



## **The role of advection for CO<sub>2</sub> exchange flux over a mountainous grassland in the Alps**

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The inclusion of the advection contribution can improve the quantification of net ecosystem exchange (NEE) budget. However, advection observation is challenging and the role of advection is thus often ignored in the literature. In this study, a field campaign was conducted on the basis of the advection completed mass balance (ACMB) concept. The observation took place in October 2015 at the FLUXNET site Monte Bondone, which was located on a permanent alpine meadow in a mountainous area in Northern Italy. A home-assembled solenoid valve system, together with multiple tubes and a gas analyser, was used to analyse CO<sub>2</sub> concentration at multiple positions across the faces at three heights of the control volume. Horizontal advection of CO<sub>2</sub> was thus calculated from the measurement of wind components and CO<sub>2</sub> gradients, from which the storage term can be derived as well. Vertical flux of CO<sub>2</sub> was measured by eddy-covariance technique. Three automatic chambers measured NEE as reference. Data post-processing is still in progress and preliminary results will come soon.