



Vorarlberg
unser Land



Vorarlberger Landesbibliothek

sMapshot

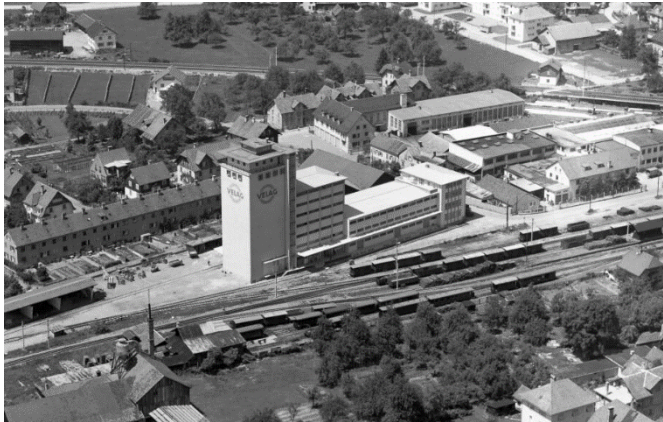
The Participative Time Machine

Georeferencing historical oblique aerial
photographs with the help of volunteers

volare – Vorarlberger Landesrepositorium

- *volare* is our PHAIDRA repository, hosted and operated by the University of Vienna
- we use PHAIDRA without its standard user interface

380.000 images in 39 collections



Picture: Sammlung Historische Schrägluftaufnahmen, Vorarlberger Landesbibliothek

2.800.000 text-pages (not in PHAIDRA)



Picture: Vorarlberger Nachrichten, Vorarlberger Landesbibliothek



>>> www.vorarlberg.at/volare <<<

Historical oblique aerial photographs on *volare*



Alpine Luftbild GmbH
1959
348 images



Helmut Klapper
1972-1994
1.274 images



Spatial Planning Authority
State Vorarlberg
2005-2020
11.387 images



Air Color GmbH
1978-1994
36.894 images

NEW!



Historical oblique aerial photographs

- ... are highly significant for regional history.
- ... allow us to understand changes in land use and the landscape over time.
- ... are a valuable source of information for both planning and research.

1959



Picture: Sammlung Historische Schrägluftbilder, Vorarlberger Landesbibliothek

1989



Picture: Helmut Klapper, Vorarlberger Landesbibliothek

2019



Picture: Raumplanung / Land Vorarlberg

Air Color



- 37,000 color negatives
- Acquisition 2021
- Digitalization during 2022/2023
- Unlabeled
- Broadly sorted by municipality

Air Color - The challenge



Foto: Sammlung Air Color, Vorarlberger Landesbibliothek



sMapshot - the solution to the location problem!

We ask volunteers with local knowledge for help.
Geographical location data and a map-based search are essential.



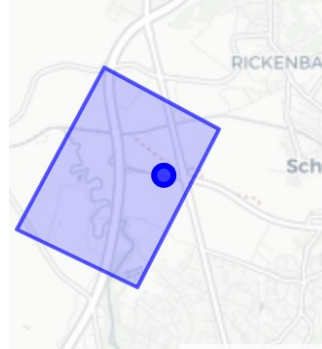
Fotos: Walter Vonbank (2008) bzw. Sammlung Risch-Lau, Vorarlberger Landesbibliothek (1939)



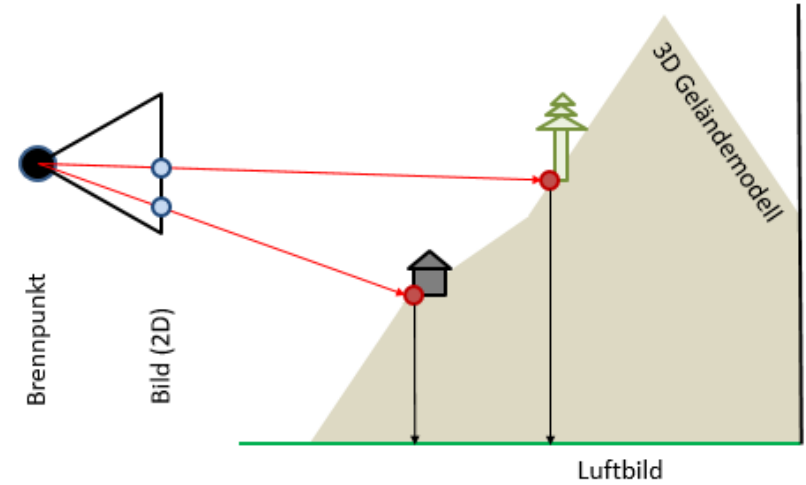
Methods for georeferencing images



Point Georeferencing



Area Georeferencing



3D Monoplotting
(The Solution)

sMapshot, <https://smapshot.heig-vd.ch>

Main goals of sMapshot:

