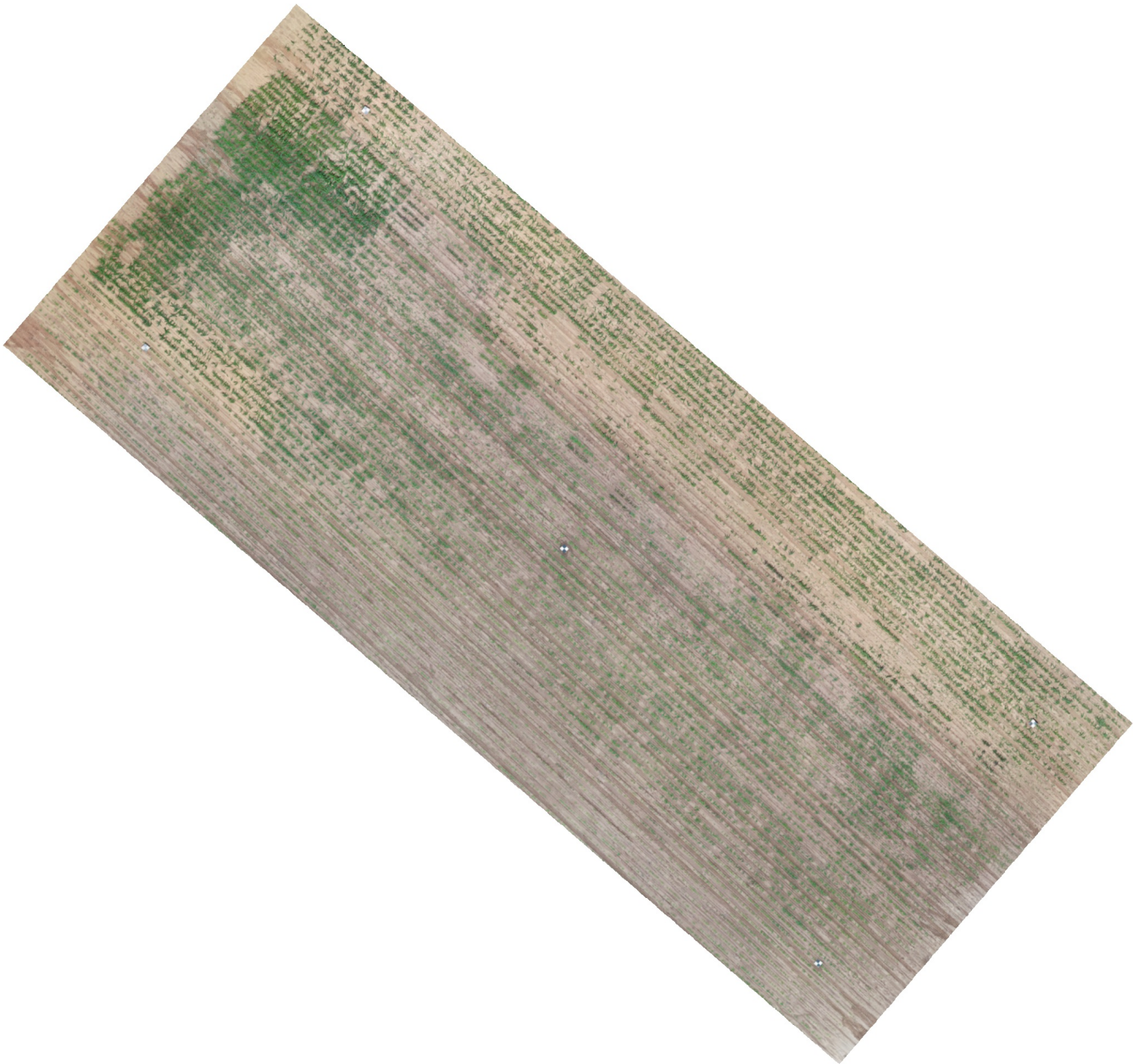


Agisoft Metashape

Processing Report
31 October 2019



Survey Data

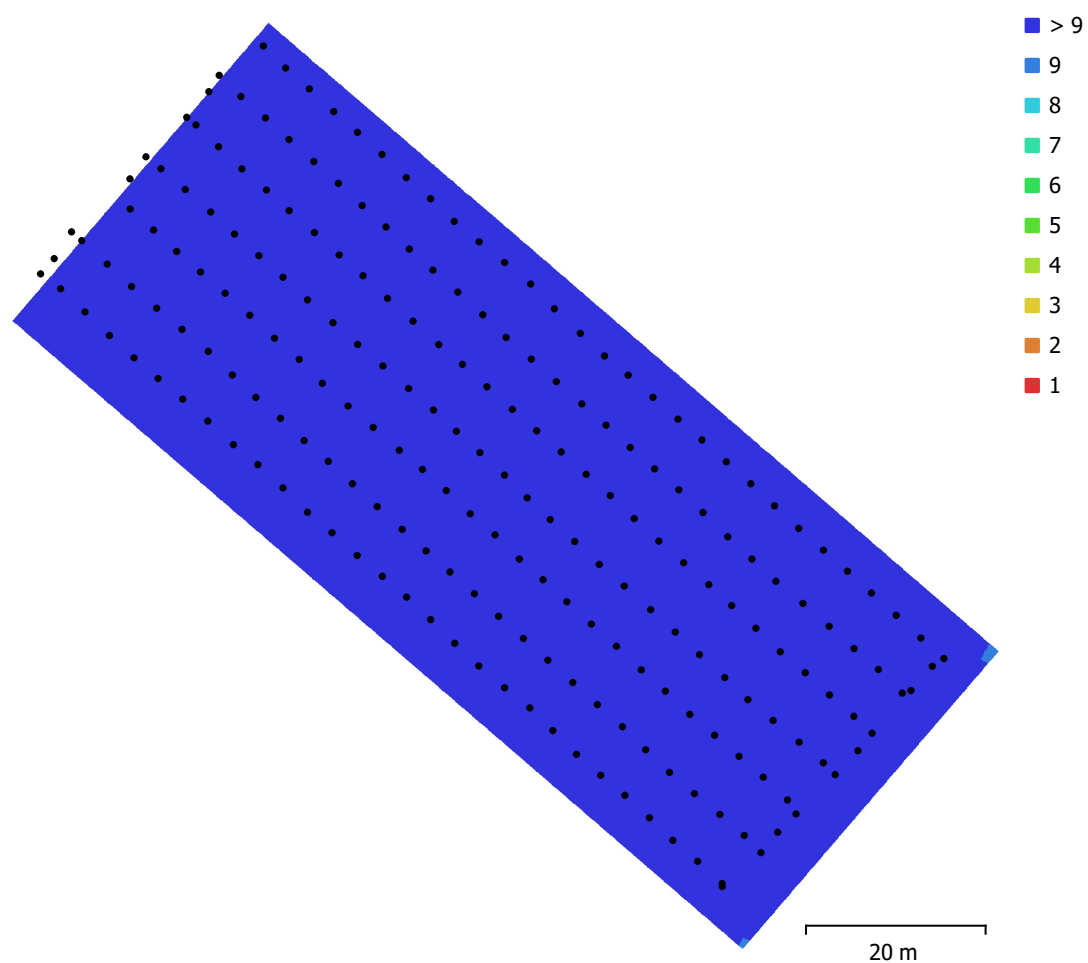


Fig. 1. Camera locations and image overlap.

Number of images:	214	Camera stations:	214
Flying altitude:	33.8 m	Tie points:	152,407
Ground resolution:	6.51 mm/pix	Projections:	724,584
Coverage area:	4.69e+003 m ²	Reprojection error:	0.783 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

