

Agisoft Metashape

Processing Report
04 August 2022



Survey Data

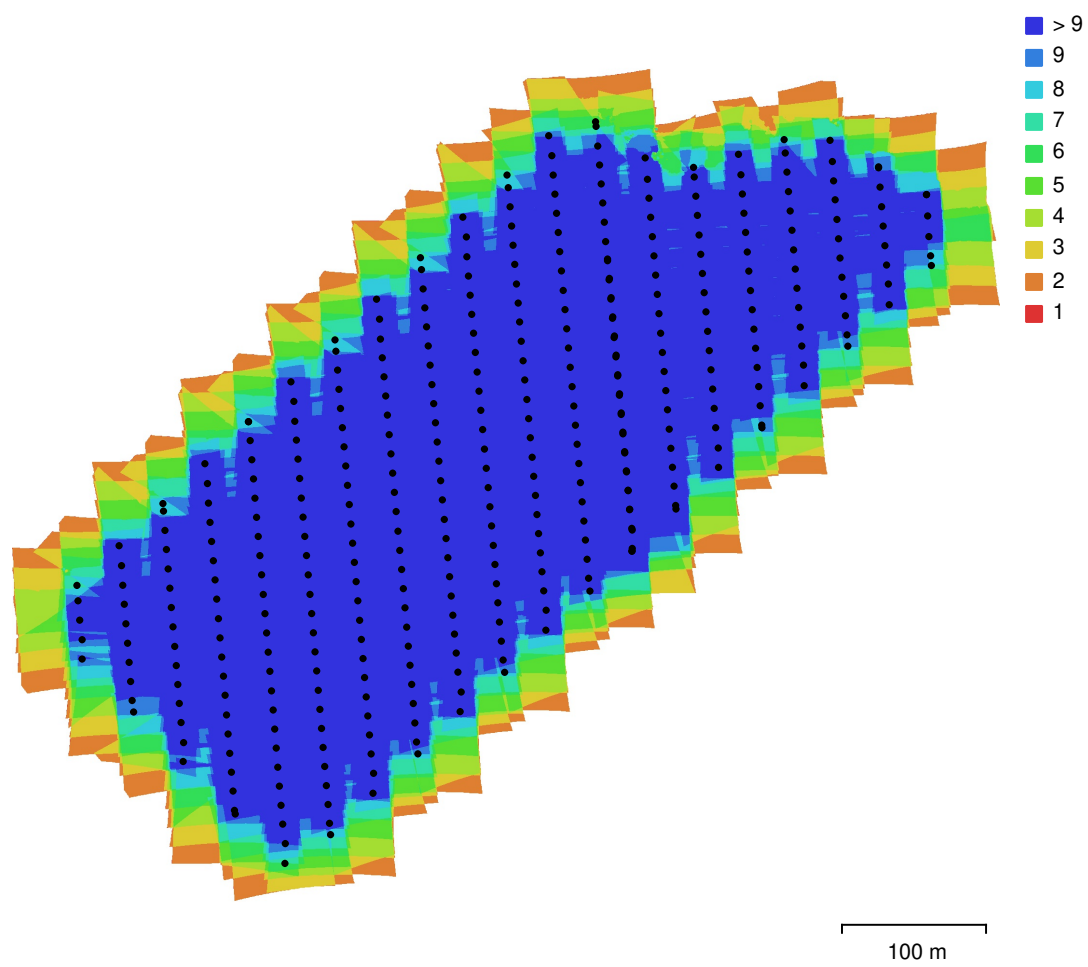


Fig. 1. Camera locations and image overlap.

Number of images:	385	Camera stations:	385
Flying altitude:	100 m	Tie points:	375,638
Ground resolution:	4.97 cm/pix	Projections:	1,121,491
Coverage area:	0.209 km ²	Reprojection error:	0.691 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
FC6360 (5.74mm)	1600 x 1300	5.74 mm	3.01 x 3.01 μm	Yes

Table 1. Cameras.

