

Agisoft Metashape

Processing Report

01 December 2019



Survey Data

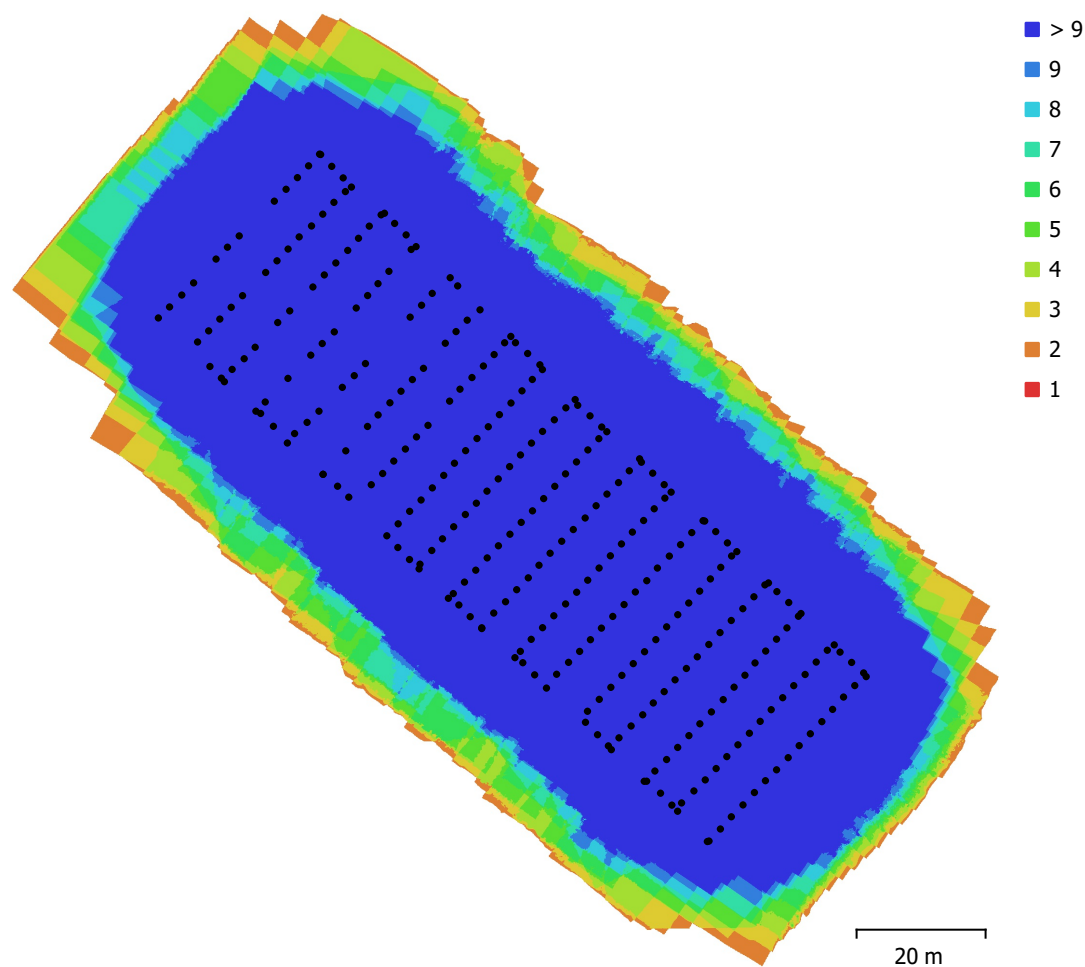


Fig. 1. Camera locations and image overlap.

