



Leaf Area Index 1999-2020 (raster 1 km), global, 10-daily - version 2

Defined as half the total area of green elements of the canopy per unit horizontal ground area. Every 10-days estimates are available at global scale in the spatial resolution of about 1 km covering the period from 1999 to June 2020 from SPOT/VEGETATION and PROBA-V data.

LAI was defined by CEOS as half the developed area of the convex hull wrapping the green canopy elements per unit horizontal ground. This definition allows accounting for elements which are not flat such as needles or stems. LAI is strongly non linearly related to reflectance. Therefore, its estimation from remote sensing observations will be scale dependent over heterogeneous landscapes. When observing a canopy made of different layers of vegetation, it is therefore mandatory to consider all the green layers. This is particularly important for forest canopies where the understory may represent a very significant contribution to the total canopy LAI. The derived LAI corresponds therefore to the total green LAI, including the contribution of the green elements of the understory. The resulting GEOV1 LAI products are relatively consistent with the actual LAI for low LAI values and 'non-forest' surfaces; while for forests, particularly for needle leaf types, significant departures with the true LAI are expected.

LAI products estimates are available every 10-days at global scale in the spatial resolution of about 1 km covering the period from 1999 to June 2020 from SPOT/VEGETATION and PROBA-V data.

Simple

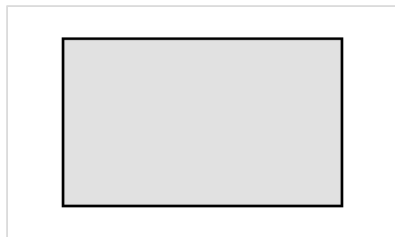
Identification info

Date (Creation)	2017-01-01		
Date (Publication)	2017-01-01		
Edition	2.0		
Edition date	2017-01-01T00:00:00		
Citation identifier	clms_r_4326_1_km_lai-10daily-global_p_1999-2020_v2_r00		
Citation identifier	clms_global_lai_1km_v2_10daily		
	Title	VITO NV	
	Date (Revision)	2016-01-01	

Identifier

Code	10.2909/d5fdc595-2e03-4cbe-a39e-5f006f9cef07				
Other citation details	https://land.copernicus.eu/en/products/vegetation/leaf-area-index-v2-0-1km				
Purpose	This product is first designed to fit the requirements of the Global Land component of Land Service of GMES-Copernicus. It can be also useful for all applications related to the environment monitoring. The product is provided in Near Real Time, and updated the next six periods.				
Credit	The products were generated by the land service of Copernicus, the Earth Observation programme of the European Commission. The research leading to the current version of the product has received funding from various European Commission Research and Technical Development programs. The algorithm was originally developed in the framework of the FP7/ImagineS (grant agreement no 311766) by INRA, HYGEOS and VITO. The product is based on PROBA-V 333m data ((c) ESA, BELSPO and distribution by VITO).				
Point of contact	Organisation	Individual	Electronic mail address	Website	Role
	European Commission			https://commission.europa.eu	Owner
	Copernicus Land Monitoring Service		JRC-Copernicus-Land@ec.europa.eu	https://land.copernicus.eu	Custodian

	<p>European Commission's Joint Research Centre</p> <p>Copernicus Land Monitoring Service helpdesk</p>	<p>https://joint-research-centre.ec.europa.eu/</p> <p>JRC-Copernicus-Land@ec.europa.eu</p> <p>https://land.copernicus.eu/en/contact-service-helpdesk</p>	<p>Publisher</p> <p>Point of contact</p>
Spatial representation type	Grid		
Spatial resolution			
Spatial resolution	0.0089285714 deg		
Topic category	<ul style="list-style-type: none"> • Imagery base maps earth cover • Biota • Farming • Environment 		
Extent			



Extent

Temporal extent

Time period	10-daily composite dekad 1999-01-01T00:00:00 2020-06-30T23:59:59
Maintenance and update frequency	As needed
mmi:updateScope	Series

Resource format

Title	NetCDF
Alternate title	Network Common Data Form
Date	
Edition	4.2.1.1

EEA topics	<ul style="list-style-type: none"> • Agriculture and food
Spatial scope	<ul style="list-style-type: none"> • Global
Continents, countries, sea regions of the world.	<ul style="list-style-type: none"> • World
GEMET - INSPIRE themes, version 1.0	<ul style="list-style-type: none"> • Orthoimagery
GEMET	<ul style="list-style-type: none"> • geophysical environment
Theme	<ul style="list-style-type: none"> • biogeophysical • leaf area
Place	<ul style="list-style-type: none"> • GLOBE
Temporal	<ul style="list-style-type: none"> • Dekad • 10-daily composite

Resource constraints

Access constraints	Other restrictions
Other constraints	no limitations to public access

