

Geodata for everyone

knowing where



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Swiss Confederation

Federal Office of Topography swisstopo
www.swisstopo.ch

Geodata for everyone



Switzerland has been surveyed from top to bottom. Every house, every path and every mountain peak has been recorded by swisstopo in perfect detail. And this enormous quantity of geodata has been used for producing a broad range of products: fascinating images, numerous landscape and height models, detailed raster maps and advanced Internet applications.

The term “geodata” refers to digital data to which a specific spatial location can be allocated on the Earth’s surface. If, for example, a driver enters an address in his navigation device, he or she will be accurately guided to the desired destination thanks to a vast quantity of stored geodata. Geodata also provide information about vegetation, rock formations, political borders, bodies of water, and so on. swisstopo surveys the whole of Switzerland and uses the constantly updated geodata to create a wide range of products such as maps, landscape models, height models, etc.

Where are my clients located, and where is the best location for a subsidiary? Which locations are the least likely to be affected by flooding? Where can the fire brigade drive through in order to gain the fastest possible access to a fire? Along which cycle routes can I find historical monuments? swisstopo geodata and the numerous applications on which they are based – ranging from navigation devices to databases of historical sites and cultural assets – provide answers to these and countless other questions.

Geodata are crucial in the areas of spatial and urban planning, traffic management, information and communication technology, protection of the environment, national defence and internal security, as well as civil defence and disaster prevention.

Images

swisstopo possesses a vast inventory of images, ranging from black-and-white photos of a hamlet dating from 1930, to up-to-date photo mosaics of the Aletsch glacier and satellite images of the entire country.

Aerial and satellite views are original images.

Aerial images

Bird's-eye views

swisstopo offers digitised aerial images: in black-and-white (since 1927) and in colour (since 1998), as well as digital photo strips which depict the landscape in segments (in black-and-white, colour and infrared). For the metric restitution of aerial images, swisstopo also provides orientation elements that describe the location and perspective of images.

Satellite images

Views of landscapes all over the world

With the aid of special sensors, satellite images depict landscapes right on our doorstep or anywhere in the world. These images can be used for creating advertisements, brochures, posters, overviews in geographic information systems, as well as for all sorts of scientific and educational purposes.

Orthoimages are aerial or satellite views in which all distortions have been eliminated so that the scale is uniform throughout.

SWISSIMAGE

Orthophoto mosaic in natural colours

SWISSIMAGE comprises thousands of orthophotos that have been put together to form a huge mosaic of the whole of Switzerland. It is a unique aerial image map that is updated every three years.

SWISSIMAGE RS

An unique wealth of information

Bringing together the 4 spectral bands: near infrared, red, green and blue, these orthophotos provide basic data for many professional applications, such as environmental protection.

SWISSIMAGE HIST

Historical orthophoto mosaic

This historical version of SWISSIMAGE depicts early images in black-and-white from before 1998.

The orthophoto mosaic SWISSIMAGE HIST 1946 is a composition of historical black and white aerial photographs from 1946 over the whole of Switzerland from a US flight mission.

These historical orthophotos allow a journey into the past and trace the development of the landscape.

