1. Title

Biogeochemical Reactivity of Soils and Sediments: Molecular Process Control over Material Flux at Field Scales

2. Type

Commission Symposium: Comm. 2.2-Soil Chemistry

3. Organizer(s) & Convener

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4. Rationale

Development of a mechanistic interpretation of chemical dynamics in natural subsurface porous media is often limited by an incomplete understanding of the coupled biotic and abiotic processes that govern chemical phase partitioning and transport. These heterogeneous systems are characterized by a range of possible molecular-scale reactions, separated in space and time, whose relative importance may be affected by pore, pedon and catchment or watershed scale drivers. At the same time, to the extent that subsurface porous media operate as biogeochemical reactors, reaction chemistry should be reflected in large scale structure (e.g., regolith formation) and phenomena (e.g., catchment hydrologic response).

5. Objectives

This symposium invites all papers that seek to enlighten the linkages between underlying molecular processes and higher-scale observations of biogeochemistry pertaining to soils, sediments, aquifers and fractured bedrock systems.

6. Description

Development of a mechanistic interpretation of chemical dynamics in natural subsurface porous media is often limited by an incomplete understanding of the coupled biotic and abiotic processes that govern chemical phase partitioning and transport. These heterogeneous systems are characterized by a range of possible molecular-scale reactions, separated in space and time, whose relative importance may be affected by pore, pedon and catchment or watershed scale drivers. At the same time, to the extent that subsurface porous media operate as biogeochemical reactors, reaction chemistry should be reflected in large scale structure (e.g., regolith formation) and phenomena (e.g., catchment hydrologic response). This symposium invites all papers that seek to enlighten the linkages between underlying molecular processes and higher-scale observations of biogeochemistry pertaining to soils, sediments, aquifers and fractured bedrock systems.