Quality Report

Generated with Pix4Dmapper Pro version 2.0.104

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	okü harita
Processed	2020-05-23 20:12:52
Average Ground Sampling Distance (GSD)	2.91 cm / 1.14 in
Area Covered	0.6509 km^2 / 65.0909 ha / 0.2514 sq. mi. / 160.926 acres
Time for Initial Processing (without report)	04h:50m:45s

Quality Check

Images	median of 41625 keypoints per image	✓
Dataset	789 out of 790 images calibrated (99%), all images enabled	✓
Camera Optimization	9.72% relative difference between initial and optimized internal camera parameters	⚠
Matching	median of 6858.19 matches per calibrated image	✓
Georeferencing	yes, no 3D GCP	⚠

Preview

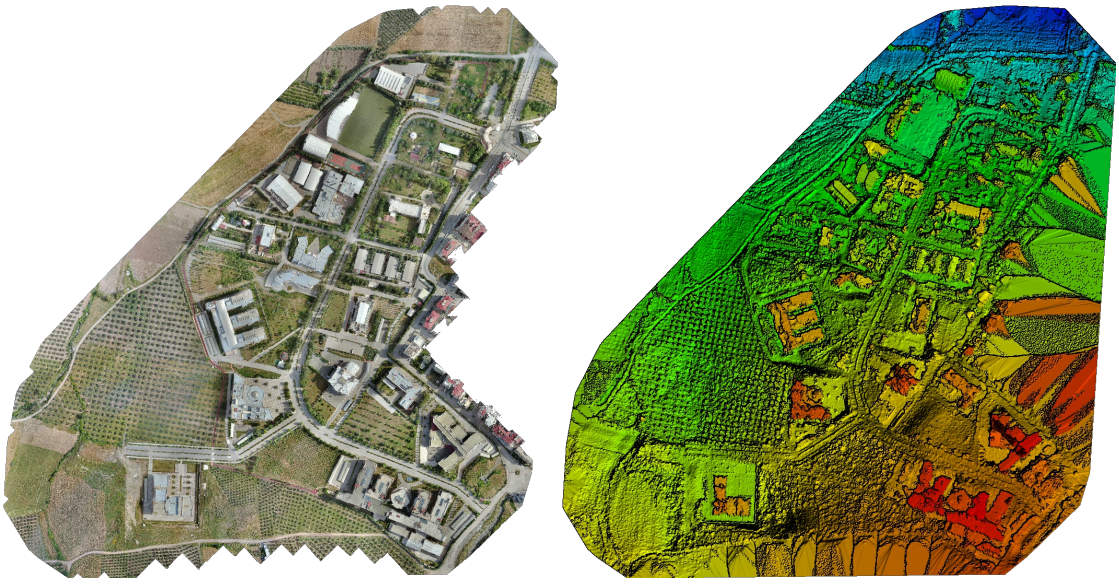


Figure 1: Orthomosaic and the corresponding sparse Digital Surface Model (DSM) before densification.

Calibration Details

Number of Calibrated Images	789 out of 790
Number of Geolocated Images	790 out of 790

Initial Image Positions

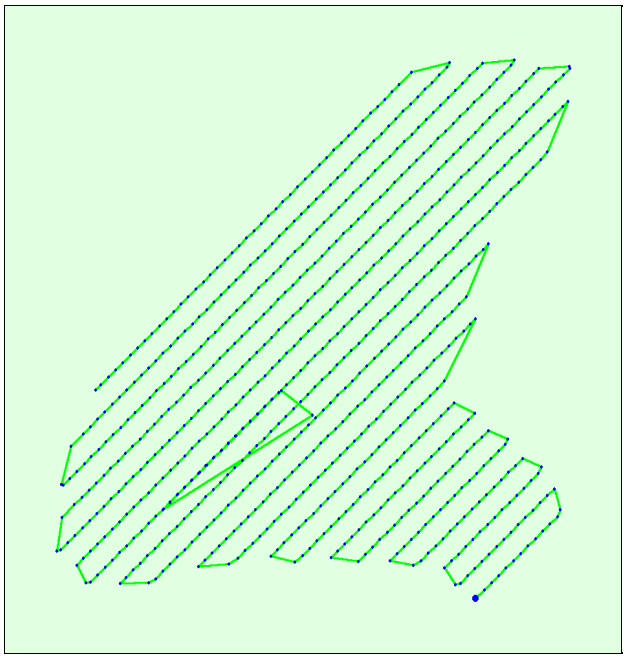


Figure 2: Top view of the initial image position. The green line follows the position of the images in time starting from the large blue dot.

