New National Maps for Switzerland

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Extended Abstract

Switzerland's official national map series is being revised. The national map, in existence since the 1950s, is a reliable product. However, from a technical and graphical point of view an update is required to meet growing needs. The data is completely reconstructed using GIS and database technologies. The result are high-quality geographic databases - digital cartographic models (DCMs) - containing vector and raster data.

A revised map design

Thanks to the careful reworking of the design, the map has a fresh appearance and is easy to read. Some of the key visible changes are easily legible text using a new Frutiger font family, the gradation of the road network according to road width and traffic importance in all scales, red for the rail network and railway stations and the introduction of coloured boundary lines (local authority, cantonal and national borders).

At the same time, the typical character of the national map remains, e.g. by retaining the «swiss style» terrain representation with it's traditional combination of rock, scree, relief and sun tone.

Modern production technologies

In 2013, swisstopo began a comprehensive upgrade of the largest official map document for Switzerland – the national map 1:25,000. The conversion has been preceded by years of project work, incorporating important technological developments such as: higher resolution imagery and the construction of a 3D landscape vector model, the introduction of automation-supported generalization and database-supported cartographic editing, the opportunity for automation-supported incremental update or the NSDI (national spatial .

Automatic generalization

The production architecture for the DCMs includes several automation steps, e.g. for data imports, model transformations, model and cartographic

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generalization, quality assurance or data exports. For model and cartographic generalization, a first system was built and is used for DCM25 production. For the remaining scales, swisstopo takes a new approach and builds a new system based on geoprocessing tools, ArcPy and ModelBuilder by Esri. This is achieved using agile development methods inhouse.

A prototype for the DCM50 workflow is now established, a test map sheet has been produced and the results are very good. A prototype for a DCM10 is currently being developed. For the first time, swisstopo will publish a Swiss National Map 1:10 000 in 2016 on geo.admin.ch.

Meeting the growing needs

New usage opportunities are emerging with the new map and digital cartographic model. The DCM is the single source for a variety of cartographic products. Since DCMs are maps and GIS databases at the same time, their content can be enriched with additional data or filtered and rearranged in endless ways. This provides great flexibility to meet the user's needs.

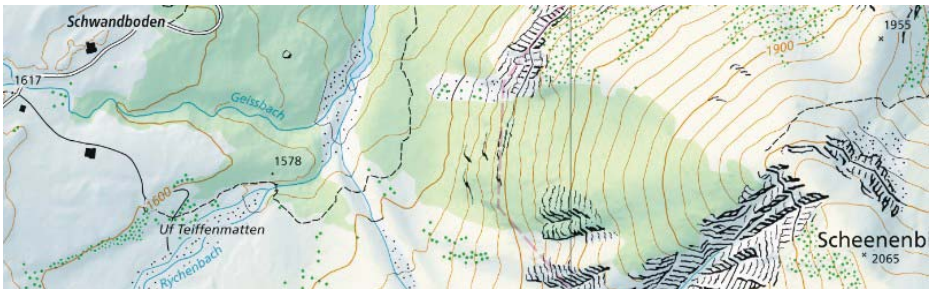

Figure 1. Swiss National Map 1:10 000 (DCM10), mountainous area, draft

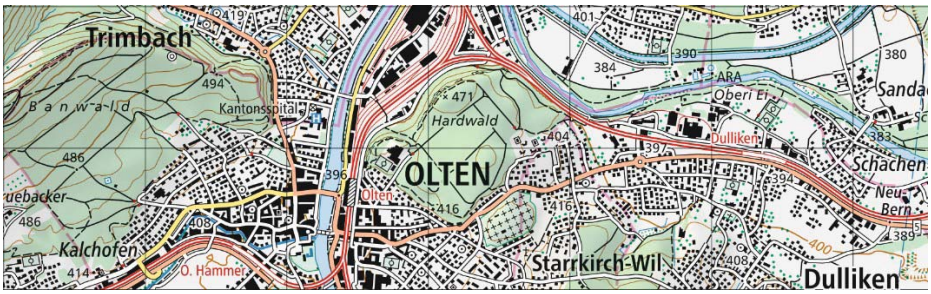

Figure 2. Swiss National Map 1:50 000 (DCM50), urban area, draft