06.06.2016

FAQ – Geological vector datasets

The metadata for the geological vector datasets are available at: *http://www.swisstopo.admin.ch/internet/swisstopo/de/home/topics/geology/atlas.parsysrelated1.57851.downloadList.91755.DownloadFile.tmp/metadatade.pdf*. The list below partly refers back to points already described in the metadata and will gradually be supplemented with questions raised by users.

1. Where do the basic data for digitisation come from?

The vector datasets are primarily based on the sheets of the Geological Atlas of Switzerland at the scale of 1:25'000 (GA25) when they become available in printed form. In some cases, the datasets are digitised on the basis of a compilation of special maps and map originals of different scales, provided by the Swiss Geological Survey or various universities as well as by individual cantons. The quality of these data does not necessarily match the quality of the data derived from the published versions of the GA25 maps. To find out which basic data have been used for each map, see the summary table (Liste-compilation.xls) available online at: *http://www.swisstopo.ch/geolatlas*.

For more information about the base maps used, go to: *http://www.swisstopo.admin.ch/internet/swisstopo/fr/home/apps/geology/mapindex.html*

2. To what extent are the data harmonised?

The datasets are defined by the perimeter of the sheets of the GA25 maps, or of the topographic maps at the scale of 1:25,000.

Legends:

The legends for the current version of the data have not been harmonised. This project is currently being conducted by the Swiss Geological Survey. The harmonisation will be carried out once there are vector data available for the whole of Switzerland.

Boundary outlines:

The process of adjusting the boundary outlines of the datasets (corresponding to the boundaries of the Geological Atlas) will begin after the harmonisation of the legends. The Swiss Geological Survey is also in the process of testing ways of carrying out these adjustments.

3. Are the data adapted to the new topography?

The topographic bases of the geological maps are taken from the Siegfried Atlas in the case of the oldest maps or national maps. These are updated every six years by swisstopo.

The geological vector datasets have not been adapted to the current topography. They are consistent with the pixel versions of the corresponding geological maps. For more

information on the topography used, see the table given in the "_BORDER" shapefile included with each dataset.

4. What symbols have been used?

The symbols used to construct the GIS-project are stored in the form of ESRI layer files (.lyr). These symbols have been designed to correspond as closely as possible to those of the map in paper form. The depiction of the points and lines is based on the symbol catalogue provided by the Swiss Geological Survey and the GeoFonts that derive from it. As far as the symbols for surfaces are concerned, only some Quaternary landforms have standardised symbols. The presentation of the other surfaces (i.e. the other landforms) has not been harmonised. This will be done after the nationwide standardisation of the keys for Switzerland (see FAQ 2).

5. What reference system is used for the georeferencing?

All the data are georeferenced using a chosen projection system, either the CH1903_LV03 (cylindrical projection according to oblique axis) or the CH1903+_LV95 (by translating +2,000,000 in x and + 1,000,000 in y). Once the datasets have been vectorised from a scanned GA25 map in pixel format, it may be that there is some discrepancy between the pixel map and the vector datasets due to georeferencing corrections made on all of the GA25 pixel maps. These discrepancies are only corrected if the difference is greater than 10 metres (0.4 mm on the map).

6. What are the accepted levels of tolerance, accuracy and resolution?

The tolerance reflects the accuracy of the coordinates of the datasets. It is the minimum distance between two coordinates. All geological vector data have a tolerance of 0.02 m. This is the minimum distance required between two points to prevent them from being merged into one.

All of the coordinates of the objects that make up the vector datasets are georeferenced according to the coordinate systems and are "snapped" onto a grid. This grid is defined by the resolution and determines the accuracy of the values of the coordinates. The resolution determines the fineness of the grid pattern (i.e. the distance between the grid lines) that covers the extent of the data. In this case, the resolution is fixed at 0.01 m.

7. Where are the hydrological features?

The hydrological features (glaciers, lakes and rivers) are usually placed in the layer known as "POLYGON_AUX". This has been done to correspond better with the structure outlined by the geological data model, which has been developed in parallel by swisstopo. However, the hydrological objects in the old datasets have not been adapted to this structure. This is due to take place at the end of the GeoCover project, during the reorganisation of all of the data in accordance with the geological data model.

8. What method of digitisation has been used?

The digitisation of the data is carried out by three different organisations working in

parallel. Of these, the main organisation is the University of Lausanne (Institute of Geomatics and Risk Analysis, or IGAR), which digitises around 80% of the datasets using the ToolMap software (www.toolmap.ch), developed in collaboration with CREALP (Research Center on Alpine Environment) in Sion. The Swiss Geological Survey has also constructed datasets from the vector data provided by mapping offices. Finally, the Swiss Geotechnical Commission (SGTK) and, subsequently, the GRENZEN office have taken on the task of converting data from an Adobe-Illustrator format primarily into the format of an ESRI shapefile (.shp) in a more precise way. The structure of the final projects is the same for all datasets. However, some layers of information (LINE_ADD) or construction (LINE_MAIN) are not available in the first datasets to be digitised.

Additional notes regarding the datasets based on compilations:

1. Which objects have been included in the compilations?

The objects included in the geological datasets based on compilations of various maps (provisional versions prior to the publication of the complete GA25) are limited to those geological objects that are considered essential for using the map. These include:

- polygons of outcrops in the rocky substratum
- polygons of Quaternary landforms
- tectonic and morphological outlines (fractures, landslide scars, edges of erosion, etc.)
- measurement and observation points of geological and structural features (dip, fold axis, etc.)

2. How are these geological datasets completed?

A certain number of objects currently included in a GA25 sheet are available from various federal and cantonal offices (e.g. springs) or the Geological Information Center at swisstopo (e.g. boreholes). The plotting of some of these data (e.g. boreholes, springs) in the GA25 maps does not constitute an inventory.