PhD project

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Creating an Inventory of East African Wetlands by usage of multitemporal, multisensor Satellite Data

Keywords: Optical Satellite Remote Sensing, Regional Wetland Inventory, Decision Tree Classification, Time Series Data Analysis

The GlobE Wetlands project aims to develop recommendations on the wise use of wetlands where research insights are gained mainly at four representative test sites. To be able to extrapolate findings and recommendations on the wise use of wetlands, a spatial explicit knowledge base about East African Wetlands is needed. So far global estimates of overall wetland size deviate strongly and under-estimate wetland area globally. In the East African region precise knowledge about location and extent of all types of wetlands is in-sufficient. **The aim of my work is to create a regional wetland inventory that harmonizes knowledge about wetland locations and extents in East Africa.**

Due to the remoteness and bad accessibility of the region's wet-lands, satellite remote sensing data are valuable for the creation of a wetland inventory. Though wetlands are highly diverse, they all have in common the moist soil that influences surface properties in a dynamic seasonal pattern. My working approach is therefore based on the assumption that the phenology of plants in wetlands is different from those in surrounding uplands. Hence the wetland ar-eas are detectable via spectral signals that differ over time and show a specific 'temporal wetland signature'. Via decision tree clas-sification of these temporal profiles and additional remotely sensed datasets, the wetlands shall be mapped. On-ground validation and accuracy assessment will ensure usability of the derived map layer for further project aims and stakeholders in the countries.

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GlobE Wetlands in East Africa

Work Package	D3 – Quantification in space and time
Countries of work	Kenya, Tanzania, Rwanda and Uganda
1st Supervisor	Prof. Dr. Gunter Menz
Subject	Geography, Remote Sensing
Faculty	Faculty of Mathematics and Natural Science
University	University of Bonn
Working period	8/2013 – 11/2016