

## Medium Resolution Net Primary Production (NPP, raster 196m) version 1, Nov. 2023

This metadata refers to the medium resolution yearly Net Primary Production (NPP) dataset

Net Primary Production (NPP) quantifies the the total amount of carbon dioxide used for plant growth per unit time.

The NPP dataset is made available as raster files with 196 x 196m resolution, in European LAEA (EPSG: 3035) projection that cover the EEA38 countries and the United Kingdom and for the period from January 2000 until today, in a yearly interval.

Unit: g C/m<sup>2</sup>/year

### Simple

<b>Date (Publication)</b>	2023-12-15		
<b>Date (Creation)</b>	2023-12-01		
<b>Edition</b>	01.00		
<b>Citation identifier</b>	eea_r_3035_196_m_modis-npp_p_2000-2022_v01_r00		
<b>Code</b>	<a href="https://doi.org/10.2909/28d6b823-e2fd-4bf4-a6aa-cb6a359c52da">10.2909/28d6b823-e2fd-4bf4-a6aa-cb6a359c52da</a>		
<b>Point of contact</b>	<b>Organisation name</b>	<b>Individual name</b>	<b>Electronic mail address</b> <b>Website</b> <b>Role</b>
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No information provided.

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No information provided.

<b>Maintenance and update frequency</b>	Not planned
<a href="#">GEMET - INSPIRE themes, version 1.0</a>	<ul style="list-style-type: none"> <li><a href="#">Orthoimagery</a></li> <li><a href="#">Land cover</a></li> <li><a href="#">Land use</a></li> </ul>
<b>Keywords</b>	
<b>Keywords</b>	
<b>GEMET</b>	<ul style="list-style-type: none"> <li>photosynthesis</li> <li>plant production</li> </ul>

	<ul style="list-style-type: none"> <li>• vegetation</li> <li>• plant ecology</li> <li>• remote sensing</li> <li>• natural resource</li> <li>• land</li> </ul>
<b>Spatial scope</b>	<ul style="list-style-type: none"> <li>• <a href="#">European</a></li> </ul>
<b>Temporal resolution</b>	<ul style="list-style-type: none"> <li>• Annually</li> </ul>
<b>Continents, countries, sea regions of the world.</b>	<ul style="list-style-type: none"> <li>• EEA38 (from 2020)</li> <li>• United Kingdom</li> </ul>
<b>EEA topics</b>	<ul style="list-style-type: none"> <li>• Agriculture and food</li> <li>• Land use</li> <li>• Biodiversity</li> </ul>
<b>Access constraints</b>	Other restrictions
<b>Other constraints</b>	<a href="#">no limitations to public access</a>
<b>Use constraints</b>	Other restrictions
<b>Other constraints</b>	EEA standard re-use policy: unless otherwise indicated, re-use of content on the EEA website for commercial or non-commercial purposes is permitted free of charge, provided that the source is acknowledged ( <a href="https://www.eea.europa.eu/legal/copyright">https://www.eea.europa.eu/legal/copyright</a> ). Copyright holder: European Commission, European Environment Agency (EEA).
<b>Aggregate Datasetidentifier</b>	copernicus_r_utm-wgs84_10_m_hrvpp-vi-qflag2_p_2017-ongoing_v01_r01
<b>Association Type</b>	Cross reference
<b>Aggregate Datasetidentifier</b>	copernicus_r_utm-wgs84_10_m_hrvpp-vi-ndvi_p_2017-ongoing_v01_r01
<b>Association Type</b>	Cross reference
<b>Aggregate Datasetidentifier</b>	copernicus_r_utm-wgs84_10_m_hrvpp-vi-fapar_p_2017-ongoing_v01_r01
<b>Association Type</b>	Cross reference
<b>Aggregate Datasetidentifier</b>	copernicus_r_utm-wgs84_10_m_hrvpp-vi-lai_p_2017-ongoing_v01_r01
<b>Association Type</b>	Cross reference
<b>Spatial representation type</b>	Grid
<b>Distance</b>	196 196 m
<b>Language of dataset</b>	English
<b>Character set</b>	UTF8
<b>Topic category</b>	<ul style="list-style-type: none"> <li>• Environment</li> <li>• Imagery base maps earth cover</li> <li>• Climatology, meteorology, atmosphere</li> <li>• Geoscientific information</li> </ul>

