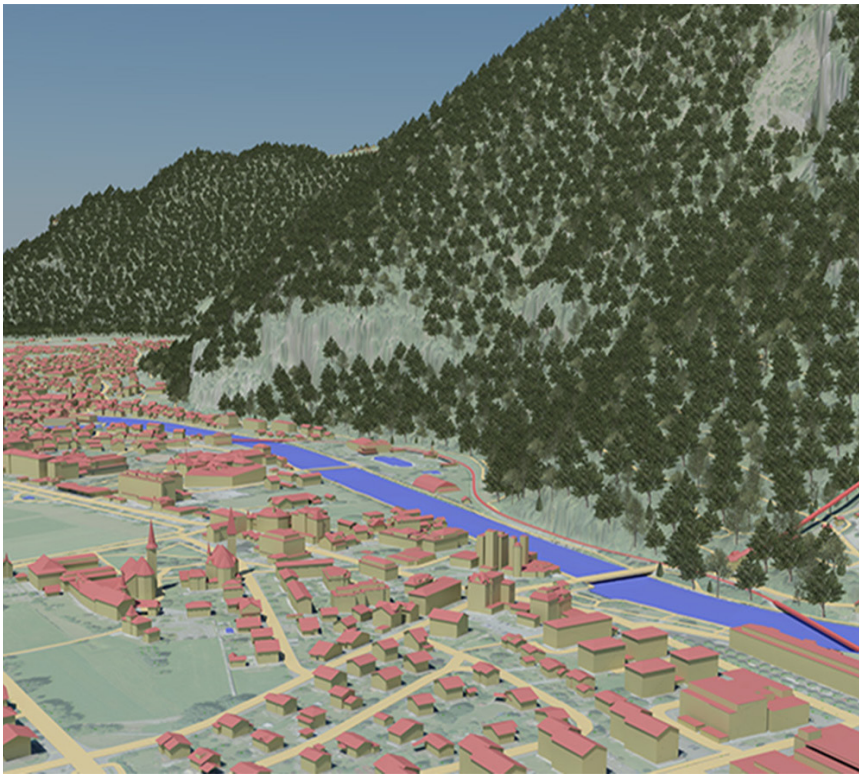
Switzerland

Delivering 3D data of Switzerland

Topographic Landscape Model (TLM) is the basic landscape model for Switzerland and covers the whole country.



TLM is not a product, but the basis for a wide variety of products including the derived cartographic base maps. It is a seamless 3D dataset containing primary geometry without generalisation and with an accuracy of better than 1 metre in x, y and z coordinates for most objects, and even better accuracy for building roofs, in the order of 0.5 metre and often much better. TLM consists of nine topics or data layers which contain several dependent datasets previously maintained separately, such as boundaries, names and terrain.

TLM also has a revised extended data model to meet the needs of reference partners, such as road and water authorities or GLAMOS, Glacier Monitoring in Switzerland. All objects are stored in 3D and have x, y and z coordinates which also means that objects on the ground in TLM should maintain consistency with the Digital Terrain Model (DTM). Consistency implies for instance that the vector element of a road lies on the underlying DTM surface and vice versa. The objects in TLM have not only geometry but also different attributes.

The first concepts for TLM were defined in 2000. The development of TLM was started in 2008 using previous low accuracy cartographically generalised 2D data. The construction of TLM was completed at the end of 2019 for the whole country.

During this period the 3rd dimension was introduced to the data, and it was 'degeneralised' but, in reality, mostly intensively recaptured to a high accuracy. It was also updated and densified based entirely on the most up-to-date high resolution aerial imagery available. After almost 12 years of data production and acquisition, around 25 million objects are now ready for the various users.

Many diverse customers on the national, the cantonal and communal level use TLM. It is used as reference data for their own data, for 3D-visualisation, for simulation or for monitoring programs. In particular, it is used by the National Solar Cadastre, the Swiss Hydrographic Network, Landscape Monitoring Switzerland LABES and the Glacier Monitoring in Switzerland GLAMOS.

TLM is now updated on a regularly six-year cycle. However, important man-made objects, such as roads on the national or cantonal level, are updated yearly. Swisstopo is working on increasing the frequency of the updating cycle for all objects.