

WTO (22270) 570

**Swisstopo**

# Three generations of Esri Technolgy

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# Three Generations Esri Technology at swisstopo

from ARC/INFO to ArcGIS Pro

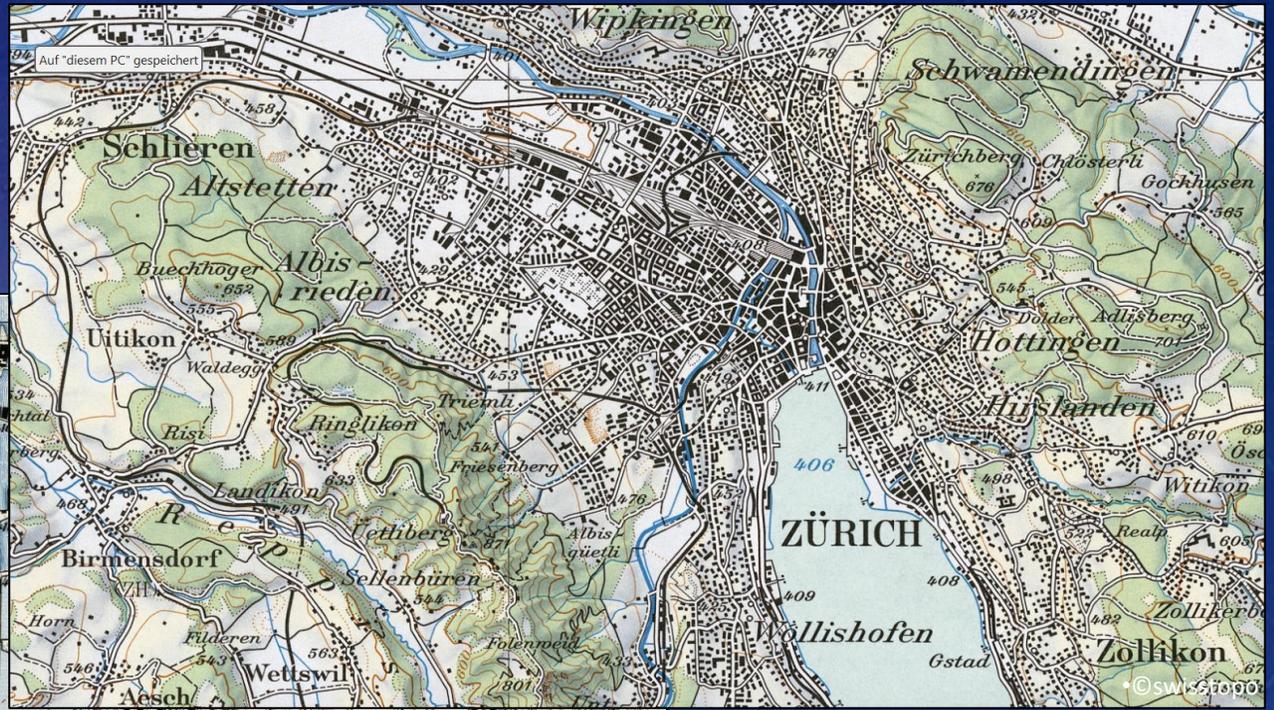
from GTDB to GoTOP and K2

# The History

- 1838 Federal Topographic Bureau was founded by General Guillaume-Henri Dufour
- 1844 First map was produced
- 1864 whole of Switzerland was charted
- Revision until 1939