Computed Image/GCPs/Manual Tie Points Positions

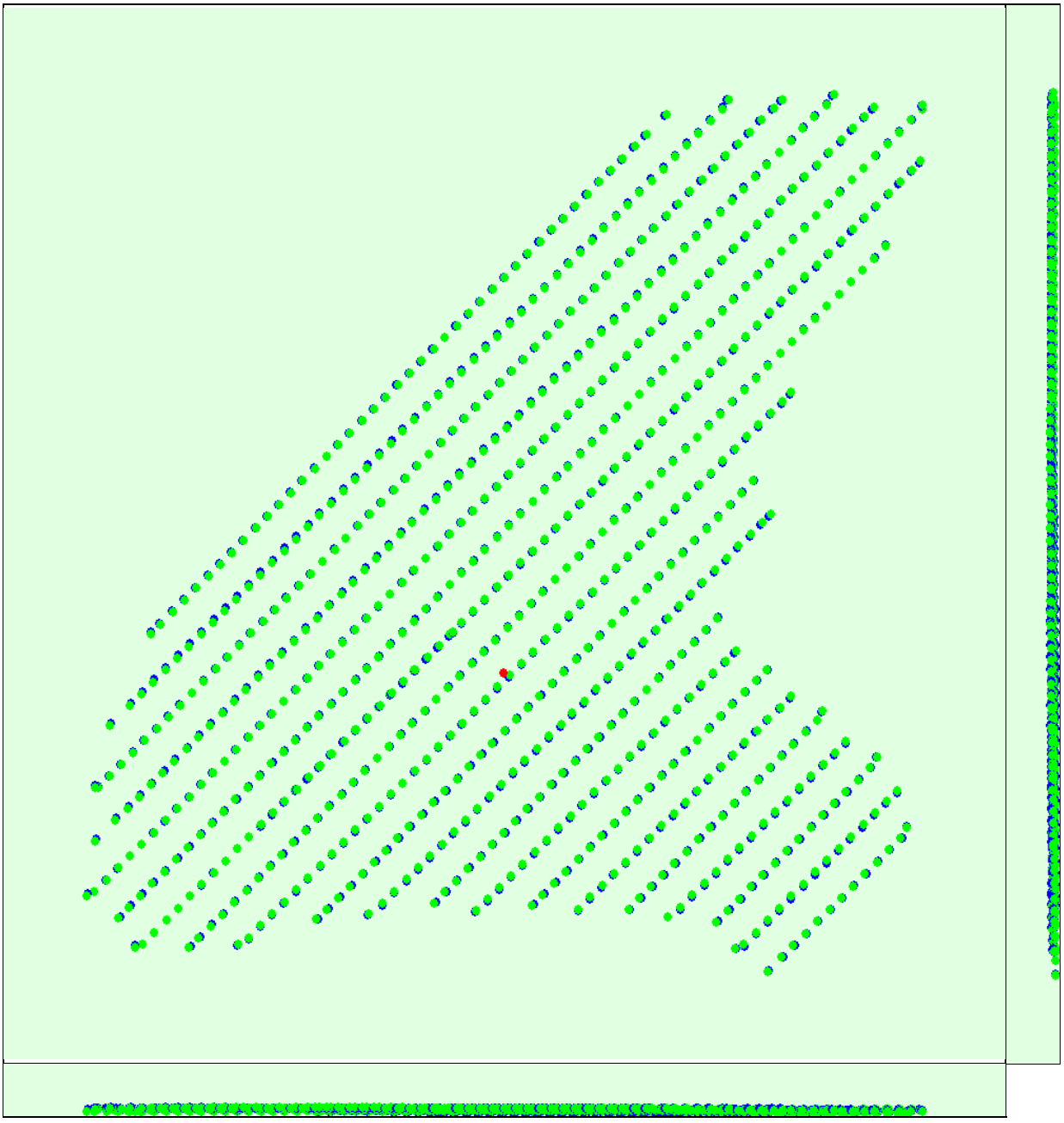


Figure 3: Offset between initial (blue dots) and computed (green dots) image positions as well as the offset between the GCPs initial positions (blue crosses) and their computed positions (green crosses) in the top-view (XY plane), front-view (XZ plane), and side-view (YZ plane).
Red dots indicate disabled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

