

## JRC Dataset

### EMIS - MODIS-AQUA Monthly climatology photosynthetically available radiation (4km) in $E.m^{-2}.d^{-1}$

#### Description:

Photosynthetically Active Radiation (PAR in  $Einstein.m^{-2}.day^{-1}$  at 4km resolution): PAR is defined as the quantum energy flux from the sun in the spectral range 400 to 700 nm, usable in the process of photosynthesis by phytoplankton, benthic algae and seagrass.

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#### How to cite:

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#### Keywords:

Environmental monitoring facilities, GIS digital format, Oceanographic geographical features, Photosynthetically Active Radiation climatology, Protected sites, climate change, coastal environment, environmental data, marine environment, marine monitoring, ocean color, satellite observations, sea water protection

#### Related resources:

##### Data access

EMIS - Download access (EMIS\_A\_PAR)

Direct NetCDF download

<http://emis.jrc.ec.europa.eu/emis/satellite/4km/climatology/>

#### Additional information:

Last Modified: 2013-06-11

Issue date: 2013-08-29

Landing page: <http://emis.jrc.ec.europa.eu/>

Temporal coverage: From: 2002-07-01 – To: 2012-12-31

Language: English

Data theme(s): Environment

EuroVoc domain(s): 36 SCIENCE; 52 ENVIRONMENT

EuroVoc concept(s): environmental monitoring; ocean; oceanography; protected area

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#### Geographic information:

Lineage: General information: Monthly climatology photosynthetically available radiation in  $E.m^{-2}.d^{-1}$  (mol photons per square meter and per day) derived from the MODIS-AQUA sensor. Processing information: PAR data is reprocessed using the NASA SeaDAS 6.4 software (Frouin et al., 2003). Description of observation methods/instruments: The approach is described by Frouin et al. (2003). The content of the atmosphere in terms of aerosols and clouds is inferred from the spectrum of top-of-atmosphere radiance collected by the sensor in space. In turn, the downwelling irradiance reaching the surface of the ocean is computed using plane parallel theory. Eventually, by integration spectrally and over time, PAR is expressed as a daily value. Quality/Accuracy/Calibration information: The approach and results are described by Frouin et al. (2003). PAR represents the radiation in the spectral domain of relevance for photosynthesis (400-700 nm), and is used in model of primary production.

References: Frouin, R., Franz, B.A., Werdell, P.J.: The SeaWiFS PAR product. In "Algorithm updates for the fourth SeaWiFS data reprocessing", S.B. Hooker and E.R. Firestone (Eds.) NASA/ NASA Technical Memorandum, 2003-206892, 22: 46-50.

Geographic bounding box: 70.0° N, 42.0° E, 10.0° S, -30.0° W

Coordinate Reference System: ETRS89