

## BVOC and tropospheric ozone fluxes above Norway spruce forest

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Experimental station Bílý Kříž (Beskydy Mts., NE of the Czech Republic, 908 m a.s.l.) is placed within the Norway spruce (*Picea abies*) forest. Fluxes of biogenic volatile organic compounds (BVOCs) were measured in summer of 2014 by PTR-TOF-MS 8000 spectrometer coupled with eddy covariance technique. The forest showed itself to be a monoterpene emitter up to  $2.03 \text{ nmol m}^{-2} \text{ s}^{-1}$ . Isoprene and 2-methyl-3-buten-2-ol (MBO) reached maximum levels during central hours of the day of  $1.6 \text{ nmol m}^{-2} \text{ s}^{-1}$ , whereas daily average maximum fluxes were  $1.29 \text{ nmol m}^{-2} \text{ s}^{-1}$  and  $0.77 \text{ nmol m}^{-2} \text{ s}^{-1}$  for monoterpenes and sum of isoprene and MBO, respectively. Mean carbon fraction of GPP released in form of BVOCs was 0.3% on average with maxima around 1.5%, dominated by monoterpenes. Model of Emissions of Gases and Aerosols from Nature agreed with the measured monoterpene fluxes, particularly when basal emission factors for sun and shade needles were applied.

Moreover, vertical concentration profile of ozone concentration was used to derive ozone fluxes by applying model based on calculation of each of resistances. By applying Generalized Additive Mixed Model, decrease of Net Ecosystem Production caused by presence of ozone was investigated to be as high as 24.7%, when compared to preindustrial age. Additionally, effect of sky conditions on presence of both ozone concentration and flux was investigated by applying path analysis. Results show low effect of ozone concentration on ozone fluxes, whereas effect of canopy conductivity was substantial. Finally, first results of ozone flux measurement with eddy covariance technique will be shown and discussed.