DAY DYNAMICS OF CARBON DIOXIDE EMISSION FROM SOIL IN SHUVAKOVSKY FOREST AREA, ST. PETERSBURG, IN LATE AUTUMN

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Studies of carbon dioxide (CO_2) emissions from soils are important for understanding the impact of climate change on ecosystems and for developing strategies to reduce greenhouse gas emissions from anthropogenic activities. The paper estimates daily dynamics of CO_2 emissions from soils in Shuvalov Forest, St. Petersburg. The aim of the work is to evaluate daily variability in CO_2 flux from the soil. A portable CO_2 analyzer was used for the measurements. The average CO_2 flux (mgC m^{-2} h^{-1}) from the soil ranged from 43 mgC m^{-2} h^{-1} to 130 mgC m^{-2} h^{-1}. The CO_2 flow varied by less than 20% depending on the measurement time during the day. The average values of the daily CO_2 flux for the dates of 3.11.24, 10.11.24, 17.11.24, 24.11.24 and 01.12.24 were 93±4,7, 92±4,3, 97±3,6, 74±3,2 and 82±5 mgC m^{-2} h^{-1}, respectively. The soil temperature during the period of observations varied from 4.4°C to 8,9°C with an average 6,8°C. Soil moisture ranged from 16,3 to 58,3%, with an average value of 34,9%. The results have shown that CO_2 emissions from the soil depended on the soil temperature and didn't depend on the time of the day. The results can be used in the development of methodological approaches for accounting for carbon dioxide fluxes from soils.

Keywords: emissions, carbon dioxide, flux rate, daily emission.