



Exchange of NO₂ between spruces and the atmosphere is dominated by deposition

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The chemical budget of tropospheric ozone is largely determined by the concentration of NO_x (NO and NO₂), which is in remote areas related to biological activities of soils and vegetation. The atmospheric concentration of NO₂ is strongly influenced by the bi-directional exchange between the atmosphere and plants. The exchange depends on stomatal compensation points in close relation to the NO₂ concentrations in ambient air. It is accepted that NO₂ uptake by plants represents a large NO₂ sink, but the magnitude is still unidentified. A better knowledge of compensation point values for the bi-directional NO₂ exchange is a matter of recent discussions, as accurate estimates would help to reliably classify vegetation types. In close relation to our previous studies of *Betula pendula*, *Fagus sylvatica*, *Quercus ilex* und *Pinus sylvestris* we investigated a further representative of conifers, *Picea abies*, under field and laboratory conditions. The measurements were part of the DFG joined project EGER (ExchanGE processes in mountainous Regions). We used dynamic chambers and a sensitive and highly specific NO-NO₂-Analysator. CO₂ and H₂O exchange were measured simultaneously to assess physiological comparative parameters such as photosynthesis, transpiration and stomatal conductance. Additionally O₃ concentrations were recorded, to detect and estimate chemical reactions within the chamber. During the measurements the NO₂ exchange was obviously dominated by deposition and depended on stomatal conductance.