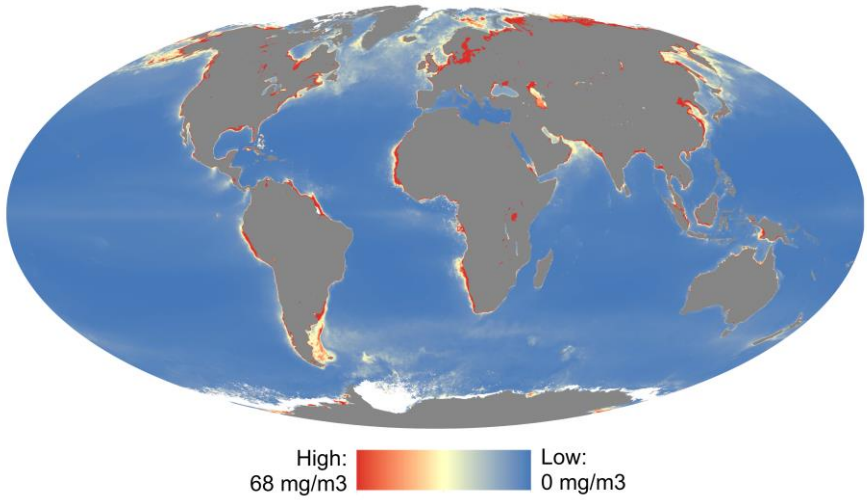
Dataset ID: WCMC-034

Mean Annual Sea Surface Chlorophyll-a Concentration 2009-2013 (2015)



Description: This dataset shows the global distribution of mean annual sea surface chlorophyll-a concentration, averaged for the period from 2009 to 2013. It was created using remotely-sensed images from NASA's (National Aeronautics and Space Administration) Ocean Color database (http://oceancolor.gsfc.nasa.gov).

Citation(s): NASA Ocean Biology (OB.DAAC). (2014). Mean annual sea surface chlorophyll-a concentration for the period 2009-2013 (composite dataset created by UNEP-WCMC). Data obtained from the Moderate Resolution Imaging Spectroradiometer (MODIS) Aqua Ocean Colour website (NASA OB.DAAC, Greenbelt, MD, USA). Accessed 28/11/2014. URL: http://oceancolor.gsfc.nasa.gov/cgi/l3. Cambridge (UK): UN Environment World Conservation Monitoring Centre. URL: http://data.unep-wcmc.org/datasets/37.

Other cited reference(s):
Roberts JJ, Best BD, Dunn DC, Treml EA, Halpin PN. (2010). Marine Geospatial Ecology Tools: An integrated framework for ecological geoprocessing with ArcGIS, Python, R, MATLAB, and C++. Environmental Modelling & Software 25: 1197-1207. doi: 10.1016/j.envsoft.2010.03.029.

Temporal range: 2009-2013

Geographical range: Global

Supplementary information: Chlorophyll-a concentration is given in milligrams per cubic metre (mgChl-a/m3).

The 2009-2013 composite dataset illustrates spatial variations in chlorophyll-a concentration, such as that existing between highly productive upwelling regions and nutrient poor tropical waters. Data for individual years (2009 to 2013) are also provided in the data pack.

Purpose of creation: The concentration of chlorophyll pigments (i.e. the photosynthetic pigments of phytoplankton) is often considered as an proxy for biological productivity as productive surface waters attract marine organisms that benefit from phytoplankton blooms and, in turn, attracts larger marine predators. Any changes in the location, duration and extent of highly productive surface waters is therefore expected to cause matching changes in the distribution, abundance and migration patterns of marine mammals and large fish.

Creation methodology:	Information on the origins and calculations of the data can be accessed at Ocean Color Web (http://oceancolor.gsfc.nasa.gov). UNEP-WCMC obtained Aqua MODIS mean sea surface chlorophyll-a data (annual composite at 9 km resolution) in HDF format from the Ocean Color website (http://oceancolor.gsfc.nasa.gov/cgi/l3). The HDF data were converted to ArcGIS rasters using Marine Geospatial Ecology Tools (MGET), and units of chlorophyll-a concentration were converted into milligrams per cubic metre (mg/m3). The composite layer for years 2009 through 2013 was then created using the mosaic function in ArcGIS, to calculate mean chlorophyll-a concentration across all layers.
Version:	1.0 (April 2015)
Data lineage:	
Category:	Environment descriptor
Keywords:	marine, coastal, high seas, sea surface productivity, primary productivity, chlorophyll, phytoplankton, NASA, Ocean Color, Aqua MODIS
Similar datasets:	WCMC-020-021
Limitations:	This dataset is subject to algorithm uncertainties and assumptions. It is only representative of the period 2009 to 2013, and not of current sea surface chlorophyll-a concentrations.
Maintenance frequency:	Data are not being updated.
Main access/use constraint:	Creative Commons Attribution 3.0 Unported (CC BY 3.0). See http://creativecommons.org/licenses/by/3.0/ for details. Free to (1) copy/distribute/transmit the work, (2) adapt the work, and (3) make commercial use of the work.
Other access/use constraints:	None
Contact organisation:	UN Environment World Conservation Monitoring Centre
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Data format(s):	Raster (ESRI Grid)
Distribution format(s):	Raster (ESRI Grid)
Dataset size (uncompressed):	472 Mb
Webpage and/or download:	http://data.unep-wcmc.org/datasets/37
Other webpage:	http://oceancolor.gsfc.nasa.gov/cgi/l3

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Web map service: http://ec2-54-204-216-109.compute-1.amazonaws.com:6080/arcgis/rest/services/marine/WCMC_034_MeanSeaSurfaceChlorophyllA2015/MapServer

Factsheet: http://wcmc.io/environment-descriptors

Resolution, scale:	0.041667 dd	Reference system:	WGS 1984
West bounding:	-180.0	East bounding:	180.0
South bounding:	-90.0	North bounding:	90.0
Metadata standard:	UNEP-WCMC Specific	Date of metadata:	15/07/2015