- utilize the geographical knowledge of volunteers (*Crowdsourcing*)
- geographically locate historical pictures in three dimensions
- calculate the place names that are visible in the image

Development

- University of Applied Sciences and Arts in Yverdon, Switzerland

Institutions using sMapshot (selection)

- Image Archive of ETH Zurich - 200.000 images
- Swisstopo - 65.000 images
- Vorarlberg State Library - 51.000 images



sMapshot, <https://smapshot.heig-vd.ch>

SMAPSHOT Ort suchen

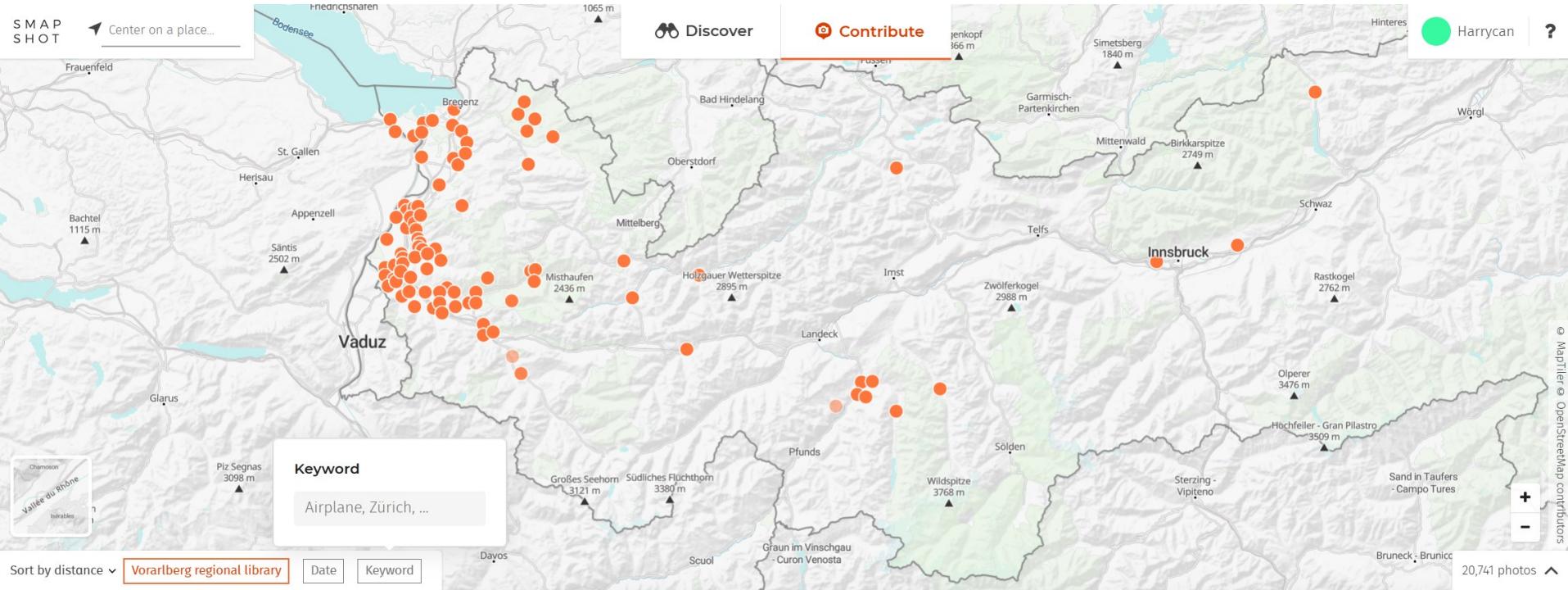
Entdecken Teilnehmen Login ?

