

Quality Report



Generated with Pix4Denterprise version 4.5.6



Important: Click on the different icons for:



Help to analyze the results in the Quality Report



Additional information about the sections



Click [here](#) for additional tips to analyze the Quality Report

Summary



Project	[REDACTED]
Processed	2025-06-28 17:39:20
Camera Model Name(s)	FC9113_8.7_8192x4608 (RGB), FC9113_8.7_4096x2304 (RGB)
Average Ground Sampling Distance (GSD)	0.51 cm / 0.20 in
Area Covered	0.001 km ² / 0.1090 ha / 0.00 sq. mi. / 0.2694 acres
Time for Initial Processing (without report)	04m:58s

Quality Check



Images	median of 47071 keypoints per image	
Dataset	53 out of 53 images calibrated (100%), all images enabled	
Camera Optimization	2.72% relative difference between initial and optimized internal camera parameters	
Matching	median of 21482.8 matches per calibrated image	
Georeferencing	yes, no 3D GCP	

Preview

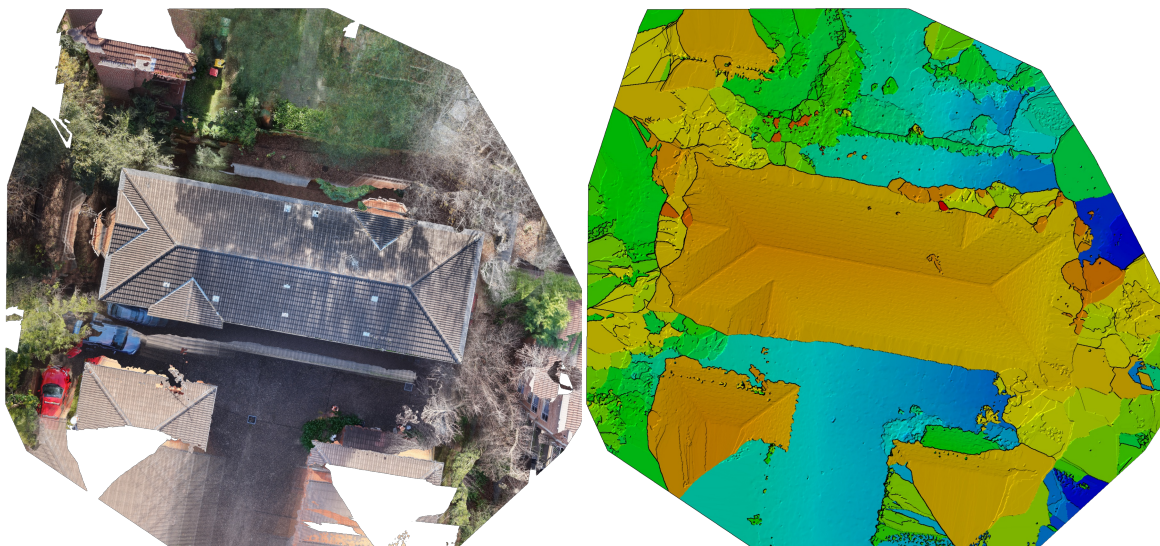


Figure 1: Orthomosaic and the corresponding sparse Digital Surface Model (DSM) before densification.

Calibration Details



Number of Calibrated Images	53 out of 53
Number of Geolocated Images	53 out of 53

