



Bundesamt für
Kartographie und Geodäsie

Raster Data

Topographic Geo-Spatial
Basic Data Germany



Introduction

Geo-topographic basic information in the form of digital raster data are established by the Public Surveying Authorities of the Länder and by the Bundesamt für Kartographie und Geodäsie (BKG) (Federal Agency for Cartography and Geodesy) and are covering the Topographic Map Series from 1 : 25.000 to 1 : 1.000.000 for the territory of the Federal Republic of Germany.

The relevant data covering the area of the Federal Republic of Germany are provided and distributed by the **GeoDataCenter** (GDZ) within the Federal Agency for Cartography and Geodesy (BKG).

Raster data or **Digital Topographic Maps** (DTK) are data of the existing official Topographic Map Series in a raster format. They are available as different layers oriented to cartographic content (singular layers) or as a coloured combination (all layers) giving the complete map image. The maps are either

- traditional Digital Topographic Maps made as scanned analogue originals and computer-aided revision (with the mention DTK-V or “Vorläufige Ausgabe” – Preliminary edition, or
- new Digital Topographic Maps derived from a corresponding vector-based Digital Landscape Model (DLM) in the raster format showing new graphical map layout and new layer arrangement (with the mention DTK).

It is planned to give up the production of DTK-V due to the progressing setup of the Authoritative Topographic-Cartographic Information System ATKIS and the increasing availability of the DTK. For a short time of transition and in order to offer an up-to-date and largely homogeneous area-covering map series of Germany, the data derived from a DLM are produced also with the old layers and colours.

The data of the Topographic Map Series 1 : 25.000 up to 1 : 100.000 are delivered by the Länder to GDZ where they are harmonized, synchronized and made available. Scales from 1 : 200.000 to 1 : 1.000.000 are completely edited by BKG.

Range of raster data on offer

At present raster data of the following Topographic Map Series are offered as Digital Topographic Maps:

- Topographic Map 1 : 25.000 (DTK25-V) *)
- Topographic Map 1 : 50.000 (DTK50-V) *)
- Topographic Map 1 : 100.000 (DTK100-V) *)
- General Topographic Map 1 : 200.000 (DTK200-V)
- General Map 1 : 500.000 (DTK500-V)
- Federal Republic of Germany 1 : 1.000.000 (DTK1000)

Depending on the map series, these data are normally available for one or more resolutions between 100, 160 and 320 pixel/cm and/or between 254, 406,4 and 812,8 dpi.

As for the content the DTKs are subdivided into several singular layers (map feature levels) and oriented in principle to the map colours. Besides this they are also available as colour-coded raster image in an overall layer. Please note that some cartographic background removals have been made due to graphical reasons. For further differentiation of the content the pixels of some singular layers are coded with different (colour) values (e.g. the layers red and yellow of the DTK200-V).

For the scales between 1 : 25.000 and 1 : 200.000 there are certain differences for map graphics and colours assigned in some details between the maps in the Western and those in the Eastern *Länder*.

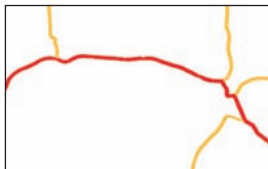
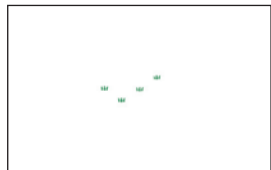
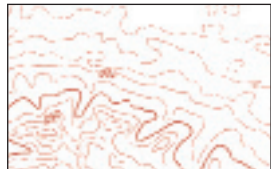
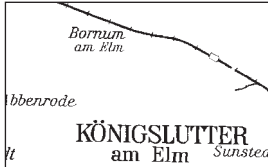
*) Distribution of data to third parties only for areas exceeding the boundaries of a *Land* (state) of Germany.
Federal bodies are requested to generally contact BKG:

Suitability and use

Raster data of the Topographic Map Series are well suited as spatial reference and background information when combined with expert data as well as for computer-assisted preparation and revision of thematic maps (e.g. for geology, hydrology, land use, nature preserve etc.).

Further use is possible for

- set-up of expert information systems (environment, transportation, disaster prevention etc.),
- combination with digital terrain models and/or remote sensing data,
- planning and production of 3D representations, and for
- linking with statistical data from very different appliers and users in administration and economy.