Sortieren nach Entfernung ▾ Vorarlberger Landesbibliothek Datum Stichwort

13.349 Bild



sMapshot: georeferencing process (1/9)



sMapshot: georeferencing process (2/9)

← Back to the map

Air Color aerial photographs

Schrägluftaufnahmen von Gebäuden der Gemeinde Doren 🔒

August 6, 1988

Doren 🔒

↓ Download 🔄 Share

Geolocalise ←

[i Image Details](#) 🗨 Observations

Owner's ID o:406383

Photographer Bregenz, Air Color GmbH

Owner Vorarlberg regional library

License CC BY 4.0. Foto: Sammluna Air Color.



Harrycan ?



318 photos ^



sMapshot: georeferencing process (3/9)

[← Previous](#)
[Stop the geolocalisation](#)

Position

Direction

Align

Mark the position of the photographer

Position the marker at the approximate location of the shot by clicking on the map or by dragging the marker. Orange circles are placed on the map by Smapshot's algorithms. These may provide you with an indication as to the photographer's position



Schrägluftaufnahmen von Gebäuden der Gemeinde Doren
August 6, 1988
Owner's ID: 0:406383

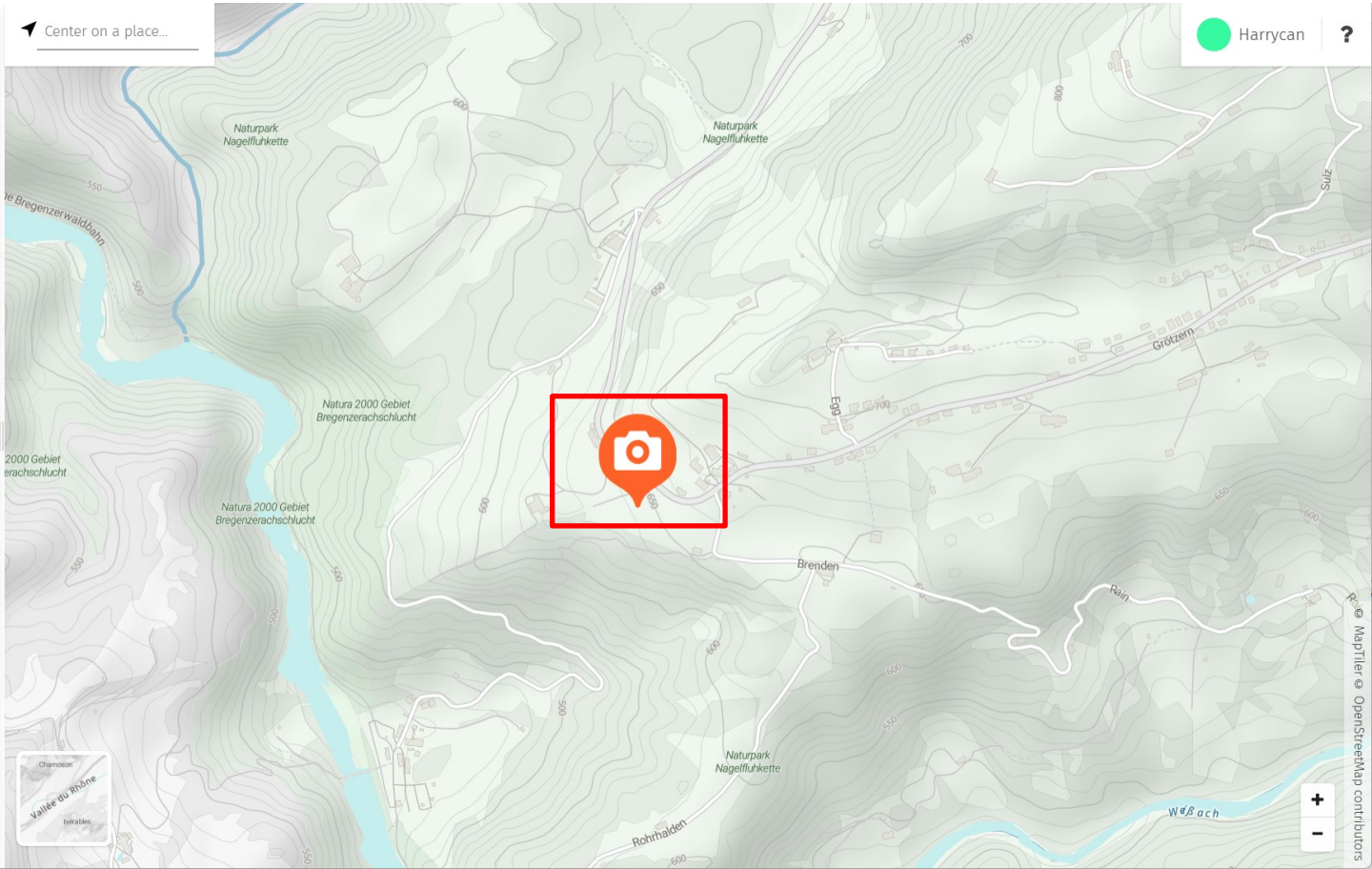
Next

Report an error

[Center on a place...](#)

Harrycan

?



