



## **Spatial and seasonal variation in volatile compounds air concentrations in a hemiboreal mixed forest.**

Steffen M. Noe, Katja Hüve, Ülo Niinemets, and Lucian Copolovici

Estonian University of Life Sciences, Institute of Agricultural and Environmental Sciences, Dept. of Plant Physiology, Tartu, Estonia (steffen.noe@emu.ee)

The seasonal and vertical distribution of ambient biogenic volatile organic compounds (BVOC) concentrations within a hemiboreal forest canopy was investigated over a period of one year. Variability in temporal and spatial terpene concentrations spanned over a wide range. Specially stress related emissions lead to very high ambient concentrations in dry and hot summer months.

Seasonal differences in the share of different monoterpenes were found. During summer months, dominance of  $\alpha$ -pinene in the lower and of limonene in the upper part of the canopy was observed, both accounting for up to 70 % of the total monoterpene concentration. During wintertime,  $\Delta^3$ -carene was the dominant species, accounting for 60 % of total monoterpene concentration in January.

Spatially, the possible sources of biogenic monoterpenes are beside foliage the leaf litter and top soil as well as resins exuding from stems.