**High Resolution Chlorophyll-a concentration from MODIS/Aqua**

http://coastwatch.pfeg.noaa.gov/infog/MB\_chla\_las.html  
  
**Program:** NASA Earth Observing System  
**Spacecraft:** Aqua  
**Sensor:** Moderate Resolution Imaging Spectroradiometer (MODIS)  
**Data Stream:** Recorder LAC  
**Primary Geophysical Parameter:** Chlorophyll-a concentration  
**Nominal Accuracy:** ±40%  
**Spatial grid:** 0.025 degrees longitude by 0.025 degrees latitude, geographic  
**Spatial coverage:** 120E to 40W longitude, 45S to 65N latitude  
**Temporal Coverage:** January 2006 - ongoing  
[**FGDC Metadata**](http://coastwatch.pfeg.noaa.gov/infog/MB_chla_las.xml)[**Data Quality Act Documentation**](http://coastwatch.pfeg.noaa.gov/infog/MBchla_dqa.pdf)

**Short Description:**  
The Chlorophyll-a data from the MODIS sensor on-board NASA's Aqua spacecraft is best used for feature identification and tracking. The actual value of the Chlorophyll-a is somewhat controversial due to major differences when compared to that of the SeaWiFS sensor on Orbview-2. Both can differ substantially from high-quality in-situ measurements. MODIS Chlorophyll-a concentration is an EXPERIMENTAL dataset, distributed for scientific evaluation.

**Technical Summary:**  
CoastWatch offers Chlorophyll a concentration from the Moderate Resolution Imaging Spectroradiometer (MODIS) sensor on [NASA's Aqua satellite](http://aqua.nasa.gov/). Information on the Aqua satellite, the MODIS sensor, and NASA's Ocean Color projects can be found on [NASA's OceanColor Web](http://oceancolor.gsfc.nasa.gov/).  
  
[NASA's Goddard Space Flight Center (GSFC)](http://daac.gsfc.nasa.gov/MODIS/) receives raw satellite data. Processing is accomplished using the SeaWiFS Data Analysis System (SeaDAS) software (*Fu et al., 1998*). An atmospheric correction is applied to the data to yield a measurement of water leaving radiance (*Gordon and Wang 1994, Shettle and Fenn 1979*). These radiances are processed to chlorophyll-a concentration using the NASA developed OC3M algorithm (described in *O'Reilly et al. 2000*). This algorithm is analogous to the OC4v4 algorithm used in the processing of SeaWiFS data, but adjusted for the specific bands available on the MODIS sensor. The algorithm is considered provisional, and not science quality. Furthermore, certain assumptions are made during the atmospheric correction in order to process the data in a timely manner.  
  
Validation is accomplished by comparison with in situ ocean color measurements. In situ measurements are gathered by buoys as part of the [Marine Optical Characterization Experiment (MOCE)](http://www.orbit.nesdis.noaa.gov/sod/orad/mot/moce/overview.html).  
  
Chlorophyll-a concentrations are accurate to within 40%. Data is made available at 2.7km resolution for the Pacific basin. Data are mapped to an equal angle grid of 0.025 degrees latitude by 0.025 degrees longitude using simple arithmetic means to produce composite images of various duration (1,3,8, 14-days, and monthly).

**Disclaimer:**  
Despite our best efforts, incorrect data may often appear within near real time data sets. NOAA CoastWatch accepts no liability for use of these data products. It is recommended that these products NOT be used for navigation.

**Acknowledgement:**  
If this data is used for presentation or publication, please acknowledge the NOAA CoastWatch Program and NASA's Goddard Space Flight Center, OceanColor Web.

**References and suggested citations:**  
Fu, G., Baith, K. S., and McClain, C. R. "SeaDAS: The SeaWiFS Data Analysis System", Proceedings of "The 4th Pacific Ocean Remote Sensing Conference", Qingdao, China, July 28-31, 1998. 73-79.  
  
Gordon, H. R., and Wang, M. 1994. Retrieval of water-leaving radiance and aerosol optical thickness over the oceans with SeaWiFS: a preliminary algorithm. Appl. Opt. 33, 443-452.  
  
O'Reilly, J.E., and co-authors, 2000. Ocean color chlorophyll a algorithms for SeaWiFS, OC2, and OC4: Version 4. In: SeaWiFS Postlaunch Technical Report Series, edited by Hooker, S.B and Firestone, E.R. Volume 11, SeaWiFS Postlaunch Calibration and Validation Analyses, Part 3. NASA, Goddard Space Flight Center, Greenbelt, Maryland. 9-23.  
  
Shettle, E. P., and R. W. Fenn. 1979. Models for the Aerosols for the Lower Atmosphere and the Effects of Humidity Variations on Their Optical Properties. AFGL-TR-79-0214 Environmental Research Papers No. 676.