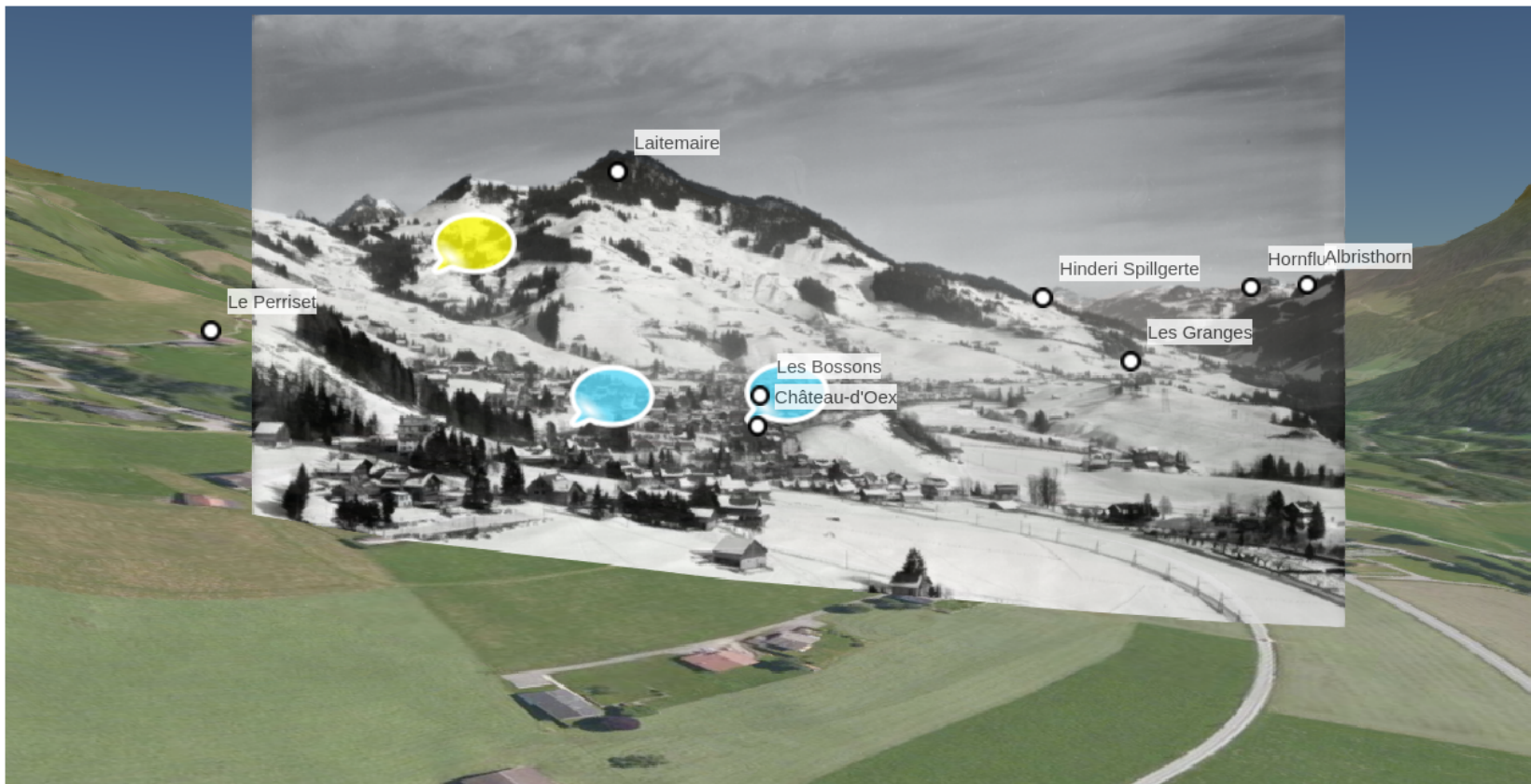


A 3D georeferencer and viewer to relate landscape pictures with VGI



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G2C



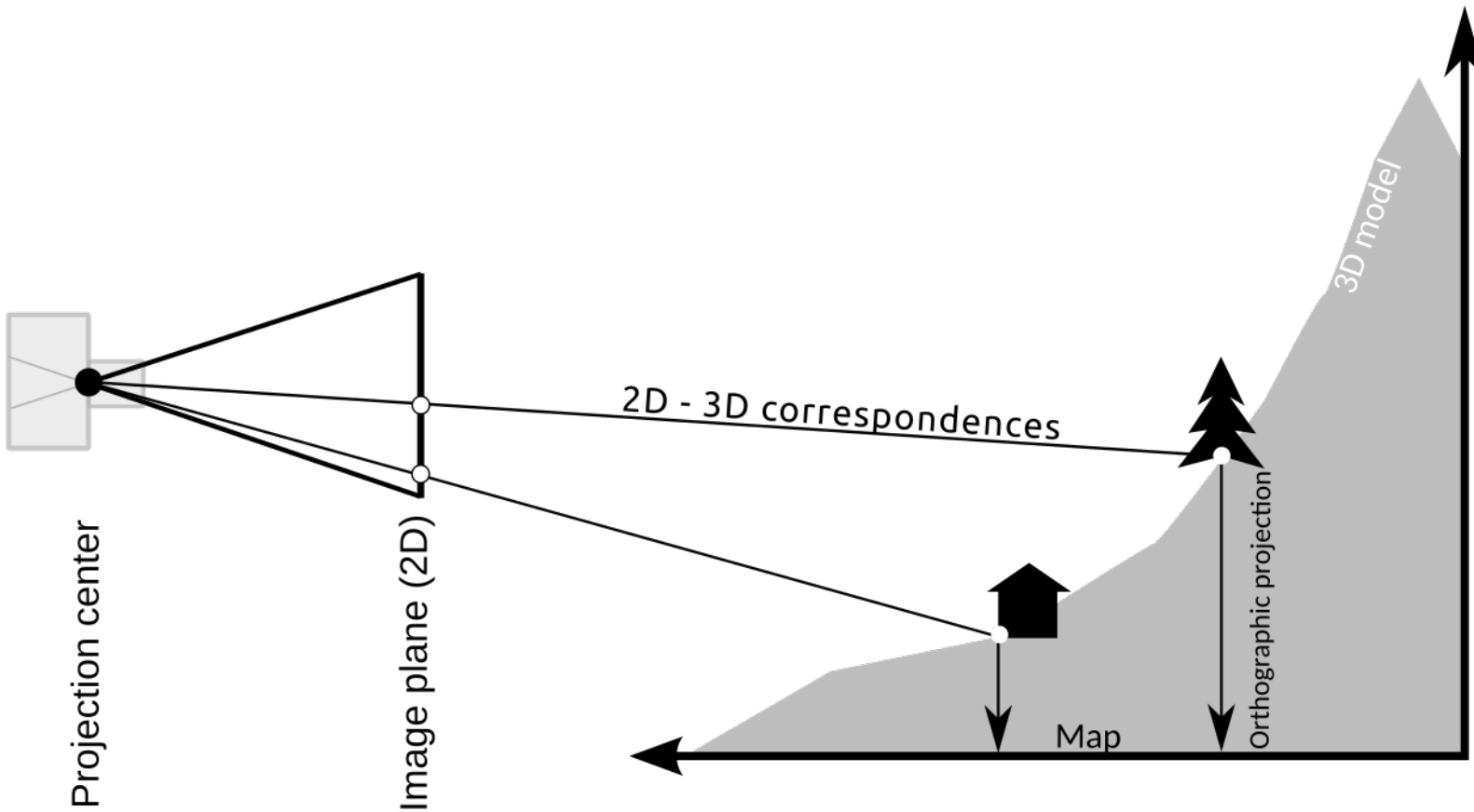
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Geometry



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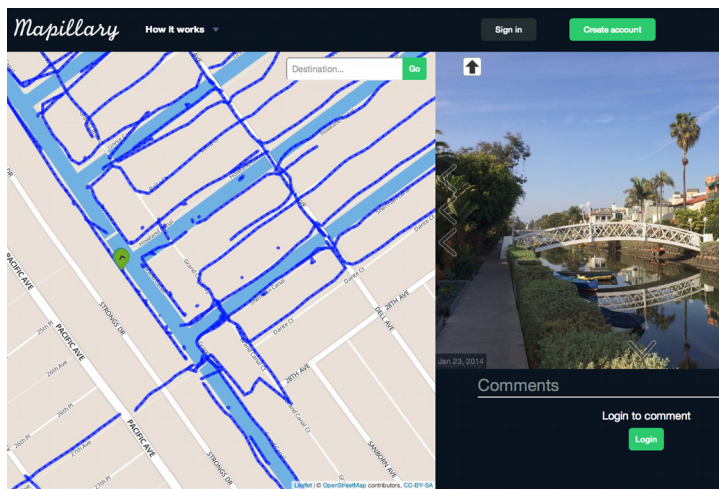
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Photograph georeferencing