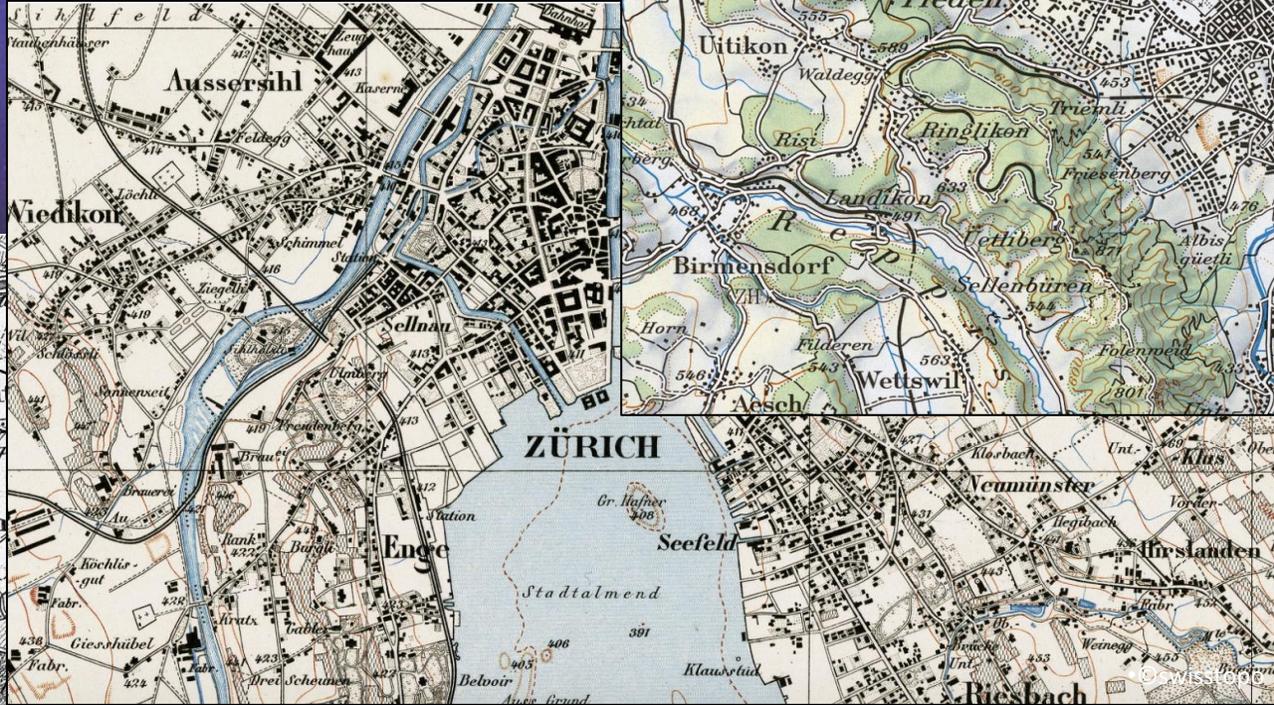


1938 / 1952



Landeskarte

1870



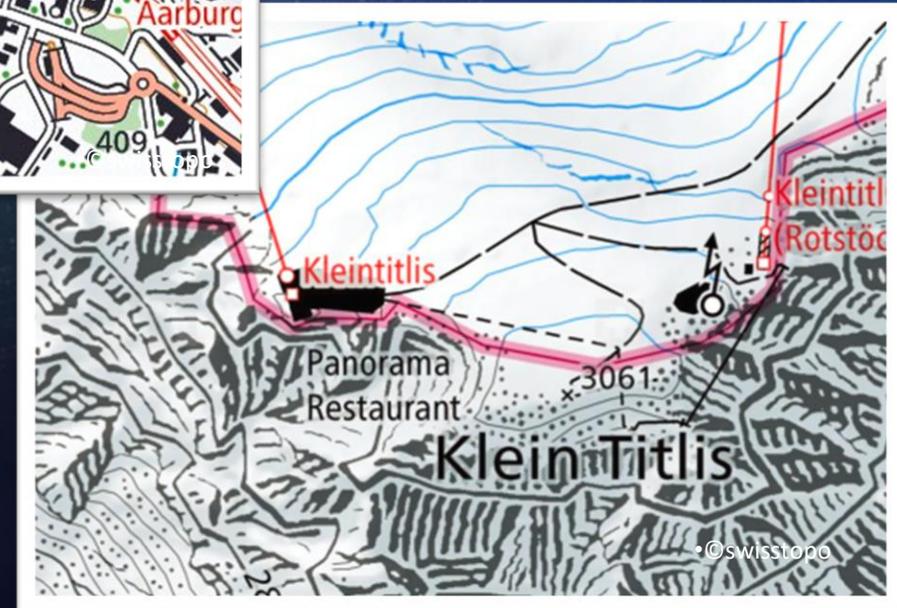
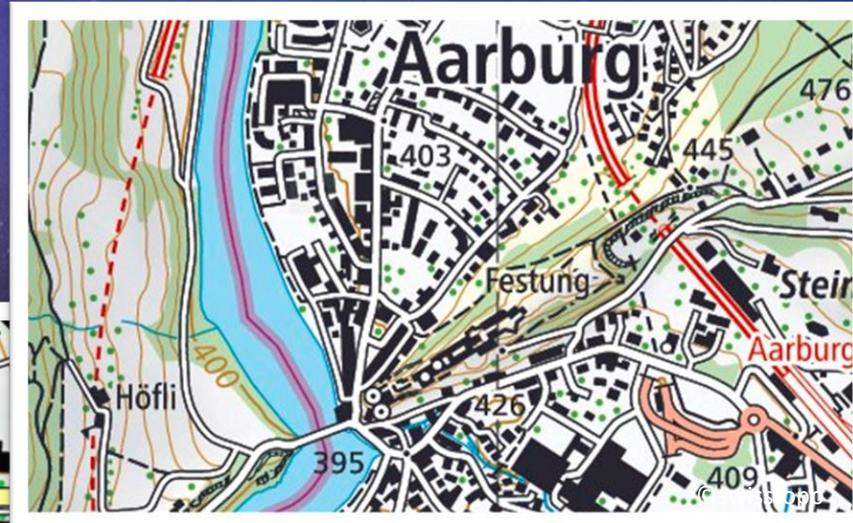
Siegfried

1844



Dufour

# Landeskarte today (1:10K to 1:1 Mio.)

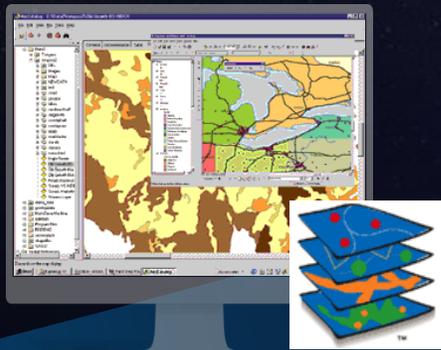


# The Purpose of swisstopo today....

- [Swisstopo Geoinformation.mp4](#)

