Spatial Distribution of Lake Sediments in the Central Lake Abaya (Southern Ethiopia)

- Poster -

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With a surface area of about 1,160km^2 Lake Abaya in Southern Ethiopia is one of the most largest lakes in the Ethiopian Rift Valley. This paper presents the analysis of the spatial distribution of lake-sediments in the central part of the lake. The overall aim is to draw conclusions about existing flow-dynamics. The investigated area is located at a bottleneck which separates the larger northern from the smaller southern sub-basin. More than 200 samples of surface-sediments were taken at an average distance of 500 meters and analysed in regard to main mineralogical components, chemical composition, amount of organic and inorganic carbon, colour (CIE-L*a*b) as well as magnetic susceptibility. In addition, temperature, electronic conductivity, pH, redox-potential and oxygen-content of both, the water body and the sediments, were measured along transects in March 2002.

Analysis of lake floor sediments points to a differentiation between areas characterised by exclusively allochthonous sediments and those characterised by sediments which are additionally composed of some autochthonous constituents, mostly Carbonates and Pyrite. In the delta-regions of tributaries it is possible to assign allochthonous sediments to the corresponding catchment areas, predominantly through their mineralogical composition. In contrast, sediments in the central part of the lake also contain minerals which cannot be related to the surrounding drainage basin area without further investigations.

Three zones with different types of flow-behaviour can be differentiated, based on the spatial distribution of the lake sediments:

- the delta areas of discharging rivers,
- the bays south of the deltas areas,
- the central part of the lake.

Additionally, a sub-aqueous current connecting the northern and southern basin of Lake Abaya can be confirmed.