- Multiple images:
 - State-of-the-art photogrammetry workflow
 - Generation of 3D models and orthophotos
 - Example: Mapillary, Photosynth
 - Use shared pictures to reconstruct street views and 3D models



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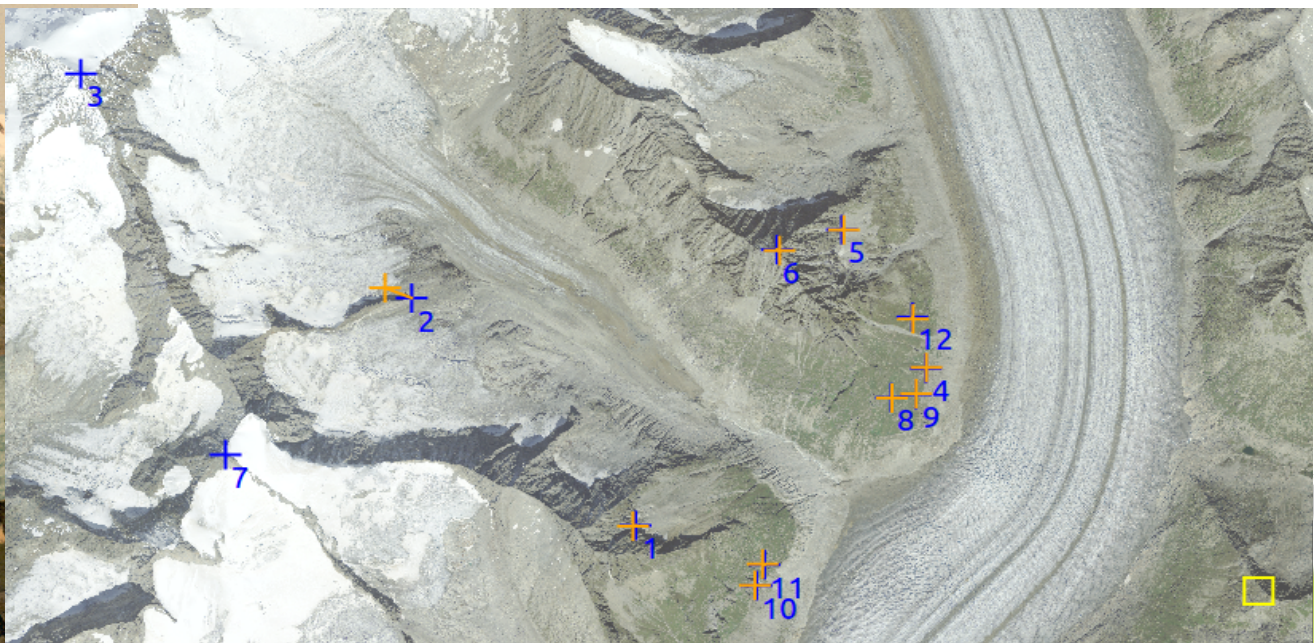
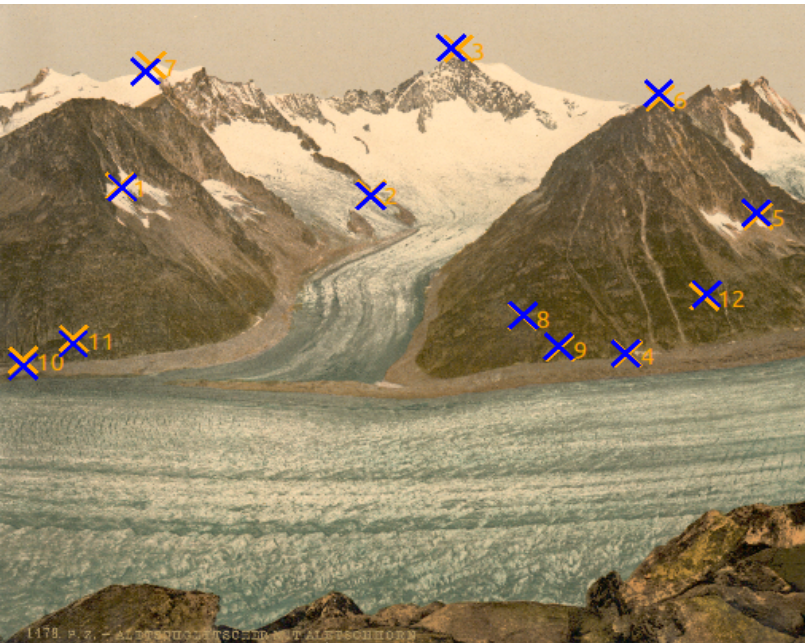
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Photograph georeferencing



