Essayas Kaba Ayana, J Aeronaut Aerospace Eng 2015, 3:3
http://dx.doi.org/10.4172/2168-9792.S1.007

OMICS International
conferenceseries.com

International Conference and Exhibition on
Satellite

August 17-19, 2015 Houston, USA

Estimating total suspended sediment (TSS) budget of a freshwater lake using remote sensing

Essayas Kaba Ayana
Columbia University, Columbia

Sediment plumes to freshwater lakes and reservoirs decreases storage volume, reduces sunlight penetration in lake water and degrade the productivity of the whole food web in the aquatic system, reduces zooplankton growth and makes water supply disinfection costly. Intensive sampling of either sediment concentration or turbidity on many locations is prohibitively expensive. Techniques using remotely sensed images have become increasingly effective in estimating total suspended solid and turbidity in open water bodies. Nevertheless these techniques use relationships of remotely sensed reflectance and sediment concentration which are site specific. In this study calibrated coefficients from literature are used to establish a global relationship that relates TSS and reflectance measured by MODIS in one of the stream flowing into a fresh water lake. Site correction is applied to the established relationship and TSS time series is constructed for other four inflowing streams flowing and a major outflowing river, the Blue Nile. Out flowing TSS from remote sensing is validated using TSS samples taken at outlet of the lake. The TSS budget of the lake indicated that in a given season nearly 64% of the TSS accumulates in the lake.

Biography

Essayas Kaba Ayana received his Bachelor of Science degree in Hydraulic Engineering in 2002. He then became a Faculty Member at Bahir Dar University. After working for three years he was awarded a Dutch scholarship to study GIS and remote sensing at the International Institute for Geo–Information Science and Earth Observation (ITC) in Enschede, the Netherlands and earned a Master's degree in Integrated Catchment and Water Resources Management. In his MSc research he evaluated the performance of radar altimetry data over Lake Tana, a source to the Blue Nile River. Up on return he served as Chair of the Department of Water Resources Engineering at Bahir Dar University. In addition, he taught courses in the area of GIS and remote sensing. He then became a Vice Dean for the Engineering Faculty in 2009. He joined Cornell University in fall 2009 to start his PhD in the Biological and Environmental Engineering Department.

eka2115@columbia.edu

Notes: