

## Annual above ground vegetation season length time-series 2000-2016 - version 1, Aug. 2018

This data set raster file is the above ground vegetation season length time-series for the period 2000-2016.

The data set addresses trends in the season length of land surface vegetation derived from remote sensing observed time series of vegetation indices. The vegetation index used in the indicator is the Plant Phenology Index (PPI, Jin and Eklundh, 2014). PPI is based on the MODIS Nadir BRDF-Adjusted Reflectance product (MODIS MCD43 NBAR). The product provides reflectance data for the MODIS "land" bands (1 - 7) adjusted using a bi-directional reflectance distribution function. This function models values as if they were collected from a nadir-view to remove so called cross-track illumination effects. The Plant Phenology Index (PPI) is a new vegetation index optimized for efficient monitoring of vegetation phenology. It is derived from radiative transfer solution using reflectance in visible-red (RED) and near-infrared (NIR) spectral domains. PPI is defined to have a linear relationship to the canopy green leaf area index (LAI) and its temporal pattern is strongly similar to the temporal pattern of gross primary productivity (GPP) estimated by flux towers at ground reference stations. PPI is less affected by presence of snow compared to commonly used vegetation indices such as Normalized Difference Vegetation Index (NDVI) or Enhanced Vegetation Index (EVI).

The product is distributed with 500 m pixel size (MODIS Sinusoidal Grid) with 8-days compositing period.

### Simple

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### Point of contact

No information provided.

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No information provided.

Maintenance and update frequency	As needed
<a href="#">GEMET - INSPIRE themes, version 1.0</a>	<ul style="list-style-type: none"> <li><a href="#">Habitats and biotopes</a></li> <li><a href="#">Environmental monitoring facilities</a></li> </ul>
Keywords	
Keywords	
GEMET	<ul style="list-style-type: none"> <li>vegetation</li> <li>remote sensing</li> <li>index</li> </ul>
Continents, countries, sea regions of the world.	<ul style="list-style-type: none"> <li>EEA39</li> </ul>
<a href="#">Spatial scope</a>	<ul style="list-style-type: none"> <li><a href="#">European</a></li> </ul>
Temporal resolution	<ul style="list-style-type: none"> <li>Annually</li> </ul>
EEA Management Plan	<ul style="list-style-type: none"> <li>2019 1.8.2</li> </ul>
	<ul style="list-style-type: none"> <li>Agriculture and food</li> </ul>

EEA topics	<ul style="list-style-type: none"> <li>• Forests and forestry</li> <li>• Land use</li> <li>• Biodiversity</li> </ul>
Access constraints	Other restrictions
Other constraints	<a href="#">no limitations to public access</a>
Use constraints	Other restrictions
Other constraints	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="http://www.eea.europa.eu/legal/copyright">http://www.eea.europa.eu/legal/copyright</a> ). Copyright holder: European Environment Agency (EEA).
Aggregate Datasetidentifier	29ae2d47-7af2-4c09-ba5f-e2fbb7c2b0d1
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Association Type	Cross reference
Spatial representation type	Grid
Distance	500 m
Language of dataset	English
Topic category	<ul style="list-style-type: none"> <li>• Environment</li> </ul>



than the first function fit are then considered as influenced by noise and thus less important, so their weights are decreased for the next iteration of the function fitting.

Phenological metrics (and other parameters describing character of the given growing season) are finally extracted from the fitted function data.

The following parameters are extracted for each detected growing season to determine the length of the growing season:

Start-Of-Season (SOS): date of the start of the season defined as the date when the PPI has increased to the 20% level of the average annual PPI amplitude (Jin et al. 2017). The average annual PPI amplitude is the difference between the average peak level and the average base level for each pixel.

End-Of-Season (EOS): date of the end of the season defined as the date when the PPI drops under the 20 % level of the average annual PPI amplitude (Jin et al. 2017).

The season length is the difference of the EOS day and the SOS day, in days. For this indicator 20% of the seasonal PPI amplitude was used as the SOS and EOS detection threshold.

The output of the process is a season length metrics for each year of the time series 2000-2016 (17 years) covering the EEA39 territory. The spatial resolution of the productivity dataset is 500mx500m pixel size.

Detailed description of the methodology for calculating the productivity metric can be found in the TIMESAT software manual (publicly available)

#### References:

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Jin, H.X.; Jönsson, A.M.; Bolmgren, K.; Langvall, O.; Eklundh, L., 2017. Disentangling remotely-sensed plant phenology and snow seasonality at northern Europe using MODIS and the plant phenology index. Remote Sensing of Environment 2017,198, 203-212.