Spot Mosaic

Views of the region

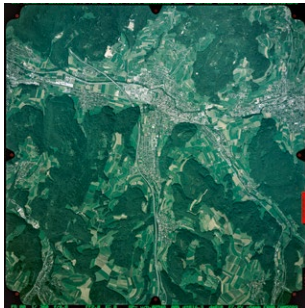
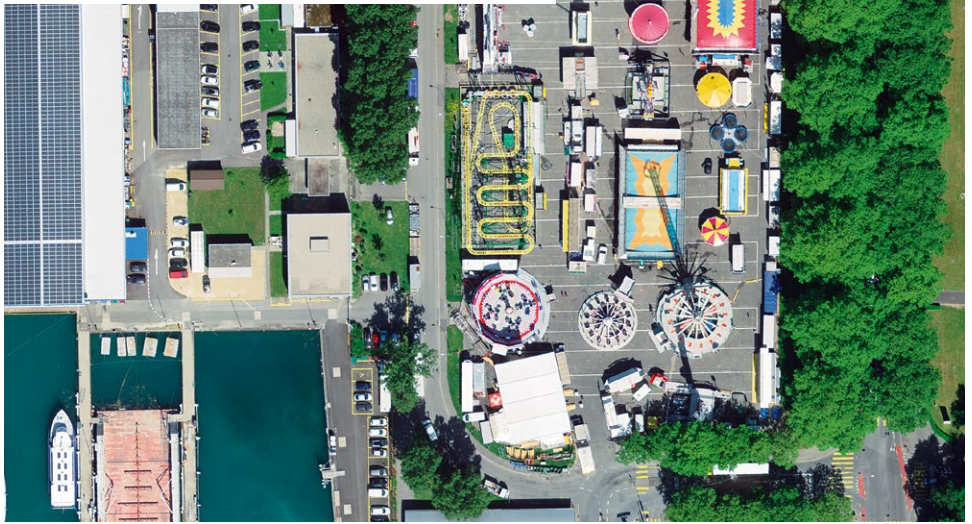
The Spot Mosaic is a satellite image of Switzerland and its closest neighbours. It is suitable for obtaining overviews at smaller scales. On the internet site of the National Point of Contact for Satellite Images (NPOC) other products are available.

www.swisstopo.ch/images

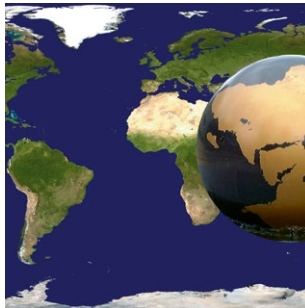
www.npoc.ch (Satellite images)



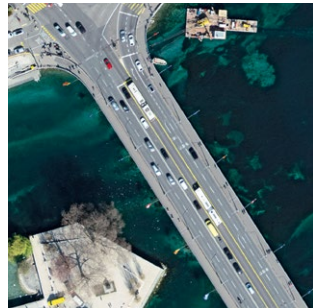
Aerial images are worth a thousand words!



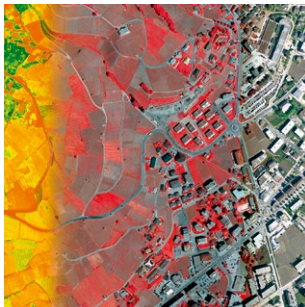
Aerial images



Satellite images



SWISSIMAGE



SWISSIMAGE RS



SWISSIMAGE HIST



Spot Mosaic

Landscape models

Landscape models depict the various objects in a landscape in a scalable vector format. They deal with a broad variety of specific themes, e.g. the transport network.

swissTLM^{3D}

swissTLM^{3D} is the large-scale topographic 3D landscape model of Switzerland

It shows the location, form and features of natural and artificial objects and includes designations of the landscapes. Thanks to a high degree of precision and the use of 3D technology, swissTLM^{3D} is the most accurate and comprehensive three-dimensional vector dataset of Switzerland. It is updated on a periodical basis.

swissBUILDINGS^{3D}

Buildings with detailed roof shapes

swissBUILDINGS^{3D} describes buildings in Switzerland and Liechtenstein as 3D-models with roof geometries and roof overhangs.

swissBOUNDARIES^{3D}

Administrative boundaries

swissBOUNDARIES^{3D} contains the administrative units and national boundaries of Switzerland and the Principality of Liechtenstein in vector form. It is based on an optimised data model for Switzerland and conforms to the data of the Swiss Federal Statistical Office.

swissNAMES^{3D}

Swiss toponymy data

swissNAMES^{3D} is the most extensive and most detailed compilation of Swiss toponymy data. swissNAMES^{3D} contains all the names given on the National Mapping series and comprises more than 190 000 georeferenced entries.

swissTLM^{REGIO}

950 000 objects at a glance

swissTLM^{REGIO} is a two-dimensional landscape model which depicts natural and man-made objects throughout the whole of Switzerland. Thanks to the broad range of detail (at a scale of 1:200 000), this model provides an excellent overview.



