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MONITORING AND CHECKING THE QUALITY OF WATER IN THE UNITED ARAB EMIRATES THROUGH SATELLITE IMAGERY

Abstract

Quality of water in many regions of the country has always been an issue of concern. Good water quality is important for human health, economic development, and the health of our environment. Traditionally, water quality testing is carried out by in-situ measurements or taking of water samples for further testing in the laboratory. The duration and frequency of harmful algal blooms, which trend during warm weather months, is one indicator of poor water quality. Having the ability to monitor and provide timely response to harmful algal blooms would be one step toward protecting the benefits people receive from good water quality. The municipalities and the government officials can use the images received from the satellite to interpret and understand the quality of water at a faster pace and thereby improve the public wellbeing. There are several software/web tools that can be used for the interpretation of water quality. Geospatial Interactive Online Visualization ANd aNalysis Infrastructure (GIOVANNI) is a web-based application which provides a simple and intuitive way to visualize, analyze, and access vast amounts of Earth science remote sensing data without having to download the data. Retrieval of the water quality parameters can also be done through high resolution IKONOS multi spectral data supported by in situ measurements. Image processing procedure involving radio-metric correction can be carried out for conversion from digital numbers (DNs) to spectral radiance to correlate water quality parameters and satellite data by using multiple regression technique. The spatial distribution maps are developed by using multiple regression algorithm belonging to water quality parameters. These maps present apparent spatial variations of selected parameters and informs of the water quality variations in a large water region.