



Winter under-ice communities in the Southern Ocean

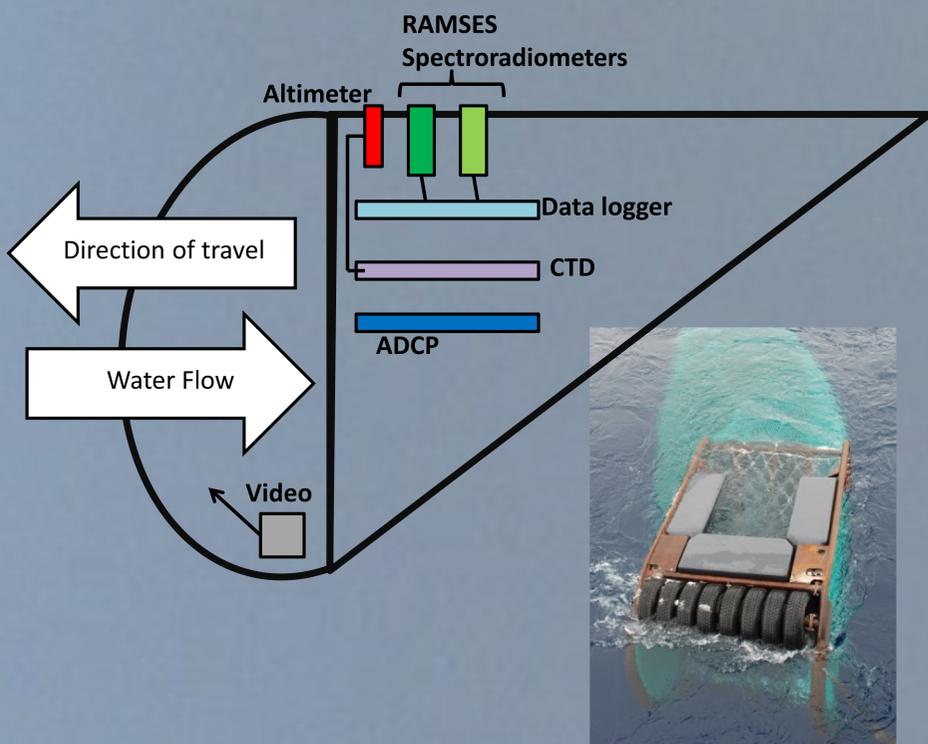
(Iceflux-NL)

Microbial communities within sea ice are presumed to be a major carbon source for the pelagic ecosystem covered by ice. Also, the ice-water interface constitutes an important habitat for many organisms, including e.g. Antarctic krill (*Euphausia superba*) as a key species (Flores *et al.*, 2011). Understanding sea ice food webs and the role of sea ice in supporting living resources can help the development of policy for conservation and fishery, considering future changes. IMARES (Iceflux NL) in cooperation with HGF Young Investigators Group Iceflux (AWI, Bremerhaven) aim to quantify the trophic carbon flux from sea ice into the under-ice community. Also, under ice community structure, trophic links and abundance and distribution of Antarctic krill are being investigated. Late winter sampling was conducted on board FS Polarstern (ANTXXIX/7) in the Western Weddell Sea from August 14th to October 16th 2013.

METHODS

Quantitative sampling was done with the Surface and Under Ice Trawl (SUIT, Van Franeker *et al.*, 2009).