Overlap

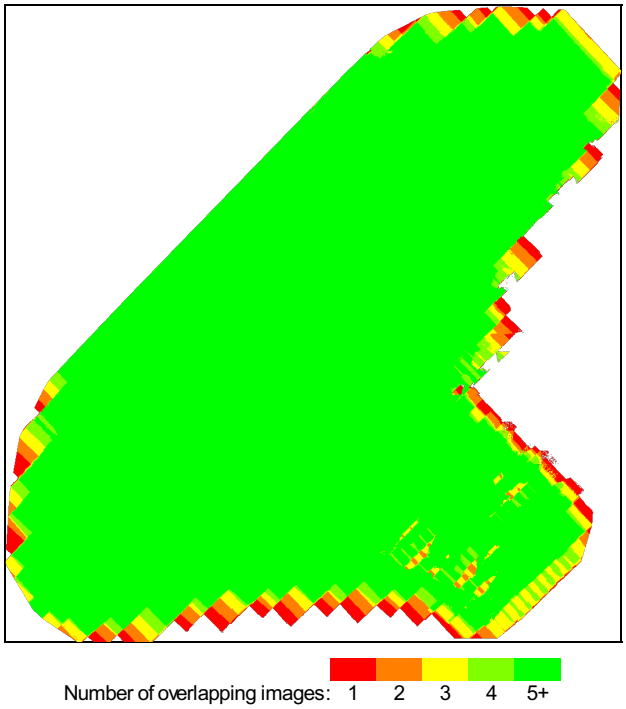


Figure 4: Number of overlapping images computed for each pixel of the orthomosaic.
Red and yellow areas indicate low overlap for which poor results may be generated. Green areas indicate an overlap of over 5 images for every pixel. Good quality results will be generated as long as the number of keypoint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

Bundle Block Adjustment Details

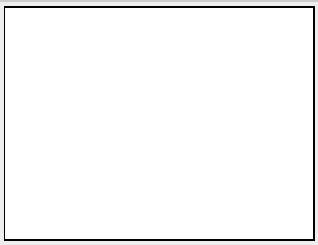
Number of 2D Keypoint Observations for Bundle Block Adjustment	5695525
Number of 3D Points for Bundle Block Adjustment	1948175
Mean Reprojection Error [pixels]	0.145386

Internal Camera Parameters

FC2204_4.4_4000x3000(0K8HF6S001004B) (RGB). Sensor Dimensions: 6.396 [mm] x 4.797 [mm]

EXIF ID: FC2204_4.4_4000x3000

	Focal Length	Principal Point x	Principal Point y	R1	R2	R3	T1	T2
Initial Values	2742.856 [pixel] 4.386 [mm]	1999.999 [pixel] 3.198 [mm]	1500.000 [pixel] 2.399 [mm]	0.000	0.000	0.000	0.000	0.000
Optimized Values	3009.645 [pixel] 4.813 [mm]	1986.367 [pixel] 3.176 [mm]	1533.208 [pixel] 2.452 [mm]	-0.038	0.051	-0.039	0.002	-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, in average, more than 16 ATPs are extracted at this pixel location. Black indicates that, in average, 0 ATP has been extracted at this pixel location. Click on the image to the see the average direction and magnitude of the reprojection error for each pixel. Note that the vectors are scaled for better visualization.

