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Project: C03
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Research Interests

- Biogeochemistry in Groundwater, Surface Water
- Weathering and Alteration of Rock
- Properties of Colloids
- Environmental Isotopes
- Sea water Intrusion and Water Pollution

Current Project

PhD thesis, working title: “Biogeochemistry in Zones of Fluctuating Groundwater: Alteration of Rock Surfaces and Interactions with Subsurface Colloids”.

This research work focuses on the biogeochemical alteration within the aeration zone (AZ) of the Hainich Critical Zone Exploratory (CZE). Due to the topography and the geological settings, this area is subjected to strong groundwater fluctuation during seasonal events and in extreme events. When groundwater levels subsequently decrease, atmospheric air may enter into the subsurface through the open fractures, macropores and permeable faults. Increment of O₂ supply, presence of the gas–water interface and the high concentration of organic matter result in a high redox gradient, and high microbial activity within the AZ. Additionally, the temporal variation of flow and redox may have an impact on biogeochemical weathering and alteration processes of the exposed rock surfaces in the AZ.

With all these processes repeatedly happening within the same hydrogeological setting, it can have a significant effect on the release and redistribution of subsurface colloidal/particulate matter, including biota and, thus, on the redistribution of matter, energy, and information in the subsurface.

Curriculum Vitae

10/2017 – now	PhD student at Hydrogeology department of Friedrich-Schiller University of Jena, Germany
10/2014 – 03/2017	Master student in Tropical Hydrogeology and Environmental Engineering at Technical University of Darmstadt, Germany

02/2013 – 06/2014

Scientist at National Building Research Organization, Ministry of
Disaster management, Sri Lanka

07/2008 – 01/2013

Bachelor student at University of Peradeniya, Sri Lanka)