



Implications of ionic species from Styx glacier firn core, East antarctica

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It has been known that ionic species in the ice core are critical to reconstruct atmospheric circulation, volcanic events, and sea ice extent in the past. In this study, the major ions from the Styx glacier firn core were determined and their implications were studied in order to present the preliminary results of shallow ice core drilled on the 10th December 2014 – 2nd January 2015 at the Styx glacier (73° 51.095'S, 163° 41.217'E, 1620m a.s.l.). It is located at the north of 80km from Jangbogo station at the seashore of the Northern Victoria Land, East Antarctica. The Ross sea is one of the few regions in the Southern Ocean experiencing a significant positive trend in sea ice extent and has been considered one of the most productive regions of the Southern Ocean. and also volcanic gas emissions from volcanos are important source of gases and aerosols to the atmospheric environment of Victoria Land. It is thought that the multi-proxies of ice core from Styx glacier can represent the oceanic environment of Ross sea and atmospheric environment of Northern Victoria Land in the past because the prevailing winds are southerly and southwesterly.

In this work, the possibilities of ionic species from the Styx glacier firn core as the proxy to indicate the variabilities of sea ice extent and polyna area of Ross sea and also the characteristics of atmospheric environment of Victoria Land in the past were investigated.