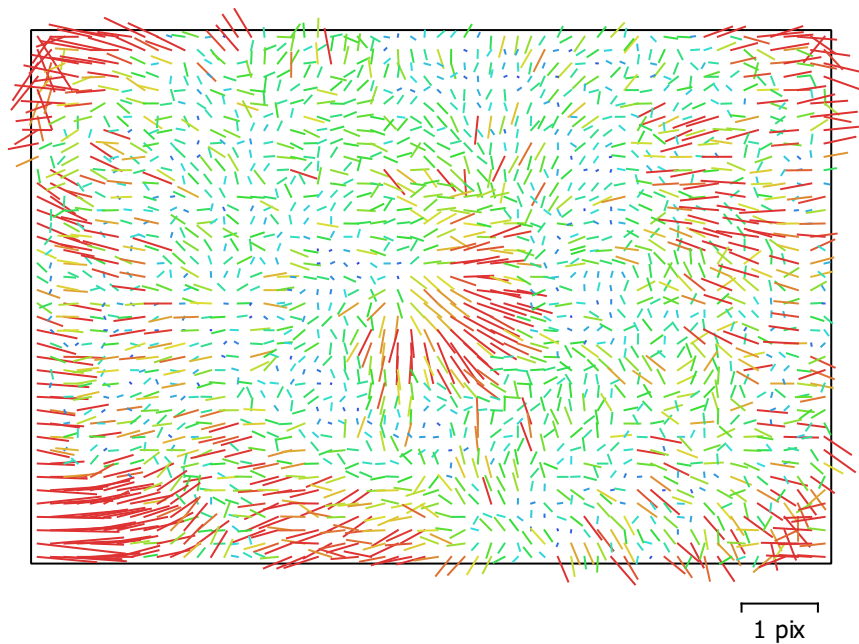


Fig. 2. Image residuals for FC6310S (8.8mm).

FC6310S (8.8mm)

214 images

Type
Frame

Resolution
5472 x 3648

Focal Length
8.8 mm

Pixel Size
2.41 x 2.41 μ m

	Value	Error	F	Cx	Cy	B1	B2	K1	K2	K3	K4	P1	P2	P3	P4
F	4877.24	7.5	1.00	0.81	-0.14	0.02	0.29	0.64	-0.75	0.86	-0.91	0.38	0.58	0.43	-0.50
Cx	28.8126	0.22		1.00	-0.11	-0.03	0.37	0.54	-0.62	0.70	-0.74	0.47	0.47	0.35	-0.41
Cy	-3.72871	0.12			1.00	-0.21	-0.14	-0.09	0.11	-0.13	0.14	0.02	0.12	-0.20	0.17
B1	0.505901	0.013				1.00	0.03	0.03	-0.04	0.03	-0.03	0.02	-0.03	0.04	-0.04
B2	-0.0310425	0.013					1.00	0.20	-0.23	0.26	-0.27	0.16	0.17	0.13	-0.15
K1	0.0307712	0.00015						1.00	-0.97	0.91	-0.86	0.24	0.34	0.33	-0.39
K2	-0.198915	0.0016							1.00	-0.98	0.95	-0.27	-0.40	-0.38	0.45
K3	0.666659	0.007								1.00	-0.99	0.31	0.47	0.42	-0.50
K4	-0.765063	0.01									1.00	-0.33	-0.50	-0.44	0.52
P1	0.000379687	2e-006										1.00	0.53	-0.15	0.07
P2	0.00325755	8.3e-006											1.00	-0.44	0.30
P3	2.61485	0.02												1.00	-0.97
P4	-2.83599	0.037													1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points

