EEA geospatial data catalogue

Harmonized imperviousness layer 2018 (raster 1km), Feb. 2024

This metadata describes the Harmonized Imperviousness raster dataset for the year 2018. This raster dataset is part of the harmonized and bias-corrected soil sealing time series for Europe produced by the EEA for the observation period (2006-2018) based on the Copernicus Imperviousness Degree (IMD) layers.

The 2018 Imperviousness Degree (IMD) layer of the Copernicus Land Monitoring Service (CLMS) was produced on a 10m spatial resolution taking advantage of the availability of Sentinel 2 data, whereas earlier layers are provided on 20m resolution. The 20m resolution IMD time-series (2006-2009-2012-2015) was harmonized by the CLMS and have shown a credible evolution in sealed cover. The upgrade from 20m to 10m spatial resolution however resulted in a break in the IMD based areal statistics.

The harmonized imperviousness time series layers combine visual interpretation and modelling with the original CLMS Imperviousness Density layers and the CLMS CLC+ Backbone raster layer to overcome the above mentioned resolution change and to provide a harmonized time series for the monitoring of the evolution of soil sealing.

Simple

Date (Creation)	2024-02-01
Date (Publication)	2024-06-27
Edition	01.00
Citation identifier	eea_r_3035_1_km_imperviousness-layer_p_2018_v01_r00
Code	10.2909/1e42e939-73ec-4e82-82ae-3625ecffc907
Point of contact	**Organisation name** / **Individual name** / **Electronic mail address** / **Website** / **Role** European Environment Agency / / sdi@eea.europa.eu / http://www.eea.europa.eu / Point of contact European Environment Agency / / sdi@eea.europa.eu / / Custodian

Point of contact

No information provided.

Maintenance and update frequency	Every 3 years
GEMET - INSPIRE themes, version 1.0	• Land use
Keywords	
Keywords	
GEMET	• land use • general
Continents, countries, sea regions of the world.	• EEA38 (from 2020) • United Kingdom
Spatial scope	• European
EEA Management Plan	• 2024 2.2.4
	• Land use

EEA topics	• Climate mitigation
Access constraints	Other restrictions
Other constraints	no limitations to public access
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 (http://www.eea.europa.eu/legal/copyright). Copyright holder: European Environment Agency (EEA).
Spatial representation type	Grid
Denominator	100000
Distance	1000 1000 m
Language of dataset	English
Topic category	• Environment

72.66	N	24.28	S	72.91	E	-56.51	W

Begin date	2015-01-01
End date	2017-12-31
Coordinate reference system identifier	EPSG:3035
Distribution format	• GeoTIFF ( )

OnLine resource

Protocol	Linkage	Name
EEA:FOLDERPATH	https://sdi.eea.europa.eu/webdav/datastore/public/eea_r_3035_1_km_imperviousness-layer_p_2018_v01_r00/	
WWW:URL	https://sdi.eea.europa.eu/data/1e42e939-73ec-4e82-82ae-3625ecffc907	Direct download
WWW:LINK-1.0-http--link	https://www.eionet.europa.eu/etcs/etc-di/products/etc-di-report-2024-3-analysis-of-usability-of-imperviousness-and-clc-backbone-data-for-mapping-sealed-areas	ETC-DI 2024 report
ESRI:REST	https://land.discomap.eea.europa.eu/arcgis/rest/services/Imperviousness/Imperviousness2018v2024/MapServer	
OGC:WMS	https://land.discomap.eea.europa.eu/arcgis/services/Imperviousness/Imperviousness2018v2024/MapServer/WMSServer?request=GetCapabilities&service=WMS	

OnLine resource

No information provided.

