THE INHERENT OPTICAL PROPERTIES (IOPs) ALGORITHMS FOR DETECTION THE WATER QUALITY IN TURBID WATERS OF MEKONG ESTUARIES

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ABSTRACT

The inherent optical properties (IOPs) describe the scattering characteristics of ocean/coastal waters and its constituents. IOPs are used to determine the spectral of water-leaving radiance and conventionally the water-leaving radiance is used to determine oceanic constituents.

Base on the support of Nippon foundation – POGO grand, the NANO's Alumnus and Mentors of Vietnamese researchers carried out to survey synchronize the bio-chemical parameters and measured the in situ IOPs data in coastal waters along two estuaries of Dai and Tieu river mouths in Mekong Delta.

The Profiling Reflectance Radiometer (PRR2600/2610) and water sample were deployed to collect data. PRR2600 measured vertical profile of irradiance and radiance at 7 wavelengths (380, 412, 443, 490, 555, 625, and 665 nm) throughout the water column from surface to approximately 5 m above the sea floor. Water samples were taken at several depths (surface + 1m + 3m + 5m) by using Niskin bottles. The FluoroProbe also were used for taking in situ data of Temperature, Salinity, pH, Turbidity, DO, Fluorescence profiles

The IOPs was computed from remote sensing reflection just above surface (Rrs) by using Quasi-Analytical Algorithm (QAA) developed Lee etc. 2002.

This paper present some preliminary results of IOPs algorithms in turbid waters (water case 2) of Mekong Delta obtain from above data. The application of IOPs algorithms on both SEAWIFs and MODIS data for mapping of water quality parameters in Mekong Delta are also introduced.

The validation/calibration processes which base on environmental monitoring data of Institute of Oceanography (from 1998 – 2012) in compararison with predicted Seawifs and MODIS Level 2B data are also analyzed.

The analyzing results showed the advantage as well as disadvantage problems of this method for environmental monitoring in turbid water of Mekong Delta. Need to take synchronize and more environmental data combine with IOPs data for improving the algorithms on detection the water quality in turbid water of Mekong Delta.

Key words: Inherent optical properties (IOPs), Quasi-Analytical Algorithm (QAA), Turbid water, Mekong Estuaries.