



Soil flux measurements of reactive and non-reactive trace gases in a mountainous region (Fichtelgebirge, Germany) by a dynamic chamber technique

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Within the framework of EGER (Exchange processes in mountainous Regions) we have performed dynamic soil chamber measurements of trace gases (NO, NO₂, O₃, CO₂ and H₂O) from 13 Aug to 13 Oct 2007 at the spruce forest site "Weidenbrunnen" (Fichtelgebirge, Germany). EGER is focussing on the role of process interactions among the different scales of soil, in-canopy and atmospheric exchange processes of mass and energy.

Five automated dynamic chambers were installed for the determination of trace gas fluxes. Two chambers were installed on a moss (*Bryophyta*) covered plot, while the other chambers were installed on a plot vegetated by young spruce (*Pinaceae*) and by blueberries (*Vaccinium myrtillus*). One of the chambers was used as a blank chamber for the correction of the reactive trace gas fluxes for fast reactions (NO, NO₂, O₃) and wall losses. Accompanying measurements of soil temperature, air temperature, soil moisture, soil nutrients and meteorological parameters (global radiation, net radiation, NO₂ photolysis frequency, barometric pressure, relative humidity, wind speed and wind direction) have also been performed. Ambient trace gas mixing ratios ranged from 0.07 (detection limit, 3 σ) to 3 ppb for NO, from 0.5 to 10 ppb for NO₂ and from 7 to 55 ppb for O₃.

We will present gas phase reaction corrected exchange fluxes of NO, NO₂, O₃, CO₂ and H₂O between the soil and the forest atmosphere. The effect of soil temperature, soil moisture, soil nutrients and soil texture on the exchange fluxes will be discussed.