

- !** **Important:** Click on the different icons for:
 - ?** Help to analyze the results in the Quality Report
 - i** Additional information about the sections

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

Summary



Project	Stockpile_Vctor-RTK
Processed	2023-01-16 15:05:16
Camera Model Name(s)	FC6310R_8.8_5472x3648 (RGB)
Average Ground Sampling Distance (GSD)	0.73 cm / 0.29 in
Area Covered	0.039 km ² / 3.8811 ha / 0.01 sq. mi. / 9.5954 acres
Time for Initial Processing (without report)	14m:19s

Quality Check



? Images	median of 61493 keypoints per image	
? Dataset	507 out of 517 images calibrated (98%), all images enabled	
? Camera Optimization	1.2% relative difference between initial and optimized internal camera parameters	
? Matching	median of 5955.12 matches per calibrated image	
? Georeferencing	yes, no 3D GCP	

? Preview

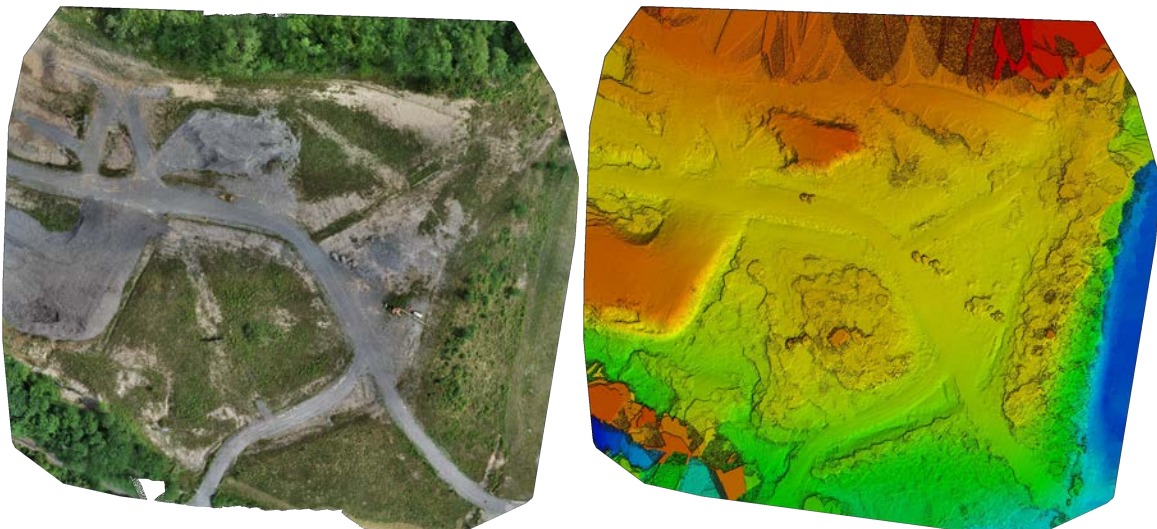


Figure 1: Orthomosaic and the corresponding sparse Digital Surface Model (DSM) before densification.

Calibration Details



Number of Calibrated Images	507 out of 517
Number of Geolocated Images	517 out of 517

Initial Image Positions

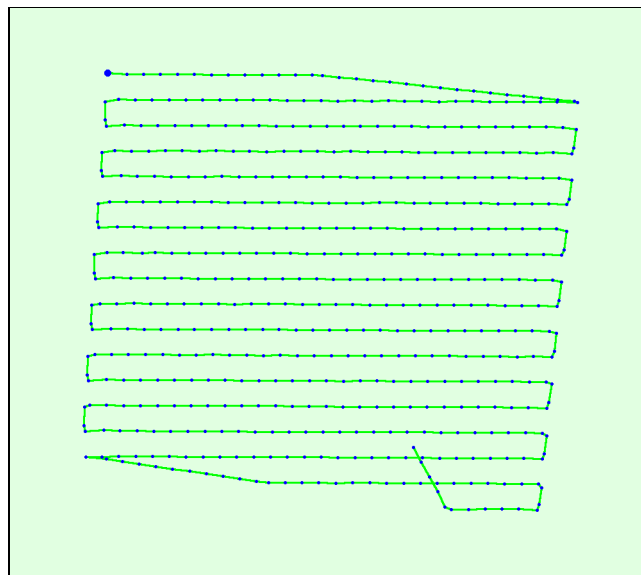


Figure 2: Top view of the initial image position. The green line follows the position of the images in time starting from the large blue dot.

