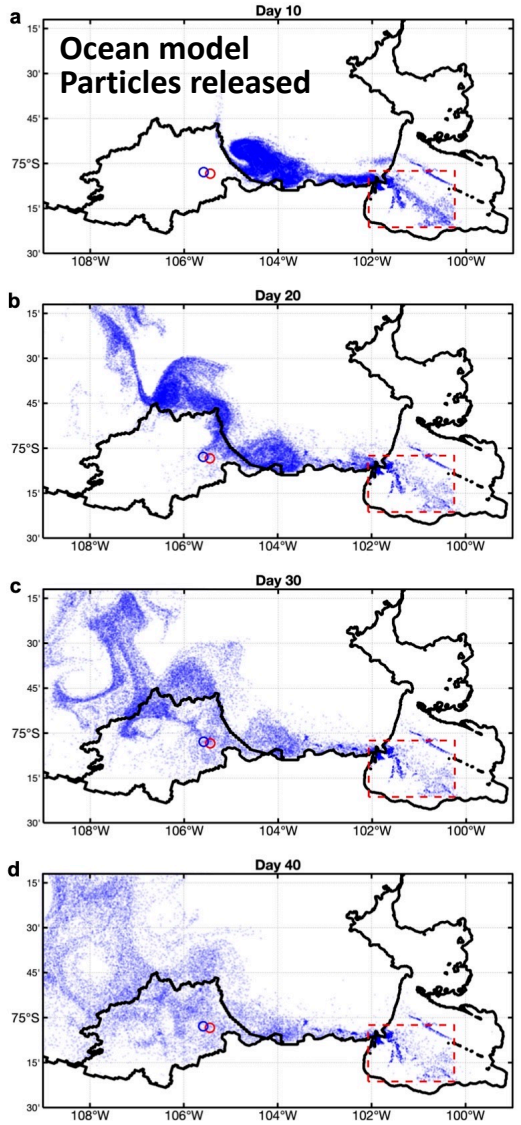
INTERNATIONAL THWAITES GLACIER COLLABORATION

Results and discussion: TARSAN project (https://thwaitesglacier.org/projects/tarsan)



Meltwater is imported from Pine Island Ice Shelf (PIIS)

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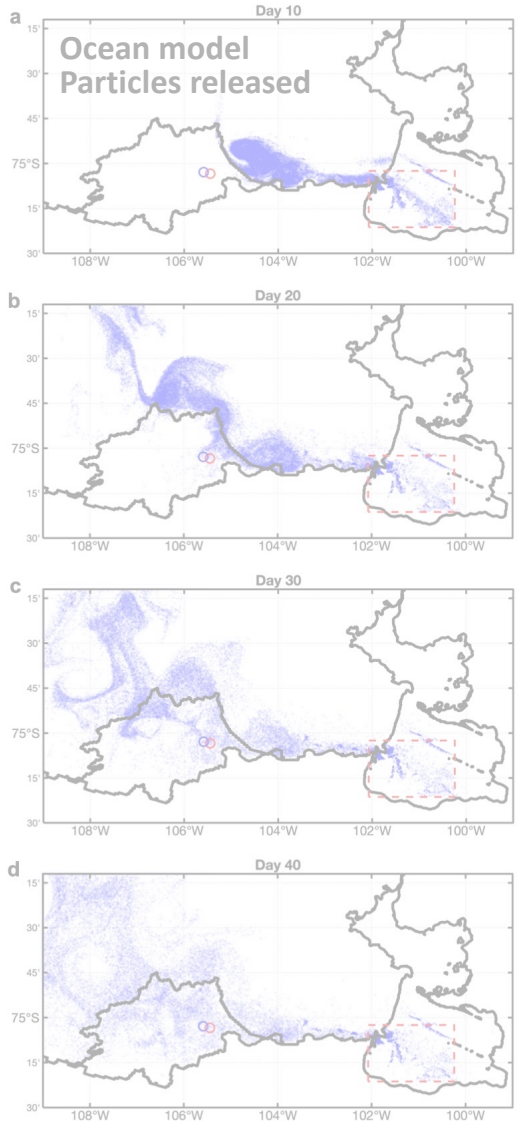

