

## Total Productivity 2017-present (raster 10 m), Europe, yearly, Sept. 2021

The Total Productivity (TPROD), one of the Vegetation Phenology and Productivity (VPP) parameters, is a product of the pan-European High Resolution Vegetation Phenology and Productivity (HR-VPP) component of the Copernicus Land Monitoring Service (CLMS).

The Total Productivity (TPROD), or large integral, is the growing season integral computed as the sum of all daily Plant Phenology Index values between the dates of the season start (SOSD) and end (EOSD).

The Plant Phenology Index (PPI) is a physically based vegetation index, developed for improving the monitoring of the vegetation growth cycle. The PPI index values, with 5-day satellite revisit cycle, are first used in a function fitting to derive the PPI Seasonal Trajectories, which is a filtered time series with regular 10-day time step. From these Seasonal Trajectories, a suite of 13 Vegetation Phenology and Productivity (VPP) parameters are then computed and provided, for up to two seasons each year. The Total Productivity is one of the 13 parameters. The full list is available in the table 3 of the Product User Manual [https://land.copernicus.eu/en/technical-library/product-user-manual-of-seasonal-trajectories/@\\_@download/file](https://land.copernicus.eu/en/technical-library/product-user-manual-of-seasonal-trajectories/@_@download/file)

A complementary quality indicator (QFLAG) provides a confidence level, that is described in table 4 of the same manual.

The TPROD dataset is made available as raster files with 10 x 10m resolution, in UTM/WGS84 projection corresponding to the Sentinel-2 tiling grid, for those tiles that cover the EEA38 countries and the United Kingdom and for two seasons in each year from 2017 onwards. It is updated in the first quarter of each year.

### Simple

|                            |  |
|----------------------------|--|
| <b>Date (Publication)</b>  | 2021-09-02   |
| <b>Date (Creation)</b>     | 2021-09-02   |
| <b>Edition</b>             | 01.01  |
| <b>Citation identifier</b> | copernicus_r_utm-wgs84_10_m_hrvpp-vpp-tprod_p_2017-now_v01_r01   |
| <b>Code</b>                | <a href="https://land.copernicus.eu/en/technical-library/product-user-manual-of-seasonal-trajectories/@_@download/file">10.2909/977e4bb8-407f-48ec-b4c4-403bca5a6a3b</a> |

### Point of contact

No information provided.

### Point of contact

No information provided.

|   |  |
|---|--|
| <b>Maintenance and update frequency</b>             | Annually   |
| <a href="#">GEMET - INSPIRE themes, version 1.0</a> | <ul style="list-style-type: none"> <li><a href="#">Environmental monitoring facilities</a></li> <li><a href="#">Habitats and biotopes</a></li> <li><a href="#">Orthoimagery</a></li> </ul> |
| <b>Keywords</b>                                     |  |
| <b>Keywords</b>                                     |  |
| <b>GEMET</b>  | <ul style="list-style-type: none"> <li>vegetation</li> <li>productivity</li> <li>land</li> <li>index</li> <li>remote sensing</li> <li>plant production</li> <li>plant ecology</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>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>                                | <p>Access to data is based on a principle of full, open and free access as established by the Copernicus data and information policy Regulation (EU) No 1159/2013 of 12 July 2013. This regulation establishes registration and licensing conditions for GMES/Copernicus users.</p> <p>Free, full and open access to this data set is made on the conditions that:</p> <ol style="list-style-type: none"> <li>1. When distributing or communicating Copernicus dedicated data and Copernicus service information to the public, users shall inform the public of the source of that data and information.</li> <li>2. Users shall make sure not to convey the impression to the public that the user's activities are officially endorsed by the Union.</li> <li>3. Where that data or information has been adapted or modified, the user shall clearly state this.</li> <li>4. The data remain the sole property of the European Union. Any information and data produced in the framework of the action shall be the sole property of the European Union. Any communication and publication by the beneficiary shall acknowledge that the data were produced "with funding by the European Union".</li> </ol> |
| <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>   | 10 10 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> </ul>  |



