# Assessment of standards-compliant Web Mapping Tools for Atlas Creation

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# Atlas of Switzerland

# Data Formats and Map Creation

Graphics Data Map Desc AoS-Map
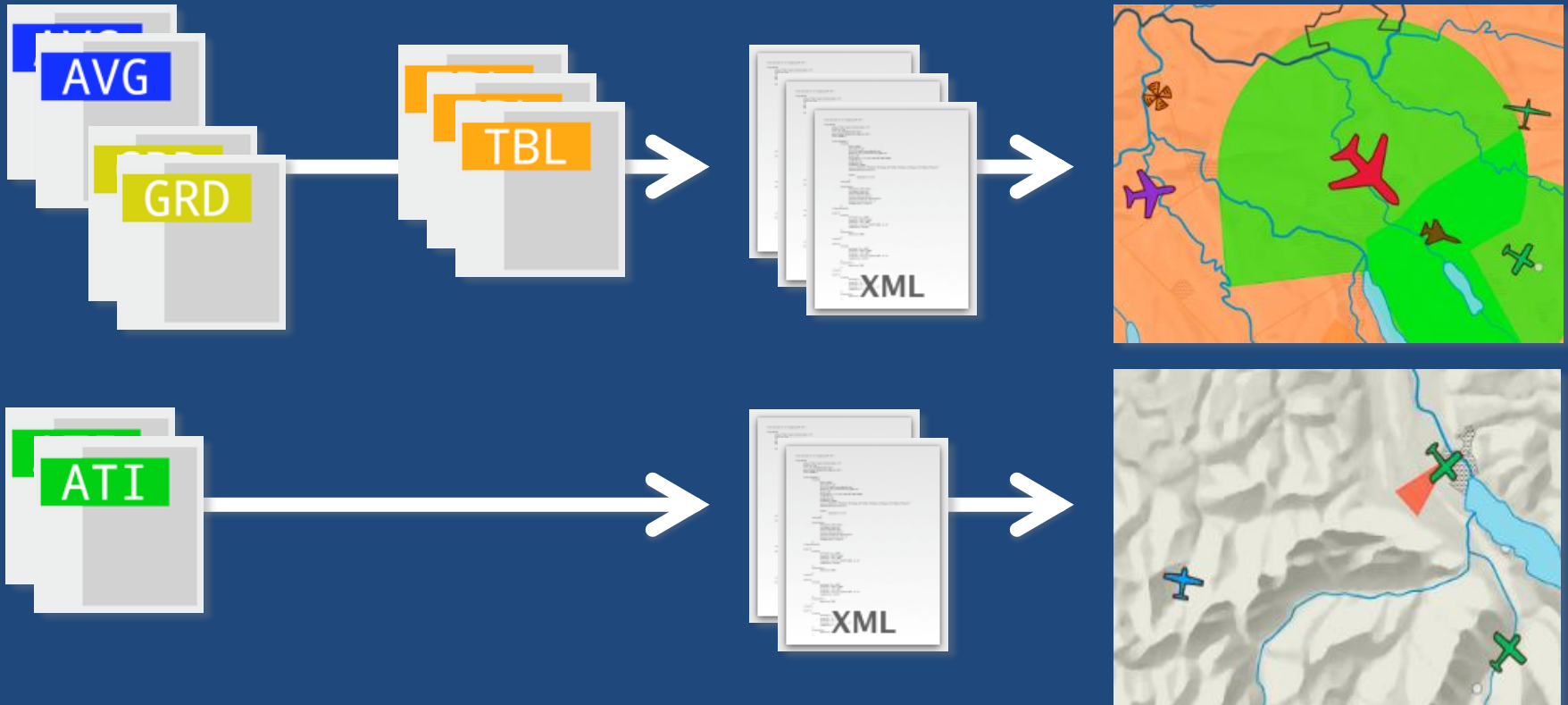
# Atlas of Switzerland

| | | | |
|---|---|---|---|
| 2000 | AoS 1 | 14,700 | CD-ROM |
| 2004 | AoS 2 | 7,600 | CD-ROM/DVD |
| **2010** | **AoS 3** | **1,700** | **DVD** |
| | **AoS 3 Trial** | **15,222** | **Downloads** |
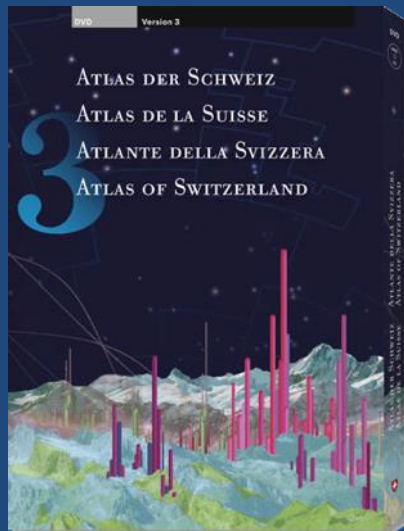
# Media Consumption in Switzerland



1.4 Mio

5.1 Mio Internet User

Daily Media Consumption

Change in Daily Media Consumption
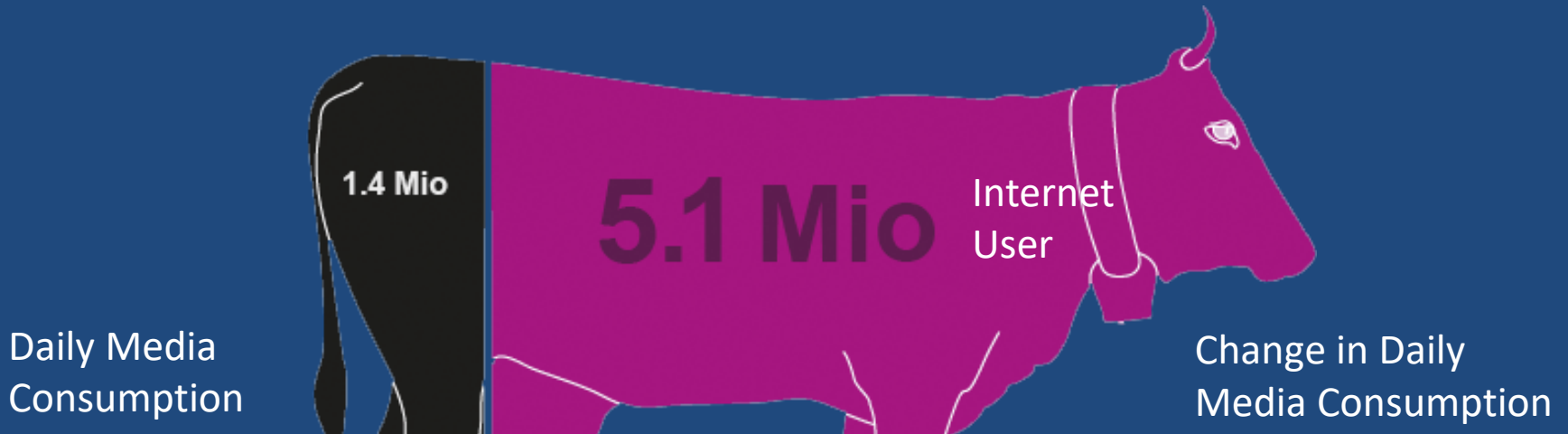
Tägliche Mediennutzung 2009*

