Quality Report

Generated with Pix4Dmapper version 4.6.4

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	魚津1975カラー
Processed	2021-07-13 16:27:57
Camera Model Name(s)	_0.0_12000x13000 (RGB)
Average Ground Sampling Distance (GSD)	undefined
Area Covered	undefined
Time for Initial Processing (without report)	04m:52s

Quality Check

Images	median of 8895 keypoints per image	✓
Dataset	119 out of 140 images calibrated (85%), all images enabled	⚠
Camera Optimization	10.2% relative difference between initial and optimized internal camera parameters	⚠
Matching	median of 1871.13 matches per calibrated image	✓
Georeferencing	no, no 3D GCP	⚠

Preview

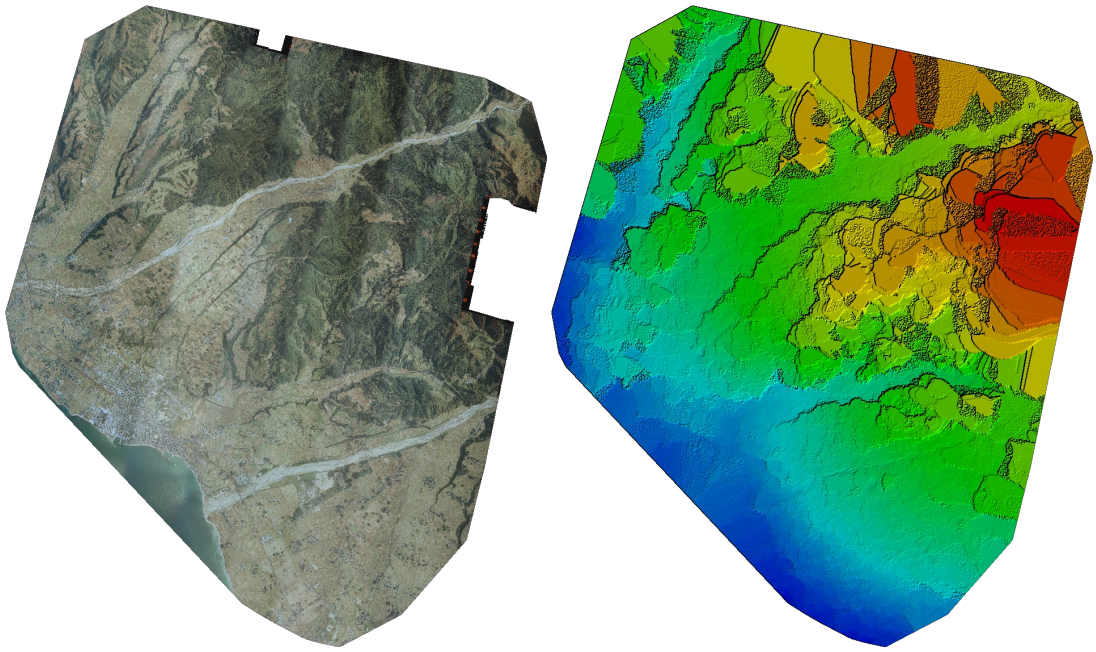


Figure 1: Orthomosaic and the corresponding sparse Digital Surface Model (DSM) before densification.

Calibration Details

Number of Calibrated Images	119 out of 140
Number of Geolocated Images	0 out of 140

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.

