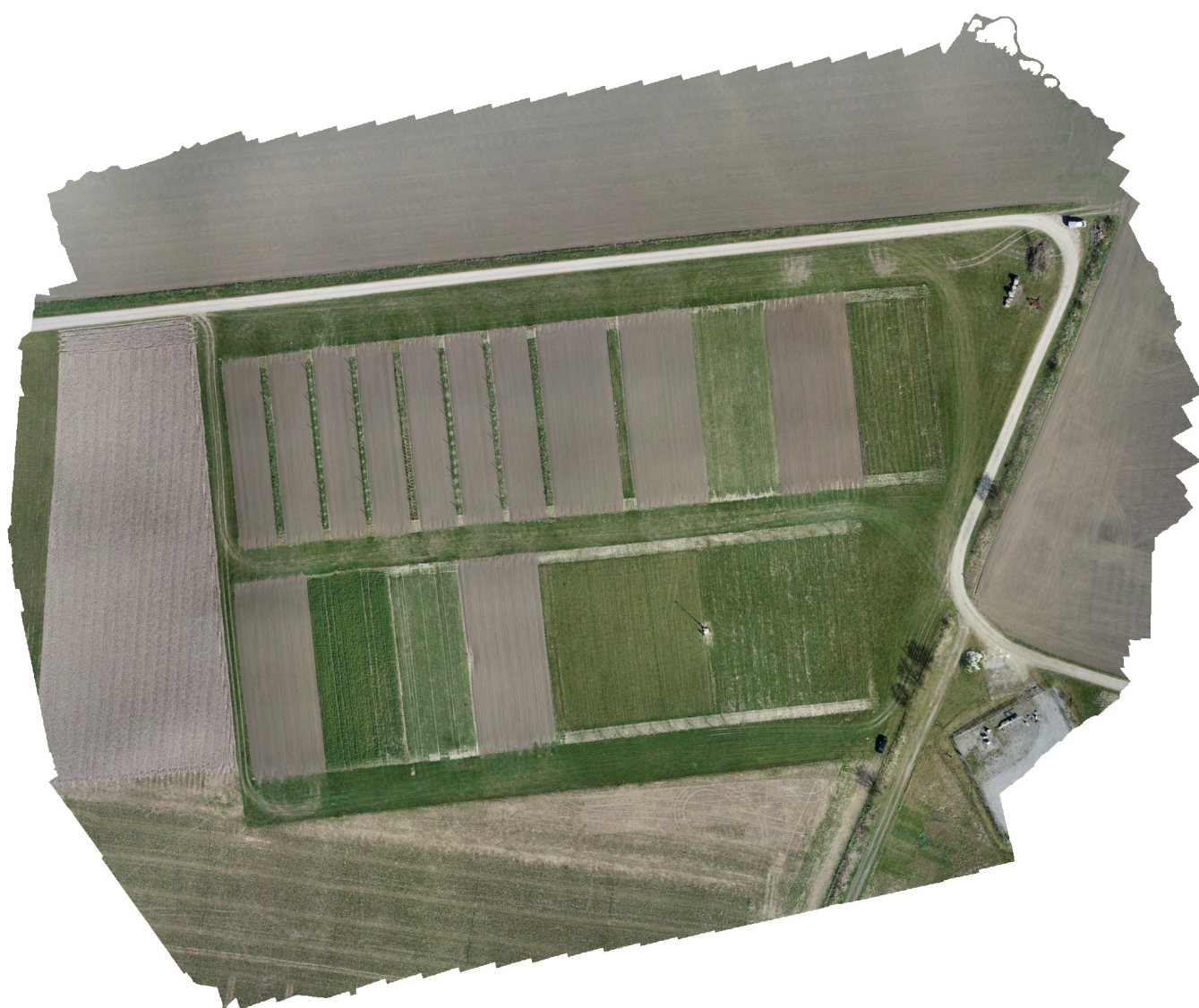


Agisoft Metashape

Processing Report

04 March 2021



Survey Data

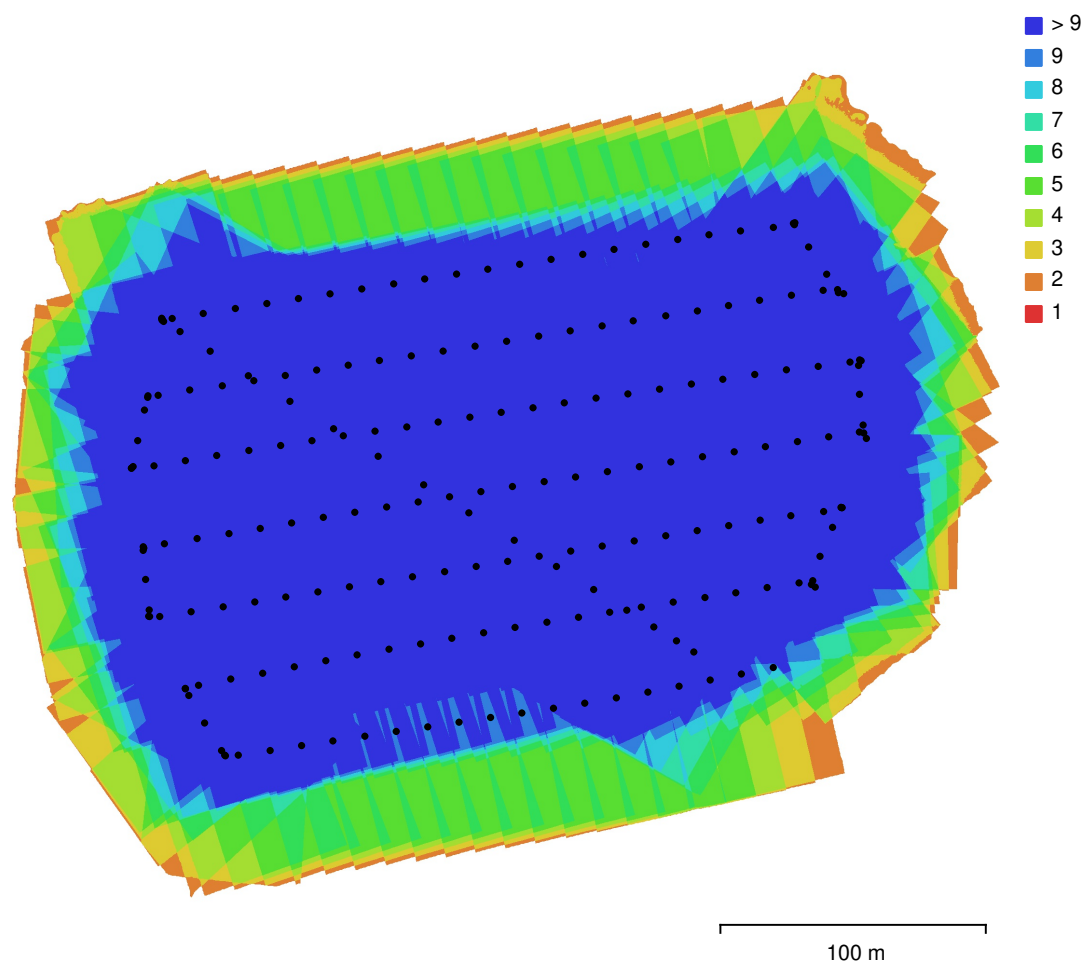


Fig. 1. Camera locations and image overlap.

Number of images:	211	Camera stations:	211
Flying altitude:	42.7 m	Tie points:	118,026