Scheme of layers, here for DTK200-V

Digital Topographic Map 1 : 25.000 – DTK25-V

Content

Georeferenced raster data of the “Topographic Map 1 : 25.000” (TK25)

- as **1 overall layer** with a colour-codes map image (map image without hill shading)
- as maximum **6 singular layers** divided into map colours

Regional division

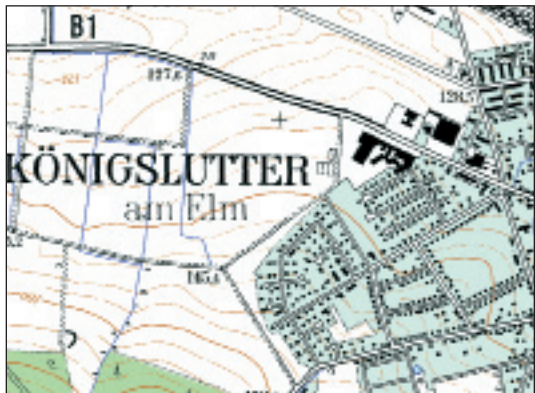
- According to the sheet index of the map TK25:
2947 singular sheets
- Following the BKG tiling system:
ca **4060 seamless tiles** 10 km x 10 km

Updatedness

See meta information system (information on the data)
www.geodatenzentrum.de

Resolution

100 and 200 pixels/cm respectively 254 and 508 dpi



Digital Topographic Map 1 : 50.000 – DTK50-V

Content

Georeferenced raster data of the “Topographic Map 1 : 50.000” (TK50)

- as **1 overall layer** with a colour-codes map image (map image without hill shading)
- as max **6 singular layers** divided into map colours

Regional division

- According to the sheet index of the map TK50:
779 singular sheets
- Following the BKG tiling system:
ca **1110 seamless tiles** 20 km x 20 km

Updatedness

See meta information system (information on the data)
www.geodatenzentrum.de

Resolution

100 and 200 pixels/cm respectively 254 and 508 dpi



Digital Topographic Map 1 : 100.000 – DTK100-V

Content

Georeferenced raster data of the “Topographic Map 1 : 100.000” (TK100)

- as **1 overall layer** with a colour-codes map image (map image without hill shading)
- as max **6 singular layers** divided into map colours

Regional division

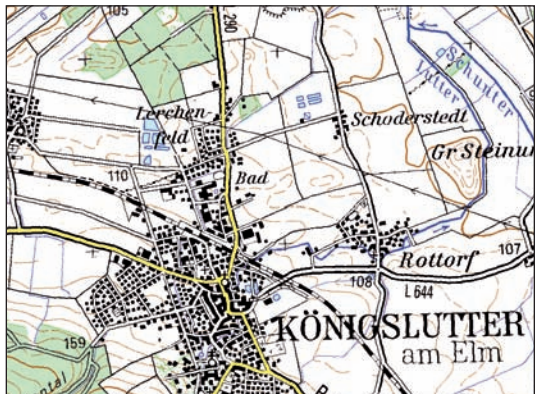
- According to the sheet index of the map TK100:
210 singular sheets
- Following the BKG tiling system:
ca **325 seamless tiles** 40 km x 40 km

Updatedness

See meta information system (information on the data)
www.geodatenzentrum.de

Resolution

100 and 200 pixels/cm respectively 254 and 508 dpi



Digital Topographic Map 1 : 200.000 – DTK200-V

Content

Georeferenced raster data of the “General Topographic Map 1 : 200.000”

- as **1 overall layer** with a colour-codes map image (map image without hill shading)
- as **7 singular layers** divided into map colours

Regional division

- According to the sheet index of the map TK200:
58 singular sheets (also to be delivered as total data file)
- Following the BKG tiling system:
ca **100 seamless tiles** 80 km x 80 km

Updatedness

See meta information system (information on the data)
www.geodatenzentrum.de

Resolution

100, 160 and 320 pixels/cm respectively 254, 406,4 and 812,8 dpi



Digital Topographic Map 1 : 500.000 – DTK500-V

Content

Georeferenced raster data of the “General Topographic Map 1 : 500.000”

- as **1 overall layer** with a colour-codes map image (map image without hill shading)
- as **7 singular layers** serving to generate the overall layer
- as **3 additional layers**

The singular layers are divided into map colours.

Regional division

- According to the sheet index of the map TK500:
1 singular sheets (total data file)
- Following the BKG tiling system:
ca **110 seamless tiles** 80 km x 80 km

Updatedness

See meta information system (information on the data) in www.geodatenzentrum.de

Resolution

100, 160 and 320 pixels/cm respectively 254, 406,4 and 812,8 dpi



Digital Topographic Map 1 : 1.000.000 – DTK1000

Content

Georeferenced raster data of the map “General Topographic Map 1 : 1.00.000”

- as **1 overall layer** with a colour-codes map image (map image without hill shading)
- as **7 singular layers** serving to generate the overall layer and
- as **5 additional layers**

The singular layers are divided into map colours.