Number of images:	311	Camera stations:	303
Flying altitude:	34.9 m	Tie points:	280,835
Ground resolution:	6.92 mm/pix	Projections:	756,009
Coverage area:	0.0113 km ²	Reprojection error:	0.463 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

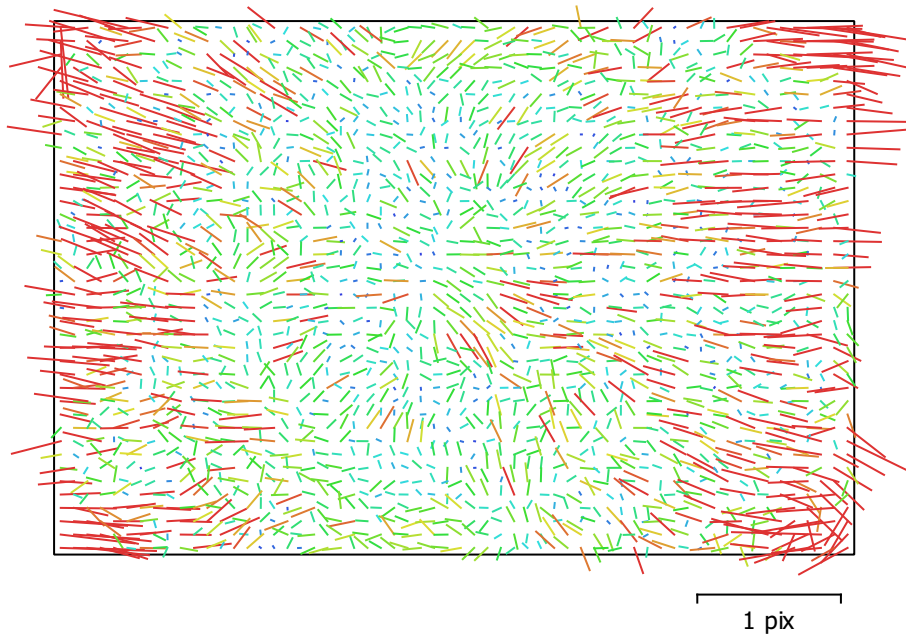


Fig. 2. Image residuals for FC6310S (8.8mm).

FC6310S (8.8mm)

311 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	4661.78	11	1.00	0.89	-0.17	0.07	0.50	0.78	-0.88	0.94	-0.96	0.51	0.71	0.49	-0.52
Cx	32.1291	0.24		1.00	-0.11	0.04	0.54	0.72	-0.80	0.84	-0.86	0.56	0.64	0.43	-0.45
Cy	5.2535	0.12			1.00	-0.30	-0.10	-0.11	0.14	-0.15	0.16	-0.02	0.10	-0.24	0.19
B1	0.377916	0.0085				1.00	0.03	0.06	-0.07	0.07	-0.07	0.01	-0.02	0.09	-0.08
B2	0.349616	0.01					1.00	0.41	-0.45	0.48	-0.49	0.29	0.35	0.26	-0.27
K1	0.0314806	0.00021						1.00	-0.96	0.92	-0.90	0.42	0.55	0.41	-0.44
K2	-0.180673	0.002							1.00	-0.99	0.97	-0.46	-0.62	-0.46	0.49
K3	0.54301	0.0085								1.00	-1.00	0.49	0.67	0.48	-0.51
K4	-0.541551	0.011									1.00	-0.49	-0.68	-0.49	0.52
P1	0.000380385	2.5e-006										1.00	0.58	-0.01	-0.04
P2	0.00323258	1.1e-005											1.00	-0.20	0.10
P3	1.99908	0.019												1.00	-0.97
P4	-1.72639	0.031													1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points

