



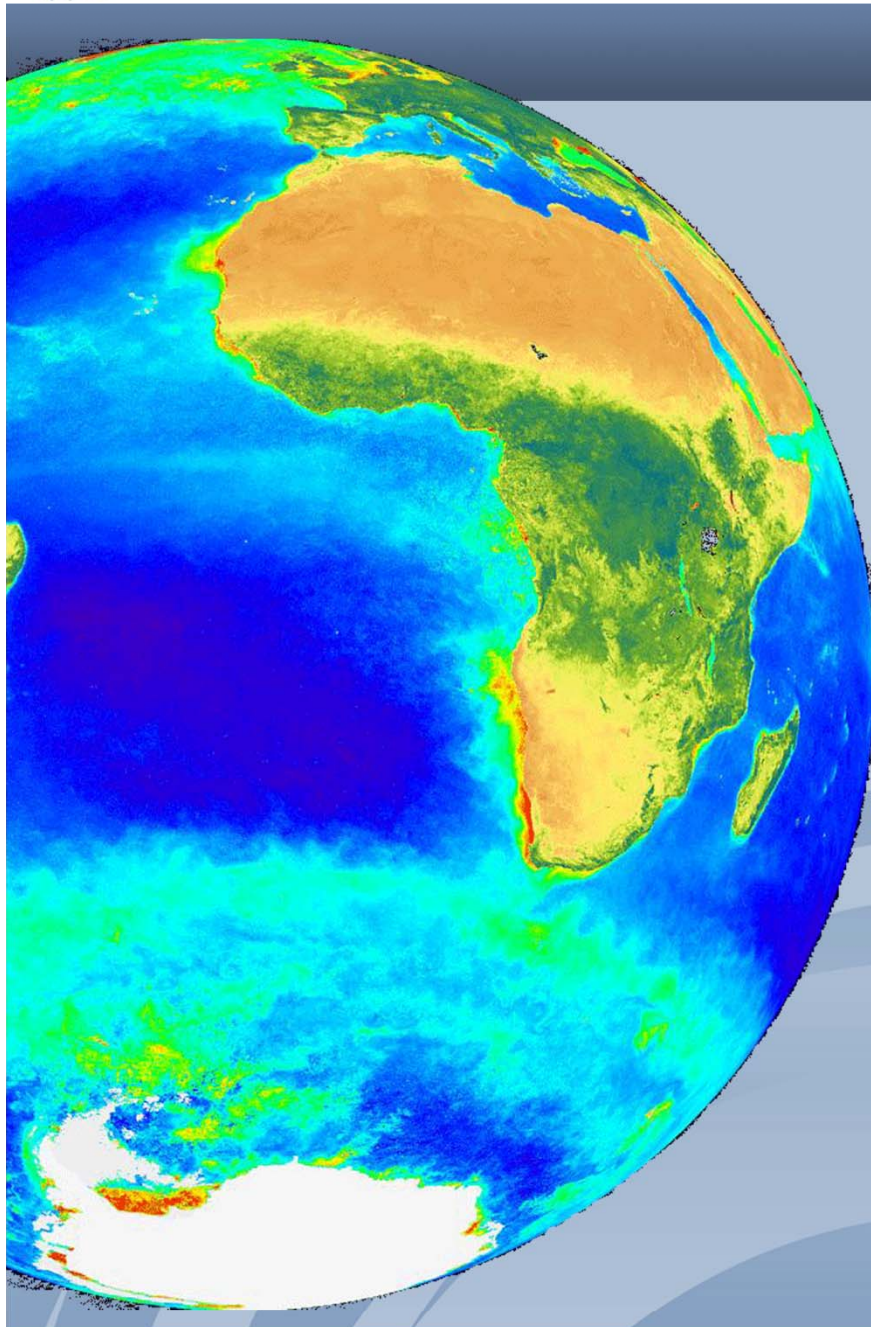
# Update on IOCCG activities, IOCS Meeting rationale & overview

