

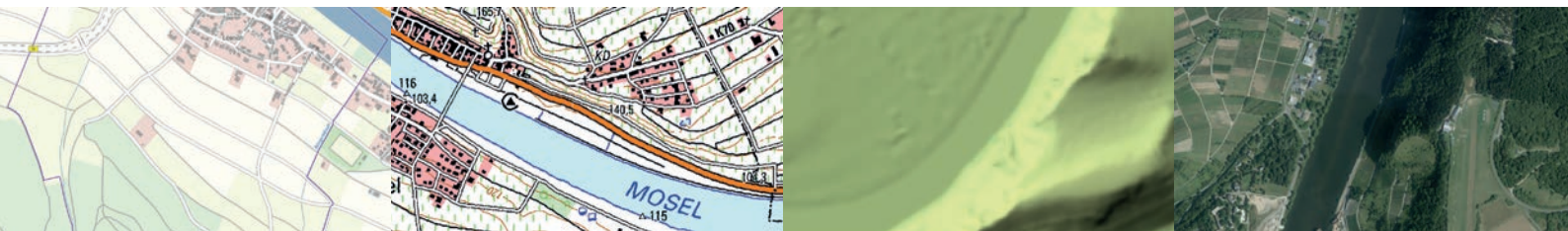


Federal Agency for
Cartography and Geodesy

GeoBasis-DE

Geodata of the German Surveying and Mapping

Federal Agency for Cartography and Geodesy



Product Catalog

Central Office for Geotopography

The Central Office for Geotopography (ZSGT) provides digital cross-border spatial data of the German Federal States (Laender) to businesses, science, administration and citizens. The ZSGT is operated at the Service Center of the Federation for spatial information and geodesy (DLZ) at the Federal Agency for Cartography and Geodesy (BKG) in its branch office in Leipzig. Spatial data licensed from the ZSGT is provided on behalf of the Working Committee of the Surveying Authorities of the Laender of the Federal Republic of Germany (AdV) and is subject to their conditions and product specifications.

Users profit from a comprehensive spectrum of Internet services that may be conveniently integrated into custom applications and that continuously access the most current spatial base data. Furthermore, a conventional provision of data is possible and takes place according to our customers specifications regarding spatial extent, thematic content, georeferencing or data exchange format.

The data of the federal states (Laender) are merged and technically harmonized at the Service Center. Formal completeness and format consistency are also checked. Accompanying metadata and overviews of topicality provide the user transparently with information on the quality of the spatial data.

This Product Catalog is intended to give you an overview of our range of products and services and to support you in selecting matching products for your individual use case. Moreover, we will inform you about data sources, topicality, accuracy and possible uses of individual geospatial data.

We would be very happy to receive your comments, ideas or criticism regarding this product catalog. The editorial team's e-mail address is: dlz@bkg.bund.de.

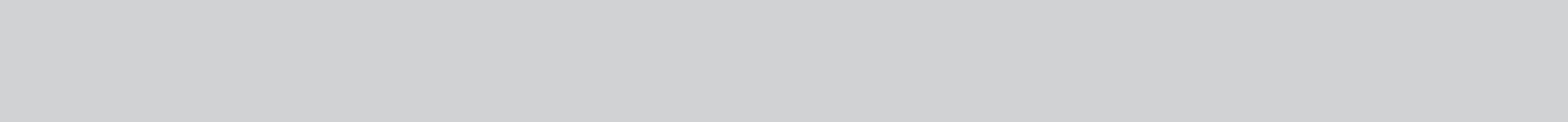


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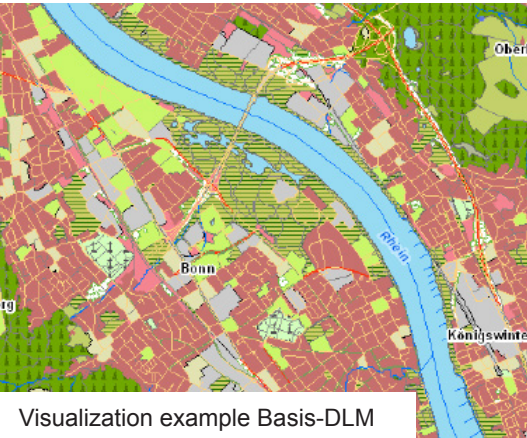
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Visualization example Basis-DLM

