



## Share of Built-Up 2021 (raster 100 m), Europe, 3-yearly, Jun. 2025

The Share of Built-Up (SBU) 2021 is part of the High Resolution Layer (HRL) Imperviousness and contains the share (percentage) of built-up per pixel for the reference year 2021 as derived from a pixel aggregation of the binary Impervious Built-Up (IBU) 2021 layer. The production of the HRL Imperviousness is coordinated by EEA in the frame of Copernicus, the Earth observation component of the European Union's Space programme.

The product is a raster dataset with 100-meter grid spacing (spatial resolution) that covers the 38 Eionet member and cooperating countries as well as the United Kingdom (i.e. EEA38+UK). It is distributed as 100 x 100 km tiles that are fully conformant with the EEA reference grid.

### Simple

#### Identification info

Date (Creation)	2025-05-01
Date (Publication)	2025-08-01
Edition	01.00
Citation identifier	copernicus_r_3035_100_m_sbu-2021_p_v01_r00

#### Identifier

Code	<a href="https://doi.org/10.2909/3d7ab052-c643-4b4b-83b2-7965ecd096aa">10.2909/3d7ab052-c643-4b4b-83b2-7965ecd096aa</a>
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Point of contact	Organisation	Individual	Electronic mail address	Website	Role
	European Commission				<a href="https://commission.europa.eu">https://commission.europa.eu</a>
Copernicus Land Monitoring Service			JRC-Copernicus-Land@ec.europa.eu	<a href="https://land.copernicus.eu">https://land.copernicus.eu</a>	Custodian
European Environment Agency			sdi@eea.europa.eu	<a href="http://www.eea.europa.eu">http://www.eea.europa.eu</a>	Publisher
Copernicus Land Monitoring Service helpdesk			JRC-Copernicus-Land@ec.europa.eu	<a href="https://land.copernicus.eu/en/contact-service-helpdesk">https://land.copernicus.eu/en/contact-service-helpdesk</a>	Point of contact

Spatial representation type	Grid
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#### Spatial resolution

Spatial resolution	100 m
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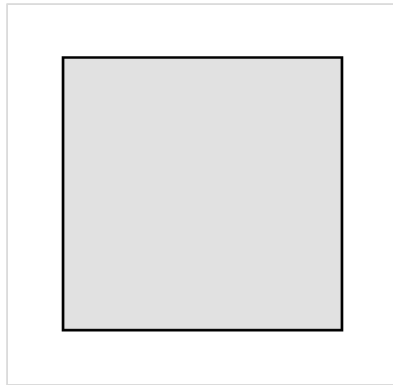
Topic category	<ul style="list-style-type: none"> <li>Environment</li> <li>Imagery base maps earth cover</li> </ul>
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#### Extent

#### Temporal extent

Time period	2021-01-01 2021-12-31
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Extent



<b>Maintenance and update frequency</b>	Continual
<a href="#">GEMET - INSPIRE themes, version 1.0</a>	<ul style="list-style-type: none"> <li>• <a href="#">Land cover</a></li> <li>• <a href="#">Land use</a></li> </ul>
<a href="#">Continents, countries, sea regions of the world.</a>	<ul style="list-style-type: none"> <li>• United Kingdom</li> <li>• EEA38 (from 2020)</li> </ul>
<a href="#">GEMET</a>	<ul style="list-style-type: none"> <li>• <a href="#">land cover</a></li> <li>• <a href="#">sealing</a></li> <li>• <a href="#">landscape alteration</a></li> <li>• <a href="#">soil surface sealing</a></li> <li>• <a href="#">land use</a></li> <li>• <a href="#">built environment</a></li> <li>• <a href="#">urban area</a></li> <li>• <a href="#">built-up area</a></li> </ul>
<a href="#">Spatial scope</a>	<ul style="list-style-type: none"> <li>• <a href="#">European</a></li> </ul>
<a href="#">EEA topics</a>	<ul style="list-style-type: none"> <li>• <a href="#">Soil</a></li> <li>• <a href="#">Buildings and construction</a></li> <li>• <a href="#">Land use</a></li> </ul>

