

B03-P06

SIZE AND FREQUENCY DISTRIBUTION OF THERMOKARST LAKES IN THE EASTERN SIBERIA.

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The eastern Siberia is characterized by widespread thaw of permafrost near surface and subsequent thermokarst development. Dealing with predicted increase in precipitations and temperatures due to climate change requires quantitative knowledge about the spatial distribution of present and past thermokarst landscapes, and these temporal changes. We focus on the spatial distribution of thermokarst lakes. The statistical relationship between the lake area and the frequency is analyzed in the right and left banks of Lena River around Yakutsk. We mapped thermokarst lakes, and quantified the areas using the Landsat-8 image in September 2013. We then examined size and frequency distributions of lake areas in right and left banks, and in each geomorphological terrace. Initial results show that the frequency distributions of lake areas have inverse power-laws, and no significant differences in these statistics detect in right and left banks. However, the spatial distribution of the lakes within the right bank is not uniform. We find that frequency of the large lakes ($> 10^5 \text{ m}^2$) in the lower terraces in the right bank is higher than those in the higher terraces. These results indicate that topography and surficial geology is an important controlling factor on the distribution of the thermokarst lakes and the activity. Further study is necessary to validate these results in multi-temporal images.