| Begin date                             | 2017-01-01  |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
|--|---|----------|---------|---------------------------------|---|---------------------------------|---|----------|---|----------|---|--|---|
| Coordinate reference system identifier | <a href="#">EPSG:32625</a>  |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| Coordinate reference system identifier | <a href="#">EPSG:32626</a>  |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| Coordinate reference system identifier | <a href="#">EPSG:32627</a>  |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| Coordinate reference system identifier | <a href="#">EPSG:32628</a>  |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| Coordinate reference system identifier | <a href="#">EPSG:32629</a>  |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| Coordinate reference system identifier | <a href="#">EPSG:32630</a>  |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| Coordinate reference system identifier | <a href="#">EPSG:32631</a>  |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| Coordinate reference system identifier | <a href="#">EPSG:32632</a>  |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| Coordinate reference system identifier | <a href="#">EPSG:32633</a>  |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| Coordinate reference system identifier | <a href="#">EPSG:32634</a>  |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| Coordinate reference system identifier | <a href="#">EPSG:32635</a>  |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| Coordinate reference system identifier | <a href="#">EPSG:32636</a>  |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| Coordinate reference system identifier | <a href="#">EPSG:32637</a>  |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| Coordinate reference system identifier | <a href="#">EPSG:32638</a>  |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| Distribution format                    | <ul style="list-style-type: none"> <li>GeoTIFF ( 1.0 )</li> </ul>   |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| OnLine resource                        | <table border="0"> <thead> <tr> <th>Protocol</th> <th>Linkage</th> </tr> </thead> <tbody> <tr> <td>WWW:<br/>LINK-1.0-<br/>http--link</td> <td><a href="https://www.wekeo.eu/data?view=viewer&amp;t=1562219742857&amp;z=0&amp;center=13.08408%2C48.33915&amp;zoom=12.34&amp;layers=W3siaWQiOiJjMSIsInJlcGxhY2VtZW50Q29sb3JNYXBjZC16bnVsbCwibGF5ZXJJZC16IkVPOkVFQTPpEQVQ6QC3D">https://www.wekeo.eu/data?view=viewer&amp;t=1562219742857&amp;z=0&amp;center=13.08408%2C48.33915&amp;zoom=12.34&amp;layers=W3siaWQiOiJjMSIsInJlcGxhY2VtZW50Q29sb3JNYXBjZC16bnVsbCwibGF5ZXJJZC16IkVPOkVFQTPpEQVQ6QC3D</a></td> </tr> <tr> <td>WWW:<br/>LINK-1.0-<br/>http--link</td> <td><a href="https://www.wekeo.eu/data?view=viewer&amp;t=1562219742857&amp;z=0&amp;center=13.08408%2C48.33915&amp;zoom=12.34&amp;layers=W3siaWQiOiJjMSIsInJlcGxhY2VtZW50Q29sb3JNYXBjZC16bnVsbCwibGF5ZXJJZC16IkVPOkVFQTPpEQVQ6QC3D">https://www.wekeo.eu/data?view=viewer&amp;t=1562219742857&amp;z=0&amp;center=13.08408%2C48.33915&amp;zoom=12.34&amp;layers=W3siaWQiOiJjMSIsInJlcGxhY2VtZW50Q29sb3JNYXBjZC16bnVsbCwibGF5ZXJJZC16IkVPOkVFQTPpEQVQ6QC3D</a></td> </tr> <tr> <td>OGC:WMTS</td> <td><a href="https://phenology.vgt.vito.be/wmts?request=GetCapabilities">https://phenology.vgt.vito.be/wmts?request=GetCapabilities</a></td> </tr> <tr> <td>OGC:WMTS</td> <td><a href="https://phenology.vgt.vito.be/wmts?request=GetCapabilities">https://phenology.vgt.vito.be/wmts?request=GetCapabilities</a></td> </tr> <tr> <td></td> <td><a