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Effects of soil moisture, temperature and PAR on methane oxidation in boreal forest soil

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The Boreal forest representing one third of the earth's forested land surface area is an important component of the atmospheric methane budget. It partly consists of well-aerated forest soils were methane is oxidized. To find out what role the boreal forest will have in a changing climate it is important to better understand how factors like soil moisture and temperature affects the methane oxidation. In this study the impact of soil moisture, temperature and PAR on methane oxidation at Norunda forest site in central Sweden is investigated. Continuous measurements of the methane uptake were performed from mid July to late October, at three different sites, with an automatic chamber system. A high precision laser gas analyzer, Los Gatos Research, measured the concentration of methane in the chambers once every hour. The results so far indicate that temperature and groundwater level both are involved in controlling the oxidation processes. One of the sites shifted from being a sink of methane to a source of methane and back again in a week's time following a rain event, which shows the importance of continuous measurements to cover episodic events. Further results will be presented in May.