2D Keypoints Table

	Number of 2D Keypoints per Image	Number of Matched 2D Keypoints per Image
Median	41625	6858
Min	19054	1150
Max	63251	28278
Mean	42136	7219

3D Points from 2D Keypoint Matches

	Number of 3D Points Observed
In 2 Images	1217054
In 3 Images	346314
In 4 Images	157376
In 5 Images	86861
In 6 Images	45406
In 7 Images	27683
In 8 Images	19751
In 9 Images	14021
In 10 Images	10377
In 11 Images	7242
In 12 Images	5076
In 13 Images	3522
In 14 Images	2717
In 15 Images	1824
In 16 Images	945
In 17 Images	639
In 18 Images	477
In 19 Images	377
In 20 Images	220
In 21 Images	96
In 22 Images	67
In 23 Images	54
In 24 Images	42
In 25 Images	32
In 26 Images	2

2D Keypoint Matches

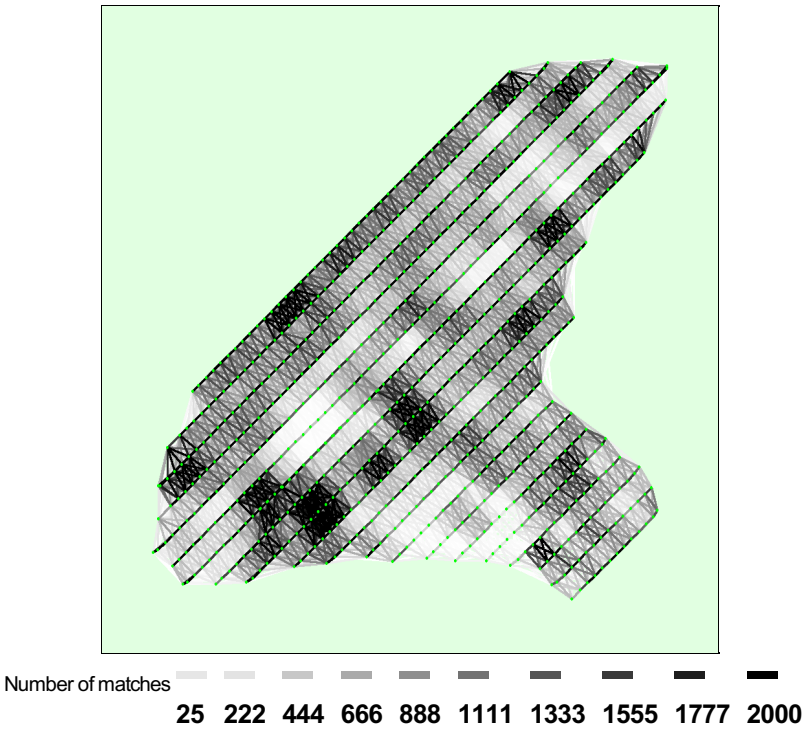


Figure 5: Top view of the image computed positions with a link between matching images. The darkness of the links indicates the number of matched 2D keypoints between the images. Bright links indicate weak links and require manual tie points or more images.

Geolocation Details

Absolute Geolocation Variance

0 out of 789 geolocated and calibrated images have been labeled as inaccurate.

Min 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	53.61	45.37	51.71
0.00	3.00	46.39	54.63	48.29
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]		-0.000001	-0.000001	0.000261
Sigma [m]		1.001061	1.316152	0.806623
RMS Error [m]		1.001061	1.316152	0.806623

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 intial 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.

Processing Options

Hardware	CPU: Intel(R) Core(TM) i5 CPU 650 @ 3.20GHz RAM: 6GB GPU: Intel(R) HD Graphics (Driver: 8.15.10.2900), ATI Mobility Radeon HD 4300 Series (Driver: 8.970.100.9001)
Operating System	Windows 10 Pro, 64-bit
Camera Model Name	FC2204_4.4_4000x3000(0K8HF6S001004B) (RGB)
Image Coordinate System	WGS84 (egm96)
Output Coordinate System	WGS84 / UTM zone 37N
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: no

DSM, Orthomosaic and Index Details

Processing Options

DSM and Orthomosaic Resolution	1 x GSD (2.91 [cm/pixel])
DSM Filters	Noise Filtering: yes, Surface Smoothing: yes, Sharp
DSM Generation	yes, Method: Inverse Distance Weighting, Merge Tiles: yes

Time for DSM Generation	51m:26s
Time for Orthomosaic Generation	02h:49m:33s