



CO₂ soil fluxes at bog and forest ecosystems in southern taiga of European Russia

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Bogs and spruce forests are typical natural ecosystems of the southern taiga of European Russia. They play an important role in carbon balance between soil and atmosphere. In the Central Forest Reserve (33°00' E, 56°30' N) for over 15 years conduct research of these processes.

One of the research methods of CO₂ emissions is the chamber method, which allows to analyze the local variation of the intensity of fluxes and its depending of the type of vegetation, microrelief and meteorological parameters. Period of measurements was 5 months - from June to November 2013-2014.

In the bog were investigated 3 areas - pine boggy forest, as well as hummocks and hollows in the middle of bog. As the forest ecosystem was chosen paludified shallow-peat spruce forest.

From the data obtained it can be concluded that in all ecosystems were observed 2 periods with a minimum values of CO₂ emission: the first - in early July, associated with a high level of ground water and decrease the intensity of decomposition of organic matter, and the second - in November, associated with natural processes and seasonal cooling.

The average intensity of CO₂ emissions in summer-autumn season between all ecosystems varied greatly: in the boggy pine forest - 500 mgCO₂/m²*h), hummocks - 550 mgCO₂/m²*h, hollows - 290 mgCO₂/m²*h) and paludified shallow-peat spruce forest - 750 mgCO₂/m²*h.

Based on these researches, it was found that the intensity of CO₂ emissions significantly below in the bog than in paludified shallow-peat spruce forest because it is limited by the level of ground water. In the paludified shallow-peat spruce forest, fluxes are more depend on soil temperature and less on the groundwater level.