Digital Basic-Landscapemodel (Basis-DLM)

Your Benefit – Your Added Values

Federal authorities, Federal State authorities and municipalities

Basis for land use plans and a variety of urban planning tasks, cartographic basis for the fulfilment of planning duties

Energy suppliers, telecommunications

Deriving high-quality and tailored cartographic representations, convenient plant design and documentation

Publishing companies, delivery organizations

Optimized delivery also on roads and paths not accessible by vehicle

Police, fire brigade, rescue services and disaster control

Model analysis and cartographic basis for operational planning and subsequent documentation

Other ranges of application

Environmental protection and nature conservation, traffic control systems, forestry and agriculture, road management, geology, leisure, marketing analysis

General

Scaled map derivation

Product Description

Description of topographic landscape features in vector format based on the specifications of the ATKIS® feature type catalog (ATKIS®-OK). The scope of information of the Basis-DLM is based on the contents of the Topographic Map 1:10 000/1:25 000, though presenting a higher yet positional accuracy (± 3 m) for the most important linear objects.

The vector data are not symbolized and can be visualized in applications or GIS systems. The feature-structured data allow geometrical and attributive analyses and data processing.

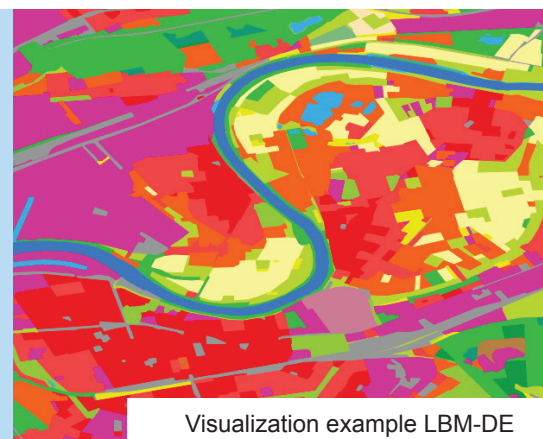
The dataset is available in two specifications:

Compact: Representation of all ATKIS® features in the XML-based data format of the Norm-Based Exchange Interface (NAS).

Layers: Allocation of feature types with similar contents to layers (content layers). Simplification of original data structure by tying nongeometric information to the reference objects with geometric characteristics. Use of ESRI shapefiles.

Update:	every three months
Available:	digitally on data carrier, digitally as download
Geographic extent:	Germany
Data originator:	Surveying Authorities of the Laender

Digital Land Cover Model of Germany (LBM-DE)



Visualization example LBM-DE

Product Description

The LBM-DE (until 2012 DLM-DE) contains areal information on land cover according to the European nomenclature of CORINE Land Cover (CLC). The dataset of the LBM-DE is based on selected areal feature types from the categories settlement, transport, vegetation and waters of the ATKIS® Basis-DLM, which were amended to meet the specific requirements of CLC.

The minimum mapping area of the dataset is one hectare. With the help of multitemporal satellite image data (main data collection base: RapidEye 5 m ground pixel resolution, 5 channels), the dataset is updated with a 3-year revision cycle at the respective year of reference since the full-coverage first recording in 2009. Since 2012, land cover and land use are recorded separately with a subsequent automatic transformation into the CLC nomenclature. While the land cover is recorded using image data, the ATKIS® Basis-DLM of the respective year of reference serves as a source of information for the aspect of land use.

