

## Master thesis at the Research Group of Hydrogeology

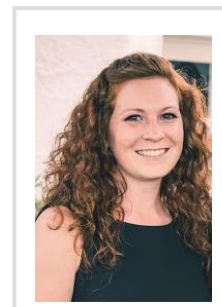
**TINA GEIBLER**

# Hydrochemical characterisation of the north-eastern part of the Kilombero catchment near Ifakara, Tanzania

**Keywords:** Africa, groundwater/surface water interactions, water/rock interactions hydrochemistry, hydrogeology, groundwater quality, PhreeqC, Tanzania, Ifakara, wetlands

As part of the project the wetland of the Kilombero floodplain in Tanzania should be examined in term of hydrogeological conditions. The aim of the presented master thesis is a hydrochemical characterization of the area around Ifakara in Tanzania. This should give knowledge in terms of water quality, possible groundwater flow paths and water-rock interactions (in collaboration with Katharina Liedtke).

A snapshot sampling during the rainy season was carried out in May and June 2014. The area under investigation was the northeastern part of the Kilombero floodplain and the adjacent mountain range north of Ifakara. The hydrogeological sampling campaign focalized on ground- and surface water. Water samples have been taken at different wells and streams well distributed over the working area. The sampling includes in situ measurements of physicochemical parameters and laboratory analyses of major and trace ions. The chemical analysis should give an overview about ion ratios and different water types. This data can be classified statistically by cluster analysis. A factor analysis can arrange different ions in specific groups. This can give information about geogene and anthropogenic influence of the waters. In addition a phreeqC modeling should reconstruct the different groundwater flow paths, residence times and recharge amounts of the northern mountain range should be determine. In collaboration with Katharina Liedtke the hydrochemical compositions will be collated with her discovered geochemical results and physical properties. The comparison should provide a conclusion about the interaction of rock and water.



Contact data:

**Tina Geißler**

Steinmann Institute for  
Geology, Mineralogy and  
Palaeontology  
Nussallee 8  
53115 Bonn  
Tina\_geissler@gmx.de  
Tel.: 0228-73-2491

[www.steinmann.uni-bonn.de](http://www.steinmann.uni-bonn.de)  
[www.wetlands-africa.de](http://www.wetlands-africa.de)



Work Package	A5 - Water and matter fluxes
Countries of work	Tanzania
1 <sup>st</sup> Supervisor	Prof. Barbara Reichert
2 <sup>nd</sup> Supervisor	
Subject	Geosciences
Faculty	Faculty of mathematics and natural science
University	University of Bonn
Working period	07/2014 – 02/2015