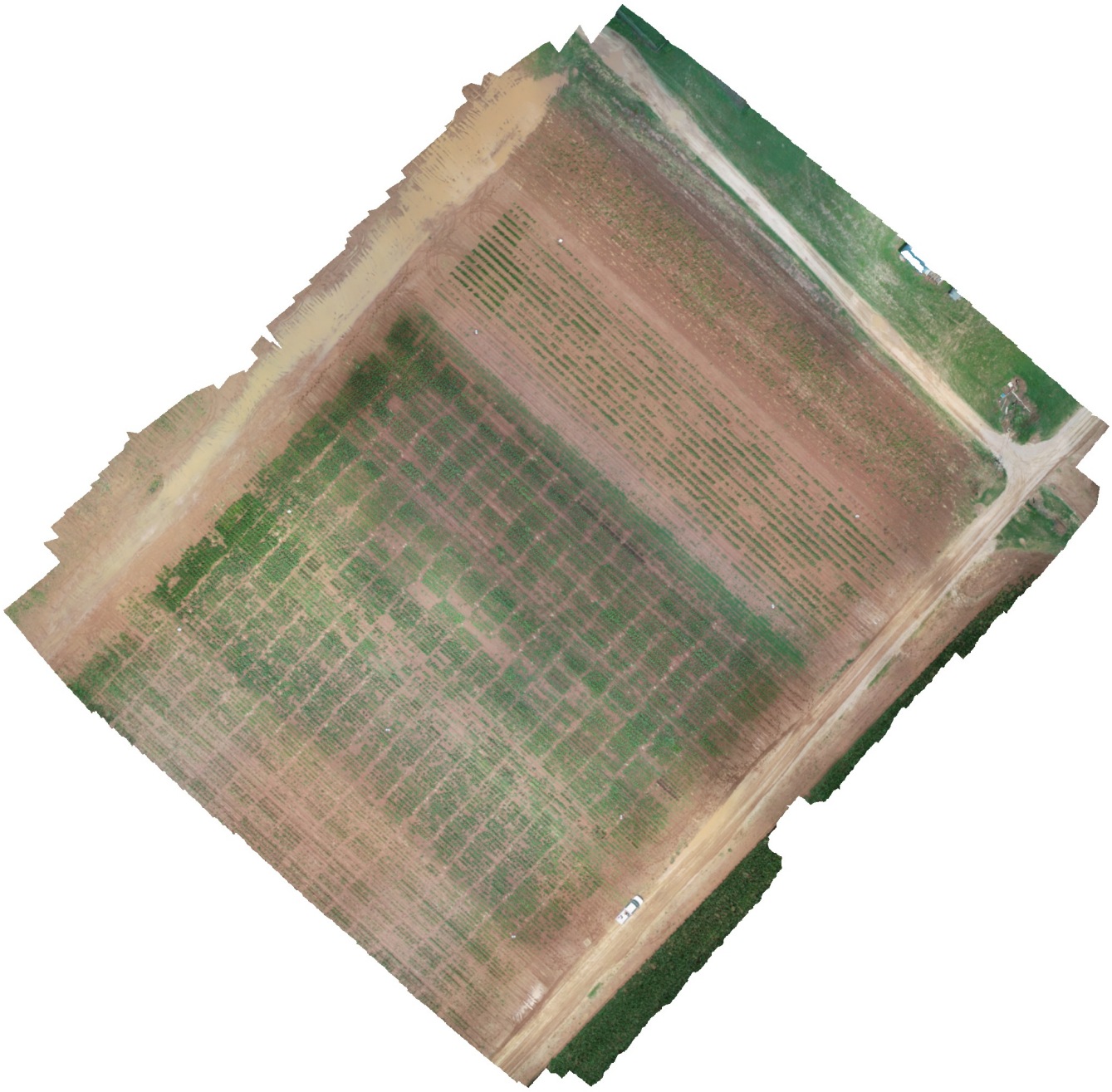
Agisoft Metashape

Processing Report

13 November 2019



Survey Data

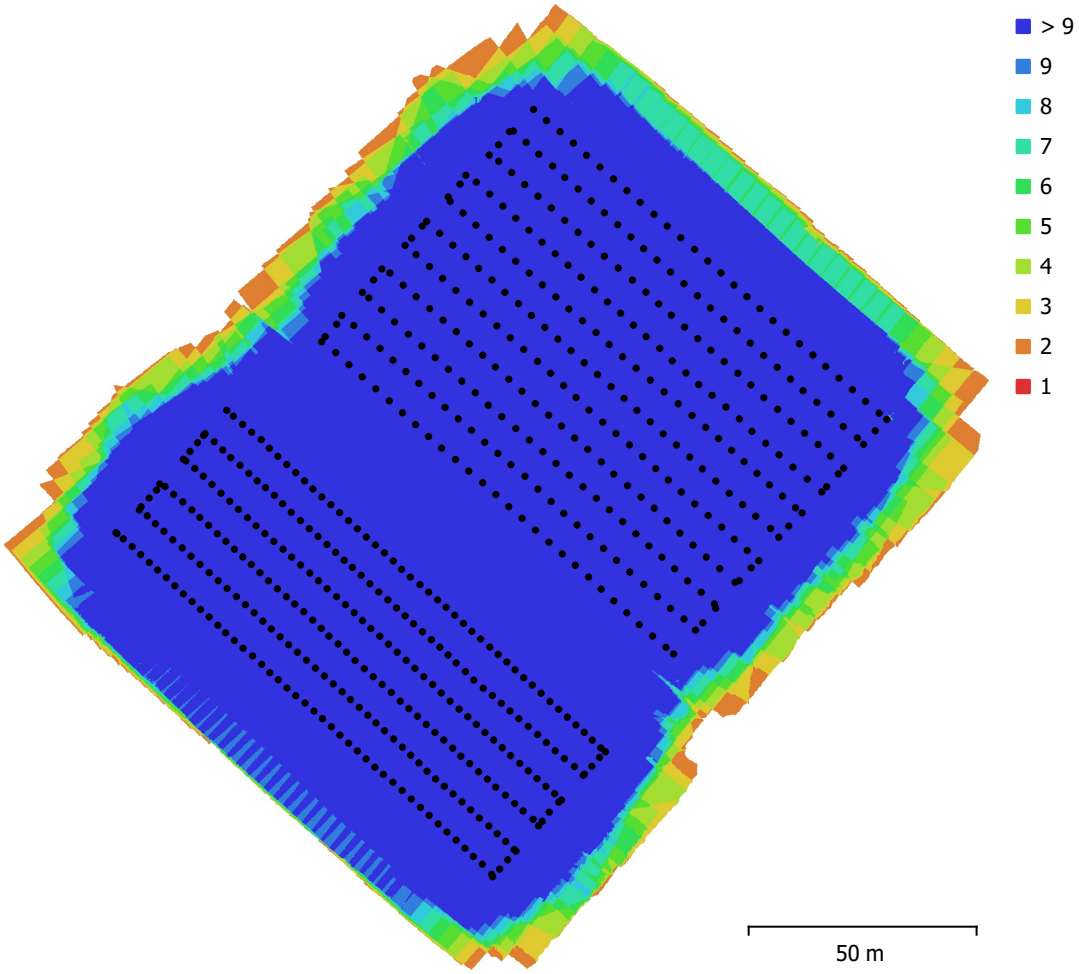


Fig. 1. Camera locations and image overlap.

Number of images:	609	Camera stations:	609
Flying altitude:	26.4 m	Tie points:	557,467
Ground resolution:	7.19 mm/pix	Projections:	1,954,307
Coverage area:	0.0248 km²	Reprojection error:	0.6 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