Ground resolution:	1.63 cm/pix	Projections:	847,365
Coverage area:	0.0876 km ²	Reprojection error:	0.504 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

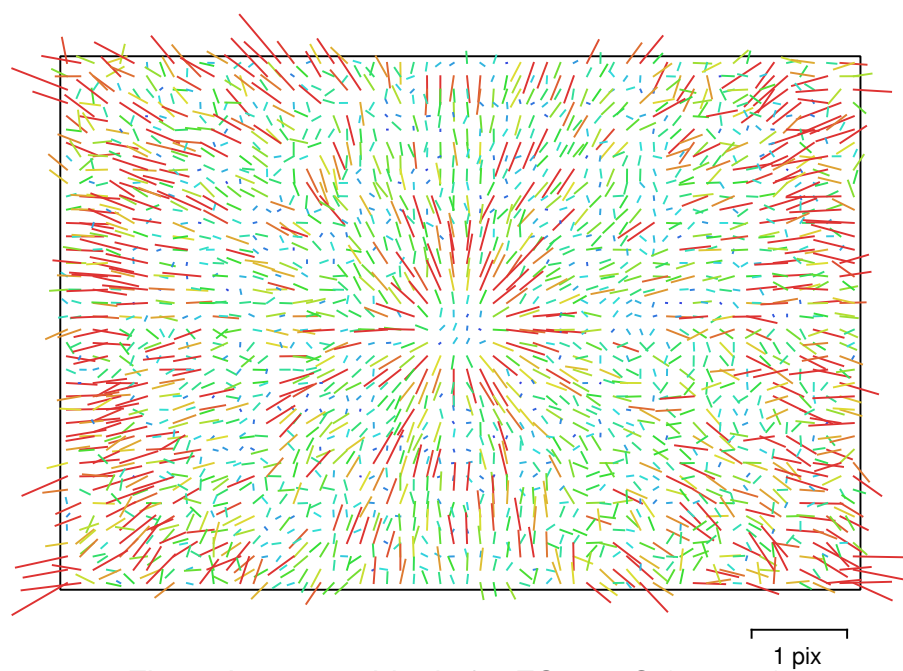


Fig. 2. Image residuals for FC6310S (8.8mm).