Chamouze

Vallée du Rhône

Isorables

Wach

sMapshot: georeferencing process (4/9)

← Previous

Stop the geolocalisation

Position

Direction

Align

Indicate the direction of the photograph

Click on the map to change the direction of the photograph.



+

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⌂

Schrägluftaufnahmen von Gebäuden der Gemeinde Doren

August 6, 1988

Owner's ID: o:406383

Next

Report an error

sMapshot: georeferencing process (5/9)

← Previous Stop the geolocalisation

Position Direction Align

Align the image with the virtual globe

Click on at least 6 matching points such as vertices and crossings to validate the photograph's position.



Schrägluftaufnahmen von Gebäuden der Gemeinde Doren

August 6, 1988

Owner's ID: o:406383

 Report an error

Remove all pointsReset 3D view

Harrycan?

Owner

▼ Vorarlberg regional library

Map styles

















Orthophoto

RGB Winter 2015

RGB 2012

Pseudo-RGB 1990s

Pseudo-RGB 1980s

Greyscale 1970s

Greyscale 1950s

Greyscale 1930s

Infrastructures (2)





Cable cars

Buildings

Country

► Austria

► Switzerland

World

CESIUM ion

Data attribution

Altitude: 786.7369m

Coordinates: 47.4864, 9.8532

Azimuth: 318.612



sMapshot: georeferencing process (6/9)

← Previous

Stop the geolocalisation

Position

Direction

Align

Align the image with the virtual globe

Click on at least 6 matching points such as vertices and crossings to validate the photograph's position.



Schrägluftaufnahmen von Gebäuden der Gemeinde Doren

August 6, 1988

Owner's ID: o:406383

Compute position

Finish

Report an error

Remove all points

Reset 3D view

Harrycan

?



sMapshot: georeferencing process (7/9)

← Previous

Stop the geolocalisation

Position

Direction

Align

Align the image with the virtual globe

Click on at least 6 matching points such as vertices and crossings to validate the photograph's position.



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⌂

Schrägluftaufnahmen von Gebäuden der Gemeinde Doren

August 6, 1988

Owner's ID: o:406383

Compute position

Finish

Report an error

Remove all points

Reset 3D view

Harrycan

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CESIUM ion

Data attribution

Altitude: 839.2122

Coordinates: 47.4842, 9.8561

Azimuth: 321.185

sMapshot: georeferencing process (8/9)

Stop the geolocalisation

Draw observations

If you have noticed any interesting elements in the picture, you can indicate them by drawing a rectangle on the image.

List of observations ▼

Add an observation

agricultural building

☐ My observation concerns the whole image.

Cancel

Add

Next

 Report an error



 Harrycan

?

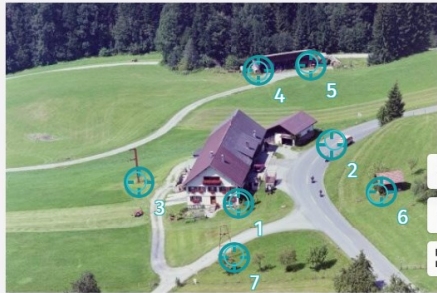


sMapshot: georeferencing process (9/9)

← Back to the map

Bravo!

You have successfully done all the steps! Thank you for your great work. Your geolocalisation will be validated by one of our moderator's. You can see the status of the picture in your account.



