



## Variability of the Filchner Overflow Plume

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Cold and relatively fresh Ice Shelf Water (ISW) formed under the large Filchner Ronne Ice Shelf, Antarctica, exits the under ice cavity through the Filchner Depression, and cascades down the continental slope as a density driven plume. Ice Shelf Water has the potential to reach the bottom of the Weddell and is a precursor to Antarctic Bottom Water.

Several current meter moorings have been placed on the slope to monitor the plume, and the flux of ISW has been estimated to 1.6 Sv (Foldvik et al 2004). Velocity and temperature data from these moorings show prominent (intermittent) oscillations with periods of 35h, 3 and 6 days and we suggest that they are related to waves or eddies formed within the plume through baroclinic instabilities or vortex stretching. Similar features were observed in laboratory plume experiments by e.g. Cenedese et al (2004), who showed that mixing was intensified within the wave regime. Meso-scale processes within the plume will thus influence or determine what happens on smaller scales.

We will here present a summary of the observed variability in the Filchner overflow area, and relate it to processes and phenomena occurring on slopes and in dense gravity plumes.