



Climate variability and CO₂ exchange in southern European taiga

J.Kurbatova, A. Varlagin, F.Tatarinov, N. Vygodskaya, A. Oltchev
A.N. Severtsov Institute of ecology and evolution RAS, Moscow, Russia
(Julya@oss.ru /phone 495 1247939)

The question on an arrangement, scales and the factors determining ground sink of CO₂ in a forest zone of Russia is opened and discussed. To estimate of global and regional fluxes of carbon for the different periods of time various methods and modeling calculations are used. For an experimental estimation of carbon fluxes for ecosystem level of averaging the eddy covariance method now is widely used. It allows continuously, all-the-year-round, with the high time sanction to register net ecosystem exchange (NEE), fluxes of a water and heat between forest and an atmosphere. Registration of meteorological parameters of an atmosphere is simultaneously carried out. It allows to find the dependence of deposition or issue of carbon on environmental factors. In territory of Russia the observation of carbon fluxes were begun within the framework of the international projects of EU in 1998. Now there are two eddy covariance complexes in a southern European taiga, in territory Central Forest Reserve. The measurements are carried out in two types of uneven-age spruce forest (complex and *Sphagnum-Vaccinium myrtillus*). The choice of objects of supervision was caused by a wide circulation of similar types of forest in the European taiga. In general the 7-years period of measurements has captured a wide range of changes of climatic conditions. The years with extreme - droughty and damp vegetative seasons and also years approached to average climatic norms for this region were during the observations. The high daily, seasonal and annual variability of deposition and issue of carbon is characteristic for spruce forests. The results of measurements of NEE have shown, that southern taiga can function during the vegetative period both as a source, and as a sink of carbon for an atmosphere. The cumulative fluxes of NEE for the period April - October depend first of all on temperature and precipitation in the spring period with temperature in a range 5-10C and from duration of this period, and for the period of

active vegetation, with temperature of air it is more 10C - from humidifying. However for the answer to a question, whether it is formed NEE the next years after years with extreme weather conditions under influence of the current weather conditions, or gas exchange between forest and an atmosphere is consequences of climatic anomalies, demands longer all-the-year-round observation.