53 Minuten
86 Minuten
34 Minuten
82 Minuten

Veränderung Mediennutzungsdauer 2004 → 2009*

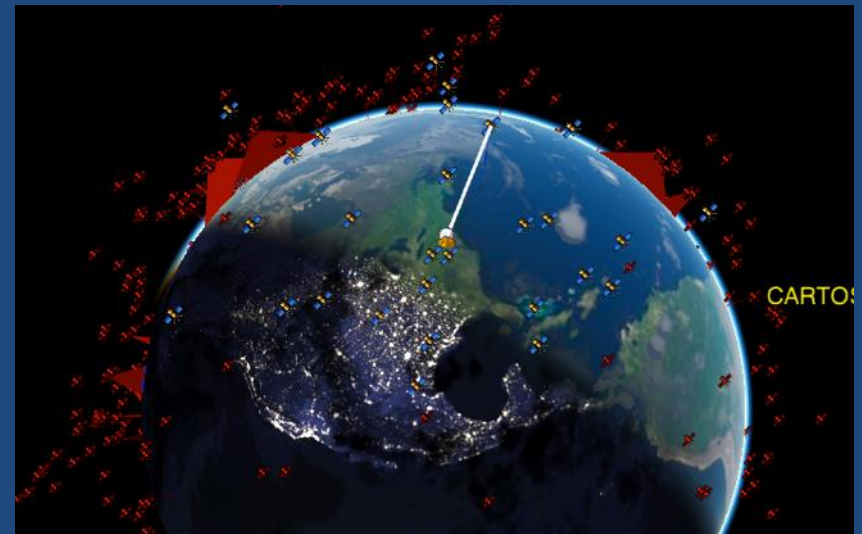| Internet | ↗ 19% | |
| TV | ↗ 1% | |
| Zeitung | → 0% | |
| Radio | ↘ 11% | |
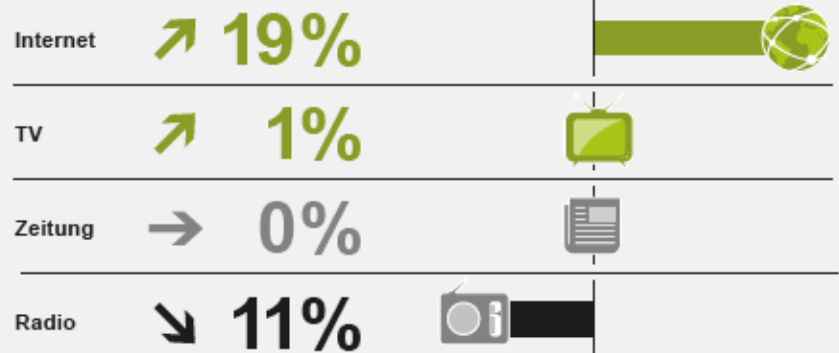
*Durchschnittswert bei Personen ab 15 Jahren

# Progress in Technology

- Online Atlases and Geovisualisation Platforms
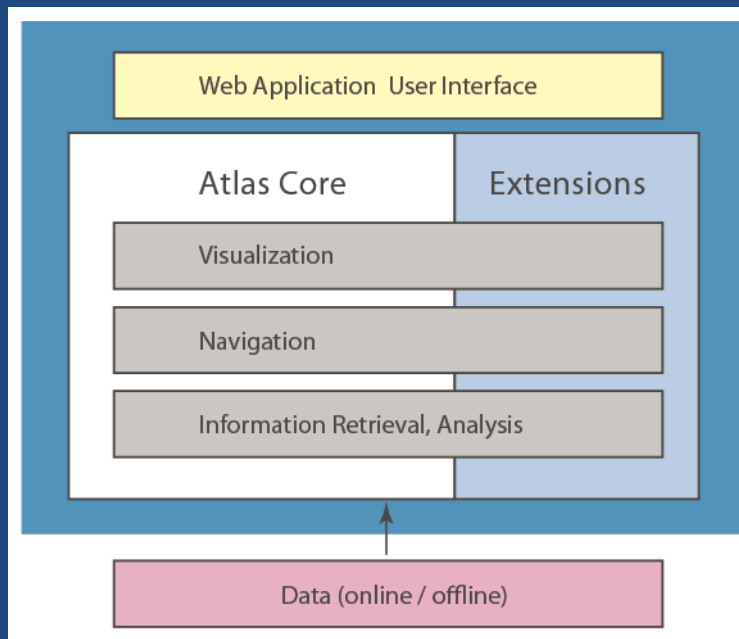- 3D Visualisation Engines / Virtual Globes
- Mobile Apps



© UpNext HD maps [Amazon]

© cesium.agi

# The new Atlas of Switzerland

2012        Project launch

2014/15     AoS-online (Basic version)

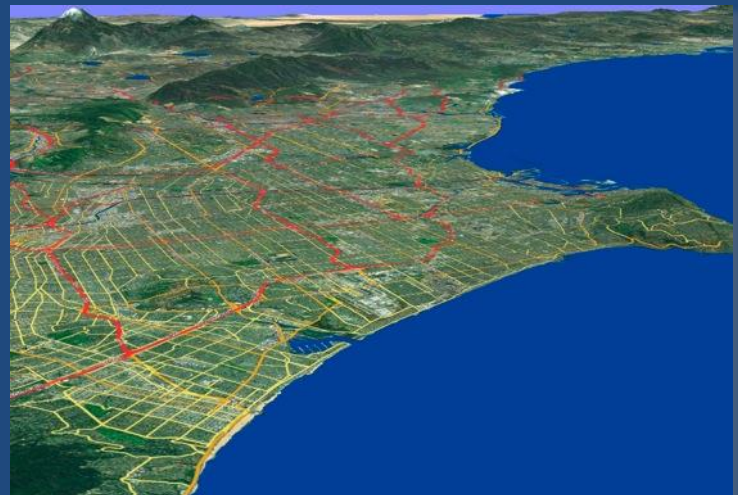2016ff      AoS-online (Extended version)

