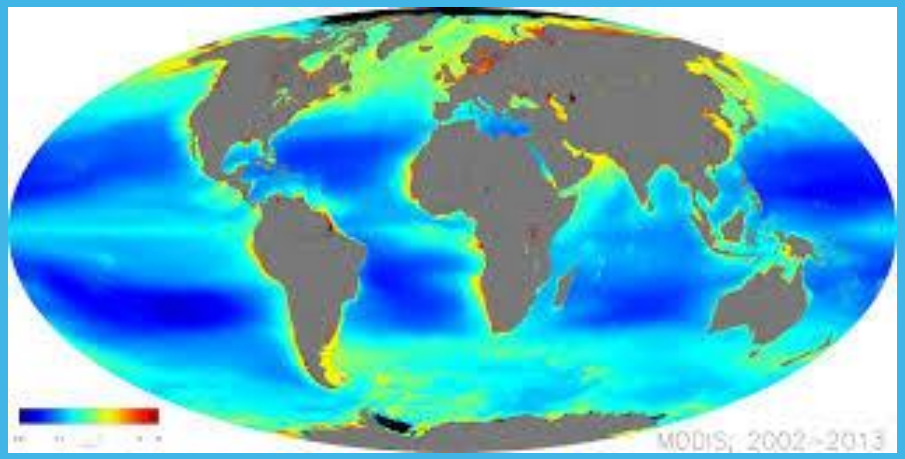
How do we best utilize existing programs or recommend new programs to validate satellite approaches for detecting ephemeral blooms in the sea - International



Lesley Clementson

IOCS, Busan, Korea - 08 April 2019,

Existing programs

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

esa
European Space Agency

IMOS
Integrated **Marine Observing** System

Marine Optical BuoY (MOBY)
Provides vicarious calibration of ocean color satellites

André Valente, et al (2019). A compilation of global bio-optical in situ data for ocean-colour satellite applications – version two. Submitted to Earth System Science Data

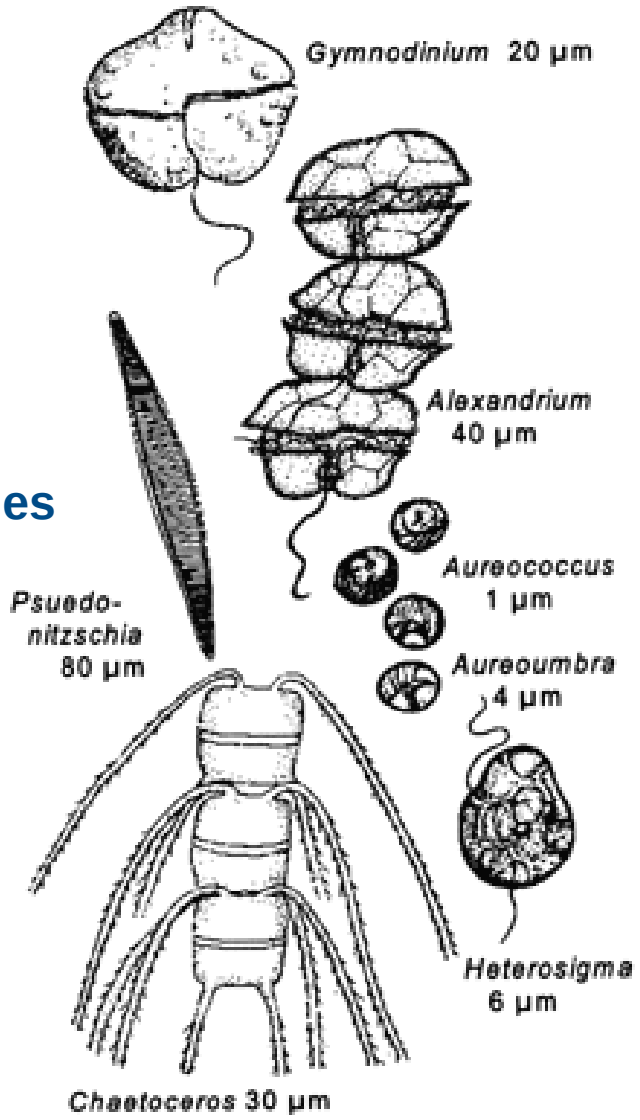
Future Parameters

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

Genetics

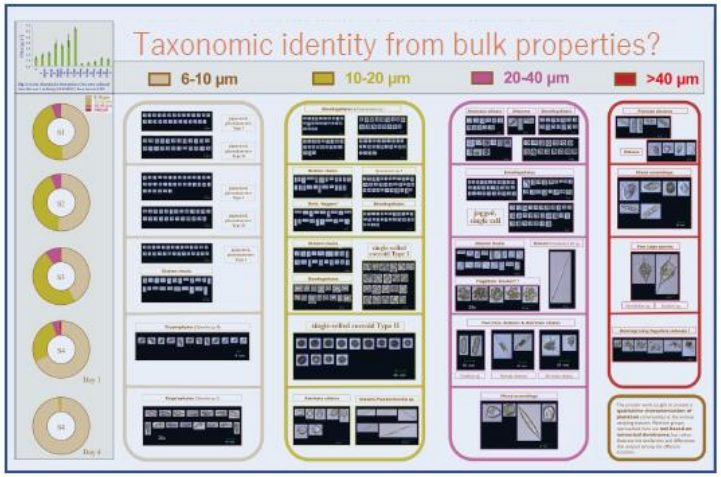
Flow cytometry

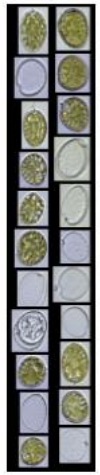
→ Relevant to phytoplankton diversity
Should promote the acquisition of diversity data beyond HPLC only

