

Ocean Colour

ESSENTIAL CLIMATE VARIABLE (ECV) FACTSHEET



GLOBAL CLIMATE
OBSERVING SYSTEM
KEEPING WATCH OVER OUR CLIMATE



ECV IN BRIEF

Domain:	Ocean
Subdomain:	Biogeochemical
Scientific Area:	Biosphere
Products:	Water Leaving Radiance; Chlorophyll-a Concentration



Ocean Colour

Ocean colour is the radiance emanating from the ocean normalized by the irradiance illuminating the ocean. Products derived from ocean colour remote sensing (OCRS) contain information on the ocean albedo and information on the constituents of the seawater, in particular, phytoplankton pigments such as chlorophyll-a. OCRS products are used to assess ocean ecosystem health and productivity, and the role of the oceans in the global carbon cycle, to manage living marine resources, and to quantify the impacts of climate variability and change.

ECV Product¹

PRODUCT	DEFINITION	REQUIREMENTS				
		FREQUENCY	RESOLUTION	REQUIRED MEASUREMENT UNCERTAINTY	STABILITY	STANDARDS/ REFERENCES
WATER LEAVING RADIANCE	Amount of light emanating from within the ocean	Daily	4 km	5% (blue & green wavelengths)	0.50%	See EOVS Specification Sheets: www.goosocan.org/eov
CHLOROPHYLL-A CONCENTRATION	Concentration of chlorophyll-a pigment in the surface water [$\mu\text{g l}^{-1}$]	Weekly averages	4 km	30%	3%	www.goosocan.org/eov

¹ Current Products and Requirements as in the Implementation Plan 2016 (GCOS-200). GCOS is reviewing and will update the requirements until 2022. More information on: gcos.wmo.int and climatedata.wmo.int.



Data Sources²

- ▶ Ocean Biology Processing Group (OBPG)
<https://oceandata.sci.gsfc.nasa.gov/>
- ▶ Ocean Colour Climate Change Initiative (OC-CCI)
<https://www.oceancolour.org/>
- ▶ ECV Inventory by the CEOS/CGMS Working Group on Climate (WGclimate)
<http://climatemonitoring.info/ecvinventory>

Global trends in Chlorophyll-a concentration

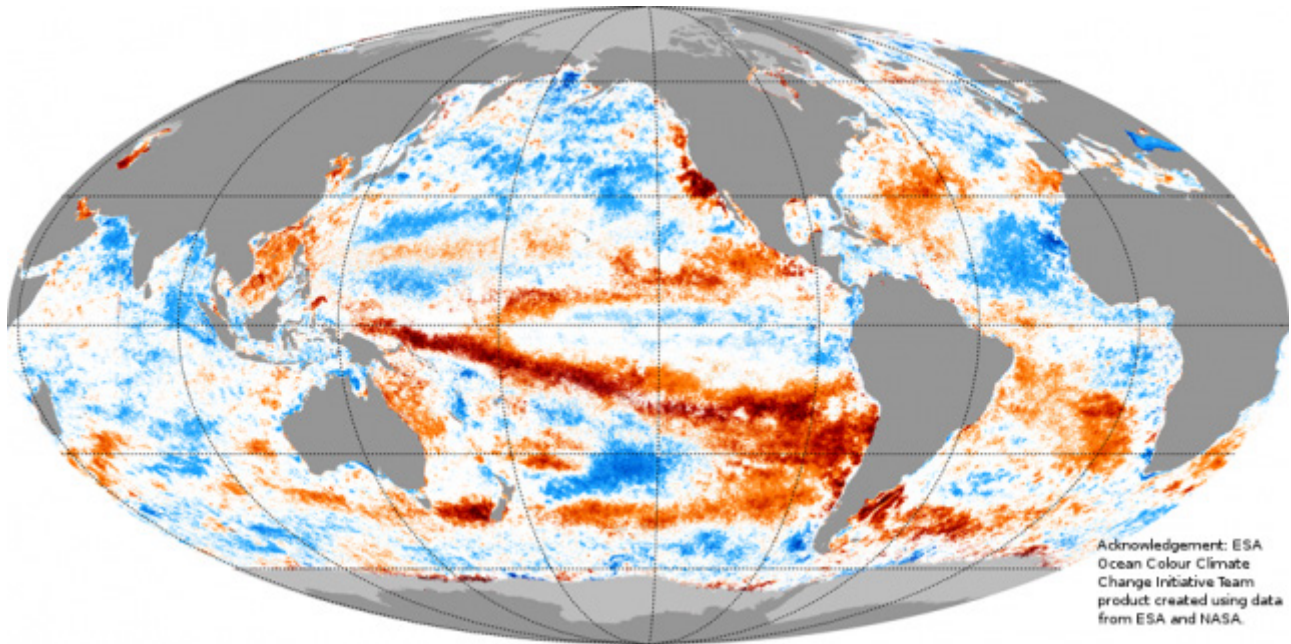


Figure: Trend map (in % per annum) obtained for the OC-CCI Chlorophyll-a series over the period Oct. 1997 to Sep. 2012

Source (05/04/2018): <http://www.esa-oceancolour-cci.org/?q=node/172>

² This list provides sources for openly accessible data sets with worldwide coverage for which metadata is available. It is curated by the respective GCOS ECV Steward(s). The list does not claim to be complete. Anyone with a suitable dataset who would like it to be added to this list should contact GCOS.