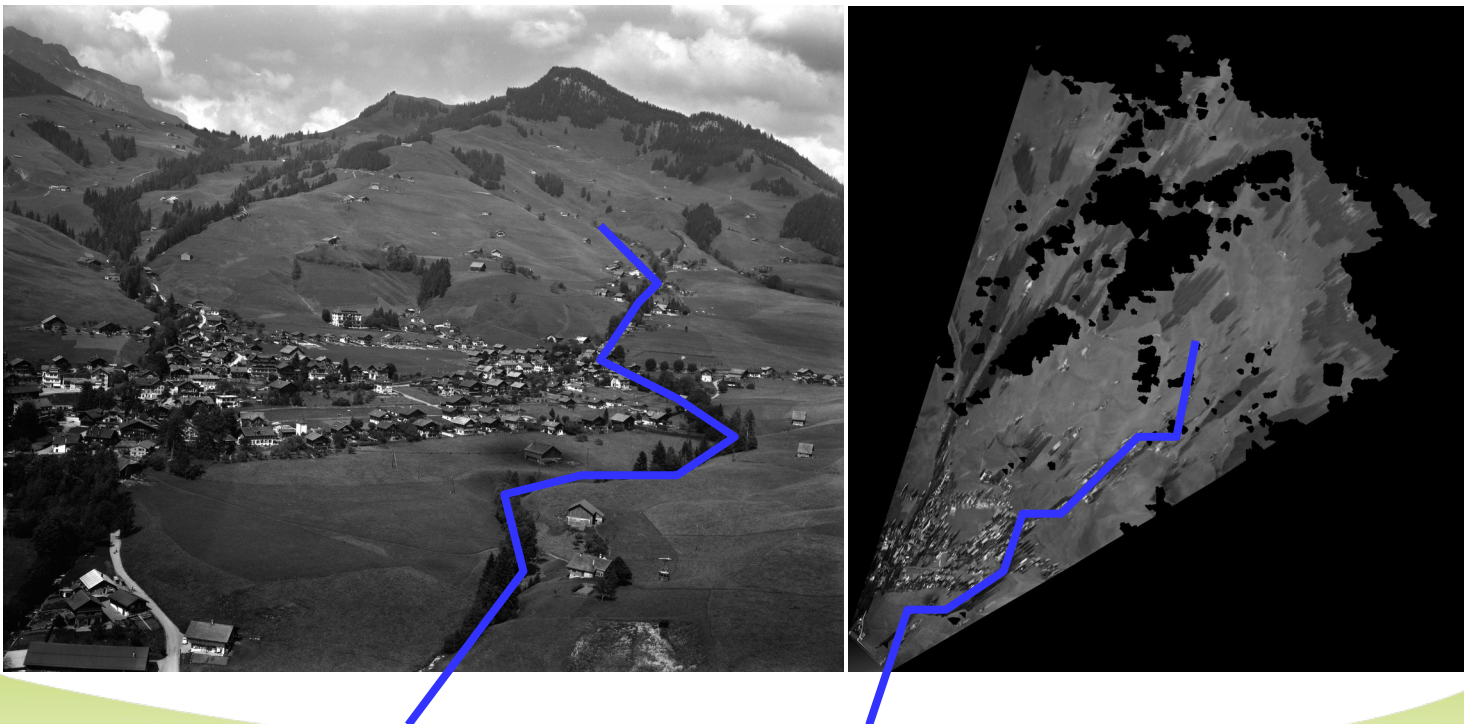
- Single image
 - Use Ground Control Points (GCP) to compute external image orientation.
 - Pic2map: plugin for QGIS



Interaction with spatial data



- “Image to map” transformation:
 - Projection of the image pixels on the DEM
 - Orthorectification
 - Digitization of vector data



Interaction with spatial data



“Map to image” transformation:

- Projection of vectorial data in the picture
- Generation of a virtual globe view similar to the picture



Case study: historic photographs



What:

- Historic postcard collection in the Swiss Alps
- Historic images shared by the general public

Why:

- High cultural and scientific value
- No geographic tags
- Archive managers have limited human and financial resources to tag or georeference the images