# Main Features of the new AoS

- Online Atlas

- 3D Atlas (2D maps and 3D maps)

- Visualisation based on Virtual Globe Technology
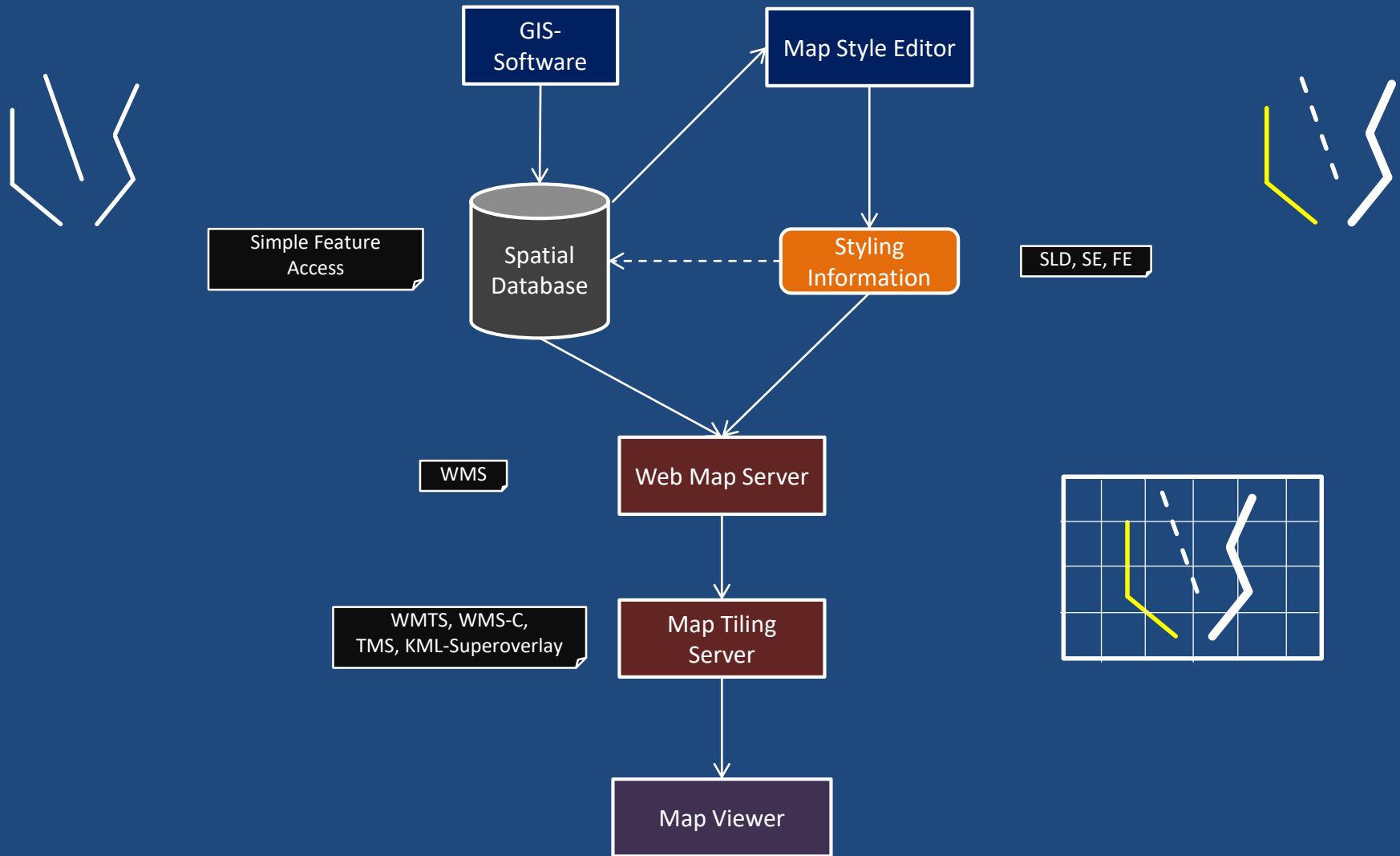
- Web Mapping Standards

osgEarth
[Pelican Mapping]

# Benefits of using web standards

- Time savings when integrating new materials into the atlas

- Partners and students are able to reuse the maps in their own applications

- Users might be able to contribute their own maps in future

# Web Mapping Workflow

GIS-Software

Map Style Editor

Simple Feature Access

Spatial Database

Styling Information

SLD, SE, FE

WMS

Web Map Server

WMTS, WMS-C, TMS, KML-Superoverlay
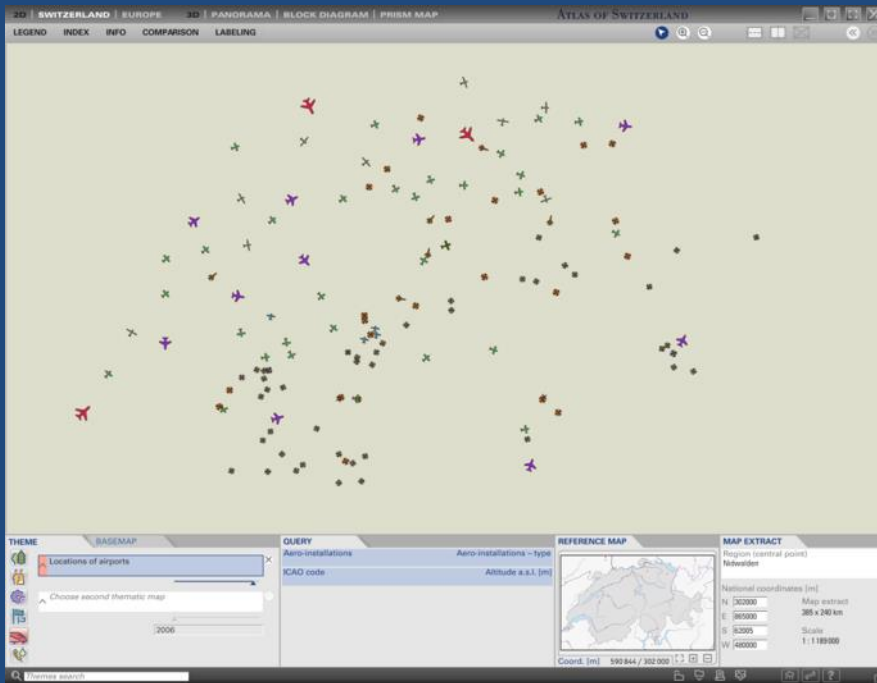
Map Tiling Server

Map Viewer

# Methods

- Assessed 25 web mapping tools
  - Compared their features
  - Tested different configurations

