

Quality Report



Generated with PIX4Dmapper version 4.10.0



Important: Click on the different icons for:



Help to analyze the results in the Quality Report



Additional information about the sections



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Summary



Project	øving1
Processed	2025-10-31 15:49:42
Camera Model Name(s)	FC6310R_8.8_5472x3648 (RGB)
Average Ground Sampling Distance (GSD)	1.67 cm / 0.66 in
Area Covered	0.037 km ² / 3.7222 ha / 0.01 sq. mi. / 9.2025 acres

Quality Check



Images	median of 4668 keypoints per image	
Dataset	89 out of 89 images calibrated (100%), all images enabled	
Camera Optimization	1.13% relative difference between initial and optimized internal camera parameters	
Matching	median of 1661.57 matches per calibrated image	
Georeferencing	yes, 5 GCPs (5 3D), mean RMS error = 0.006 m	

Preview

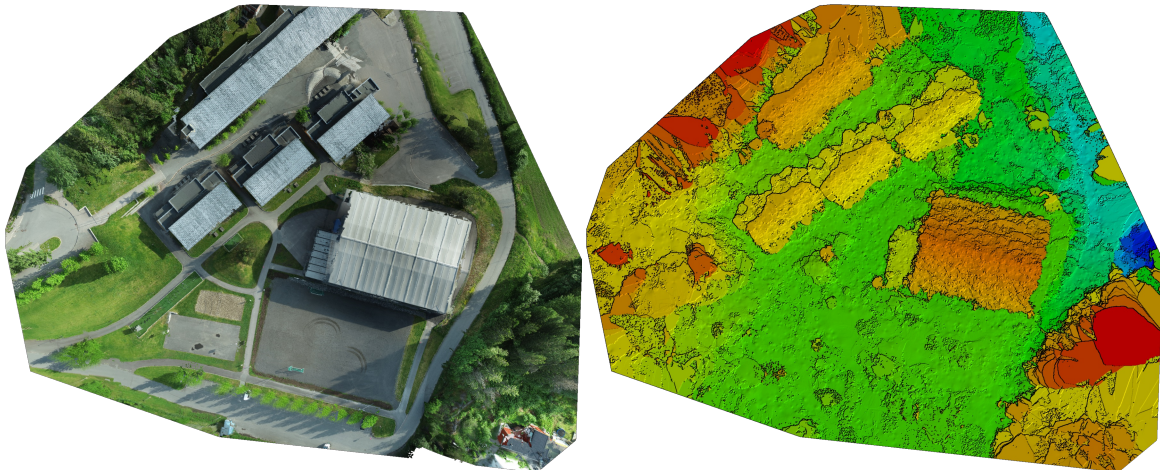


Figure 1: Orthomosaic and the corresponding sparse Digital Surface Model (DSM) before densification.

Calibration Details



Number of Calibrated Images	89 out of 89
Number of Geolocated Images	89 out of 89

