

MSc research support opportunity on Floodplain aggradation: The BDU-IUC would like to select one potential MSc student for the following research topic:

Defining aggradation rates of the Gumara and Ribb Rivers - application of a conventional approach

Background: Eder et al. (2010) inferred that streams in intensively used agricultural catchments are frequently characterized by increased transport of suspended solids during rainfall events. Omengo et al. (2016a) strengthen the argument stating such river systems receive substantial quantities of sediment from their uphill catchments, but rather than merely transporting the sediment load towards the coastal zone, they continuously deposit and rework sediments as they flow downstream. This is all the more the case for the rivers draining to Lake Tana, such as the River Gumara (catchment area: 1595 km²) and River Ribb (catchment area: 1992 km²) that originate at the foot of Mount Guna (4120m) and drain westwards to Lake Tana, and which will form the focus of this study. Floodplains act as a sink for the material transported by the fluvial system and thus aid to understand sedimentation history of catchments. Knowing the aggradation rates of both rivers could help us to understand when and how humans have had interacted with their environment in the past. Abate et al. (2015) explained aggradation rate of the lower reaches of the Gumara River based on the burial of a gauging station. However, the rate for the Floodplains of the Ribb river is still questionable.

Objective: this research work will have the following general-objectives

- To define aggradation rates
- To identify paleochannels in both rivers

Region: Gumara and Ribb catchments, Lake Tana Basin, Bahir Dar, NW Ethiopia

Activities: This topic involves a wide range of research activities including field-based identification and examination of various abandoned paleochannels and buried natural and anthropogenic artifacts or resources by interviewing the local community (farmers), but also GIS and RS analysis of different satellite images and aerial photographs. Local supervision by Girma Worku and Dr. Mengiste Abate.

Expected outcomes:

- Aggradation rates and paleochannels of both rivers



Picture showing Burial of automatic water level recorder (Abate et al. 2015)
NB: GIS and remote sensing skill could have an added advantage

The successful applicant should:

- Currently be an MSc student in Hydraulic Engineering, Water resources Management, natural resource management and any related
- Has good knowledge of GIS and RS and experience of working with aerial photographs
- Be already MSc student at Bahir Dar University
- Have an interest in fieldwork
- Have obtained above 2.75 during his/her BSc studies

The MSc research

- Will contribute to the BDU IUC project “Land Resilience (P2)”
- Research time: 2019/20 AY
- Advisor in Ethiopia: Dr. Mengiste Abate and Girma Worku (PhD student at KU Leuven)
- For more information, please contact Dr. Mengiste (mengisteaba@gmail.com) or Girma (graceworku@gmail.com)
- In addition to the advisors the MSc student will benefit from the support by the IUC programme in terms of logistics, research materials and operating costs

Submission of application

- Application letter and CV (including telephone number of 3 reference persons)
- Copy of diploma and grade reports of BSc programme
- Concept note on the proposed MSc topic
- All to be submitted in soft and hard copies
- All documents are to be submitted to BDU-IUC office, wisdom tower, 4th floor, room 409 or via banchigizeabesha@gmail.com
- Application deadline is on the 26th of August,2019 at 5 PM