

Agisoft Metashape

Processing Report
06 November 2019



Survey Data

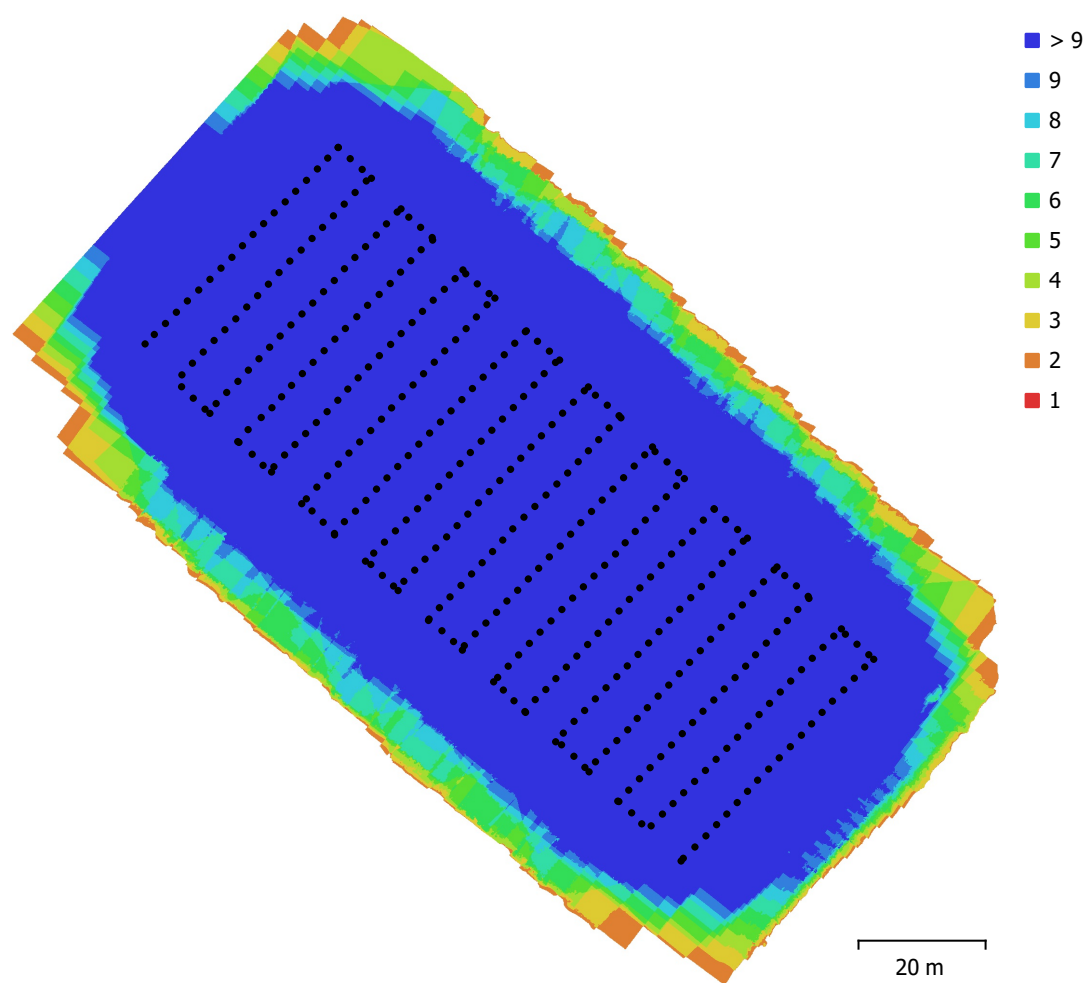


Fig. 1. Camera locations and image overlap.

Number of images:	403	Camera stations:	403
Flying altitude:	35.8 m	Tie points:	358,398
Ground resolution:	6.84 mm/pix	Projections:	1,224,897
Coverage area:	0.0123 km ²	Reprojection error:	0.454 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
FC6310S (8.8mm)	5472 x 3648	8.8 mm	2.41 x 2.41 μm	No

Table 1. Cameras.

