

Subshelf environment of Langhovde Glacier, Antarctica

Shiori Yamane ^{1,2}, Shin Sugiyama ¹ Masahiro Minowa ³ Masato Ito ¹ and Daisuke Hirano ¹

¹ *Institute of Low Temperature Science, Hokkaido University, Sapporo, Japan*

² *Graduate School of Environmental Science, Hokkaido University, Sapporo, Japan*

³ *Institute of Physics and Mathematics, Austral University of Chile*

Around Antarctic continental margin, floating ice shelves and outlet glaciers drain out ice from an ice sheet over the ocean. Recently, hydrographic observations have been carried out under the ice shelves in several coastal regions, and some living things were observed there ¹⁾. However, it is difficult to observe the regions under the ice shelf directly, understanding of subshelf environment and its biota are limited. Here, we document the results from hydrographic observations under the ice shelf of Langhovde glacier in Lutzow-Holm Bay, East Antarctica (figure. 1). To better understand subshelf ocean characteristics and its biota, we carried out the field activity from December 2017 to February 2018 as a part of the 59th Japanese Antarctic Research Expedition. We obtained subshelf ocean properties such as temperature and the video of borehole camera through the four boreholes located 0.5–2.5 km from the ice front. As the result, there are several kinds of smaller zooplanktons within ~10 m below the base of ice shelf where temperature is about -1.3°C . Also, there are several kinds of larger zooplanktons such as krills and benthos within ~1 m above the seabed where temperature is -1.2°C (Figure. 2). In the document, we report the result of the borehole measurements and discuss implications for subshelf biodiversity and environment of Langhovde glaciers.

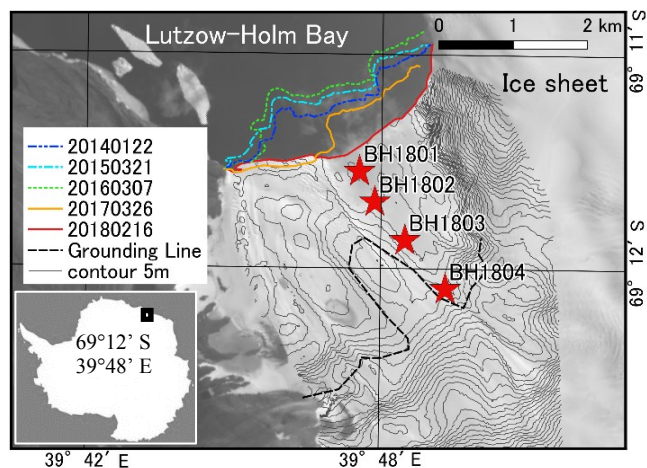


Figure 1. Satellite image of Langhovde glacier (Landsat 8, 16, Feb, 2018), ice front of every year and four borehole sites.

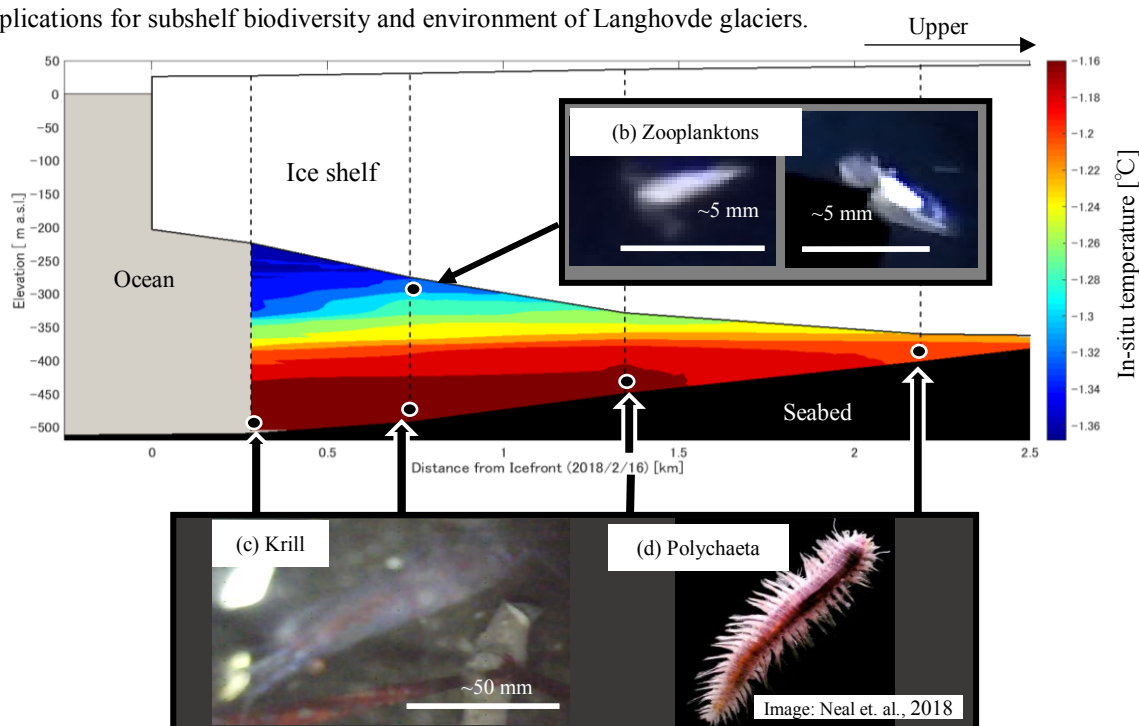


Figure 2. (a) Subshelf in-situ temperature, (b)-(d) observed living things from the video of borehole camera. Dashed lines represent the location of four boreholes.

References

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