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## Spatial distribution of atmospheric constituents along the Arctic coast of Siberia

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Extensive airborne in-situ measurements of atmospheric trace gas species and aerosols over the Siberian Arctic were carried out in July 2008 in the framework of the YAK-AEROSIB and POLARCAT projects under the International Polar Year (IPY). During the campaign, the Optik-É AN-30 aircraft laboratory was used as a research platform (Antokhin et al., 2012). The measurement campaign consisted of two longitudinal and two latitudinal transects in the troposphere from the ground level to a height of about 7 kilometers. The arctic longitudinal transect extended from 66°37'23"E to 170°44'18"E, and the remote continental one – from 129°46'47"E to 82°47'25"E. Along the Arctic coast, the sea was ice covered.

Measurements showed that variation of  $CO_2$  mixing ratio within the lower troposphere (below 3 km) over the Arctic region was small and ranged from 382 to 385 ppm, whereas over the remote continental regions  $CO_2$  concentration values were lower and varied over a wider range from 367 to 381 ppm (with minimum over forested areas). So, the conclusion can be drawn that  $CO_2$  uptake by Siberian arctic ecosystems is weak. Maximal mixing ratios of CO ( $\approx 100$  ppb) observed within the lower tropospheric layer over the Arctic were 1.4 times lower than the free tropospheric ones. The vertical ozone distribution obtained during the flights along the Arctic coast showed that ozone was mainly transported from the stratosphere.

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