? Initial Image Positions

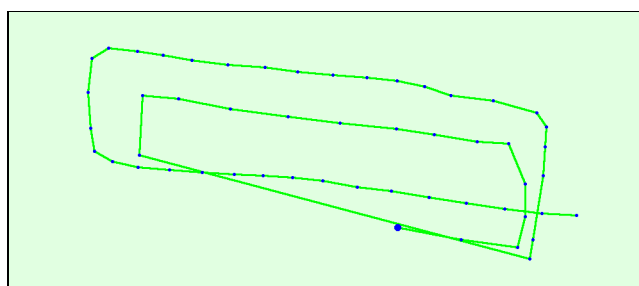
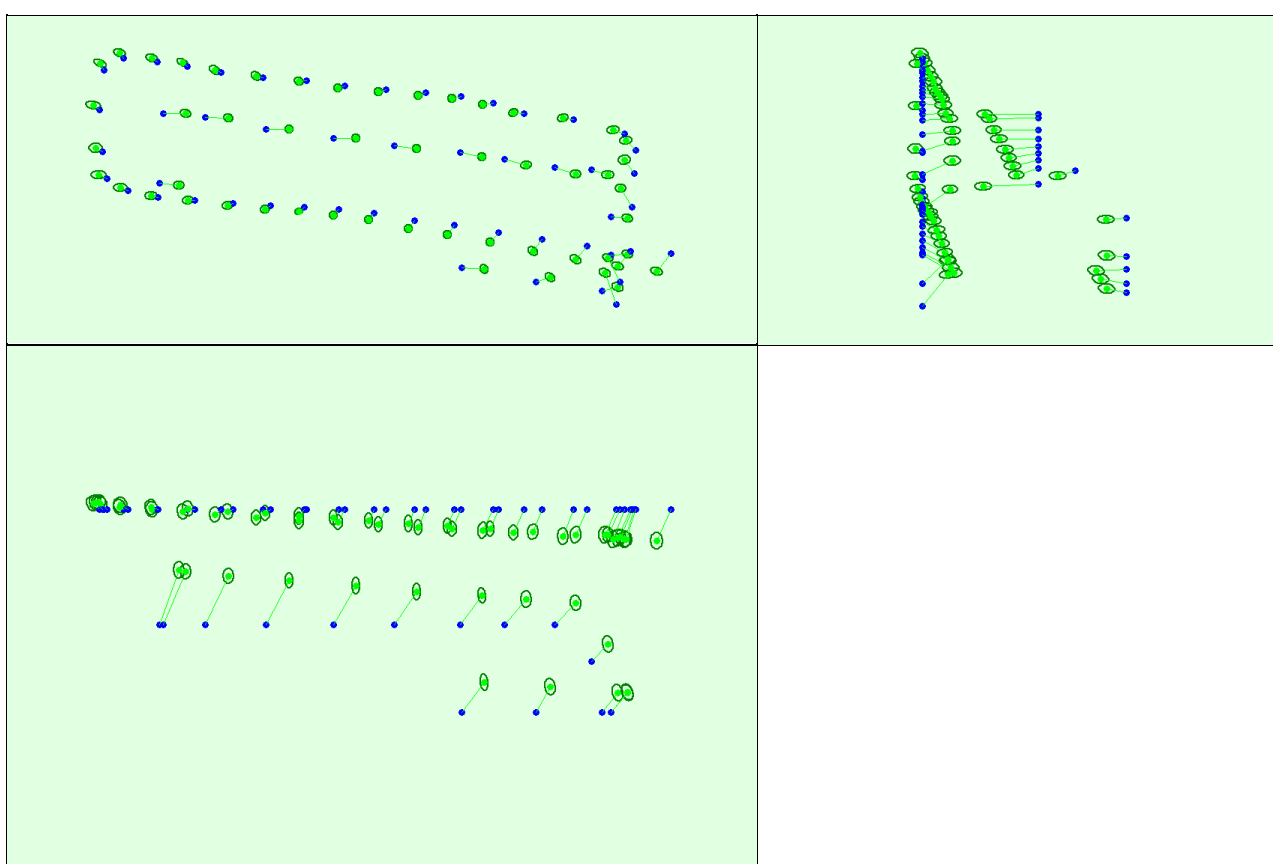


Figure 2: Top view of the initial image position. The green line follows the position of the images in time starting from the large blue dot.