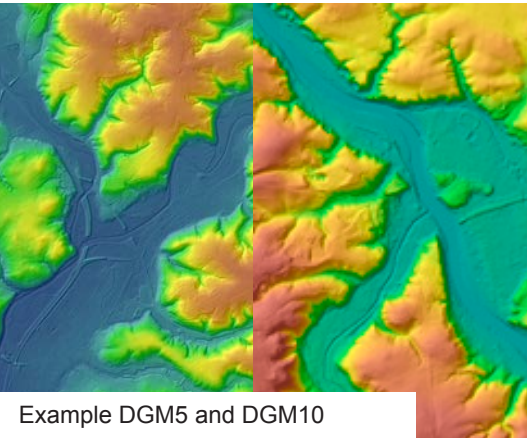
Update:	3 years
Available:	digitally on data carrier, digitally as download
Geographic extent:	Germany
Data originator:	BKG

Your Benefit – Your Added Values

Land statistics

Rural development

Research activities for nature and environment



Digital Terrain Models (DGM)

Your Benefit – Your Added Values

Environmental protection

Preparation of noise maps,
flood simulations

Traffic

Route planning, profile representa-
tions and volume determination

Energy supply

Planning of wind power plants

Calculation of contours and
shadings

Visualizations

Telecommunications and mobile
radio Geology

Product Description

The Surveying Authorities of the Laender establish Digital Terrain Models varying in resolution in order to uniformly describe the relief of the territory of the Federal Republic of Germany.

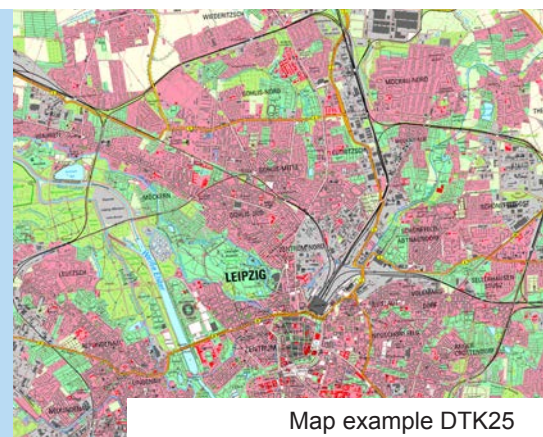
The following quality levels are available:

- Digital Terrain Model grid width 5 m (DGM5)
- Digital Terrain Model grid width 10 m (DGM10)
- Digital Terrain Model grid width 25 m (DGM25)
- Digital Terrain Model grid width 50 m (DGM50)

These models describe the form of the earth's surface by a point mass that is arranged in a regular grid and georeferenced with regard to geographic location and altitude.

Update:	approximately each year
Available:	digitally on data carrier, digitally as download, digitally as view service: WMS, digitally as download service: WFS (wfs_altimeter)
Geographic extent:	Germany
Data originator:	Surveying Authorities of the Laender

Digital Topographic Map 1:25 000 (DTK25)



Map example DTK25

Product Description

The Digital Topographic Map 1:25 000 (DTK25) is a topographic map in raster format generated from the Digital Basic Landscape Model and the Digital Terrain Model. The symbolization of map objects follows the rules of the Signaturenkatalog (portrayal catalogue) ATKIS®-SK10/25.

The map shows the territory of the Federal Republic of Germany. For this purpose, the data sets of the federal states are merged into a nationwide seamless dataset at the BKG. There is no change in content, existing differences in the map graphics between the federal states are not eliminated. The raster data are divided into different layers according to thematic content elements. In addition to the colored combination edition (sum layer), which contains the complete colored map sheet, 24 further single-color thematic single layers are part of the DTK25.

The data are stored in a uniform raster resolution throughout the Federal Republic of Germany as single sheets and seamless tiles in various geodetic reference systems and map projections.

