

OCEAN OPTICS XXIV

Valamar Lacroma Dubrovnik Hotel | Dubrovnik, Croatia | October 7–12, 2018

<https://oceanopticsconference.org>

Tuesday, October 9

Poster Session 2

10:30–12:30

Poster 142

A LAGRANGIAN FRAMEWORK FOR ANALYSIS AND INTERPRETATION OF OCEAN-COLOR SATELLITE DATA

Optical properties of the well-lit upper layer of the ocean are strongly influenced by the microscopic drifting photosynthetic organisms embedded within it - the phytoplankton. In remote parts of the ocean, distant from the coast and from the seabed, there is no obvious spatially fixed reference frame for describing phytoplankton dynamics. Thus, a natural perspective for studying phytoplankton dynamics and its imprint on ocean optics, ecology and biogeochemistry is to follow the trajectories of water parcels in which the organisms are embedded. With the advent of satellite oceanography, Lagrangian interpretation of satellite data has provided valuable information on different aspects of phytoplankton dynamics, including spatio-temporal changes in bio-optical properties, bloom initiation and termination, biodiversity, and export of carbon to the deep ocean. In this presentation we will discuss a recently-developed framework for Lagrangian interpretation of ocean color satellite data. The approach taken, which is based on integrating ocean color, temperature and altimetry satellite data, and relies on unambiguous identification of distinct water patches, will be demonstrated on case studies from different parts of the World Ocean.

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