href="https://land.copernicus.eu/en/technical-library/hr-vpp-data-access-manual/@_@download/file">https://land.copernicus.eu/en/technical-library/hr-vpp-data-access-manual/@_@download/file</a></td> </tr> </tbody> </table> | Protocol | Linkage | WWW:<br>LINK-1.0-<br>http--link | <a href="https://www.wekeo.eu/data?view=viewer&amp;t=1562219742857&amp;z=0&amp;center=13.08408%2C48.33915&amp;zoom=12.34&amp;layers=W3siaWQiOiJjMSIsInJlcGxhY2VtZW50Q29sb3JNYXBjZC16bnVsbCwibGF5ZXJJZC16IkVPOkVFQTPpEQVQ6QC3D">https://www.wekeo.eu/data?view=viewer&amp;t=1562219742857&amp;z=0&amp;center=13.08408%2C48.33915&amp;zoom=12.34&amp;layers=W3siaWQiOiJjMSIsInJlcGxhY2VtZW50Q29sb3JNYXBjZC16bnVsbCwibGF5ZXJJZC16IkVPOkVFQTPpEQVQ6QC3D</a> | WWW:<br>LINK-1.0-<br>http--link | <a href="https://www.wekeo.eu/data?view=viewer&amp;t=1562219742857&amp;z=0&amp;center=13.08408%2C48.33915&amp;zoom=12.34&amp;layers=W3siaWQiOiJjMSIsInJlcGxhY2VtZW50Q29sb3JNYXBjZC16bnVsbCwibGF5ZXJJZC16IkVPOkVFQTPpEQVQ6QC3D">https://www.wekeo.eu/data?view=viewer&amp;t=1562219742857&amp;z=0&amp;center=13.08408%2C48.33915&amp;zoom=12.34&amp;layers=W3siaWQiOiJjMSIsInJlcGxhY2VtZW50Q29sb3JNYXBjZC16bnVsbCwibGF5ZXJJZC16IkVPOkVFQTPpEQVQ6QC3D</a> | OGC:WMTS | <a href="https://phenology.vgt.vito.be/wmts?request=GetCapabilities">https://phenology.vgt.vito.be/wmts?request=GetCapabilities</a> | OGC:WMTS | <a href="https://phenology.vgt.vito.be/wmts?request=GetCapabilities">https://phenology.vgt.vito.be/wmts?request=GetCapabilities</a> |  | <a href="https://land.copernicus.eu/en/technical-library/hr-vpp-data-access-manual/@_@download/file">https://land.copernicus.eu/en/technical-library/hr-vpp-data-access-manual/@_@download/file</a> |
| Protocol                               | Linkage   |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| WWW:<br>LINK-1.0-<br>http--link        | <a href="https://www.wekeo.eu/data?view=viewer&amp;t=1562219742857&amp;z=0&amp;center=13.08408%2C48.33915&amp;zoom=12.34&amp;layers=W3siaWQiOiJjMSIsInJlcGxhY2VtZW50Q29sb3JNYXBjZC16bnVsbCwibGF5ZXJJZC16IkVPOkVFQTPpEQVQ6QC3D">https://www.wekeo.eu/data?view=viewer&amp;t=1562219742857&amp;z=0&amp;center=13.08408%2C48.33915&amp;zoom=12.34&amp;layers=W3siaWQiOiJjMSIsInJlcGxhY2VtZW50Q29sb3JNYXBjZC16bnVsbCwibGF5ZXJJZC16IkVPOkVFQTPpEQVQ6QC3D</a>   |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| WWW:<br>LINK-1.0-<br>http--link        | <a href="https://www.wekeo.eu/data?view=viewer&amp;t=1562219742857&amp;z=0&amp;center=13.08408%2C48.33915&amp;zoom=12.34&amp;layers=W3siaWQiOiJjMSIsInJlcGxhY2VtZW50Q29sb3JNYXBjZC16bnVsbCwibGF5ZXJJZC16IkVPOkVFQTPpEQVQ6QC3D">https://www.wekeo.eu/data?view=viewer&amp;t=1562219742857&amp;z=0&amp;center=13.08408%2C48.33915&amp;zoom=12.34&amp;layers=W3siaWQiOiJjMSIsInJlcGxhY2VtZW50Q29sb3JNYXBjZC16bnVsbCwibGF5ZXJJZC16IkVPOkVFQTPpEQVQ6QC3D</a>   |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| OGC:WMTS                               | <a href="https://phenology.vgt.vito.be/wmts?request=GetCapabilities">https://phenology.vgt.vito.be/wmts?request=GetCapabilities</a>   |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
| OGC:WMTS                               | <a href="https://phenology.vgt.vito.be/wmts?request=GetCapabilities">https://phenology.vgt.vito.be/wmts?request=GetCapabilities</a>   |          |         |                                 |   |                                 |   |          |   |          |   |  |   |
|  | <a href="https://land.copernicus.eu/en/technical-library/hr-vpp-data-access-manual/@_@download/file">https://land.copernicus.eu/en/technical-library/hr-vpp-data-access-manual/@_@download/file</a>   |          |         |                                 |   |                                 |   |          |   |          |   |  |   |

