International Ocean Colour Science Meeting 2013

Advancing Global Ocean Colour Observations

Splinter 5

Operational Ocean Colour Data in Support of Research, Applications and Services

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CSIR
our future through science

EUMETSAT

Splinter Agenda

1. Redefining "Operational"

2. Scientific and technological innovation

3. Community organization

09:45	**MORNING SPLINTERS (2 hr 30 min)**
	SPLINTER 5 Spectrum A **Operational ocean colour data in support of research, applications and services**
	09:45 Splinter session introduction (Ewa Kwiatkowska, EUMETSAT)
	Redefining "Operational"
	09:55 Emerging perspective (Cara Wilson, NOAA)
	10:10 Marine services view (Rosalia Santoleri, EU MyOcean)
	10:20 Diverse applications and their needs (Stewart Bernard, CSIR)
	10:30 Discussion
	Scientific and technological innovation in support of evolving applications and user needs
	11:00 Emerging applications, modelling/data assimilation, coastal morphodynamics, oil spills (Rosa Barciela, Met Office)
	11:10 Data access and tools (Steve Groom, PML)
	11:20 Discussion
	Community organization to support the implementation
	11:50 International Ocean Colour Community view and OCR-VC (Mark Dowell, JRC)
	12:00 Discussion
12:15	**LUNCH BREAK (75 min)**

"Operational"

- Operational does not only mean 24/7; timescales for ecosystems and fisheries are much longer
- Ocean color data users and applications are very diverse

Applications

1. Science (from PFTs to Earth System Science)

2. Climate

3. Services: marine ecosystem monitoring / modelling, water quality, fisheries, aquaculture, HABs, oil spills, marine disasters, eutrophication