# Swisstopo's Production System for Geodata

**GTDB**  
1998



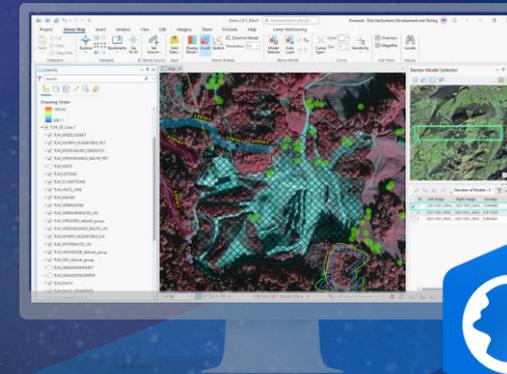
**ArcInfo**

**TOPGIS & Genius DB**  
2006 – 2026



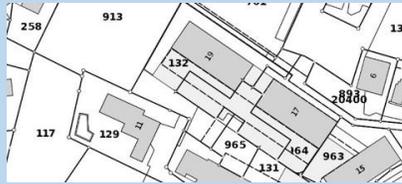
**ArcMap**

**GoTOP & K2**  
2026 – 2036



**ArcGIS Pro**

## Data sources



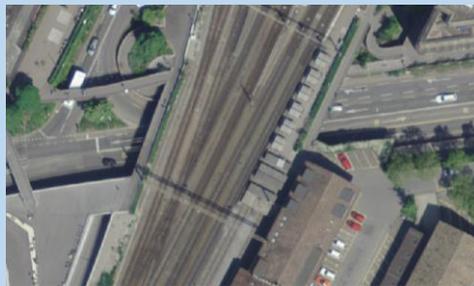
External data



Aerial photography



Stereo imagery



Orthophotos

## TOPGIS



Data capturing and integration  
field verification



2D and 3D landscape models

## Genius-DB

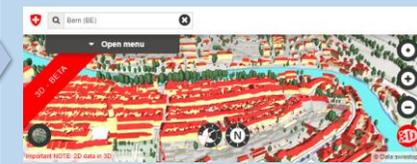


Automatic generalization  
cartographic refinement



Digital basemaps  
Printed maps

## map.geo.admin.ch



## Data shop



# Project Goals

## «Topgis»

Contents

Infrastructure for the **production** of the Swiss **3D landscape model (TLM)**

Customer's key points

- productivity, performance
- >50 full-time editors
- stereo integration
- high quality

Concepts

“OneClick” · “Work List” · “Data Dictionary” · “Carto Process” · etc.

## «Genius»

Infrastructure to derive **cartographic products**

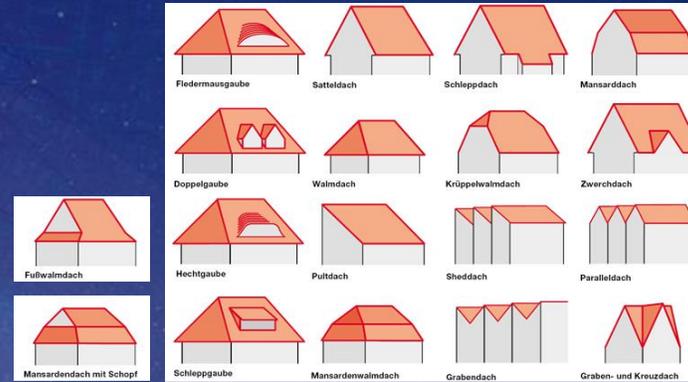
- map design/quality first (“no compromise, zero tolerance”)
- productivity
- many full-time editors

# Large Development

large = longterm and complex

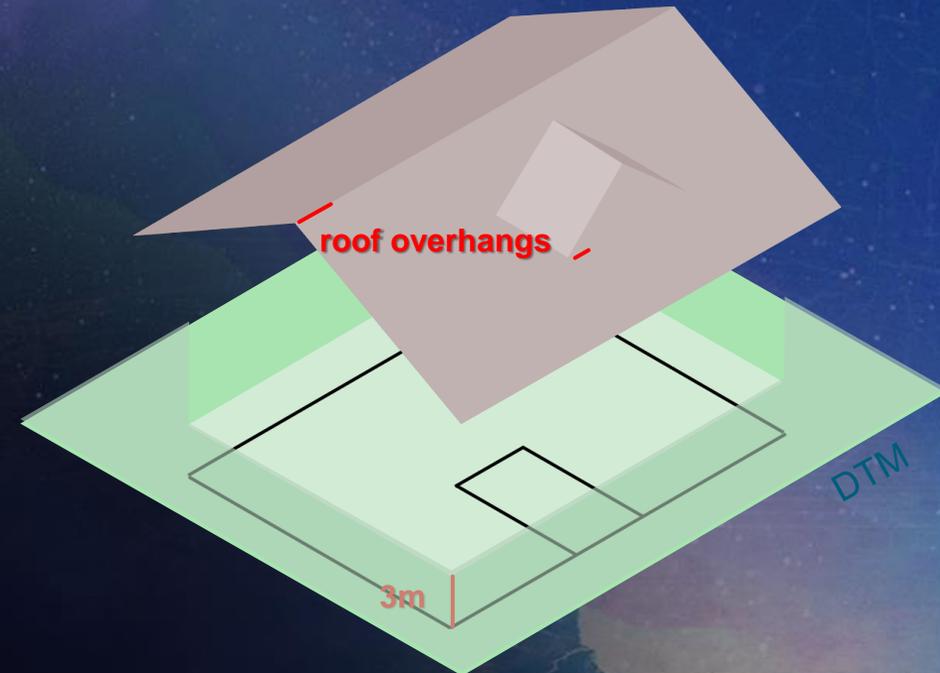
Initiale development	2006–2011	10'000 PT (40 person years)
In Production	since 2008	100 Editors
Dev. Teams	10 MA Esri	plus 6 Subcontractors
Colaboration with	Esri Inc.	(Editor- und 3D-Team)
Changes	300+ PT p.a.	500+ CRs
Maintenance (Code)	350+ PT p.a.	(Start with ArcGIS 9.1)

