

## Swiss Glacier Inventory 3D, a product of the Swiss topographical landscape model

Yvo Weidmann\*/\*\*\*\*, Matthias Huss\*/\*\*, Mauro Fischer\*\*/\*\*\*, Emanuel Schmassmann\*\*\*\*

\*Laboratory of Hydraulics, Hydrology and Glaciology (VAW), ETH Zurich, Hönggerbergring 26, CH-8093 Zurich

\*\*University of Fribourg, Unit of Geography, Chemin du Musée 4, 1700 Fribourg

\*\*\*World Glacier Monitoring Service, Department of Geography, University of Zurich, Winterthurerstrasse 190, CH-8057 Zurich

\*\*\*\*Federal Office of Topography swisstopo, Seftigenstrasse 264, CH-3084 Wabern

\*\*\*\*\*Geoldee Geoinformatik, Postfach 1209, CH-8038 Zurich

The Federal Office of Topography swisstopo implements the country-wide vector-based Topographical Landscape Model (TLM) as base for the topographical maps of Switzerland in the scales larger than 1:10 000. The whole territory of Switzerland will be recorded by the year 2020. The different topics of the landscape model (land cover, roads, buildings, hydrography, ...) are entirely digitized as 3D geometries using stereo imagery in natural colours and the near-infrared channel. The recorded geometries are checked and updated if needed on a 4 to 6-year basis. With the migration of the former cartographical data model VECTOR25 towards the TLM, the subtypes *glacier* and *unconsolidated rock* are an import and reliable data source for glaciological studies.

The three main Swiss Glacier Inventories (SGI) 1850, 1973 and 2010 (Maisch et al., 2000; Fischer et al., 2010) are based on 2D reconstructions of the glacier outlines derived from historical maps, field surveys and aerial orthoimages. The demanding task of recording the outlines of all Swiss glaciers was a major obstacle for having a higher temporal resolution of inventories.

Within the framework of the GLacier MONitoring Switzerland (GLAMOS) the feasibility of using the data of TLM as a continuous and highly reliable data source for future inventories was analysed. The analysis determined the differences between geometries of the former SGI and the TLM, the data structure of the TLM, the possible workflow, the temporal data coverage and reliability and much more. Based on the needs of GLAMOS, the requirements for the recording of glacier geometries within the TLM were formulated.

By 2016 / 2017 the requirements of GLAMOS are implemented by swisstopo. With the completion of the first edition of the TLM by 2020 a new Swiss Glacier Inventory entirely in 3D will be published (SGI2020<sup>3D</sup>). With the constant update of the TLM during the next decades, a continuous glacier inventory will be available which is expected to offer a highly valuable basis for glaciological, hydrological geomorphological analyses in the Swiss Alps. Due to the integration of the workflow at the Federal Office of Topography a long-term continuance and quality is guaranteed.

## REFERENCES

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