Computed Image/GCPs/Manual Tie Points Positions

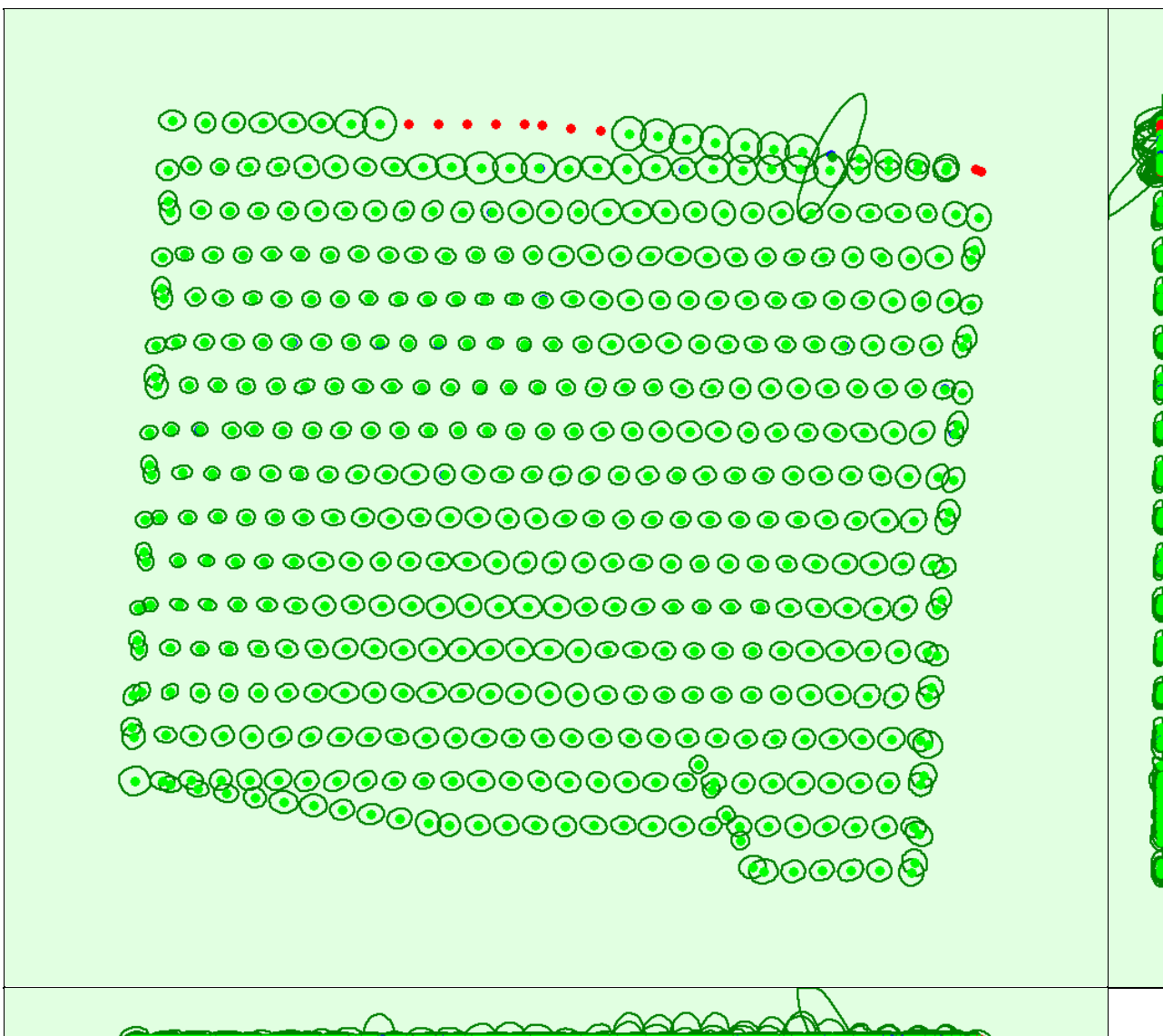


Figure 3: Offset between initial (blue dots) and computed (green dots) image positions as well as the offset between the GCPs initial positions (blue crosses) and their computed positions (green crosses) in the top-view (XY plane), front-view (XZ plane), and side-view (YZ plane). Red dots indicate disabled or uncalibrated images. 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	0.001	0.005	0.006	0.003
Sigma	0.000	0.001	0.001	0.002	0.002	0.003

