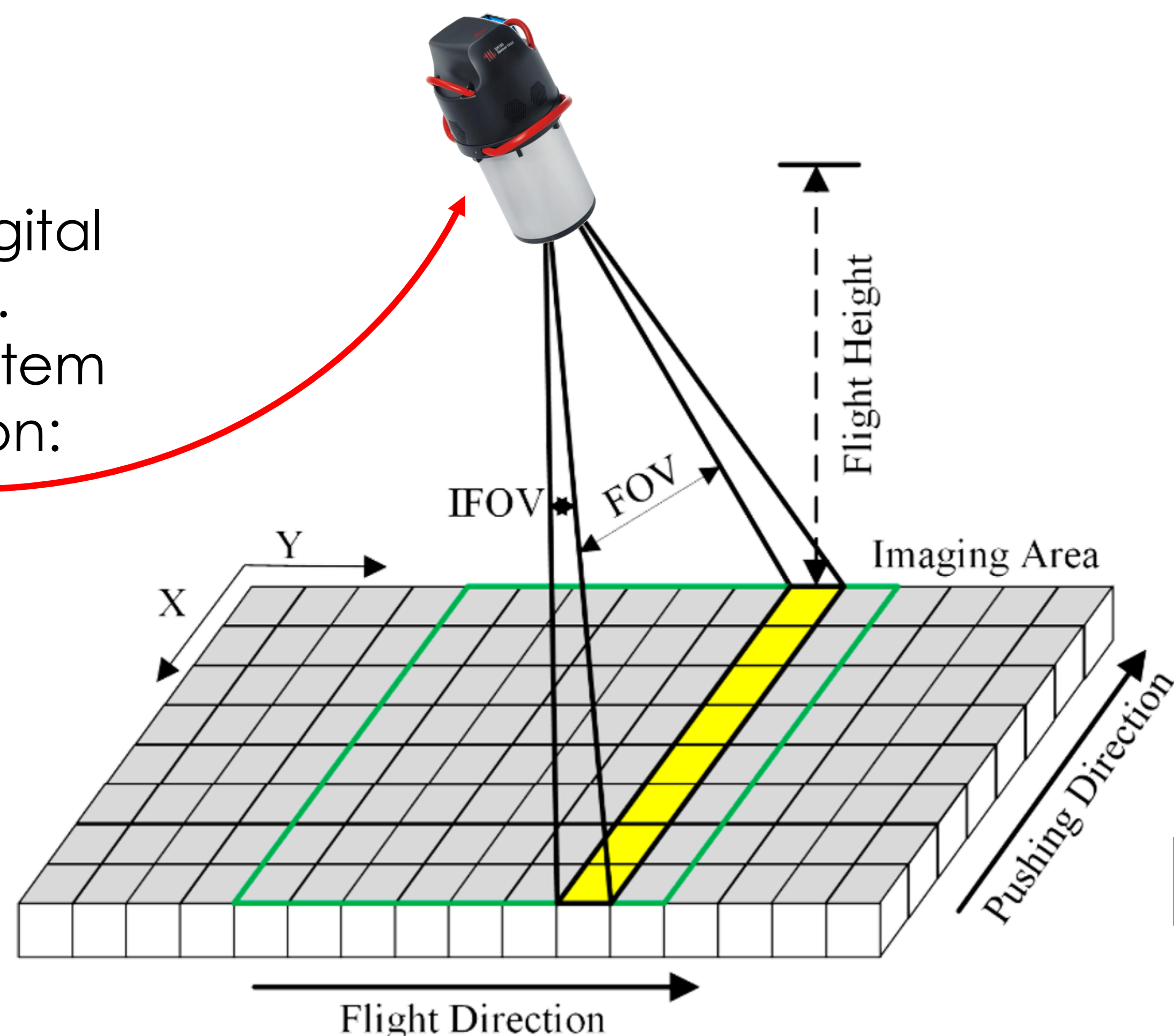
