Bundesamt für
Kartographie und Geodäsie

GeoBasis-DE

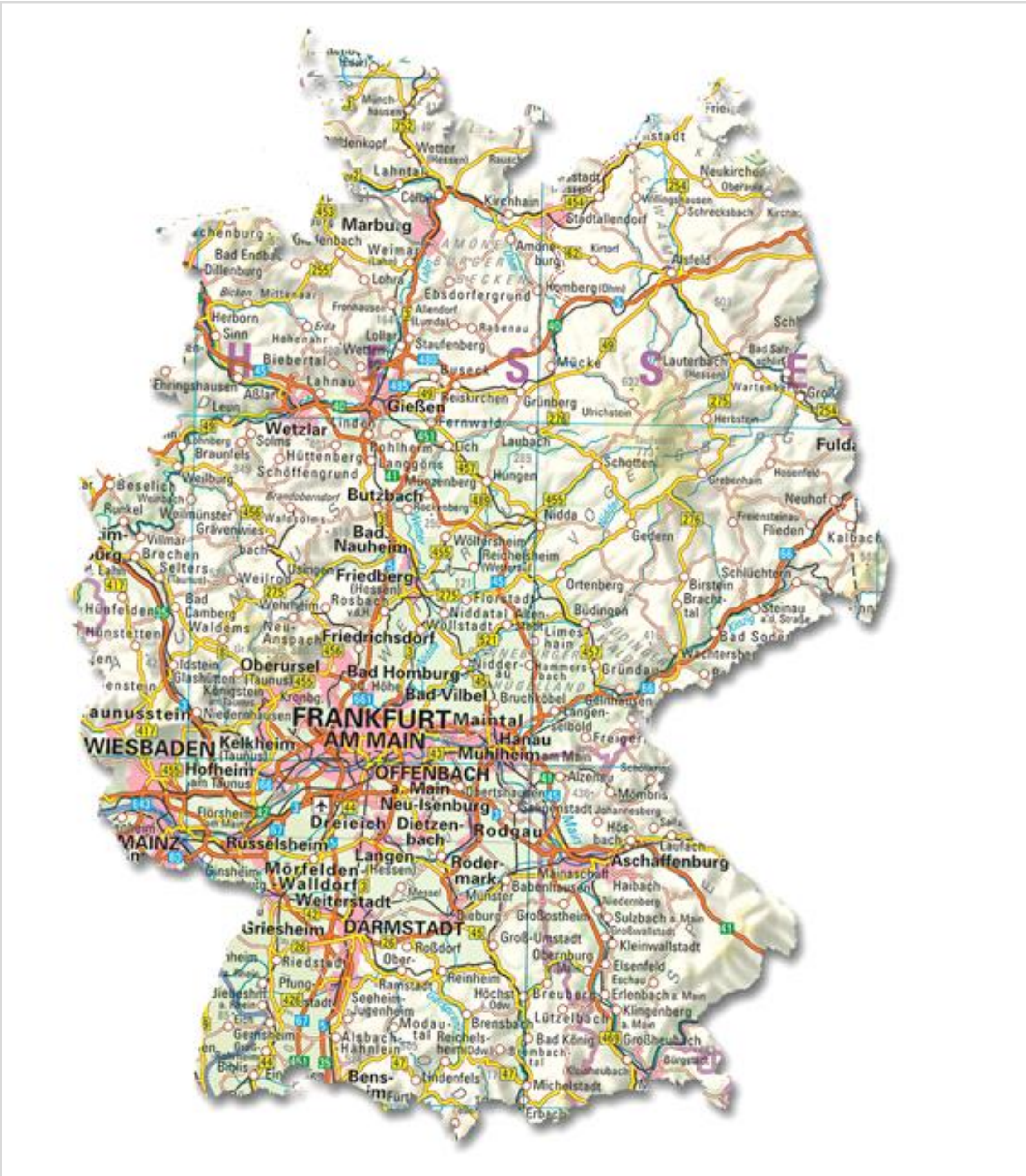
Geodaten der deutschen Landesvermessung

Bundesamt für Kartographie und Geodäsie

Documentation

Digital Topographic Map 1 : 1 000 000

DTK1000



Content

1 Overview of the dataset

Product:	Digital Topographic Map 1 : 1 000 000 (DTK1000)
Content:	Georeferenced raster data of the map „Deutschland 1 : 1 000 000“ (D1000)
Area:	Federal Republic of Germany
Spatial structure:	• 1 single sheet in the sheet line system of the map D1000 • 108 seamless tiles 80 x 80 km
Spatial reference:	• UTM projection in zone 32 or 33 ETRS89, ellipsoid GRS80 (EPSG: 25832 or 25833) • Gauss-Krüger projection in 2nd, 3rd, 4th or 5th meridian strip, Bessel ellipsoid, DHDN (EPSG: 31466, 31467, 31468 or 31469) • Lamberts winkeltreue Kegelabbildung mit zwei längentreuen Breitenkreise 48°40’ und 53°40’ n.B., Bezugsmittelpunkt 10°30’ ö.L., 51°00’ n.B., ETRS 89, Ellipsoid GRS80
Currentness:	Complete editing: 31 December 2022 Additions: 01 January 2023
Resolution:	320 pixels/cm, 812.8 dpi
Data formats:	TIFF-LZW, colour depth 8-bit, RGB palette
Data supply*:	• Online service via WMS • Download via Open Data Portal by the BKG • Data set on data storage device
Historical data:	Downloadable via the Open Data Archive by the BKG
Data volume:	• ~ 100 MB combined layer • ~ 300 MB single layers
Data source:	Digital landscape model 1 : 1 000 000 (DLM1000)

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

2 Description of the dataset and online services

2.1 Content

2.1.1 In General

The Digital Topographic Map 1 : 1 000 000 (DTK1000) is a derived raster product of the Digital landscape model 1 : 1 000 000 (DLM1000) which has been cartographically revised before creation.

The currentness of the map is as of the date “complete editing” mentioned in chapter one. Several additions like changes of city names are more up to date and thus refer to the date “additions”.

The raster data is subdivided into several layers according to their cartographic content. The DTK1000 has one combined layer as well as 6 single and 6 additional layers.

The **combined layer** (layer 0) is a combination of the **single layers** 1-4, 6 and 7 and offers the complete coloured map image of the D1000.

Colours and structure of single and additional layers for the DTK1000 basically correspond to the colours of the D1000. For practical reasons, some layers received additional thematic attributions of individual map elements. This implies an advantage for the user since each layer covers the whole federal territory. The single layers of all Digital Topographic Maps distributed by the BKG have an identical structure, except for some scale-dependent special characteristics.

