Quality Report

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	Test
Processed	2019-05-12 10:25:09
Camera Model Name(s)	_0.0_1920x1080 (RGB)
Average Ground Sampling Distance (GSD)	undefined
Time for Initial Processing (without report)	01m:16s

Quality Check

Images	median of 9390 keypoints per image	⚠
Dataset	11 out of 15 images calibrated (73%), all images enabled	⚠
Camera Optimization	0.49% relative difference between initial and optimized internal camera parameters	✓
Matching	median of 731.469 matches per calibrated image	⚠
Georeferencing	no, no 3D GCP	⚠

Calibration Details

Number of Calibrated Images	11 out of 15
Number of Geolocated Images	0 out of 15

Initial Image Positions

The preview is not generated for images without geolocation.

Computed Image/GCPs/Manual Tie Points Positions

The preview is not generated for images without geolocation.

Bundle Block Adjustment Details

Number of 2D Keypoint Observations for Bundle Block Adjustment	7077
Number of 3D Points for Bundle Block Adjustment	3341
Mean Reprojection Error [pixels]	0.393

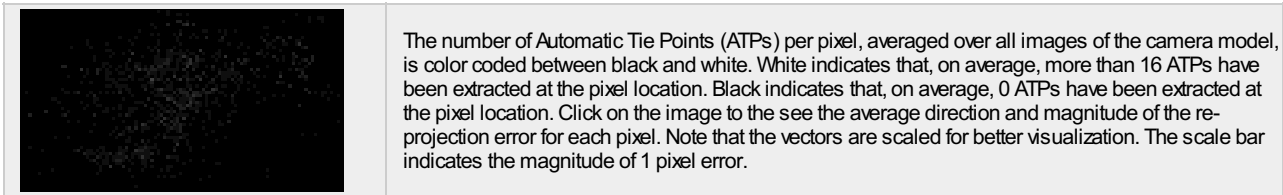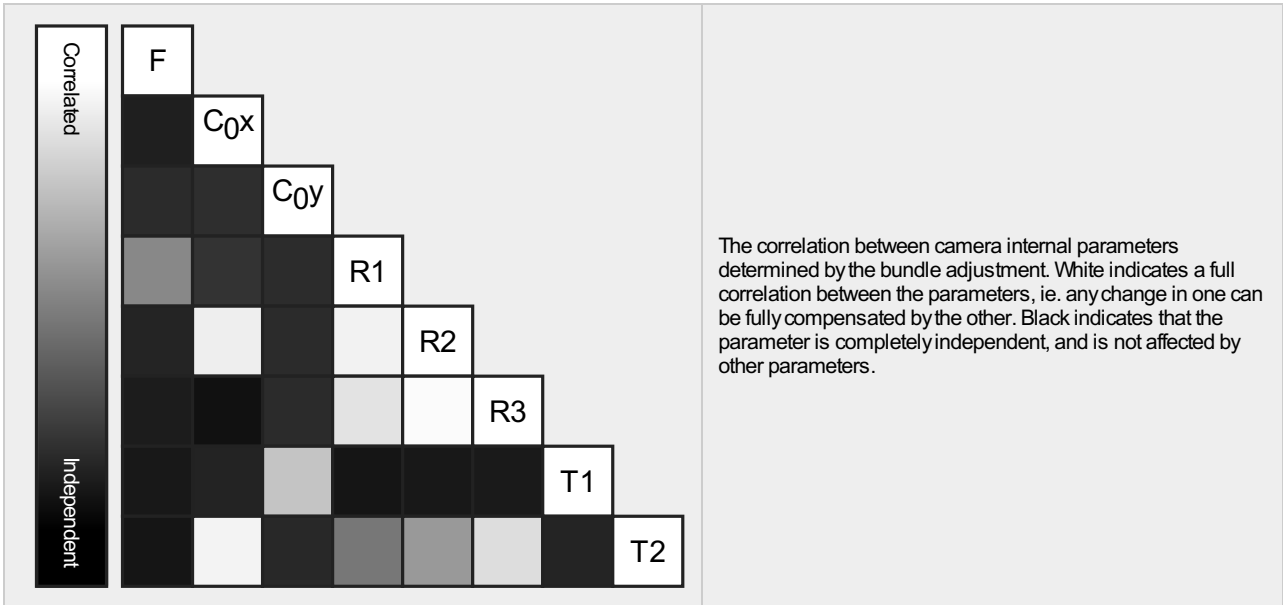### Internal Camera Parameters

_0.0_1920x1080 (RGB). Sensor Dimensions: 25.400 [mm] x 14.287 [mm]

EXIF ID: _0.0_1920x1080

	Focal Length	Principal Point x	Principal Point y	R1	R2	R3	T1	T2
Initial Values	1511.811 [pixel] 20.000 [mm]	960.000 [pixel] 12.700 [mm]	540.000 [pixel] 7.144 [mm]	0.000	0.000	0.000	0.000	0.000
Optimized Values	1504.341 [pixel] 19.901 [mm]	978.178 [pixel] 12.940 [mm]	585.357 [pixel] 7.744 [mm]	0.085	-0.327	0.372	0.004	0.004
Uncertainties (Sigma)	6.453 [pixel] 0.085 [mm]	7.240 [pixel] 0.096 [mm]	6.226 [pixel] 0.082 [mm]	0.016	0.076	0.109	0.001	0.002

The correlation between camera internal parameters determined by the bundle adjustment. White indicates a full correlation between the parameters, ie. any change in one can be fully compensated by the other. Black indicates that the parameter is completely independent, and is not affected by other parameters.