*David ANTOINE, IOCCG Chair*





# The International Ocean Colour Coordinating Group IOCCG



## International Ocean Colour Coordinating Group

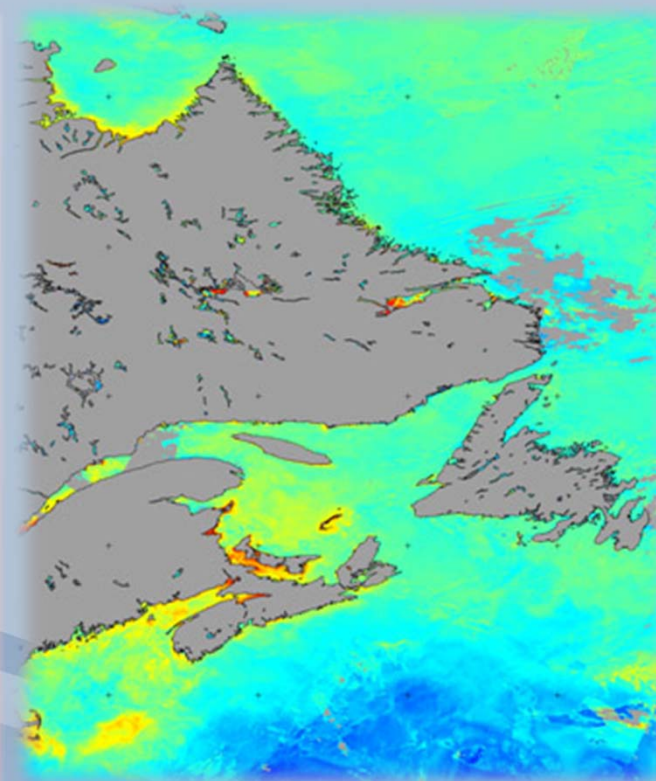
- Established in 1996 to promote the application of ocean-colour data at the world scale through coordination, liaison between providers and users, training, advocacy and provision of expert advice

- Project Office at the Bedford Institute of Oceanography, NS, Canada

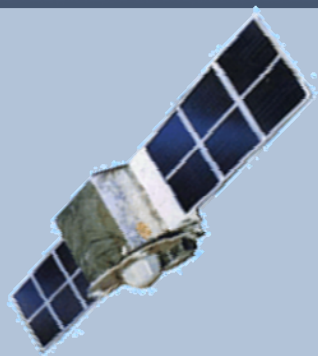
- Committee consists of:

**Space Agency Representatives** who contribute financially and carry out the decisions endorsed by the group

**Research Scientists** who address current research issues and make recommendations



ESA MERIS Chlorophyll, 3-9 Sept 2010  
(image courtesy Cesar Fuentes-Yaco,  
DFO, Canada)



# IOCCG Mandate

To provide a common voice for the user community

Liaise with space agencies

Advanced training courses to foster expertise in using ocean-colour data

Facilitate free and open access to ocean-colour data from all agencies

Ensure continuity and quality of the ocean-colour data stream

Advocate the importance of ocean-colour data to the global community  
(informative website, newsletters, brochures, IOCCG reports...)





# IOCCG Sponsors



- NASA (National Aeronautics and Space Administration)
- ESA (European Space Agency)
- JAXA (Japan Aerospace Exploration Agency)
- EUMETSAT (European Organisation for the Exploitation of Meteorological Satellites)
- CNES (Centre National d'Etudes Spatiales, France)
- CSA (Canadian Space Agency)
- NOAA (National Oceanic and Atmospheric Administration)
- JRC (Joint Research Centre, EC)
- INPE (National Institute for Space Research, Brazil)
- ISRO (Indian Space Research Organisation)
- KIOST (Korea Institute of Ocean Science and Technology )
- NCEO (National Centre for Earth Observation, UK )
- DFO (Bedford Institute of Oceanography)
- Helmholtz-Zentrum Geesthacht (Germany)

# IOCCG Scientific Working Groups

- Investigate various aspects of ocean-colour technology and its applications
- End product - publication of an IOCCG Report (13 published to date, plus a handbook). Widely cited, definitive works. Available at: [www.ioccg.org](http://www.ioccg.org)

*Report 1: Minimum Requirements for an Operational Ocean-Colour Sensor (1998)*

*Report 2: Status and Plans for Satellite Ocean-Colour Missions (1999)*

*Report 3: Remote Sensing of OC in Coastal and Other Waters (2000)*

*Report 4: Ocean-colour, Level-3, binned data products (2004)*

*Report 5: Remote Sensing of IOPs: Fundamentals and Algorithms (2006)*

*Report 6: Ocean-Colour Data Merging (2007)*

*Report 7: Why Ocean Colour? The Societal Benefits of Ocean-Colour Technology (2008)*

