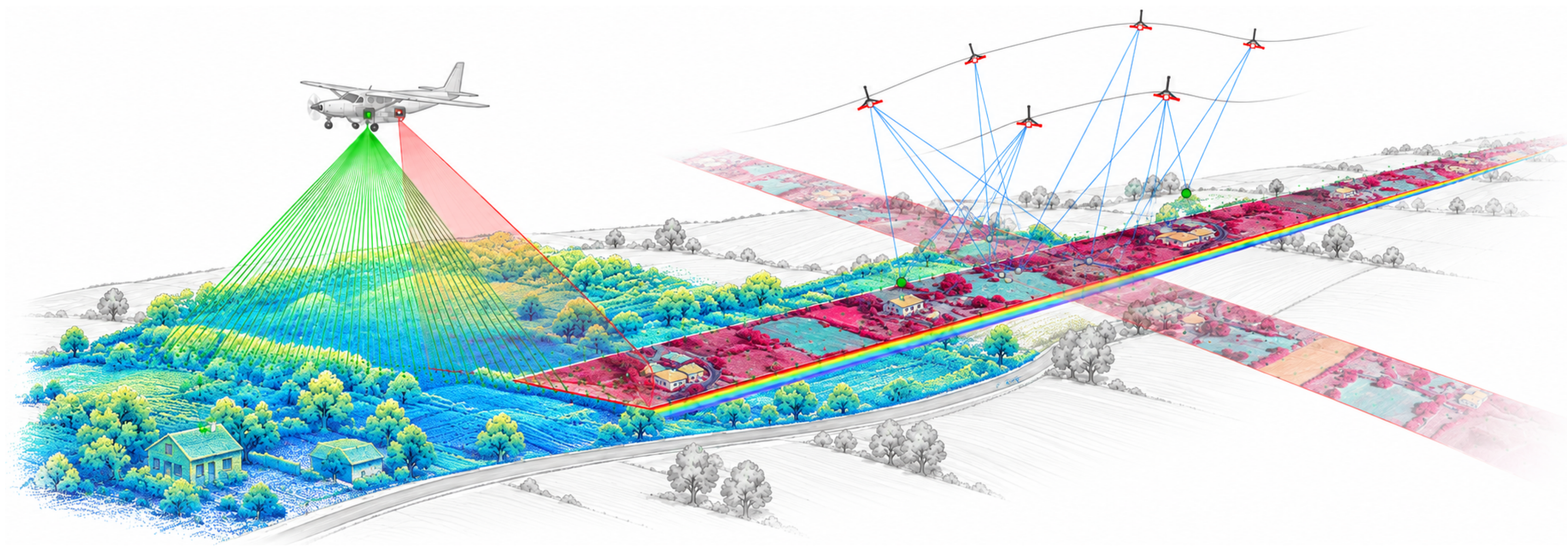
AddLiDAR – Online Airborne Laser Scanning Processing Portal and Data Repository

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EPFL ESO Environmental Sensing Observatory

ARES AIRBORNE RESEARCH OF THE EARTH SYSTEM



ARES Multi-sensor Platform

- Imaging spectrometer, full-waveform laser scanner and camera flown together.

Spectrometer data adjusted with lidar-derived ground control

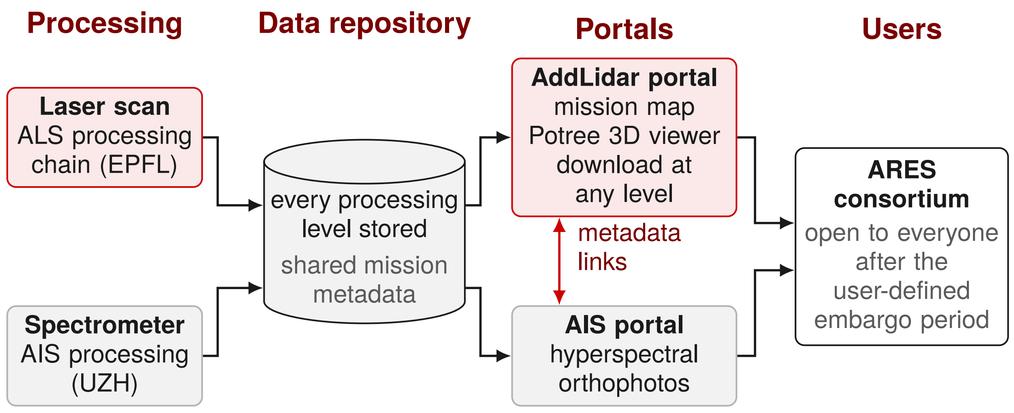


left: direct geo-referenced product; right: adjusted with laser control. Circle: surveyed reference, cross: feature as delivered.

