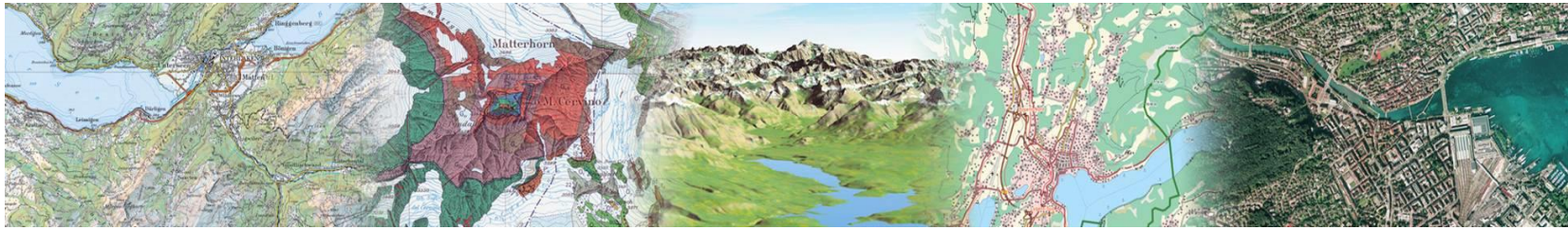
Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

armasuisse
Bundesamt für Landestopografie swisstopo
Grundlagen zum Raummonitoring



wissen wohin
savoir où
sapere dove
knowing where

swisstopo

EuroSDR – Historical data

Seminar – specific projects

17. Oktober 2014

H. Gollin

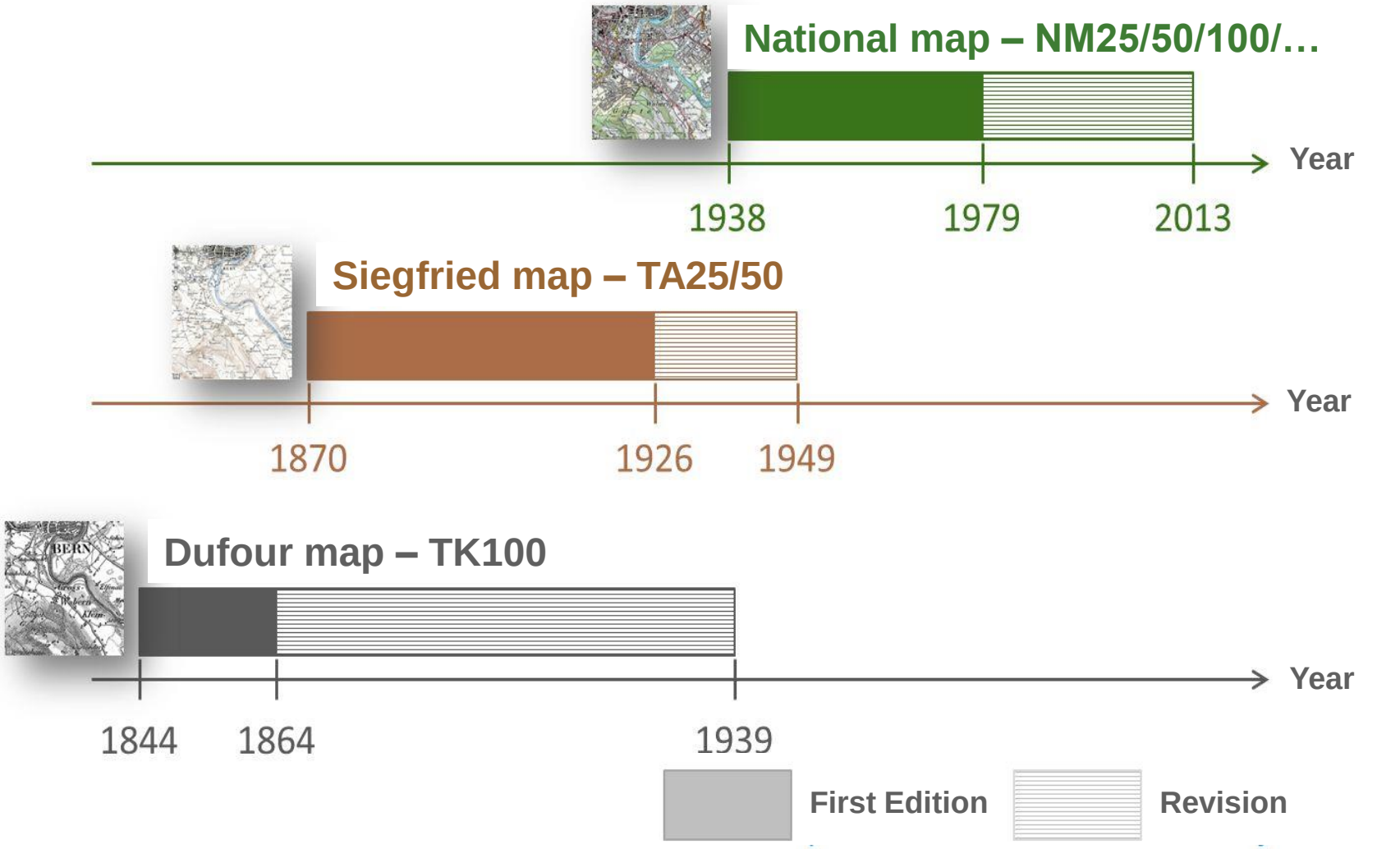
Topics

- «Journey through time»
- «LUBIS»
- «Ellipse» – Archiving of geodata

Historical maps
Key data

- foundation in 1838 as «Bureau topographique fédéral» by general Guillaume-Henri Dufour
- 3 national map series (Topographical Map of Switzerland 1:100.000, Topographical Atlas 1:25.000/1:50.000, National Maps in different scales).
- ca 29,000 printed maps
- ca 23,000 manuscript maps (hand-drawn originals),
- ca 3,500 copper plates and 450 lithograph plates
- ca 80 additions every year