Overlap

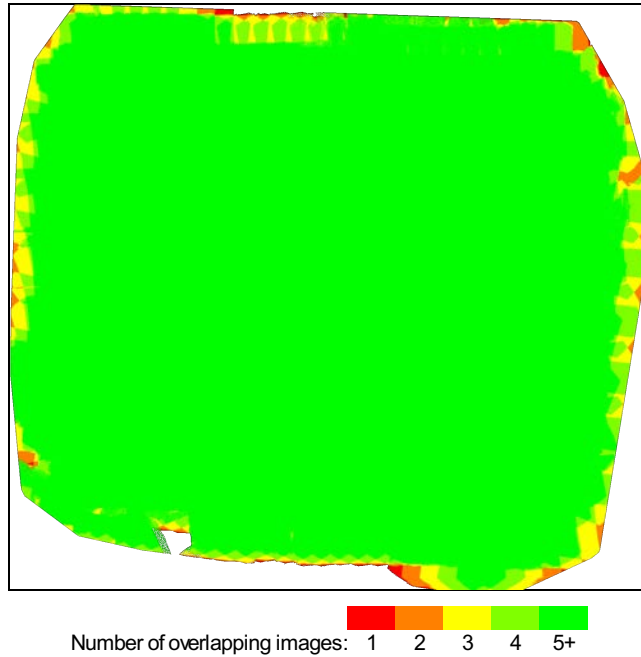


Figure 4: Number of overlapping images computed for each pixel of the orthomosaic. Red and yellow areas indicate low overlap for which poor results may be generated. Green areas indicate an overlap of over 5 images for every pixel. Good quality results will be generated as long as the number of keypoint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

Bundle Block Adjustment Details

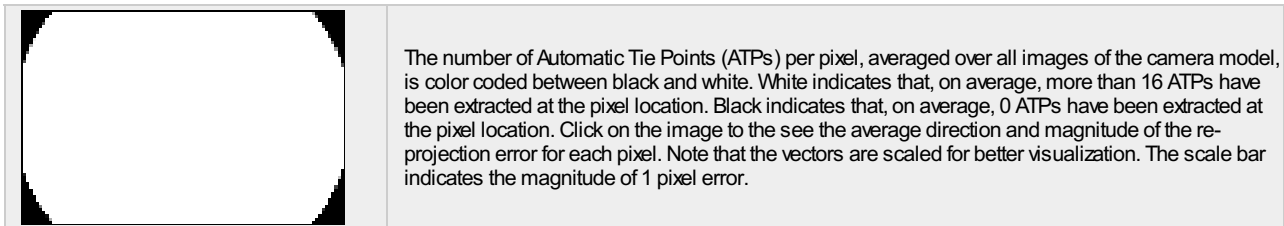
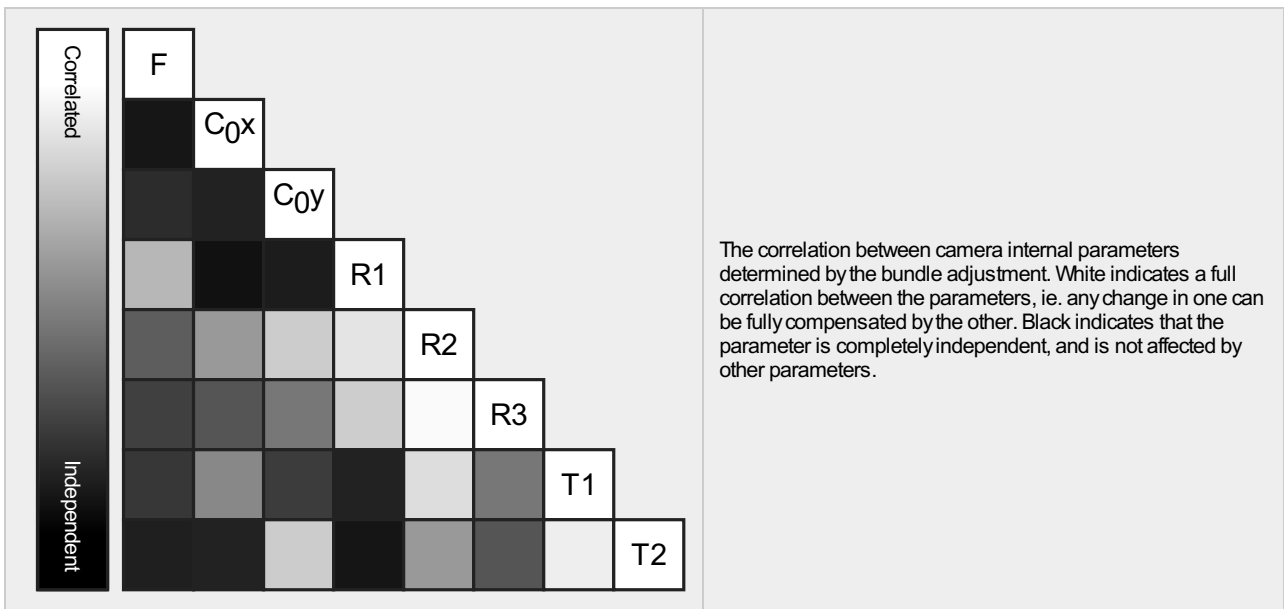
Number of 2D Keypoint Observations for Bundle Block Adjustment	3054224
Number of 3D Points for Bundle Block Adjustment	1182382
Mean Reprojection Error [pixels]	0.082