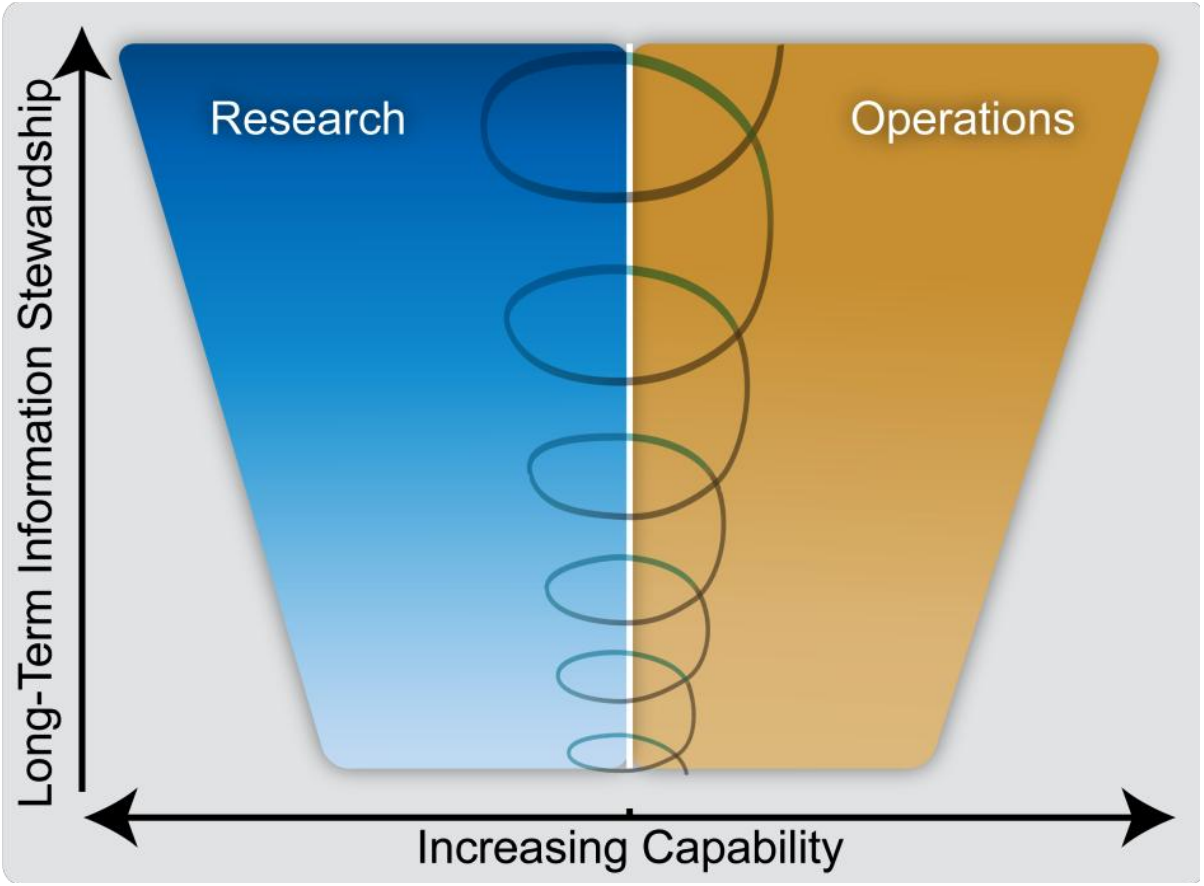
4. Marine and coastal management

5. Modelling, bio-geo-chemical models

- **Operational** ≡ systematic and long-term routine measurements of the seas and oceans and their rapid interpretation and dissemination
- Sustained long-term, routine and uninterrupted provision of quality satellite data for a variety of diverse applications

- Quality of data is of critical importance, assure accuracy and long term stability
- NRT science quality monitoring is also vital as well as quick response to instrument and processing issues
- Operational agencies to invest in space operations, and develop and maintain infrastructure and scientific and technical activities to assure the quality of products across regions
- Ensure that operational capabilities are achieved soon after launch
- Distribute the data early in the mission, even not well calibrated

- Transition from research to operations


Research
Operations
Long-Term Information Stewardship
Increasing Capability

"Innovation"

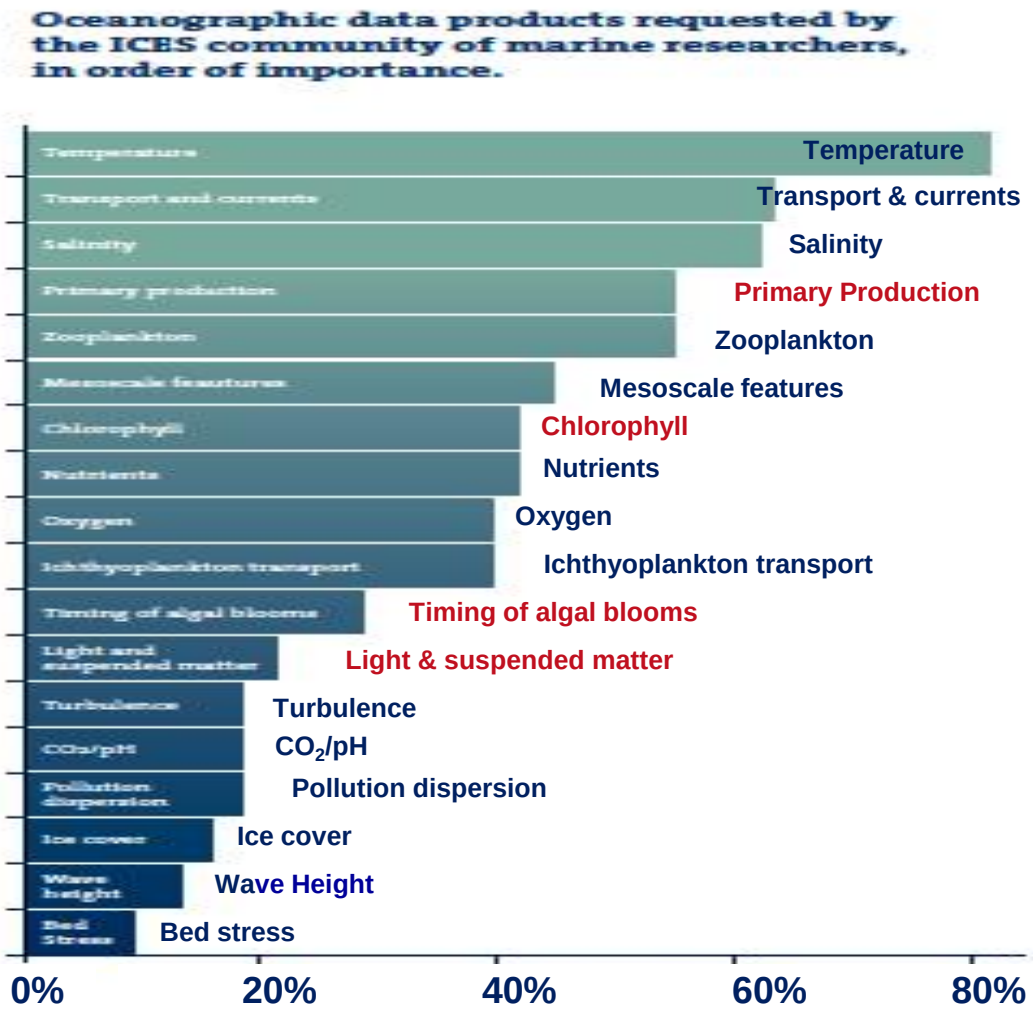
How to increase the use of OC to meet societal needs and challenges?

