UNIVERSITÄT BAYREUTH

Bayceer
Bayreuther Zentrum für Ökologie und Umweltforschung

Sommersemester 2010

Gebäude GEO I
Hörsaal H6

BayCEER Kolloquium

Vortragsreihe Ökologie und Umweltforschung

Donnerstag 06.05.2010, 16:15 Uhr, H6

Anschließend Postkolloquium mit Bier und Brezeln im Foyer H6

Dr. Marife Corre

Universität Göttingen, Ökopedologie der Tropen

Impact of elevated N input on ecosystem processes in old-growth lowland and montane forests in Panama

Nitrogen deposition is projected to increase rapidly in tropical ecosystems, but few studies address how such environmental change affects soil N cycling, retention, trace gas fluxes, leaching losses and net primary production in tropical forests. We used N addition experiments to achieve N-enriched conditions in mixed-species, lowland and montane forests in Panama. In the lowland site, N addition started in June 1998. Just outside these long-term manipulation plots, we established four additional plots in 2006 to represent the first-year N-addition treatment. In the montane site, control and N-addition plots were set up in a paired-plots design with four replicates. N addition started in February 2006. In the old-growth lowland forest located on an Inceptisol, with high base saturation and net primary production not limited by N, there was no immediate effect of first-year N addition on gross rates of mineral N production and N-oxide emissions. Changes in soil N processes were only apparent after chronic (9-11 yr) N addition: gross N mineralization and nitrification rates, NO3- leaching, and N-oxide emissions increased while microbial biomass and NH4+ immobilization rates decreased compared to the control. Soil CO2 and CH4 fluxes were not affected by chronic N addition. In contrast, the old-growth montane forest with low base saturation and aboveground net primary production limited by N, reacted to first-year N addition with increases in gross rates of mineral N production, microbial biomass, NO3- leaching and N-oxide emissions compared to the control. These results suggest that soil type, presence of an organic layer, changes in soil N cycling, and hydrological properties are more important indicators than vegetation as N sink on how tropical forests respond to elevated N input.

Die Vortragsreihe ist eine interdisziplinäre Plattform zur Information und Diskussion für Studierende, Forschende und Lehrende

Gäste sind herzlich willkommen