

Wintersemester 2008/2009

Gebäude GEO I
Hörsaal H6

BayCEER Kolloquium

Vortragsreihe Ökologie und Umweltforschung**Donnerstag 23.10.2008, 17:00 st Uhr, H6****Anschließend Postkolloquium mit Bier und Brezel im Foyer H6**

Prof. Dr. Britta Planer-Friedrich

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Using modern spectroscopic techniques to advance trace element speciation - case study thioarsenic species

The introduction of hydride generation in the mid 1970s enabled a first look at what lies beyond "total arsenic" concentrations in environmental samples - arsenite was identified to predominate under reducing, arsenate under oxidizing conditions; numerous organic arsenic species were later detected by chromatographic separation and retention time comparison to known standards.

This presentation will show how information from different modern spectroscopic techniques can be combined to identify and quantify previously unknown species that are lost or co-determined during routine species preservation and analysis.

In samples from arsenic-sulfidic environments, using advanced mass spectrometry methods we were able a) to show the formation of four compounds containing both arsenic and sulfur in significant amounts, and b) to determine the molecular masses of these As-S-compounds and to identify them as thioarsenates ($\text{AsS}_x\text{O}_4-x3^-$) and to distinguish apparently identical molecular masses by high-resolution mass-detection and characteristic fractionation patterns.

A brief introduction to the principle of each spectroscopic method will be given for non-users.

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