How to facilitate improved and new applications and services?

- Assure data continuity via operational missions
- Greater availability of data = greater data usage
- Outreach and empowerment of stake holders
- Acknowledge and support needs of commercial users
- Focus on science and technology
- Subsetting data in time and space, time aggregated data, OPeNDAP, THREDDS
- Flexible web visualization and processing systems

- Open source modular software
- Software working with multiple OC sensors
- Possibility to process data locally via regional algorithms (batch processing)
- L3 and L1A product availability (modelers-L3, scientists-L1A)
- All data on-line (instead of on a limited rolling archive)
- Agencies to provide NRT info about their data stream continuity and quality to users
- NRT timeliness in access to data, including direct downlink like EUMETCast (Brazil, China, South Africa, India)
- Availability of reference climatologies

Responses from fisheries managers (commercially exploited species and ecosystems)



Delivery of data products

• **Data access.** Data should be free and operationally available to all. Registration prior to data access should be avoided.	Free & No Registration
• **Time scale.** Two-thirds of users highlighted monthly average data as important. All other time-scales were requested by less than 50% of users.	Monthly averages
• **Data type.** More than 90% of ICES users requested access to historical data. This forms a stark contrast to the move in operational oceanography to develop forecast, nowcast, and real-time systems.	> 90% historical data
• **Data updates. Regular on an annual basis;** quarterly and monthly updates were also requested by a large proportion of users.	Annual updates
• **Data format.** An overwhelming majority requested that **data values** be available for download in **ASCII format.** Graphical outputs were seen as a good way to characterize the data, but the users wanted access to data that they could manipulate.	ASCII
• **Meta data.** Users want a **description of the methodology** accompanying the data.	Methodology

Berx *et al.*(2010)

http://groupsites.ices.dk/sites/wgoofe

"Community organization"

How to organize the community to address its broader needs from a wide scientific, technical, and programmatic perspective?

How to jointly formulate common issues and goals and jointly work on the practical implementation of solutions?

- Need a vision and goals for the community
- Requirements for climate exist, but requirements are not as well specified for services, coastal management, and modelling apps
- GHRSST model could be followed because it brings together international expertise around specific topics common to all, but it needs to also address the diversity of ocean colour applications and regional particularities
- Other initiatives: GEO Blue Planet and CEOS "operational"

4 main recommendations

- Highest quality of data and data access required from operational missions; operational missions to invest in space operations, infrastructure and scientific/technical base to assure the data quality
- Open source modular software working with multiple OC sensors
- L3 (and L1A) product availability
- International ocean color community structure to ensure cooperation, standardization and joint implementation leveraging other initiatives