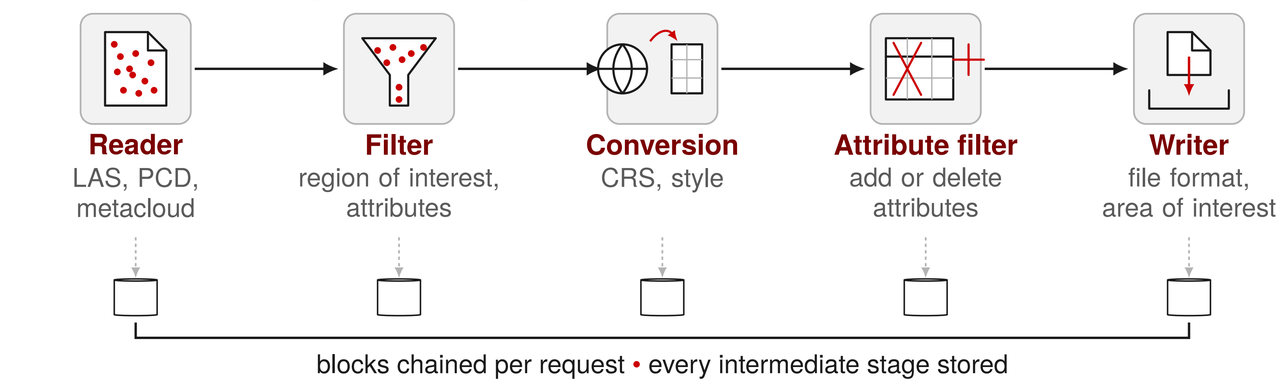
The AddLidar Portal: addlidar.epfl.ch

Data infrastructure

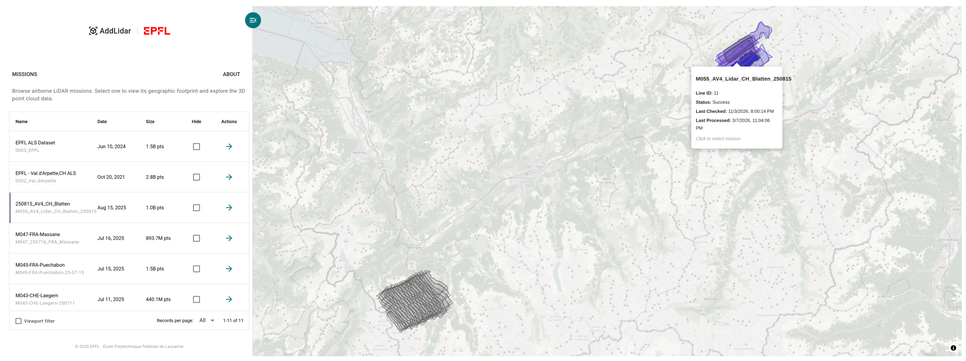
- Every intermediate lidar product online, with a 3D viewer and selection tools.



Back-end lidar processing chain

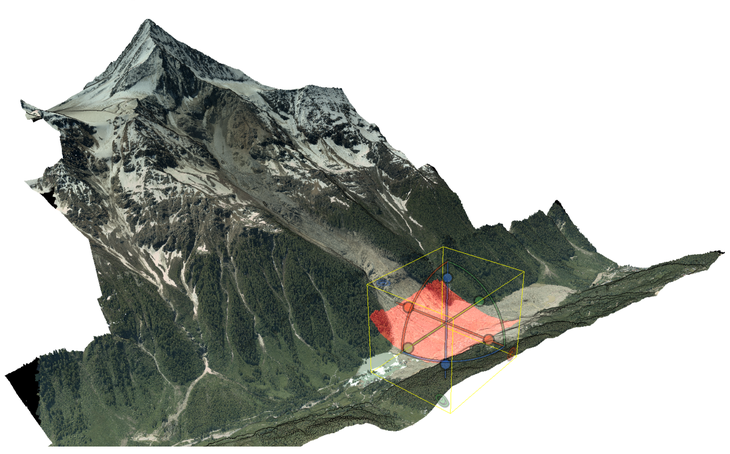


Mission webmap



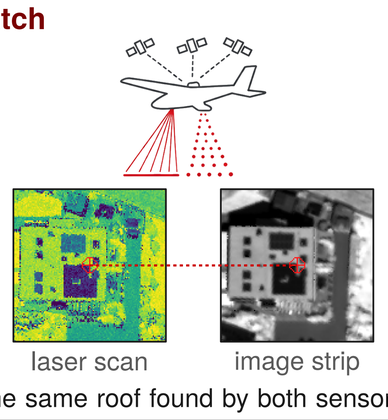
3D viewer (Potree)





