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THE IMPACT OF INCREASED PRECIPITATION ON THE STRUCTURE OF SOIL COVER AND SOIL TEXTURE

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The instability of the atmosphere hydrological cycle inevitably causes fluctuations in the soil water regime and can lead to changes in soil composition. Changes in the soil cover structure and soil texture that happened between the two soil surveys (1976 and 2014) in the soils of Menkove experimental station located in the South-Eastern part of the Gatchina district, Leningrad region, are presented in this paper. Most common soils of the Menkovo soil cover were studied. Soil texture was studied according to the GOST 12536-2014 for the following particles size classes: sand fraction – 1–0,05 mm, coarse silt fraction – 0,05–0,01 mm, and clay fraction – less than 0.001 mm. The data received were statistically analyzed. Pearson coefficient (R^2) was used to combine soils of the same type into the same group. The values R^2 for different soil types and particle size fractions studied in 1976 and 2014 ranged from 0.45 to 0.89. The significance of R^2 by the reliability criterion tr was estimated. The correlation was significant. The average content of the sand fraction for all the studied soils varied from 57.2±6.0 to 87.3±2.2%. The content of the clay fraction varied from 1±0.1 to 13±1.1%. The statistical Mann-Whitney criterion (U) was used to assess the significance of changes in the content of soil particle size fractions during the period of study. A significant change in the content of clay fraction in the top soil of arable lands was found (U = 0–2 at U_{CR} = 4). Changes in the soil cover structure of the studied area during the study period were not statistically significant, according to calculated U criterion.

Key words: soil physic, changes in the hydrological cycle of atmosphere, particle-size composition soil, soil cover, soil texture change.