

SEAGRASS MAPPING IN THUY TRIEU - CAM RANH LAGOON (VIETNAM) BY USING SATELLITE MULTI SENSORS

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ABSTRACT

Seagrass canopy plays a critical role in the ecological function of coastal zones. They supply nursery and juvenile habitats for fisheries, stabilize sediment and provide direct food for dugongs and green turtles.

The objective of this paper is to detect the distribution and temporal variation of the seagrass communities in Thuy Trieu - Cam Ranh lagoons base on multi sensors such as LANDSAT ETM+, SPOT5, FORMOSAT-2 and ALOS AVNIR-2 together to ground truthing data in 2011.

A pre-processing procedure including gaseous absorption correction, atmospheric correction as well as avoiding the sun glitters were performed for different sensors. In fact, the gaseous absorption correction is mainly vicarious calibration between radiance of above satellite image sources to radiance simulated by MODIS observation and then applying the gaseous absorption factors of ozone, oxygen and water vapor precipitation that simulated by MODIS observation for correction. The atmospheric correction were carried out to base on LOWTRAN model (6S tool) with corrected parameters also obtained from MODIS data at same time. The avoiding of solar glints (if available) mainly base on NIR band of above satellite images.

The seagrass mapping in Cam Ranh lagoon base on mainly the Bottom Reflectance Index – BRI technique (Sagawa, 2005) with processed parameters of bathymetry, IOPs data as well as solar and sensor paths.

Seagrass beds in Thuy Trieu - Cam ranh coverage of 1,178 ha with abundance communities of *Halodule uninervis* – *Halophila ovalis* in the peak of lagoon and community of *Enhalus acoroides* in the middle of lagoon. In present time, the seagrass beds are being degraded by illegal fishing methods, aquaculture, industry and living domestics. The reducing ratio of seagrass coverage has been increased in recent years.

In conclusion, finally maps of the status and historical changes of seagrass beds in Thuy Trieu – Cam Ranh lagoons could help to integrate in terms of suitable utilization of bio and natural resources and environmental protection as well as sustainable development.

Key words: Seagrass mapping, Thuy Trieu – Cam Ranh lagoon, gaseous absorption correction, atmospheric correction, Bottom Reflectance Index – BRI technique