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|  | <p>WWW:<br/>LINK-1.0-<br/>http-link</p> <p>OGC: <a href="https://phenology.vgt.vito.be/description?collection=copernicus_r_utm-wgs84_10_m_hrvpp-vpp_p_2017-now_v01">https://phenology.vgt.vito.be/description?collection=copernicus_r_utm-wgs84_10_m_hrvpp-vpp_p_2017-now_v01</a><br/>OpenSearch</p> <p>WWW: <a href="https://land.copernicus.eu/en/products/vegetation/high-resolution-total-productivity">https://land.copernicus.eu/en/products/vegetation/high-resolution-total-productivity</a><br/>LINK-1.0-<br/>http-link</p> <p>WWW: <a href="https://land.copernicus.eu/en/technical-library/product-user-manual-of-seasonal-trajectories/@_@download/file">https://land.copernicus.eu/en/technical-library/product-user-manual-of-seasonal-trajectories/@_@download/file</a><br/>LINK-1.0-<br/>http-link</p> <p>OGC:WMS <a href="https://phenology.vgt.vito.be/wms?request=GetCapabilities">https://phenology.vgt.vito.be/wms?request=GetCapabilities</a></p> <p>OGC:WMS <a href="https://phenology.vgt.vito.be/wms?request=GetCapabilities">https://phenology.vgt.vito.be/wms?request=GetCapabilities</a></p> <p>WWW: <a href="https://land.copernicus.eu/en/products/vegetation/high-resolution-total-productivity#download">https://land.copernicus.eu/en/products/vegetation/high-resolution-total-productivity#download</a><br/>LINK-1.0-<br/>http-link</p> |
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|                        |                 |   |             |
|------------------------|-----------------|---|-------------|
| <b>OnLine resource</b> | <b>Protocol</b> | <b>Linkage</b>  | <b>Name</b> |
|                        | DOI             | <a href="https://doi.org/10.2909/977e4bb8-407f-48ec-b4c4-403bca5a6a3b">https://doi.org/10.2909/977e4bb8-407f-48ec-b4c4-403bca5a6a3b</a> |             |