Regional division

- According to the sheet index of the map TK1000:
1 singular sheets (total data file)
- Following the BKG tiling system:
ca **110 seamless tiles** 80 km x 80 km

Updatedness

See meta information system (information on the data) in www.geodatenzentrum.de

Resolution

100, 160 and 320 pixels/cm respectively 254, 406,4 and 812,8 dpi



Data editing and distribution

- as area-wide units for the Federal Republic of Germany and/or as spatial sections (singular sheets, seamless data files, seamless tiles),
- as a combination of singular layers, as overall layer

Georeferencings

- **Gauss-Krueger Projection** in the 3-degree meridian strip system (meridian strips 2, 3, 4, 5); Bessel ellipsoid, Potsdam datum (origin Rauenberg); height system NN (western federal states) and HN (eastern federal states)
- **Gauss-Krueger Projection** in the 3rd meridian strip; Bessel ellipsoid, Potsdam datum (origin Rauenberg); height system NN (western federal states) and HN (eastern federal states)
- **Lambert's Conformal Conical Projection** with 2 equidistant reference parallels $48^{\circ}40'$ and $53^{\circ}40'$ of northern latitude; Ellipsoid WGS84, datum WGS84; Reference centre: $10^{\circ}30'$ eastern longitude, $51^{\circ}00'$ northern latitude; Height system NN
- **UTM-Projection** in zone 32; Ellipsoid WGS84, Datum WGS84; Height system NN (western federal states) and HN (eastern federal states)
- **UTM-Projection** in zone 32; Ellipsoid WGS84, Datum WGS84; Height system NN

The standard georeferencings for each map scale and for each regional division are available in www.geodatenzentrum.de under "Documentations".

Data formats

TIFF-LZW, TIFF-CCITT-Group 4

Data carriers

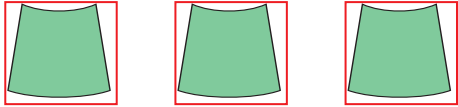
CD-ROM (ISO 9660), DVD

Seamless maps and georeferencing

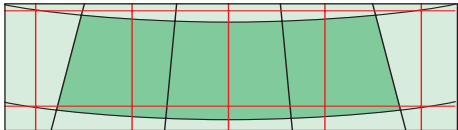
The Topographic Maps are quadrangle maps, i.e. their neat lines are coincident with lines of latitude and longitude. Thus, the single sheets have the shape shown in a simplified way below and the specific raster data are covering a rectangular zone.

Many applications are better to handle with seamless zones instead of single sheets (see figure below). Dependent from the total data amount it is advised to use tiles. Information on georeferencing is delivered as separate ASCII file.

*Single sheets of
Topographic Maps within
raster data sets with
rectangular limits*



*Seamless edition of the
single sheets and tiles
(one raster data file for
each tile)*



Marketing

Licences and royalties/user fees

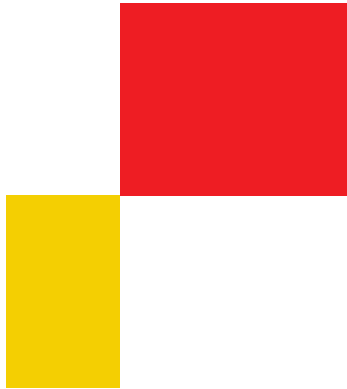
The topographic geospatial basic data distributed or made available by the Federal Agency for Cartography and Geodesy (BKG) are protected by law. Supply of such data therefore requires prior acknowledgement of the conditions of use by the respective customer.

Among others, these conditions provide that

- utilizations of the data is restricted to the defined purpose of use,
- the data must be protected against any unauthorized access by third parties,
- transfer of processed data is subject to a separate contract of permission.

As a rule, basic and multistation fees are charged for the supply and use of the topographic geospatial basic data. Additional exploitation fees may have to be paid for any data, maps and for products derived therefrom which are reproduced, published, sold or delivered by the licensee.

For more detailed information on these questions please contact BKG or the Vermessungsverwaltungen der Länder (survey administrations of the federal states).



Information

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Ordering

Orders can be placed in writing to the address above or via
the online ordering system of
www.geodatenzentrum.de