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Carbon dioxide and methane fluxes measured by static chamber technique at the Bakchar bog ecosystem, West Siberia

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Measurements of CO_2 and CH_4 fluxes were carried out at the Bakchar bog (56˚51.29'N, E82˚ 50.91'E) which is a part of the Great Vasyugan Mire. Measurements were performed by two solar powered automated systems (Flux-NIES) consisted of NDIR Li-820 CO_2 analyzer, an improved SnO_2–based methane sensor (Suto and Inoue, 2010), six static chambers installed along different toposequences, the air drying and distribution unit, and a datalogger. Three field campaigns have been undertaken during the period from May to October in 2014, 2015, and 2016 at two types of open wetlands: mesotrophic open bog and patterned wetland with forested ridges, flat hollows and water pools.

Observed carbon dioxide fluxes showed that net uptake of CO_2 predominates from the beginning of June through the end of August with a maximum from mid-June through the end of July. Seasonal pattern of methane fluxes showed that CH_4 emission increases rapidly at the beginning of June, but its weakening in autumn lasts gradually. Seasonal variation of the emissions correlates well with the soil temperature. At the patterned wetland, methane fluxes showed correlation with the gross CO_2 uptake rate derived from the daytime NEE and nighttime respiration of ecosystems.

Suto, H. and Inoue, G. 2010. A new portable instrument for in-situ measurement of atmospheric methane mole fraction by applying an improved tin dioxide-based gas sensor. *J. Atmos. Ocean. Tech.* **27**, 1175–1184.