# Examples TopGIS

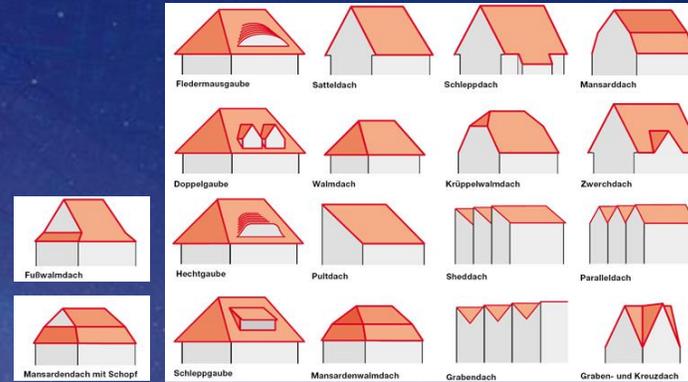


## Building construction workflow

1. Capture roof based on templates
  - > In stereo, minimum mouse clicks
2. Edit roof as needed
  - > In stereo
3. Specify roof overhangs
  - > Attribute editor
4. Derive footprint
  - > Event based, Editor command, batch (GP)
  - > Edit if needed, in stereo
5. Construct walls
  - > Batch (3<sup>rd</sup> party software)
  - > Vision: live update within Editor

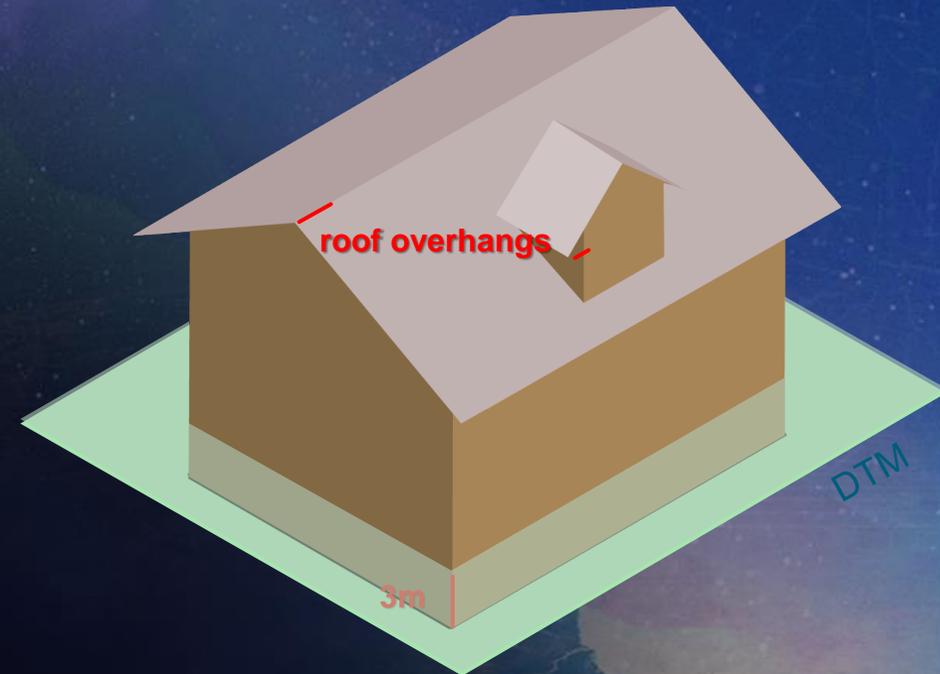


# Examples TopGIS



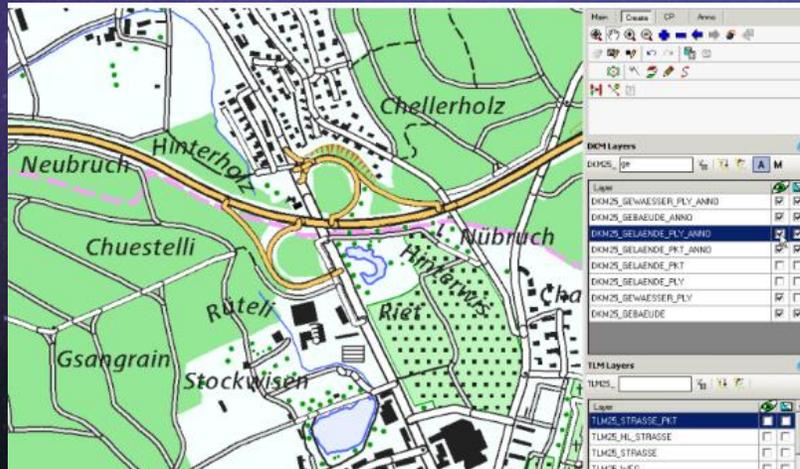
## Building construction workflow

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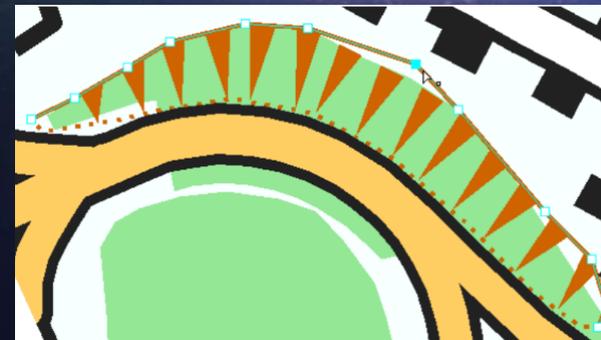


