Organic geochemistry of Kenyan Rift Valley lake sediments

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Due to different geological and hydrological settings, the numerous lakes in the Kenyan Rift Valley show strong hydrochemical differences. On the one hand, there are freshwater lakes like Lake Naivasha and, on the other hand, there are very salt-rich lakes with high pH values like Lake Bogoria. It is known that lake chemistry, underlying lake sediments, and microorganisms in the sediment have an influence on each other. Organic geochemical analyses are therefore useful tools to provide biogeochemical characterizations of those lake sediments. Those characterizations, together with other analyses, will then be used to 1) identify the mechanisms that control lake chemistry, 2) to determine the influence of the latter on the composition and preservation of organic material, and 3) to reconstruct the biogeochemical evolution of each lake.

Porewater analyses already showed that the sediment of each lake is quite unique resulting in a number of interesting questions. For example, microbial activity seems to be abruptly shifting in the sediment cores of Lakes Sonachi and Oloiden. Other interesting points are the influence of agriculture on Lake Naivasha and the productivity in the high salinity Lakes Logipi and Eight. Both questions will be adressed by organic geochemical analyses.

Although in close proximity to each other, the Kenyan Rift Valley lakes offer the unique opportunity to study a wide range of geochemical environments and the associated biogeochemical processes.