



Soil organic carbon and nitrogen stock alteration under the influences of bushfires in tundra-forest permafrost ecosystems of the Western Siberia

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The study provides information on the alteration of soil organic carbon (SOC) and total nitrogen (N_{tot}) stocks in postfire podzol soils of the tundra-forest permafrost ecosystem of the Western Siberia. Data was derived in August 2016, describing the consequence of the surface-crown bushfire on the permafrost affected tundra soils, previously occurred in Nadym region of the YaNAR, Russia. Obtained data on the SOC content in upper organic horizons show sharp decline of these parameters in postfire soil in comparison with control soil of the tundra area unexposed to fire (from 38,27 to 26,59% respectively). SOC stocks, calculated for the upper organic (O, 0-3 cm) and subsequent eluvial horizons (E, 3-10(20) cm), were found to be significantly lower in postfire soils (decreasing from 20,28 and 0,89 kg/m² to 2,69 and 0,28 kg/m² in postfire soil). The analytic data obtained showed a raise of N_{tot} content in burned horizon of the postfire soil with a maximal level of 0,94% in the ash. Calculated nitrogen stocks also showed enrichment in postfire soils. This feature is explained by the release of nutrients from organic residues and plant material to the soil under the influence of high temperatures. The pyrogenic impact increases the portion of humic acids in the organic matter. Along with the transfer of the clay fraction, the translocation of polycyclic aromatic hydrocarbons resulting from the fires to the accumulative geochemical positions is also possible.