More differentiated information is allowed by colour channels which are part of the single and additional layers. Certain cartographic elements are assigned to these channels (see section 2.1.2 and 2.1.3).

When using selected single layers, please note that the layers are ready for map printing and therefore contain background removals, i.e. the cartographic symbols may have graphical gaps in order to avoid certain overlays with symbols of other layers.

The **additional layer 5** contains vegetation (forest).

The **additional layer 8** contains hill shading.

The **additional layer 9** illustrates hypsometric tints.

The **additional layer 10** provides the geographical and **additional layer 11** the UTM grid.

The **additional layer 12** contains a relief visualisation.

2.1.2 Content and colour chart of the combined layer (L0)

Channel	Red	Green	Blue	Colour	Principal content
0					NODATA
1	255	255	255	white	Background
2	255	255	255	white	not applied for DTK1000
3	191	230	230	tidelands-grey	not applied for DTK1000
4	153	255	179	park-green	not applied for DTK1000
5	230	255	204	meadow-green	not applied for DTK1000
6	191	242	128	forest-green	not applied for DTK1000
7	230	230	204	fallow-land-brown	not applied for DTK1000
8	255	255	230	field-ochre	not applied for DTK1000
9	191	255	255	lake-blue	not applied for DTK1000
10	204	204	204	industrial-areas-grey	not applied for DTK1000
11	255	153	179	residential area-red light	not applied for DTK1000
12	255	77	128	residential area-red medium	not applied for DTK1000
13-16	255	255	255	not reserved	
17	242	204	202	heath-violet	not applied for DTK1000
18	255	120	255	danger-red	not applied for DTK1000
19	255	255	255	not reserved	
20	102	102	102	building-grey	not applied for DTK1000
21	255	255	0	road-yellow	not applied for DTK1000
22	255	179	0	road-orange	not applied for DTK1000
23	255	255	255	not reserved	
24	255	0	0	building-red	not applied for DTK1000
25	153	0	255	border-violet	not applied for DTK1000
26	0	204	0	tree-green	not applied for DTK1000
27	0	128	255	brook-blue	not applied for DTK1000
28	204	102	102	relief-brown	not applied for DTK1000
29	102	0	0	situation brown	not applied for DTK1000
30	0	0	0	black (without lettering)	not applied for DTK1000
31	0	0	0	black lettering	not applied for DTK1000
32-45	255	255	255	not reserved	