Overview of Swiss national map series



Journey through time
with the Swiss National Map series

Idea: obvious, when all maps are already existing

Federal Act on Geoinformation (Geoinformation Act):

- view services for all official geodata under federal legislation

Cultural heritage of national significance:

- “Topographical landscape memory of Switzerland”

Publish the “treasure” in the form of a web service

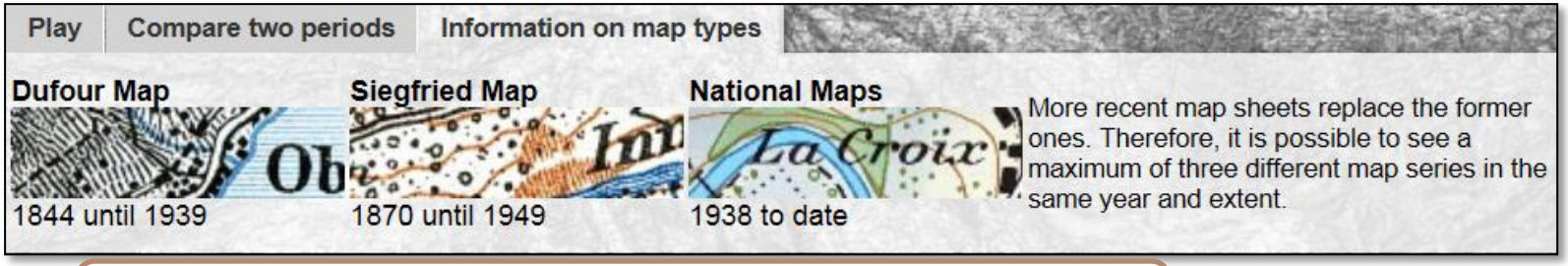
Journey through time
Realisation

- all maps had to be scanned with high resolution (508 dpi)
  → project HIKS (Historische Karten scannen) from 2003 onwards.
- All data sets were geo-referenced (spatial reference information was allocated to the map files)
- the map bibliographical metadata was captured within Alexandria (library network of the Swiss Federal Administration)
  → metadata can be requested at any point position of the cursor.

Journey through time
Realisation

- «Journey through time» with the national map series
  - 1:25’000
  - 1:50’000
  - 1:100’000
- All the geo-referenced map files and the links to their bibliographical metadata were first integrated into the RAHDIS data base (Raster- und Höhendaten-Informationssystem)
- http://map.swisstopo.admin.ch/

