

OCEAN OPTICS XXIV

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Monday, October 8

Poster Session 1

16:00–18:00

Poster 216

A GENERALIZED ALGORITHM FOR RETRIEVAL OF THE CHLOROPHYLL CONCENTRATION FROM SATELLITE DATA IN COASTAL AND INLAND WATERS

With the advent of many new generation sensors designed to provide frequent, high-spatial resolution, visible and near-infrared images, satellite optical remote sensing has been increasingly recognized as an effective method for producing synoptic maps of phytoplankton biomass distribution in the coastal zones and associated inland water systems. Recent studies have reported that there is a large uncertainty in chlorophyll concentration products for inland and coastal waters generated based on the remote sensing data using the traditional reflectance ratio algorithms and the red-NIR algorithms. To overcome the limitation of these algorithms, this work proposes a generalized algorithm for retrieval of the chlorophyll concentration from both multispectral and hyperspectral data and provides a rigorous validation of the algorithm products using independent in-situ data. Further, this study demonstrates the performance of the generalized algorithm and traditional algorithms based a variety of satellite remote sensing data from the contrasting inland, coastal and ocean environments. Results from the new algorithm showed good agreement with measured data with the errors in the desirable limits. The new algorithm is more advantageous in terms of the retrieval accuracy, wider applicability, and compatibility with modern satellite optical remote sensing sensors.

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