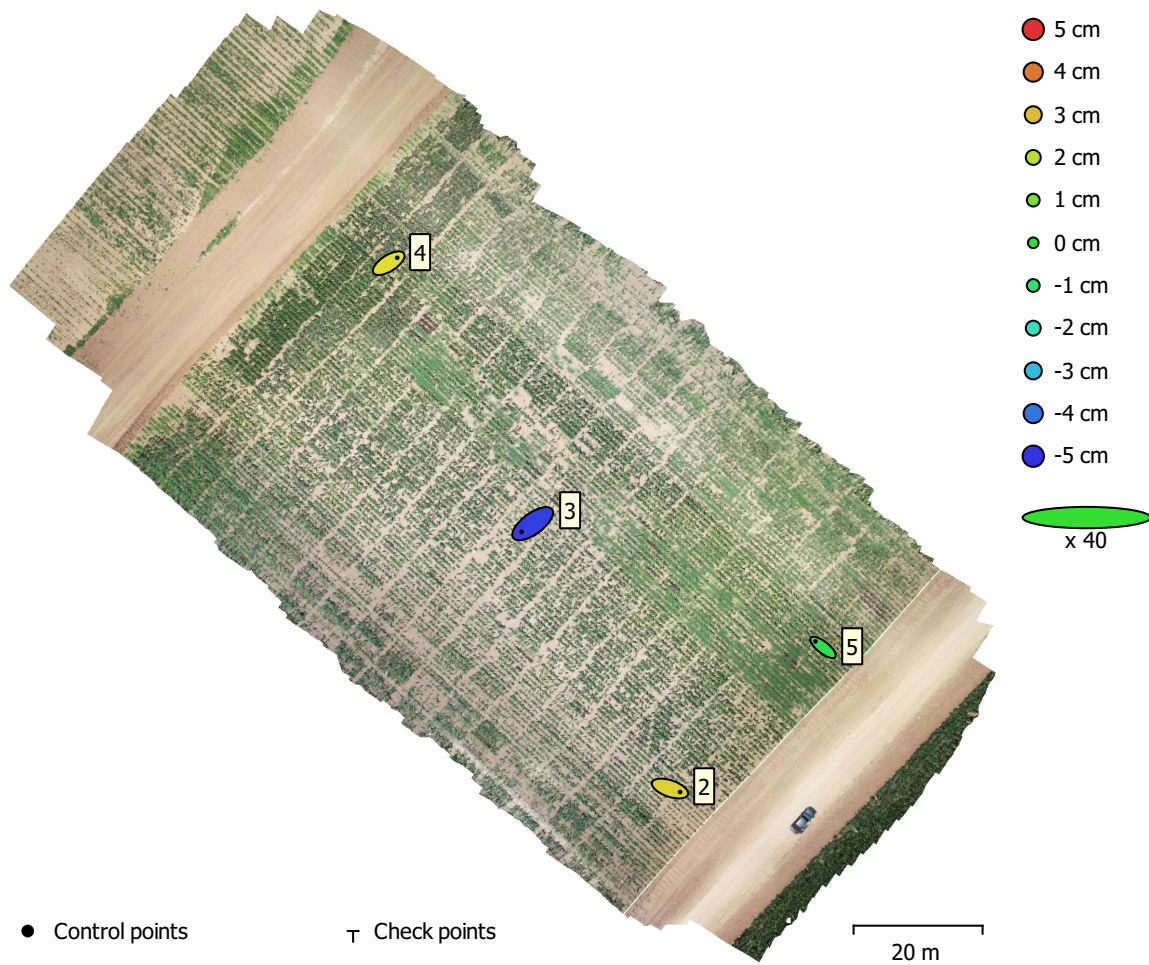


Fig. 3. GCP locations and error estimates.

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)
4	7.2868	4.63195	3.05209	8.63438	9.15793

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)
2	7.82311	-2.67537	2.72026	8.70393	0.387 (27)
3	-8.53095	-6.25157	-4.83341	11.6285	0.131 (60)
4	6.56533	4.19466	2.50945	8.18511	0.203 (35)
5	-5.94205	4.68883	-0.449481	7.58256	0.206 (34)
Total	7.2868	4.63195	3.05209	9.15793	0.226