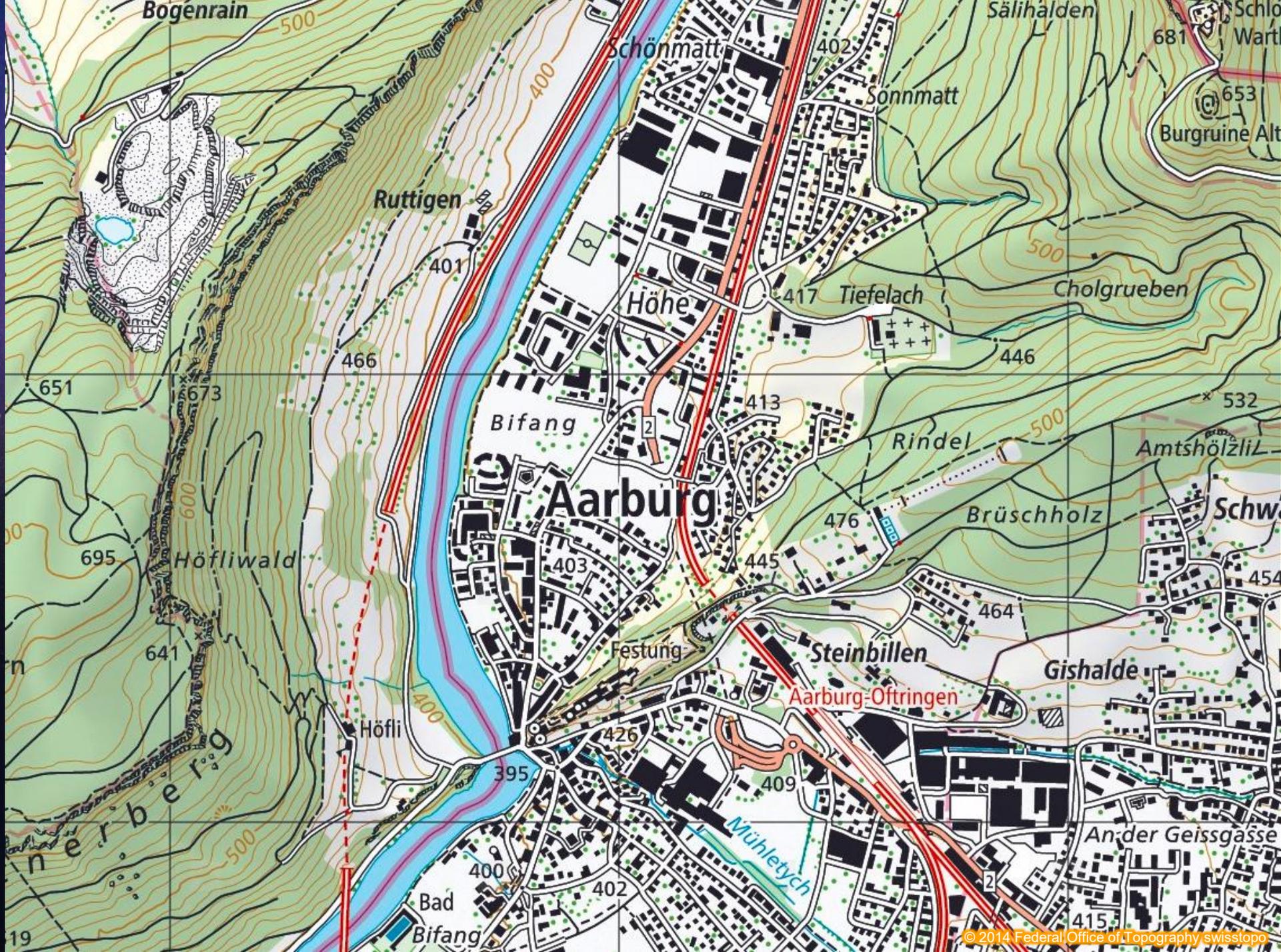
# Examples Carto Tools

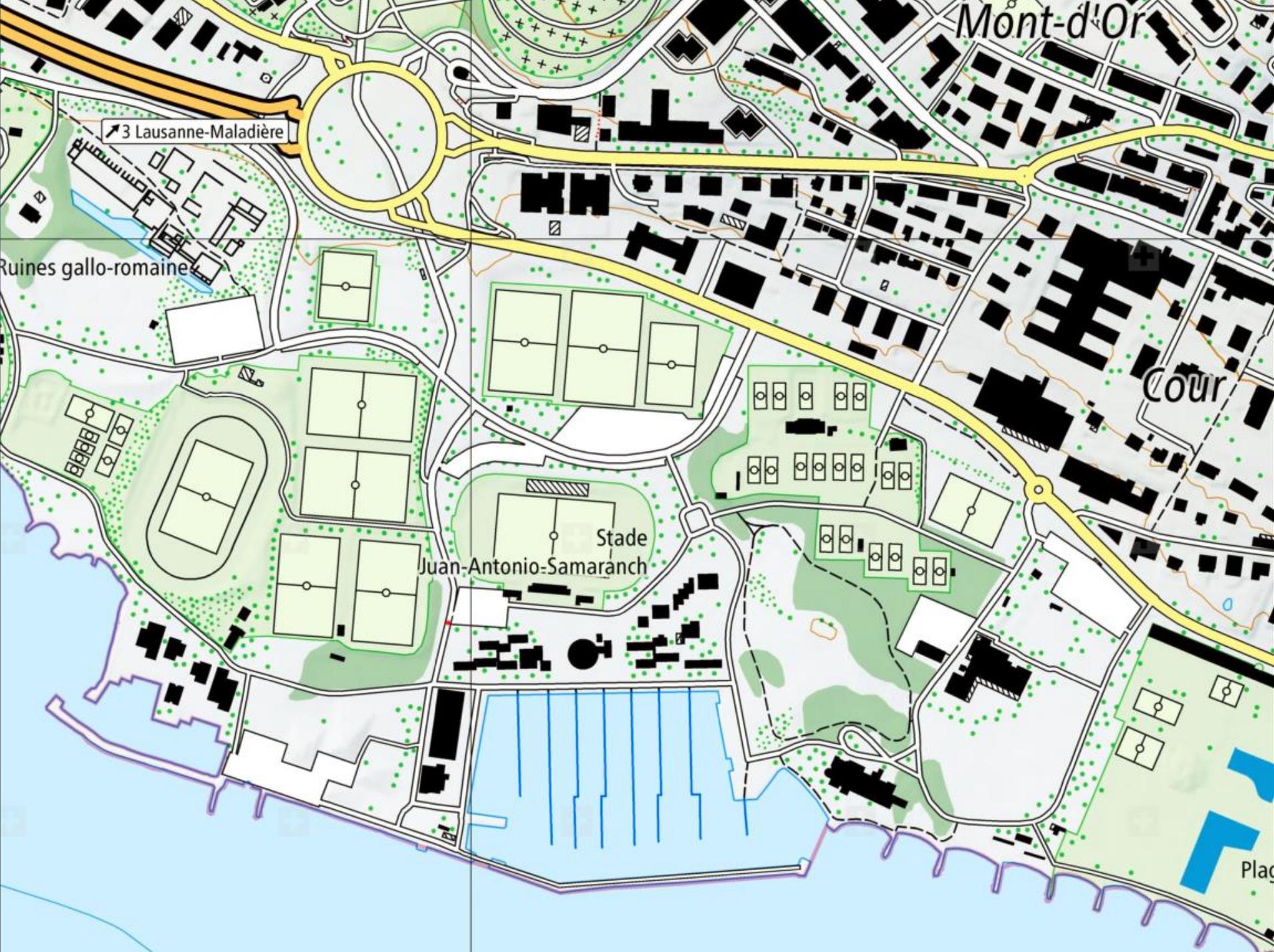
masks of annotations



Tool to Create Escarpment Symbology for selected Features







Mont-d'Or

3 Lausanne-Maladière

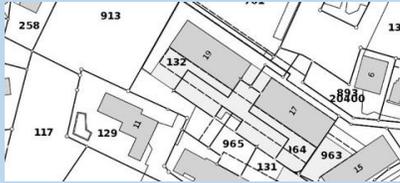
Ruines gallo-romaine

Stade  
Juan-Antonio-Samaranch

Cour

Plac

## Data sources



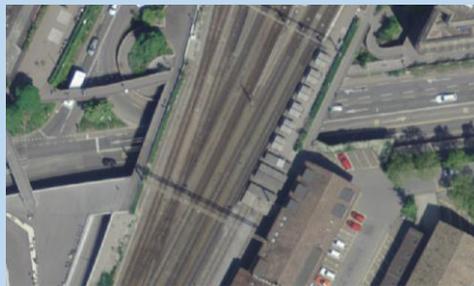
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## GoTop



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field verification



2D and 3D landscape models

## K2

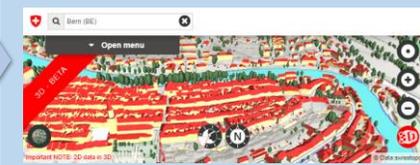


Automatic generalization  
cartographic refinement



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## Data shop



# Project Goals

## «GoTOP»

## «K2»

### Contents

Infrastructure for the **production** of the Swiss **3D landscape model** (TLM, DTM, DEM ....)

Infrastructure to derive **cartographic products** (1 : 10.000 - 1 : 1.000.000) printed digital raster/vector

### Customer's key points

- Topgis migration & upgrade
- improved update-cycle
- increased automation
- stereo integration

- Genius-DB migration & upgrade
- improved update-cycle
- incremental update
- interactive cartographic editing