OnLine resource

Protocol	Linkage	Name
DOI	https://doi.org/10.2909/1e42e939-73ec-4e82-82ae-3625ecffc907	

Hierarchy level	Dataset

Conformance result

Date (Publication)	2010-12-08
Explanation	See the referenced specification

Absolute external positional accuracy

Name of measure	Minimum Mapping Width

Quantitative result

Statement	the CLMS has been producing a new dataset from 2018 onward entitled the CORINE Land Cover (CLC)+ Back Bone raster which also include a sealed area thematic class. When comparing the IMD and CLC+ Backbone Raster datasets with sampled reference data, it appears that the imperviousness dataset substantially underestimates sealed areas at European level (Sannier et al., 2024 under

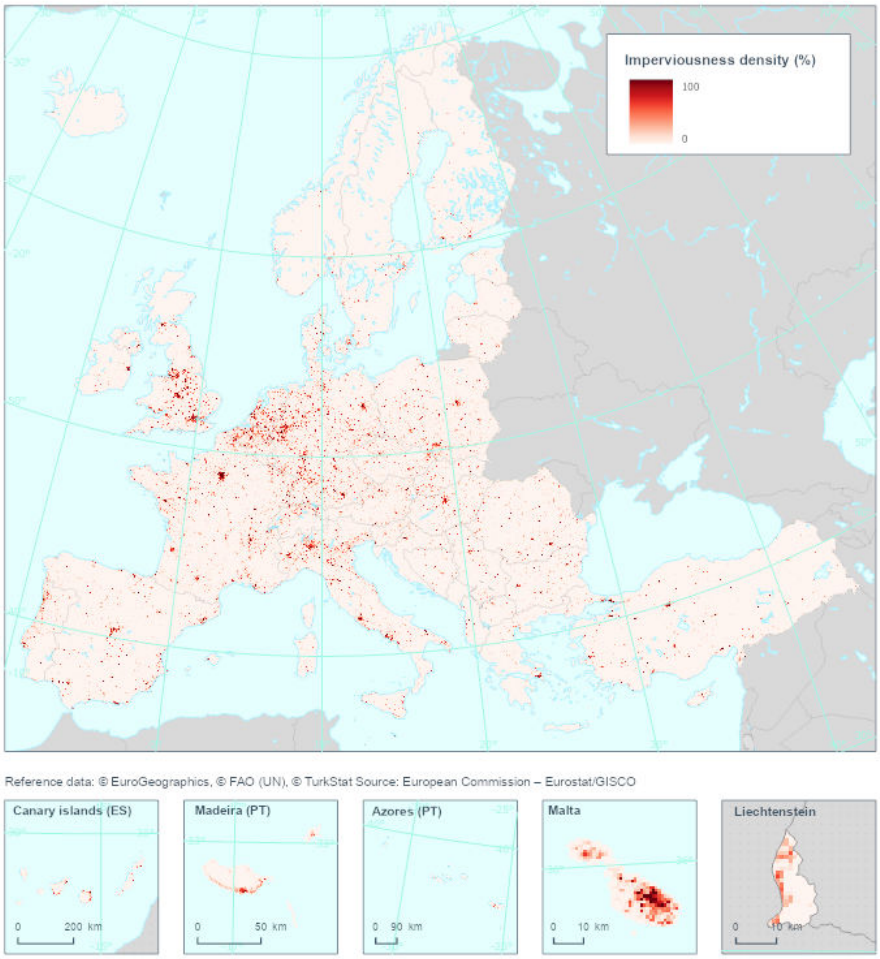
	review and ETC/DI, 2024). The CLC+ dataset only started to be available from 2018 and currently does not include any change layer. To address these issues, a combined, harmonized and bias-corrected soil sealing dataset for Europe was produced by the EEA for the entire observation period. For the geometric harmonization of the CLMS IMD time series for 2006, 2009, 2012, 2015 and 2018 the following steps were used: 1. Create Sealed 2018 status by extracting class 1 from CLC+ Backbone 2018 (10m) (set all other classes to 0). 2. Create the Sealed 2015 accounting status layer by combining Sealed 2018 status with IMCC1518accounting: a. Resample 20m resolution IMCC1518accounting to 10m resolution. b. Combine IMCC1518accounting sealing increase with Sealed 2018 status: IF Sealed 2018 status is sealed (value=1) and IMCC1518accounting is class “new cover” THEN write new Sealed 2015 accounting status layer with value “unsealed” (unsealed=0) at corresponding grid cell. c. Combine IMCC1518accounting sealing decrease with Sealed 2018 status: IF Sealed 2018 status is not sealed (value=0) and change is “loss of cover” THEN write new Sealed 2015 accounting status layer with value “sealed” (sealed=1) at corresponding grid cell. d. For the rest of the pixel copy the values (sealed/unsealed, i.e. 1/0) from the Sealed 2018 status layer 3. Create the Sealed 2012 accounting status layer by combining Sealed 2015 status with IMCC1215 a. Resample 20m resolution IMCC1215 to 10m resolution b. Combine CLMS IMCC1215 sealing increase with Sealed 2015 accounting status: IF Sealed 2015 accounting status is sealed (value=1) and CLMS IMCC1215 is class “new cover” THEN write new Sealed 2012 accounting status layer with value “unsealed” (unsealed = 0) at corresponding grid cell. c. Combine CLMS IMCC1215 sealing decrease with Sealed 2015 status: IF Sealed 2015 status is not sealed (value =0) and change is “loss of cover” THEN write new Sealed 2012 status layer with value “sealed” (sealed=1) at corresponding grid cell. d. For the rest of