Snow accumulation inferred from a GPR survey around the Southeastern Dome, Greenland Ice Sheet

M. Minowa[1*], K. Fujita[2], S. Matoba[1] and Y. Iizuka[1]
[1]*Institute of Low Temperature Science, Hokkaido University, Japan*
[2]*Graduate School of Environmental Study, Nagoya University, Japan*

Snow accumulation is a component that is still poorly constrained over the Greenland Ice Sheet. We performed ground-penetrating radar (GPR) measurements around the Southeastern Dome (SE-Dome) of the Greenland Ice Sheet during a shallow ice core drilling campaign from May to June 2021 (Iizuka *et al*., 2021). GPR-derived firn structure was compared with ice core density, dates, and melt layers to reconstruct the snow accumulation around the SE-Dome. Numerous internal reflection horizons (IRHs) were observed, which were related to the ice core records (Fig. 1). We detected these IRHs automatically and calculated spatio-temporal snow accumulation rate around the SE-Dome. The calculated accumulation rates are ranged between 0.6 and 1.4 m w.e. a^{-1}, which agreed with previously reported snow accumulation at a neighboring ice core site (Furukawa *et al*., 2017). Although, the calculated snow accumulation varied not only in time but also in location. We discuss possible mechanisms of spatio-temporal variations in accumulation around SE-Dome at the conference.

References

[1] Iizuka, Y., *et al*. Glaciological and meteorological observations at the SE-Dome site, southeastern Greenland Ice Sheet. *Bul. Glaciol. Res.,* **34**, 2016
[2] Furukawa, R., *et al*. Seasonal-scale dating of a shallow ice core from Greenland using oxygen isotope matching between data and simulation. *J. Geophys. Res-Atmos.* **122**, 2017