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

Digital Elevation Model

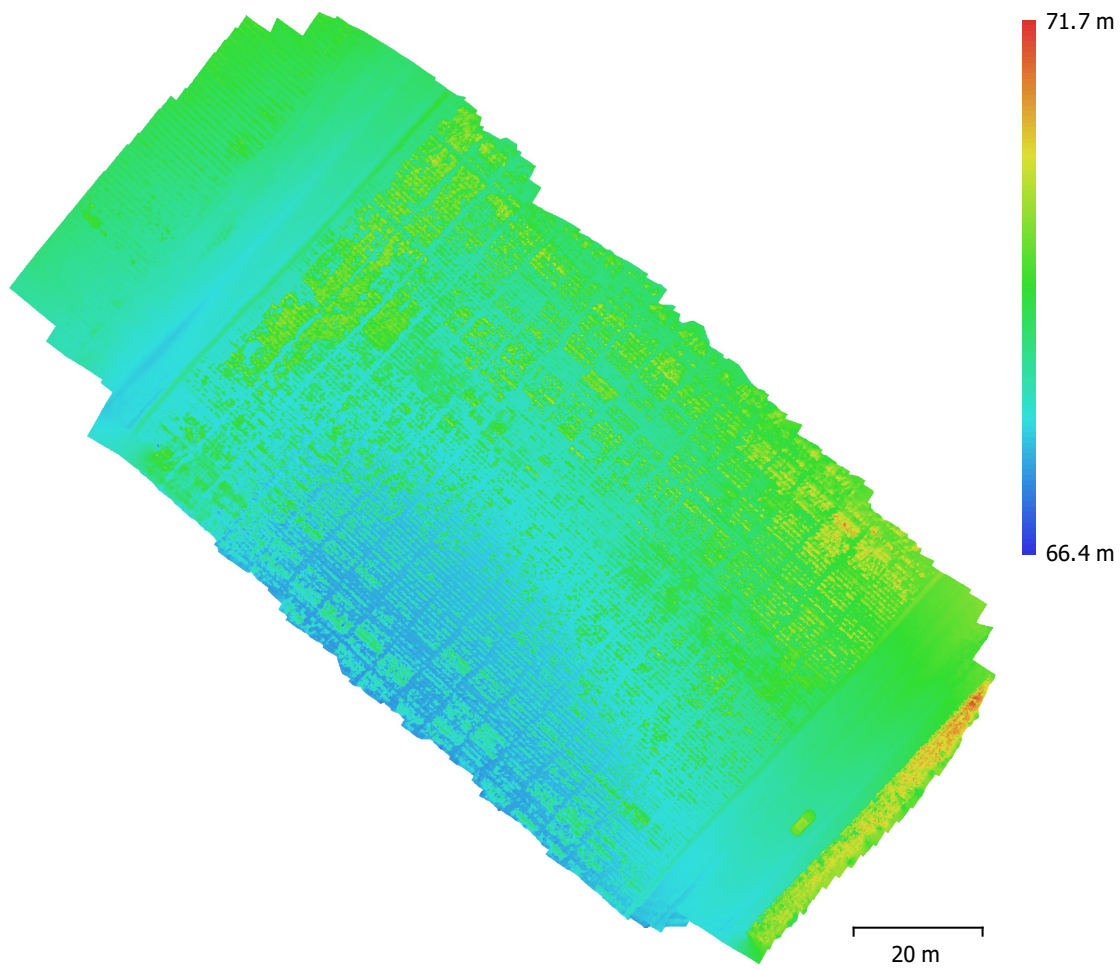


Fig. 4. Reconstructed digital elevation model.

Resolution: 1.38 cm/pix
Point density: 0.522 points/cm²

Processing Parameters

General

Cameras	311
Aligned cameras	303
Markers	4
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	280,835 of 304,342
RMS reprojection error	0.199709 (0.462727 pix)
Max reprojection error	2.67883 (9.97158 pix)
Mean key point size	2.43861 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	2.92469

Alignment parameters

Accuracy	Highest
Generic preselection	Yes
Reference preselection	Yes
Key point limit	40,000
Tie point limit	4,000
Adaptive camera model fitting	Yes
Matching time	12 minutes 47 seconds
Alignment time	3 minutes 6 seconds

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k4, p1-p4
Adaptive camera model fitting	No
Optimization time	42 seconds
Software version	1.5.3.8469

Dense Point Cloud

Points	167,878,768
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	High
Filtering mode	Mild
Processing time	2 hours 11 minutes

Dense cloud generation parameters

Processing time	2 hours 28 minutes
Software version	1.5.3.8469

DEM

Size	14,840 x 14,591
Coordinate system	WGS 84 (EPSG::4326)

Reconstruction parameters

Source data	Dense cloud
Interpolation	Enabled
Processing time	1 minutes 55 seconds
Software version	1.5.3.8469

Orthomosaic

Size	22,350 x 21,560
Coordinate system	WGS 84 (EPSG::4326)
Colors	3 bands, uint8

General

Reconstruction parameters

Blending mode	Mosaic
Surface	DEM
Enable hole filling	Yes
Processing time	16 minutes 22 seconds
Software version	1.5.3.8469

Software

Version	1.5.3 build 8469
Platform	Windows 64