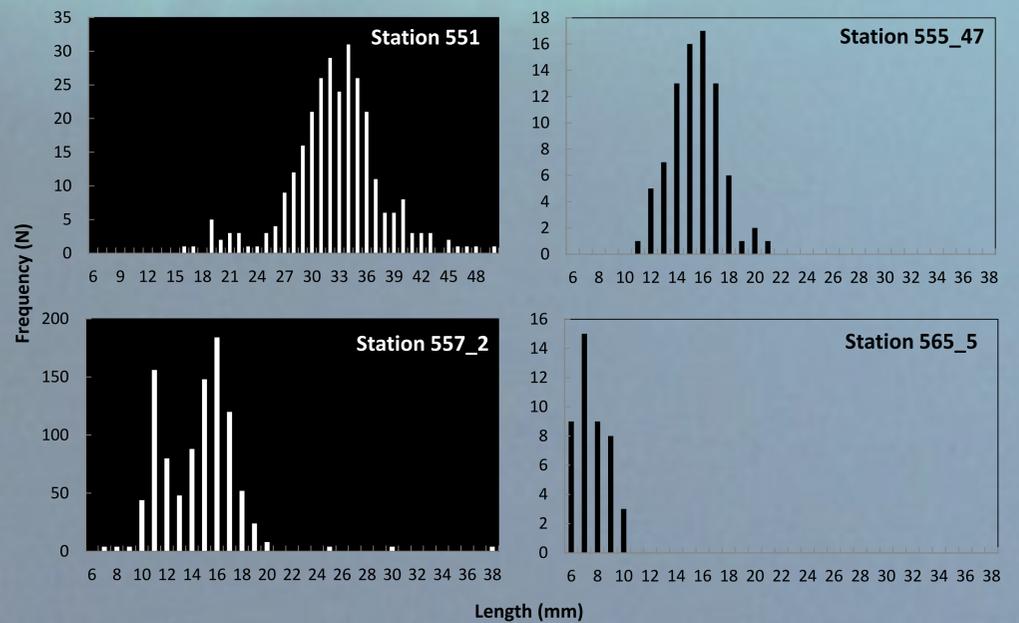
- Environmental parameters were measured while sampling.
- Zooplankton was sampled for analysis of :
 - caloric value, gut content (IMARES),
 - C/N ratio and stable isotopes (AWI)



The SUIT net is equipped with two parallel nets: a 7 mm half-mesh and a 0.3 mm mesh. It is also equipped with an Acoustic Doppler Current Profiler, a CTD probe with built-in fluorometer and altimeter, two spectral radiometers and a camera to measure e.g. water temperature, depth, water flow and ice thickness (above).

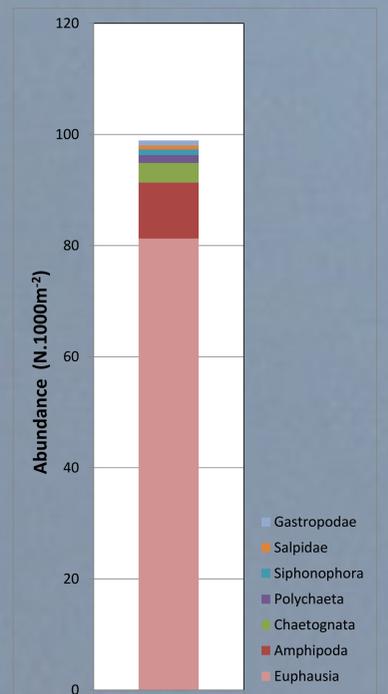
PRELIMINARY RESULTS

Thirteen quantitative hauls were conducted of which twelve under ice. In addition seven qualitative hauls were done during two ice camps.



Above: Length-frequency distribution of Antarctic krill from four of the sampled stations. At station 551, adult stages were most frequent, while at the other stations mainly late larval stages were found. Dark graphs represent night hauls, open graphs day hauls.

Right: Estimated average abundance per order of four analysed stations.



- Flores H, Van Franeker JA, Cisewski B, Leach H, Van de Putte AP, Meesters EHWG, Bathmann, U., Wolff, W.J. (2011) Macrofauna under sea ice and in the open surface layer of the Lazarev Sea, Southern Ocean. Deep Sea Research Part II: Topical Studies in Oceanography 58, 1948–1961.
- Van Franeker JA, Flores H, Van Dorssen M (2009). The Surface and Under Ice Trawl (SUIT), in: Flores H. (Ed.), Frozen Desert Alive - The Role of Sea Ice for Pelagic Macrofauna and its Predators. PhD thesis. University of Groningen, pp. 181–188.