



## **Eddy Covariance flux measurements over an ice/snow covered lake in Finland**

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The inland water bodies play an important role in the regional heat and mass transfer with the atmosphere. As lakes cover an area of 4.2 million km<sup>2</sup>, representing an area of more than 3% of Earth continental surface, an increasing concern in estimation of heat and greenhouse gases exchanges between inland water bodies and the atmosphere has been developed in the last years. The eddy covariance (EC) method is the worldwide most common technique used to assess turbulent fluxes over all types of surface. In the framework of two Short Term Scientific Mission of the COST action “A European network for a harmonized monitoring of snow for the benefit of climate change scenarios, hydrology and numerical weather prediction” (ES1404), it was feasible to have parallel EC measurements with two identical equipment over a boreal lake. In this communication the results are related to the period comprised between November 2015 and May 2016, including freezing and ice-free periods. Observed near surface fluxes of momentum, heat and mass (H<sub>2</sub>O and CO<sub>2</sub>) were obtained with a new eddy covariance system (EC), Campbell Scientific’s IRGASON Integrated Open-Path CO<sub>2</sub>/H<sub>2</sub>O Gas Analyzer and 3D Sonic Anemometer, over lake Vanajavesi in Finland. The measurement site is located in a tip of narrow peninsula on the lake (61.133935°N; 24.259119°E), offering very good conditions for eddy covariance flux measurements. The EC system was installed at 2.5m height above the lake surface and was oriented against the prevailing wind direction in the site.