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# Measurements of sea ice proxies from Antarctic coastal shallow cores

Niccolò Maffezzoli (1), Paul Vallelonga (1), Andrea Spolaor (2), Carlo Barbante (3), and Massimo Frezzotti (4)

(1) Copenhagen University, Niels Bohr Institute, Centre for Ice and Climate, Copenhagen, Denmark, (2) Department of Environmental Science, Informatics and Statistics, University of Venice, Santa Marta – Dorsoduro 2137, 30123 Venice, Italy, (3) Institute for the Dynamics of Environmental Processes - CNR, University of Venice, Dorsoduro 2137, 30123 Venice, Italy, (4) ENEA, SP Anguillarese 301, 00123 Rome, Italy

**Abstract**

Despite its close relationship with climate, the climatic impact of sea ice remains only partially understood: an indication of this is the Arctic sea ice which is declining at a faster rate than models predict. Thus, the need for reliable sea ice proxies is of crucial importance.
Among the sea ice proxies that can be extracted from ice cores, interest has recently been shown in the halogens Iodine (I) and Bromine (Br) (Spolaor, A., et al., 2013a, 2013b). The production of sea ice is a source of Sodium and Bromine aerosols through frost flower crystal formation and sublimation of salty blowing snow, while Iodine is emitted by the algae living underneath sea ice.
We present here the results of Na, Br and I measurements in Antarctic shallow cores, drilled during a traverse made in late 2013 - early 2014 from *Talos Dome* (72° 00'S, 159°12'E) to *GV7* (70° 41'S, 158° 51'E) seeking for sea ice signature. The samples were kept frozen until the analyses, that were carried out by Sector Field Mass Spectroscopy Inductive Coupled Plasma (SFMS-ICP): special precautions and experimental steps were adopted for the detection of such elements.
The coastal location of the cores allows a clear signal from the nearby sea ice masses. The multiple cores are located about 50 km from each other and can help us to infer the provenance of the sea ice that contributed to the proxy signature.
Moreover, by simultaneously determining other chemical elements and compounds in the snow, it is possible to determine the relative timing of their deposition, thus helping us to understand their processes of emission and deposition.