Update:	continuously, 5-year revision cycle of the Laender
Available:	digitally on data carrier, digitally as download, digitally as view service: WMS
Geographic extent:	Germany
Data originator:	Surveying Authorities of the Laender

Your Benefit – Your Added Values

Regional planning

Basis for regional and supraregional planning proposals and projects, a high degree of accuracy and depth of content, abundance of topographic information, ideal presentation graphics

Leisure activities and tourism

Cartographic basis of analogous and digital leisure products (e.g. in mobile GPS receivers and navigation systems), combination with Digital Terrain Models to generate 3D animations of real landscapes

Police, fire brigade and rescue services

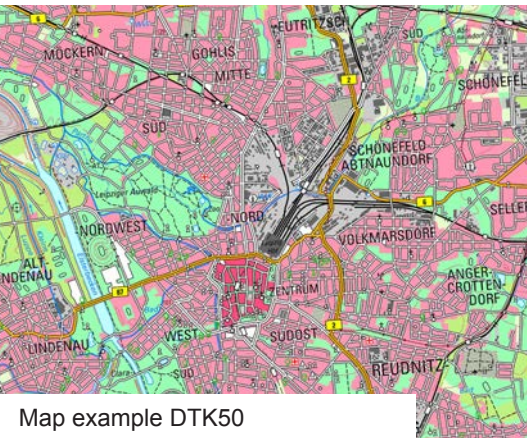
Large-scale operational planning, derivation of special maps (e.g. maps for forest fire fighting briefings or hydrographic maps)

Other ranges of application

Logistics, navigation, mining, agriculture and forestry, administration, telecommunications/mobile radio

Geomarketing

Base map for site analyses or defining sales regions, basis for producing thematic maps (e.g. sales figures per sales region, particular branch structure, distribution of suppliers and competitors)



Map example DTK50

Digital Topographic Map 1:50 000 (DTK50)

Your Benefit – Your Added Values

Regional planning

Basis for regional and supraregional planning proposals and projects, a high degree of accuracy and depth of content, abundance of topographic information, ideal presentation graphics

Leisure activities and tourism

Cartographic basis of analogous and digital leisure products (e.g. in mobile GPS receivers and navigation systems), combination with Digital Terrain Models to generate 3D animations of real landscapes

Police, fire brigade and rescue services

Large-scale operational planning, derivation of special maps (e.g. maps for forest fire fighting briefings or hydrographic maps)

Other ranges of application

Logistics, navigation, mining, agriculture and forestry, administration, telecommunications/mobile radio

Geomarketing

Base map for site analyses or defining sales regions, basis for producing thematic maps (e.g. sales figures per sales region, particular branch structure, distribution of suppliers and competitors)

Product Description

The Digital Topographic Map 1:50 000 (DTK50) contains the raster data of the „Topographic Map 1:50 000 (TK50)“.

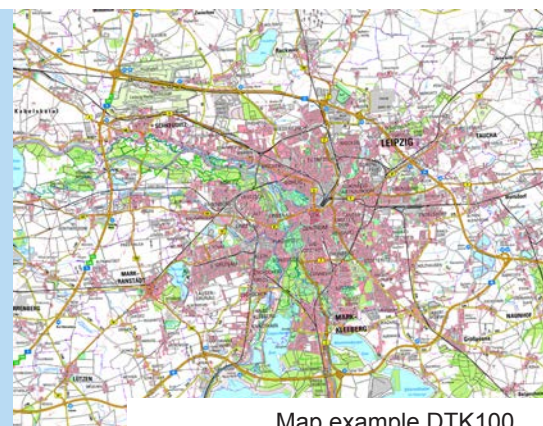
The DTK50 is derived computer-aided from the ATKIS®-DLM and DGM of the federal states. The signature of the map objects follows the rules of the ATKIS®-SK50 signature catalog.

The raster data are divided into layers (individual layers) according to cartographic content elements. In addition to the sum layer, which contains the complete colored map sheet, 24 other single-color single layers are part of DTK50.

The data are available in a uniform raster resolution covering the whole of the Federal Republic of Germany in various geodetic reference systems and map projections.

Update:	continuously, 5-year revision cycle of the Laender
Available:	digitally on data carrier, digitally as download, digitally as view service: WMS
Geographic extent:	Germany
Data originator:	Surveying Authorities of the Laender

Digital Topographic Map 1:100 000 (DTK100)



Map example DTK100

Product Description

The Digital Topographic Map 1:100 000 (DTK100) includes the raster data on a scale of 1:100 000 that are derived in a computer-aided process from the ATKIS®-DLM and DGM of the Laender.