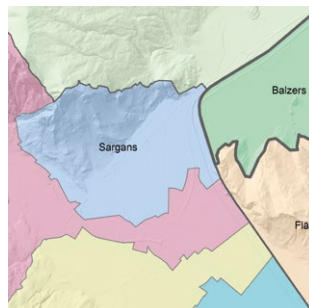
The detailed and highly accurate landscape models produced by swisstopo are ideal for carrying out analyses and planning, as well as for preparing projects, creating simulations, etc.



swissTLM^{3D}



swissBUILDINGS^{3D}



swissBOUNDARIES^{3D}



swissNAMES^{3D}



swissTLM^{REGIO}

Height models

Height models are digital datasets which three-dimensionally depict the form of the Earth's surface.

swissALTI^{3D}

Accurate to the metre

swissALTI^{3D} is an extremely accurate digital height model. Its deviation from reality is less than one metre. With a mesh size of 50 cm, it depicts the surface of Switzerland without vegetation and buildings. It is ideal for calculating terrain profiles, simulating avalanches, analysing visibility circumstances, planning antenna locations, visualising landscapes and finding a broad range of other solutions. swissALTI^{3D} is updated on a periodical basis.

swissSURFACE^{3D}

Over hill and dale

swissSURFACE^{3D} is a digital model containing several million points per km². These points, irregularly distributed in space, model the territory in 3D and provide information on the nature of the objects measured, such as soil, vegetation, forests, buildings or engineering structures.

DHM25

Beyond the country's borders

Like swissALTI^{3D}, DHM25 describes the surface of Switzerland without vegetation and buildings. Thanks to its larger mesh size (25 metres) and the fact that its perimeter extends beyond Switzerland's borders, it is ideal for wider-ranging depictions.

swissBATHY^{3D}

The topography of the Swiss lakebeds

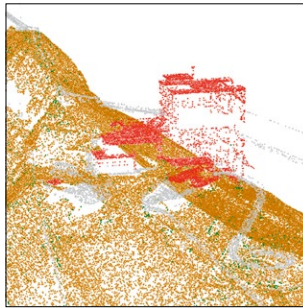
swissBATHY^{3D} is a digital terrain model that describes the topography of the bottom of Swiss lakes. It is a valuable aid for specific applications such as the planning and implementation of underwater constructions or the environmental study of lake bottoms.



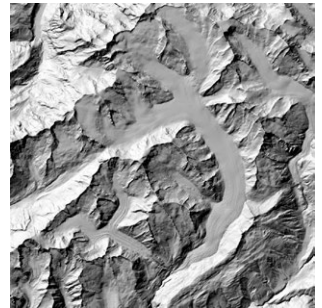
There are so many things you can do with height models – for example, take a virtual flight through mountain valleys or identify suitable locations for placing mobile phone antennae.



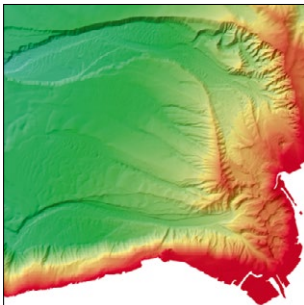
swissALTI^{3D}



swissSURFACE^{3D}



DHM25



swissBATHY^{3D}

Digital maps

Ideal as background information for applications on screen, as a cartographic base for geographical information systems or for developing specific cartographic products.

Swiss Map Raster

The famous digital national maps

All the national maps of Switzerland from 1:10 000 to 1:1 000 000 are available in raster format. They are updated on a regular basis.

Swiss Map Vector

A new dimension in digital map use

The national maps at 1:10 000, 1:25 000, 1:500 000 and 1:1 000 000 are available in vector data. They offer new possibilities in the design of cartographic representations. The contents are structured thematically and can be edited by class or object using geographic information systems.