? Computed Image/GCPs/Manual Tie Points Positions



Uncertainty ellipses 1x 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	0.183	0.145	0.275	0.087	0.088	0.130
Sigma	0.034	0.007	0.005	0.000	0.000	0.002

? Overlap



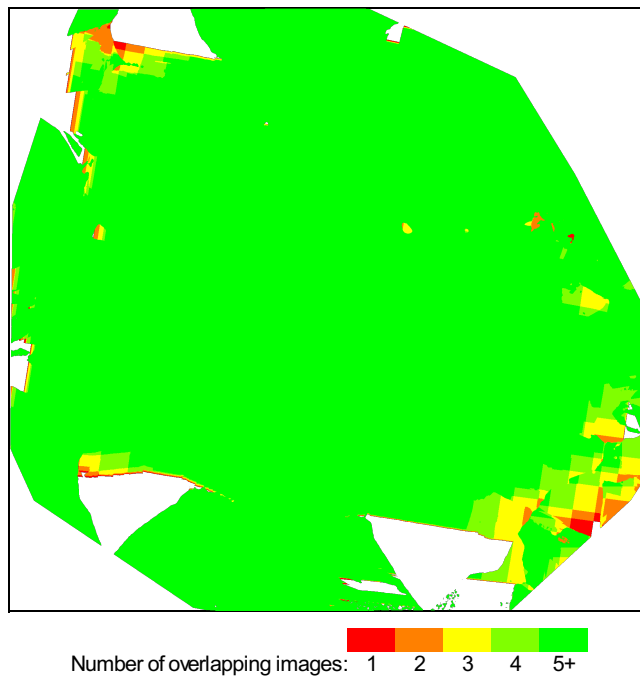


Figure 4: Number of overlapping images computed for each pixel of the orthomosaic. Red and yellow areas indicate low overlap for which poor results may be generated. Green areas indicate an overlap of over 5 images for every pixel. Good quality results will be generated as long as the number of keypoint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

Bundle Block Adjustment Details

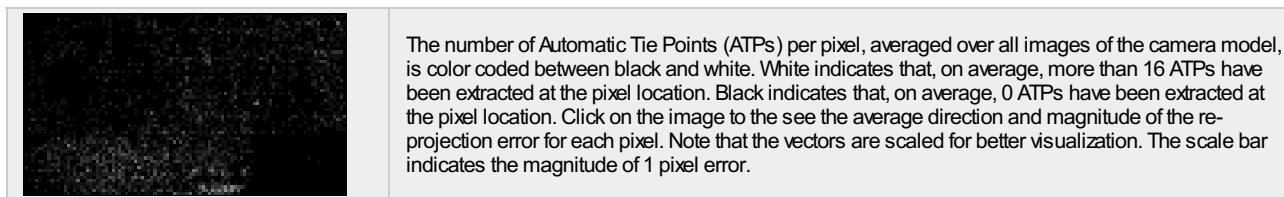
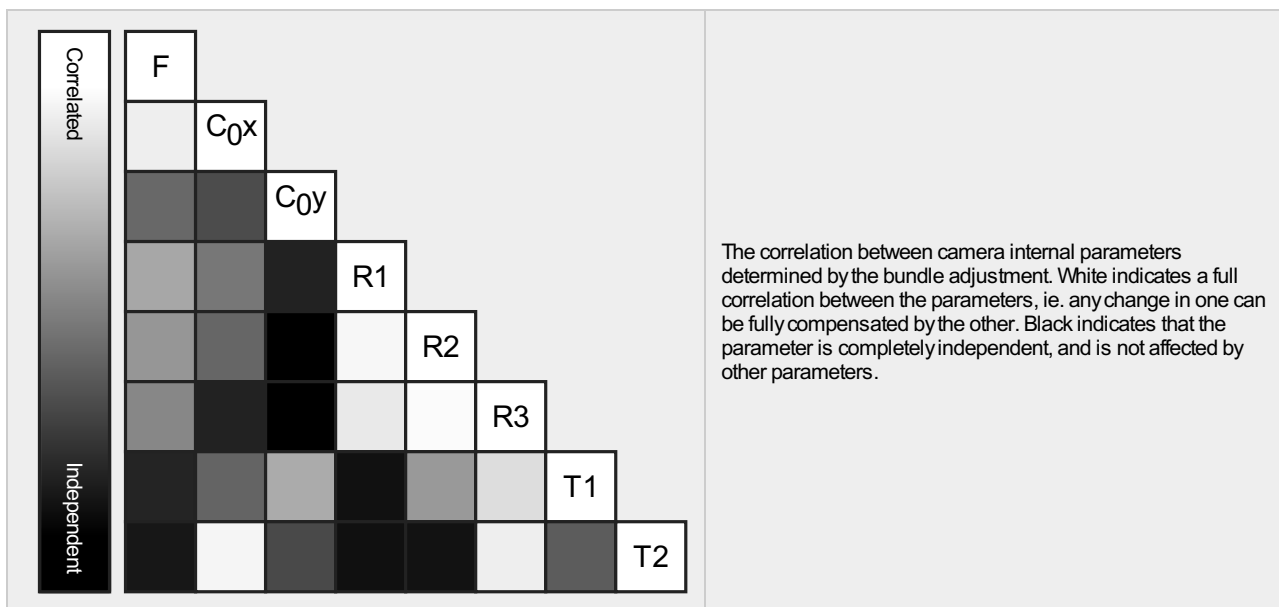
Number of 2D Keypoint Observations for Bundle Block Adjustment	1145068
Number of 3D Points for Bundle Block Adjustment	333473
Mean Reprojection Error [pixels]	0.224