Camera Calibration

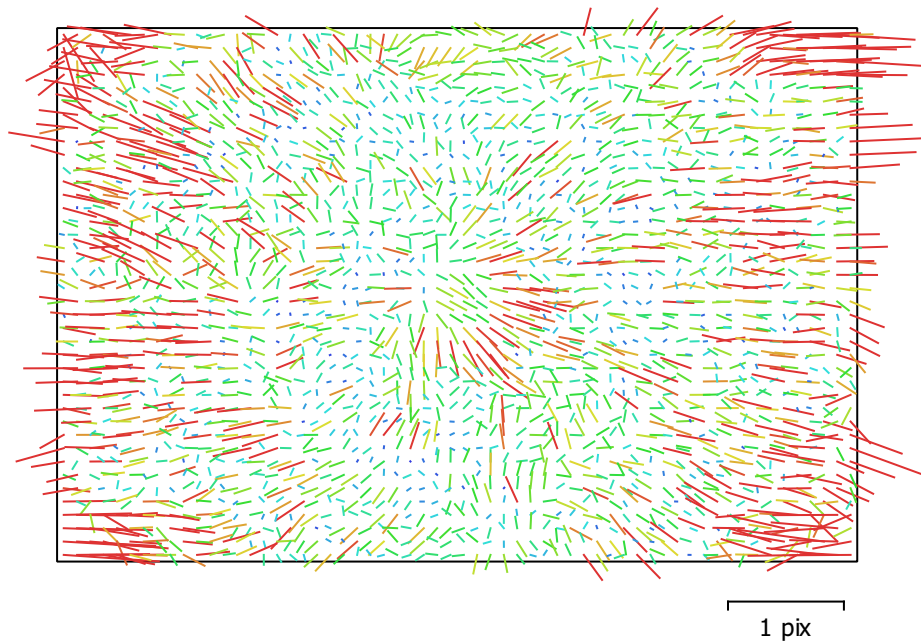


Fig. 2. Image residuals for FC6310S (8.8mm).

FC6310S (8.8mm)

403 images

Type
Frame

Resolution
5472 x 3648

Focal Length
8.8 mm

Pixel Size
2.41 x 2.41 μm

	Value	Error	F	Cx	Cy	B1	B2	K1	K2	K3	K4	P1	P2	P3	P4
F	4933.51	6.7	1.00	0.88	0.21	-0.16	0.52	0.72	-0.82	0.90	-0.93	0.43	0.65	0.41	-0.49
Cx	42.6873	0.18		1.00	0.24	-0.19	0.54	0.66	-0.74	0.80	-0.83	0.52	0.60	0.35	-0.42
Cy	13.1959	0.084			1.00	-0.29	0.07	0.17	-0.18	0.19	-0.20	0.21	0.40	-0.10	0.03
B1	0.0366246	0.0067				1.00	-0.07	-0.10	0.11	-0.13	0.14	-0.07	-0.19	-0.01	0.04
B2	0.551174	0.0075					1.00	0.38	-0.43	0.47	-0.48	0.30	0.35	0.20	-0.24
K1	0.0350608	0.00014						1.00	-0.97	0.92	-0.88	0.34	0.45	0.34	-0.41
K2	-0.238798	0.0015							1.00	-0.98	0.96	-0.36	-0.52	-0.38	0.47
K3	0.810441	0.0072								1.00	-1.00	0.39	0.57	0.41	-0.50
K4	-0.916099	0.01									1.00	-0.40	-0.59	-0.43	0.52
P1	0.000445476	2e-006										1.00	0.57	-0.15	0.06
P2	0.0035316	7.4e-006											1.00	-0.37	0.21
P3	2.39349	0.015												1.00	-0.97
P4	-2.83001	0.03													1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points



Fig. 3. GCP locations and error estimates.

Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.

Estimated GCP locations are marked with a dot or crossing.

Count	X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
5	10.0955	7.86307	18.5864	12.7964	22.5655

Table 3. Control points RMSE.

X - Longitude, Y - Latitude, Z - Altitude.

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
1	14.8309	-5.45986	-20.8391	26.1541	0.131 (42)
2	6.94898	-6.97816	20.6339	22.8635	0.220 (33)
3	-14.4293	-5.67162	0.0822624	15.5041	0.161 (52)
4	-1.92672	13.2085	20.8939	24.7938	0.212 (52)
5	-5.42578	4.89924	-20.7529	22.0028	0.180 (42)
Total	10.0955	7.86307	18.5864	22.5655	0.182

Table 4. Control points.
X - Longitude, Y - Latitude, Z - Altitude.