- Wrote Python scripts
  - To convert existing datasets according to web mapping standards
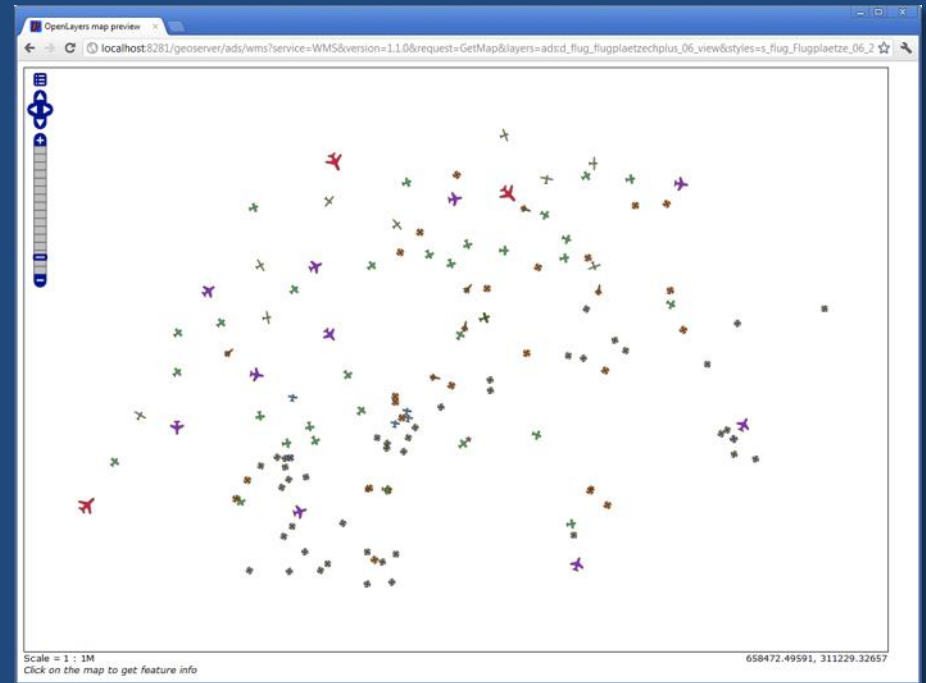  - To configure web mapping tools

# Web Mapping Tools
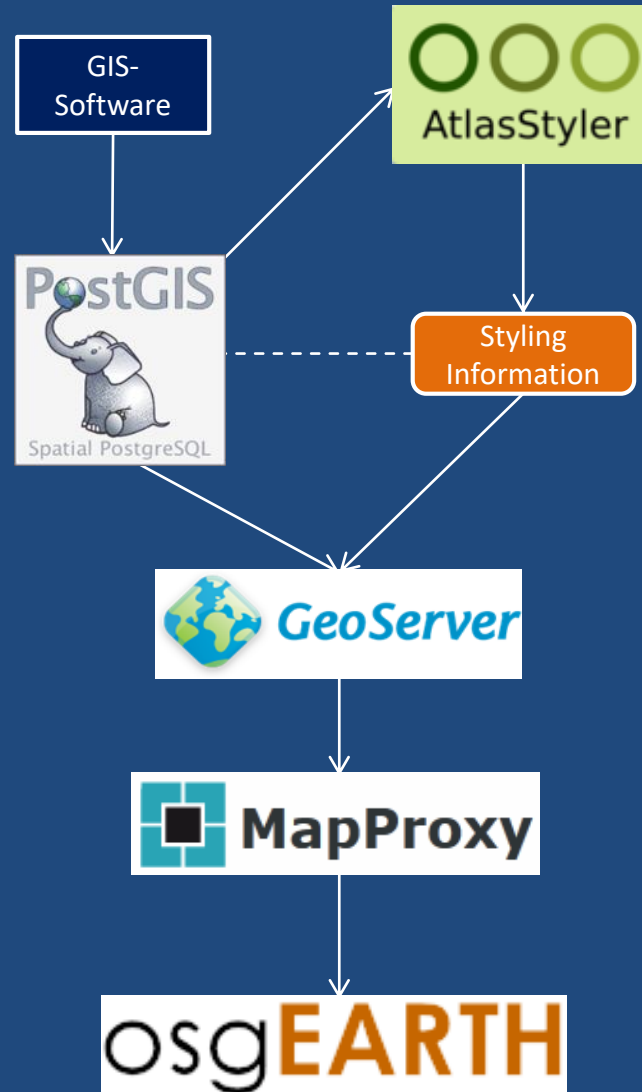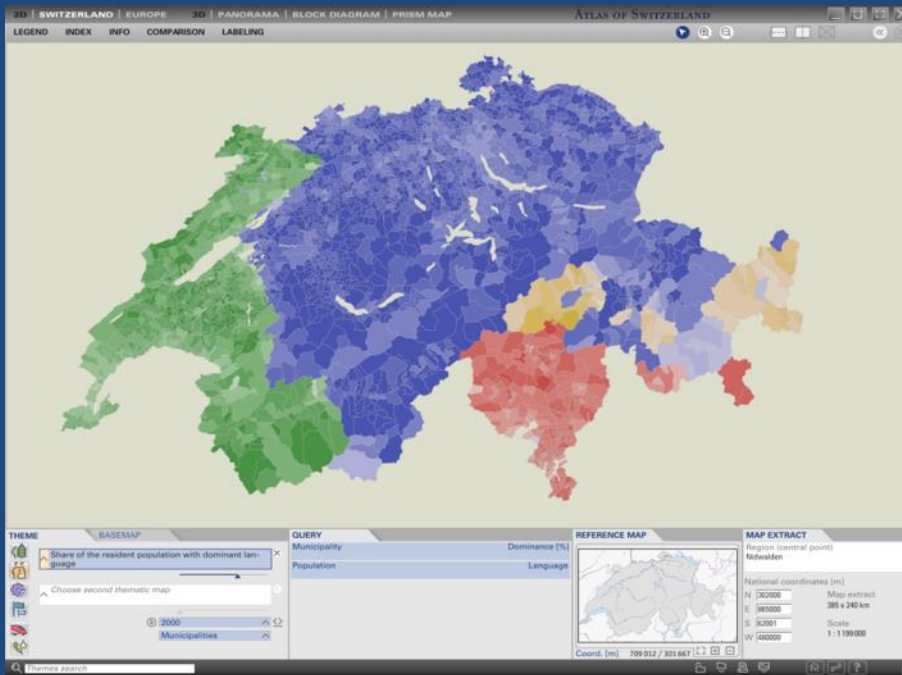
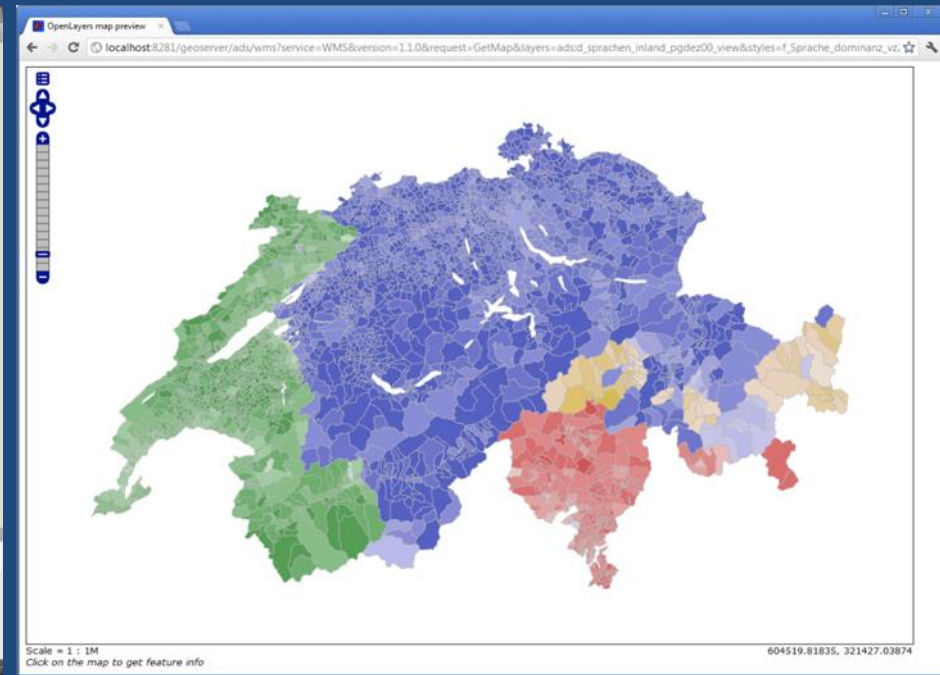# Results: Symbol map