Camera Calibration

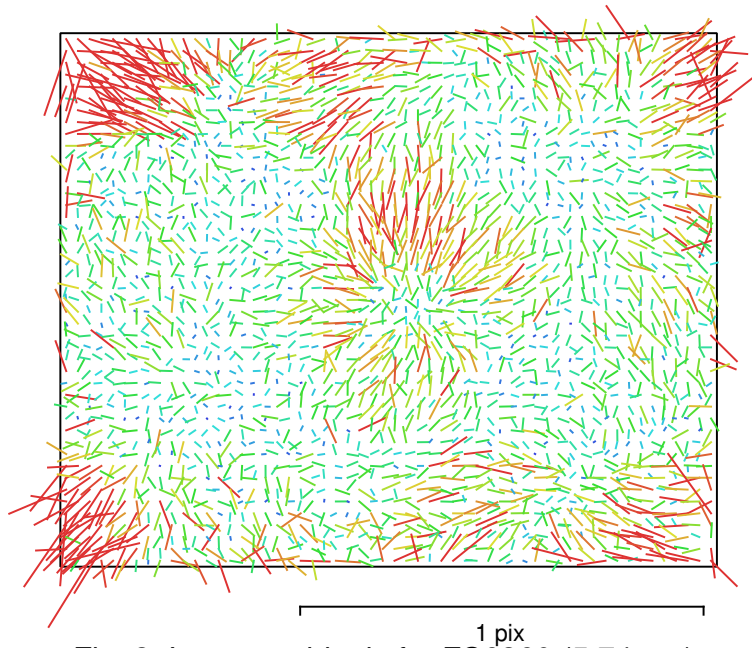


Fig. 2. Image residuals for FC6360 (5.74mm).

FC6360 (5.74mm)

385 images, precalibrated

Type
Frame

Resolution
1600 x 1300

Focal Length
5.74 mm

Pixel Size
3.01 x 3.01 μm

	Value	Error	Cx	Cy	B1	B2	K1	K2	K3	P1	P2
F	1939.2										
Cx	23.5078	0.21	1.00	-0.01	-0.03	0.27	-0.04	0.04	-0.05	-0.92	0.02
Cy	-16.6845	0.25		1.00	-0.32	-0.06	0.01	-0.01	0.02	0.02	-0.92
B1	-0.207005	0.02			1.00	-0.01	-0.01	-0.02	0.02	0.04	0.36
B2	0.899285	0.02				1.00	0.01	0.01	-0.02	-0.30	0.08
K1	-0.396507	0.00029					1.00	-0.96	0.91	0.05	-0.02
K2	0.256651	0.0021						1.00	-0.98	-0.06	0.01
K3	-0.150534	0.0045							1.00	0.07	-0.03
P1	-0.000312771	3.2e-05								1.00	-0.03
P2	0.000846043	4e-05									1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

