

**ESTIMATION OF CHLOROPHYLL, DETRITUS AND DISSOLVED  
SUBSTANCES FROM OPTICAL MEASUREMENTS**

**A thesis  
Presented to the Faculty  
of  
San Jose State University  
through  
Moss Landing Marine Laboratories**

**In Partial Fulfillment  
of the Requirements for the Degree  
Master of Science in Marine Science**

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**December 2000**

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## **ABSTRACT**

### **ESTIMATION OF CHLOROPHYLL, DETRITUS AND DISSOLVED SUBSTANCES FROM OPTICAL MEASUREMENTS**

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Bio-Optical data from the global open ocean and Californian coastal waters are analyzed to assess the accuracy of empirical algorithms and semi-analytical models for estimating chlorophyll from remote sensing reflectance. The empirical algorithms generally yield high correlation between modeled and measured chlorophyll.

The semi-analytical model of Garver and Siegel (1997) predicts chlorophyll less accurately than the empirical models for the open ocean, whereas for the Pacific (between 10°N and 40°S) and the coastal waters, it provides more accurate results. The model also provides information on other components responsible for remote sensing reflectance. It suggests that for coastal water dissolved material is more important than detrital mater, but in the open ocean the situation is reversed, except for the Indian Ocean. The semi-analytical model was modified to consider a power law between the absorption coefficient of phytoplankton and the chlorophyll. The modified model provides a better one-to-one relationship between measured and modeled chlorophyll.