The raster data are subdivided into single levels (layers) according to their cartographic content elements. The structure of the layers is defined by the technical guideline of the AdV named Technisches Regelwerk für den Datenaustausch von Digitalen Topographischen Karten. In addition to the sum layer containing the complete map image, 24 single-color single layers are part of the DTK100. Please note that there may be differences between the individual Laender regarding map graphics and colour assignment.

The data are available area-wide in a uniform raster resolution for the Federal Republic of Germany in various geodetic reference systems and map projections.

Update:	continuously
Available:	digitally on data carrier, digitally as download, digitally as view service: WMS
Geographic extent:	Germany
Data originator:	Surveying Authorities of the Laender

Your Benefit – Your Added Values

Regional planning

Basis for regional and supraregional planning proposals and projects, a high degree of accuracy and depth of content, abundance of topographic information, ideal presentation graphics

Leisure activities and tourism

Cartographic basis of analogous and digital leisure products (e.g. in mobile GPS receivers and navigation systems), combination with Digital Terrain Models to generate 3D animations of real landscapes

Police, fire brigade and rescue services

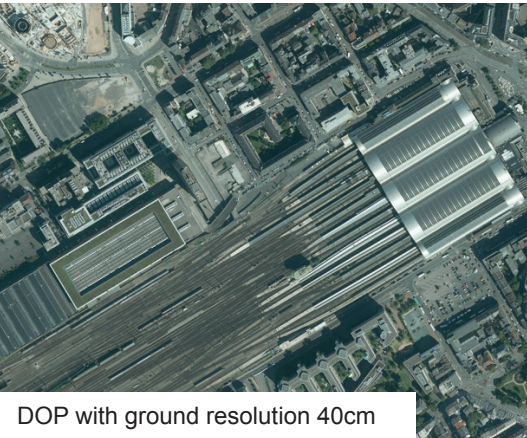
Large-scale operational planning, derivation of special maps (e.g. maps for forest fire fighting briefings or hydrographic maps)

Other ranges of application

Logistics, navigation, mining, agriculture and forestry, administration, telecommunications/mobile radio

Geomarketing

Base map for site analyses or defining sales regions, basis for producing thematic maps (e.g. sales figures per sales region, particular branch structure, distribution of suppliers and competitors)



Digital Orthophotos, Ground resolution 20/40cm (DOP20/40)

DOP with ground resolution 40cm

Your Benefit – Your Added Values

Regional planning

Emotional and realistic presentation of planning projects, easily understandable for everybody, foundation for broad acceptance

Documentation

Representation of time series as complete proof of landscapes, changes, important basic information for questions of regional studies and history as well as for preservation of evidence

Real estate industry

Comprehensive additional information on the location of properties, enhancement of exposés, expressive and informative in combination with „Points of Interest“ (e.g. public transport stops, schools, shopping facilities)

Environment and nature protection

Identification of contaminated sites, identification and proof of sealed areas, preservation of evidence for damages caused by natural events (e.g. effects of floods or storms)

Other fields of application

Agriculture and forestry, mining, water management, archaeology, geology, tourism

Product Description

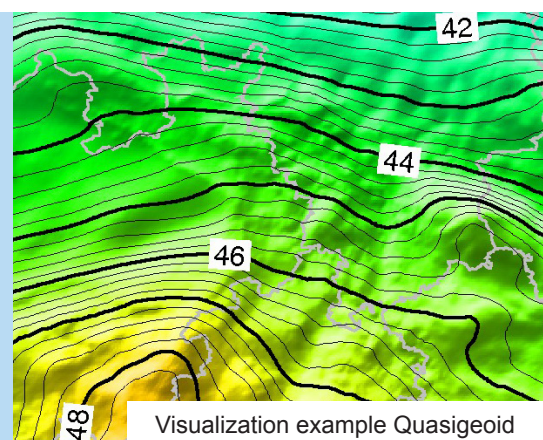
The dataset includes the Digital Orthophotos (DOP) of Germany as georeferenced, differentially rectified aerial images of the Surveying Authorities of the Laender. The image data are delivered to the BKG with a ground resolution of 20 cm (1 image pixel = 20 cm x 20 cm). This results in the Germany-wide dataset DOP20, that can be used via web services in full resolution and as DOP40.

