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## Recent black carbon and trace element concentrations records from the Russian Arctic

### Content

Without meteorological records, changes in climate are difficult to track. That is why ice cores are important to obtain data in those regions where there is a lack of such records. In the Arctic, well-documented ice core records are available from Greenland, the Canadian Arctic and Svalbard, but especially data from the vast Russian Arctic region is sparse. The most comprehensive data sets are from two ice cores, one from Akademii Nauk ice cap on Komsomolets Island, Severnaya Zemlya and the other one from Windy Dome ice cap on Graham Bell Island, Franz Josef Land. Both cores were collected in the 1990s. The two ice caps are at low elevation, between 500 and 750 meters above sea level, thus surface melting and percolation in summer is frequent.

In order to update these records to the present, shallow core drilling was carried out in 2021 in the frame of the Arctic Century Expedition, organised jointly by the Swiss Polar Institute, the Arctic and Antarctic Research Institute in Russia and the Helmholtz Centre for Ocean Research Kiel in Germany. Cores were collected at the original Windy Dome and Akademii Nauk drilling sites, but in addition also at a new site, the University Ice Cap, located on October Revolution Island, Severnaya Zemlya.

We will present trace element, major ion and black carbon concentration records from the three sites and explore to which extent warming in recent decades is affecting the ice caps and the signal preservation in the ice cores. If seasonal variability is still visible in the trace element and black carbon records, we will examine recent changes compared to the previous records.

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