REMOTE SENSING AS A TOOL FOR WATER QUALITY MODELING OF LAKE NASSER

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ABSTRACT
Lake Nasser in Upper Egypt is one of the largest fresh water lakes worldwide, as well as being Egypt’s largest source of fresh water. Water quality pollutants generally and suspended sediments in particular are a big problem which is facing development in aquatic ecosystems around the world. Since the past two decades, Remote Sensing data are playing an important role to extract and to model information about natural resources. The research is aiming to present a method of implementing remote sensing techniques to investigate water quality in Lake Nasser.

In this paper, a model that is investigating surface suspended sediments has been used with Landsat TM data in order to map suspended sediments in Lake Nasser in Upper Egypt during the highest and lowest water level of the flood. The main idea of the model is to mathematically correlate reflectance or ratios of reflectance from different bands of Landsat data and suspended sediments distribution. The model is also considering the normalisation of the Landsat images, so as to ensure representative values for the reflectance to the natural water surface.

Through this research, it will be able to map the distribution of surface suspended sediments on Lake Nasser. Thus, we may determine areas where erosion takes place and take necessary measures to stop it or to put it under control. The research is a start of a larger research program for Lake Nasser and its area, before any future development goes on.