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	3702.399 [pixel] 8.683 [mm]	2728.327 [pixel] 6.399 [mm]	1803.748 [pixel] 4.230 [mm]	-0.285	0.129	-0.039	-0.000	-0.000
Uncertainties (Sigma)	0.351 [pixel] 0.001 [mm]	0.059 [pixel] 0.000 [mm]	0.048 [pixel] 0.000 [mm]	0.000	0.000	0.000	0.000	0.000



2D Keypoints Table

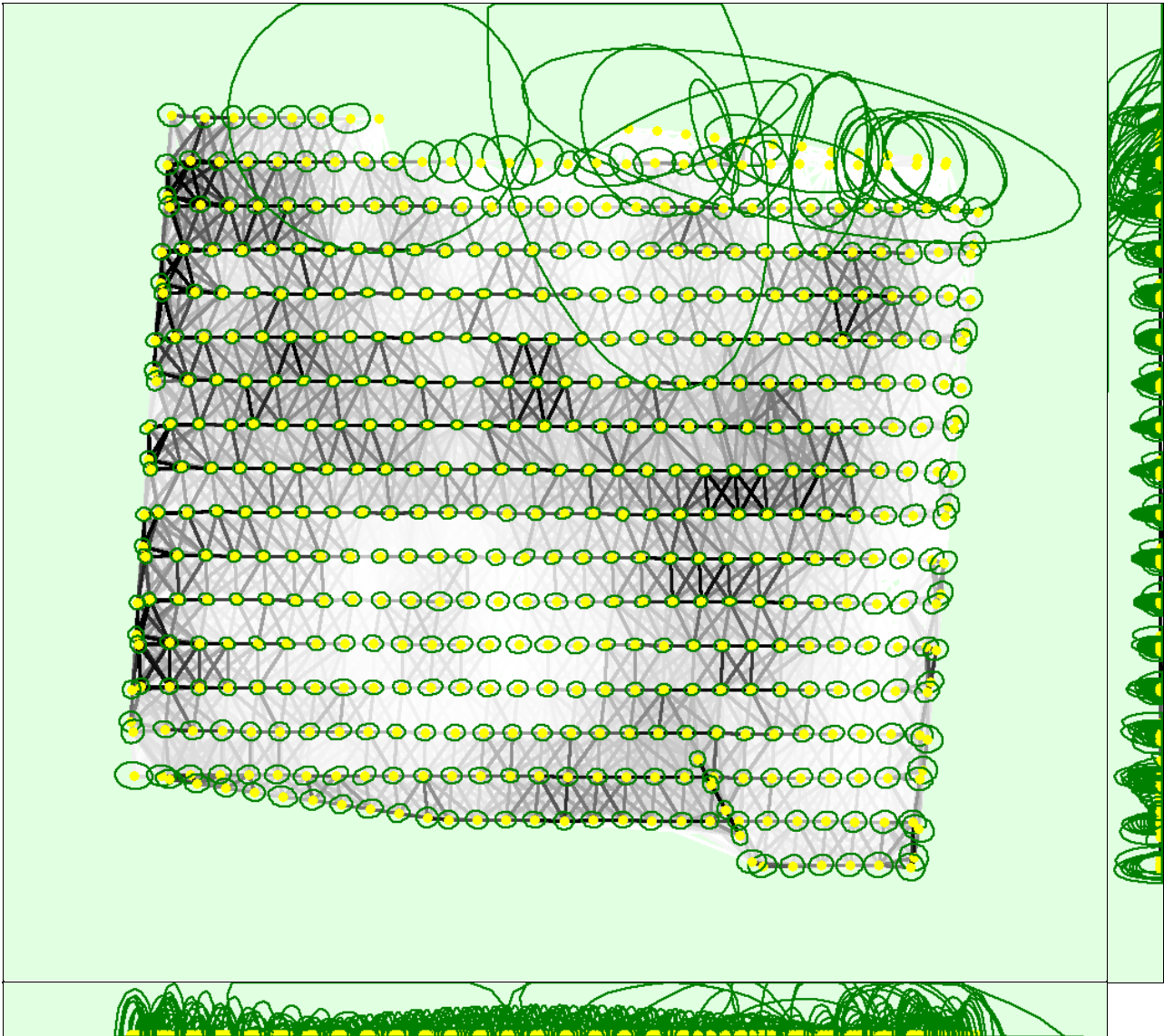
	Number of 2D Keypoints per Image	Number of Matched 2D Keypoints per Image
Median	61493	5955
Mn	32008	48
Max	79671	17872
Mean	59886	6024

