



Drought induced methanol emission from grassland

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In near future air temperature is expected to increase during the growing season and growing conditions could become more arid in many parts of the world. Since the air temperature and the photosynthetically active radiation are the main drivers for the emission of many biogenic volatile organic compounds (BVOC), this may be expected to lead to a change in the emission patterns.

To investigate the effects of drought on BVOC-emissions from mountain grassland we analysed the emission patterns during a whole vegetation period from March 2011 to December 2011. BVOC-concentrations were measured at a height of 2.4 m above the ground by means of a proton-transfer-reaction mass spectrometer and then combined with 3D wind data from a sonic anemometer. Half-hourly net BVOC fluxes (composed of grass and soil emissions) were calculated using the disjunct eddy covariance method.

As a result of a dry period in May 2011 the soil water content dropped below $0.1 \text{ m}^3/\text{m}^3$ and methanol emissions increased significantly. In addition, on certain SWC-levels indication of methanol-consuming microbiological activities in the soil and on the leaves was found.