Journey through time
Functionalities



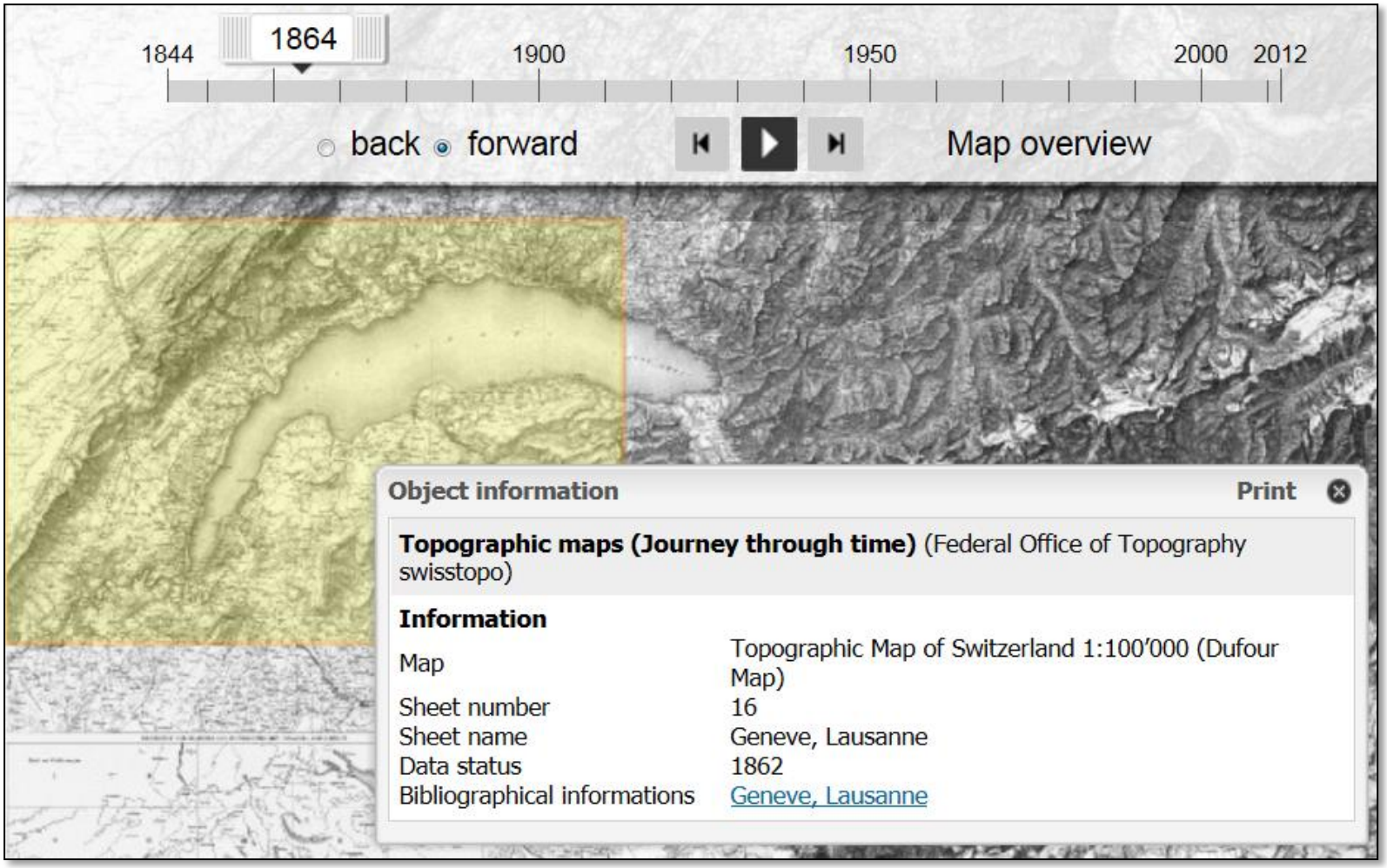
Play

Compare two periods

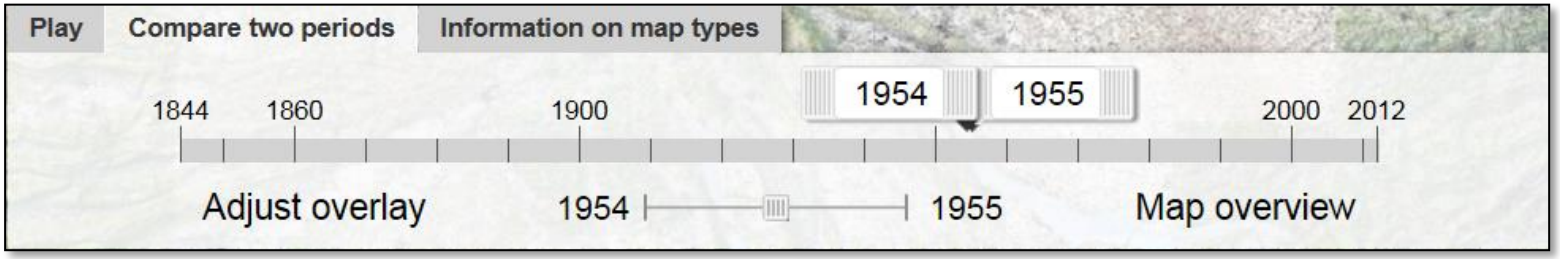
General Functionality

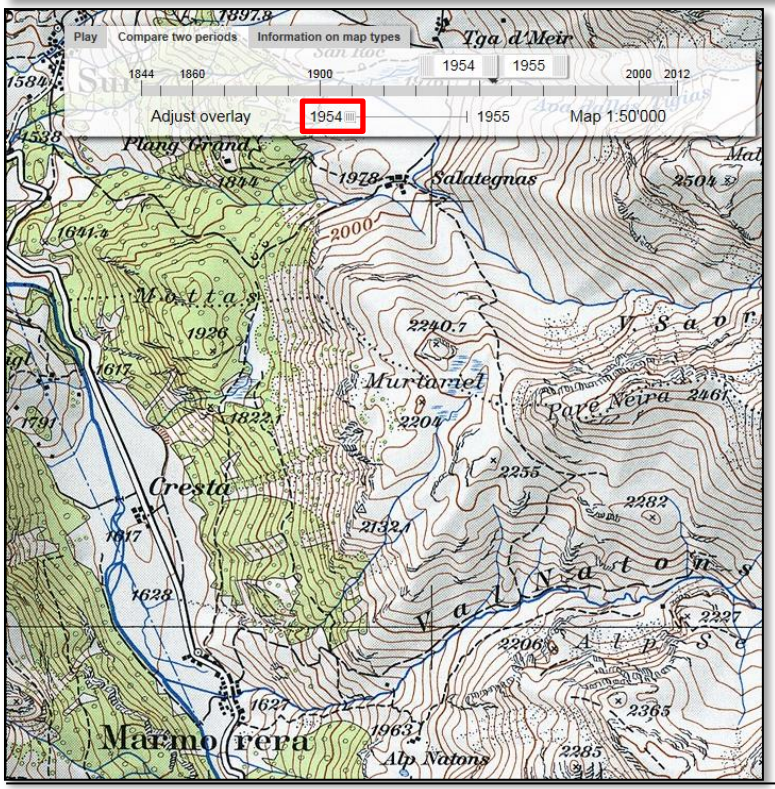
- **Link / share**
- **Advanced functions** (draw / measure)
- **Print**
- Help