Internal Camera Parameters

FC9113_8.7_8192x4608 (RGB). Sensor Dimensions: 12.644 [mm] x 7.112 [mm]

EXIF ID: FC9113_8.7_8192x4608

	Focal Length	Principal Point x	Principal Point y	R1	R2	R3	T1	T2
Initial Values	5617.371 [pixel] 8.670 [mm]	4096.000 [pixel] 6.322 [mm]	2304.000 [pixel] 3.556 [mm]	0.000	0.000	0.000	0.000	0.000
Optimized Values	5471.384 [pixel] 8.445 [mm]	4100.980 [pixel] 6.330 [mm]	2308.732 [pixel] 3.563 [mm]	0.074	-0.192	0.160	0.000	0.001
Uncertainties (Sigma)	1.613 [pixel] 0.002 [mm]	2.243 [pixel] 0.003 [mm]	1.757 [pixel] 0.003 [mm]	0.002	0.007	0.007	0.000	0.000

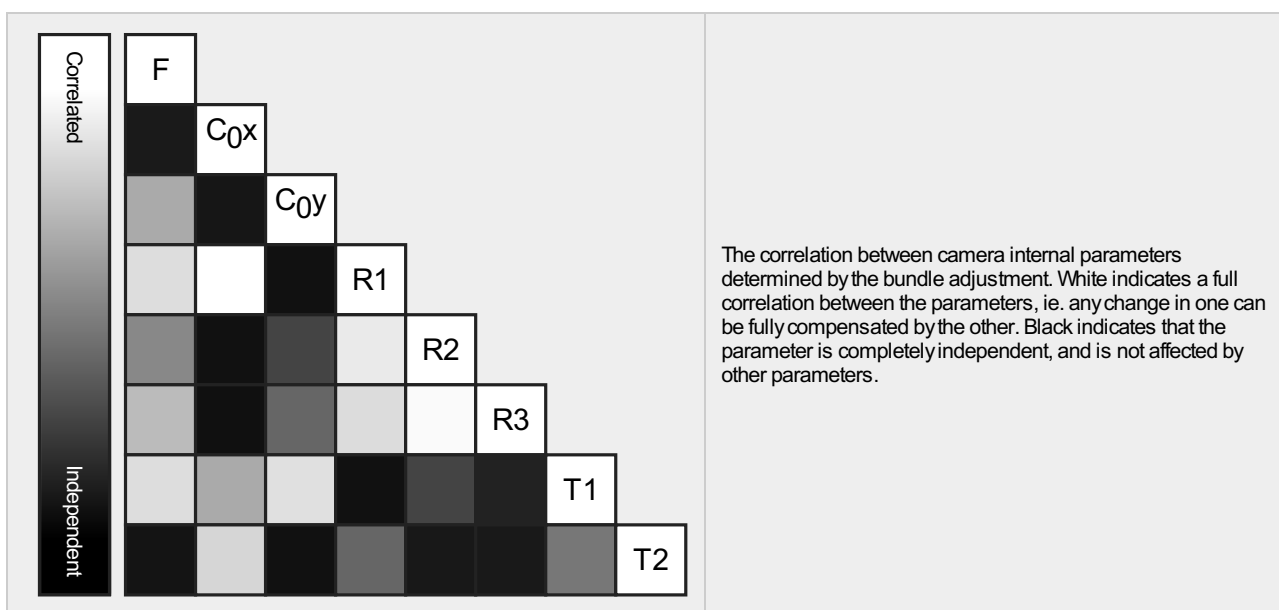


Internal Camera Parameters

FC9113_8.7_4096x2304 (RGB). Sensor Dimensions: 12.644 [mm] x 7.112 [mm]

EXIF ID: FC9113_8.7_4096x2304

	Focal Length	Principal Point x	Principal Point y	R1	R2	R3	T1	T2
Initial Values	2808.686 [pixel] 8.670 [mm]	2048.000 [pixel] 6.322 [mm]	1152.000 [pixel] 3.556 [mm]	0.000	0.000	0.000	0.000	0.000
Optimized Values	2728.370 [pixel] 8.422 [mm]	2048.470 [pixel] 6.323 [mm]	1148.115 [pixel] 3.544 [mm]	0.074	-0.180	0.142	-0.000	0.001
Uncertainties (Sigma)	0.305 [pixel] 0.001 [mm]	0.206 [pixel] 0.001 [mm]	0.222 [pixel] 0.001 [mm]	0.000	0.001	0.001	0.000	0.000





The number of Automatic Tie Points (ATPs) per pixel, averaged over all images of the camera model, is color coded between black and white. White indicates that, on average, more than 16 ATPs have been extracted at the pixel location. Black indicates