How do we best utilize existing programs or recommend new programs to validate satellite approaches for detecting ephemeral blooms in the sea - International

Lesley Clementson

IOCS, Busan, Korea - 08 April 2019,
Existing programs

Several databases – SeaBASS, MERMAID, PANGAEA, PACE, OC-CCI, International PFT etc

Future Parameters

For PFT analyses there is a need to go beyond absorption, pigment and TSS data

Flow cytometry data - issues
Microscopic species identification - issues
Imagery data available from above methods - issues

Phytoplankton Taxonomy Working Group

Objective: In an effort to facilitate community-wide access to phytoplankton data products that support critical satellite algorithm development and validation
Future Parameters

The SCOR P-OBS Working Group #154

A NEW WORKING GROUP
“Integration of Plankton-Observing Sensor Systems to Existing Global Sampling Programs”
Chairs: Emmanuel Boss & Anya Waite
First meeting of the WG: Portland, Feb 2018

The WG has just started to work on recommendations for incorporating biological measurements beyond chlorophyll fluorescence into ongoing ocean observing programs (initially GO-SHIP and expansion to the OceanSITES mooring array), including best practices (technologies and sampling protocols) and technical feasibility.

P-OBS RECOMMENDED MEASUREMENTS INCLUDE

Imaging

HPLC  ➔ Relevant to phytoplankton diversity
       Should promote the acquisition of diversity data beyond HPLC only

Genetics

Flow cytometry
Future Parameters

EXPORTS:
Inter-comparison to link remotely & in situ determined plankton abundance, size and taxonomy

- at sea and in the lab, whole seawater and mono-specific cultures
- particle abundance, taxonomic identity, size and abundance/size spectra
- instrument sensitivity and measurement variance

 Courtesy of Susanne Menden-Deuer
(Export PSD collaborative)
**Future Parameters**

**A new approach for combining optical and diversity data**  
*Courtesy of Julia Uitz (LOV-France)*

- Field sampling for optics (c_p, b_{pp}, Chl) and diversity (flow cytometry, microscopy, POC) measurements

- Development of a statistical predictive model linking optics and phytoplankton diversity (*carbon partitioning of PSCs*)

- Application of the predictive model to BGC-Argo float observations collected in the "calibration" area

- Similar approach combining different sources of diversity (PFT) information could be applied to hyperspectral data
- BGC-Argo floats offer new possibilities for in situ PFT products that can be used for validation of ocean color products over a broad range of space and time scales

*Rembauville et al. JGR 2017*
Future Parameters

EU-funded Euromarine Foresight Workshop
Chair: Heidi Dierssen (UConn; currently at VLIZ)
Co-chairs: Astrid Bracher (AWI, Vittorio Brando (CNR), Kevin Ruddick (RBINS), Hubert Loisel (LOG)

Data needs for hyperspectral detection of algal bloom diversity across the globe

OBJECTIVE: to develop recommendations for accurate, efficient and effective laboratory and field programs to supply data for development of algorithms and validation of hyperspectral satellite imagery for micro-, macro- and endosymbiotic algal bloom detection across the globe.

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Duration: 2.5 days
Proposed dates: 4-6 June, 2019 (backup 28-30 May, 2019)
Venue: Oostende, Belgium
Hosting organisation: Flanders Marine Institute (VLIZ)
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Thank you

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