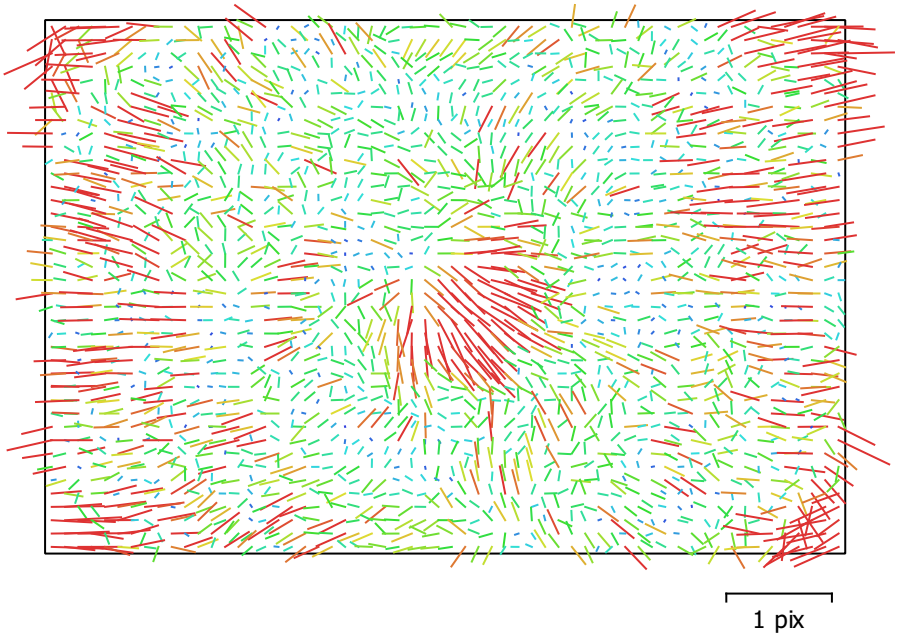


Fig. 2. Image residuals for FC6310S (8.8mm).

FC6310S (8.8mm)

609 images

Type	Resolution	Focal Length	Pixel Size
Frame	**5472 x 3648**	**8.8 mm**	**2.41 x 2.41 µm**

	Value	Error	F	Cx	Cy	B1	B2	K1	K2	K3	K4	P1	P2	P3	P4
F	**3193.82**	7.2	1.00	0.68	0.08	0.02	0.20	0.86	-0.94	0.97	-0.98	0.58	0.85	0.72	-0.74
Cx	**8.79862**	0.14		1.00	0.08	-0.08	0.37	0.59	-0.64	0.66	-0.67	0.54	0.58	0.50	-0.51
Cy	**7.54361**	0.095			1.00	-0.30	-0.06	0.07	-0.07	0.07	-0.07	0.10	0.15	-0.00	-0.02
B1	**0.163833**	0.0046				1.00	-0.00	0.02	-0.03	0.03	-0.02	-0.04	-0.01	0.03	-0.03
B2	**-0.132822**	0.0045					1.00	0.17	-0.18	0.19	-0.19	0.18	0.16	0.14	-0.14
K1	**0.012092**	7e-005						1.00	-0.96	0.94	-0.92	0.51	0.72	0.64	-0.66
K2	**-0.0347285**	0.00033							1.00	-0.99	0.99	-0.54	-0.79	-0.70	0.71
K3	**0.0479808**	0.00067								1.00	-1.00	0.55	0.82	0.71	-0.73
K4	**-0.0224094**	0.00041									1.00	-0.56	-0.83	-0.72	0.74
P1	**0.000187931**	8.5e-007										1.00	0.65	0.22	-0.26
P2	**0.00201419**	5.4e-006											1.00	0.27	-0.33
P3	**1.18701**	0.0074												1.00	-0.98
P4	**-0.439569**	0.0054													1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations



Fig. 3. Camera locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated camera locations are marked with a black dot.

X error (m)	Y error (m)	Z error (m)	XY error (m)	Total error (m)
13.3091	18.0047	10.1783	22.3898	24.5947

Table 3. Average camera location error.
X - Longitude, Y - Latitude, Z - Altitude.