Atlas of Switzerland 3



Web mapping replication (OpenLayers)

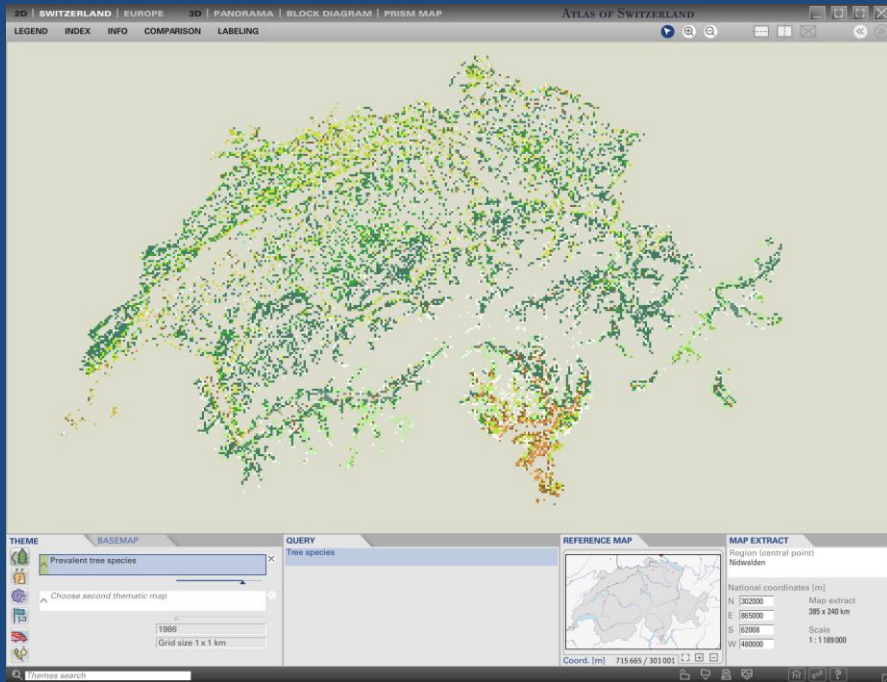# Results: Multivariate map



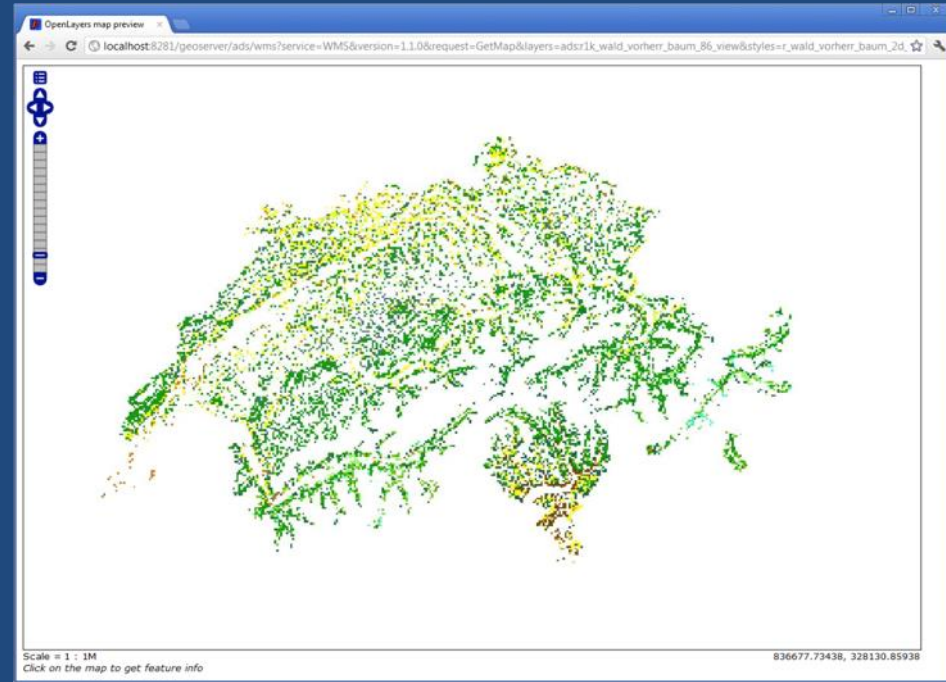Atlas of Switzerland 3

Web mapping replication (OpenLayers)
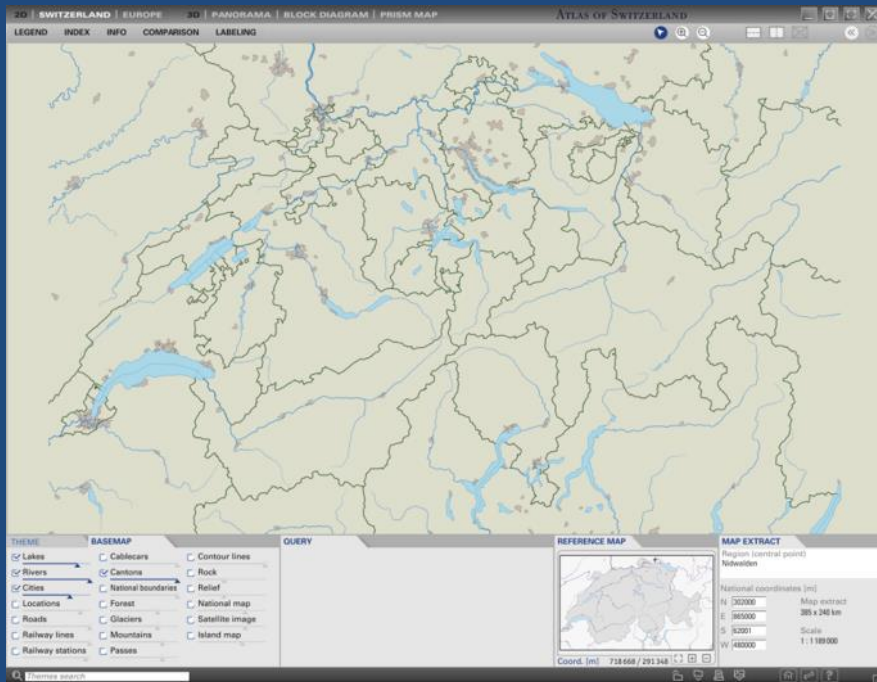
# Results: Raster Map
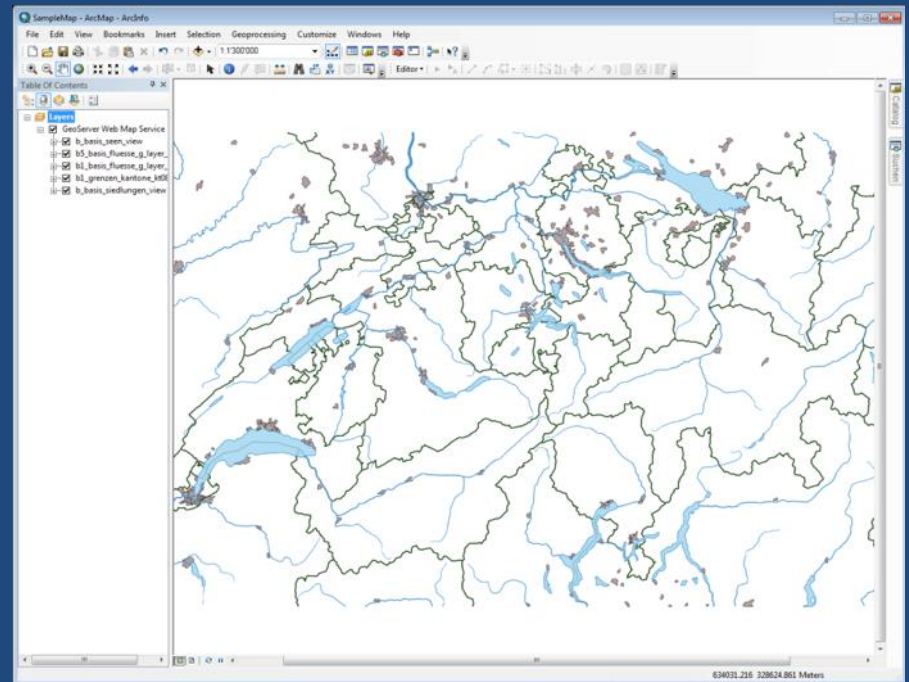


