ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

IKG
Institute of Cartography
and Geoinformation

ETH Zurich, Campus Hoenggerberg

esri Suisse

Enhancement of Esri's World Topographic Map and Web Map Application development

The goals of this interdisciplinary project work are to enhance Esri's *World Topographic Basemap* by enhancing the basemap of the campus of ETH Hoenggerberg and to develop a web map application for the ETH Hoenggerberg. Missing and incomplete information is integrated in the basemap using *ArcMap* and a basemap template provided by ESRI. The web map application is developed in the *ArcGIS Online - Web AppBuilder*. It is intended for visitors, students or professors of the ETH. The purpose is to provide an overview of the rooms of the HIL building and their equipment. Furthermore, a visualization of the historic development of the ETH Hoenggerberg is implemented and interactive pictograms indicate the points of interest on the campus.

Esri's World Topographic Basemap

The basemap is enhanced with newly constructed buildings, see Figure 1. The HWW and the HWO (student village), the HCP, the HGP and the HIB buildings are added. Also parks, places, roads and vegetation are updated or created if non-existent. The buildings are labeled down to a scale of 1:4 500 and labels of the roads, places and parks are introduced down to a scale of 1:1 500. The roads are newly classified to better represent the reality.

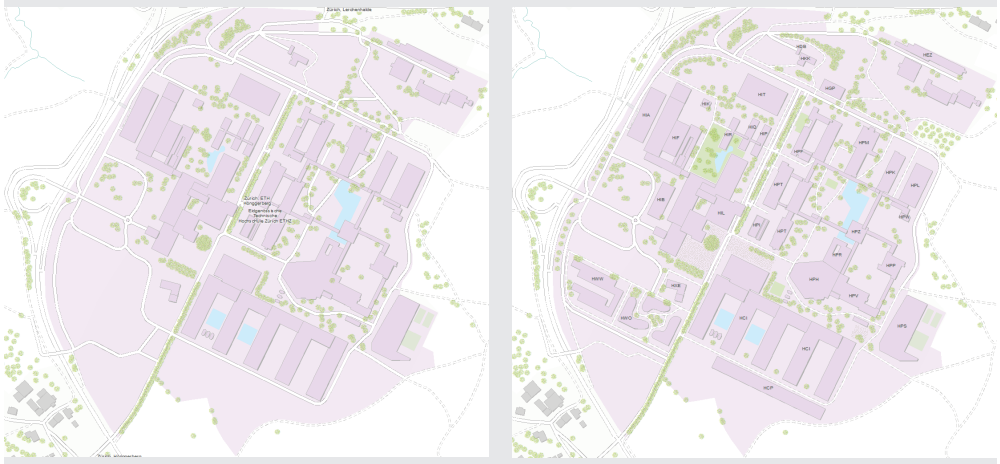

Figure 1: Original basemap (left), enhanced basemap (right).

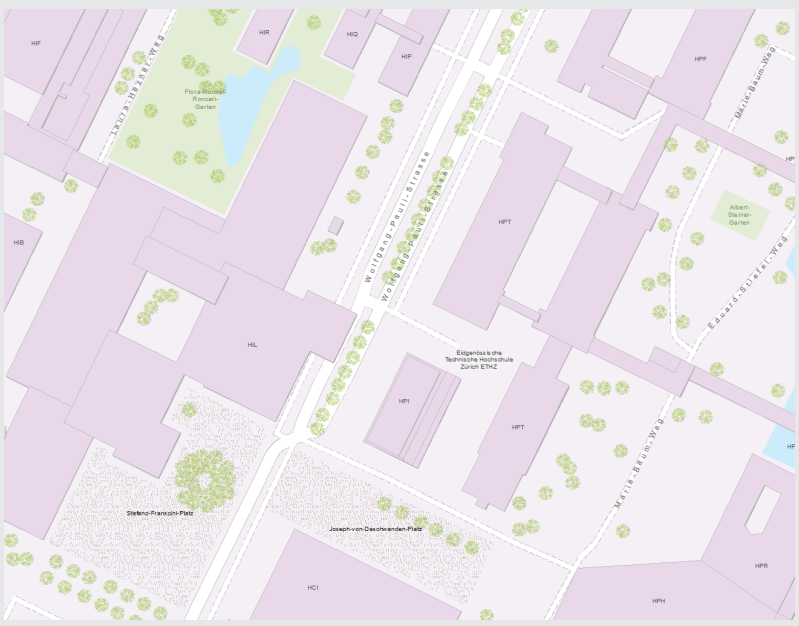

Figure 2: Sector of the enhanced basemap showing newly added parks, vegetation, places and roads.

Web Map Application

The application provides a search functionality for the rooms of the HIL building, information about each of these rooms in form of pop-ups and an animated visualization of the campus developement since 1965. Interactive pictograms indicate points of interest such as libraries, bus stations, refectories, etc.

For the development of the web map application, CAD data in the DWG format from *ETH Immobilien* is processed in *ArcMap* to derive the needed polygon shape files, representing the outlines of the rooms.
The shape files are generalized and then published as a map service on the ArcGIS Server*. Furthermore, a new dataset for the historic campus development is created and pictograms in vector format are designed.
(* *https://kartoipa01.ethz.ch)*

Figure 3: Web map application.

Interdisciplinary Project Work
Institute of Cartography and Geoinformation
ETH Zurich
Autumn Semester 2016

Authors: René Gander, Martino Isidori
Lead: Prof. Dr. Lorenz Hurni
Supervisors: Thomas Koblet
Marianne Rüegsegger
Dr. Christian Häberling
Roland Schenkel