

ANALYSIS OF REMOTELY SENSED SHORELINE DYNAMICS IN THE LENA RIVER DELTA, NE SIBERIA

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This study is devoted to the evaluation of changes in the period 1964–2020 on the shores of the Lena River Delta, located in northeastern Siberia's continuous permafrost zone between 72° and 74°N and 123° to 130°E, by calculating the rates of erosion and detecting changes in thermokarst lakes surface area. Five erosion hotspots were identified. The analysis of two time periods 1964–2000 and 2000–2020 demonstrated an acceleration of the modern erosion processes in comparison to 2nd half of the 20th century. For the section 1 of the Olenekskaya branch the modern average erosion rates exceed the historical one by 70.3 %. The average rates of the shoreline change for the section 2 of the Olenekskaya branch increased by 54.9 %. The average rates of erosion on the floodplain section 3 of the Sardakhskaya branch amounted to + 49.1 %. For the cliff of Sobo-Sise Island section 4 the average erosion rates increased by 164.9 %. The Ilin-Botulu-Uese arm (*Magritsky et al., 2017*) section 5 has an erosion rates value decreased by 40.8 %.

The evaluation of the total lake surface area belongs to the chosen site of the Lena Delta has allowed to draw the following conclusions: lakes surface area significantly decreased between 1964 and 2018; several lakes have completely disappeared; lake surface area of all relatively large lakes has increased. During the period 1964–2000, the total surface area of the site I lakes decreased from 51765.3 Ha to 15568 Ha. And in the period 2000–2018, it decreased by another 1899.25 Ha.