



## **Carbon dioxide fluxes in southern European taiga**

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The researches of carbon balance features of boreal ecosystems in a southern European taiga were conducted on the basis of eddy covariance techniques. The eddy measurements allow to fix net ecosystem exchange of carbon dioxide (NEE) between a spreading surface and atmosphere directly and to receive ratings of carbon balance for various time intervals. This method has a some of advantages for researches of carbon fluxes in the present time and for study of reaction ecosystems on changes of an environment. It is most important to use this method for ecosystems in which the definition current NPP and NEP is problematic. The bogs and mature and overmature are such ecosystems at first. The continuous high-frequency all-the-year-round measurements of carbon dioxide fluxes were begun in 1998 year in Central Forest Biosphere Reserve (Tver region, 56<sup>0</sup>N, 33<sup>0</sup>E) on three test sites ( two spruce forest and ombrotrophic bog) as a part of the international projects. The eddy covariance systems employed at both sites are similar to those used during the Euroflux project [Aubinet et al., 2000], that provides comparability of the received data. Eddy fluxes measurements during limited time intervals are supplemented by measurements of soil, leafs and trunks respiration. The supervision over speed of decomposition of an organic material and the rating NPP are conducted.

The results of our measurements have shown, that unmanaged uneven-age spruce forest can be both source and sink of carbon for an atmosphere, depending on a type of a forest and weather conditions. The soil respiration as a result of decomposition of a plenty of dead ground and underground biomass determines a sign and absolute means of carbon balance. In the whole annual balance of carbon researched forest ecosystems differs from zero. Also we establish significant seasonal and interannual of carbon dioxide fluxes for ombrotrophic bog [Arnet et al., 2002; Kurbatova et al.,

2002]. A sign and means of carbon dioxide fluxes between a surface of a bog and atmosphere depend on conditions of humidifying during green season. At negative water balance the ombotrophic bog becomes a source of carbon for an atmosphere.

We believe, that the long-term measurements of NEE will allow to take off uncertainty, which exist at ratings of modern carbon balance in regions, where the large areas are occupied mature and overmature forests.