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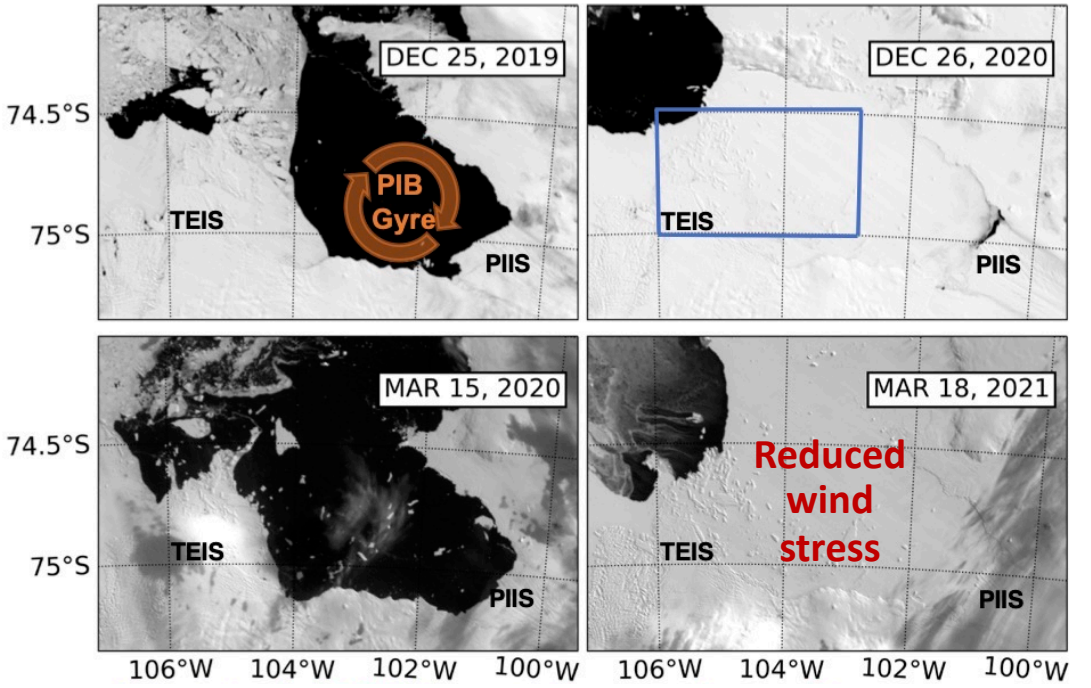

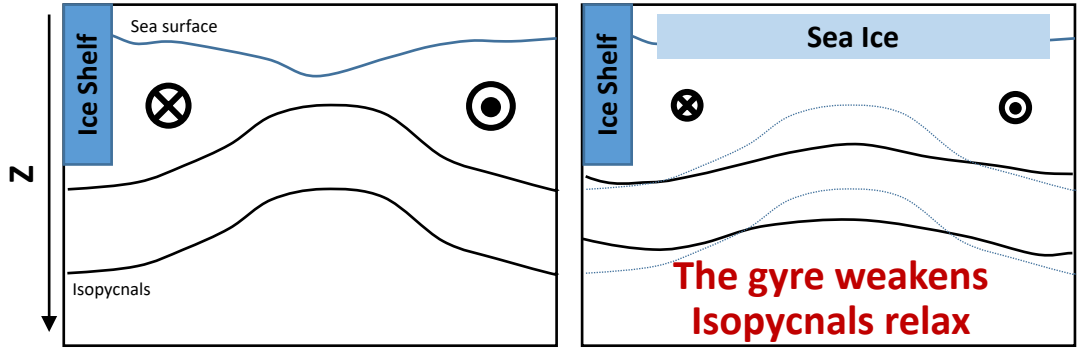

A weaker Pine Island Bay gyre helps to explain the persistent warm condition within the sub-ice shelf cavity

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INTERNATIONAL THWAITES GLACIER COLLABORATION

Conclusions

- Between 2020 and 2021 the water column has become warmer and meltwater fraction increased
- Ocean currents suggest inflow towards the interior of the ice shelf cavity
- Meltwater is imported from Pine Island Ice Shelf through coastal circulation
- Persistent sea ice cover between winter 2020 and summer 2021 likely spun down the Pine Island Bay gyre, which relaxed the isopycnals and brought warmer water upwards

Thanks for listening

ITGC https://thwaitesglacier.org/

TARSAN https://thwaitesglacier.org/projects/tarsan

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