Initial Image Positions

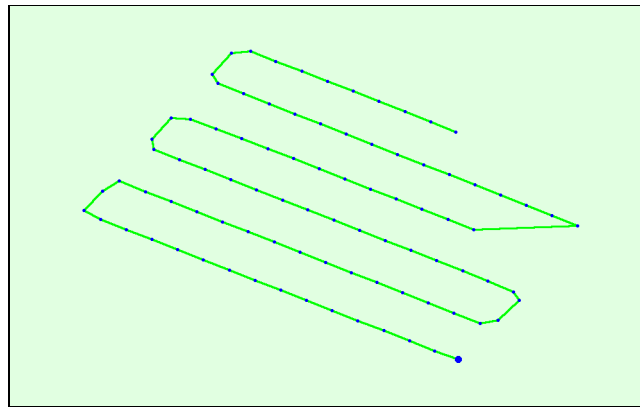
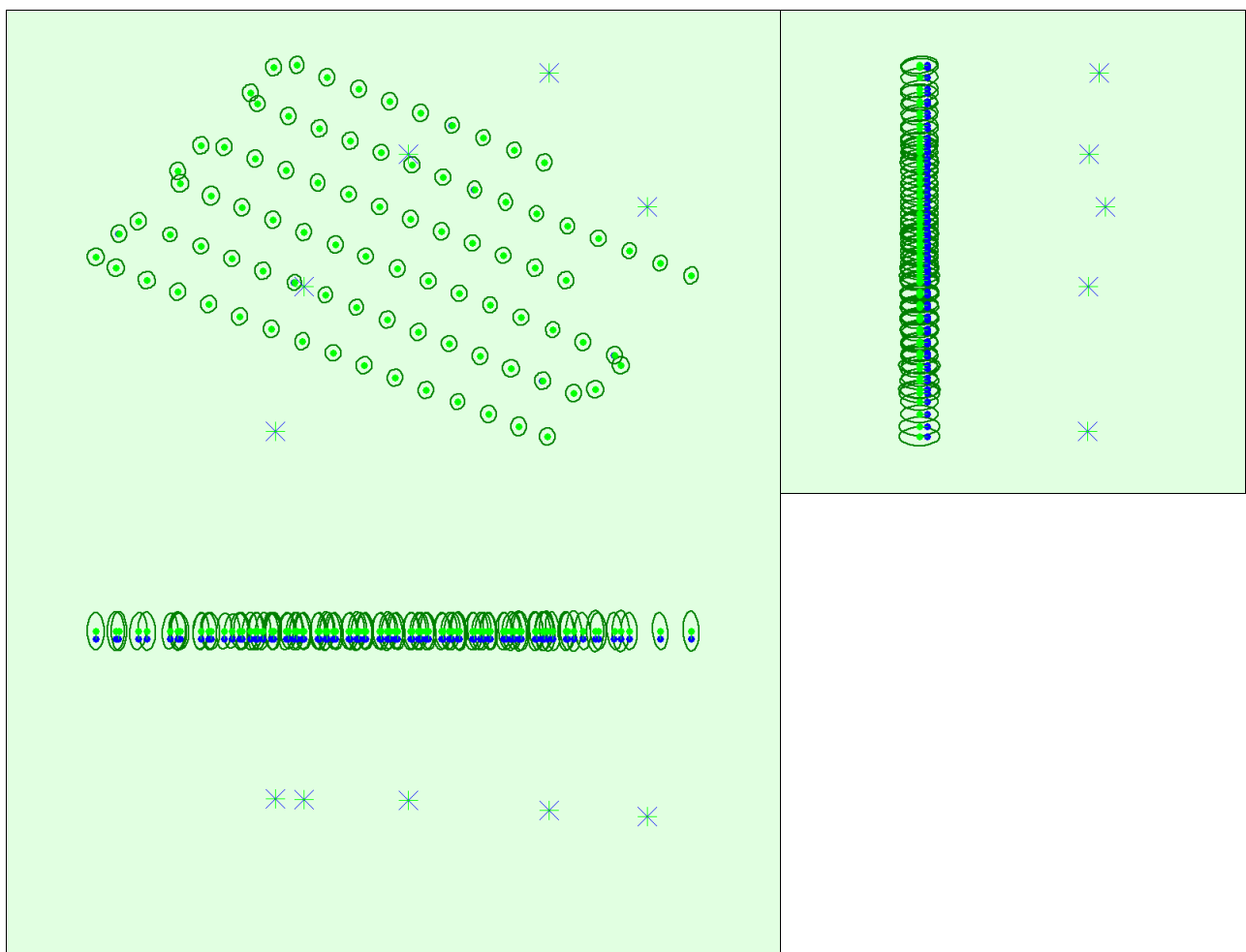


Figure 2: Top view of the initial image position. The green line follows the position of the images in time starting from the large blue dot.

Computed Image/GCPs/Manual Tie Points Positions



Uncertainty ellipses 1000x magnified

Figure 3: Offset between initial (blue dots) and computed (green dots) image positions as well as the offset between the GCPs initial positions (blue crosses) and their computed positions (green crosses) in the top-view (XY plane), front-view (XZ plane), and side-view (YZ plane). Dark green ellipses indicate the absolute position uncertainty of the bundle block adjustment result.