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 the 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	9390	731
Min	7222	94
Max	10994	1045
Mean	9238	643

3D Points from 2D Keypoint Matches

	Number of 3D Points Observed
In 2 Images	3048
In 3 Images	234
In 4 Images	31
In 5 Images	17
In 6 Images	9
In 7 Images	1
In 9 Images	1

2D Keypoint Matches

Uncertainty ellipses 100x magnified

Number of matches
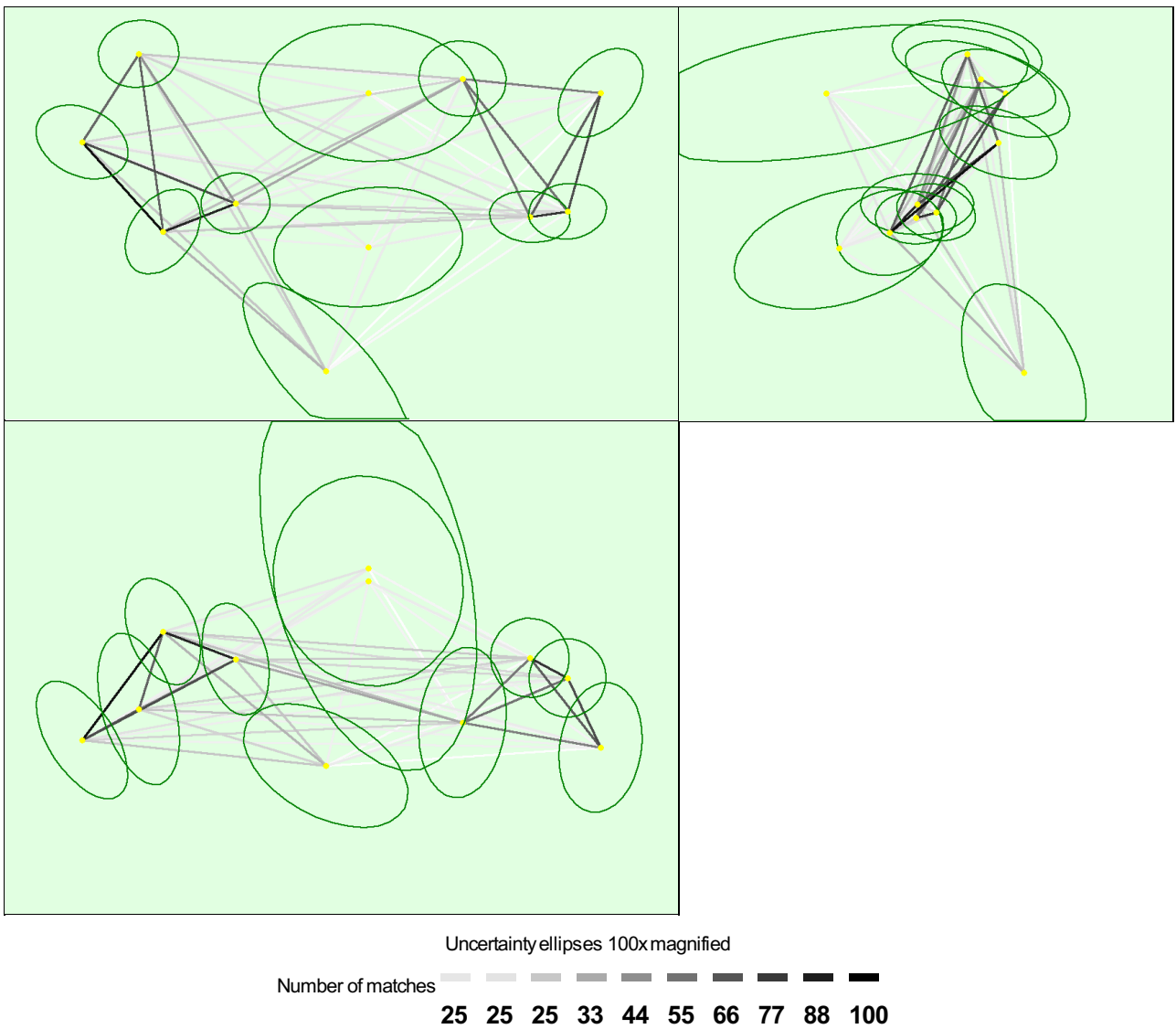
25 25 25 33 44 55 66 77 88 100

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	0.278	0.227	0.379	0.215	0.270	0.121
Sigma	0.127	0.093	0.219	0.016	0.016	0.031

Initial Processing Details

System Information

Hardware	CPU: Intel(R) Core(TM) i3-4010U CPU @ 1.70GHz RAM: 4GB GPU: Intel(R) HD Graphics Family (Driver: 20.19.15.4642)
Operating System	Windows 10 Education, 64-bit

Coordinate Systems

Output Coordinate System	Arbitrary (m)

Processing Options

Detected Template	3D Models
Keypoints Image Scale	Full, Image Scale: 1
Advanced: Matching Image Pairs	Free Flight or Terrestrial
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	37s
Time for Point Cloud Classification	NA
Time for 3D Textured Mesh Generation	01m:09s

Results

Number of Generated Tiles	1
Number of 3D Densified Points	28339
Average Density (per m^3)	0.05