swissTLM-Map

Quicker, more accurate, more up-to-date

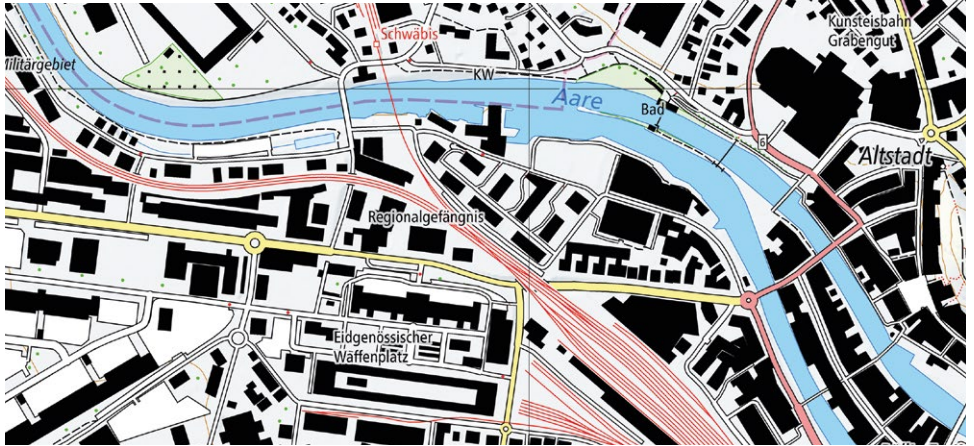
The internet map derived automatically from the topographical landscape model TLM represents the topography on a 1:10 000 scale and offers numerous perspectives. It is optimised for the internet and contains even more detail than the Swiss Map RasterMap. swissTLM-Map is updated at least once a year.

Historical maps

Not just for historians

swisstopo has digitised the entire collection of historical maps of Switzerland, from the Dufour series (produced between 1845 and 1865) and the Siegfried series (produced between 1870 and 1926), through to the new national maps (production of which was initiated in 1938). Historical maps are used for studying the development of landscapes and carrying out historical research, and are unique cultural assets.

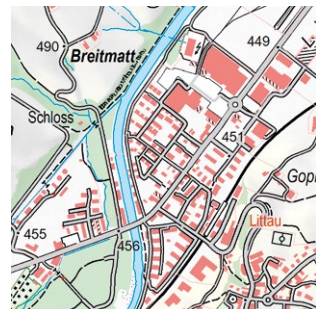
A walk in the mountains, immersion in Swiss history or simply a graphic representation – unthinkable without the appropriate digital map.



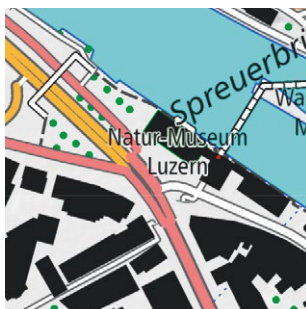
Swiss Map Raster 25



Swiss Map Raster 1 Mio.



Swiss Map Vector



swissTLM-Map



Dufour map series



Siegfried map series

Thematic maps

Thematic maps provide information about the substratum or airspace in an accessible and easy to understand format.

Aeronautical maps

Essential for all aviation buffs

The ICAO digital aeronautical chart is the official aeronautical map of Switzerland (1:500 000). It is updated annually. The digital glider map (1:300 000) contains the most recent information from Skyguide (Swiss air traffic control), as well as specific flight control information for gliders.

GeoCover

Geological data in vector format

The geological vector data sets cover the Swiss territory and are based on the arrangements of sheets of the 1:25 000 national map. They are ideally suited for the creation of more in-depth thematic datasets, for example in the field of natural hazards or in relation to environmental issues.