Atlas of Switzerland 3

Web mapping replication (OpenLayers)
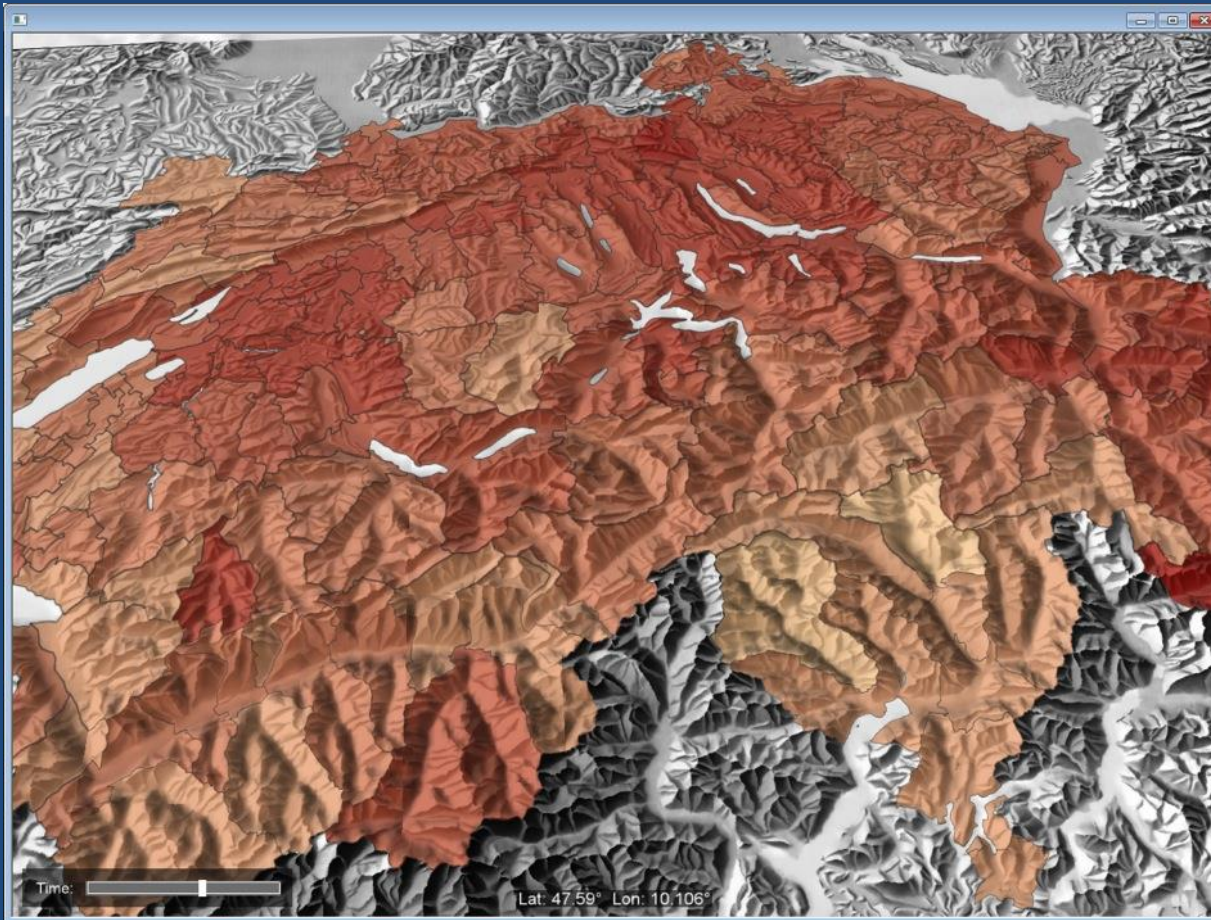
# Results: Combined Layers
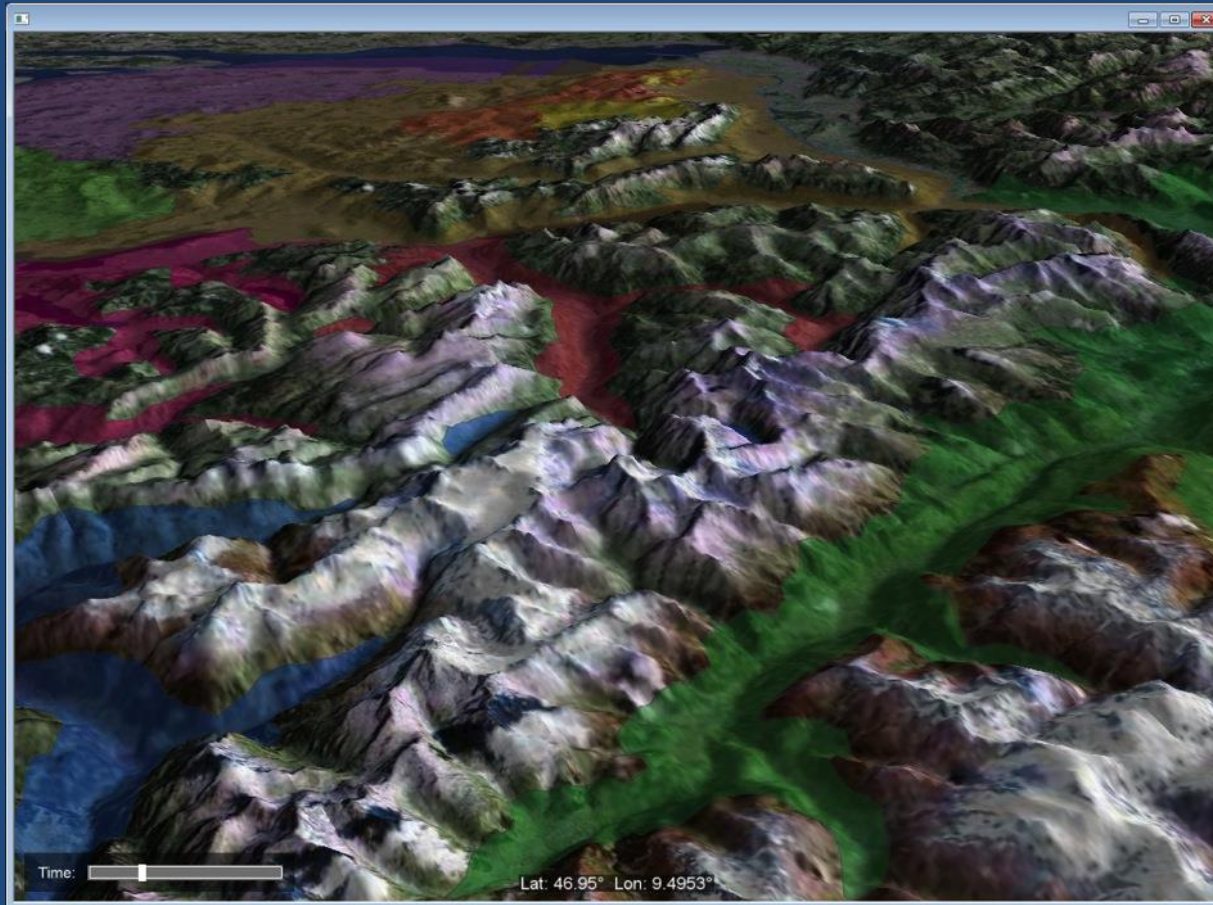