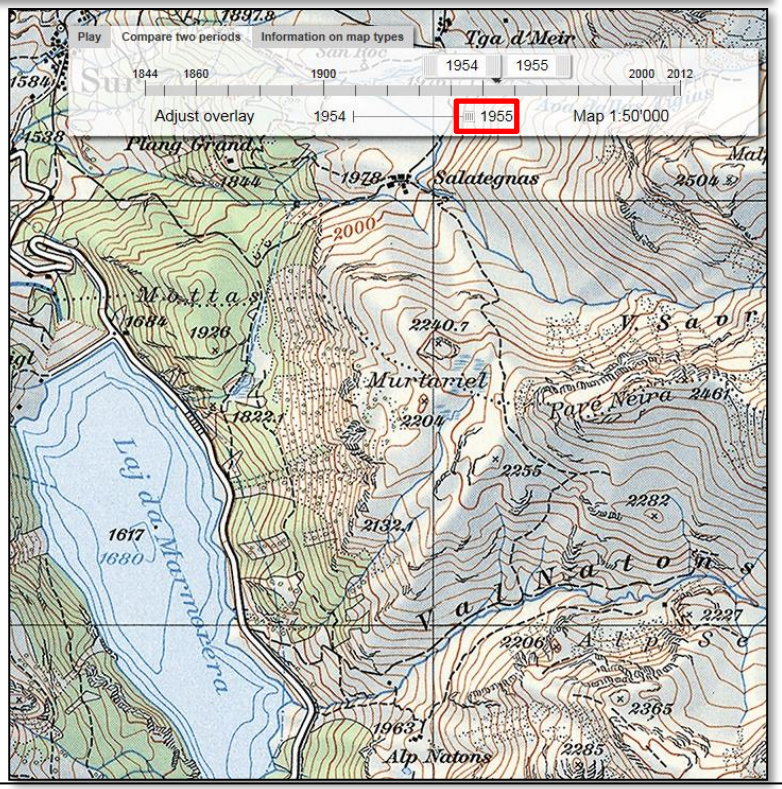
Journey through time
Functionalities



Journey through time
Functionalities

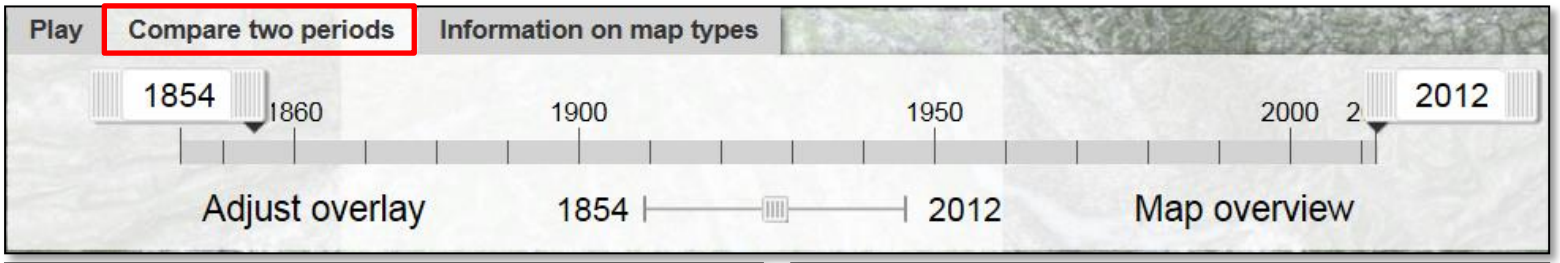


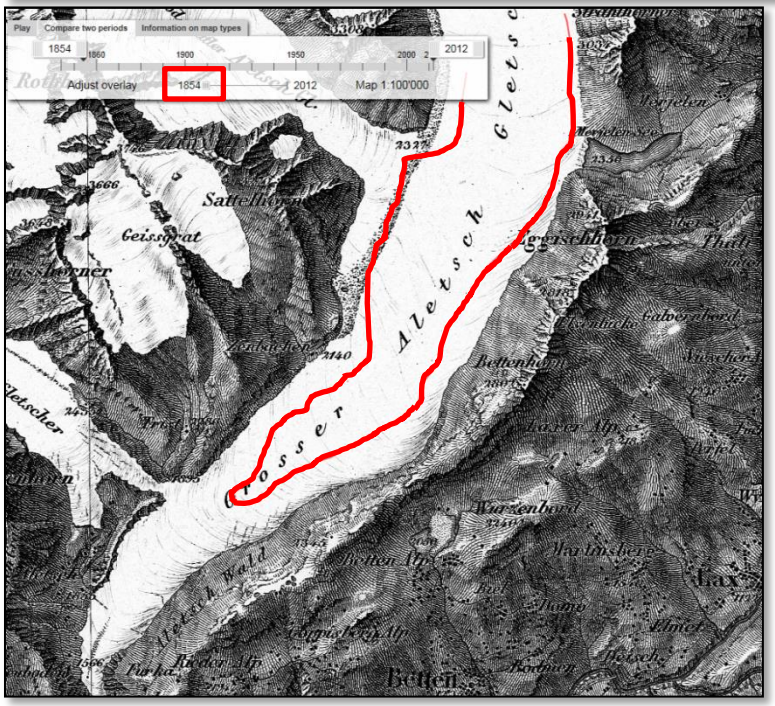


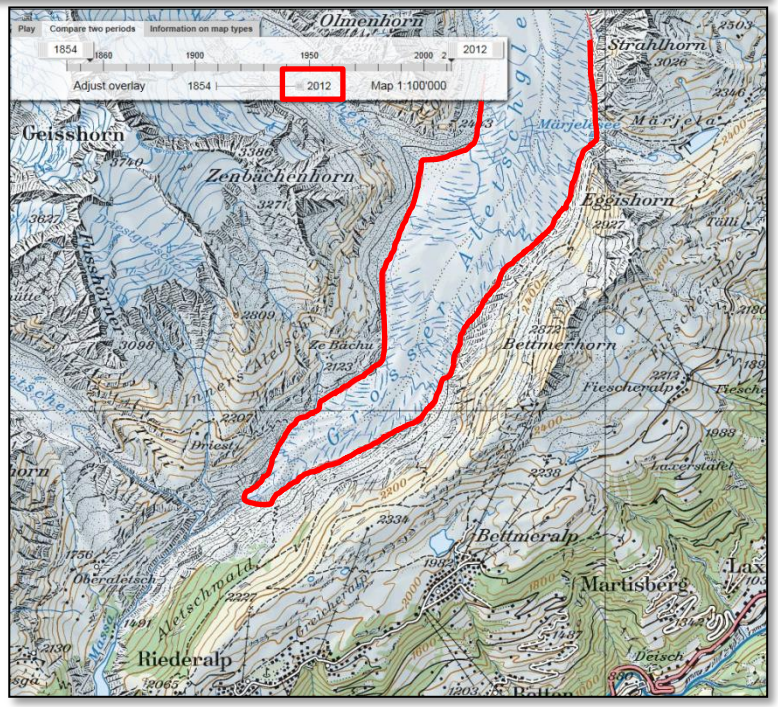


http://s.geo.admin.ch/59c27f075

Journey through time
Functionalities

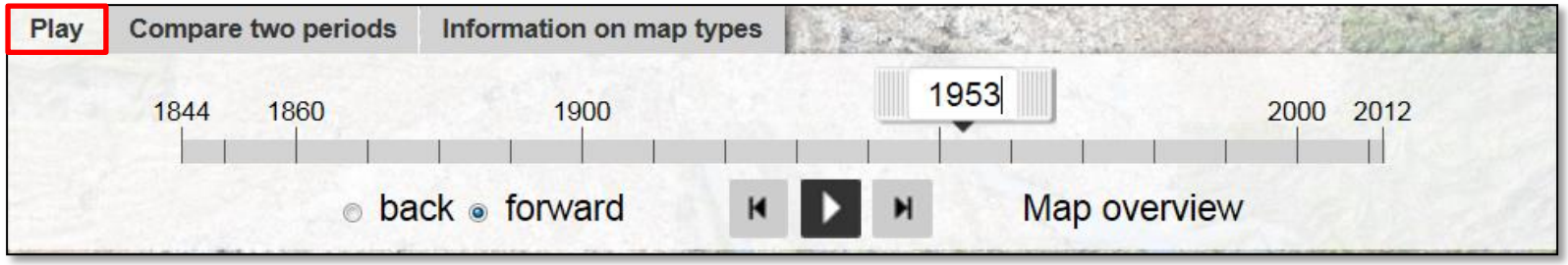






http://s.geo.admin.ch/339e28b3d

Journey through time
Functionalities

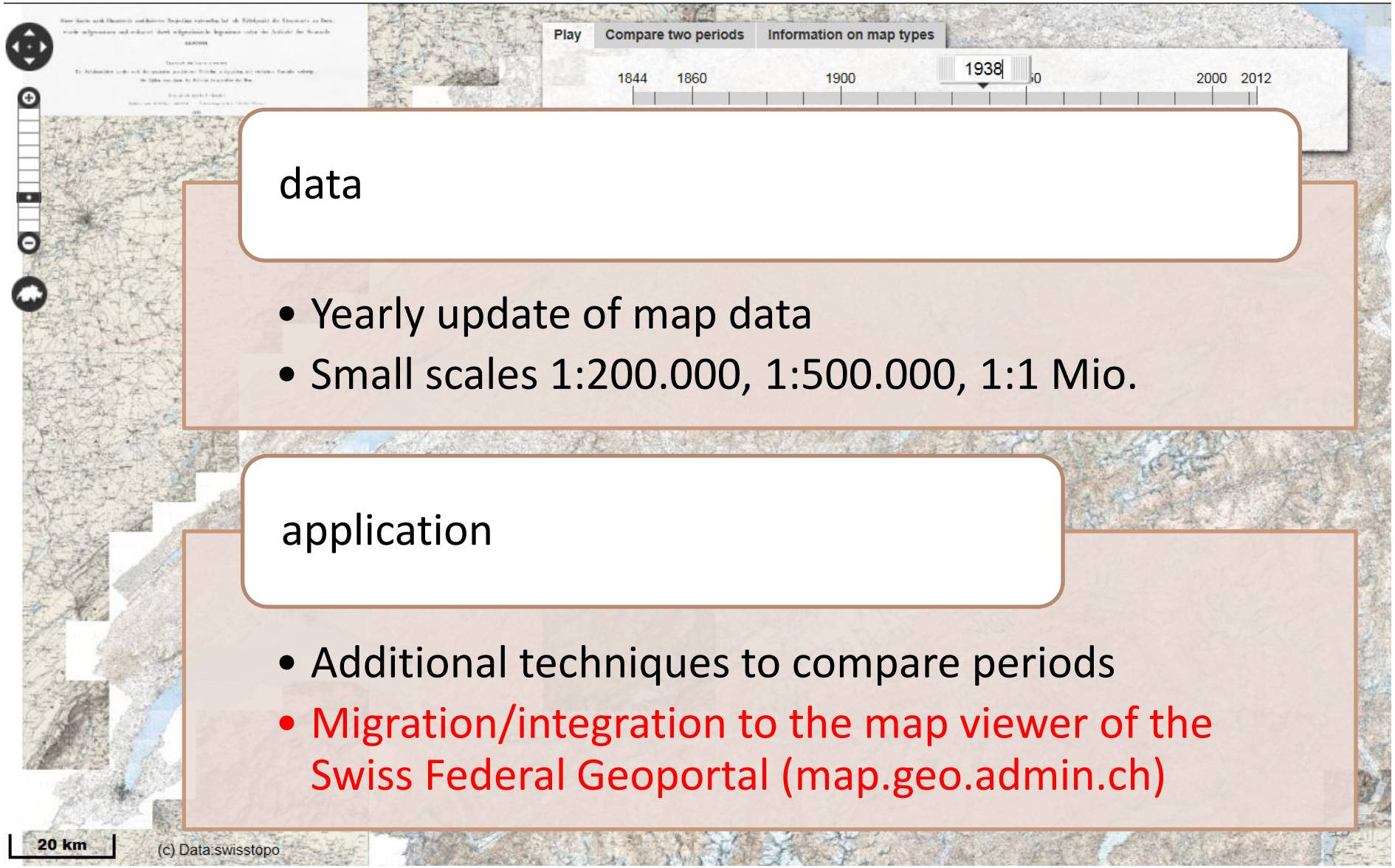


http://s.geo.admin.ch/50b753429

Journey through time
Experiences

- 2013 – 175th anniversary of swisstopo
- Within the first two days, over 50.000 visits were registered, and 70 million map tiles were downloaded, which corresponds to an average of more than 400 tiles per second and a transferred data volume of more than 2.5 TB