Geological maps

Depicting the properties and features of the formations beneath the surface

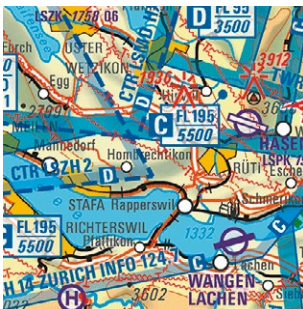
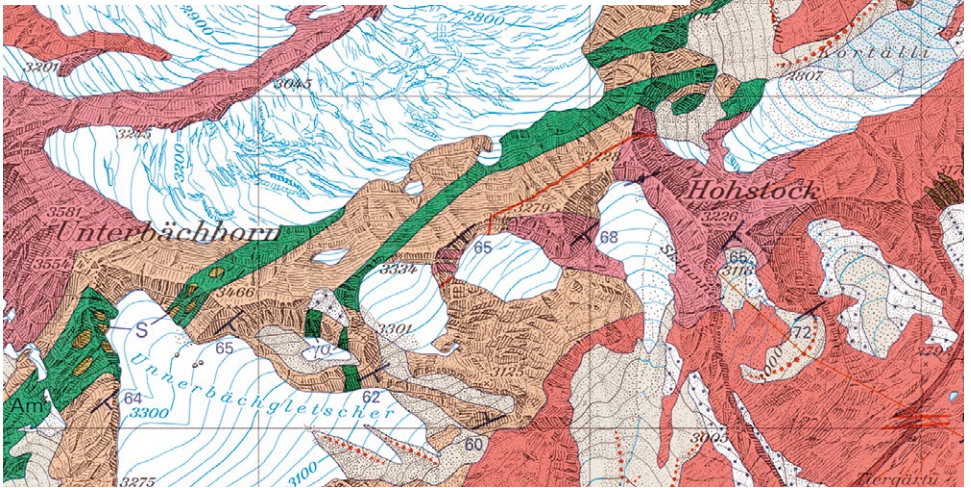
The Geological Atlas of Switzerland (1:25 000) provides detailed information about the strata beneath our feet. The sheets of the Geological Atlas of Switzerland 1:25 000, based on the sheet layout and topographic background of the Swiss National Maps, provide an important basis for decision-making in fields such as tunnelling, scientific research and investigations of building sites and natural hazards. The series of 1:500 000 geological maps of Switzerland provides geological, tectonic, hydrogeological and geophysical information, and includes a map of glaciers in the last Ice Age. Special geological and tectonic maps are also available in scales ranging from 1:25 000 to 1:100 000.

www.swisstopo.ch/geologiemaps

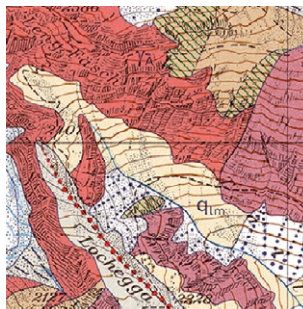
www.swisstopo.ch/maps



A glider flight or a geological walk – it's simpler to plan with the right thematic map.



Aeronautical Chart ICAO



Geological Atlas of Switzerland
1:25 000



GeoCover

Geoservices

Thanks to swisstopo's geoservices, companies, organisations and private individuals can network geographic information and make it accessible via the Internet.

swisstopo geoservices WMS/WMTS

Geodata for GIS software

With swisstopo geoservices WMS and WMTS, users of GIS software can integrate swisstopo geodata into their own applications. The standardised Web Map Service (WMS) or Web Map Tile Service (WMTS) interface is supported by most GIS applications.

swisstopo web access – WMTS

Maps and images for your web site

swisstopo web access – WMTS ("web map tiling service") is a highly useful and versatile service for conveniently depicting locations, buildings, routes, zones and other relevant geodata on maps and ortho-images of swisstopo.

swisstopo web access elevation

Indication of altitude

swisstopo web access elevation is a complementary service to swisstopo web access – WMTS. It provides the altitude (z coordinates) of particular locations, and upon request can also supply specific elevation profiles.

swisstopo web access Terrain 3D

This service provides a three-dimensional representation of Switzerland's topography at different levels of detail. It can be integrated into applications that allow 3D navigation in Switzerland.

swisstopo web access 3D Objects

This service contains elements of the territory modelled in three dimensions such as buildings or bridges. It can be integrated into applications that allow 3D navigation in Switzerland.

swipos

Swiss Positioning Service

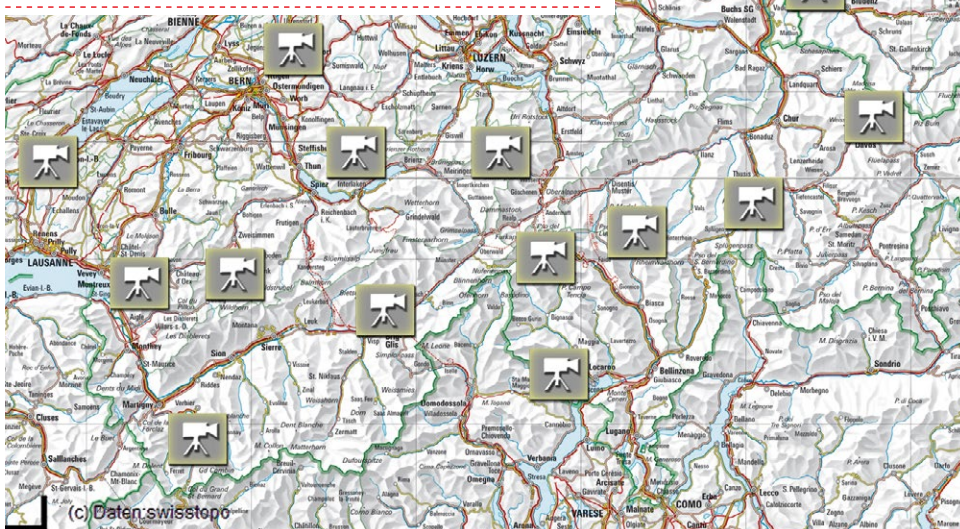
swipos, based on the Automated GNSS Network Switzerland (AGNES), enables real-time positioning that is accurate to the centimetre, using GPS and GLONASS.