Channel	Red	Green	Blue	Colour	Principal content
46	51	155	225	brook-blue	outline of waterbody, swamp/ moor
47	230	240	250	lake-blue	inland waterbody
48	250	250	255	sea-blue	sea area
49	240	240	245	tidelands-grey	tidelands
50	110	51	25	brown	road outline
51	225	171	30	road-orange	Autobahn
52	250	245	0	road-yellow	federal main road
53	255	255	255	white	state road, mask for places and airport symbol
54	51	155	225	blue	Autobahn number box
55	25	140	51	green	European route number box
56	255	255	255	white	number of Autobahn and European route
57	250	245	0	road-yellow	federal main road number box
58	0	0	0	black	number of federal main road
59	235	199	199	residential area-red light	residential area
60	186	151	171	border-violet	border symbol
61	186	151	171	border-violet	name of federal state
62	245	245	235	sand-yellow	sandy areas
63	51	155	225	brook-blue	ferry lines, name of waterbodies
64	0	0	0	black	railway traffic, lettering, airport symbol
65	110	51	25	relief-brown	place symbol, contour values, spot heights, region names, sand symbol
66	255	255	255	not reserved	
67-255					Hypsometric tints

2.1.3 Content and colour charts of the single and additional layers

The following tables give descriptions of the content and the colour chart of each layer. The headline indicates the following:

- **number of layer**, e.g. *Layer 1*
- the **essential content** (the essential print colour in brackets) and
- **priority**, e.g. *P6*, indicates in which order the single layers have to be combined to produce the combined layer.

Layer 1

Railway traffic, ferry lines, airports and lettering (black) **P 7**

Channel	Red	Green	Blue	Colour	Content
1	255	255	255	white	background
2	0	0	0	black	railway traffic
3	0	0	0	black	place names
4	0	0	0	black	airport symbol
5	255	255	255	white	airport symbol mask
6	51	155	225	brook-blue	ferry line

Layer 2

Populated places **P 4**

Channel	Red	Green	Blue	Colour	Content
1	255	255	255	white	background
2	235	199	199	residential area-red	residential area
3	110	51	25	relief-brown	place symbol
4	255	255	255	white	place symbol mask

Layer 3

Water and lettering (blue) **P 2**

Channel	Red	Green	Blue	Colour	Content
1	51	155	225	white	background
2	255	255	255	brook-blue	outline of waterbody, coastline
3	51	155	225	lake-blue	inland waterbody
4	230	240	250	sea-blue	sea area
5	250	250	255	tidelands-grey	tidelands
6	240	240	245	brook-blue	name of waterbodies

Layer 4

Spot elevations, sandy areas and lettering (brown) P 6

Channel	Red	Green	Blue	Colour	Content
1	255	255	255	white	background
2	110	51	25	relief-brown	spot elevations with values, passes
3	245	245	235	sand-yellow	sandy areas
4	110	51	25	relief-brown	region names, mountain names, islands, lowlands

Additional layer 5

Vegetation

Channel	Red	Green	Blue	Colour	Content
1	255	255	255	white	background
2	191	242	128	forest-green	forest

Layer 6

Administrative areas P 5

Channel	Red	Green	Blue	Colour	Content	Comment
1	255	255	255	white	background	
2	186	151	171	border violet	national border, foreign national border	line symbol
3	220	215	235	border violet	national border, foreign national border	band, rasterized
4	210	190	210	border violet	border of federal state	band, rasterized
5	210	190	210	border violet	name of federal state	rasterized

Layer 7

Traffic P 3

Channel	Red	Green	Blue	Colour	Content
1	255	255	255	white	background
2	110	51	25	brown	outline of Autobahn
3	225	171	30	road-orange	Autobahn
4	110	51	25	brown	outline of federal main roads, state roads
5	250	245	0	road-yellow	federal main roads

Channel	Red	Green	Blue	Colour	Content
6	255	255	255	white	state roads (Landesstraßen, Staatsstraßen, roads administrated by the Laender)
7	51	155	225	blue	Autobahn number box
8	25	140	51	green	European route number box
9	255	255	255	white	number of Autobahn and European route
10	250	245	0	road-yellow	federal main roads number box
11	0	0	0	black	number of federal main roads