- Costs:
  - marginal compared to acquisition and production
  - much more expensive to only preserve data than to make them available in a state-of-the-art way
- Use Cases???

Journey through time
Outlook



data

- Yearly update of map data
- Small scales 1:200.000, 1:500.000, 1:1 Mio.

application

- Additional techniques to compare periods
- Migration/integration to the map viewer of the Swiss Federal Geoportal (map.geo.admin.ch)

Historical aerial & terrestrial images
Key data

- The collection comprises a total of about half a million images

- Terrestrial images since 1915
- Aerial photos since 1926
- Orthophotos since 1998
- Digital image strips since 2005

Historical aerial & terrestrial images

- The digitised images are accessible in the information system for aerial photographs LUBIS (Luftbild-Informationssystem)
- LUBIS is continuously filled with digitised historical images and new digital image stripes
- Since April 2014 the (digital) images are accessible in the LUBIS Dataviewer
- The LUBIS Dataviewer is an application, based on the federal geoportal
- Images are displayed with a footprint and meta-information
- LUBIS Dataviewer

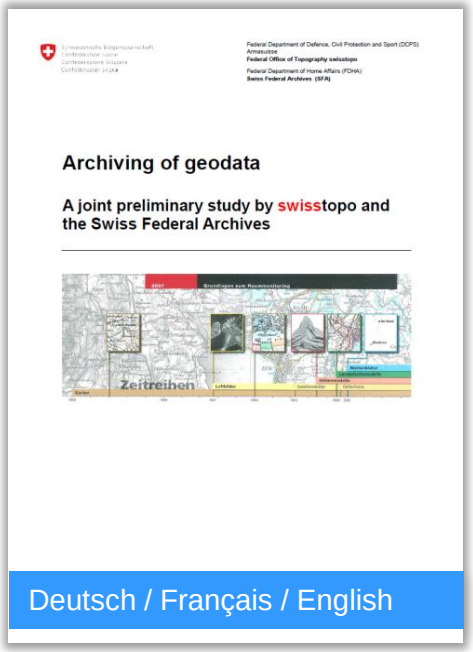
LUBIS Dataviewer
Outlook

- swisstopo plans to digitise and catalogue the entire inventory of images and make them generally accessible till 2020 (320’000 are done)
- Search will be possible over a period of time, not only a point in time
- Other forms of usage: Storymaps

