

## Prediction of ozone effects on net ecosystem production

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Tropospheric ozone is one of the most harmful phytotoxic secondary air pollutant decreasing the carbon uptake by photosynthesis. Moreover, future ground-level concentrations are projected to grow at Northern hemisphere, depending on emission scenarios. Therefore, Generalized Additive Mixed Model was applied to investigate the effect of both ozone concentration and stomatal ozone flux (FsO3) on NEP at Norway spruce forest at Bílý Kříž experimental station, Beskydy Mtn., NE of the Czech Republic. Model is based on measured ozone concentration by ozone analysers APOA 370 (Horiba, Japan) or FsO3 calculated as by Emberson et al. (2000). Model based on FsO3 was found to be more accurate than a model using ozone concentration alone. Both, the higher ozone concentration and FsO3 were found to reduce NEP. NEP calculation based on FsO3 was found to be lower by 24.8% when compared to preindustrial rates of FsO3 (0.5 nmol m<sup>-2</sup> s<sup>-1</sup>). Moreover, NEP prediction in future-based FsO3 (17 nmol m<sup>-2</sup> s<sup>-1</sup>) model was found to be reduced by 14.1% when compared to current values of NEP measured by eddy covariance technique.

### References:

Emberson LD, Ashmore MR, Cambridge H, Simpson D, Tuovinen J-P (2000). Modelling stomatal ozone flux across Europe. *Environmental Pollution* 109: 403-414.