



## **BVOC fluxes from growing and cut grass above a mountain meadow**

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Grasslands comprise natural tropical savannah over managed temperate fields to tundra and cover over a quarter of the Earth's land surface. Plant growth, maintenance and decay result in volatile organic compound (VOCs) emissions to the atmosphere. Furthermore, biogenic VOCs (BVOCs) are emitted due to various environmental stresses including cutting and drying during harvesting. Fluxes of BVOCs were measured with a proton-transfer-reaction–mass-spectrometer (PTR-MS) over temperate mountain grassland in Stubai Valley (Tyrol, Austria) over one growing season in 2008. VOC fluxes were calculated from the disjunct PTR-MS data using the virtual disjunct eddy covariance method and the gap filling method. Methanol showed strong daytime emissions throughout the growing season. With maximum values of  $9.7 \frac{\text{nmol}}{\text{m}^2 \text{s}^{-1}}$  the methanol fluxes from growing grassland were considerably higher at the beginning of the growing season in June compared to those measured during October ( $2.5 \frac{\text{nmol}}{\text{m}^2 \text{s}^{-1}}$ ). The cutting and drying of grass increased the emissions of methanol, up to  $30 \frac{\text{nmol}}{\text{m}^2 \text{s}^{-1}}$ . In addition, emissions of acetaldehyde, up to  $10 \frac{\text{nmol}}{\text{m}^2 \text{s}^{-1}}$  and other VOCs were detected during harvesting.