Project Ellipse
Archiving of geodata

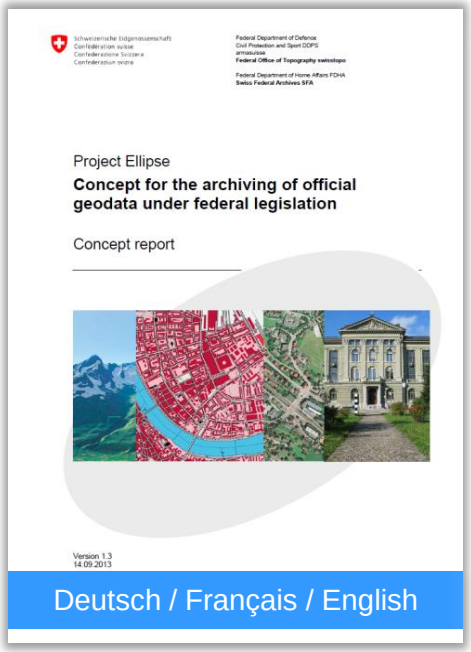
2009 – 2010

Preliminary Study



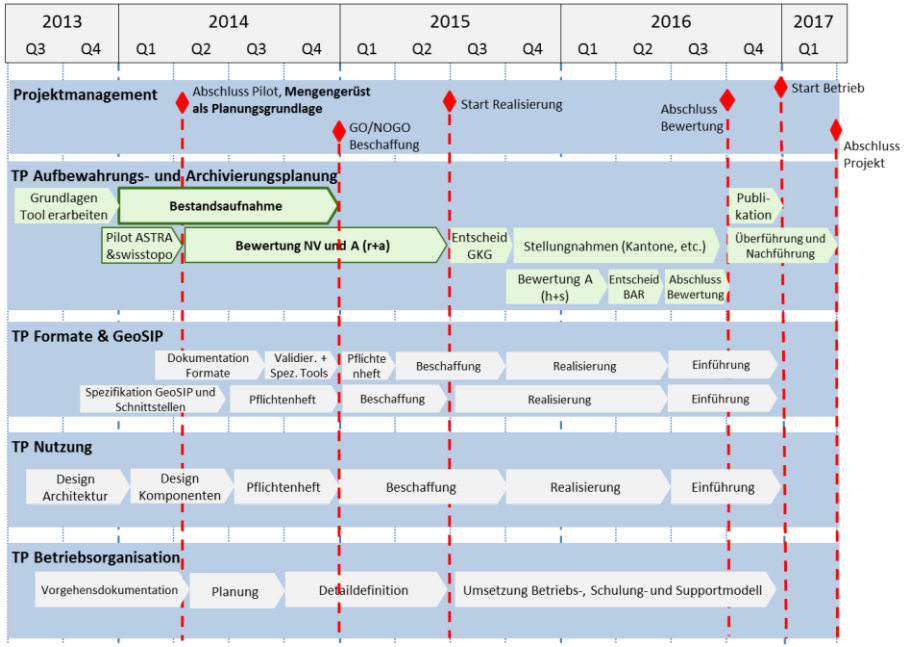
2011 – 2013

Concept

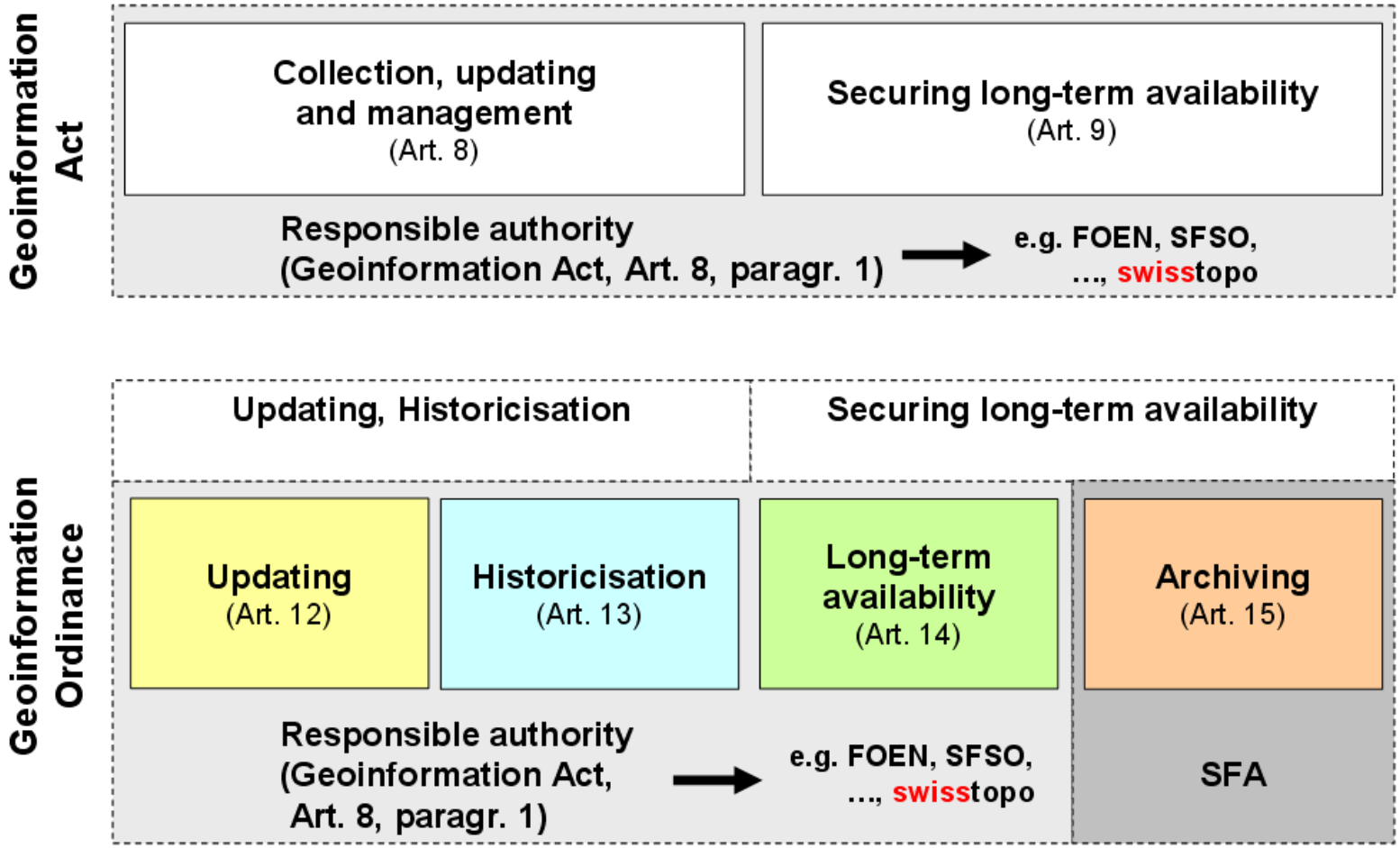


2013 – 2017

Realisation



Archiving of geodata
legal bases



Archiving of geodata
Objectives

- To define the most important aspects of archiving and the framework for securing the long-term availability of geodata, and to identify the related issues and problems
- Based on the findings obtained from the preliminary study, to formulate a proposal for the next steps to be taken in order to secure the implementation of the geoinformation legislation relating to the archiving of geodata

Archiving of geodata
Objectives

- The solution should not be specific to swisstopo, but should be developed for the entire federal administration
- A well-founded integral solution needs to be found for archiving and securing the long-term availability of geodata
- The solution must permit archived digital geodata to be (subsequently) re-integrated into a GIS – one of the fundamental requirements to be placed on the archiving of geodata is that it must be possible to restore and analyse geoinformation at a later date