## Resource constraints

<b>Access constraints</b>	Other restrictions
<b>Other constraints</b>	<a href="#">no limitations to public access</a>

## Resource constraints

<b>Use constraints</b>	Other restrictions
<b>Other constraints</b>	<p>The Copernicus component is governed by Regulation (EU) No 2021/696 of the European Parliament and of the Council of 28 April 2021 establishing the Union Space Programme and the European Union Agency for the Space Programme and repealing Regulations (EU) No 912/2010, (EU) No 1285/2013 and (EU) No 377/2014 and Decision No 541/2014/EU. Within the Copernicus component, a portfolio of land monitoring activities has been delegated by the European Union to the European Environment Agency (EEA) and the DG Joint Research Centre of the European Commission.</p> <p>The Copernicus land monitoring products and services are made available on a principle of full, open and free access, as established by the Commission Delegated Regulation (EU) No 1159/2013 of 12 July 2013.</p> <p>Free, full and open access to the products and services of the Copernicus Land Monitoring Service is made on the conditions that:</p> <ol style="list-style-type: none"> <li>1. When distributing or communicating Copernicus Land Monitoring Service products and services (data, software scripts, web services, user and methodological documentation and similar) to the public, users shall inform the public of the source of these products and services.</li> </ol>

2. Where the Copernicus Land Monitoring Service products and services have been adapted or modified by the user, the user shall clearly state this.

3. Users shall make sure not to convey the impression to the public that the user's activities are officially endorsed by the European Union.

<b>Language</b>	English
<b>Character encoding</b>	UTF8
<b>Additional Information</b>	Pixel codes:  0: All non-built-up areas 1-100: 1-100% Impervious Built-Up 255: Outside area

## Distribution Information

<b>Distribution format</b>	<ul style="list-style-type: none"><li>• GeoTIFF</li></ul>
<b>OnLine resource</b>	<a href="#">Product Information &amp; Technical Documentation</a>
<b>OnLine resource</b>	<a href="#">WEkEO Portal</a>
<b>OnLine resource</b>	

## Data quality info

<b>Hierarchy level</b>	Dataset
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## Report

### Result

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

## Resource lineage

<b>Statement</b>	<p>The Share of Built-Up (SBU) 2021 layer was derived by aggregating the binary Impervious Built-Up (IBU) 2021 layer to 100m spatial resolution using an averaging operation.</p> <p>Input data: Copernicus Sentinel-2 imagery (L2A) acquired from January to December for the reference year 2021.</p> <p>Pre-processing: A data reduction algorithm was applied on of the Sentinel-2 time-series to obtain a set of band quantiles. Additionally, a combination of polynomial and harmonic functions were fitted to the time-series of Normalized Difference Vegetation Index (NDVI) to derive harmonic coefficients.</p> <p>Training data: Sentinel-2 quantiles 2018, Open Street Maps, Microsoft Building Footprints and Google Open Buildings datasets.</p>
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Classification and prediction:

A modified deep convolutional neural network (CNN) called U-Net was trained. The trained model was applied to the Sentinel-2 harmonics and quantiles input to predict built-up densities for the reference year 2021.

Post-processing:

Steps applied comprise: 1) Binarization of the predicted built-up densities layer by applying a threshold of 10% and 2) pixel aggregation using an average operation.

Changes to previous release (2018):

- Introduction of a new production system and algorithm (U-Net CNN).
- Reduction of in-situ data dependency for dataset production.
- First Impervious Built-up Change (IBUC) layer (2018-2021).

Hierarchy level

Dataset

## Reference System Information

### Reference System Information

Code

[EPSG:3035](#)

## Reference System Information

### Reference System Information

Code

[EPSG:32740](#)

## Reference System Information

### Reference System Information

Code

[EPSG:32738](#)

## Reference System Information

### Reference System Information

Code

[EPSG:32620](#)

## Reference System Information

### Reference System Information

Code

[EPSG:](#)