|                        |         |
|------------------------|---------|
| <b>Hierarchy level</b> | Dataset |
|------------------------|---------|

## Conformance result

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

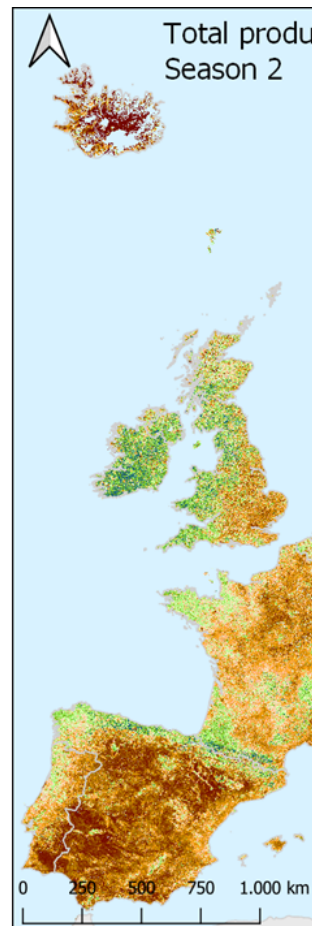
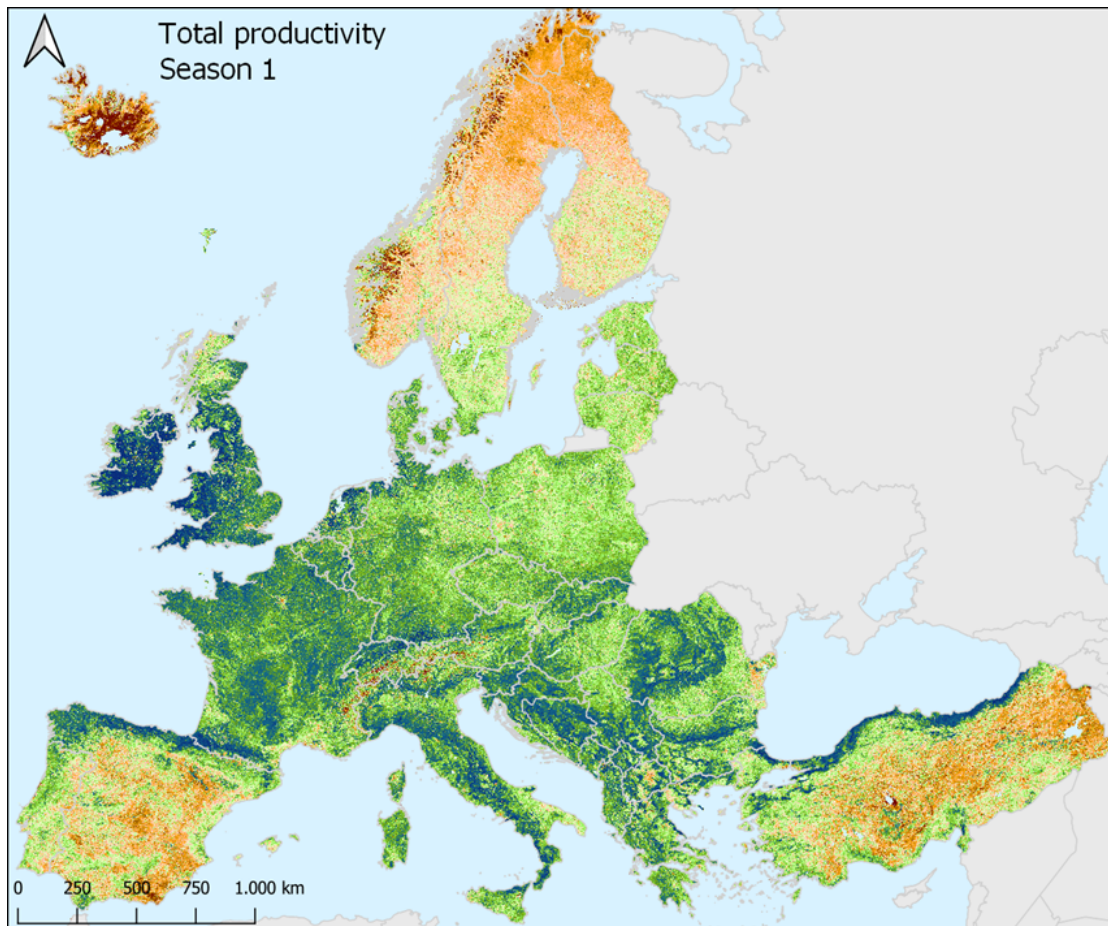
|                  |  |
|------------------|--|
| <b>Statement</b> | <p>Vegetation Phenology and Productivity parameters (VPP) are based on Plant Phenology Index (PPI) seasonal trajectories and are yearly produced for two seasons using the Timesat software. One of the parameters is the Total Productivity (TPROD): the growing season integral computed as the sum of all daily PPI values between the dates of the season start (SOSD) and end (EOSD).</p> <p>The latest validation results are described in the validation report at <a href="https://land.copernicus.eu/en/technical-library/validation-report-of-seasonal-trajectories-vpp-parameters/@_@download/file">https://land.copernicus.eu/en/technical-library/validation-report-of-seasonal-trajectories-vpp-parameters/@_@download/file</a>.</p> |
|------------------|--|

|               |   |
|---------------|---|
| <b>Source</b> | • |
|---------------|---|

## Metadata

|                                  |  |                        |  |
|----------------------------------|--|------------------------|--|
| <b>File identifier</b>           | 977e4bb8-407f-48ec-b4c4-403bca5a6a3b <a href="#">XML</a> |                        |  |
| <b>Metadata language</b>         | English  |                        |  |
| <b>Character set</b>             | UTF8   |                        |  |
| <b>Hierarchy level</b>           | Dataset  |                        |  |
| <b>Date stamp</b>                | 2024-02-06T16:46:06.333Z                                 |                        |  |
| <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> |
|                                  | European Environment Agency                              |                        | Point of   |

### Overviews



Provided by