Overlap

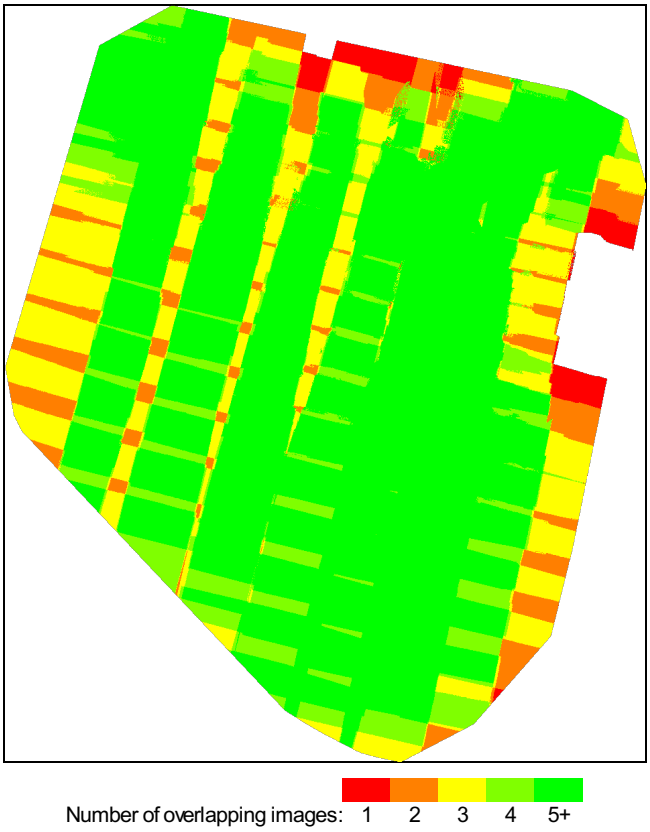


Figure 4: Number of overlapping images computed for each pixel of the orthomosaic.
Red and yellow areas indicate low overlap for which poor results may be generated. Green areas indicate an overlap of over 5 images for every pixel. Good quality results will be generated as long as the number of keypoint 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	233515
Number of 3D Points for Bundle Block Adjustment	106472
Mean Reprojection Error [pixels]	0.055

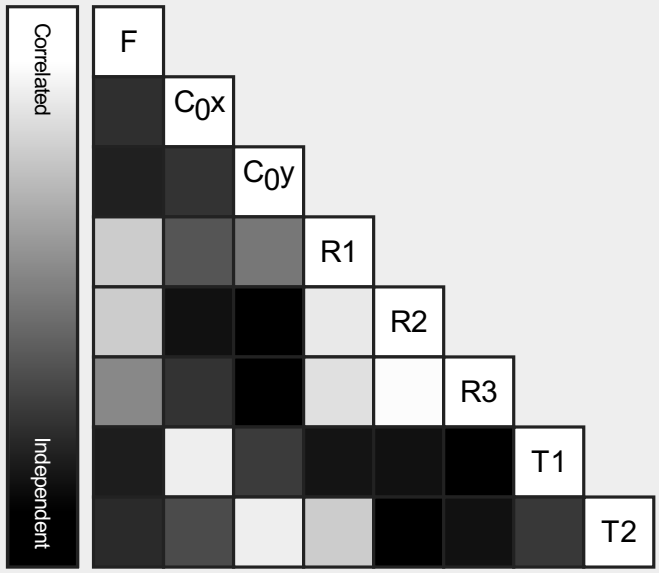
Internal Camera Parameters

_0.0_12000x13000 (RGB). Sensor Dimensions: 25.400 [mm] x 27.517 [mm]

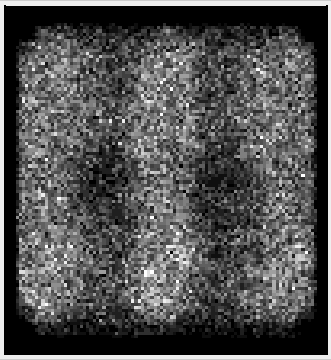
EXIF ID: _0.0_12000x13000

	Focal Length	Principal Point x	Principal Point y	R1	R2	R3	T1	T2

Initial Values	9448.819 [pixel] 20.000 [mm]	6000.000 [pixel] 12.700 [mm]	6500.000 [pixel] 13.758 [mm]	0.000	0.000	0.000	0.000	0.000
Optimized Values	8484.296 [pixel] 17.958 [mm]	5958.739 [pixel] 12.613 [mm]	6444.684 [pixel] 13.641 [mm]	-0.000	0.003	-0.001	-0.000	0.000
Uncertainties (Sigma)	16.038 [pixel] 0.034 [mm]	5.550 [pixel] 0.012 [mm]	5.577 [pixel] 0.012 [mm]	0.000	0.000	0.000	0.000	0.000



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	8895	1871
Min	5151	99
Max	10388	3720
Mean	8663	1962

3D Points from 2D Keypoint Matches

	Number of 3D Points Observed
In 2 Images	91351
In 3 Images	11397
In 4 Images	2308
In 5 Images	1125
In 6 Images	274
In 7 Images	16
In 9 Images	1