Maintenance and update frequency

## Metadata

Metadata identifier

3d7ab052-c643-4b4b-83b2-7965ecd096aa

Language

English

Character encoding

UTF8

Contact

**Organisation**

**Individual**

**Electronic  
mail  
address**

**Website Role**

European Environment Agency

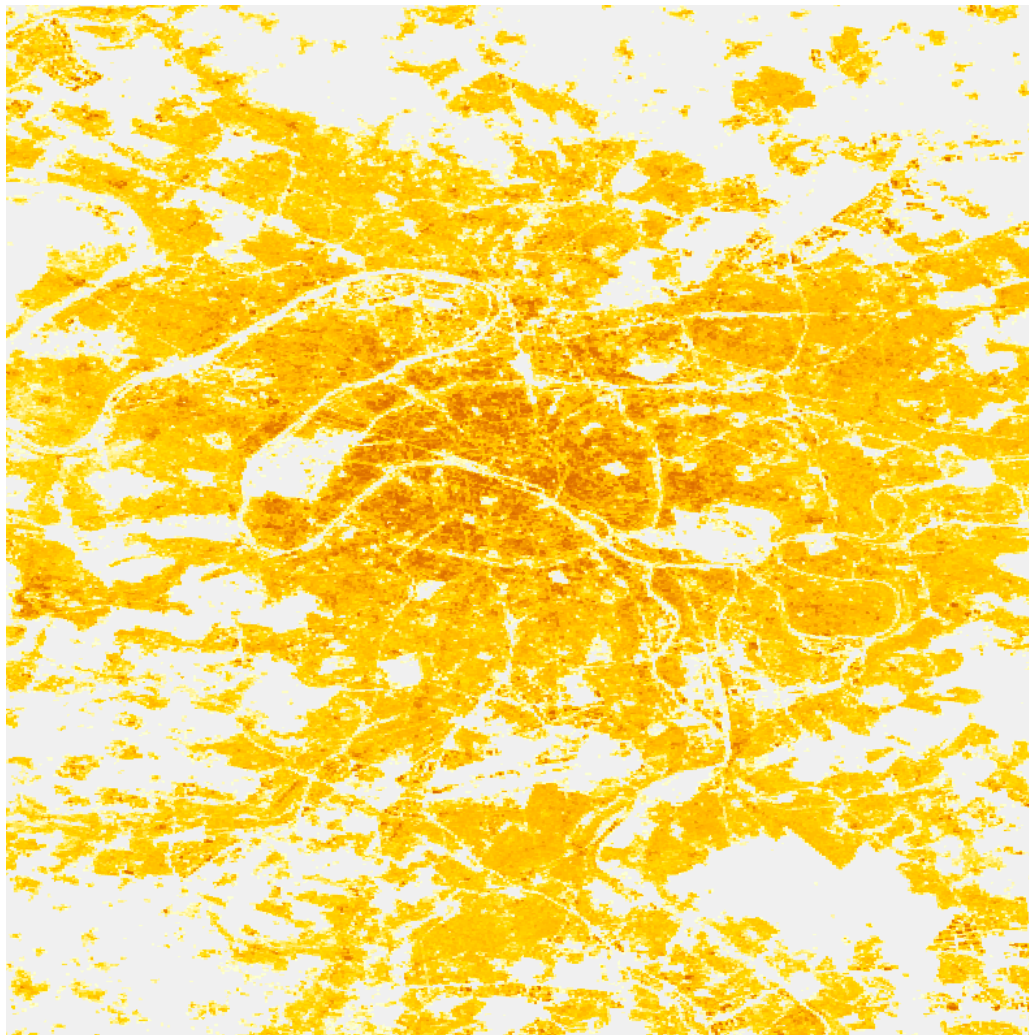
sdi@eea.  
europa.eu

Point  
of  
contact

Type of resource

Resource type	Dataset
Metadata linkage	<a href="https://sdi.eea.europa.eu/catalogue/srv/api/records/3d7ab052-c643-4b4b-83b2-7965ecd096aa">https://sdi.eea.europa.eu/catalogue/srv/api/records/3d7ab052-c643-4b4b-83b2-7965ecd096aa</a>
Date info (Creation)	2025-02-10T13:17:27.194026Z
Date info (Revision)	2026-03-18T10:42:34.663575Z
<b>Metadata standard</b>	
Title	ISO 19115/19139
Edition	1.0

## Overviews



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