



Memorandum

Datum: 3. Juli 2015
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An: siehe Verteiler
cc:

Einladung zu einem ausserordentlichen LES Palaver

Ich lade Sie herzlich ein.

Referent: Dr. Jebril Hadi
Institut für Geologie, Universität Bern

Thema: **Investigation on the redox properties of structural iron in smectites**

Zeit: Montag, 6. Juli 2015, 13.30 Uhr

Ort: Sitzungszimmer OHSA/E13

Abstract

Iron plays a key role in many biogeochemical processes implying electron transfers (i.e. redox reactions). Clays form a family of ubiquitous minerals, containing often iron in their structure. The clay structure provides specific properties to this structural iron (Fe_{str}). A constantly growing set of studies focuses on Fe_{str} redox properties, interesting various research fields, such as agronomic study on soil's nutrients accessibility or organic matter growth, or even studies on heavy metals and radionuclides retention in clay barriers. Studying Fe_{str} redox properties remains however challenging. The Fe_{str} redox properties are ruled by the crystallographic structure of the clay mineral, but in return, Fe_{str} redox transformations have a considerable impact on this structure. The redox history of the clay mineral (i.e. extent and number of prior redox cycles) influences both Fe_{str} redox properties and the way they evolve upon redox processes. Given the number and complexity of implied mechanisms, and the variety of clay structures, this presentation focuses on the particular group of dioctahedral smectites, and more precisely on the relation between the layer charge and the redox state of structural iron. Experimental methods for studying clay redox properties are discussed as well.

Freundliche Grüsse

M. Marques