Documentation

Digital Topographic Map 1 : 500 000

DTK500



Content

1 Overview of the dataset 3
2 Description of the dataset and online services 4
2.1 Content 4
2.1.1 In General 4
2.1.2 Content and colour chart of the combined layer (L0) 5
2.1.3 Content and colour charts of the single and additional layers 7
2.2 Changes compared to previous datasets 10
2.3 TIFF data format 10
2.4 Metadata 11
3 Data acquisition 11
3.1 Download 11
3.2 Online services 12
4 Terms of use and copyright 12
5 Contact 12

1 Overview of the dataset

Product:	Digital Topographic Map 1 : 500 000 (DTK500)
Content:	Georeferenced raster data of the map „Deutschland 1 : 500 000“ (D500)
Area:	Federal Republic of Germany
Spatial structure:	about 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)
Currentness:	Complete editing: 31 December 2018 Additions: 01 January 2019
Resolution:	320 pixels/cm, 812.8 dpi
Data formats:	TIFF-LZW, colour depth 8-bit, RGB palette
Data supply*:	• Online service via WMS or WMTS • 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:	• ~ 125 MB combined layer • ~ 425 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 : 500 000 (DTK500) 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 section 1. 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 DTK500 has one combined layer as well as 8 single and 1 additional layers.

The **combined layer** (layer 0) is a combination of the **single layers** 1-7 and 9 and offers the complete coloured map image of the D500.

Colours and structure of single and additional layers for the DTK500 basically correspond to the colours of the D500. 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 8** contains hill shading.

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

Channel	Red	Green	Blue	Colour	Content
0					NODATA
1	43	43	43	black	place names, railway, single symbols
2	155	155	155	grey	railway out of operation, single symbols grey
3	203	203	203	rock-grey	rocks, contour lines from 2700 m on
4	164	164	164	grey	contour values from 2700 m on
5	255	194	194	residential area-red	residential area
6	126	55	2	situation-brown	place symbol, traffic, canal bridge, canal tunnel portal, spot height, region names
7	255	255	255	white	mask for single symbols and railway bridges
8	0	142	221	brook-blue	outline of waterbody, name of waterbody, swamp/ moor
9	218	227	245	lake-blue	inland waterbody
10	218	227	245	sea-blue	sea area
11	205	213	213	tidelands -grey	tidelands
12	0	142	221	ferry line-blue	ferry line
13	0	132	193	car ferry-blue	car ferry
14	229	235	248	ice-blue	(firn) ice
15	183	153	107	sand-yellow	sand
16	188	167	121	relief-brown	contour lines, contour values, embankment, slopes
17	210	224	190	forest-green	forest, wood
18	206	177	210	border-violet light	borderline state, rasterized
19	168	72	152	border-violet dark	borderline symbol
20	255	170	90	road-orange	Autobahn, federal main roads, traffic interchanges
21	255	255	100	road-yellow	state road, traffic interchanges
22	225	225	225	light grey	traffic interchange to other roads
23	255	255	255	road-white	other and municipal roads, road under construction
24	0	128	0	green	European route number box
25	0	128	255	blue	Autobahn number box
26	255	255	0	yellow	federal main road number box
27	255	0	0	red	number of foreign road (red box)
28	255	255	255	white	number of foreign road (white box)

Channel	Red	Green	Blue	Colour	Content
29	255	255	255	lettering white	number Autobahn, European route, inside red box
30	0	0	0	lettering black	number federal main road, inside white box
31	213	130	164	military-red	area and lettering of military training ground
32	40	140	50	national park-green	area and lettering of national park
33	255	255	255	background-white	background rock symbol, background sand area
34	-	-	-	-	-
35	70	74	146	mixed colour	border-violet dark - brook-blue
36	135	72	100	mixed colour	border-violet dark - forest-green
37	132	67	100	mixed colour	border-violet dark - rock-grey
38	166	59	114	mixed colour	border-violet dark - military-red
39	62	87	79	mixed colour	border-violet dark - national park-green
40	135	72	100	mixed colour	border-violet dark - relief-brown
41	160	78	136	mixed colour	border-violet dark - tidelands-grey
42	171	169	116	mixed colour	border-violet dark - residential area-red
43	180	169	209	mixed colour	border-violet light - forest-green
44	54	102	55	mixed colour	national park-green - relief-brown
45	174	103	134	mixed colour	military-red - forest-green
46	0	0	129	mixed colour	military-red - brook-blue
47	183	102	101	mixed colour	military-red - relief-brown

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, single symbols and lettering (black) **P 1**

Channel	Red	Green	Blue	Colour	Content
0	255	255	255	white	background
1	0	0	0	black	railway, cableway
2	155	155	155	grey	railway out of order
3	0	0	0	black	place names, road numbers
4	0	0	0	black	church etc.
5	155	155	155	grey	wind turbine
6	203	203	203	rock-grey	traffic interchange other roads
7	0	0	0	black	reservoir dam (wall)
8	203	203	203	rock-grey	rock representation, contour lines from 2700 m on
9	164	164	164	contour values grey	contour values from 2700 m on

Layer 2

Populated places **P 8**

Channel	Red	Green	Blue	Colour	Content
0	255	255	255	white	background
1	255	194	194	residential area-red	residential area
2	126	55	2	situation-brown	place symbol
3	255	255	255	white	place symbol mask