that, on average, 0 ATPs have been extracted at the pixel location. Click on the image to see the average direction and magnitude of the re-projection error for each pixel. Note that the vectors are scaled for better visualization. The scale bar indicates the magnitude of 1 pixel error.

? 2D Keypoints Table



	Number of 2D Keypoints per Image	Number of Matched 2D Keypoints per Image
Median	47071	21483
Mn	36983	7417
Max	148734	32025
Mean	47676	21605

2D Keypoints Table for Camera FC9113_8.7_8192x4608 (RGB)

	Number of 2D Keypoints per Image	Number of Matched 2D Keypoints per Image
Median	148734	0
Mn	148734	7417
Max	148734	7417
Mean	148734	7417

2D Keypoints Table for Camera FC9113_8.7_4096x2304 (RGB)

	Number of 2D Keypoints per Image	Number of Matched 2D Keypoints per Image
Median	47071	21803
Mn	36983	12193
Max	55739	32025
Mean	45733	21878

Median / 75% / Maximal Number of Matches Between Camera Models

	FC9113_8.7_8192...(RGB)	FC9113_8.7_4096...(RGB)
FC9113_8.7_8192x4608 (RGB)		247 / 517 / 4435
FC9113_8.7_4096x2304 (RGB)		713 / 2568 / 19287

? 3D Points from 2D Keypoint Matches



	Number of 3D Points Observed
In 2 Images	181932
In 3 Images	60261
In 4 Images	31540
In 5 Images	18064
In 6 Images	11263
In 7 Images	7868
In 8 Images	5271
In 9 Images	3490
In 10 Images	2711
In 11 Images	2214
In 12 Images	1728
In 13 Images	1512
In 14 Images	1259
In 15 Images	960
In 16 Images	859
In 17 Images	733
In 18 Images	480
In 19 Images	362
In 20 Images	309