Atlas of Switzerland 3



Web mapping replication (ArcGIS)
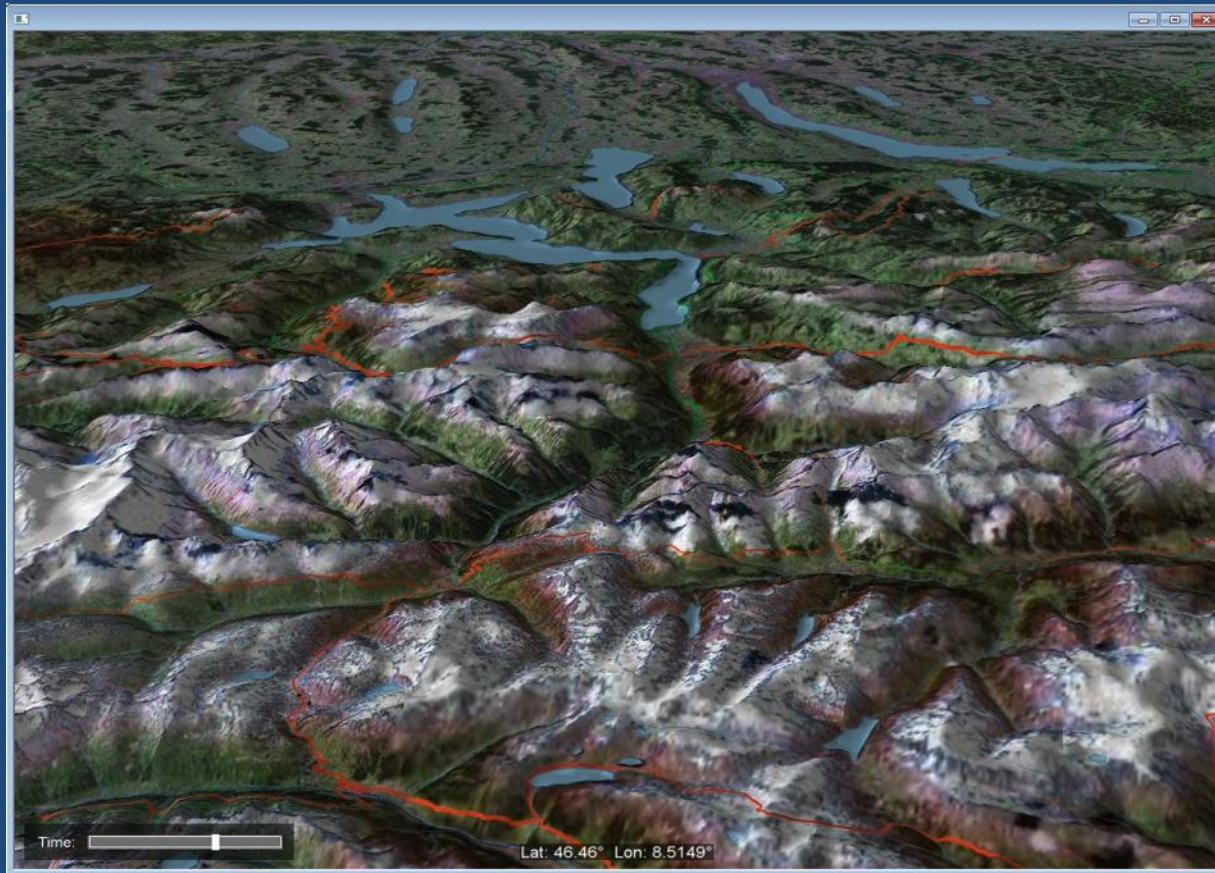
# Results: Choropleth Map