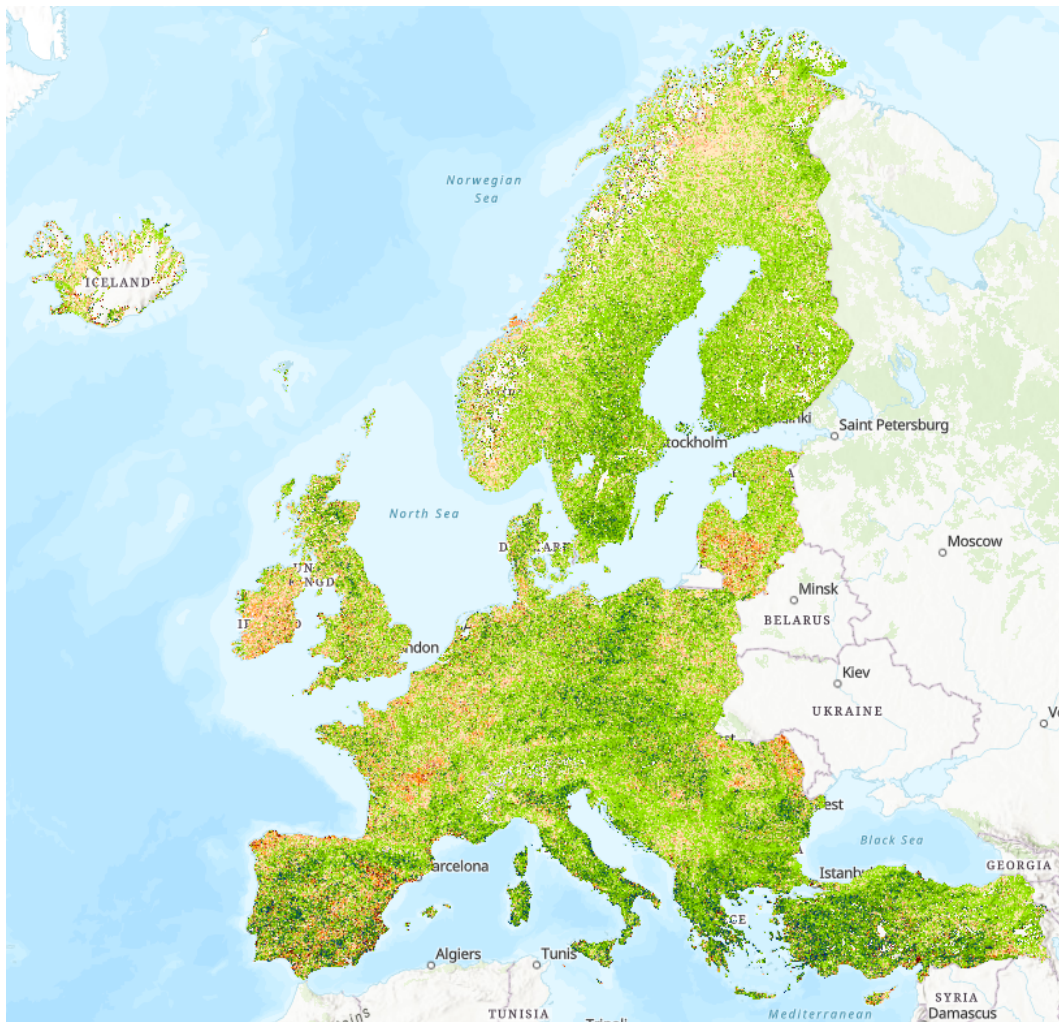
Abdi, A. M., N. Boke-Olén, H. Jin, L. Eklundh, T. Tagesson, V. Lehsten and J. Ardö (2019). First assessment of the plant phenology index (PPI) for estimating gross primary productivity in African semi-arid ecosystems. International Journal of Applied Earth Observation and Geoinformation 78: 249-260.

Jin, H., A. M. Jönsson, C. Olsson, J. Lindström, P. Jönsson and L. Eklundh (2019). New satellite-based estimates show significant trends in spring phenology and complex sensitivities to temperature and precipitation at northern European latitudes. International Journal of Biometeorology 63(6): 763-775.

## Metadata

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<b>Metadata standard version</b>	1.0		
<b>Metadata author</b>	<b>Organisation name</b>	<b>Individual name</b>	<b>Electronic mail      Website Role</b>

## Overviews



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