In 21 Images	185
In 22 Images	113
In 23 Images	72
In 24 Images	72
In 25 Images	51
In 26 Images	42
In 27 Images	14
In 28 Images	22
In 29 Images	19
In 30 Images	11
In 31 Images	12
In 32 Images	8
In 33 Images	6
In 34 Images	8
In 35 Images	7
In 36 Images	2
In 37 Images	2
In 38 Images	1
In 39 Images	5
In 40 Images	3
In 41 Images	1
In 44 Images	1

? 2D Keypoint Matches

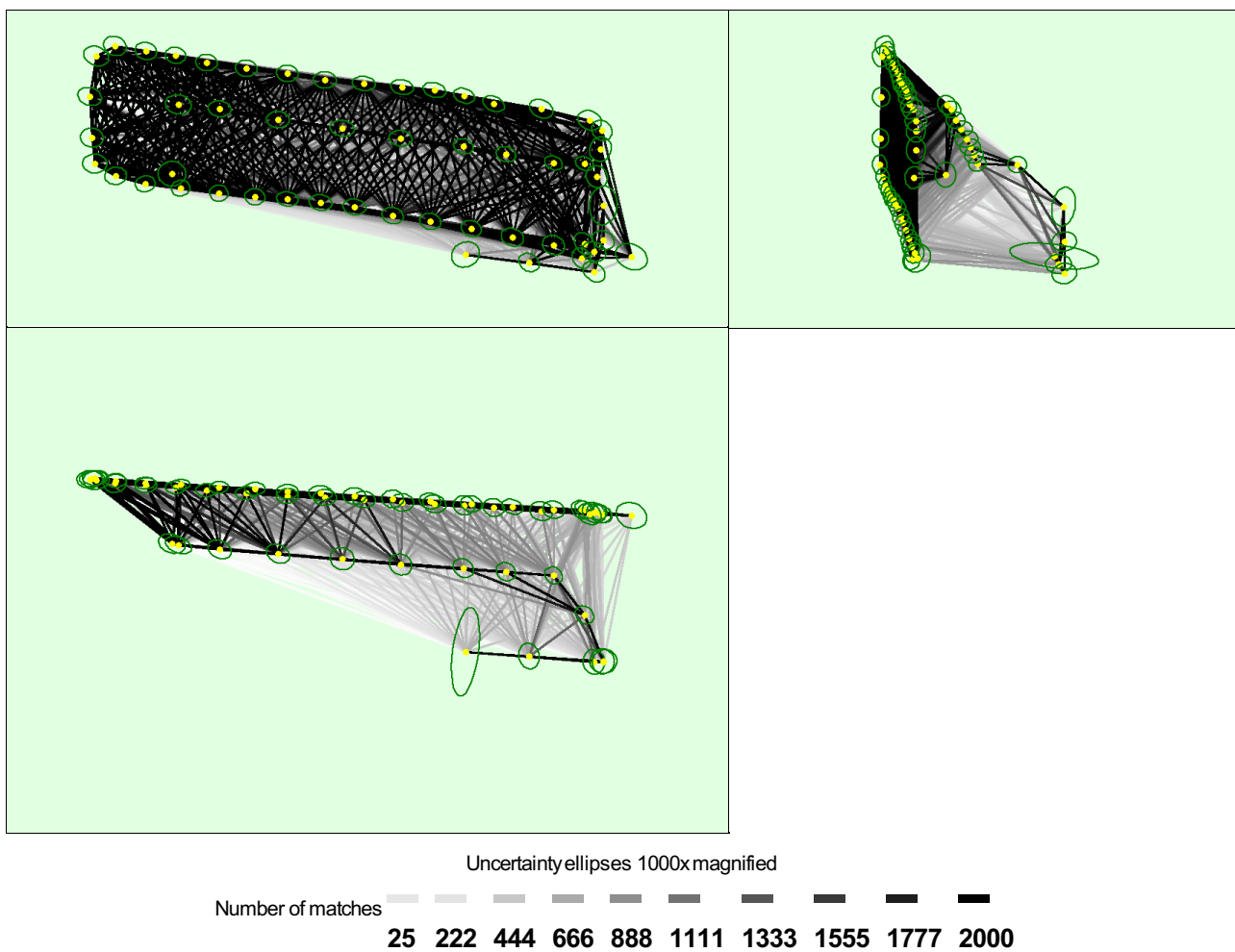


Figure 5: Computed image positions with links between matched images. The darkness of the links indicates the number of matched 2D keypoints between the images. Bright links indicate weak links and require manual tie points or more images. Dark green ellipses indicate the relative camera position uncertainty 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	0.000	0.000	0.000	0.004	0.005	0.002
Sigma	0.000	0.000	0.000	0.002	0.002	0.000

