EEA geospatial data catalogue

High Resolution Layer: Imperviousness Density 2015 (raster 100m) accounting layer, Jan. 2019

The current resource was derived from original Copernicus High Resolution Layer Imperviousness Density 2015 product for the purposes of imperviousness indicator (LSI002) calculations within the EEA LEAC CUBE environment. The dataset is also input to the imperviousness indicator itself.

The high resolution imperviousness products capture the percentage and change of soil sealing. Built-up areas are characterized by the substitution of the original (semi-) natural land cover or water surface with an artificial, often impervious cover. These artificial surfaces are usually maintained over long periods of time. A series of high resolution imperviousness datasets (for the 2006, 2009, 2012 and 2015 reference years) with all artificially sealed areas was produced using automatic derivation based on calibrated Normalized Difference Vegetation Index (NDVI).

This series of imperviousness layers constitutes the main status layers. They are per-pixel estimates of impermeable cover of soil (soil sealing) and are mapped as the degree of imperviousness (0-100%). Imperviousness change layers were produced as a difference between the reference years (2006-2009, 2009-2012, 2012-2015 and additionally 2006-2012, to fully match the CORINE Land Cover production cycle) and are presented 1) as degree of imperviousness change (100% - +100%), in 20m and 100m pixel size, and 2) a classified (categorical) 20m change product.

The latest version (published: 15/01/2019) of 100m resolution imperviousness status layers represents a time series consistent with 100m resolution imperviousness change layers - the cell by cell difference of the degree of imperviousness status corresponds to the degree of imperviousness change.

The production of the High Resolution Imperviousness products was coordinated by the European Environment Agency in the frame of the EU Copernicus programme.

Simple

Identification info

Date (Creation)	2019-01-28
Date (Publication)	2019-01-28
Edition	01.03
Citation identifier	eea_r_3035_100_m_imd-2015-acc_p_2014-2016_v01_r03
Spatial representation type	Grid

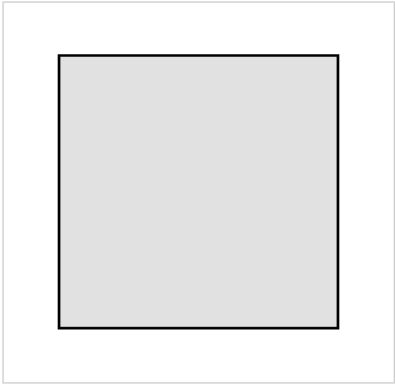
Spatial resolution

Spatial resolution	100 m

Topic category	• Environment • Imagery base maps earth cover

Extent

71.16	N	27.64	S	44.81	E	-31.28	W



Temporal extent

Time period	2014-03-01 2016-12-01
Extent	

Maintenance and update frequency	As needed
EEA topics	• Land use • Soil
GEMET - INSPIRE themes, version 1.0	• Land cover
GEMET	• urban sprawl • land use • environmental accounting • built-up area • soil surface sealing • soil degradation • sealing
Continents, countries, sea regions of the world.	• EEA39
Spatial scope	• European

Resource constraints

Access constraints	Other restrictions
Other constraints	no limitations to public access

Resource constraints

Use constraints	Other restrictions
Other constraints	License CC-BY 4.0 (https://creativecommons.org/licenses/by/4.0/). Copyright holder: European Environment Agency (EEA).

Associated resource

Association Type	Cross reference
Metadata Reference	• High Resolution Layer: Imperviousness Density 2012 (raster 100m) accounting layer, Jan. 2019

Associated resource

Association Type	Cross reference
Metadata Reference	• High Resolution Layer: Imperviousness Density 2009 (raster 100m) accounting layer, Jan. 2019

Associated resource

Association Type	Cross reference
Metadata Reference	• High Resolution Layer: Imperviousness Density 2006 (raster 100m) accounting layer, Jan. 2019

Language	English

Distribution Information

Distribution format	• GeoTIFF
OnLine resource	https://sdi.eea.europa.eu/webdav/datastore/public/eea_r_3035_100_m_imd-2015-acc_p_2014-2016_v01_r03
OnLine resource	Imperviousness in Europe dashboard
OnLine resource	Direct download
OnLine resource	https://land.discomap.eea.europa.eu/arcgis/rest/services/Imperviousness/sealed2015/ImageServer
OnLine resource	https://land.discomap.eea.europa.eu/arcgis/services/Imperviousness/sealed2015/ImageServer/WMSServer?request=GetCapabilities&service=WMS

Data quality info

Hierarchy level	Dataset

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	See the referenced specification

