

**Tagungsnummer**

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**Thema**

Kommission II: Bodenchemie

Waldernährungsstrategien und deren Wechselwirkung mit bodenchemischen und bodenbiologischen Eigenschaften

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Phosphorus mobilization from undisturbed forest floors after drying and rewetting

**Abstract**

The rewetting of desiccated mineral soils and forest floors was shown to mobilize soluble phosphorus (P). Up to now the evidence is based on experiments with disturbed soils and soil extracts after rewetting. As the rewetting of desiccated soils under in situ conditions is hampered by water repellency and the formation of preferential flow paths, the relevance of the rewetting effects for the phosphorus dynamics under field conditions remains to be shown. We conducted a laboratory experiment with undisturbed columns taken from the forest floor of a beech and a spruce stand. Our hypotheses were: 1) Drying and rewetting of forest floors leads to larger P release than from continuous wet controls. 2) The release of P from undisturbed forest floor columns is smaller than from disturbed forest floor samples. 3) The forest floor of spruce is more hydrophobic after desiccation. Hence the P release after drying/rewetting is less from spruce than from beech forest floors. Forest floor columns of 8 - 10 cm height were dried at 25 °C until a pF of about 6 (-100 MPa) was reached in all layers of the forest floor. Controls were kept permanently moist and the initial microbial biomass of the different forest floor layers was determined prior to desiccation. After pF 6 was reached, the columns were subjected to rewetting with an artificial throughfall by an automated irrigation system at about 25 mm per day, applied in small hourly intervals. Soil percolates were analyzed periodically for dissolved organic and inorganic P and N. Moreover, the CO<sub>2</sub> production was recorded permanently. At the date of abstract submission the experiment is still ongoing and results will be presented on the poster.