Geophysical Research Abstracts
Vol. 14, EGU2012-7421, 2012
EGU General Assembly 2012

CO_2 fluxes in wetlands of European Russia

J. Kurbatova (1,2), F. Tatarinov (1), V. Avilov (1,2), A. Varlagin (1,2), A. Olchev (1,2)

(1) A.N. Severtsov Institute of ecology and evolution RAS, Moscow, Russian Federation (kurbatova.j@gmail.com), (2) Russian State Agrarian University- Moscow Timiryazev Agricultural Academy, Moscow, Russian Federation

The question on an arrangement, scales and the factors determining ground sink of CO_2 in a forest zone of Russia is opened and discussed. Peatlands located in forest zone and wetland forest are main elements of natural landscapes of Russia. During the last years through fires in forest zone and modern climate changes, connected with growth of extreme weather events, such as drought, wetlands are in the focus of scientific investigations. Two subjects for long investigations of CO_2 fluxes have selected in southern taiga in European Russia (Central Forest reserve, Tver region): ombrotrophic bog and wet spruce forest. To estimate of seasonal and interannual variations of CO_2 fluxes different methods such as eddy covariance, chamber methods and modeling calculations were used. Our researches have allowed to evaluate net ecosystems exchange, soil respiration, photosynthesis of grass cover and their depending on environmental factors. The results of researches have confirmed strong dependence of CO_2 fluxes from changes in precipitations and/or temperatures and level of ground water. Bog and wetland forests can be as sink as source of CO_2 for atmosphere. Variation in water level dynamics alone could significantly affect the C balance in wetland ecosystems mainly through altering the decomposition rate of the organic matter accumulated in the soil profile. The modeled results supported the hypothesis that the soil processes, especially the decomposition process, in wetlands could play an important role in altering the C dynamics in the ecosystems.

The studies were supported by grand RFBR № 11-05-00854 and RF Government
№ 11.G34.31.0079.