



## **CLIMATIC VARIABILITY IN DAVIS SEA SECTOR (EAST ANTARCTICA) OVER THE PAST 250 YEARS BASED ON THE 105 KM ICE CORE GEOCHEMICAL DATA**

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In this study we present the air temperature and snow accumulation rate reconstruction in the Davis sea sector of East Antarctica over the past 250 years based on the geochemical investigations of the ice core from 105 km borehole (105 km inland from Mirny Station) drilled in 1988. The core was dated by the counting of the annual layers in the stable water isotope content ( $\delta D$  and  $\delta^{18}O$ ) profile and using the absolute date marker (Tambora volcano layer). The accumulation values were deduced from the thickness of the layers multiplied by the core density.

The isotope content was transformed into the air temperature by comparing to the instrumental meteorological data from Mirny station. The reconstructed temperature series demonstrates a  $0.5^{\circ}C$  warming over the last 250 years. At the same time, snow accumulation rate was decreasing at least since the middle of the XIXth century.

The climatic characteristics demonstrate cyclic variability with the periods of 6, 9, 19, 32 and about 120 years. Interestingly, in frames of 19-year cycle the temperature and isotope content are negatively related, which could be explained by a zonal shift of the moisture source area.

Based on the data of the sodium concentration and “deuterium excess” values in the ice core, we assumed an increased sea ice extent in the XIXth century comparing to the present day.