

World Settlement Footprint 2015

World Settlement Footprint 2015 Data (WSF2015)

- A binary mask, globally mapping the extent of human settlements
- Derived from 2014–2015 Landsat-8 and Sentinel-1 imagery
- Processed from ~217,000 Landsat-8 and ~107,000 Sentinel-1 images
- The original backscattering value from Sentinel-1 radar images and different spectral indices (e.g., vegetation index, built-up index) from Landsat-8 images are used (after performing cloud masking in the case of optical imagery).
- Temporal statistics of the backscatter and spectral indices are used in a classification scheme based on Support Vector Machines (SVMs).
- Optical and radar temporal features are analyzed separately and, then two outputs are combined together.
- An extensive validation is carried out in collaboration with Google based on a large number of ground-truth samples (~900,000).

Reference: Marconcini, M., Metz-Marconcini, A., Üreyen, S. *et al.* Outlining where humans live, the World Settlement Footprint 2015. *Sci Data* **7**, 242 (2020).
<https://doi.org/10.1038/s41597-020-00580-5>



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- Three impervious surface categories are used as settlement footprints:
 - Buildings
 - Building lots
 - Roads/Paved-surfaces with or without buildings or building lots
- The WSF2015 data are organized in 306 GeoTIFF files, each 10 × 10 degree in size.
- Settlements are recorded as 255; all other pixels are assigned value 0.
- Spatial resolution: 10 m
- Additionally, resampled versions are also available at 100 m, 250 m, 500 m, 1 km and 10 km, reported as percentage of surface covered by settlements.

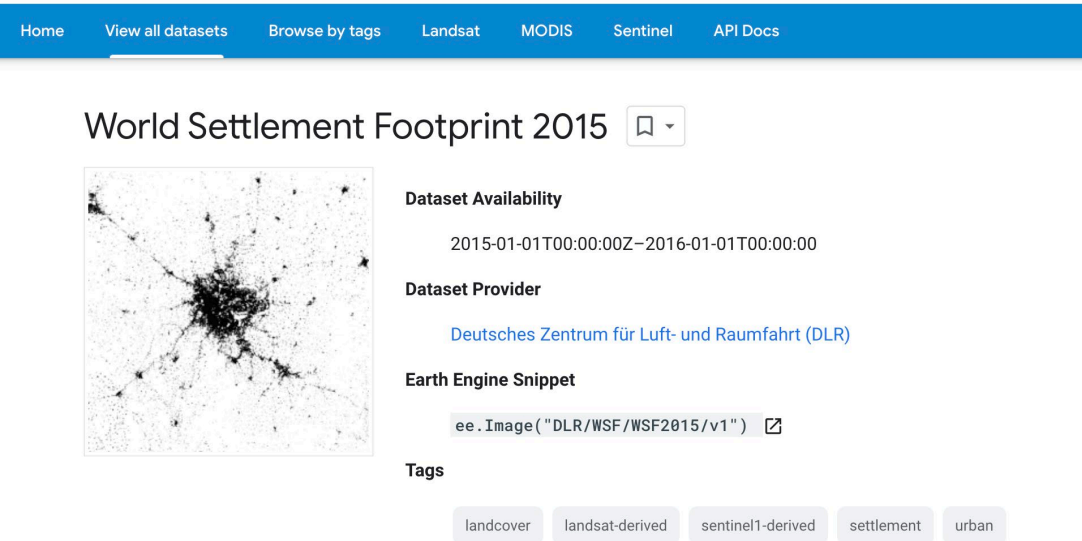
Reference: Marconcini, M., Metz-Marconcini, A., Üreyen, S. *et al.* Outlining where humans live, the World Settlement Footprint 2015. *Sci Data* **7**, 242 (2020).
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World Settlement Footprint 2015 Data Access (WSF2015)

- The data are provided by Deutsch Zentrum für –Luft-und Raumfahrt (DLR)
<https://www.dlr.de/de>
- We will access the WSF data using Google Earth Engine (GEE)
https://developers.google.com/earth-engine/datasets/catalog/DLR_WSF_WSF2015_v1

Earth Engine Data Catalog



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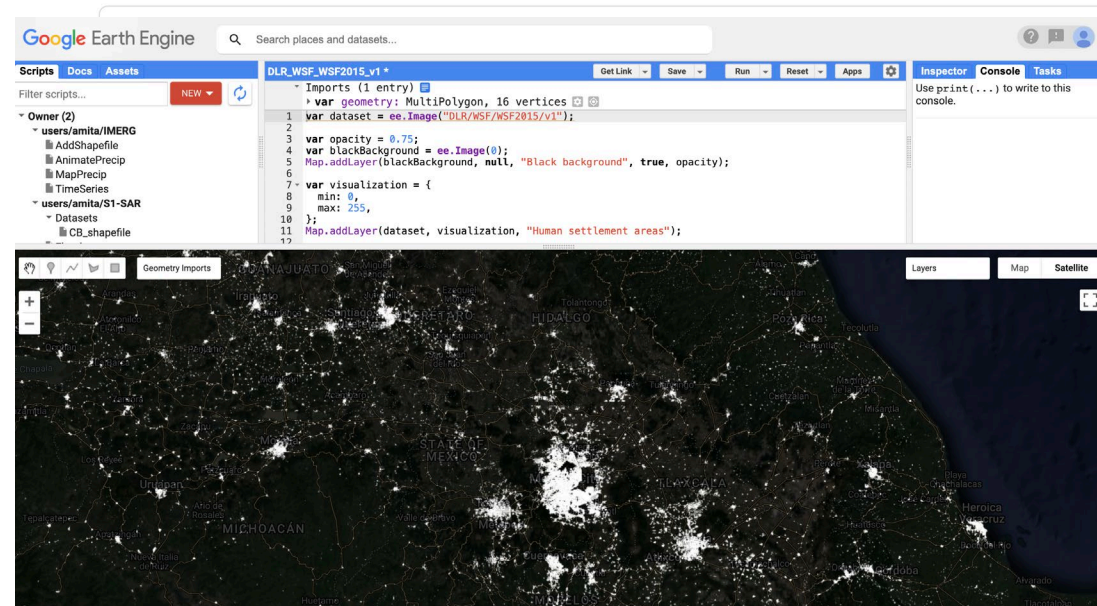
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Dataset Availability
2015-01-01T00:00:00Z–2016-01-01T00:00:00

Dataset Provider
[Deutsches Zentrum für Luft- und Raumfahrt \(DLR\)](#)

Earth Engine Snippet
`ee.Image("DLR/WSF/WSF2015/v1")`

Tags
landcover landsat-derived sentinel1-derived settlement urban



Google Earth Engine

```
DLR_WSF_WSF2015_v1 *  
Imports (1 entry)  
var geometry: MultiPolygon, 16 vertices  
var dataset = ee.Image("DLR/WSF/WSF2015/v1");  
var opacity = 0.75;  
var blackBackground = ee.Image(0);  
Map.addLayer(blackBackground, null, "Black background", true, opacity);  
var visualization = {  
  min: 0,  
  max: 255,  
};  
Map.addLayer(dataset, visualization, "Human settlement areas");
```

Inspector Console Tasks

Use print(...) to write to this console.

Layers Map Satellite





Thank You!