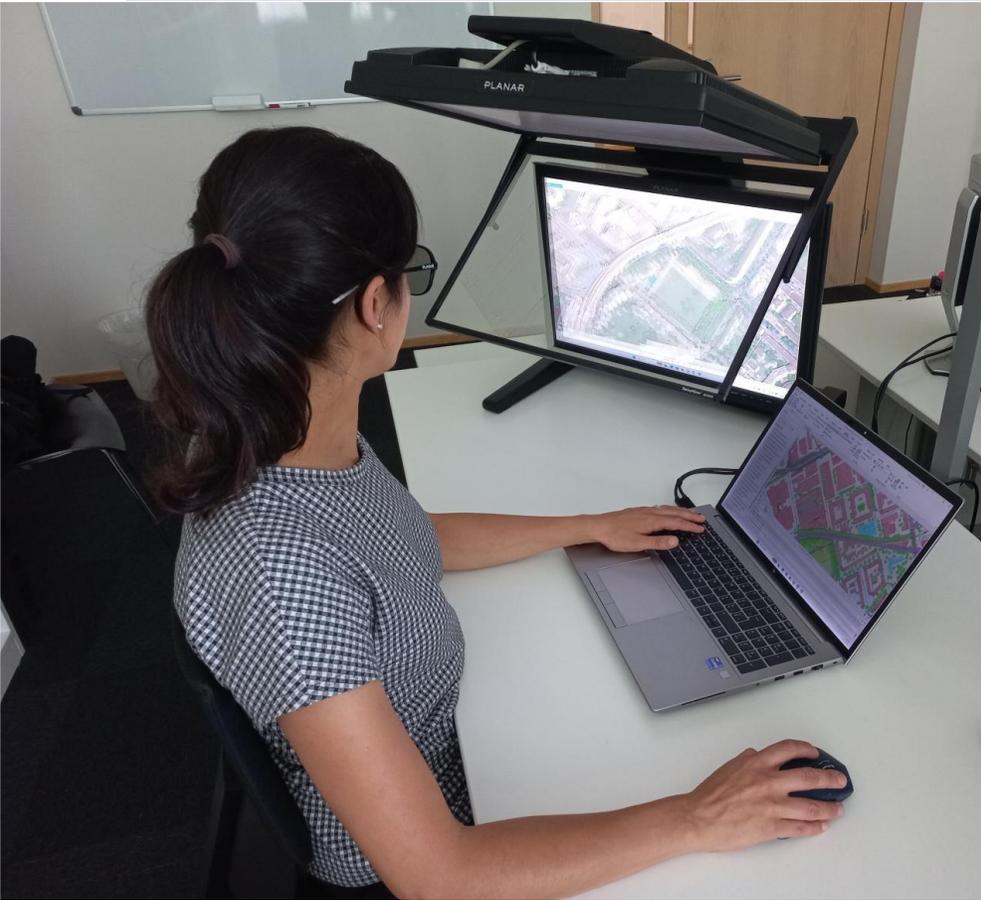
### Challenges

technology, complexity, duration (13/7 years), agile method, .....

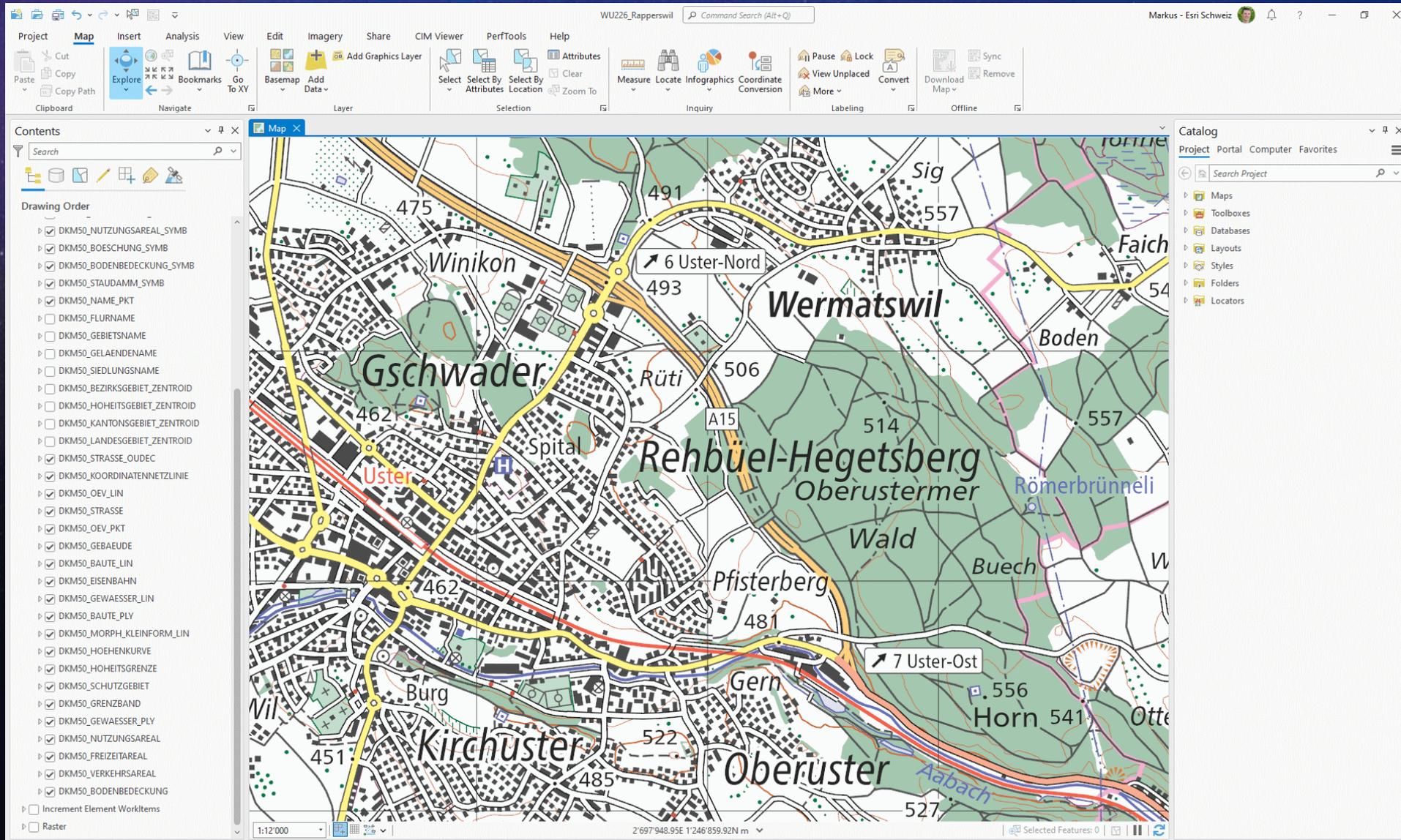
# Stereo Editing in ArcGIS Pro (GoTop)