Single image files can be supplied in flexible resolutions via the web application BKG Download.

In addition, detailed information about the topicality of the images is available via another free web service.

Update:	continuously, 3-year revision cycle of the Laender
Available:	digitally as download (see BKG Download), digitally as view service: WMS
Geographic extent:	Germany
Data originator:	Surveying Authorities of the Laender

Quasigeoid of the Federal Republic of Germany (German Combined Quasigeoid - GCG)



Product Description

The German Combined Quasigeoid (GCG) is a model that describes the course of the zero level of the official height reference surface in Germany. It denotes the difference between the reference ellipsoid (Ellipsoid of the Geodetic Reference System 1980, GRS80) used in surveying with satellite navigation systems (e.g. with GPS, GALILEO) and the official height reference surface that uses the height of the Normal Amsterdams Peil (NAP). It serves the direct conversion geometric heights of the European Terrestrial Reference System 1989 (ETRS89/DREF91 Realization 2016) into sea level related heights of the German First Order Levelling Network 2016 (DHHN2016) and is compatible with the satellite positioning service SAPOS® of the German Laender.

The accuracy of the model is 1 cm in the lowlands, 2 cm in the high mountains and 2 - 6 cm in maritime areas. It includes the whole area of the German Exclusive Economic Zone, the so-called 200 nautical miles zone, and thus provides a uniform solution for the whole sovereign territory of the Federal Republic. The geoid is supplied as one overall dataset or as five subsets that cover different regions.

Update:	GCG2011, January 2012 GCG2016, December 2016
Available:	digitally on data carrier, digitally as download
Geographic extent:	Germany
Data originator:	Surveying Authorities of the Laender, BKG, Leibniz University Hannover

Your Benefit – Your Added Values

Direct determination of heights in the official height system DHHN2016 using the satellite positioning service SAPOS®



Map example WebAtlasDE

WebAtlasDE

Your Benefit – Your Added Values

Uniform map style

A color and a grayscale variant

Zoom levels from single building representation to map of Germany

Good speed of indication

Regional planning

Base map for site analyses, urban and regional planning

Education and research

Presentation of technical data

Leisure activities and tourism

Basis for tourist maps

Police, fire brigade and rescue services

Operational planning

Other ranges of application

Logistics, administration, energy providers, publishers, agriculture and forestry, real estate industry

Product Description

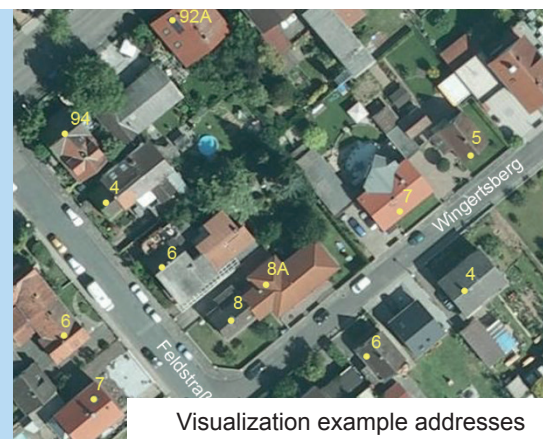
The WebAtlasDE is a web map service developed jointly by the Federation and the Laender and is provided by the Federal Agency for Cartography and Geodesy (BKG). On the basis of official spatial base data it features an attractive, Germany-wide uniform map representation in zoom levels from the single building to an overview of Germany. Its efficient realization based on international standards and its modern cartographic design support various applications.

