

ADEOS - POLDER-1 - Fraction Absorbed Photosynthetically Active Radiation - West Africa - 0.05

General information

Dataset name: ADEOS - POLDER-1 - Fraction Absorbed Photosynthetically Active Radiation - West Africa - 0.05

Created on: 2016-11-29

Useful in the framework of: OPERATIONAL-DATA > Satellite products

Purpose: These data sets were extracted from the POLDER-1 and POLDER-2 ?Land Surface? biophysical products generated from atmospherically corrected bi-directional reflectances. The original POLDER-1 and POLDER-2 products are available on the POSTEL web site: <http://postel.mediasfrance.org/>.

LAI (m^2/m^2) is defined as half the total foliage area per unit ground surface area. It is generated using a neural network, which approximates the inversion of a radiative transfer model. First, a LAI value is estimated for each POLDER track of the synthesis period of 30 days. Then, they are merged to obtain a monthly LAI. The FVC is the fraction of ground surface covered by vegetation. It is derived from LAI using the relationship $FVC = 1 - \exp(-0.5 \cdot LAI)$.

The FAPAR is the daily fraction of photosynthetically active radiation (PAR: [0.4-0.7 μ m]) absorbed by vegetation. FAPAR is dimensionless. The FAPAR is computed from an alternative vegetation index, the RDVI (Renormalized Difference Vegetation Index), for an angular configuration (sun and view zenith angle, respectively, equal to 45° and 60° in the backscattering direction in the principal plane) which minimizes the soil effect. The definition of the RDVI and its relationship with the daily FAPAR are presented by Roujean et Br on (1995).

The bi-directional POLDER r eflectances are normalized using the kernel-driven reflectance model of Maignan et al. (2004). The inversion is carried out over a synthesis period of 30 days with a sliding window of 10 days. More details on the algorithm can be found on the scientific POLDER website (http://smc.cnes.fr/POLDER/A_produits_scie.htm). The inversion yields three coefficients : a nadir-zenith reflectance, a geometric and a volumetric coefficients. They are used with the angular kernels integrated over viewing directions and over solar directions to calculate the directional and hemispheric spectral albedos. Values of integrated kernels are specified by CEA/LSCE. The NDVI is derived from the directional albedos at 670nm and

865nm. The spectral integrations over visible broadband [400 - 700nm], near-infrared broadband [700, 4000nm], and whole spectrum broadband [300 - 4000nm] are then carried out using the 5 narrow bands (443, 565, 670, 765 and 865nm). The conversion coefficients are provided by CNRM/Météo-France. The validation of POLDER-1 and POLDER-2 albedos is in progress at CNRM.

The POLDER-1 products cover the period from November, 1996 to June, 1997. the POLDER-2 products cover the period from April to October 2003. The temporal resolution of POLDER products is 10 days.

Data encoding:

255: no data

254: undefined

253: overflow (retrieved value larger than the maximum limit of the physical range)

252: underflow (retrieved value lower than the minimum limit of the physical range)

Projection:

The original POLDER products are presented in the sinusoidal projection at the spatial resolution of 1/18° at equator. They have been put in the geographical lat/lon projection (?plate-carrée?) with a grid step equal to 0.05° and also with a grid step equal to 0.1°. The ?West_Africa? area, which covers the zone from 24.98° West to 24.98° East, and from 4.98° South to 19.98° North, have been extracted from the 0.05° resolution grid. The ?Atlantic-Africa? area, which covers the zone from 59.88° West to 39.88° East, and from 34.88° South to 34.88° North, have been extracted from the 0.1° resolution grid. The pixels of the grids are located by the coordinates of their center.

Contact(s)

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Instrument

Satellite:	ADEOS
Instrument:	POLDER-1
Instrument type:	Imaging Spectrometers/Radiometers

Parameter

Fraction Absorbed Photosynthetically Active Radiation

Parameter name: Fraction Absorbed Photosynthetically Active Radiation
Parameter keyword: Biosphere > Vegetation

Coverage

Temporal coverage

Date begin (yyyy-mm-jj): 1996-11-01
Date end (yyyy-mm-jj): 1997-06-30

Geographic coverage

Area name: ADEOS

Data resolution

Temporal resolution: 0000-00-10 00:00:00
Latitude resolution: 0.05
Longitude resolution: 0.05

Data use information

Use constraints: Public data
Data policy: AMMA data policy
Original data format(s): NetCDF