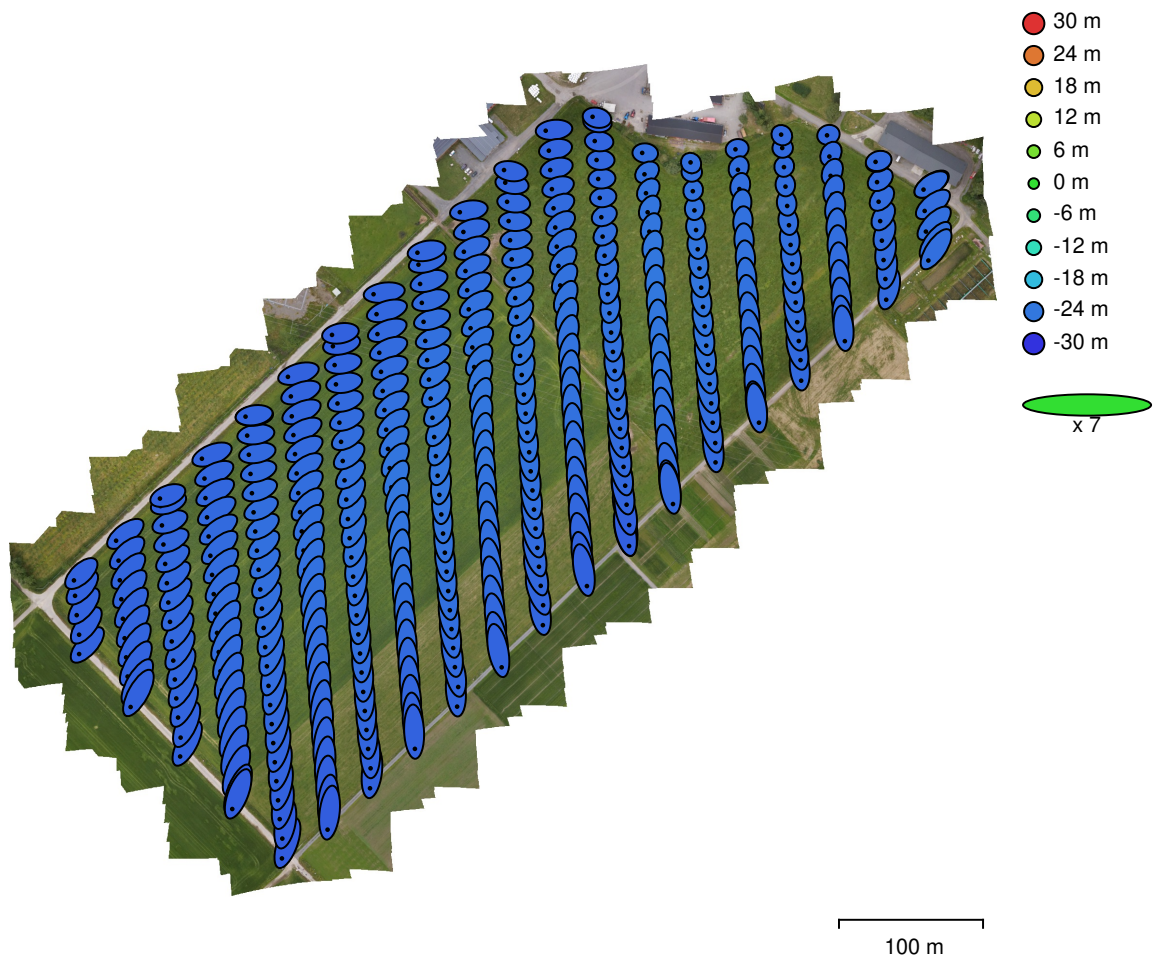


Fig. 3. Camera locations and error estimates.

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)
0.98096	2.00892	24.9057	2.23563	25.0059

Table 3. Average camera location error.

X - Easting, Y - Northing, 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 (mm)	Y error (mm)	Z error (mm)	XY error (mm)	Total (mm)
21	5.67411	4.78648	3.67543	7.42333	8.28339

Table 4. Control points RMSE.

X - Easting, Y - Northing, Z - Altitude.

Label	X error (mm)	Y error (mm)	Z error (mm)	Total (mm)	Image (pix)
1	-20.0945	0.721658	-5.1867	20.7656	2.121 (5)
2	13.1941	12.6113	4.17138	18.7224	1.498 (8)
4	1.24776	4.46986	1.92538	5.0243	0.887 (5)
6	1.66049	-2.13396	-0.659771	2.78322	0.411 (4)
7	-1.51961	5.04665	3.22296	6.17781	0.948 (7)
8	-0.92585	0.088256	1.53563	1.79531	0.805 (5)
9	0.657331	3.01655	2.19307	3.78698	1.216 (5)
10	-0.853239	3.11316	3.72994	4.93277	1.088 (8)
11	0.229199	2.99477	3.89218	4.91632	1.297 (8)
12	0.562351	5.04256	4.03116	6.48027	1.280 (8)
26	2.14056	2.75657	-0.59035	3.53966	0.395 (5)
27	-2.7078	-4.20193	4.42445	6.67564	1.268 (8)
28	1.77775	-0.469193	2.60562	3.18901	0.909 (8)
29	-0.0727688	3.48682	0.755543	3.56848	0.409 (8)
30	-0.742368	-5.70177	1.69342	5.99408	0.677 (10)
48	2.19551	0.0208883	2.72864	3.50231	0.939 (7)
49	1.53184	0.167312	4.10139	4.38132	1.522 (7)
50	3.07592	-2.88178	6.51191	7.75699	1.294 (10)
52	0.501995	-2.55539	5.21934	5.83297	1.333 (8)
53	-0.437198	-2.86459	4.70358	5.52455	1.605 (7)
54	7.51812	-11.1868	5.11699	14.417	1.471 (8)
Total	5.67411	4.78648	3.67543	8.28339	1.195

Table 5. Control points.
X - Easting, Y - Northing, Z - Altitude.