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<b>Begin date</b>	2000-01-01		
<b>End date</b>	2022-12-31 Now		
<b>Coordinate reference system identifier</b>	<a href="#">EPSG:3035</a>		
<b>Distribution format</b>	<ul style="list-style-type: none"> <li>GeoTIFF ( 1.0 )</li> </ul>		
<b>OnLine resource</b>	<b>Protocol</b> EEA:FOLDERPATH  WWW:URL  WWW:LINK-1.0-http--link	<b>Linkage</b> <a href="https://sdi.eea.europa.eu/webdav/datastore/public/eea_r_3035_196_m_modis-npp_p_2000-2022_v01_r00/">https://sdi.eea.europa.eu/webdav/datastore/public/eea_r_3035_196_m_modis-npp_p_2000-2022_v01_r00/</a> <a href="https://sdi.eea.europa.eu/data/28d6b823-e2fd-4bf4-a6aa-cb6a359c52da">https://sdi.eea.europa.eu/data/28d6b823-e2fd-4bf4-a6aa-cb6a359c52da</a>  <a href="https://land.copernicus.eu/en/technical-library/algorithm-theoretical-basis-document-dry-and-gross-dry-matter-productivity-version-1-1/@_@download/file">https://land.copernicus.eu/en/technical-library/algorithm-theoretical-basis-document-dry-and-gross-dry-matter-productivity-version-1-1/@_@download/file</a>	<b>Name</b>  Direct download  Copernicus Dry Matter Production Algorithm Theoretical Basis Document

## OnLine resource

No information provided.

<b>OnLine resource</b>	<b>Protocol</b> DOI	<b>Linkage</b> <a href="https://doi.org/10.2909/28d6b823-e2fd-4bf4-a6aa-cb6a359c52da">https://doi.org/10.2909/28d6b823-e2fd-4bf4-a6aa-cb6a359c52da</a>	<b>Name</b>
<b>Hierarchy level</b>	Dataset		

## Conformance result

<b>Date (Publication)</b>	2010-12-08
<b>Explanation</b>	See the referenced specification

<b>Statement</b>	<p>The basic input data for the GPP calculation are the Terra (MOD) and Aqua (MYD) Moderate Resolution Imaging Spectroradiometer (MODIS) Normalized Difference Vegetation Index (NDVI) (MOD13Q1* / MYD13Q1**) Version 6.1 data. These level 3 data are generated every 16 days at 250 meter (m) spatial. Pre-processing was done by implementing the MODIS pixel reliability layer. Pixels classified as good data and marginal data were retained. The remaining data were further smoothed and gap filled using a Whitaker smoother to daily data. The smoothed and gap filled NDVI is used to calculate fAPAR (Fraction of Absorbed Photosynthetically Active Radiation).</p>
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Meteo data were obtained from the Copernicus Climate Change Service AgERA5\*\*\* dataset hosted on the VITO TerraScope platform. These data are inferred from the ECMWF ERA5 dataset and improved in terms of spatial resolution and re-gridding. The gridded data is available daily at 0.1° resolution. Details of the dataset can be found here: Agrometeorological indicators from 1979 to present derived from reanalysis (AgERA5). From these data, the "Solar radiation flux [J m-2 day-1]", "2m temperature" – both daily minimum and maximum were extracted as model driving forces data for the GPP modelling.

GPP is calculated using the the Copernicus Dry Matter Production algorithm (DMP - Swinnen, Tote & Van Hoolst (2021)). This DMP model expresses GPP as the product of the incoming photosynthetically active radiation (PAR), the fraction of PAR absorbed by plants (fAPAR), the maximum LUE, and environmental stress factors (temperature and atmospheric carbon dioxide). For this dataset, the LUE parameter is calibrated on ICOS sites specifically for Europe.

The yearly NPP product (g C/m<sup>2</sup>/year) is calculated from yearly summed GPP time series multiplied with a Carbon Use Efficiency (CUE) factor of 0.5.

\*) MOD13Q1: <https://lpdaac.usgs.gov/products/mod13q1v061/>

\*\*) MYD13Q1: <https://lpdaac.usgs.gov/products/myd13q1v061/>

\*\*) AgERA5: <https://cds.climate.copernicus.eu/cdsapp#!/dataset/sis-agrometeorological-indicators?tab=overview>