FC6310S (8.8mm)

211 images

Type Frame	Resolution 5472 x 3648	Focal Length 8.8 mm	Pixel Size 2.41 x 2.41 μm
F:	2022.07		
Cx:	-2.12788	B1:	0
Cy:	-41.9492	B2:	0
K1:	-0.00332207	P1:	0.000321253
K2:	-0.000173901	P2:	-0.00122172
K3:	0.000271356	P3:	0
K4:	0	P4:	0

Camera Locations

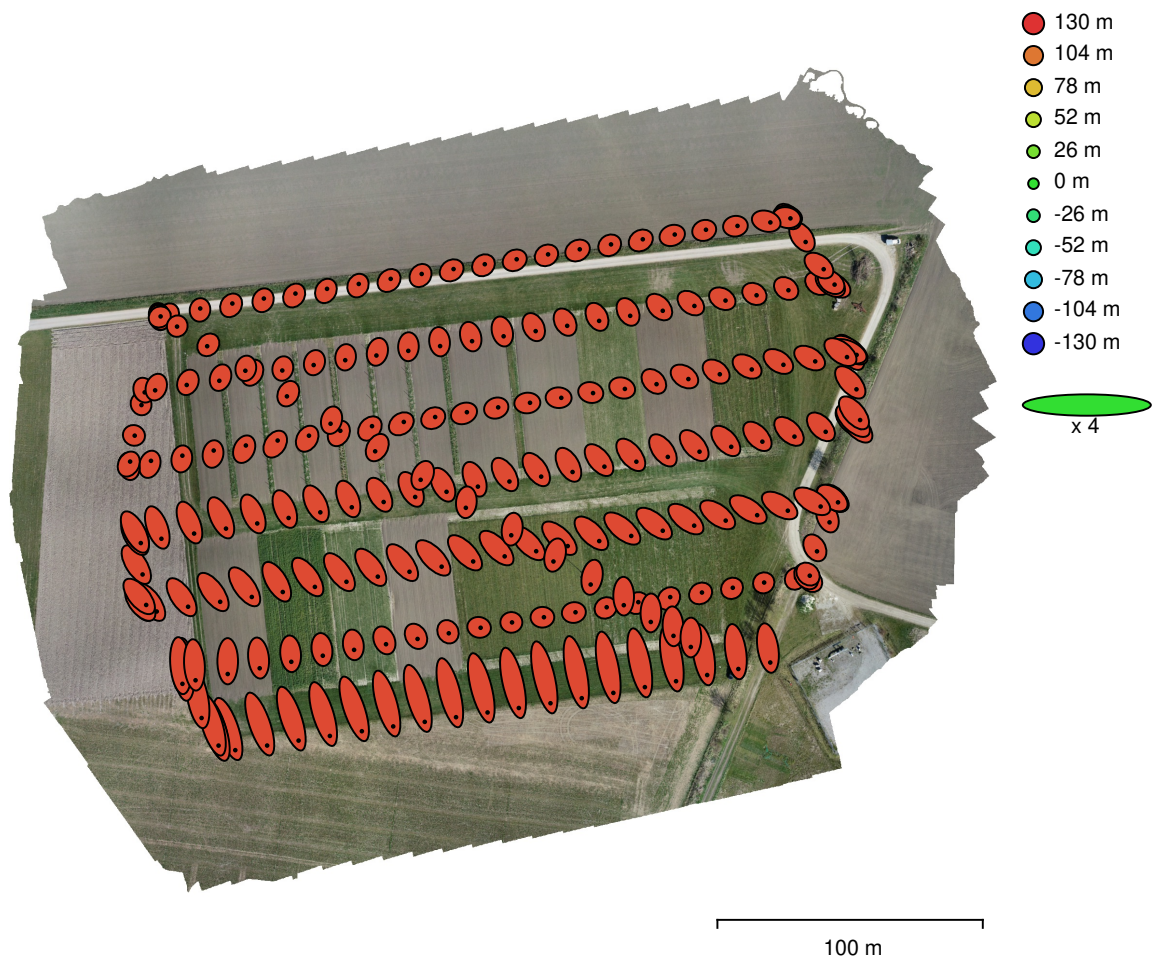


Fig. 3. Camera locations and error estimates.

