Near infra-red reflectance of southeast dome ice core, Greenland

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Southeast dome in Greenland (SE-Dome, 67.18˚N, 36.17˚W, 3170m a.s.l.) is one of the highest accumulation area. Due to the high accumulation, the snow and ice of the SE-Dome site well preserves paleo environment proxies (Furukawa et al., 2017). In order to reconstruct paleo environment by using the proxies, post depositional effect for water molecule and impurities should be evaluated. Near infra-red reflectance of snow/ice is highly related with specific surface area (SSA), which is a proxy of snow metamorphism before/after snow precipitation. We measured near infra-red reflectance of a firn core obtained from the SE-Dome site. As a result, SSA profile of the SE-Dome firn is highly related with $\delta^{18}O$ maximum, indicating summer temperature. This relationship suggests that SSA profile is not likely affected by post depositional effect such as depth hoar formation, rather SE-Dome firn well preserves its characteristic features when the firn was precipitated.

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