

CHARACTERISTICS OF TEMPERATURE SEASONAL DYNAMICS OF THE ACTIVE SOIL LAYER OF VALAAM ISLAND

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The paper presents the data on seasonal temperature changes within the active layer of organogenic horizons of coarse humus burozem and peat-podzolic soil located on the drained part of Germanovskoye Lake (Valaam Island). The obtained data are necessary for the systematic assessment of the soils' state and usage in the conditions of the island infrastructure and land management renovation in the natural landscape park. Soil temperature was measured from July 2018 to June 2019 using autonomous temperature recorders of the ThermoChron DS1921G system based on iButton devices. It was found that during all the measurement period, the temperature of the peat-podzolic soil at a depth of 5 cm was significantly ($p < 0.05$) higher than the temperature of coarse humus burozem (on average by 0.7°C). The heating and cooling of the studied layer of the soils was largely influenced by the nature of the ground vegetation, the soil texture, the soil organic matter content, and the position of the soils in the relief. The lowest average temperature of the peat-podzolic soil at a depth of 5 cm was recorded a week later as compared to coarse humus burozem - in the third decade of February. The smoothing of the temperature course during the season was common for the deeper layers of the soils, there was no temperature fluctuation from February to April. The coarse humus burozem at a depth of 20 cm was characterized by the greater annual temperature range than the peat-podzolic soil at a depth of 10 cm, which was caused by the differences in the soil texture (predominance of coarse and medium-grained sand).

Key words: soil temperature, coarse humus burozem, peat-podzolic soil, heating and cooling of horizons.