Digital Elevation Model

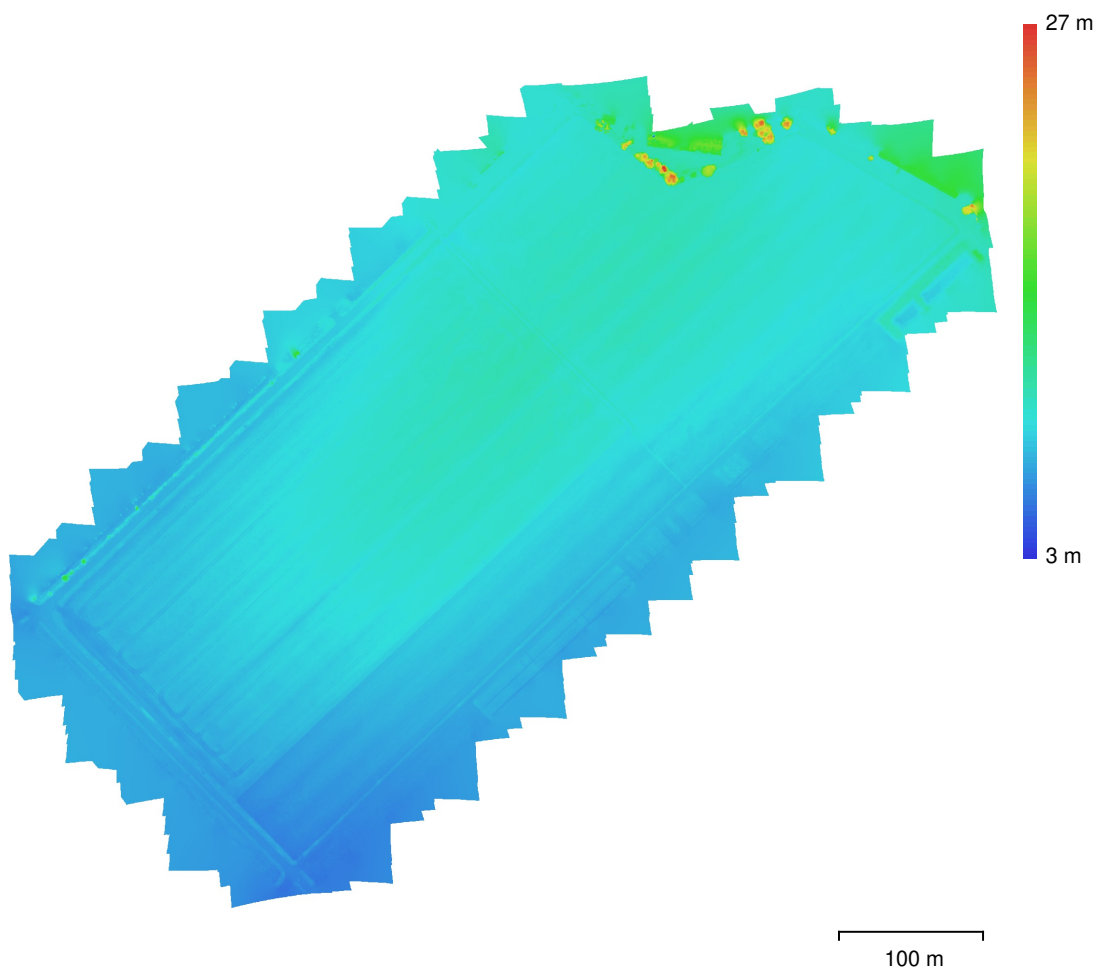


Fig. 5. Reconstructed digital elevation model.

Resolution: 9.94 cm/pix
Point density: 101 points/m²

Processing Parameters

General

Cameras	385
Aligned cameras	385
Markers	21
Coordinate system	SWEREF99 TM (EPSG::3006)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	375,638 of 420,820
RMS reprojection error	0.154607 (0.69064 pix)
Max reprojection error	1.02509 (20.5317 pix)
Mean key point size	4.0457 pix
Point colors	3 bands, uint8
Key points	404.74 MB
Average tie point multiplicity	3.06496

Alignment parameters

Accuracy	High
Generic preselection	Yes
Reference preselection	Source
Key point limit	40,000
Tie point limit	10,000
Guided image matching	No
Adaptive camera model fitting	Yes
Matching time	22 seconds
Matching memory usage	536.91 MB
Alignment time	1 minutes 49 seconds
Alignment memory usage	258.59 MB

Optimization parameters

Parameters	b1, b2, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	13 seconds
Software version	1.6.2.10247

Depth Maps

Count	385
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	6 minutes 22 seconds
Software version	1.6.2.10247

Dense Point Cloud

Points	18,259,905
Point colors	3 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	6 minutes 22 seconds
Dense cloud generation parameters	
Processing time	2 minutes 52 seconds
Software version	1.6.2.10247

DEM

Size	9,568 x 8,744
Coordinate system	SWEREF99 TM (EPSG::3006)

Reconstruction parameters	
Source data	Dense cloud
Interpolation	Enabled
Processing time	46 seconds
Software version	1.6.2.10247
Orthomosaic	
Size	13,777 x 11,607
Coordinate system	SWEREF99 TM (EPSG::3006)
Colors	3 bands, uint8
Reconstruction parameters	
Blending mode	Mosaic
Surface	DEM
Enable hole filling	Yes
Processing time	1 minutes 53 seconds
Software version	1.6.2.10247
System	
Software name	Agisoft Metashape Professional
Software version	1.6.2 build 10247
OS	Linux 64 bit
RAM	503.31 GB
CPU	Intel(R) Xeon(R) Gold 6326 CPU @ 2.90GHz
GPU(s)	NVIDIA A40