Web mapping replication (osgEarth)
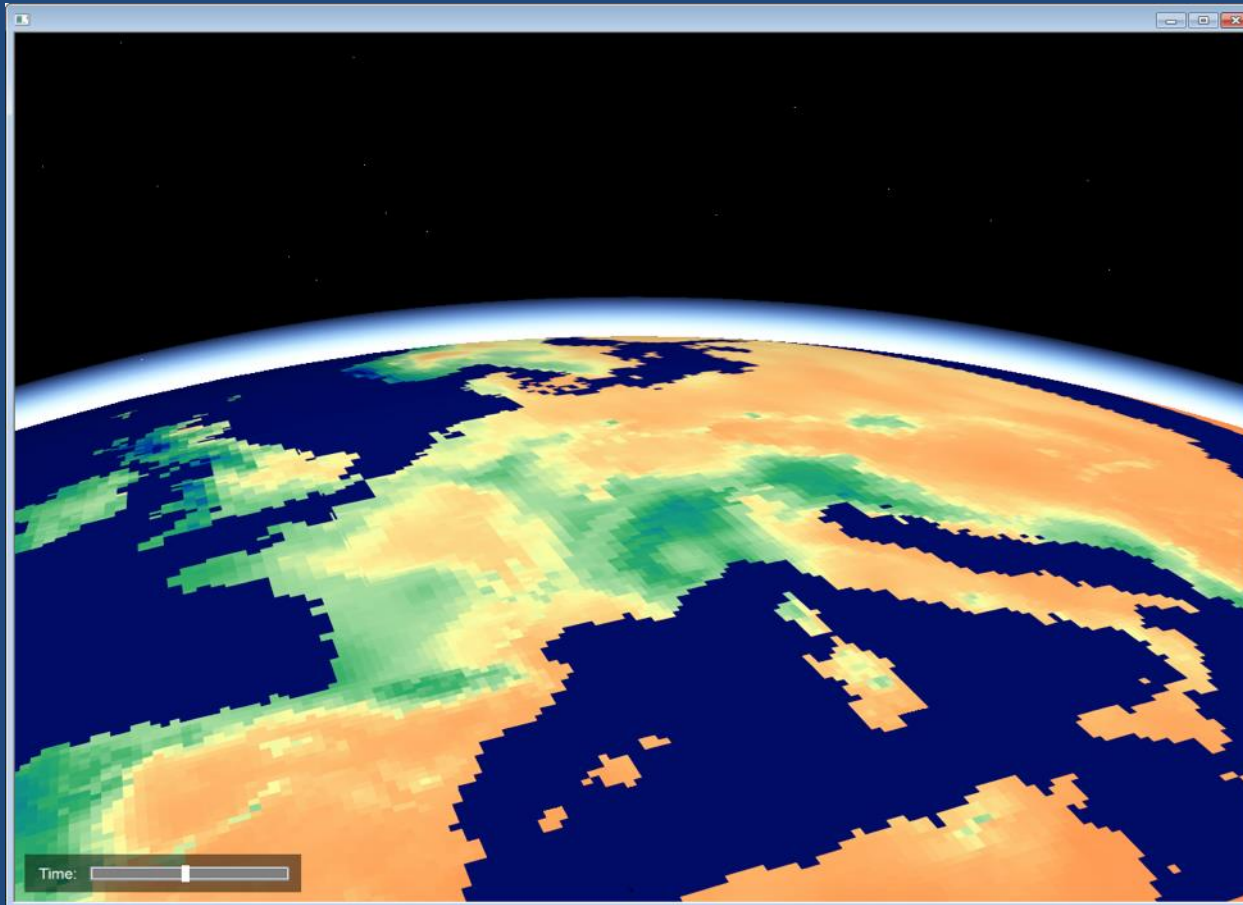
# Results: Choropleth Map



Web mapping replication (osgEarth)

# Results: Polygons and Lines



Web mapping replication (osgEarth)
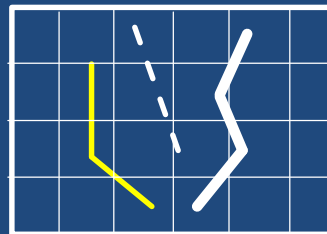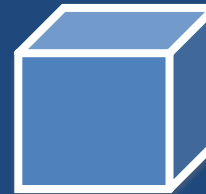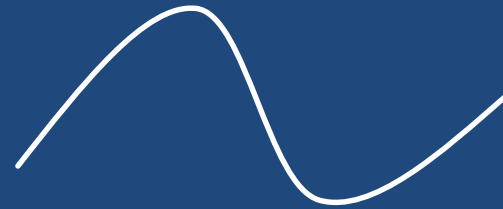
# Results: Raster Map



Web mapping replication (osgEarth)

# Conclusion

Approximately **85%** of the current map stock of the Atlas of Switzerland 3 can be transformed using web mapping standards and visualised on a virtual globe afterwards.

# Open issues

- Bézier curves
- Charts
- Solids
- Vector tiling
- Security

# Thank you for your attention!

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