Resource constraints

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Use constraints	Other restrictions
Other constraints	<p>The Copernicus component is governed by Regulation (EU) No 2021/696 of the European Parliament and of the Council of 28 April 2021 establishing the Union Space Programme and the European Union Agency for the Space Programme and repealing Regulations (EU) No 912/2010, (EU) No 1285/2013 and (EU) No 377/2014 and Decision No 541/2014/EU. Within the Copernicus component, a portfolio of land monitoring activities has been delegated by the European Union to the European Environment Agency (EEA) and the DG Joint Research Centre of the European Commission.</p> <p>The Copernicus land monitoring products and services are made available on a principle of full, open and free access, as established by the Commission Delegated Regulation (EU) No 1159/2013 of 12 July 2013.</p> <p>Free, full and open access to the products and services of the Copernicus Land Monitoring Service is made on the conditions that:</p> <ol style="list-style-type: none"> 1. When distributing or communicating Copernicus Land Monitoring Service products and services (data, software scripts, web services, user and methodological documentation and similar) to the public, users shall inform the public of the source of these products and services. 2. Where the Copernicus Land Monitoring Service products and services have been adapted or modified by the user, the user shall clearly state this. 3. Users shall make sure not to convey the impression to the public that the user's activities are officially endorsed by the European Union.

Language	English
Character encoding	UTF8

Distribution Information

Distribution format	<ul style="list-style-type: none"> • NetCDF
Fees	Free for HTTP download and EUMETCast; cost of medium by DvD or tape
Ordering instructions	Products can be downloaded online via HTTP or can be received through EUMETCast satellite reception in Europe, Africa and Latin-America.
Units of distribution	Per product
OnLine resource	
OnLine resource	OGC WMTS
OnLine resource	Copernicus Data Space Ecosystem download services
Units of distribution	Per product
OnLine resource	Copernicus Browser

Data quality info

Hierarchy level	Dataset
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Report

Result

Title	Validation results conform CEOS LPV guidelines
Date (Publication)	2010-12-01

Explanation	https://globalland.vito.be/download/netcdf/leaf_area_index/lai_1km_v2_10daily
Pass	1

Report

Result

Title	COMMISSION REGULATION (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services
Date (Publication)	2010-12-08
Explanation	This data set is conformant with the INSPIRE Implementing Rules for the interoperability of spatial data sets and services
Pass	true

Report

Result

Title	INSPIRE Data Specification on orthoimagery - Guidelines
Date (Publication)	2010-04-26
Explanation	See the referenced specification
Pass	true

Resource lineage

Statement	The input data are the daily Top of the Atmosphere reflectances measured by the sensor at 1/3 km. The calibrated reflectances are used to calculate instantaneous estimates of the products using a neural network trained with MODIS and CYCLOPES products, removing outliers as clouds and their shadows and atmospherically corrected (SMAC). In a second stage these instantaneous first guess of products are composited using an asymmetric period. The compositing is performing a temporal smooth and gap fill operation based on the land cover type (Evergreen Broadleaf Forest or not).
Hierarchy level	Dataset

Spatial representation info

Number of dimensions	2
Dimension name	Row
Dimension size	15680
Resolution	0.0089285714
Dimension name	Column
Dimension size	40320
Resolution	0.0089285714
Cell geometry	Area
Transformation parameter availability	false
Check point availability	true
Check point description	Upperleft corner tiepoint

Description	Upperleft corner tiepoint
Identifier	upperLeftTiePoint
Name	Tie Point in upper left corner
Pixel orientation code	

Reference System Information

Reference System Information

Code	EPSG:4326
Maintenance and update frequency	As needed

Metadata

Metadata identifier	d5fdc595-2e03-4cbe-a39e-5f006f9cef07				
Language	English				
Character encoding	UTF8				
Contact	Organisation	Individual	Electronic mail address	Website	Role
	Copernicus Land Monitoring Service		JRC-Copernicus-Land@ec.europa.eu	https://land.copernicus.eu	Point of contact

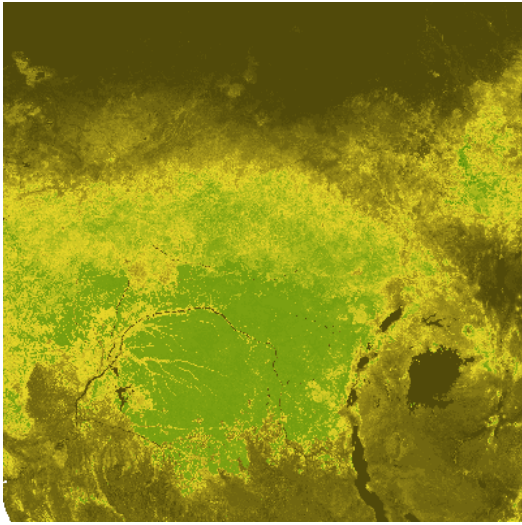
Type of resource

Resource type	Dataset
Metadata linkage	https://sdi.eea.europa.eu/catalogue/srv/api/records/d5fdc595-2e03-4cbe-a39e-5f006f9cef07
Date info (Creation)	2024-12-17T06:50:37.126301Z
Date info (Revision)	2025-10-09T11:17:02.189978Z

Metadata standard

Title	ISO 19115/19139
Edition	1.0

Overviews



Quick-look image of LAI layer, with width and height sub-sampled to 5% of their original dataset size.

Provided by