Interaction of long-term availability and archiving

Erhebung, Nachführung
Production, Updating

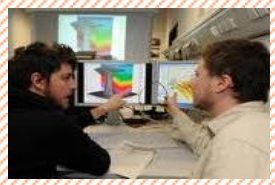
Gewährleistung der Verfügbarkeit
Securing long-term availability

Gemeinsame Aufbewahrungsplanung
Common preservation planning

Nachhaltige Verfügbarkeit
Long-term availability

Archivierung
Archiving

Nutzer
Consumer



Forschung
Research

Öffentliche Verwaltung
Public Administration

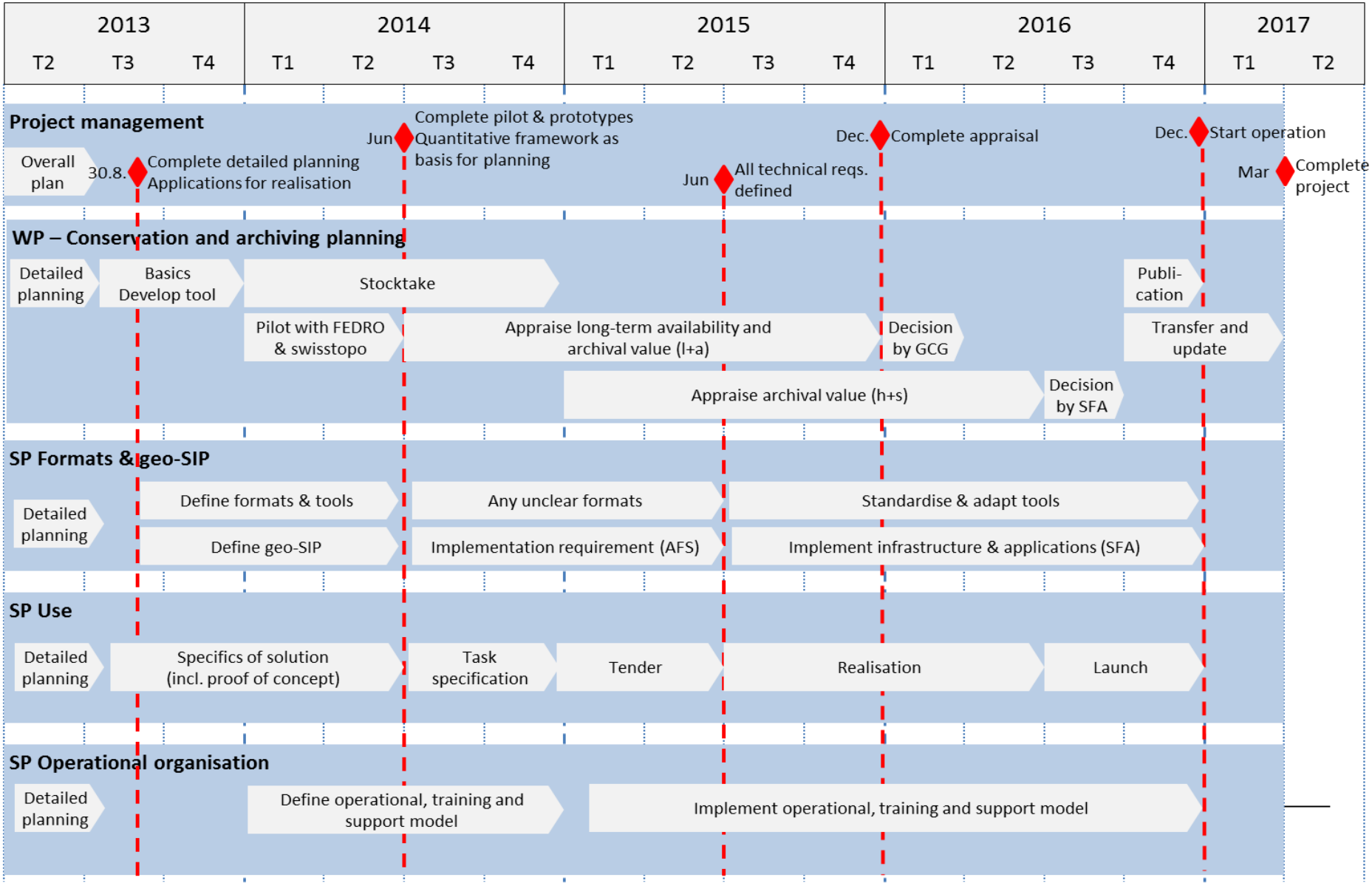
Firmen
Enterprises

Private
Individual user

Archiving Challenges
Key Questions

1. Which geospatial data should be archived and why?
2. How to archive geospatial data?
3. Archiving formats for geospatial data
4. Archiving scenarios, i.e. archiving of geospatial reference data and thematic geospatial data
5. References and Links between archived geospatial data (packages)
6. Future use of archived data, i.e. re-import of archived geospatial data in GIS in 20/50 years

Ellipse – Realisation



Ellipse
Conservation and archiving planning

- With all federal offices (producers of geodata)
- Coordination of the appraisal
- Official geodata under federal administration and further geodata
- https://aap.prod.bgdi.ch

Outlook
further future plans

- Documentation of methods of the photogrammetry
- Protection of cultural property

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

swisstopo journey through time

Search location, zip, coordinate ...

Play | Compare two periods | Information on map types

1844 1860 1900 1938 2000 2012

back forward

Map overview

Thank you for your attention!

20 km

(c) Data:swisstopo