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ABSTRACTS

Session B-17 Forest plantation productivity in relation to stand structure and environmental conditions

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Predicting Ozone Fluxes, Impacts and Critical Levels on European Forests (PRO3FILE)
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Objective: The impact of tropospheric ozone pollution on European forests is a key topic of concern and discussion between the public, stakeholders, and scientists. Despite increasing knowledge on the effects of ozone on plant physiological functions, its impacts at a higher organization level, i.e., on individual tree diameter increment and forest growth are highly uncertain and vary among studies. The contrasting dose-response relationships reported may arise from the different data used as input in terms of sample size and characteristics, and/or from differing methodological choices. The proposed study aims to make use of over 200 UNECE/ICP Forests long-term monitoring plots across Europe where ozone concentrations have been measured since 2000, in parallel to forest and vegetation variables.

Methods: Ozone related effects and critical levels on selected endpoints such as tree growth will be derived by quantifying ozone fluxes and applying multiple and various statistical techniques that consider for confounding abiotic and biotic environmental factors (see Cailleret et al. 2018). Data sources from various networks (ICP Forests, EMEP, ECMWF, Swiss Long-term Forest Ecosystem Research LWF, Swiss NFI) will be combined for calibration and validation purposes.

Results: The output will be an important contribution to the objectives of the UNECE Working Group on Effects acting under the umbrella of The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (UNECE 2015) of The Convention on Long-range Transboundary Air Pollution (CLRTAP).

Conclusion:

Key Words: Ozone flux; Europe; Forest growth

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References:

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