

Monday, October 8

Poster Session 1

16:00–18:00

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Poster 260

GLOBAL RETRIEVAL ALGORITHMS FOR PHYTOPLANKTON FUNCTIONAL TYPES (PFTS): TOWARD THE APPLICATIONS TO OLCI AND GLOBCOLOUR MERGED PRODUCTS

With integrated use of extensive in situ measurements from various cruises in different regions, this study focuses on PFT retrieval algorithms that are then applied to Sentinel-3 (S3) OLCI data and merged ocean colour (OC) products from CMEMS GlobColour archive. The main retrieved PFTs should include at least diatoms, haptophytes, prokaryotic phytoplankton, and more if possible. Previously investigated retrieval methods, empirical orthogonal functions (EOF) for pigment concentrations estimation (Bracher et al. 2015) and ocean reflectance inversion model (ORM) (Werdell et al. 2014) for PFT discrimination, are tested and adapted potentially with full use of our current available in situ measurements from various campaigns worldwide, in which we have a number of collocated remote sensing reflectance spectra (Rrs) and HPLC pigments in addition to other bio-optical measurements. Algorithms are tested and compared by both taking hyperspectral and multispectral in situ Rrs as input data, and the multispectral based approach is later on applied to the above mentioned satellite data. Performances of both EOF- and ORM-based approaches are assessed statistically and cross-validated, with results showing that both could well predict chlorophyll-a concentrations for diatoms and haptophytes but less good for prokaryotes. In a next step these algorithms are adapted to satellite OC data collocated to an even larger in-situ PFT database derived from HPLC phytoplankton pigments. This is to eventually develop the global satellite PFT products for long-term observation, updated timely with more available OLCI data in the future, and intercompared the results with other existing PFT products (e.g. PhytoDOAS, OC-PFT, SynSenPFT).

Hongyan Xi, Alfred Wegener Institute, xihy06@gmail.com, <https://orcid.org/0000-0003-2827-0603>

Svetlana Losa, Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, svetlana.losa@awi.de

Antoine Mangin, ACRI-ST, antoine.mangin@acri.fr

Mariana Soppa, Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, mariana.soppa@awi.de

Philippe Garnesson, ACRI-ST, philippe.garnesson@acri-st.fr

Julien Demaria, ACRI-ST, julien.demaria@acri-st.fr

Odile Hembise Fanton D'andon, ACRI-ST, oha@acri-st.fr

Astrid Bracher, Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, astrid.bracher@awi.de,

<https://orcid.org/0000-0003-3025-5517>