Base data for the WebAtlasDE are the Basic Landscape Model, house coordinates and building polygons from the Real Estate Cadastre of the Laender as well as the Digital Landscape Models 1:250 000 and 1:1 000 000, which are being maintained at the BKG.

For individuals, education and research as well as commercial uses on scales smaller than or equal to 1:15 000 (WebAtlasDE.light), the internal use of the WebAtlasDE is free of charge.

Update:	annually
Available:	digitally as view service: WMS, WMTS
Geographic extent:	Germany
Data originator:	Surveying Authorities of the Laender, BKG

Geocoding Service for Addresses and Geonames



Visualization example addresses

Product Description

The geocoding service for addresses and geonames is a joint project of the Federation and the Laender. The Laender provide the data basis and the Federal Agency for Cartography and Geodesy (BKG) processes the data and operates the web service developed by its Service Center. For attributively described addresses and geonames, the service returns spatial positions as coordinates (geocoding) or all addresses and geonames in a given geographical area (reverse geocoding).

The service supports the following interfaces as standardized by the Open Geospatial Consortium (OGC):

- **OpenSearch GeoTemporal Service (OSGTS):**
An interface in compliance with the specification OpenSearch Geo and Time Extensions optimized for the integration into web applications.
- **Web Feature Service (WFS):**
An interface in compliance with the Web Feature Service (WFS) for more complex applications.

Update:	annually
Available:	digitally as geocoding and search service: WFS and OpenSearchGeoTemporal Service
Geographic extent:	Germany
Data originator:	Surveying Authorities of the Laender

Your Benefit – Your Added Values

Data basis for an exact navigation to a destination address

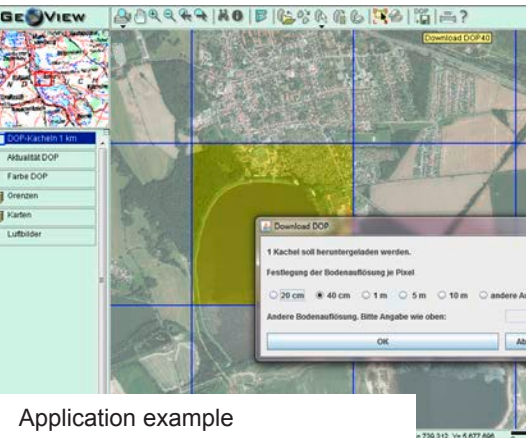
Data basis for scale-independent presentation of address information in digital maps and geographical information systems

Geomarketing analyses

Geocoding services

Distribution and utility services

Optimum support for the implementation of §14 Georeferencing of the EGovG



BKG Download

Application example

Your Benefit – Your Added Values

Urban and village planning

Ecological, pedological, agricultural, geographical or archaeological studies

Water engineering works
Determination of coastal changes

Determination of contaminated soils

Historical comparisons

Flight simulation

Product Description

The BKG Download allows all authorized users to download and store Digital Orthophotos (DOP) and Digital Topographic Maps (DTK) via an interactive selection of 1 km x 1 km tiles in a map.

Each tile is stored as an image file (.tiff) and a metadata file (.meta) is also provided, which contains information regarding topicality.

Up to a resolution of 20 x 20 centimeters, the ground resolution of the DOP may be chosen freely. The DTKs can be downloaded in scales from 1:25 000 to 1:100 000.

Update:	-
Available:	interactive interface (Java Applet)
Geographic extent:	Germany
Originator:	BKG



Address Batch

Application example

Your Benefit – Your Added Values

Assignment of coordinates
to addresses

Free use of the web application
after purchase of a service license

Optimum support for the
implementation of §14
Georeferencing of the EGovG

Product Description

The Address Batch allows the assignment of coordinates to addresses, provided that you have purchased the right to use BKG's geocoding service (wfs_geokodierung).

There are two possible uses:

After entering a single address using the interface, the result is shown on the screen.

After the upload of a list of addresses in CSV format, the results are written to a CSV file. Further hints are provided by the applications help menu.