Resource lineage

Statement	The imperviousness HRL captures the spatial distribution of artificially sealed areas, including the level of sealing of the soil per area unit. The separation of artificially sealed areas from non-sealed represents a kind of stratification and is based on a list of included / excluded elements. The level of sealed soil (imperviousness degree 1-100%) is produced using a semi-automated classification, based on calibrated NDVI. Find more detail in the technical document. https://land.copernicus.eu/user-corner/technical-library/hrl-imperviousness-technical-document-prod-2015 The latest version of imperviousness products (published: 15/01/2019) were significantly improved compared to the previous versions - see details at https://land.copernicus.eu/pan-european/high-resolution-layers/imperviousness The current resource was derived for the purposes of imperviousness indicator calculations within CUBE environment. The original 100m resolution imperviousness status product was modified:

	- All cells in status layers were excluded (set to "No data") if 254 (unclassifiable) or 255 (out of area) values appeared in any of the status layers of the time series (2006, 2009, 2012, 2015) at the same cell location. - Original imperviousness degree values (0-100%), were modified to values representing sealed area in sqm within the 1ha cells (0-10.000 m2). Detailed information about the LSI002 indicator can be found in the interactive data viewer "Imperviousness in Europe" on https://www.eea.europa.eu/data-and-maps/dashboards/imperviousness-in-europe. The report available on https://forum.eionet.europa.eu/etc-urban-land-and-soil-systems/library/10.-ap-2018/1.8.2.7-support-time-series-update-imperviousness-indicator-lsi002 (Eionet account required) provides a summary of the update and publication of the imperviousness indicator, changes on the 2006-2015 time series, as well as the quality assessment and testing of the robustness of the indicator.
Hierarchy level	Dataset
Source	• Imperviousness Density 2015 (raster 100 m), Europe, 3-yearly, Mar. 2018

Reference System Information

Reference System Information

Code	EPSG:3035

Metadata

Metadata identifier	d9430fe2-70c5-451b-8972-6746b178ccab
Language	English
Character encoding	UTF8

Contact

Organisation	Individual	Electronic mail address	Website	Role
European Environment Agency		sdi@eea.europa.eu		Point of contact

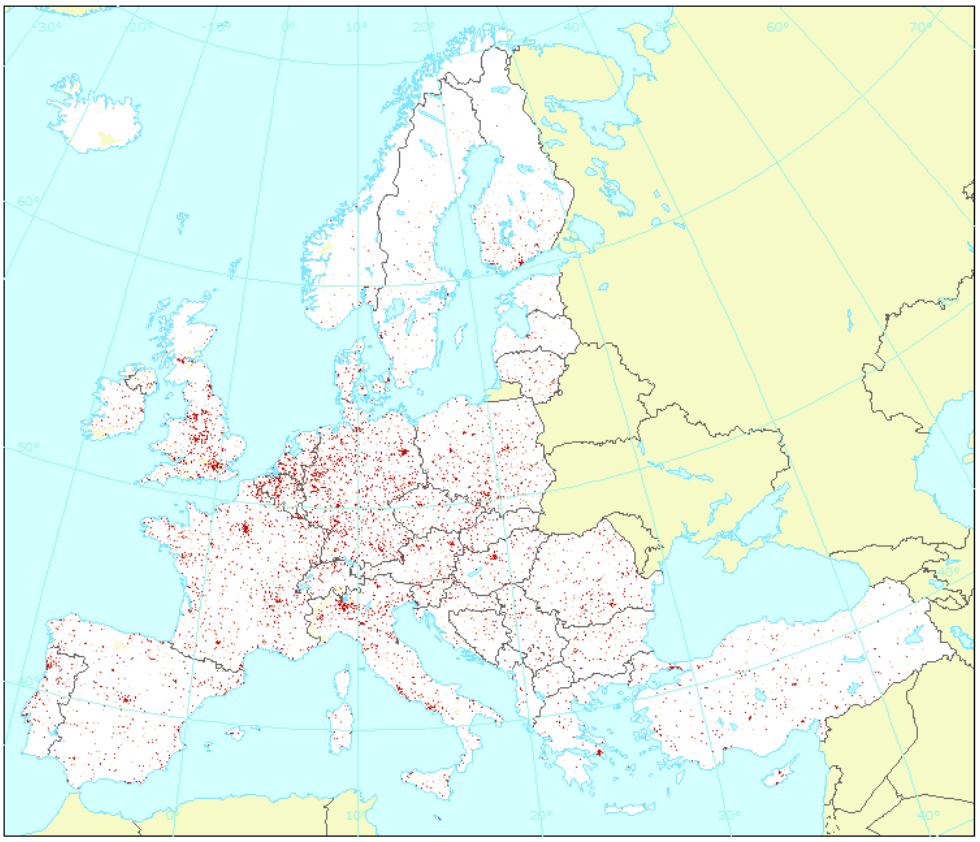
Type of resource

Resource type	Dataset
Metadata linkage	https://sdi.eea.europa.eu/catalogue/srv/api/records/d9430fe2-70c5-451b-8972-6746b178ccab?language=all
Date info (Creation)	2020-03-24T06:57:32Z
Date info (Revision)	2025-10-09T11:17:48.023675Z

Metadata standard

Title	ISO 19115/19139
Edition	1.0

Overviews



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