Digital Elevation Model

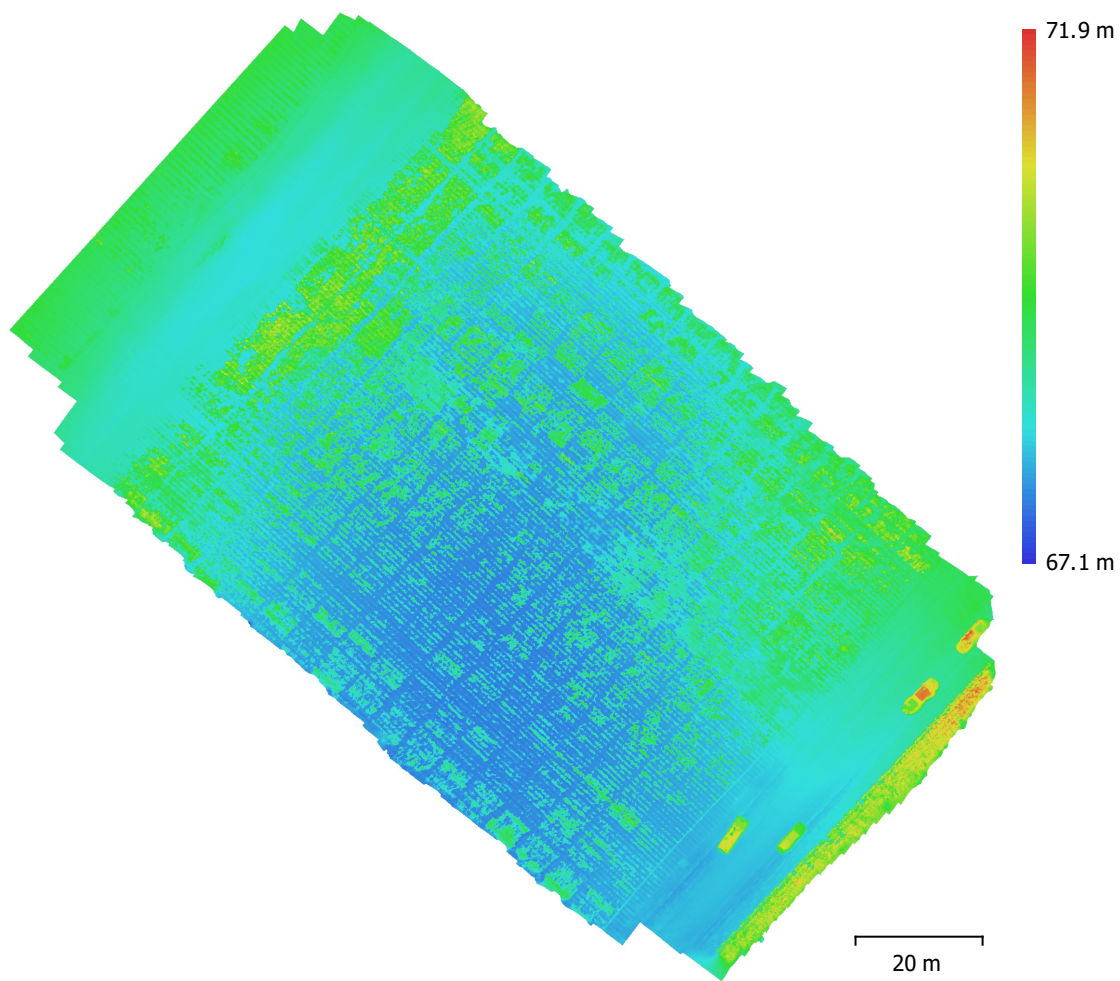


Fig. 4. Reconstructed digital elevation model.

Resolution: 1.37 cm/pix
Point density: 0.534 points/cm²

Processing Parameters

General

Cameras	403
Aligned cameras	403
Markers	5
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	358,398 of 387,279
RMS reprojection error	0.17441 (0.45437 pix)
Max reprojection error	1.87937 (10.365 pix)
Mean key point size	2.66154 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.98607

Alignment parameters

Accuracy	High
Generic preselection	Yes
Reference preselection	Yes
Key point limit	40,000
Tie point limit	4,000
Filter points by mask	No
Mask tie points	No
Adaptive camera model fitting	Yes
Matching time	9 minutes 58 seconds
Alignment time	7 minutes 32 seconds

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k4, p1-p4
Adaptive camera model fitting	No
Optimization time	1 minutes 14 seconds
Software version	1.5.3.8469

Dense Point Cloud

Points	198,357,058
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	High
Filtering mode	Mild
Processing time	4 hours 59 minutes

Dense cloud generation parameters

Processing time	3 hours 48 minutes
Software version	1.5.3.8469

DEM

Size	13,319 x 13,003
Coordinate system	WGS 84 (EPSG::4326)

Reconstruction parameters

Source data	Dense cloud
Interpolation	Enabled
Processing time	1 minutes 41 seconds
Software version	1.5.3.8469

Orthomosaic

Size	22,946 x 22,515
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General

Coordinate system	WGS 84 (EPSG::4326)
Colors	3 bands, uint8

Reconstruction parameters

Blending mode	Mosaic
Surface	DEM
Enable hole filling	Yes
Processing time	19 minutes 29 seconds
Software version	1.5.3.8469

Software

Version	1.5.3 build 8469
Platform	Windows 64