Update:	-
Available:	interactive interface (Java Applet)
Geographic extent:	Germany
Originator:	BKG

Our Online Services at a Glance

Abbreviations and Explanations of the Services

- **WMS:** Standardized Web Map Service based on specifications of the Open Geospatial Consortium (OGC) for requesting and providing maps as raster data. A WMS server can generate maps from raster data and vector data. Attributes may also be retrieved when the WMS is being generated from vector data.
- **WMTS:** Standardized Web MapTile Service based on specifications of the Open Geospatial Consortium (OGC) for requesting and providing maps as tile-based raster data. The map is pregenerated by the server for previously chosen zoomlevels and fragmented into small tiles. Thus, the application may access the image tiles in a performant manner.
- **WFS:** Standardized Web Feature Service based on specifications of the Open Geospatial Consortium (OGC) for requesting and providing geospatial as object-structured vector data (features). The results are returned as XML-based Geography Markup Language (GML) data.
- **OLS:** Standardized Open Location Service based on specifications of the Open Geospatial Consortium (OGC) for requesting and providing geospatial as object-structured vector data (features). The results are returned as XML-based Geography Markup Language (GML) data.
- **CSW:** Standardized Web Catalog Service based on specifications of the Open Geospatial Consortium (OGC) and the International Organization for Standardization (ISO) for requesting and providing information (meta data) about geospatial data and geospatial data services.
- **GDZ:** Services providing other interfaces. For example, the geocoding/place search provides, an interface that is conform with the specification OpenSearch Geo and Time Extensions (OSGTS) of the Open Geospatial Consortium (OGC). This interface is optimized for the integration into web applications.

List of Available Services

Content	Name
WMS Digital Topographic Map 1:25 000 in color and grey values	wms_dtk25
WMS Digital Topographic Map 1:50 000 in color and grey values	wms_dtk50
WMS Digital Topographic Map 1:100 000 in color and grey values	wms_dtk100
WMS Digital Orthophotos ground resolution 40 cm	wms_dop40
WMS Digital Orthophotos ground resolution 20 cm or 40 cm	wms_dop
WMTS Digital Orthophotos ground resolution 20 cm	wmts_dop
WMS Digital Terrain Model grid width 10 m in 4 visualizations (height information, Colormap, relief, shading)	wms_dgm10
WMS Digital Terrain Model grid width 25 m in 4 visualizations (height information, Colormap, relief, shading)	wms_dgm25
WMS Digital Terrain Model grid width 50 m in 4 visualizations (height information, Colormap, relief, shading)	wms_dgm50
WMS Official Germany-wide Map Service of Federal Government and Laender	wms_webatlasde
WMS Official Germany-wide Map Service of Federal Government and Laender in gray values	wms_webatlasde_grau
WMTS Official Germany-wide Map Service of Federal Government and Laender	wmts_webatlasde

List of Available Services

Content	Name
WMTS Official Germany-wide Web Map Service of Federal Government and Laender in gray values	wmts_webatlasde_grau
WMS Official Germany-wide Web Map Service of Federal Government and Laender (scale range <=1:15 000)	wms_webatlasde.light
WMS Official Germany-wide Web Map Service of Federal Government and Laender in gray values (scale range <=1:15 000)	wms_webatlasde.light_grau
WMTS Official Germany-wide Web Map Service of Federal Government and Laender (scale range <=1:15 000)	wmts_webatlasde.light
WMTS Official Germany-wide Web Map Service of Federal Government and Laender in gray values (scale range <=1:15 000)	wmts_webatlasde.light_grau
WFS Geocoding Service of the AdV (no persistent storing of addresses)	wfs_ortssuche
WFS Geocoding Service of the AdV (persistent storing of addresses)	wfs_geokodierung
GDZ Geocoding Service of the AdV (no persistent storing of addresses)	gdz_ortssuche
GDZ Geocoding Service of the AdV (persistent storing of addresses)	gdz_geokodierung
WFS Height Service (height values based on the Digital Terrain Model grid width 10 m (DGM10))	wfs_altimeter

Contacts

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