

# OCEAN OPTICS XXIV

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Monday, October 8

Plenary Session 1

09:20–10:00

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## **SURFACE COLOR DATA DISTRIBUTION IN RELATION TO OCEANOGRAPHIC PROCESSES IN THE ADRIATIC/IONIAN REGION**

Adriatic Sea and North Ionian are two interacting basins showing specific oceanographic patterns, resulting in quite prominent seasonal, interannual and decadal variability of the phytoplankton community features. Therefore, the use of ocean color data is rather important for understanding both ecosystem functioning and oceanographic features in the two areas. The South Adriatic Pit is characterized by a presence of the quasi-permanent cyclonic gyre, whose center is the site of the winter vertical mixing and the dense water formation. The vertical mixing is triggered by outbreaks of the cold continental air. This water represents then the main component of the bottom water of the entire Eastern Mediterranean. The vertical mixing brings to the surface deep nutrient-rich waters and triggers the spring phytoplankton bloom. The high chlorophyll concentration, on one hand enables to study the characteristics of the vertically mixed patch, and on the other hand, to quantify interannual and decadal variability of the phytoplankton biomass. Combining the satellite measurements with in situ data, provides rather complete information on the South Adriatic ecosystem. In the North Ionian, circulation is dominated by a basin-scale meander, which changes on a decadal time-scale from cyclonic to anticyclonic and viceversa, affecting nutrient distribution and nutricline depth. North Ionian is then a good study area to investigate how changes in circulation can affect phytoplankton phenology in oligotrophic regions. From in situ observations, the average distribution of isopycnals was produced for each circulation regime and a nutricline depth difference between cyclonic and anticyclonic circulation modes of about 80 m was estimated. The phytoplankton phenology metrics extracted from annual time-series of ocean color data for the period 1998-2012, associated with the two circulation regimes were compared. Results showed that the metric the most affected by circulation reversals is the initiation date for the main increase in chlorophyll-a.

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