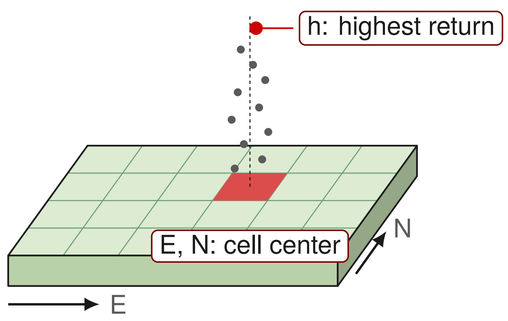
Use case: Automatic ground control from jointly acquired laser scanning data

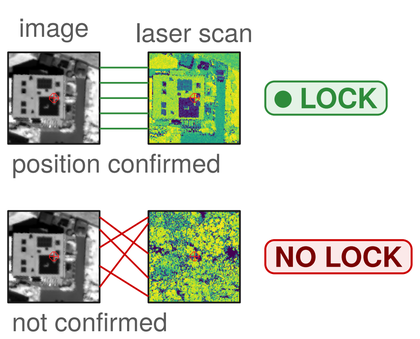
1 Match



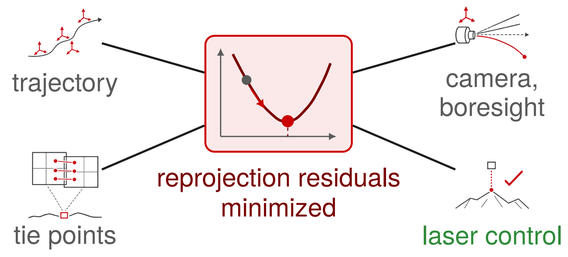
the same roof found by both sensors

2 Anchor and validate





3 Joint Adjustment



one joint adjustment, laser control in place of a survey

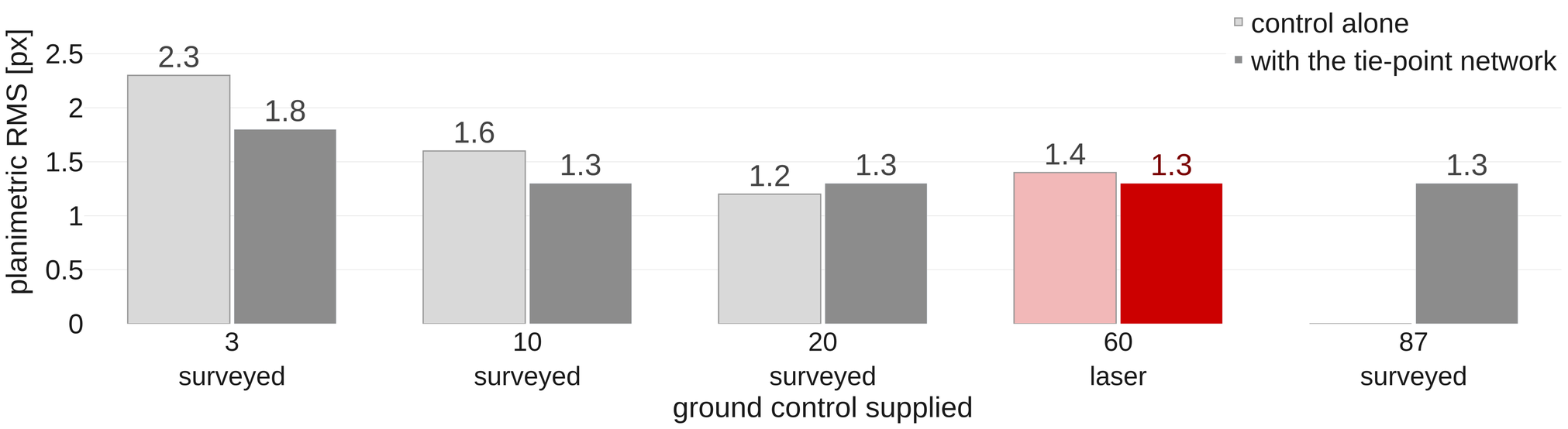
Integrated Adjustment of AIS data with Automatic ALS Ground Control Points

1.4 px
60 laser-derived control points

1.3 px
87 surveyed control points

0.7 px
lidar-to-orthophoto co-registration

4.9 px
direct georeferencing, no in-flight adjustment



Laser-derived control points replace a ground survey: 1.4 px planimetric RMS, with a pixel of 0.5 m on the ground.

73 independent sites, 266 observations, one flight; acquisition ground sampling distance 0.31–0.44 m and 1.11 m.

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