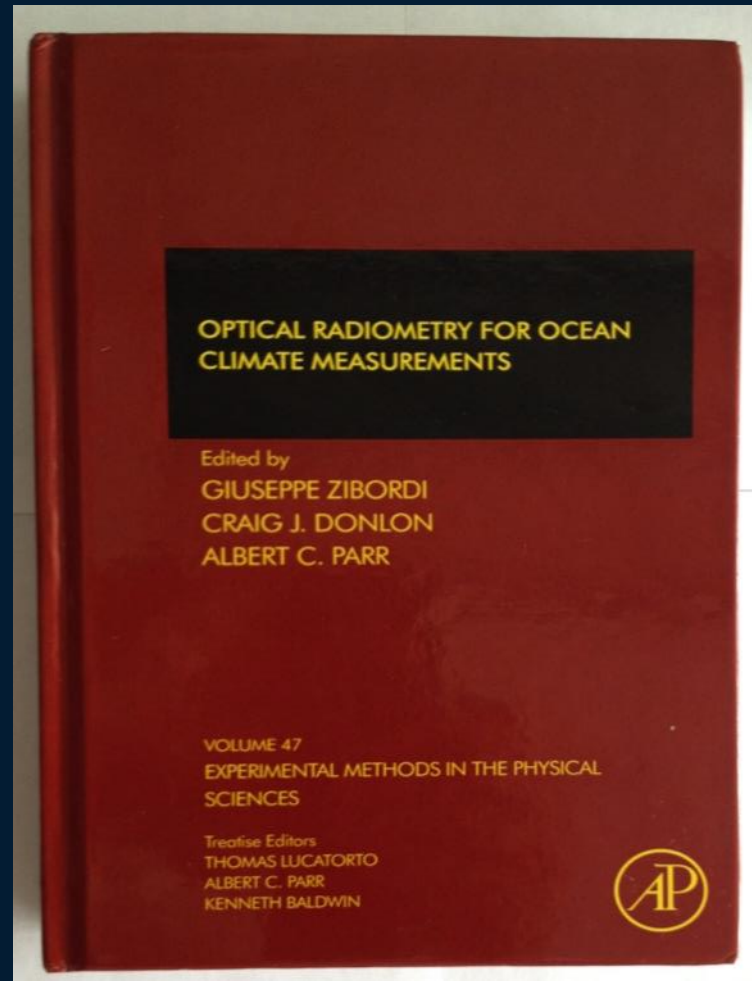


# Update: OCR Essential Climate Variable Task Team

New Reference Book  
related to OCR ECVs:  
“Optical Radiometry for  
Ocean Climate  
Measurements”, G.  
Zibordi, C. Donlon, A.  
Parr, eds.

<http://store.elsevier.com/Optical-Radiometry-for-Ocean-Climate-Measurements/isbn-9780124170117/>



# Definitions

Climate Data Record (CDR) is a time series of **measurements** of sufficient length, consistency, and continuity to determine climate variability and change. From U.S. National Academy of Sciences report.

Essential Climate Variables (ECVs) are the “measurements” (see above), although ECV and CDR seem to be used interchangeably.

# OCR ECV Working Group Membership and Charge

J. Yoder and N. Hoepffner- co chairs

Members: S. Henson, H. Murakami, S. Maritorena, B. Franz, M. Wang, E. Kwiatkowska, F. Melin, A. Mangin and H. Loisel

Charge to the Committee: How to produce basin to global scale ECV/CDR time series of ocean color products (specifically Lw and derived products ) for climate-related studies.

# Progress

1. NASA OBPG reprocessing of VIIRS, MODIS/Aqua, MODIS/Terra, MERIS, SeaWiFS, OCTS, and CZCS (Franz):
  - Transitioned to netCDF4 file formats following CF and ISO standards and conventions to enhance interoperability with international partners and tools.
  - Revised instrument temporal and vicarious calibrations, which impacts long-term and interannual trends.
  - Refined ancillary time-series (ozone, met), which will have some impact on long-term and interannual trends.
  - Implemented the band-shift method of F. Melin.
2. Globcolour (Antoine Mangin and David Antoine):
  - Villefranche group working on joint use of Satellite OCR and bio-Argo floats – anticipate good characterization of uncertainties for both systems.
  - Project has been through a full revision/reprocessing, so that an updated time series is now available ( <http://hermes.acri.fr> ).