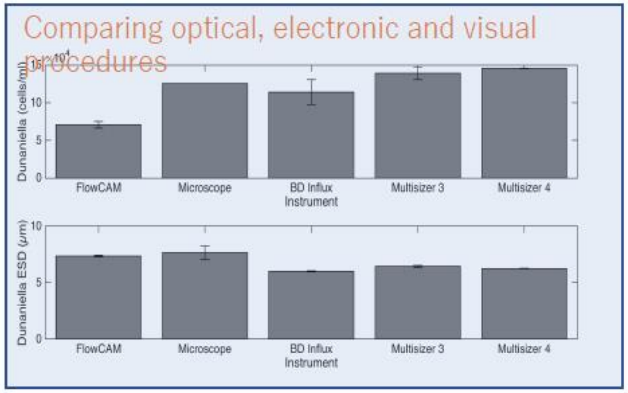
Future Parameters

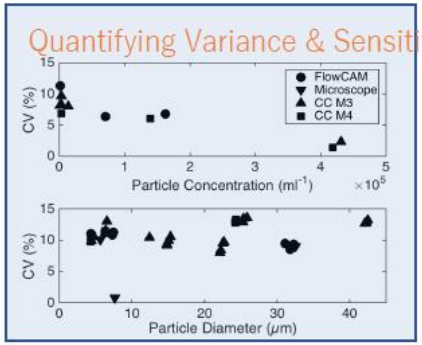
EXPORTS:
Inter-comparison to link remotely & in situ determined plankton abundance,
size and taxonomy

- 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_{bp}, Chl) and diversity (**flow cytometry, microscopy, POC**) measurements

↓

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

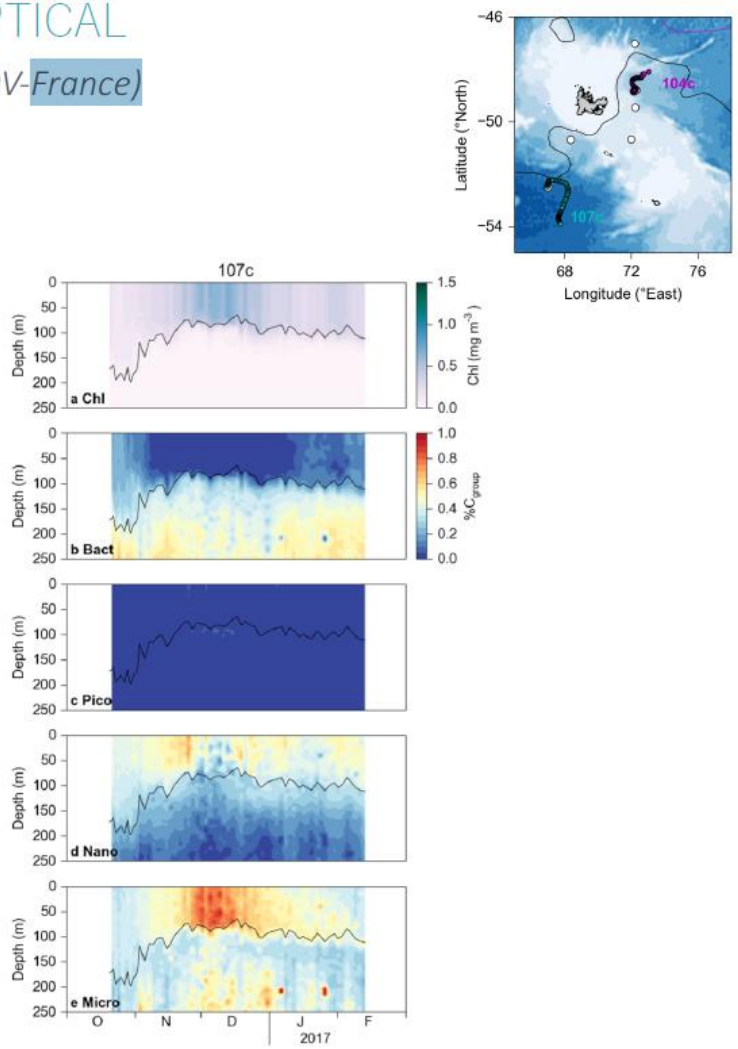
↓

•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.

Who	*Role in activity*	*Role code (M/C/K)*	*Org.*	*Country (of org.)*
Dr. Heidi Dierssen		M	VLIZ	Belgium
Dr. Kevin Ruddick		C	RBINS	Belgium
Dr. Astrid Bracher		C	AWI	Germany
Dr. Hubert Loisel		C	CNRS	France
Dr. Vittorio Brando		C	CNR	Italy

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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