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VARIABILITY OF TRACE INORGANIC SPECIES IN AN ICE CORE FROM NEEM, GREENLAND

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In the northern hemisphere, especially Greenland, it is considered that ocean and stratosphere are major sources of halogen species. However, there is little data about halogen species contained in snow and ice in Greenland. In this research, trace inorganic species (Br, Cl, F, I) in Greenland ice core were analyzed.

The ice core samples were drilled at NEEM, Greenland (77°45'N, 51°06'W, 2500 m). The quantitative analyses of ion species were performed using an ion chromatograph mass spectrometer (IC-MS). The IC-MS system consists of a single quadrupole type mass spectrometer (Agilent Technologies 6150) connected to an ion chromatograph (Dionex ICS-2000). IonPac AS11-HC was used as the separation column of the ion chromatograph. 14 anion species including halogen species (Br^- , BrO_3^- , CH_3COO^- , CH_3SO_3^- , Cl^- , $\text{C}_2\text{O}_4^{2-}$, F^- , HCOO^- , I^- , IO_3^- , NO_2^- , NO_3^- , PO_4^{3-} , SO_4^{2-}) were analyzed by this system.

Average concentration of Br below 1500m was 0.6 ng/ml. The maximum concentration of Br was ca. 1.3 ng/ml. It seems that Br concentration shows variations associated with Dansgaard-Oeschger (DO) events. Further results and discussion about the behavior and origin of halogen ion species in snow will be presented.