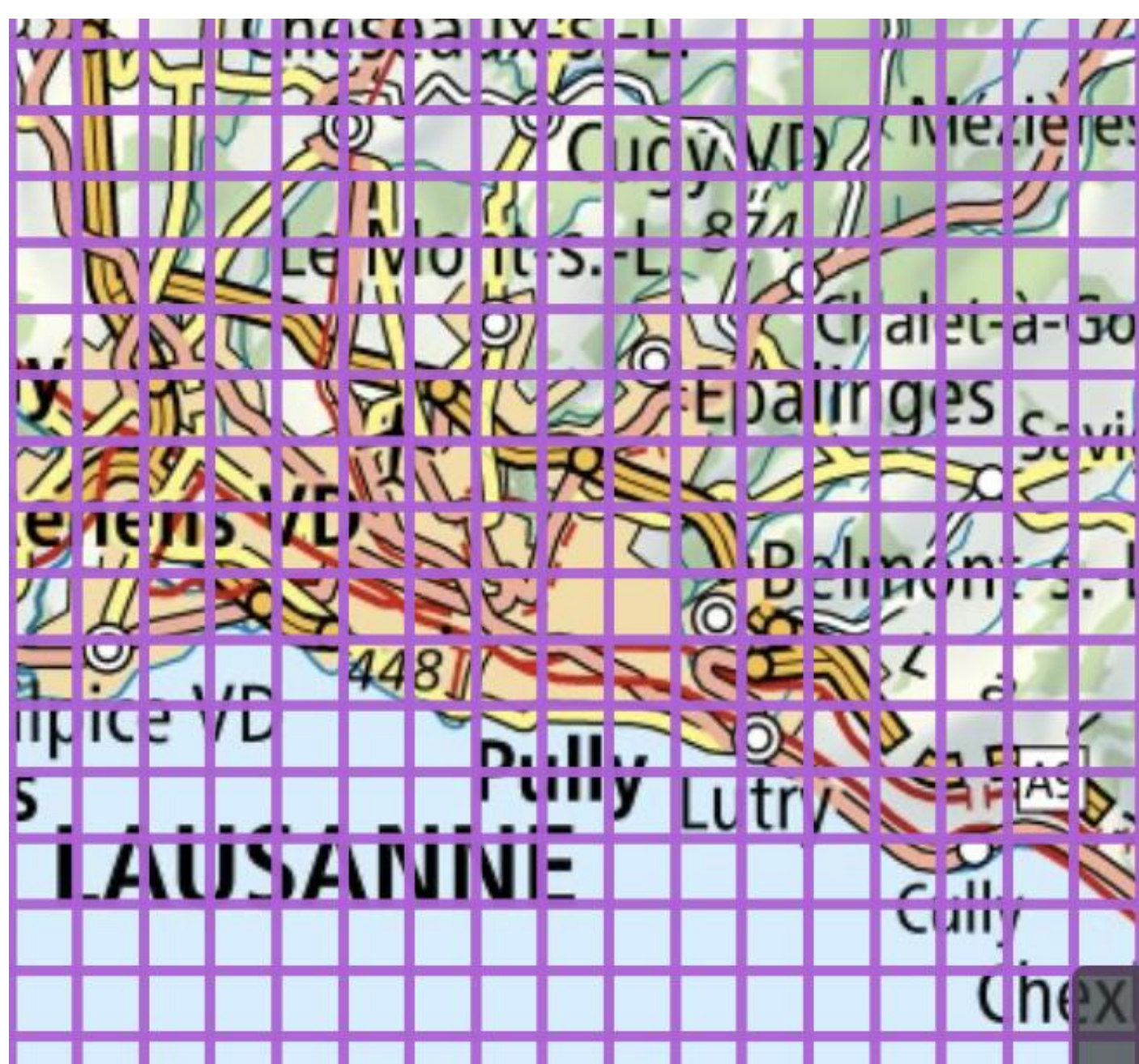


