



## Soils of the Tiksi area and their carbon contents; Northeastern Siberia, Russia

Iuliia Antcibor and Sebastian Zubrzycki

Institute of Soil Science, University of Hamburg, Hamburg, Germany ([julia.antsibor@uni-hamburg.de](mailto:julia.antsibor@uni-hamburg.de))

Significant differences for the total organic carbon (TOC) contents in the surface horizons were found between all sites of the Tiksi area and the Lena River Delta region (Mann Whitney U,  $P < 0.05$ ) suggesting higher carbon contents in the hinterland area. Since the soils of the Tiksi area were poorly studied in the past and are significantly different to soils of the well-studied Lena River Delta, this investigation was performed. Here we present preliminary results with interesting insights. All investigated soil profiles of the Tiksi area have developed on eluvial argillaceous shale. Most soil profile depths were relatively shallow (20 – 30 cm). Only several soil profiles, located to the north from Tiksi settlement, reached the depth of 40 cm and deeper. The Tiksi area was characterized by a variety of soil types. According to US Soils Taxonomy most of soils having developed in depressed micro-relief forms were described as Orthels and Histels. Soils of slopes and elevated forms of a micro relief belonged to Turbel suborder. The surface soil horizons were generally enriched by organic matter which likely reflects the inclusion of the vegetation. Minimum carbon content in surface soils amounted to 8 – 12 %. Surface soils of southern sites (remote from Tiksi settlement) were characterized by the lowest carbon content, whereas the surface horizons of eastern and western sites had particularly high in carbon. The median value of total organic carbon for these sites was 28 %. At the northern sites B-horizons were characterized by higher median values of carbon content. Similar results were found for the nitrogen content in the surface and B-horizons. The highest median values of nitrogen were found in surface soils for groups of eastern and western sites amounted to 1.2 % and 1.5 %, respectively. The highest median value of nitrogen in B-horizon was observed for soils of the northern sites group. Generally, the C/N ratio for all groups of investigation sites was higher in surface horizons than in B-horizons suggesting a higher abundance of organic matter and lower rates of its decomposition in the top soils. The highest variability of C/N ratio was found at northern sites, which reflects the cryoturbation processes development.