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### INFLUENCE OF THE THAWING PERMAFROST ON METHANE DIFFUSION FLUX FROM LAKES IN THE ALASKAN ARCTIC ZONE

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Dissolved methane concentrations (*DM*) at lakes in North Slope and boreal regions along Dalton Highway were observed in the open water season in 2008 and in 2012, and *DM* at thermokarst lakes were also observed in 2013 and in 2014, to estimate diffusive methane flux from lake surfaces to the atmosphere and to verify an enhance effect of thawing permafrost on the flux in the Alaskan arctic zone. In the lakes along Dalton Highway methane activities related with thaw of permafrost were inactive. There was no short-term (4 years between 2008 and 2012) change in *DM* at the surface of lake. Average diffusive flux density (per lake area) was similar value to those in European boreal lakes on no-permafrost inland regions. *DM* in the thermokarst lakes in North Slope, however, were higher than those in stable tundra region (Fig. 1). Further observations of thermokarst lakes on/near Yedoma regions must be required.

A part of these studies were carried out in GRENE project.

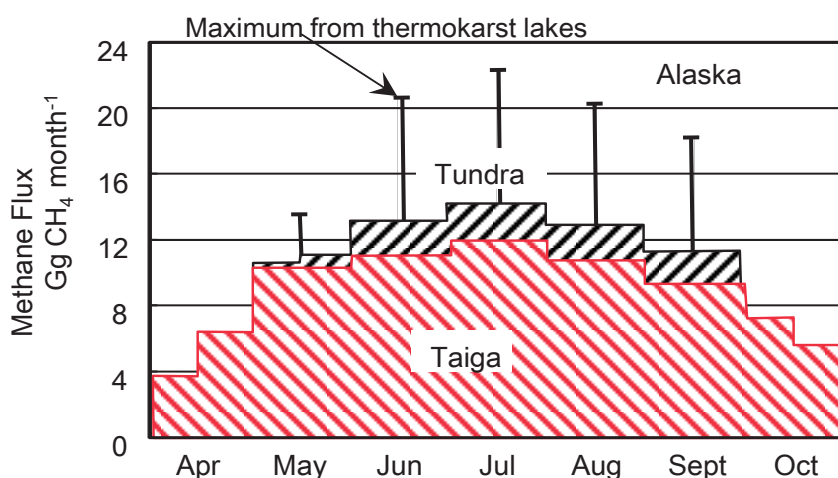


Fig. 1 Monthly methane flux in Alaska. Error bars show flux in tundra when all are thermokarst lakes.