Ground Control Points

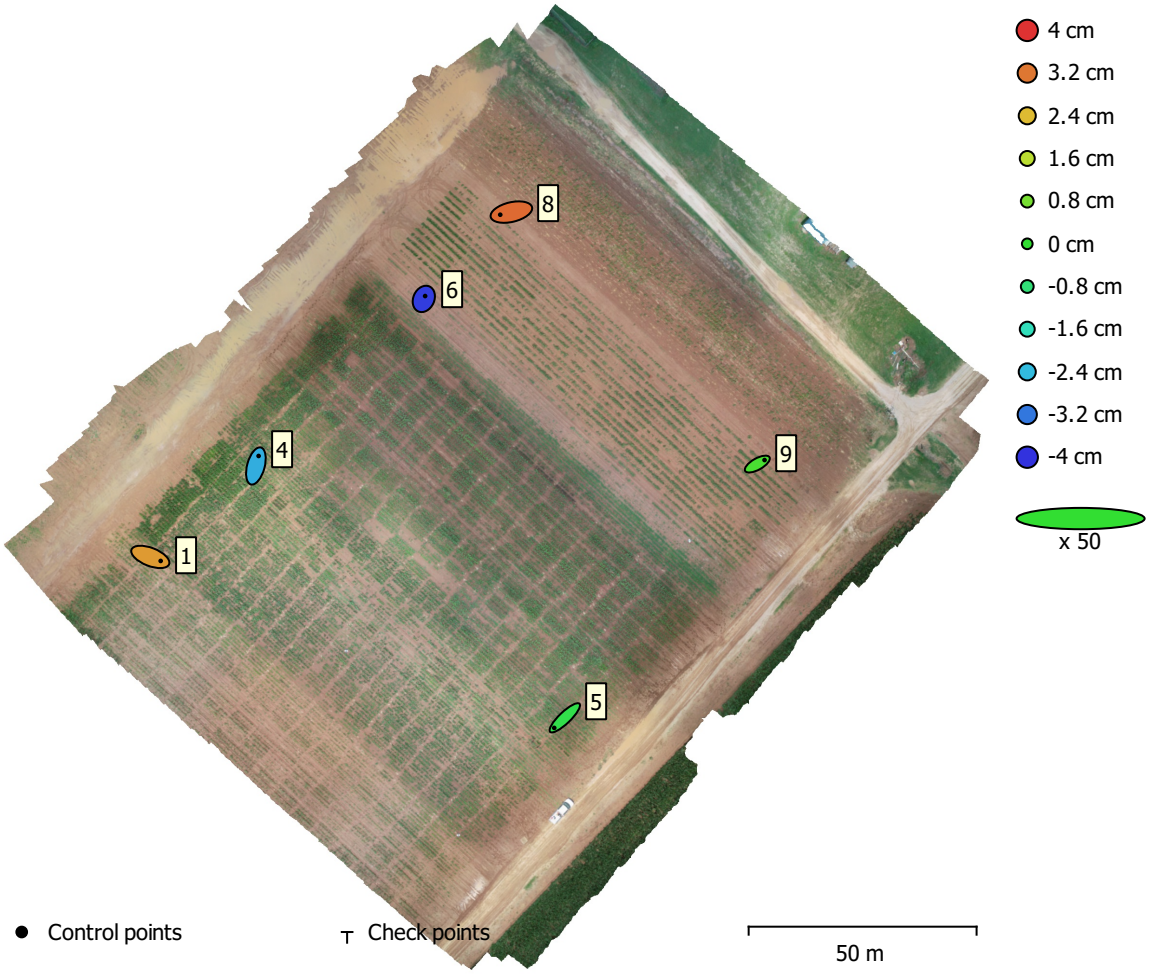


Fig. 4. GCP locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated GCP locations are marked with a dot or crossing.

Count	X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
6	7.20519	5.66258	2.60766	9.16404	9.52783

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

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
4	2.38336	8.77403	-2.56965	9.44813	0.125 (37)
1	9.09582	-3.54688	2.79127	10.1541	0.128 (30)
5	-9.27506	-8.85987	-0.285742	12.8299	0.225 (30)
9	6.34121	3.55333	0.267454	7.27383	0.205 (29)
6	1.15415	2.52275	-3.87552	4.76613	0.201 (26)
8	-9.77267	-2.31017	3.35144	10.5865	0.215 (18)
Total	**7.20519**	**5.66258**	**2.60766**	**9.52783**	**0.183**

Table 5. Control points.
X - Longitude, Y - Latitude, Z - Altitude.