## Specifications & Revisit Cycle

Generated from digital color aerial images. Primary camera system for image acquisition: **Leica ADS100** [2].



- **Resolution of 10 cm over flatlands**, the Jura, and major alpine valleys, and a **25 cm resolution in the Alps**. During production, 25 cm resolution images are resampled to 10 cm, resulting in a homogeneous product.
- Actual **resolution can deviate** from the planned 10 cm or 25 cm due to variations in camera-to-ground distance caused by **topography**.
- **Updated on a 3-year cycle**, with approximately one-third of Switzerland being re-imaged each year, divided into three regions (West, Mid, East/Liechtenstein).
- Channels: **Near-Infrared (NIR)**, **Red**, **Green**, and **Blue**.
- **SWISSIMAGE** provides RGB channels only, **data is freely accessible** from the SWISSTOPO portal [1]. Select needed tiles using the graphical interface (JPEG90 & Geotiff):



## Characteristics & Challenges

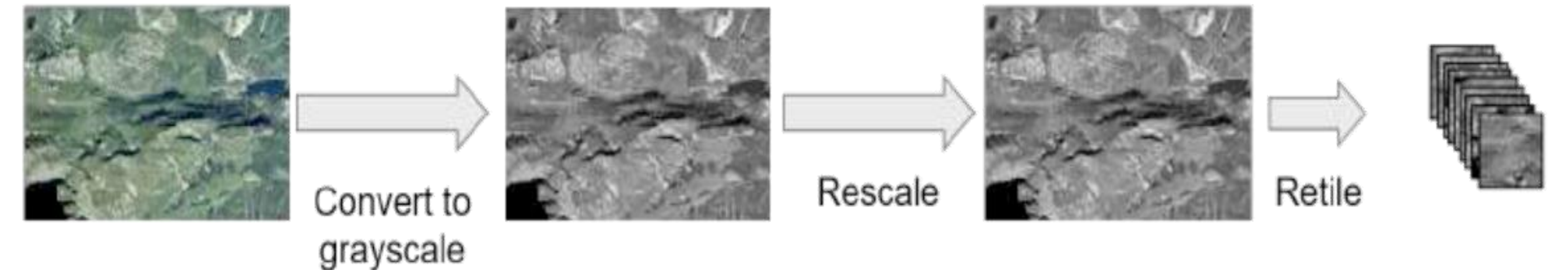
- SWISSIMAGE is georeferenced for precise overlay with GIS vector data. **Positional accuracy for 10 cm resolution data is  $\pm 0.1$  m** with a 50 cm Digital Terrain Model (DTM) and  $\pm 0.15$  m with a 2 m DTM.
- A two-step correction process ensures homogeneity across the mosaic (**Radiometric Consistency**), enabling reliable visual interpretation and automated analysis.
- Off-center **objects** not represented in the digital terrain model **can appear tilted**. This is minimized by using the central portions of aerial images during mosaicking.
- Extensive **shadows are limited** by acquiring imagery only when the sun's elevation is above  $35^\circ$ .
- **Stretched pixels are corrected manually**.
- **Bridges are orthorectified** using dedicated local height models to prevent distortion caused by projection onto the underlying terrain.
- Inconsistent **reflections over the 20 largest lakes are reduced** by substituting aerial imagery with resampled 5 m resolution satellite data.

## Examples of Research & Industry Applications

Utilized for various applications, e.g.:

- **Terrain and forest changes** within Switzerland [3]

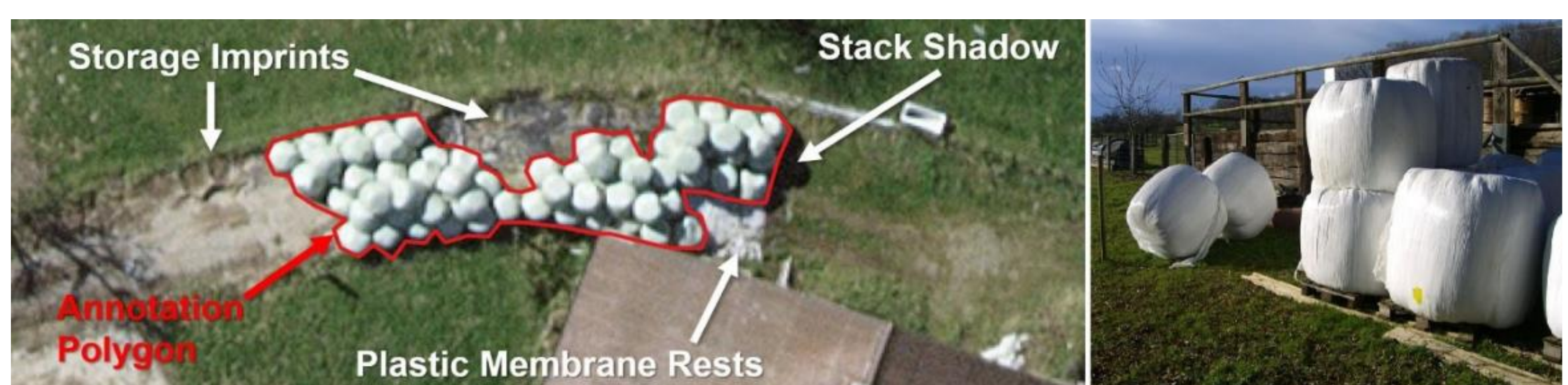
SWISSIMAGE



- Creating the **Swiss Glacier Inventory** [4]



- Map silage bales to accurately **calculate agricultural subsidies** [5]



## Other Products (based on SWISSIMAGE)

- **SWISSIMAGE RS** includes all 4 spectral channels and a 16-bit color depth (price upon request).
- **SWISSIMAGE HIST** archives historical orthophotos (e.g., from 1946) for temporal analysis of land use change

## References

1. <https://www.swisstopo.admin.ch/de/orthobilder-swissimage-10-cm>
2. [https://www.swisstopo.admin.ch/dam/de/sd-web/WchyQCclkyd9/Produktinfo\\_SWISSIMAGE10cm\\_DE.pdf](https://www.swisstopo.admin.ch/dam/de/sd-web/WchyQCclkyd9/Produktinfo_SWISSIMAGE10cm_DE.pdf)
3. De Jong, A., Tuia, D., Kellenberger, B., & Nguyen, T.-A. (2022, October 1). Historical forest mapping at the Swiss Alpine treeline. *École Polytechnique Fédérale de Lausanne (EPFL)*. <https://infoscience.epfl.ch/entities/publication/8347749d-7cf2-4156-9e8f-095908f5365d>
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5. Adrian F. Meyer, & Jordan, D. (2022). Silage bale detection for the «Cultivable Area» update of the Cantonal Agricultural Office, Thurgau. Institut Geomatik, Hochschule für Architektur, Bau und Geomatik FHNW. <https://doi.org/10.26041/fhnw-9472>

