

OCEAN OPTICS XXIV

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

<https://oceanopticsconference.org>

Tuesday, October 9

Oral Session 5

16:20–17:40

16:40–17:00

RECONSTRUCTING OPTICAL PROPERTIES IN THE MEDITERRANEAN SEA : THE COMBINED USE OF BGC-ARGO AND SATELLITE DATA WITH NUMERICAL MODELS

We hereby present the potential of using in-situ data and remote sensing products, both as model inputs and output validation tools, within the Mediterranean Sea biogeochemical modelling framework. One example of merging different techniques was investigated by adopting a 1-D version of the 3-D biogeochemical model based on the OGSTM-BFM system, where we used a BCG-Argo data set comprised of 31 floats for the period between 2012 and 2016. The photosynthetically active radiation profiles served as the external optical forcing, whereas fluorescence-derived chlorophyll profiles were compared with the model output regarding deep chlorophyll maximum and chlorophyll concentration magnitudes. Furthermore, satellite data from the Copernicus Marine Data Stream were acquired in order to update the algorithm that has been used so far in the 3-D biogeochemical model within the E.U. Copernicus Marine Services. The objective was to quantify the sensitivity of model results using climatological vs. improved K_d data (based on ESA CCI merged files for K_d490) in terms of chlorophyll and primary productivity. Chlorophyll concentrations were validated also through the use of a quality-controlled HPLC dataset, which was compared to corresponding model outputs at given locations. Such an integrated approach is useful as a first step towards the improvement of the optical component of the 3-D biogeochemical Mediterranean Sea model, striving towards the implementation of a hyperspectral radiative transfer model, which would present a fundamental upgrade to obtain a more accurate description of the underwater light field, impacting both hydromechanics and biogeochemistry. Results will be discussed at the conference.

Stefano Salon, OGS, ssalon@inogs.it, <https://orcid.org/0000-0003-1233-8271>

Elena Terzic, OGS / University of Trieste, eterzic@inogs.it

Paolo Lazzari, OGS, plazzari@inogs.it

Emanuele Organelli, PML, emo@pml.ac.uk

Fabrizio D'Ortenzio, LOV-UPMC, dortenzio@obs-vlfr.fr

Gianpiero Cossarini, OGS, gcossarini@inogs.it

Anna Teruzzi, OGS, ateruzzi@inogs.it

Cosimo Solidoro, OGS, csolidoro@inogs.it