UNIVERSITÄT BAYREUTH

Bayceer
Bayreuther Zentrum für Ökologie und Umweltforschung

Sommersemester 2011

Gebäude GEO I
Hörsaal H6

BayCEER Kolloquium

Vortragsreihe Ökologie und Umweltforschung

Donnerstag 09.06.2011, 16:15 Uhr, H6

Anschließend Postkolloquium mit Bier und Brezeln im Foyer H6

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Controls on carbon flows and seasonal biomass dynamics in grassland ecosystems from tropical to sub arctic/alpine regions

Grasslands cover nearly one-fifth of the world's land surface and the coverage is expected to increase. This distribution pattern is governed by climatic and edaphic factors. Currently, grasslands store >10% of the world's carbon (C) stocks, but the quantity may change as a result of the ongoing shifts in global climate and land uses. Nevertheless, many potential effects of climate change on grassland C fluxes and bioproductivity remain poorly understood. Better predictions of their future responses to environmental changes require that we understand the sensitivity of mechanisms that regulate productivity and carbon fluxes in grasslands in their current states. Simulations of ecosystem response to climate change demonstrate the sensitivity of ecosystem production, C fluxes and nitrogen mineralization in grasslands to temperature and soil moisture availability. Both temperature and soil moisture (precipitation) display a shifting intensity along the latitudinal gradient, from the tropics to the sub-arctic regions. The regulation of C exchange and productivity in grasslands must, therefore, adjust to these gradients, and shifts with resource availability in the different eco-climatic regions. The shifts are further modified by land use and management practices, since these also modify environmental constraints.

Abiotic controls regulate instantaneous rates of CO2 exchange, since they change rapidly; and integratively they determine the long-term C balance of an ecosystem. How these short-term adjustments relate to the long-term modification of biological processes due to climate and resource availability (along a latititudinal gradient) are key to understanding how grasslands will store or lose carbon in the future. Measurements are reported here from five different bioclimatic zones, from the tropics to the sub-arctic regions that provide new understanding of how controls of CO2 exchange and biomass dynamics shift along these ecoclimatic zones.

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

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