Layer 3

Water, ferry lines, ice **P 6**

Channel	Red	Green	Blue	Colour	Content
0	255	255	255	white	background
1	0	142	221	brook-blue	outline of waterbodies, coastline, running waters, canal
2	126	55	2	situation-brown	canal bridges, canal tunnel portal
3	218	227	245	lake-blue	lake area
4	218	227	245	sea-blue	sea area
5	205	213	213	tidelands-grey	tidelands
6	0	142	221	brook-blue	swampland, moor
7	0	142	221	brook-blue	lettering of waterbodies
8	0	142	221	ferry line-blue	ferry lines
9	0	132	193	car ferry-blue	car ferry
10	229	235	248	ice-blue	(firn) ice

Layer 4

Spot height, relief, dams, sandy areas and lettering (brown) **P 2**

Channel	Red	Green	Blue	Colour	Content
0	255	255	255	white	background
1	126	55	2	relief-brown	spot heights with value, mountain pass
2	126	55	2	relief-brown	region names, mountain names, islands, lowlands
3	183	153	107	sand-yellow	sandy areas
4	188	167	121	relief-brown	contour lines and values
1	188	167	121	relief-brown	embankment, slope

Layer 5

Vegetation **P 4**

Channel	Red	Green	Blue	Colour	Content
0	255	255	255	white	background
1	210	224	190	forest-green	forest

Layer 6

Administrative Areas P 7

Channel	Red	Green	Blue	Colour	Content	Comment
0	255	255	255	white	background	
1	206	177	210	border-violet light	national borderline, foreign national borderlines	band, rasterized
2	168	72	152	border-violet dark	all borderlines	line symbol

Layer 7

Traffic P 3

Channel	Red	Green	Blue	Colour	Content
0	255	255	255	white	background
1	255	170	90	road-orange	Autobahn, federal main roads, traffic interchange
2	255	255	100	road-yellow	state road (Landesstraßen, Staatsstraßen, roads administrated by the Laender), traffic interchange
3	255	255	255	white	municipal roads
4	225	225	225	light grey	municipal roads traffic interchange
5	255	255	255	white	road under construction
6	126	55	2	situation-brown	outline of roads, centreline, tunnel portal, road traffic interchange
7	0	128	0	green	European route number box
8	0	128	255	blue	Autobahn number box
9	255	255	0	yellow	federal main road number box
10	255	0	0	red	foreign road number box red
11	255	255	255	white	foreign road number box white
12	255	255	255	white	number of Autobahn, European route, numbers inside red number box
13	0	0	0	black	number of federal main roads, numbers inside white number box

Additional layer 8

Hill shading

Channel	Content
0	background
1-23	grey values of hill shading
24	cropping mask

Layer 9

National parks und military training ground **P 5**

Channel	Red	Green	Blue	Colour	Content
0	255	255	255	white	background
1	213	130	164	military-red	military training ground
2	40	140	50	national park green	national park

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 DTK500 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 *dtk500*)

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*)

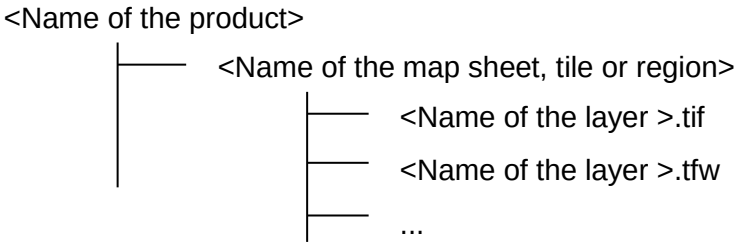
LAYER - layer designation (here *l0...l9*)

The following georeferencing information is available for each raster index:

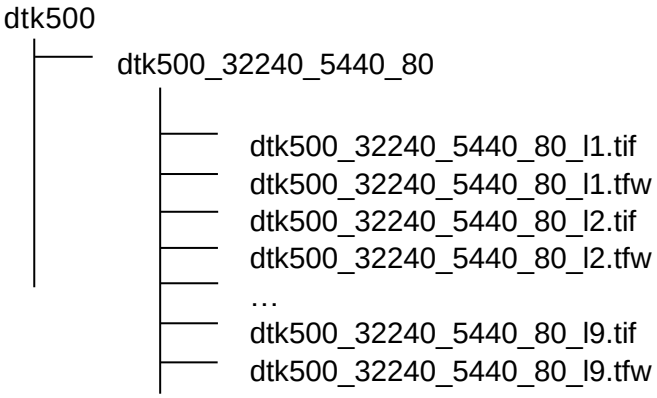
- raster file with embedded georeferencing information (GeoTIFF)
- corresponding World file (file extension „.tfw”)

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:



Example – single layers:



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 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 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_dtk500 for the DTK500 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 (www.bkg.bund.de → Products & Services).

4 Terms of use and copyright

The geodata is available for download and online use free of charge via geodata services according to the Open Data Datenlizenz Deutschland – Namensnennung – Version 2.0.

The source has to be referenced. In particular, each user must place the source note to all geodata, metadata and geodata services recognizable and in an optical context. Changes, adaptations, new designs or other modifications must be accompanied by a change notice in the source note.

The source note and change notice are to be designed as follows. When displayed on a website, the source note must be linked to the URL "http://www.bkg.bund.de".

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© GeoBasis-DE / BKG (year of last data acquisition) (data changed)

5 Contact

Bundesamt für Kartographie und Geodäsie

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