www.swisstopo.ch/geoservices

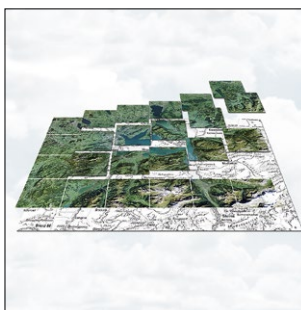
www.swisstopo.ch/swipos



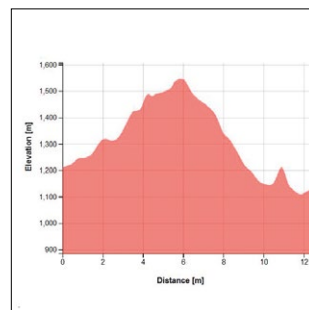
swisstopo geodata – easily and quickly available.



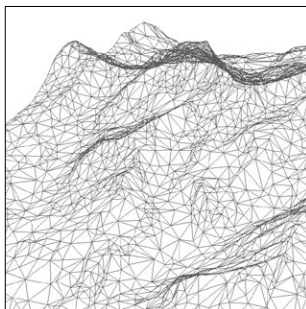
web access WMS



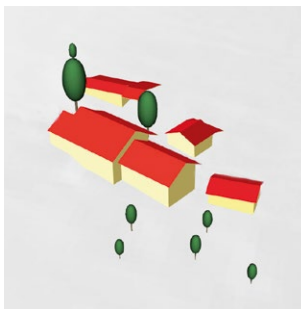
web access WMTS



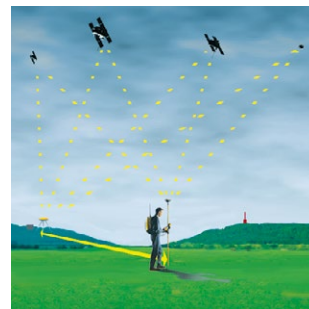
web access elevation



web access Terrain 3D



web access 3D Objects



swipos

Geodata portals

Out and about or at home but always accompanied by swisstopo geodata.

Geodata portal of the Swiss Confederation

map.geo.admin.ch

With the map viewer, it's possible to search, display and print digital geodata for the Swiss Confederation. The required data is available in the form of raster maps, digital images and in vector form with much additional information.

Journey through time – Maps

www.swisstopo.ch/timetravel

Study the development of the Swiss landscape from 1838 to the present day using the 'journey through time' based on historical and current topographic maps.

Journey through time – aerial images

www.swisstopo.ch/timetravel-images

The swisstopo photographic collection boasts a unique cultural heritage, with some of its landscape shots dating back to the 1920s. With the aim of promoting this treasure trove and enabling the general public to benefit from it, "A journey through time – aerial images" allows users to view images in chronological order. It offers a simple and interactive way to embark on a remarkable journey through the history of Switzerland from a bird's eye view.

Switzerland in 3D

www.swisstopo.ch/3d

Fly over the Alps, take a leisurely stroll down the Bahnhofstrasse in Zurich or check out the steep sections for your next hike. Thanks to the 3D mode in the Swiss federal map viewer, you can explore a free, online, three-dimensional, digital model of Switzerland. It contains every building and numerous other objects too.

View aerial images

map.lubis.admin.ch

The LUBIS-Viewer application enables the search, display and purchase of all aerial photographs and image strips which are available in the swisstopo aerial imagery information system LUBIS (Luftbild-Informations-System). This vast database is continually updated with historical images and newly surveyed aerial image strips.