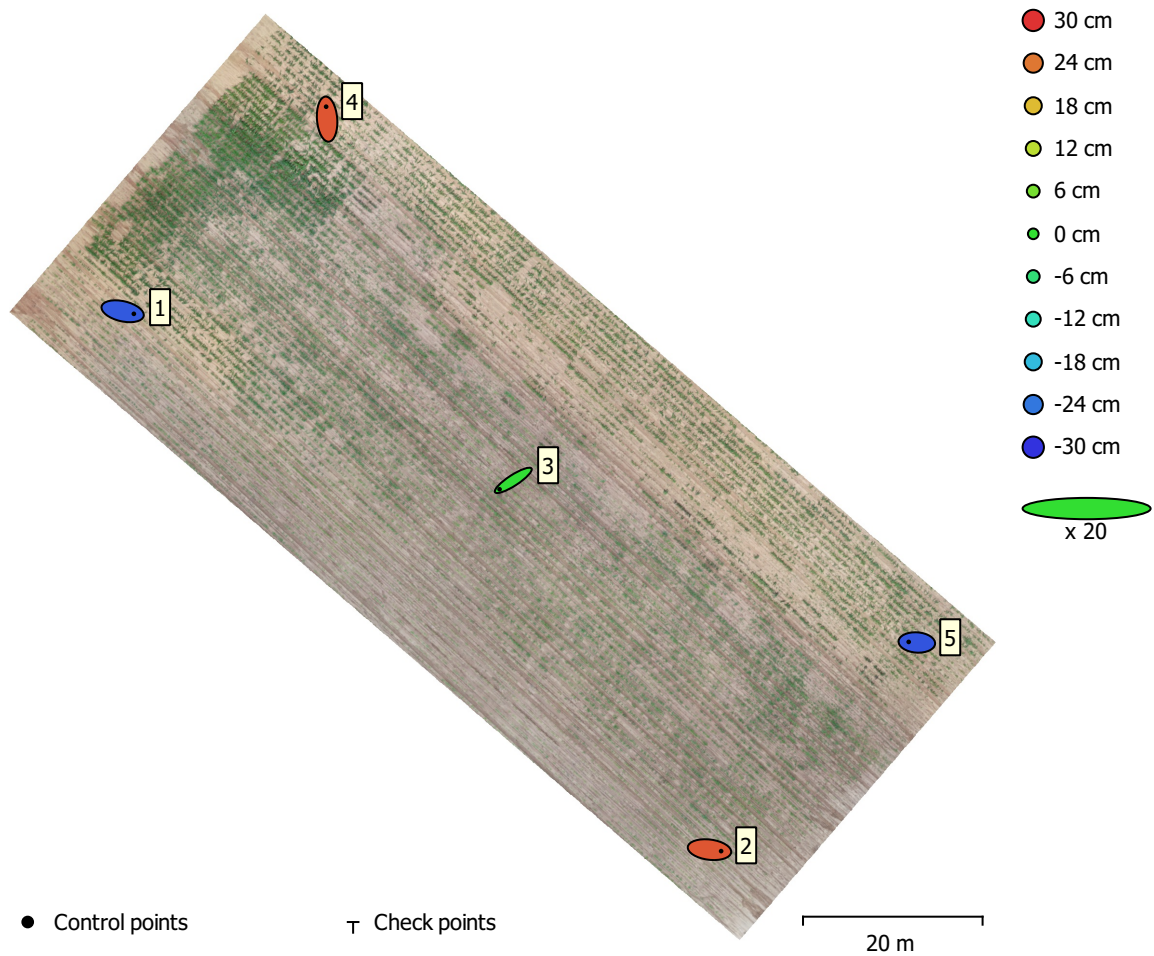


Fig. 3. GCP locations and error estimates.

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	11.3284	7.77001	24.0258	13.737	27.6757

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	12.4875	-2.87414	-26.6066	29.5315	0.196 (28)
2	12.9765	-1.62987	26.8893	29.9012	0.386 (20)
3	-15.293	-9.92959	-0.216359	18.2351	0.210 (34)
4	-1.05867	13.8546	26.9306	30.304	0.266 (28)
5	-9.07404	0.633845	-27.0176	28.5077	0.274 (18)
Total	11.3284	7.77001	24.0258	27.6757	0.264