3D Points from 2D Keypoint Matches

	Number of 3D Points Observed
In 2 Images	847852
In 3 Images	186023
In 4 Images	71111
In 5 Images	31398
In 6 Images	17519
In 7 Images	10185
In 8 Images	6372
In 9 Images	3862
In 10 Images	2643
In 11 Images	1781
In 12 Images	1204
In 13 Images	814
In 14 Images	498
In 15 Images	374
In 16 Images	279
In 17 Images	170
In 18 Images	110
In 19 Images	62
In 20 Images	42
In 21 Images	31
In 22 Images	18
In 23 Images	7

In 24 Images	9
In 25 Images	7
In 26 Images	7
In 27 Images	4

2D Keypoint Matches



Uncertainty ellipses 500x magnified

Number of matches

25 222 444 666 888 1111 1333 1555 1777 2000

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	0.005	0.005	0.008	0.016	0.019	0.005
Sigma	0.007	0.007	0.007	0.019	0.014	0.010

Geolocation Details

🔍 Absolute Geolocation Variance



Mn Error [m]	Max Error [m]	Geolocation Error X[%]	Geolocation Error Y[%]	Geolocation Error Z[%]
-	-0.04	0.00	0.00	0.00
-0.04	-0.03	0.00	0.00	0.00
-0.03	-0.02	0.00	0.20	0.00
-0.02	-0.02	0.40	0.59	1.78
-0.02	-0.01	3.75	3.36	10.87
-0.01	0.00	47.04	44.27	35.57
0.00	0.01	45.65	46.64	41.70
0.01	0.02	2.96	4.74	9.29
0.02	0.02	0.20	0.20	0.40
0.02	0.03	0.00	0.00	0.20
0.03	0.04	0.00	0.00	0.00
0.04	-	0.00	0.00	0.20
Mean [m]		-0.000002	-0.000012	-0.000048
Sigma [m]		0.004363	0.004542	0.006642
RMS Error [m]		0.004363	0.004542	0.006642

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]	97.43	98.22	99.41
[-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]	0.011981	0.011981	0.020131
Sigma of Geolocation Accuracy [m]	0.000358	0.000358	0.001016

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

Geolocation Orientational Variance	RMS [degree]
Omega	0.536
Phi	0.818
Kappa	3.638

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: Intel(R) Xeon(R) CPU E5-2630 v3 @ 2.40GHz RAM: 64GB GPU: NMDIA Quadro K4200 (Driver: 30.0.14.7404)
Operating System	Windows 10 Pro, 64-bit

Coordinate Systems



Image Coordinate System	WGS 84
Output Coordinate System	WGS 84 / UTMzone 18N

Processing Options



Detected Template	No Template Available
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, no

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	01h:24m:35s
Time for Point Cloud Classification	02m:29s
Time for 3D Textured Mesh Generation	32m:43s

Results



Number of Generated Tiles	4
Number of 3D Densified Points	61634976
Average Density (per m ³)	8122.45

DSM, Orthomosaic and Index Details



Processing Options



DSM and Orthomosaic Resolution	1 x GSD (0.733 [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: yes
Grid DSM	Generated: yes, Spacing [cm]: 100
Raster DTM	Generated: yes Merge Tiles: yes
DTM Resolution	5 x GSD (0.733 [cm/pixel])

Contour Lines Generation	Generated: yes Contour Base [m]: 1 Elevation Interval [m]: 10 Resolution [cm]: 100 Minimum Line Size [vertices]: 20
Time for DSM Generation	39m:32s
Time for Orthomosaic Generation	01h:51m:53s
Time for DTM Generation	16m:24s
Time for Contour Lines Generation	05s
Time for Reflectance Map Generation	00s
Time for Index Map Generation	00s