

# **Potentials and Constraints of Space Technology Applications for Sustainable Management of Ethiopian Lakes**

- Poster -

Daniel Kassahun

P. Box: 34055, Addis Ababa, Ethiopia, [daniel\\_kassahun@yahoo.com](mailto:daniel_kassahun@yahoo.com)

Currently Ethiopian lakes are under intense pressures, mainly from increasing human interventions. Most of them have undergone enormous changes alongside with their susceptible hinterlands. Understanding their dynamic behaviour and curtailing the detrimental consequences, up-to-date and precise information are urgently needed. However, detecting and monitoring such environmental dynamics are data-hungry and hard to acquire.

Acquisition of pertinent data through earth orbiting satellites has demonstrated tremendous advantages when compared to conventional methods of ground-based surveys. This is due to possibilities in wider area coverage, fast data acquisition, access to inaccessible areas, and the objectivity of obtainable data.

Through multi-spectral sensors, parameters of lakes, which include colour, bathymetry, chlorophyll concentration, thermal oscillations, dynamics of algal bloom, morphometric measures, and land cover dynamics, could be detected, monitored, and analysed effectively. Besides, this modern tool could yield some dynamic parameters, which are required for hydrological, erosion, and other environmental models. Such digital spatial information could be stored, manipulated and presented through GIS.

In Ethiopia, there is a growing interest to harness satellite-generated data for various environmental studies. Therefore, it is high time to examine and discern the sensor-induced specifications (spatial, radiometric, and temporal resolutions) and environmentally induced factors (prevalence of cloud cover, size of target parameters, size of lakes, spectral response of target parameters, dynamics of the phenomena, etc) that are fine-tuned to the Ethiopian lakes. Such studies helps not only to guide the future exploitation of satellites from the right perspective, but also for saving unnecessary expenditures induced from unforeseen hitches. To this effect, this paper attempts to offer the conceptual framework of the specific contributions and of inherent pitfalls from the use of space technology to the sustainable use of lakes, which are tailored to the Ethiopian context.