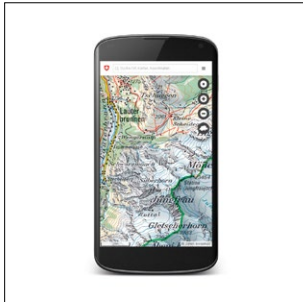
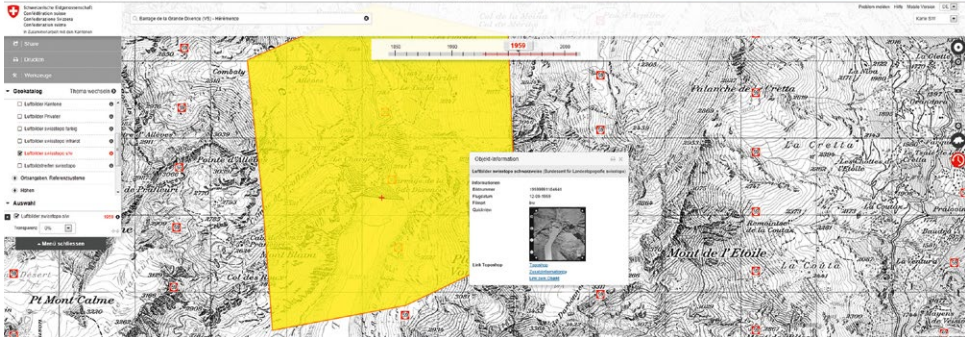
Geological portal

map.geologyportal.ch

This viewer provides access to maps and data belonging to the Swiss Geological Survey and other institutions in the field of earth sciences. It allows displaying of the availability of the most relevant map series, as well as the respective maps and datasets themselves. Whether geology is for professional or hobby use, the viewer quickly provides information for preliminary investigations in geological projects or simply as a geological encyclopaedia.



Search, display, measure, compare, print –
child's play on the internet



On your smartphone



On your pc



On your tablet

shop.swisstopo.admin.ch

swisstopo is there to support everyone – researchers, employees of the federal administration, players in the business world, private individuals – who is interested in geodata. Simply visit our web portal www.swisstopo.ch and browse at your leisure!

Ordering products

You can order or download practically all of swisstopo's products from shop.swisstopo.admin.ch. Here you will find maps, atlases, images, landscape models, height models, geoservices, teaching and support tools, and a broad range of publications. If you are looking for a special product that is not available from our online shop, just send an e-mail to geodata@swisstopo.ch.

Satellite images

NPOC (National Point of Contact for Satellite Images) provides access to satellite images from all over the world. For further information, please visit www.npoc.ch or send an e-mail to npoc@swisstopo.ch.

Free geodata

To promote the use of geodata, swisstopo provides digital data free of charge. The free geodata can be downloaded directly via the swisstopo onlineshop after you have accepted the terms of use. They are also available on opendata.swiss, together with other datasets.

Licence types

A distinction is made between private and commercial licences. A private license is cheaper but sets stricter limits on the use of data. By granting a licence to a customer, swisstopo authorises him/her to use his/her data for clearly defined purposes. Special licences for schools, non-profit organisations or projects are also available. swisstopo retains all geodata rights. Full information on licenses and commercial conditions is available at www.swisstopo.ch/licences. Any special requests can be addressed to geodata@swisstopo.ch

Please help us improve our products!

swisstopo welcomes suggestions for improving its maps and geodata. Please do not hesitate to visit our Revision Service web site (www.swisstopo.ch/revision), where you will be guided through the correction process. Here you can report errors, necessary changes or additions regarding all swisstopo products. Thank you in advance for your support!



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English at www.swisstopo.ch.

The Swiss Federal Office of Topography swisstopo is Switzerland's geoinformation centre. We provide accurate, updated and reliable fundamentals for the surveying of Switzerland collect data on the landscape and its subsurface and document them over time. Thanks to swisstopo, every location in Switzerland can be determined down to a centimetre. Swisstopo thus fulfils a federal task. Our products include national maps, elevation and landscape models, aerial images, orthophotos as well as geological data and maps online and as mobile phone apps. The Federal Geoportal at map.geo.admin.ch in particular plays a central role for our products.