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

Digital Elevation Model

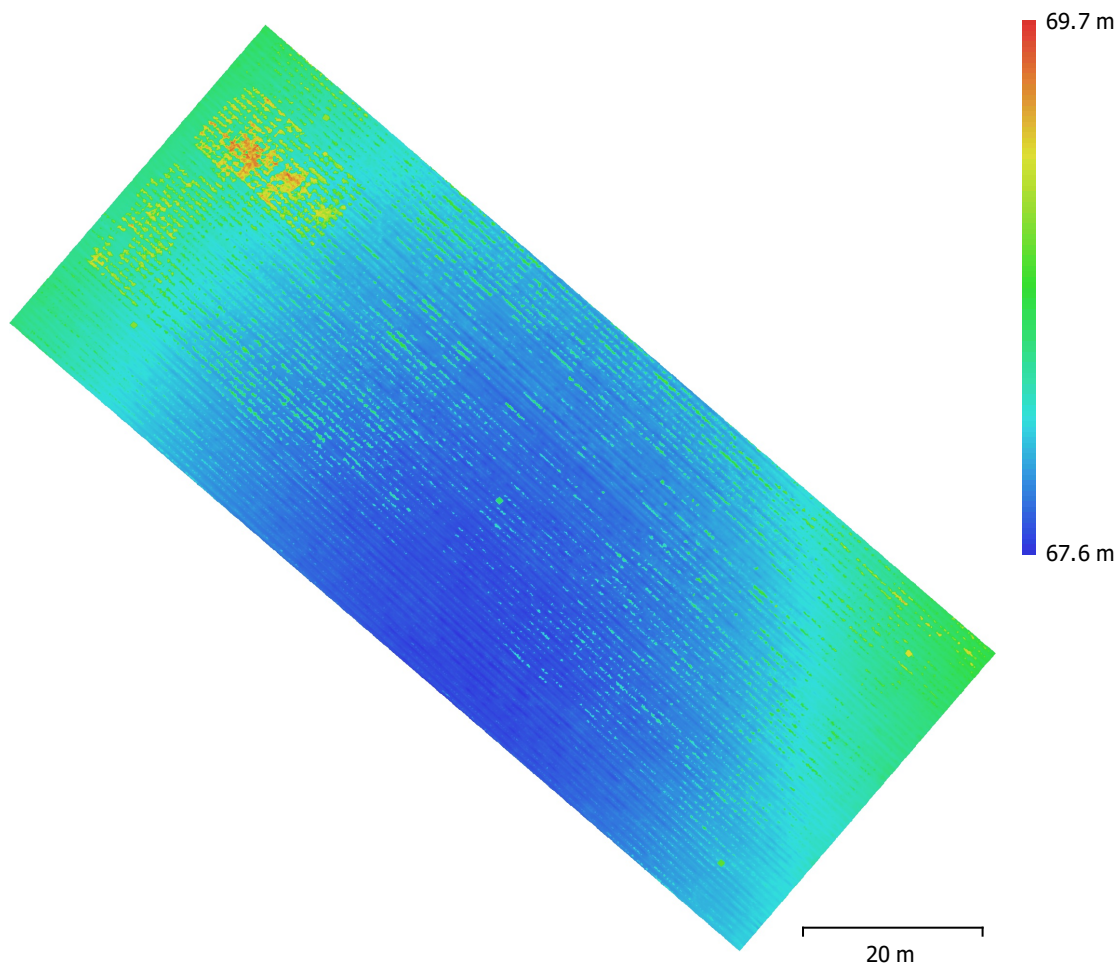


Fig. 4. Reconstructed digital elevation model.

Resolution: 1.3 cm/pix
Point density: 0.589 points/cm²

Processing Parameters

General

Cameras	214
Aligned cameras	214
Markers	5
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	152,407 of 168,979
RMS reprojection error	0.200042 (0.783397 pix)
Max reprojection error	1.46298 (18.8334 pix)
Mean key point size	3.7966 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	5.29694

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	6 minutes 16 seconds
Alignment time	1 minutes 52 seconds

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k4, p1-p4
Adaptive camera model fitting	No
Optimization time	6 seconds
Software version	1.5.3.8469

Dense Point Cloud

Points	41,762,709
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	High
Filtering mode	Mild
Processing time	2 hours 26 minutes

Dense cloud generation parameters

Processing time	1 hours 7 minutes
Software version	1.5.3.8469

DEM

Size	8,506 x 7,994
Coordinate system	WGS 84 (EPSG::4326)

Reconstruction parameters

Source data	Dense cloud
Interpolation	Enabled
Processing time	38 seconds
Software version	1.5.3.8469

Orthomosaic

Size	16,975 x 15,929
Coordinate system	WGS 84 (EPSG::4326)
Colors	3 bands, uint8

General

Reconstruction parameters

Blending mode	Mosaic
Surface	DEM
Enable hole filling	Yes
Processing time	7 minutes 4 seconds
Software version	1.5.3.8469

Software

Version	1.5.3 build 8469
Platform	Windows 64