

## Methane emission from permafrost and non-permafrost wetland in northern Sweden

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Methane is one of the most important greenhouse gases. The largest natural source of this gas are wetlands. Quantification emission from this source, especially from subarctic regions, which are exposed to fast climate changes, is important for our understanding of biogeochemical climate feedbacks. Abisko Stordalen is one of few mires in this climatic zone in which the methane emission is being measured continuously. Here we analyze eddy covariance data from the ICOS Sweden site with respect to environmental parameters possibly controlling the methane emissions.

Due to the large scale topography at Abisko, wind is channeled along the valley, resulting in to two main wind directions. This divides the measurements into two different surface type groups. On easterly winds, the flux footprint is dominated by permafrost features, while for westerly winds it is dominated by non-permafrost fen. Measured methane fluxes from these to wetland types, exposed for the same environmental conditions, differ considerably being higher from non-permafrost area. We will further analyze the differences in the annual methane emission from the two systems, and their dependencies from environmental parameters.