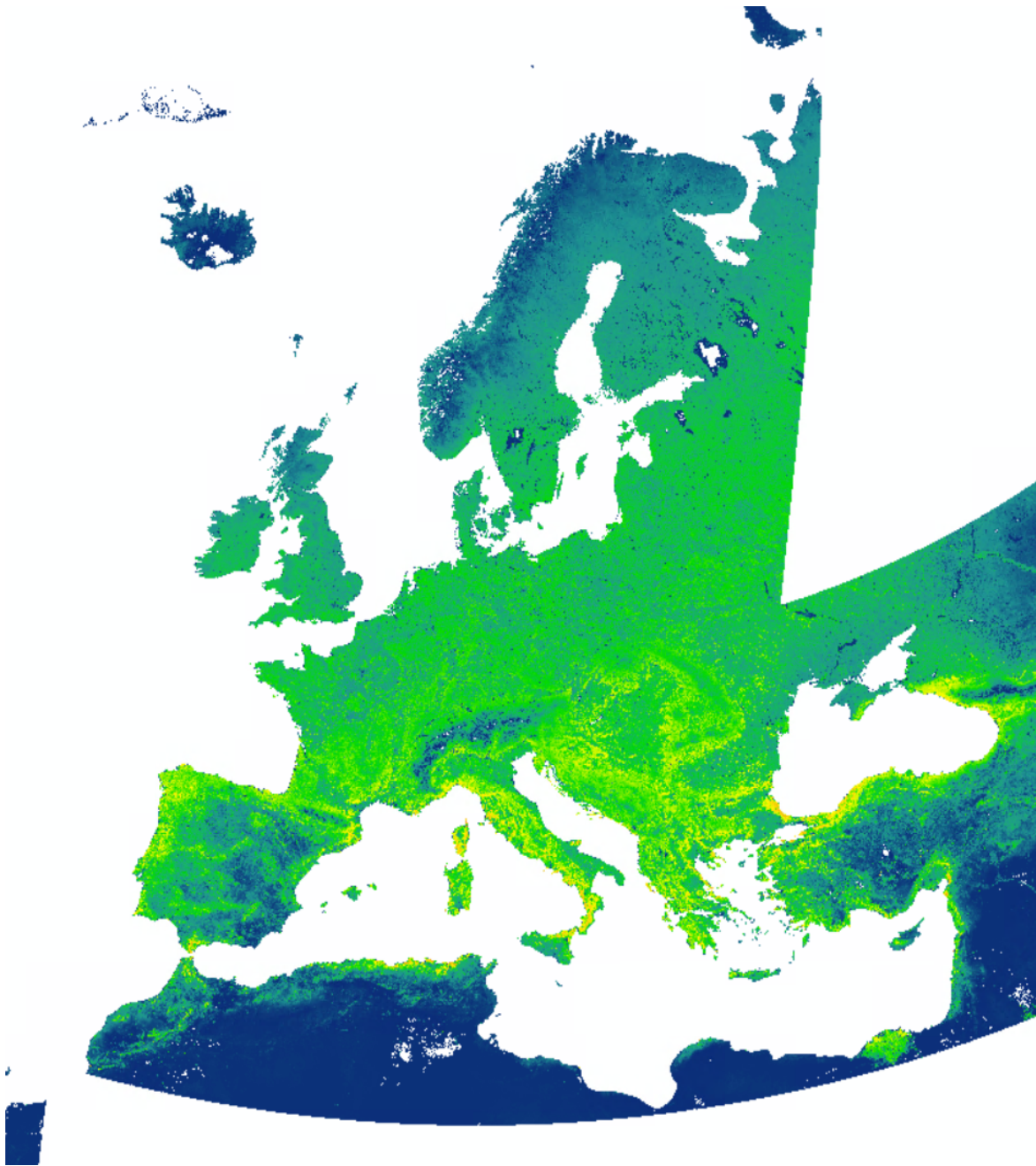
Due to the large differences between the GPPmax and FAPAR resolutions, an initial smoothing process of the GPPmax layer has been performed to avoid stripe artifacts. A convolutional smoothing process with 30x30 kernel size has been applied.

Swinnen, E., Toté, C. Van Hoolst, R. 2023. Copernicus Global Land Operations "Vegetation and Energy". Algorithm Theoretical Basis Document. Dry Matter Production (DMP). Gross Dry Matter Production (GDMP). Net Primary Production (NPP). Gross Primary Production (GPP). Collection 300M. Version 1.1.

## Metadata

<b>File identifier</b>	28d6b823-e2fd-4bf4-a6aa-cb6a359c52da <a href="#">XML</a>		
<b>Metadata language</b>	English		
<b>Character set</b>	UTF8		
<b>Hierarchy level</b>	Dataset		
<b>Date stamp</b>	2024-07-17T09:10:18.055034Z		
<b>Metadata standard name</b>	ISO 19115/19139		
<b>Metadata standard version</b>	1.0		
<b>Metadata author</b>	<b>Organisation name</b>	<b>Individual name</b>	<b>Electronic mail address</b> <b>Website Role</b>
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## Overviews



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