Additional layer 8

Hill shading

Channel	Content
1	background
2-77	grey values of hill shading

Additional layer 9

Hypsometric tints

Channel	Content	Description
1	background	
2	hypsometric tint	depression (below 0 m)
3	hypsometric tint	0 – 99 m
4	hypsometric tint	100 – 199 m
5	hypsometric tint	200 – 499 m
6	hypsometric tint	500 – 999 m
7	hypsometric tint	1000 – 1499 m
8	hypsometric tint	1500 – 1999 m
9	hypsometric tint	2000 – 2499 m
10	hypsometric tint	2500 – 2999 m
11	hypsometric tint	3000 m and above

Additional layer 10

Geographical grid

Channel	Red	Green	Blue	Colour	Content
1	255	255	255	white	background
2	0	0	0	black	external margin
3	192	192	192	grid-grey	geographical grid
4	0	0	0	black	internal grid margin
5	0	0	0	black	lettering in the margin of geographical grid

Additional layer 11

UTM grid

Channel	Red	Green	Blue	Colour	Content
1	255	255	255	white	background
2	51	155	225	brook-blue	UTM lettering
3	51	155	225	brook-blue	UTM grid lines

Additional layer 12

Relief

Channel	Content
1	Background
69-255	Multicolour relief

2.2 Changes compared to previous datasets

All information shown in the map have been updated to the current state mentioned in section 1.

2.3 TIFF data format

The DTK1000 is provided as a set of 80 km x 80 km tiles. The nomenclature of the single tiles is based on the coordinates of the lower left corner in the particular coordinate system. They have the following structure:

PRODUCT_EAST_NORTH_SIZE_LAYER

PRODUCT	-	describes the product (here *dtk1000*)
EAST	-	Easting coordinate of the lower left corner of the tile, unit „km“ (with zone indication)
NORTH	-	Northing coordinate of the lower left corner of the tile, unit „km“
SIZE	-	side length of the tile, unit „km“ (here *80*)
LAYER	-	layer designation (here *l0...l12*)

The following georeferencing information is available for each raster index:

- raster file with embedded georeferencing information (GeoTIFF)
- corresponding World file (file extension „.tfw”)

Colour coded data files (the combined layer and the single layers by default) are compressed with LZW method. The TIFF format uses an integrated RGB palette. Colour depth is 8 bit by default.

The delivered data will have the following directory structure:

<Name of the product>
- <Name of the map sheet, tile or region>
  - <Name of the layer >.tif
  - <Name of the layer >.tfw
  - ...

Example:

dtk1000
- l0.tif
- l0.tfw
- l1.tif
- l1.tfw
- …

2.4 Metadata

Metadata for federal datasets as well as for datasets of the Länder is available at the metainformation system by the AdV (AdV-MIS). They will be maintained by the authority charged with data retention.

Information about the currentness of the data is downloadable on our website https://www.bkg.bund.de/ under category “Products and services” in the description of this product.

In addition you will find a separate file named *aktualitaet.txt* with every data package which contains information about the currentness of the data.

3 Data acquisition

3.1 Download

The data can be obtained free of charge on our website https://www.bkg.bund.de/ under category “Products & Services” → "Open Data". Historical data is also available in our archive.

For download you can choose between the combined layer package and all single layer in one package in standard georeferencing, tiled in size 80x80km.

3.2 Online services

The Service Center of the German Federal Government for Geoinformation and Geodesy (DLZ) provides the standardized Web Map Service wms_dtk1000 for the DTK1000 according to the specification of the Open Geospatial Consortium (OGC).

The web service provides the combined layer in both a coloured version and a grayscale variant.

Further information about this web service can be found at the online portal of the DLZ (https://www.bkg.bund.de/ → Products & Services).

4 Terms of use and copyright

The data are protected by copyright. The data are made available free of charge in accordance with the "Datenlizenz Deutschland Namensnennung 2.0". The use of the dataset for the maintenance and expansion of the data of the OpenStreetMap project is expressly permitted in compliance with the naming information described in the supplementary text. The source note must be observed.

Ergänzung der „Datenlizenz Deutschland – Namensnennung – Version 2.0“ für die Nutzung von Daten der Behörden durch das OpenStreetMap Projekt (PDF, 135 KB)

The licensee is obliged to attach a clearly visible source note to any public reproduction, distribution or presentation of the data as well as the following change notice to any publication or external use of an adaptation or transformation. When displayed on a website, "BKG" shall be linked to the URL "https://www.bkg.bund.de" and "dl-en/by-2-0" to the URL "https://www.govdata.de/dl-de/by-2-0".

5 Contact

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