Absolute camera position and orientation uncertainties



	X[m]	Y[m]	Z[m]	Omega [degree]	Phi [degree]	Kappa [degree]
Mean	0.002	0.002	0.006	0.005	0.005	0.005
Sigma	0.000	0.000	0.000	0.001	0.000	0.001

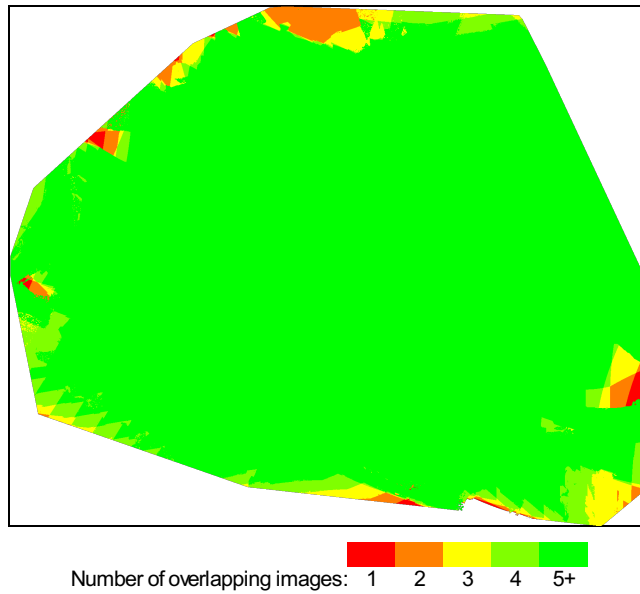


Figure 4: Number of overlapping images computed for each pixel of the orthomosaic. Red and yellow areas indicate low overlap for which poor results may be generated. Green areas indicate an overlap of over 5 images for every pixel. Good quality results will be generated as long as the number of keypoint matches is also sufficient for these areas (see Figure 5 for keypoint matches).

Bundle Block Adjustment Details

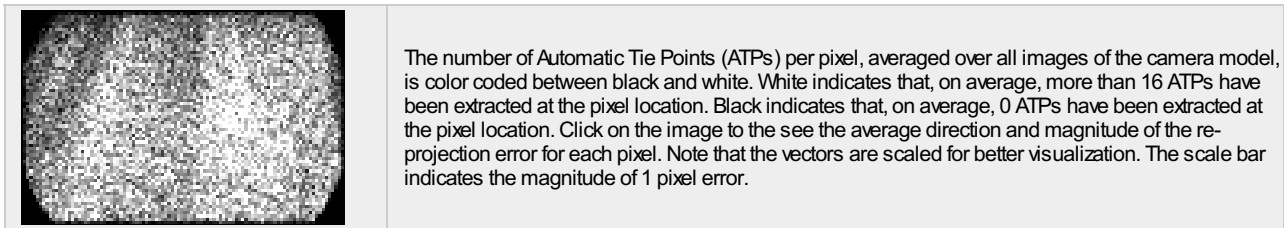
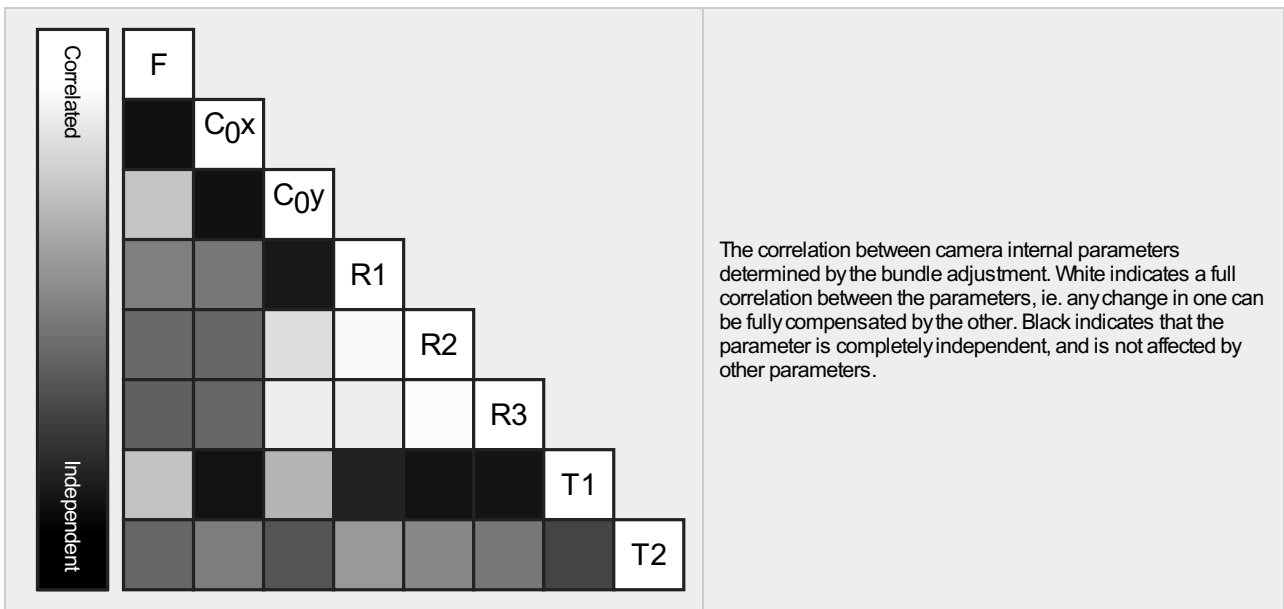
Number of 2D Keypoint Observations for Bundle Block Adjustment	147595
Number of 3D Points for Bundle Block Adjustment	56297
Mean Reprojection Error [pixels]	0.105

