

# GEOGRAPHISCHES KOLLOQUIUM DER UNIVERSITÄT GÖTTINGEN

**Einladung zum Vortrag am 04.07.2017 um 16 Uhr ct im  
Kleinen Hörsaal des Geographischen Instituts (MN 09)**

**Dr. Jörg Schaller, Universität Bayreuth, Bayreuther Zentrum für  
Ökologie und Umweltforschung:**

## **Silicon in biogeochemistry: the one to rule them all?**

Silicon (Si) is the second most abundant element in the Earth's crust and involved in physiological processes of many organisms. A large number of terrestrial plants (e.g., trees and grasses) and aquatic plants (i.e., emergent and submerged macrophytes) accumulate substantial amounts of Si in their tissues. Si is well known to have positive effects on plant performance by reducing stress e.g. from drought, toxicants, pathogens or herbivores. Si availability in soils was currently shown to affect phosphorus (P) availability in soils and thus the plant P status. With this, Si availability is strongly affecting nutrient stoichiometry of plants. On the ecosystem level highly important Si effects were discovered recently. We could show that Si accumulation in grasslands is strongly affected by functional diversity. An accumulation of Si in grassland aboveground biomass is predicted to influence the ecosystem performance due to its positive effect on plant nutrition, mitigation of stress and decreasing herbivory. In another study analyzing the Si availability in soils and Si accumulation in trees we found a strong decrease in Si availability with weathering and large differences between species. Furthermore, the different tropical tree species seem to have access to different Si pools. In an experiment estimating Si effects on carbon and nutrient release in peatlands we found a strong mobilization of nutrients and mineralization of organic material by increased Si availability. This strong effect of Si on both P mobilization from mineral binding sites and respiration of organic material was confirmed for permafrost soils. In conclusion, Si is a main factor for plant and ecosystem performance by increasing P availability and C turnover.

***Die Vortragsprache ist Deutsch, die Folien werden auf Englisch präsentiert.***

***Im Namen des Vorstandes des Geographischen Instituts lade ich sie herzlich zu  
diesem Vortrag des Geographischen Kolloquiums ein.***

***gez. Ch. Dittrich***