Geophysical Research Abstracts
Vol. 15, EGU2013-3492-1, 2013
EGU General Assembly 2013

The long-term studies of CO_2 fluxes in southern taiga of European Russia

Juliya Kurbatova (1,2), Andrei Varlagin (1,2), Fedor Tatarinov (1), Vitalii Avilov (2,3), Elena Astafieva (4), Dmitrii Ivanov (2), Alexander Olchev (1,2), Riccardo Valentini (2,5)

(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, (3) Institute of Physico-Chemical and Biological Problems in Soil Science RAS, Pushino, Russian Federation, (4) M.V. Lomonosov Moscow State University, Moscow, Russian Federation, (5) University of Tuscia, Viterbo, Italy

Wetlands and bogged forests located in forest zone are main elements of natural landscapes of Russia, covering about 10% of country. The long-term studies (from 1998 – for present) of CO_2 fluxes have conducted in southern taiga of European Russia (Central Forest reserve, Tver region) at ombrotrophic bog and bogged 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 long-term variations of net ecosystems exchange, soil respiration, gross primary production and their depending on environmental factors. The results of researches have confirmed strong relations between CO_2 fluxes and precipitations and/or temperatures and level of ground water. Wetlands and bogged 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.