## 5. Change in surface methane flux after a forest fire in West Siberia

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## Abstract

Temporal variation in methane (CH<sub>4</sub>) exchange between soil and the atmosphere after a forest fire was measured in this study. The study site was located in a boreal forest in the West Siberian plain and experienced a severe fire in the summer of 1998. The surface of the burned area was classified into bare soil, open water, and recovered herbaceous plants; the fractional coverage of these elements has changed seasonally and interannually since the fire. In August 1999, June 2000, and September 2000, we measured CH<sub>4</sub> fluxes using a closed-chamber method and environmental variables, such as soil temperature and soil water content, at each of the three surface types in the burned area and in the unburned area. The unburned forest soils were kept very dry and CH<sub>4</sub> oxidation (mean CH<sub>4</sub> flux was  $_{3.9}$  mg C m<sup>-2</sup> d<sup>-1</sup>; the negative value indicates CH<sub>4</sub> flux varied between  $_{0.48}$  and 30 mg C m<sup>-2</sup> d<sup>-1</sup>. We found that surface soil had become extremely wet since the fire, and therefore soil has changed from a consumer to a net emitter of CH<sub>4</sub> after the fire disturbance.