# Progress

## 3. JAXA (Murakami)

- Planning to make 1-deg X 1-deg extracted TOA radiance data (mapped L1B with the satellite and solar geometry) for fixed (stable) site cal/val.
- Planning to include CEOS cal/val sites and considering including monitoring areas used by other missions (e.g., Sentinel-3).

## 4. GlobCoast project ([www.foresea.fr/globcoast](http://www.foresea.fr/globcoast)) (Loisel)

- Entering final year and are analyzing the temporal evolution of bio-optical parameters in relation with physical parameters for the global coastal ocean.
- Working now on a version of Polymer with Hygeos for atmospheric correction over coastal areas.

## 5. CCI Project (Melin)

- Version 1 CCI data projects have been available since early 2014. The V2 set should be released in a few weeks.

# Progress

## 6. MEaSURES (Maritorena)

- For the 2002-2012 period, generated a “one-stop-shop” reflectance product from SeaWiFS, MODIS and MERIS: 19 wavelengths Rrs daily level-3 product.
- Should have a model-based merged Rrs product available next year.

## 7. Phenology and Other Applications (Henson)

- Has a couple of PhD students using the ESA CCI data for their research projects, and the data looks of very high quality.

## 8. NOAA (Wang)

- Worked on VIIRS instrument calibration (several papers published), Level-0 to Level-1B data processing, and algorithm improvements for Level-1B to Level-2/3 data. See: <http://www.star.nesdis.noaa.gov/sod/mecb/color/index.html> .
- Had a first very successful dedicated Cal/Val cruise from Nov. 11-21, 2014 (participants from 4 US agencies, EU-JRC, and 6 Universities) and planning another cruise in 2015.

# Recent Publications Related to OCR ECVs

Mélin, F., and Sclep, G., "Band shifting for ocean color multi-spectral reflectance data", *Opt. Exp.*, 23, 2262-2279, 2015. <http://www.opticsinfobase.org/oe/fulltext.cfm?uri=oe-23-3-2262&id=310866>

Signorini, S., B.A. Franz, and C.R. McClain (2015). Chlorophyll Variability in the Oligotrophic Gyres: Mechanisms, Seasonality and Trends, *Front. Mar. Sci.* doi: 10.3389/fmars.2015.00001. <http://journal.frontiersin.org/Journal/10.3389/fmars.2015.00001/abstract>

Melin, F. and B.A. Franz (2014). "Assessment of satellite products in the visible domain", in *Optical Radiometry for Ocean Climate Measurements*, Elsevier Academic Press, Experimental Methods in Physical Sciences Series, Eds. G. Zibordi, C. Donlon, A. Parr, ISBN: 978-0-12-417011-7.

Saulquin, B., R. Fablet, A. Mangin, G. Mercier, D. Antoine, and O. Fanton d'Andon (2013), Detection of linear trends in multisensor time series in the presence of autocorrelated noise: Application to the chlorophyll-a SeaWiFS and MERIS data sets and extrapolation to the incoming Sentinel 3-OLCI mission, *J. Geophys. Res. Oceans*, 118, doi:10.1002/jgrc.20264.

Loisel and others. Variability of suspended particulate matter concentration in coastal waters under the Mekong's influence from ocean color (MERIS) remote sensing over the last decade. *Remote Sensing of Environment* 01/2014; 150:218–230.

# Conclusions and Looking Forward

Excellent progress by all groups having representatives participating on the Task Team.

Is it time to compare ECV products between the different groups? If so, should IOCCG support some sort of activity to implement a quantitative comparison?

Can we please identify a new Chair/co-Chair for this group? It would be particularly helpful if that person was involved with one of the efforts to produce OCR ECVs. Hint: Maybe the person with initials "D.A."