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Carbon dioxide exchange of larch forest at eastern Siberia - effect of canopy structure and soil environment

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To improve our understanding of CO_2 exchange over eastern Siberia boreal forest, two observation sites at a larch dominated forest were compared. The dominant species in the forest is larch composing the upper canopy, mixed with mainly birch and willow, although distribution ratio differs at each forest. The difference in atmospheric environment was small at 2 sites, but soil properties such as soil thawing ratio and soil water content was different. There was difference in 1.5 times between the CO_2 uptake fluxes in 2 sites, although a difference was not found in ability for photosynthesis of the unit leaf scale. The difference in canopy scale response to environmental condition such as solar radiation, air temperature, and humidity between the sites, which might reflect the dominant species and canopy structure in each forest, was observed. Environmental factors to explain a temporal variability of CO_2 uptake flux extracted by a multiple regression analysis, was different for each sites. Variability including difference in sites was explained mainly by soil water and ground temperature.