Geolocation Details

? Absolute Geolocation Variance

Mn Error [m]	Max Error [m]	Geolocation Error X[%]	Geolocation Error Y[%]	Geolocation Error Z[%]
-	-15.00	0.00	0.00	0.00
-15.00	-12.00	0.00	0.00	0.00
-12.00	-9.00	0.00	0.00	0.00
-9.00	-6.00	0.00	0.00	0.00
-6.00	-3.00	0.00	0.00	0.00
-3.00	0.00	28.30	47.17	45.28
0.00	3.00	71.70	52.83	54.72
3.00	6.00	0.00	0.00	0.00
6.00	9.00	0.00	0.00	0.00
9.00	12.00	0.00	0.00	0.00
12.00	15.00	0.00	0.00	0.00
15.00	-	0.00	0.00	0.00
Mean [m]		-0.000017	0.000014	-0.000671
Sigma [m]		0.451941	0.301499	0.831745
RMS Error [m]		0.451941	0.301499	0.831745

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.

? Relative Geolocation Variance

Relative Geolocation Error	Images X[%]	Images Y[%]	Images Z[%]
[-1.00, 1.00]	100.00	100.00	100.00
[-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]	5.000000	5.000000	10.000000
Sigma of Geolocation Accuracy [m]	0.000000	0.000000	0.000000

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

Geolocation Orientational Variance	RMS [degree]
Omega	2.339
Phi	3.363
Kappa	22.284

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: 12th Gen Intel(R) Core(TM) i5-12450H RAM: 8GB GPU: Intel(R) UHD Graphics (Driver: 31.0.101.5592), NVIDIA GeForce RTX 2050 (Driver: 32.0.15.6614)
Operating System	Windows 10 Home, 64-bit

Coordinate Systems



Image Coordinate System	WGS 84 (EGM96 Geoid)
Output Coordinate System	WGS 84 / UTMzone 56S (EGM96 Geoid)

Processing Options



Detected Template	3D Maps
Keypoints Image Scale	Full, Image Scale: 1
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

Point Cloud Densification details



Processing Options



Image Scale	multiscale, 1/2 (Half image size, Default)
Point Density	Optimal
Minimum Number of Matches	3
3D Textured Mesh Generation	yes
3D Textured Mesh Settings:	Resolution: Medium Resolution (default) Color Balancing: no
LOD	Generated: no
Advanced: 3D Textured Mesh Settings	Sample Density Divider: 1
Advanced: Image Groups	group1
Advanced: Use Processing Area	yes
Advanced: Use Annotations	yes
Time for Point Cloud Densification	02m:24s
Time for Point Cloud Classification	NA
Time for 3D Textured Mesh Generation	01m:14s

Results



Number of Processed Clusters	2
Number of Generated Tiles	1
Number of 3D Densified Points	1707878
Average Density (per m ³)	38074.2

DSM, Orthomosaic and Index Details



Processing Options



DSM and Orthomosaic Resolution	1 x GSD (0.515 [cm/pixel])
DSM Filters	Noise Filtering: yes Surface Smoothing: yes, Type: Sharp

Raster DSM	Generated: yes Method: Inverse Distance Weighting Merge Tiles: yes
Orthomosaic	Generated: yes Merge Tiles: yes GeoTIFF Without Transparency: no Google Maps Tiles and KML: no
Time for DSM Generation	35s
Time for Orthomosaic Generation	03m:54s
Time for DTM Generation	00s
Time for Contour Lines Generation	00s
Time for Reflectance Map Generation	00s
Time for Index Map Generation	00s