Geophysical Research Abstracts Vol. 15, EGU2013-2634, 2013 EGU General Assembly 2013 © Author(s) 2013. CC Attribution 3.0 License.



The geomorphological map of Lake Tana basin (Ethiopia)

Ludwin Poppe (1), Jan Nyssen (1), Jean Poesen (2), Teshager Admasu (3), Mekete Dessie (4), Enyew Adgo (3), Jozef Deckers (2), and Amaury Frankl (1)

(1) Ghent University, Department of Geography, Gent, Belgium, (2) KULeuven, Department of Earth and Environmental Sciences, Leuven, Belgium, (3) College of Agriculture and Environmental Sciences, Bahir Dar University, Ethiopia, (4) School of Civil and Water Engineering, Bahir Dar University, Ethiopia

The geomorphological map of Lake Tana basin (15 077 km², Nile basin, Ethiopia) was prepared from fieldwork data, maps and satellite data that were processed in a GIS system. It contains four major components: (i) hydrography, (ii) morphology and -metry, (iii) materials and (iv) processes. The scale is 1:500 000. The geomorphological setting of the basin consists of lavas that erupted from fissures or (shield) volcanoes during the Tertiary and Quaternary eras, were uplifted and ultimately sculpted by (mainly water) erosion. Lake Tana emerged by the combination of a lava barrier blocking the Blue Nile to the south and by epirogenetic subsidence. Since the time that the lake reached its maximum extent, extensive floodplains were created, river valleys have been filled with sediment and higher laying topography has been eroded. Today, the lake plays a lesser role in landscape formation because of a decreased lake extent (3041 km² now) as compared to the ancient maximum (6602 km²). Dominant processes today are merely fluvial and denudative. Recent (1886-2010) changes in lake coast are small with exception of the delta of the major feeding river, Gilgel Abay, which increased disproportionally the last 15 years. This indicates a large input of sediment which is mainly due to rivers flowing through Quaternary lavas. The recent sediment input increase is most probably related to human induced land-use changes.