*Report 8: Remote Sensing in Fisheries and Aquaculture (2009)*

*Report 9: Partition of the Ocean into Ecological Provinces (2009)*

*Report 10: Atmospheric Correction (2010)*

*Report 11: Bio-Optical Sensors on Argo Floats (2011)*

*Report 12: Ocean-Colour Observations from a Geostationary Orbit (2012)*

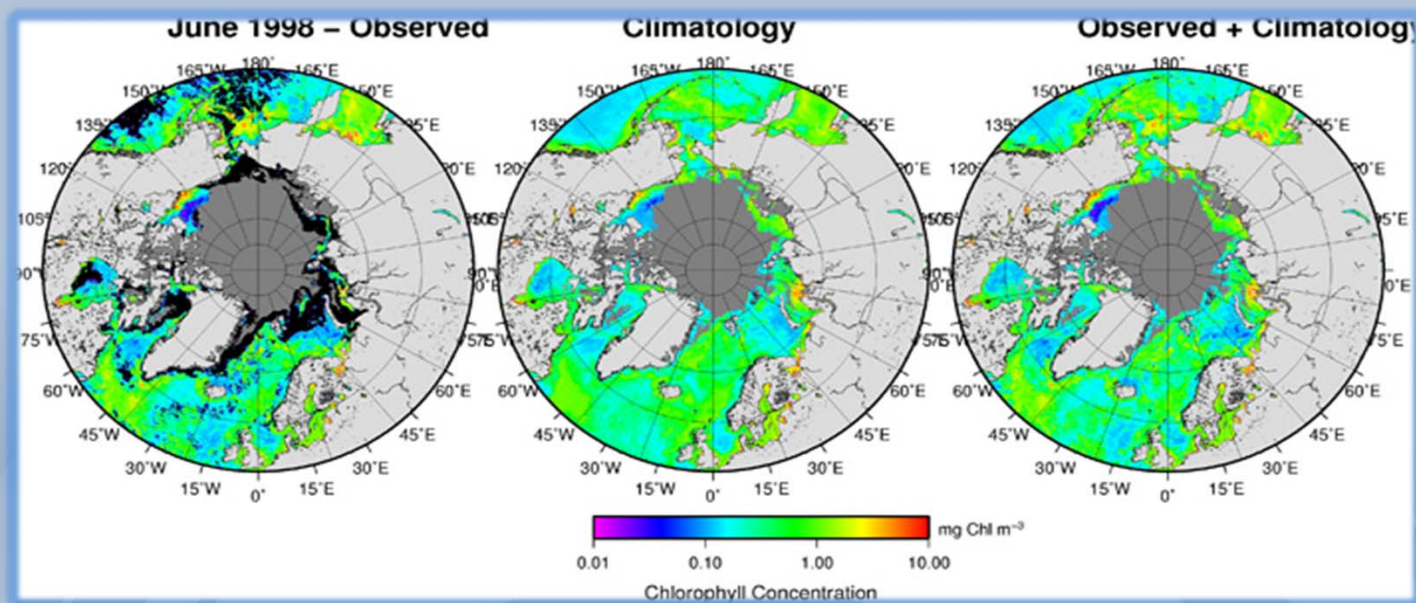
*Report 13: Mission Requirements for Future Ocean-Colour Sensors (2012)*

*Handbook of Satellite Remote Sensing Image Interpretation: Applications for Marine Living Resources Conservation and Management (2011)*



# Current IOCCG Working Groups

- 1) Phytoplankton Functional Types (Shubha Sathyendranath, UK)
- 2) Harmful Algal Blooms (IOCCG/GEOHAB – Stewart Bernard, South Africa)
- 3) Calibration of Ocean-Colour Sensors (Robert Frouin, USA)
- 4) Ocean Colour Remote Sensing in Polar Seas (Marcel Babin, Canada)
- 5) Uncertainties in Ocean Colour Radiometry (Roland Doerffer, Germany)
- 6) Retrieval algorithms for coastal waters (Kevin Ruddick, Belgium)



## Ocean Colour Radiometry – Virtual Constellation (OCR-VC)

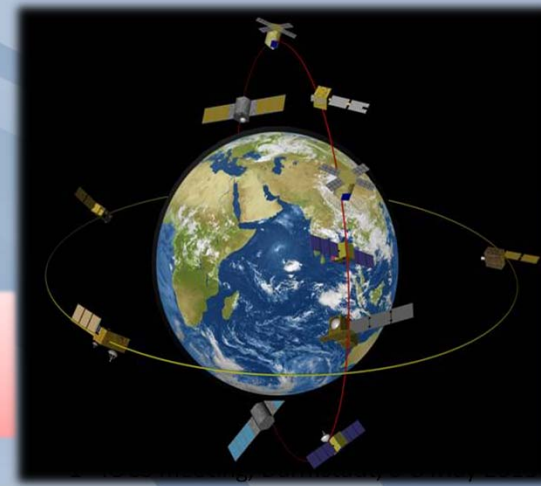
Established by IOCCG through CEOS to provide a long time series of calibrated ocean colour radiances from measurements obtained from multiple satellites.

