

Ocean optics meets taxonomy: case study in Southern Adriatic Pit

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OVERVIEW

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The immense diversity of oceanic plankton and its distribution is hard to access with a single method only. Discrete samples, analysed through imaging, pigments or molecular methods, offer a great view of the composition, but offer only a limited resolution of plankton over space and time. **Optical tools**, deployed on in situ and from remote sensing platforms, allow high spatial and temporal view, but tell very little about plankton composition. However, combination of these techniques offers an all-inclusive view of plankton diversity in the ocean.

HOW WHERE? Physics BIOTA [Bio-tracing Adriatic water masses] Winter Cruise was conducted in oligotrophic waters of the **Southern Adriatic Pit** (Figure 1.) CTD casts - temperature, salinity, oxygen, light (PAR) **Optical analysis (biology):** CTD casts - chlorophyll fluorescence, particulate backscattering Influence of: Two major transects: **Combination of** and beam attenuation Dubrovnik to 1000 m isobath - Levantine Intermediate Water (LIW) techniques! derived data- particulate organic and phytoplankton carbon, (in direction 210°) - East Adriatic Current (EAC) optical indices (optical community index and backscattering ratio) 1000 m isobath to Lastovo Phytoplankton and zooplankton abundances: WHEN WHY microscopy, flow cytometry and molecular identification methods

February 28th - March 3rd 2015

Aim: specific winter circulation & distribution of phytoplankton



NASA



Figure 1. Map of investigated area with satelite photographs taken February 18 **2015.**, a week before the **BIOTA cruise** showing Chl *a* concentrations and two investigated transects with stations as red dots.









Figure 11. Microzooplankton abundance at P600 station (no. ind.m⁻³)

CONCLUSION

Encountered distribution of the plankton in the water column reflects an intricate play of the water masses in the studied area. Overall, our results suggest that different portions of plankton community, here separated by their size, respond to different environmental cues in this oligotrophic oceanic ecosystem.

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