the pixel copy the values (sealed/unsealed, i.e. 1/0) from the Sealed 2015 status layer 4. Create the Sealed 2009 accounting status layer by combining Sealed 2012 status with IMCC0912 a. Resample 20m resolution IMCC0912 to 10m resolution b. Combine CLMS IMCC0912 sealing increase with Sealed 2012 accounting status: IF Sealed 2012 accounting status is sealed (value=1) and CLMS IMCC0912 is class “new cover” THEN write new Sealed 2009 accounting status layer with value “unsealed” (unsealed = 0) at corresponding grid cell. c. Combine CLMS IMCC0912 sealing decrease with Sealed 2012 status: IF Sealed 2012 status is not sealed (value =0) and change is “loss of cover” THEN write new Sealed 2009 status layer with value “sealed” (sealed=1) at corresponding grid cell. d. For the rest of the pixel copy the values (sealed/unsealed, i.e. 1/0) from the Sealed 2012 status layer 5. Create the Sealed 2006 accounting status layer by combining Sealed 2009 status with IMCC0609 a. Resample 20m resolution IMCC0609 to 10m resolution b. Combine CLMS IMCC0609 sealing increase with Sealed 2009 accounting status: IF Sealed 2009 accounting status is sealed (value=1) and CLMS IMCC0609 is class “new cover” THEN write new Sealed 2006 accounting status layer with value “unsealed” (unsealed = 0) at corresponding grid cell. c. Combine CLMS IMCC0609 sealing decrease with Sealed 2009 status: IF Sealed 2009 status is not sealed (value =0) and change is “loss of cover” THEN write new Sealed 2006 status layer with value “sealed” (sealed=1) at corresponding grid cell. d. For the rest of the pixel copy the values (sealed/unsealed, i.e. 1/0) from the Sealed 2009 status layer For further processing the time series was converted to 1km grid size which was the best compromise in terms of reporting on sealed soil surface and available resources. In the next step a visually interpreted reference database was created, where within 1kmx1km primary sampling units (PSUs) 100 secondary sampling units (SSUs) were selected on a regular grid. With a non-linear regression estimate a relationship was established between the visually interpreted ground truth and the 1km harmonized layers. The regression estimate was applied to the harmonized layers and a new 1km harmonized and corrected time series was created.
Source	•

Metadata

File identifier	1e42e939-73ec-4e82-82ae-3625ecffc907 XML
Metadata language	English
Character set	UTF8
Hierarchy level	Dataset

Date stamp	2024-07-03T12:14:28.124256Z
Metadata standard name	ISO 19115/19139
Metadata standard version	1.0
Metadata author	**Organisation name**: European Environment Agency; **Individual name**: ; **Electronic mail address**: sdi@eea.europa.eu; **Website**: ; **Role**: Point of contact

Overviews



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