Internal Camera Parameters

FC6310R_8.8_5472x3648 (RGB). Sensor Dimensions: 12.833 [mm] x 8.556 [mm]

EXIF ID: FC6310R_8.8_5472x3648

	Focal Length	Principal Point x	Principal Point y	R1	R2	R3	T1	T2
Initial Values	3658.300 [pixel] 8.580 [mm]	2722.500 [pixel] 6.385 [mm]	1835.100 [pixel] 4.304 [mm]	-0.269	0.112	-0.033	0.000	-0.001
Optimized Values	3699.715 [pixel] 8.677 [mm]	2737.703 [pixel] 6.421 [mm]	1824.207 [pixel] 4.278 [mm]	-0.286	0.131	-0.040	0.000	-0.001
Uncertainties (Sigma)	0.247 [pixel] 0.001 [mm]	0.281 [pixel] 0.001 [mm]	0.372 [pixel] 0.001 [mm]	0.000	0.001	0.000	0.000	0.000



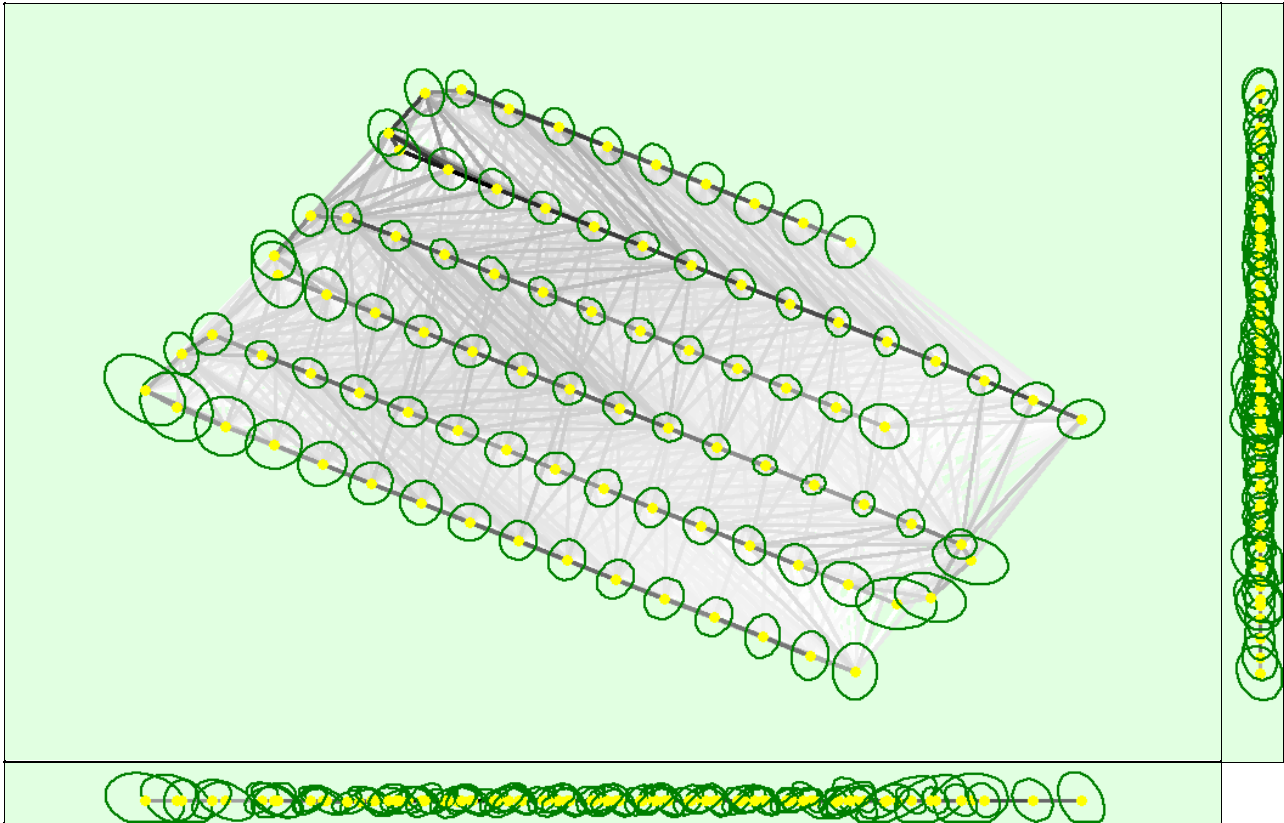
2D Keypoints Table

	Number of 2D Keypoints per Image	Number of Matched 2D Keypoints per Image
Median	4668	1662
Mn	4035	833
Max	6048	2286
Mean	4665	1658

3D Points from 2D Keypoint Matches

	Number of 3D Points Observed
In 2 Images	40195
In 3 Images	8467
In 4 Images	3468
In 5 Images	1666
In 6 Images	969
In 7 Images	558
In 8 Images	339
In 9 Images	203
In 10 Images	142
In 11 Images	79
In 12 Images	60
In 13 Images	46
In 14 Images	33
In 15 Images	21
In 16 Images	10
In 17 Images	7
In 18 Images	13
In 19 Images	2
In 20 Images	10
In 21 Images	4
In 23 Images	1
In 25 Images	3

2D Keypoint Matches



Uncertainty ellipses 500x magnified

Number of matches

25 84 168 252 336 420 504 588 672 756

Figure 5: Computed image positions with links between matched images. The darkness of the links indicates the number of matched 2D keypoints between the images. Bright links indicate weak links and require manual tie points or more images. Dark green ellipses indicate the relative camera position uncertainty of the bundle block adjustment result.

Relative camera position and orientation uncertainties

	X[m]	Y[m]	Z[m]	Omega [degree]	Phi [degree]	Kappa [degree]
Mean	0.007	0.007	0.006	0.011	0.014	0.010
Sigma	0.002	0.002	0.001	0.003	0.003	0.002