2D Keypoint Matches

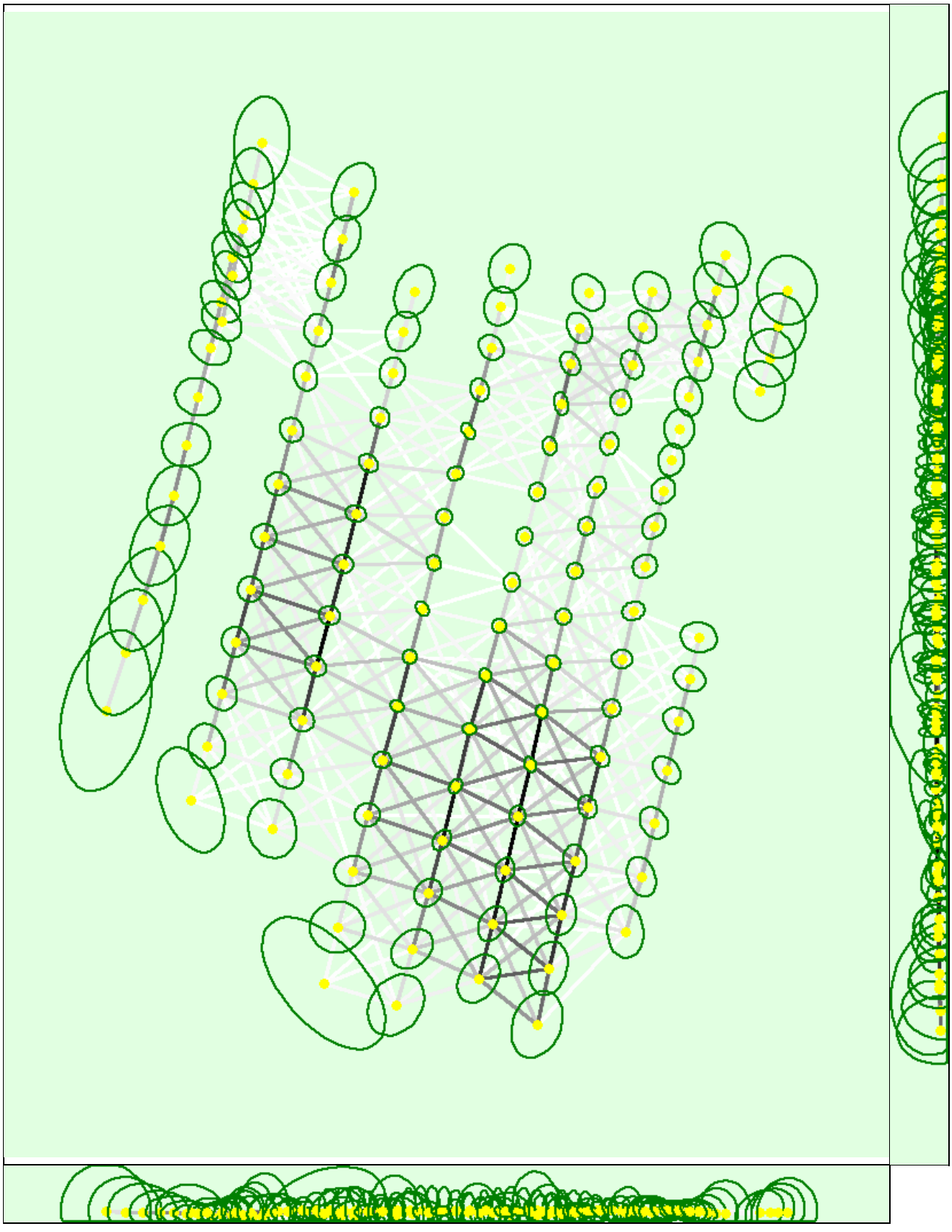


Figure 5: Computed image positions with links between matched images. The darkness of the links indicates the number of matched 2D keypoints between the images. Bright links indicate weak links and require manual tie points or more images. Dark green ellipses indicate the relative camera position uncertainty 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	0.006	0.008	0.007	0.018	0.016	0.010

Sigma	0.003	0.005	0.003	0.008	0.007	0.005

Initial Processing Details

System Information

Hardware	CPU: AMD Ryzen 9 3900X 12-Core Processor RAM: 64GB GPU: NVIDIA GeForce GTX 1060 6GB (Driver: 27.21.14.6647)
Operating System	Windows 10 Pro, 64-bit

Coordinate Systems

Output Coordinate System	Arbitrary (m)

Processing Options

Detected Template	3D Maps - Rapid/Low Res
Keypoints Image Scale	Rapid, Image Scale: 0.125
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, 1/4 (Quarter image size, Fast)
Point Density	Low (Fast)
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	04m:41s
Time for Point Cloud Classification	NA
Time for 3D Textured Mesh Generation	05m:03s

Results

Number of Generated Tiles	1
Number of 3D Densified Points	9531009
Average Density (per m^3)	20653.1

DSM, Orthomosaic and Index Details

Processing Options

DSM and Orthomosaic Resolution	4 x GSD (0.237 [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	01m:13s
Time for Orthomosaic Generation	16m:48s
Time for DTM Generation	00s
Time for Contour Lines Generation	00s
Time for Reflectance Map Generation	00s
Time for Index Map Generation	00s