



## Documentation

### Mosaic of Germany from Sentinel-2 data Sentinel2-DE



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## 1 Overview of the dataset

<b>Product:</b>	Sentinel2-DE
<b>Content:</b>	Pre-processed and processed remote sensing data of the European Union's Earth observation programme Copernicus (Sentinel-2, L1C-L2A)
<b>Area:</b>	Germany
<b>Spatial structure:</b>	Complete area
<b>Spatial reference:</b>	UTM 32 ETRS89
<b>Currentness:</b>	2018, 2019, 2020, 2021, annual expansion
<b>Resolution:</b>	10 metres
<b>Data formats:</b>	Raster, GeoTiff
<b>Data supply*:</b>	Web Map Service (WMS)
<b>Historical data:</b>	No
<b>Data volume:</b>	20-30 GB
<b>Data source:</b>	European Space Agency (ESA): Earth observation programme Copernicus

\* Please note that not all forms of delivery can be provided with each georeferencing and data format. If you have any questions, feel free contact the Service Centre (DLZ).

## 2 Description of the dataset and online services

### 2.1 Content and format

The Federal Agency for Cartography and Geodesy (BKG) has developed a procedure for the demand-related delivery of remote sensing data. For remote sensing production, optical satellite image data are currently preferred in the federal administration. The so-called mosaic procedure is for the instant use an important method for this. The in-house development was set up with the EU-funded Sentinel-2 data of the European Earth observation programme Copernicus and can be applied to any optical data set (including aerial images).

**With the mosaic of Germany from Sentinel-2 data, we provide the mosaic procedure as an exemplary service (showcase) via which optical remote sensing data for any area of the earth can be processed professionally (high quality images) and according to user requirements of the federal authorities.**

Web Map Service (WMS) Sentinel-2-DE:

This service enables users to integrate pre-processed and processed remote sensing information of the Copernicus Earth observation programme (Sentinel-2, L1C-L2A) for Germany into their own existing subject-related procedures. The imagery data from 2018 until 2021 were each assembled into a mosaic, which has a ground resolution of 10 metres. A composite of five bands (Sentinel-2 bands: 2, 3, 4, 5, 8 (R, G, B, Red Edge and NIR)) and information about the input imagery is provided. In the course of image data processing a radiometric colour balancing method was performed to obtain a uniform appearance. The original resolution of the fifth channel was resampling from 20m to 10m. For each mosaic, the cloud cover over the entire area is less than 3 %.

For each year the web service consists of 4 different layers. Three layers show the processed Sentinel-2 data of the earth observation program Copernicus as follows:

- Sentinel2-DE Nir
- Sentinel2-DE NirRER
- Sentinel2-DE RGB

In addition, there is a fourth layer that shows the time of acquisition of the Sentinel-2 data.

- Currentness

Metadata on the relevance of the Sentinel-2 data can be displayed via the group layer "Aktualität". A layer is included for this purpose for each annual status. A feature query (GetFeatureInfo) returns the following attributes:

The web service contains the following layers:

- "Aufnahmedatum": Date on which the associated Sentinel-2 scene was recorded.

- "Bezugsdatum": Validity period of the associated Sentinel-2 scene in the mosaic (e.g. 2018) When using the time parameter to display the Sentinel-2 data, this date is evaluated.

## **2.2 Fields of application**

Possible areas of use for this service are:

- Background maps for own services
- Satellite maps in combination with own information
- Mapping and updating support of land covers
- 3D flight simulations in combination with height information (Digital Terrain Model, Digital Surface Model)

## **3 Data acquisition**

The Web Map Service (WMS) can be obtained free of charge from the German service center for geoinformation and geodesy website (<https://gdz.bkg.bund.de/>) under the heading "Webdienste".

## **4 Terms of use and copyright**

The data are protected by copyright. The data set is made available free of charge under the following terms of use:

Legal notice on the use of Copernicus Sentinel Data and Service Information: [https://sentinel.esa.int/documents/247904/690755/Sentinel\\_Data\\_Legal\\_Notice](https://sentinel.esa.int/documents/247904/690755/Sentinel_Data_Legal_Notice) and <https://eur-lex.europa.eu/legal-content/DE/TXT/PDF/?uri=CELEX:32014R0377&from=ET>

Especially, each user has to place the source reference to all geodata, metadata and geodata services recognisably and optically linked. Alterations, processings, new designs or other adaptations have to be affixed with an indication of the alteration in the source reference.

Source reference and indication of alteration have to be formulated as follows:

The source reference has to be linked with the URL "<http://www.bkg.bund.de>" for the representation at a website.

© European Union, contains Copernicus Sentinel-2 data [year], processed by the Federal Agency for Cartography and Geodesy (BKG)

## **5 Contact**

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