

## **Possibility of oceanographic observations off Shackleton ice shelf**

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East Antarctica's Denman Glacier/Shackleton ice shelf (located at ~100°E) has retreated 5 kilometers in the past 22 years, and a growing number of researchers worldwide are concerned that the bathymetry beneath the ice sheet could lead to an irreversible collapse (Brancato et al., 2020). The Denman Glacier holds an ice volume equivalent to a 1.5 m rise in global sea level. The rapid retreat of the grounding line was only discovered in the past few years and no oceanographic observational campaigns were carried out in the region. Only available a few seal-tagged CTD measurements show evidence of warm modified Circumpolar Deep Water (mCDW) intrusions of ~-0.4°C towards the Denman Glacier/Shackleton ice shelf. Considering the locality of the glacier and feasibility of the Japanese Antarctic research expeditions, we aim to provide an opportunity to bring together experts from many disciplines and would like to stimulate discussions on this newly identified theme. In this presentation, we summarize recent studies on the Shackleton ice shelf. By using satellite observations and numerical modeling, we further investigate the feasibility and anticipated outcomes of oceanographic observations off the Shackleton ice shelf utilizing research vessels with or without icebreaking capabilities.

### **References**

Brancato, V., Rignot, E., Milillo, P., Morlighem, M., Mouginot, J., An, L., Jeong, S., Rizzoli, P., Bueso Bello, J. L., & Prats-Iraola, P., Grounding Line Retreat of Denman Glacier, East Antarctica, Measured With COSMO-SkyMed Radar Interferometry Data. *Geophysical Research Letters*, 47(7), 2020.