**Challenges to Validating MODIS Imagery for Monitoring Water Quality on**

**Lake Victoria**

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**Abstract**

Lake Victoria is the largest freshwater lake in Africa, and covers an area of 68,800 km2. It is transboundary surrounded by Uganda, Kenya and Tanzania. Lake Victoria is a key ecosystem providing sustenance, livelihood, recreation etc to a population of over 20million people directly, and over 100 million people indirectly through River Nile which originates from Lake Victoria. This certainly provides a case for the need of a rigorous, reliable and regular source of information regarding the lake’s water quality. The existing traditional methods of determining water quality cannot fit the bill, hence the interest in Satellite Remote Sensing. Satellite imagery brings with it the advantage of regularly collected data which is easily accessible and gives a synoptic perspective of the whole lake. The validation process involves comparing satellite derived water quality parameters with in-situ observations collected the traditional way. Some of the challenges encountered in this validation include: persistent cloud cover, cost of expeditions, the size of the lake means that only a small portion of the lake can be monitored at a time, there were even times when satellite overpass missed out the study area of interest. The preliminary results nonetheless show that satellite derived lake surface temperature strongly correlates with in-situ temperature measurements. We still haven’t been able to correlate satellite derived ocean colour with in-situ observations, which we hope to remedy by exploring the use of ‘ships of opportunity’ which ply the route between Jinja in Uganda and Mwanza in Tanzania or Kisumu in Kenya.

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