- Goals of the OCR-VC

- 1) To ensure the continuity of the ocean colour time series – Climate Data Record
  - 2) To provide high quality data sets through a concerted inter-agency effort on activities relating to sensor inter-comparison (**INSITU-OCR**)
  - 3) Data harmonization, support implementation of ECVs (**IOCCG Task Force on ECV Assessment**)
  - 4) Facilitate timely and easy access to data (user interface)
  - 5) Capacity building and outreach
- All space agencies on the IOCCG Committee contribute to the OCR-VC



Committee on Earth Observation Satellites





# IOCCG Training Initiatives

## Introductory courses (applications)

- Theoretical basis of optical radiometry, introduction to processing and using ocean colour data.
- Over 20 courses conducted/co-sponsored around the world.
- Focus on key applications for monitoring and managing the coastal zone, and for protecting marine ecosystems and resources.

## High-level training courses (scientific research)

To maintain a highly skilled and trained scientific research community, with the necessary background and expertise to address current critical issues.

- Inversion Methods in Ocean Colour Remote Sensing (Germany, 2009)
- Summer Lecture Series (France, 2012).



1<sup>st</sup> IOCS meeting, Darmstadt, 6-8 May 2013



This week's meeting

International Ocean Colour Science  
Meeting

**IOCS, 1<sup>st</sup> edition**

## IOCS meeting rationale

- Ocean colour scientific communities are differently organized across the World
  - In the US: NASA Ocean Color Research Team Meetings (<http://oceancolor.gsfc.nasa.gov/MEETINGS/> )
  - In France: a research consortium called “GIS COOC” (<http://gis-cooc.org> )
  - In Canada: emergence of a Canadian Ocean Colour Network
  - In South America: Antares <http://home.antares.ws>
  - Others ?
- Several space Agencies have launched or plan to launch ocean color sensors  
NASA, NOAA, ESA/EUMETSAT, CNES, JAXA, KORDI/KARI, CNSA, INPE/CONAE
- A number of issues are faced, in terms of calibration (instr. & vicarious), building of long-term time series, data merging, distribution etc....
- These issues exist for all missions, yet each mission responds differently to them
- There is, therefore, a need for more communication / exchange / collaboration etc... among ocean color missions and communities

**Hence the IOCS meeting**

## IOCS meeting rationale

This need for better coordination, exchanges etc... is particularly important when it comes to merging data from multiple missions in view of generating long-term consistent global time series for analyzing climate-driven changes

That's why the overarching theme of the  
2013 IOCS meeting is

Building of global, multi-mission, long-term (multi decadal) ocean color time series for climate research



## IOCS meeting goals

### The IOCS meeting should allow

- Agencies to deliver information about their current and future missions to the scientific community
- Setting up the “big picture” of today's ocean color science (keynotes)
- Providing a forum for discussions on various topics
- Helping IOCCG in its oversight role
- Building / reinforcing our community at global scale
- Enrolling more people into community work than is feasible through the IOCCG meetings and WGs alone
- Producing synthesis documents of interest for the community in question (meeting report)
- Reinforcing our voice when it comes to high-level discussions with agencies



## IOCS meeting goals

The IOCS is not another *ocean optics* conference, not another (smaller) ocean sciences meeting etc...

It is a community consultation meeting  
(cf. science teams meetings of the GHRST, the OST-ST, etc ...)

It is a working meeting

It is your meeting

## Acknowledgements

### Great thanks to:

- NASA and EUMETSAT for their generous support to the 2013 IOCS meeting
- ESA & CNES for their contribution
- All IOCCG sponsoring agencies for their recurrent support
- Venetia Stuart, IOCCG project scientist, for her unremitting help and dedication to IOCCG
- Rowanna Comerford and Sylwia Miechurska, from EUMETSAT, for outstanding efficiency in preparing this meeting
- The IOCS Scientific & Organizing Committees
- The session leads for their help in preparing the agenda



## 2015 IOCS Meeting

*Will be somewhere in the US*