Digital Elevation Model

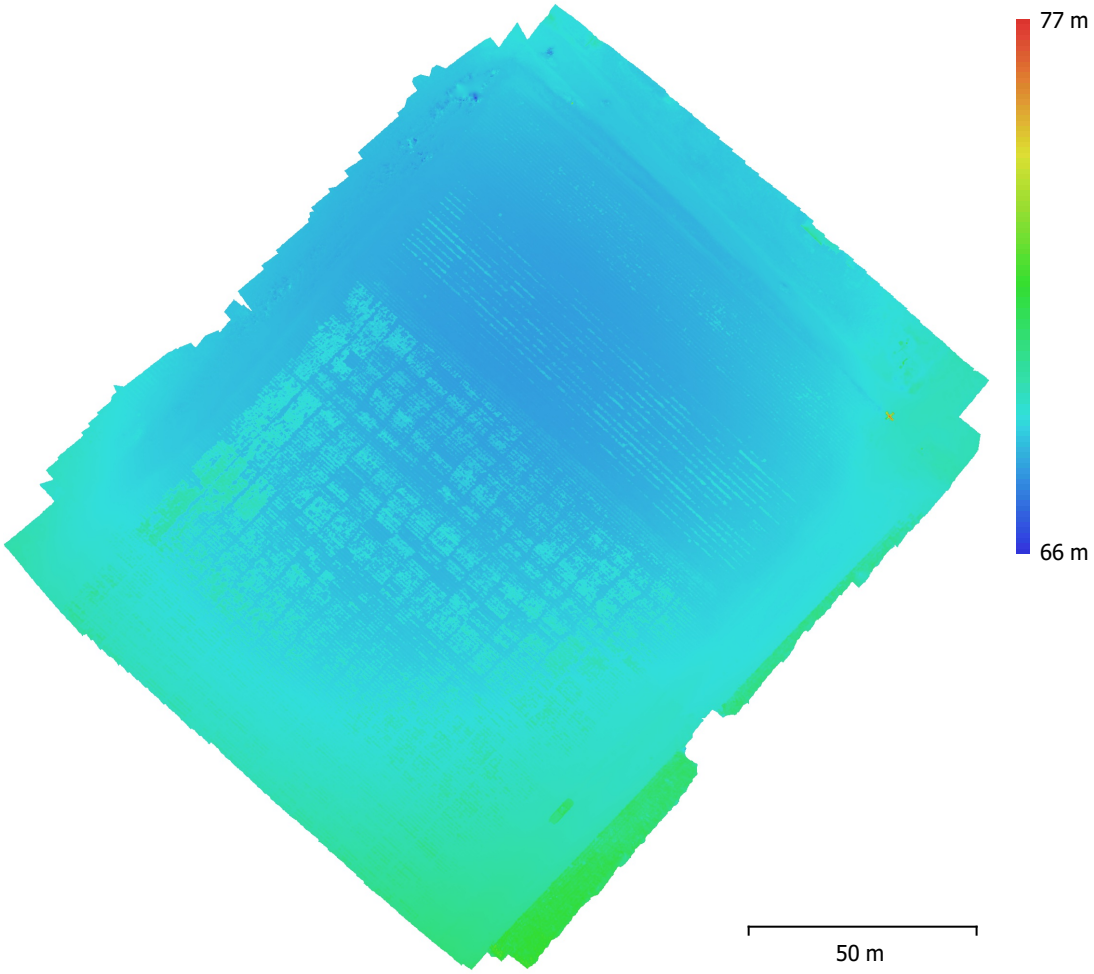


Fig. 5. Reconstructed digital elevation model.

Resolution:	1.44 cm/pix
Point density:	0.484 points/cm²

Processing Parameters

General	
Cameras	609
Aligned cameras	609
Markers	6
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll
Point Cloud	
Points	557,467 of 593,171
RMS reprojection error	0.190497 (0.59986 pix)
Max reprojection error	1.96868 (19.6973 pix)
Mean key point size	3.1487 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.8635
Alignment parameters	
Accuracy	High
Generic preselection	Yes
Reference preselection	Yes
Key point limit	40,000
Tie point limit	4,000
Adaptive camera model fitting	Yes
Matching time	15 minutes 11 seconds
Alignment time	5 minutes 49 seconds
Optimization parameters	
Parameters	f, b1, b2, cx, cy, k1-k4, p1-p4
Adaptive camera model fitting	No
Optimization time	1 minutes 54 seconds
Software version	1.5.3.8469
Dense Point Cloud	
Points	206,722,312
Point colors	3 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	5 hours 45 minutes
Dense cloud generation parameters	
Processing time	4 hours 39 minutes
Software version	1.5.3.8469
DEM	
Size	19,196 x 19,206
Coordinate system	WGS 84 (EPSG::4326)
Reconstruction parameters	
Source data	Dense cloud
Interpolation	Enabled
Processing time	2 minutes 57 seconds
Software version	1.5.3.8469
Orthomosaic	
Size	30,346 x 29,695
Coordinate system	WGS 84 (EPSG::4326)
Colors	3 bands, uint8

General

Reconstruction parameters

Blending mode	Mosaic
Surface	DEM
Enable hole filling	Yes
Processing time	26 minutes 53 seconds
Software version	1.5.3.8469

Software

Version	1.5.3 build 8469
Platform	Windows 64