The screenshot displays the ArcGIS Pro interface. The main map shows a 3D terrain model with a cyan grid overlay. A blue line and a red line are drawn on the terrain, with yellow labels '270563' placed along them. The 'Contents' panel on the left lists various layers under 'Drawing Order', including 'TLM\_3D\_Case\_1' and 'TLM\_EINZELBAUM\_GEBUESCH'. The 'Stereo Model Selector' panel on the right shows a zoomed-in view of the terrain and a table with the following data:

ID	Left image	Right image
1	20211001_0943_	20211001_09
2	20211001_0943_	20211001_094
3	20211001_0943_	20211001_094

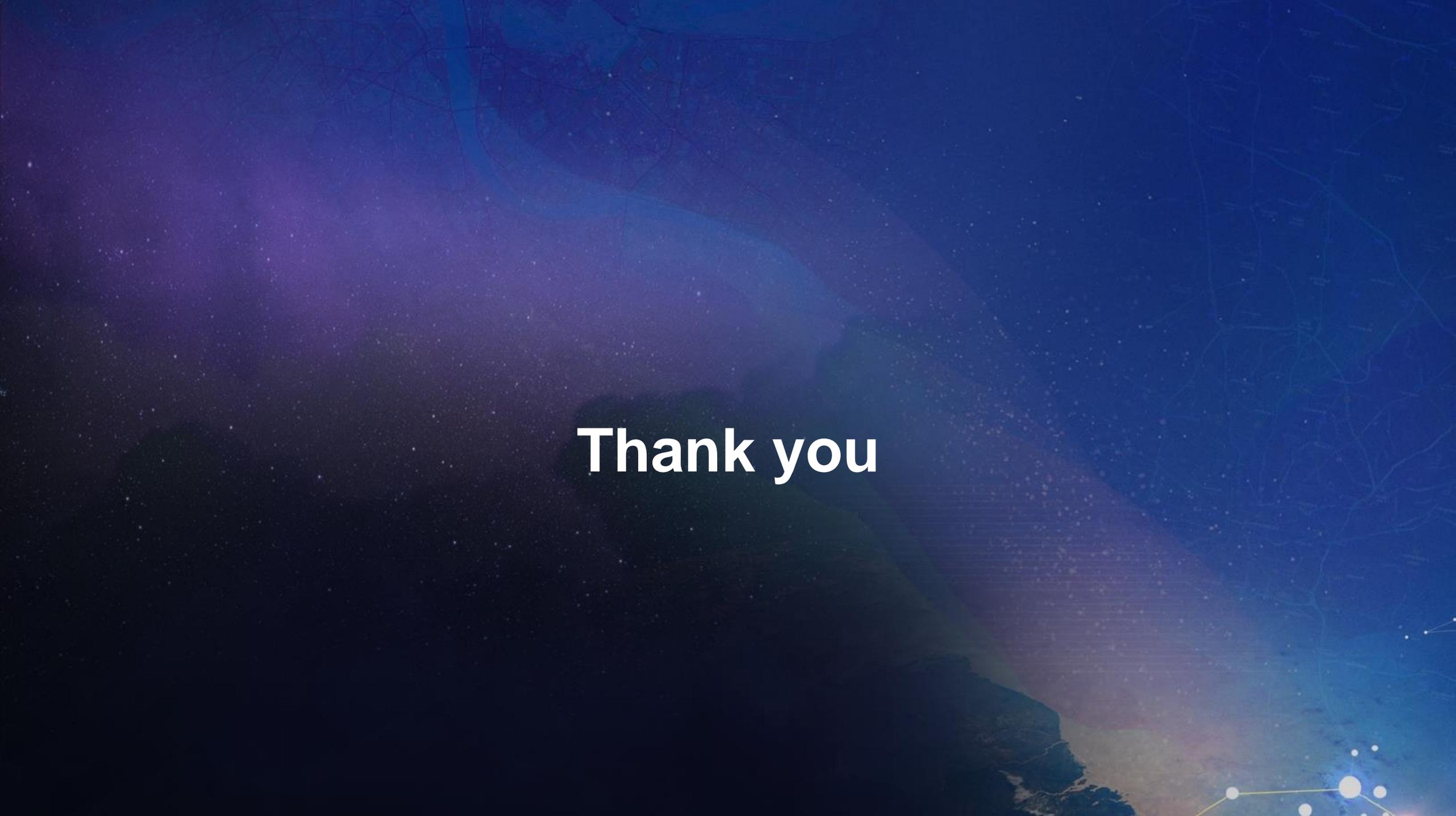


# Highend Carto Workflows in ArcGIS Pro (K2)



...makes it possible





**Thank you**