Geolocation Details

Ground Control Points

GCP Name	Accuracy XY/Z [m]	Error X[m]	Error Y [m]	Error Z [m]	Projection Error [pixel]	Verified/Marked
GCP1 (3D)	0.020/ 0.020	0.001	0.005	0.004	0.558	11 / 11
GCP2 (3D)	0.020/ 0.020	-0.004	-0.006	-0.010	0.581	28 / 28
GCP3 (3D)	0.020/ 0.020	0.007	-0.006	0.002	0.525	29 / 29
GCP4 (3D)	0.020/ 0.020	0.005	0.012	-0.006	0.450	17 / 17
GCP5 (3D)	0.020/ 0.020	-0.010	-0.001	0.012	0.877	3 / 3
Mean [m]		-0.000348	0.000868	0.000449		
Sigma [m]		0.005952	0.006963	0.007545		
RMS Error [m]		0.005962	0.007016	0.007559		

Localisation accuracy per GCP and mean errors in the three coordinate directions. The last column counts the number of calibrated images where the GCP has been automatically verified v.s. manually marked.

🔍 Absolute Geolocation Variance



Mn Error [m]	Max Error [m]	Geolocation Error X [%]	Geolocation Error Y [%]	Geolocation Error Z [%]
-	-0.05	0.00	0.00	0.00
-0.05	-0.04	0.00	0.00	0.00
-0.04	-0.03	0.00	0.00	0.00
-0.03	-0.02	0.00	0.00	2.25
-0.02	-0.01	0.00	0.00	8.99
-0.01	0.00	53.93	55.06	42.70
0.00	0.01	46.07	44.94	34.83
0.01	0.02	0.00	0.00	6.74
0.02	0.03	0.00	0.00	2.25
0.03	0.04	0.00	0.00	2.25
0.04	0.05	0.00	0.00	0.00
0.05	-	0.00	0.00	0.00
Mean [m]		-0.014265	0.002625	-2.201189
Sigma [m]		0.001652	0.001563	0.009452
RMS Error [m]		0.014360	0.003056	2.201209

Min Error and Max Error represent geolocation error intervals between -1.5 and 1.5 times the maximum accuracy of all the images. Columns X, Y, Z show the percentage of images with geolocation errors within the predefined error intervals. The geolocation error is the difference between the initial and computed image positions. Note that the image geolocation errors do not correspond to the accuracy of the observed 3D points.

Geolocation Bias	X	Y	Z
Translation [m]	-0.014265	0.002625	-2.201190

Bias between image initial and computed geolocation given in output coordinate system.

🔍 Relative Geolocation Variance



Relative Geolocation Error	Images X [%]	Images Y [%]	Images Z [%]
[-1.00, 1.00]	100.00	100.00	98.88
[-2.00, 2.00]	100.00	100.00	100.00
[-3.00, 3.00]	100.00	100.00	100.00
Mean of Geolocation Accuracy [m]	0.012368	0.012368	0.029838
Sigma of Geolocation Accuracy [m]	0.000199	0.000199	0.000678

Images X, Y, Z represent the percentage of images with a relative geolocation error in X, Y, Z.

Geolocation Orientational Variance	RMS [degree]
Omega	2.328
Phi	1.726
Kappa	6.008

Geolocation RMS error of the orientation angles given by the difference between the initial and computed image orientation angles.

Initial Processing Details



System Information



Hardware	CPU: AMD Ryzen 5 PRO 5675U with Radeon Graphics RAM: 6GB GPU: Red Hat QXL controller (Driver: 10.0.0.18000)
Operating System	Windows 11, 64-bit

Coordinate Systems



Image Coordinate System	WGS 84
Ground Control Point (GCP) Coordinate System	ETRS89 / UTMzone 32N (+40.854m)
Output Coordinate System	ETRS89 / UTMzone 32N (+40.854m)

Processing Options



Detected Template	3D Maps - Rapid/Low Res
Keypoints Image Scale	Rapid, Image Scale: 0.25
Advanced: Matching Image Pairs	Aerial Grid or Corridor
Advanced: Matching Strategy	Use Geometrically Verified Matching: no
Advanced: Keypoint Extraction	Targeted Number of Keypoints: Automatic
Advanced: Calibration	Calibration Method: Standard Internal Parameters Optimization: All External Parameters Optimization: All Rematch: Auto, yes