Schrägluftaufnahmen von Gebäuden der Gemeinde Doren

August 6, 1988

Owner's ID: o:406383

[Report an error](#)

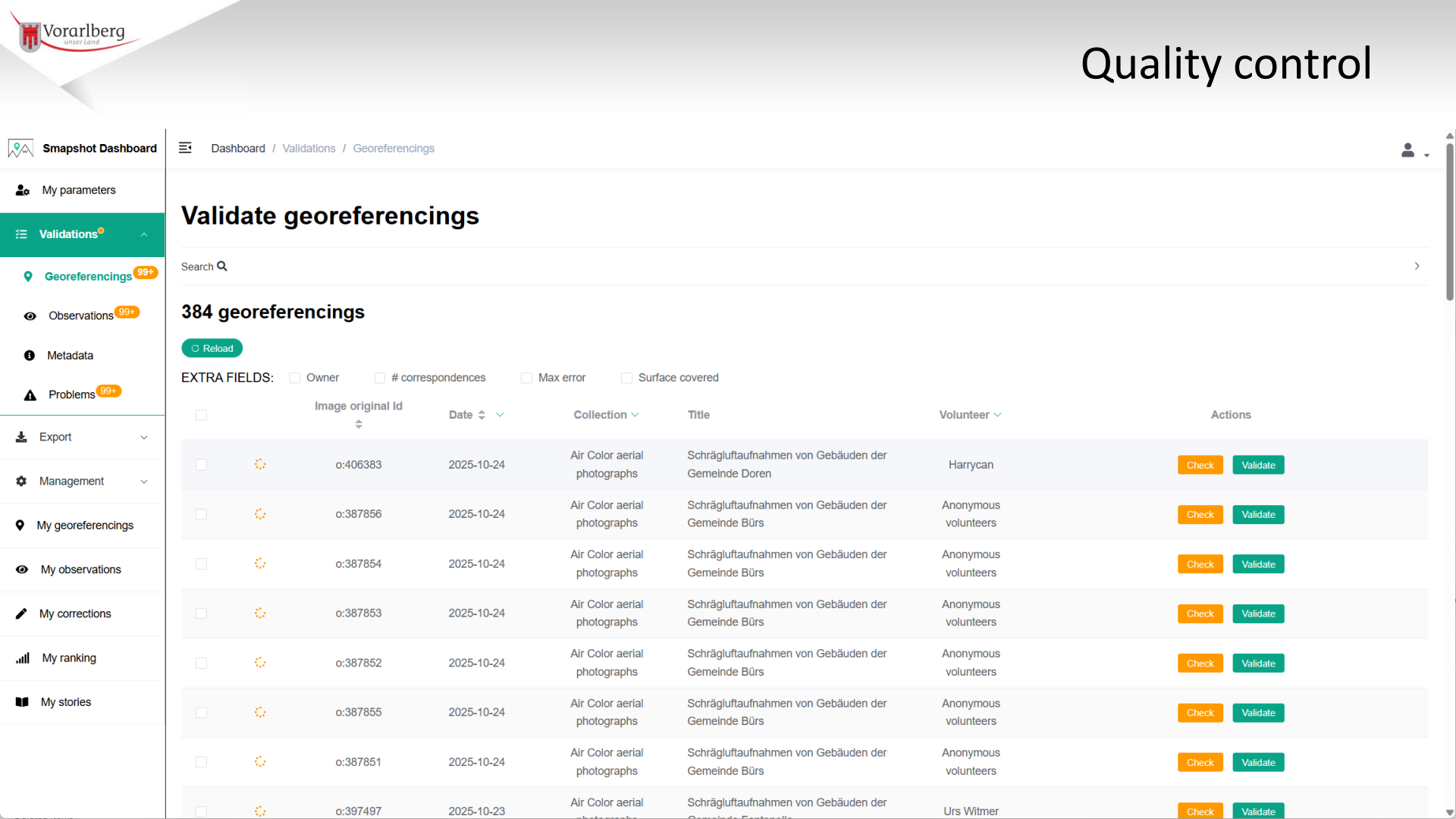


[Remove all points](#)

[Reset 3D view](#)

[Harrycan](#)

[?](#)



Quality control

- Snapshot Dashboard
- My parameters
- Validations 99+
- Georeferencings 99+
- Observations 99+
- Metadata
- Problems 99+
- Export
- Management
- My georeferencings
- My observations
- My corrections
- My ranking
- My stories