Prototype demo



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G2C

T. Produit, J. Ingensand - Agile 2016 - Link VGI Workshop



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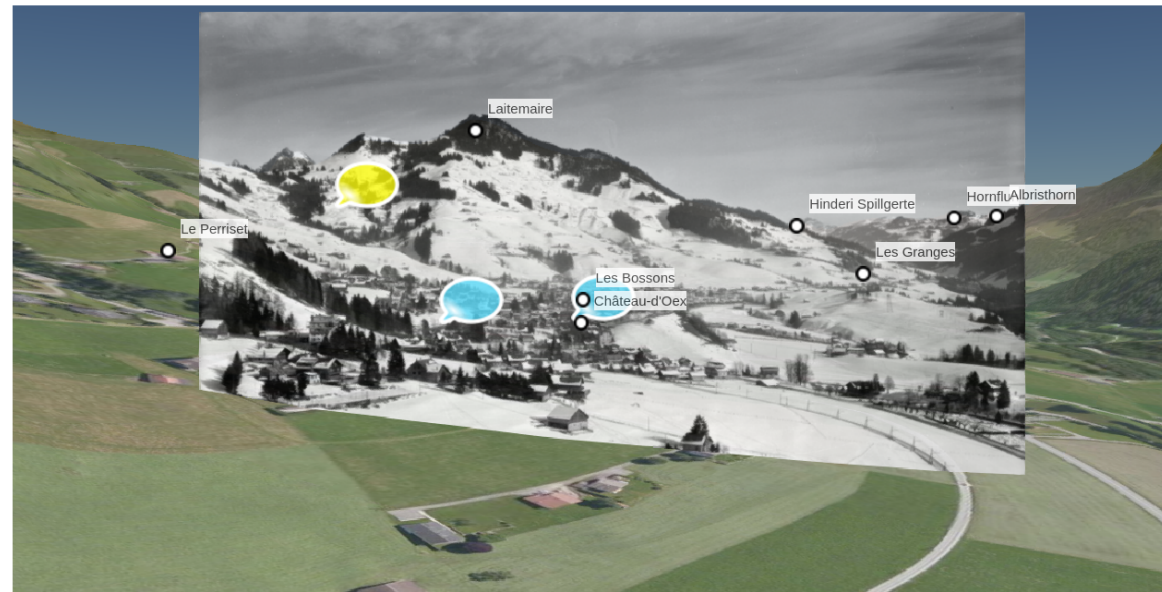
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Demo summary



- Transform shared photographs in VGI:
 - Volunteers perform the georeferencing task in a virtual globe
- VGI inputs:
 - OSM place names
 - OSM land use
 - (Wikipedia articles?)
- VGI outputs:
 - OSM place names
 - Date markers
 - Historic anecdotes



Link-VGI discussion



- Virtual globes:
 - An opportunity for 3D VGI (pictures, building models)
 - Navigation and digitization is less intuitive.
- Photographs provide a natural viewpoint:
 - The volunteers abstraction effort is reduced
 - An alternative to maps and aerial views to acquire VGI
 - Require a precise 3D georeferencing
- Perspectives:
 - Historic VGI
 - Provide tools for environmental change analysis



Conclusion



- On going project:
 - Production web site coming soon...
 - First results will be presented in OGRS 2016
 - Questions, remarks, ideas?

Thank you

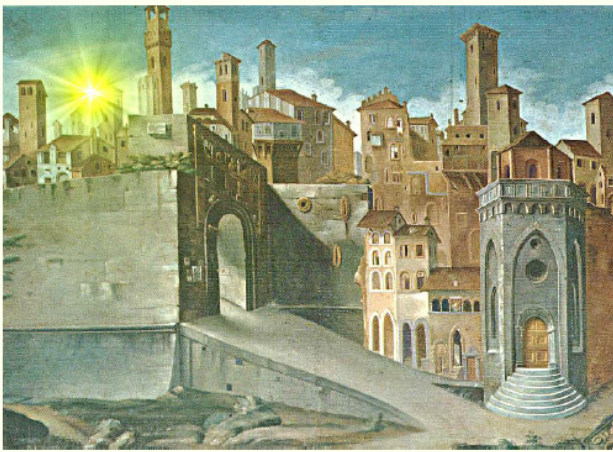
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- Spatial Statistics
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- CitySmart, Open Source Apps for Urban Management
- Free Open Source Software in Remote Sensing for Earth and Planetary Sciences
- Modelling spatio-temporal processes using open source geospatial tools
- Open GIS and Open Data for environmental noise assessment

<http://2016.ogrs-community.org>