



Composition of particulate organic matter sampled in the troposphere over Siberia

Boris D. Belan (1), Natalya G. Voronetskaya (2), Galina S. Pevneva (2), Anatoly K. Golovko (2), Alexander S. Kozlov (3), Denis V. Simonenkov (1), and Gennadii N. Tolmachev (1)

(1) V.E. Zuev Institute of Atmospheric Optics, SB RAS, Tomsk, Russian Federation (bbd@iao.ru), (2) Institute of Petroleum Chemistry, SB RAS, Tomsk, Russia, (3) Institute of Chemical Kinetics and Combustion, SB RAS, Novosibirsk, Russia

In this paper we present some results of the analysis of organic compounds contained in the particulate matter sampled in the Siberian air shed during monthly research flights in 2012-2013. Aerosol sampling was performed in the tropospheric layer from 500 to 7000 m over the Karakan pine forest located on the east bank of the Novosibirsk Reservoir (River Ob). The Optik TU-134 aircraft laboratory was used as a research platform for in-situ measurements of atmospheric trace gas species and aerosols, as well as a particulate matter collection on PTFE filters.

Analysis of the particulate organic matter sampled in the Siberian air shed in 2012-2013 allowed us to draw the following conclusions:

the total content of n-alkanes increases in the spring and decreases in the winter.

the length of the n-alkane homologous series had no seasonal dependence.

maximum in the molecular weight distribution of n-alkanes varies depending on the season; compounds with C_{17} , C_{22} and C_{25} chains dominated in winter and spring 2012, whereas in summer – C_{17} ones; in 2013 compounds with C_{17} chains dominated in winter, C_{18} – C_{20} – in spring, and C_{21} and C_{23} – in summer.

Carbon preference index (CPI) value for a given chain length of the homologous series (on the average from C_{12} to C_{28}) did not reflect the contribution of sources of n-alkanes in the atmosphere.

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