Dashboard / Validations / Georeferencings

Validate georeferencings

Search

384 georeferencings

Reload

EXTRA FIELDS: ☐ Owner ☐ # correspondences ☐ Max error ☐ Surface covered

☐	Image original Id	Date	Collection	Title	Volunteer	Actions
☐	 o:406383	2025-10-24	Air Color aerial photographs	Schrägluftaufnahmen von Gebäuden der Gemeinde Doren	Harrycan	<button>Check</button> <button>Validate</button>
☐	 o:387856	2025-10-24	Air Color aerial photographs	Schrägluftaufnahmen von Gebäuden der Gemeinde Bürs	Anonymous volunteers	<button>Check</button> <button>Validate</button>
☐	 o:387854	2025-10-24	Air Color aerial photographs	Schrägluftaufnahmen von Gebäuden der Gemeinde Bürs	Anonymous volunteers	<button>Check</button> <button>Validate</button>
☐	 o:387853	2025-10-24	Air Color aerial photographs	Schrägluftaufnahmen von Gebäuden der Gemeinde Bürs	Anonymous volunteers	<button>Check</button> <button>Validate</button>
☐	 o:387852	2025-10-24	Air Color aerial photographs	Schrägluftaufnahmen von Gebäuden der Gemeinde Bürs	Anonymous volunteers	<button>Check</button> <button>Validate</button>
☐	 o:387855	2025-10-24	Air Color aerial photographs	Schrägluftaufnahmen von Gebäuden der Gemeinde Bürs	Anonymous volunteers	<button>Check</button> <button>Validate</button>
☐	 o:387851	2025-10-24	Air Color aerial photographs	Schrägluftaufnahmen von Gebäuden der Gemeinde Bürs	Anonymous volunteers	<button>Check</button> <button>Validate</button>
☐	 o:397497	2025-10-23	Air Color aerial photographs	Schrägluftaufnahmen von Gebäuden der Gemeinde...	Urs Witmer	<button>Check</button> <button>Validate</button>

sMapshot – added value for *volare*



Metadata

Title: Oblique aerial photographs of buildings in the city of Dornbirn
 Corporation: Air Color GmbH, Bregenz
 Dating: [between 1978 and 1992]
 Description: 60 aerial photographs, color, celluloid negatives 7 x 5.6 cm
 Keyword:
 • Dornbirn > Buildings
 Form:
 • Aerial photography
 • Photography

License: CC BY 4.0
 Note: Digital reproduction: Original images in the collection of the Vorarlberg State Library
 Attribution: Photo: Air Color Collection, Vorarlberg State Library
 Permalink: pid.volare.vorarlberg.at/o:374463
 belongs to: pid.volare.vorarlberg.at/o:392634
 Download:
 • Original (image/tiff, 115.8 MB)
 • Preview (image/jpg, width: 3000px)
 • Preview (image/jpg, width: 980px)
 Collection: Collection: Air Color



Calculated metadata

SMAP SHOT ← Back to the map

Air Color aerial photographs
Schrägluftaufnahmen von Gebäuden der Stadt Dornbirn 📌

1978 - 1992

Dornbirn 📌

Download Share

[Image Details](#) Observations 1

Owner's ID 0:374463

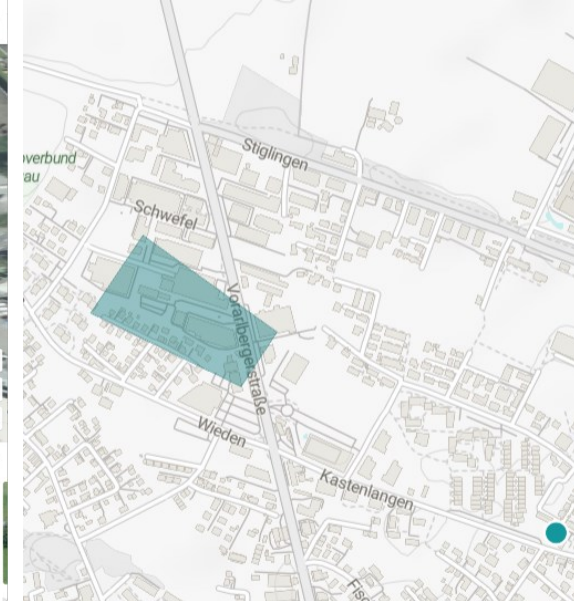
Photographer Bregenz, Air Color GmbH

Owner Vorarlberg regional library

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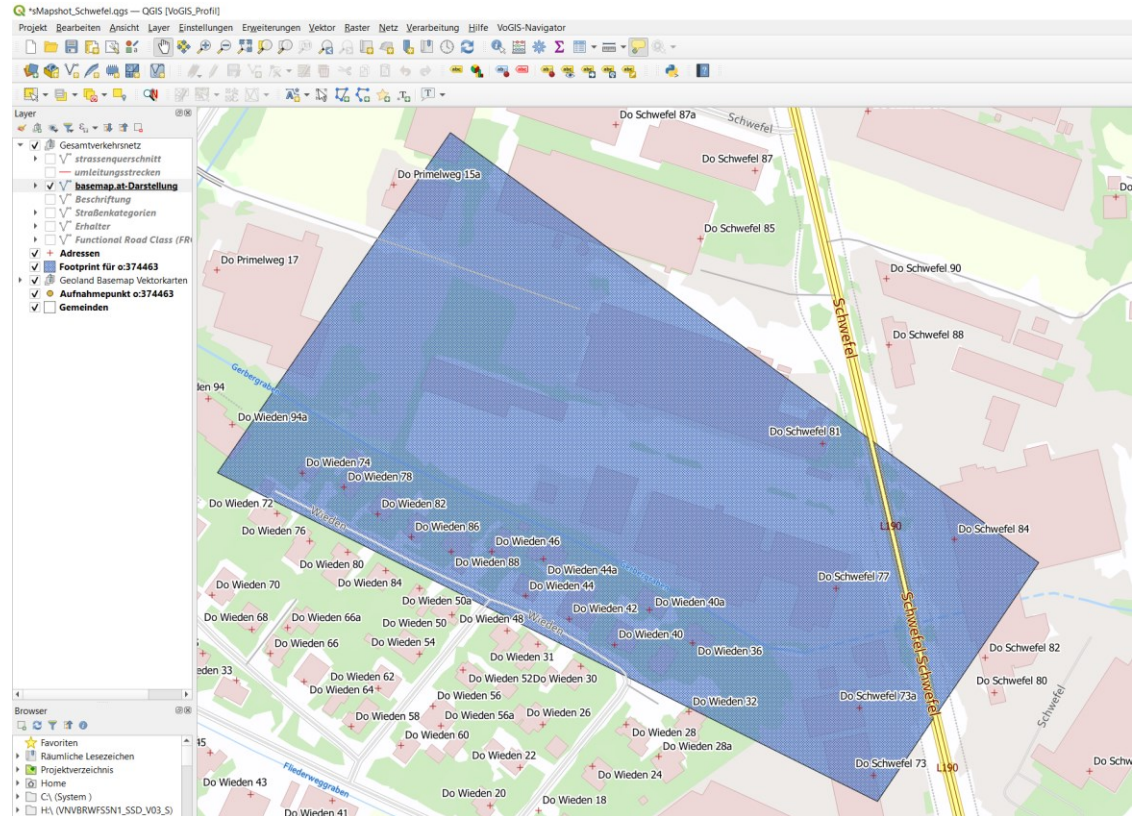


414 photos



generated keywords:

- L190
- Schwefel
- Dornbirn Schwefel 81
- Dornbirn Schwefel 77
- Dornbirn Wieden 36
- Dornbirn Wieden 40
-



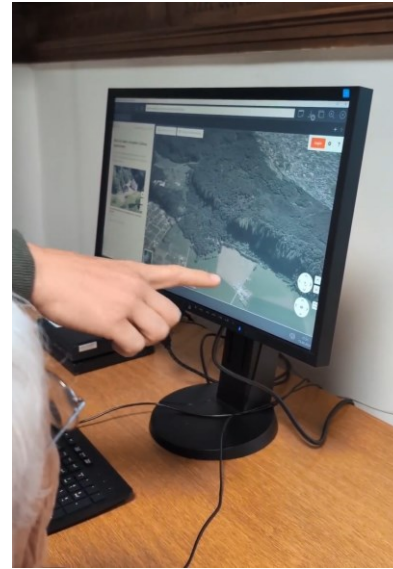
Crowdsourcing success

- 30.000 images have already been located
- An average of 90 images are processed per day
- Average work time per images is 5 minutes
- This equals approximately 2.500 hours of volunteer work!

	Name	# Pictures
1	ClaKa	4.817
2	Urs Witmer	3.792
3	Paul Frei	2.692
4	Anonymous	972
5	David Saladin	763
6	Thomas Feurstein	494
7	Klara Strolz	123
8	Flucky	86
9	Philippe Calame	79
10	Helmut Simma	75
	...	



First Crowdsourcing Workshop (13.9.2024)



Thank you for your interest.

Harald Eberle, MSc

Abteilung EDV und Katalog

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