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)
0.806966	1.72492	121.14	1.90435	121.155

Table 2. Average camera location error.
X - Easting, Y - Northing, Z - Altitude.

Ground Control Points

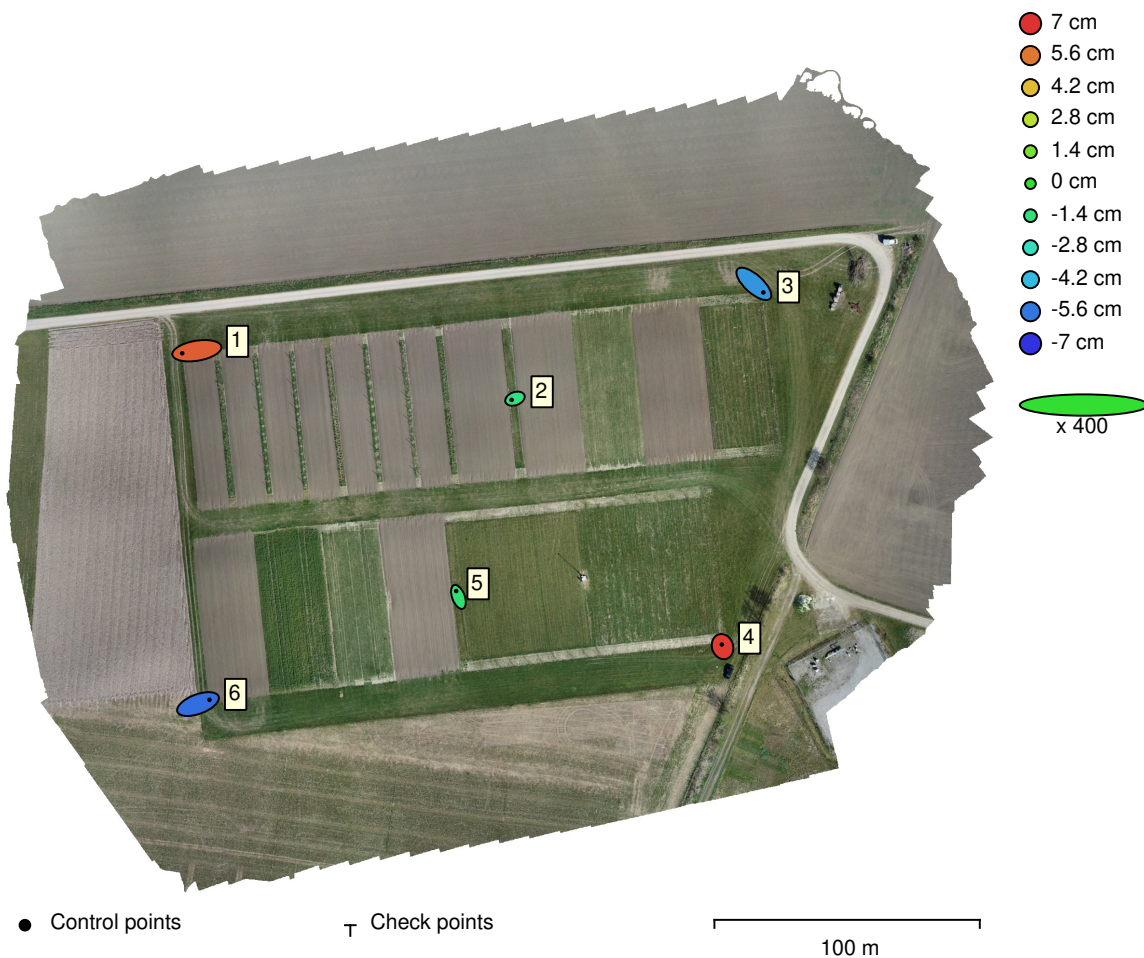


Fig. 4. GCP locations and error estimates.
 Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
 Estimated GCP locations are marked with a dot or crossing.

Count	X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
6	1.63795	0.906221	4.94164	1.87193	5.28431

Table 3. Control points RMSE.
 X - Easting, Y - Northing, Z - Altitude.

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
1	-2.75838	-0.466997	6.1216	6.73058	1.448 (14)
2	-0.637711	-0.235706	-1.58345	1.72323	0.369 (14)
3	1.79225	-1.61344	-4.99517	5.54681	0.778 (14)
4	-0.135714	0.402843	6.83111	6.84432	1.308 (13)
5	-0.423659	1.11179	-1.23507	1.71492	0.643 (15)
6	2.16147	0.807601	-5.77894	6.22257	0.920 (17)
Total	1.63795	0.906221	4.94164	5.28431	0.974

Table 4. Control points.
X - Easting, Y - Northing, Z - Altitude.

Digital Elevation Model

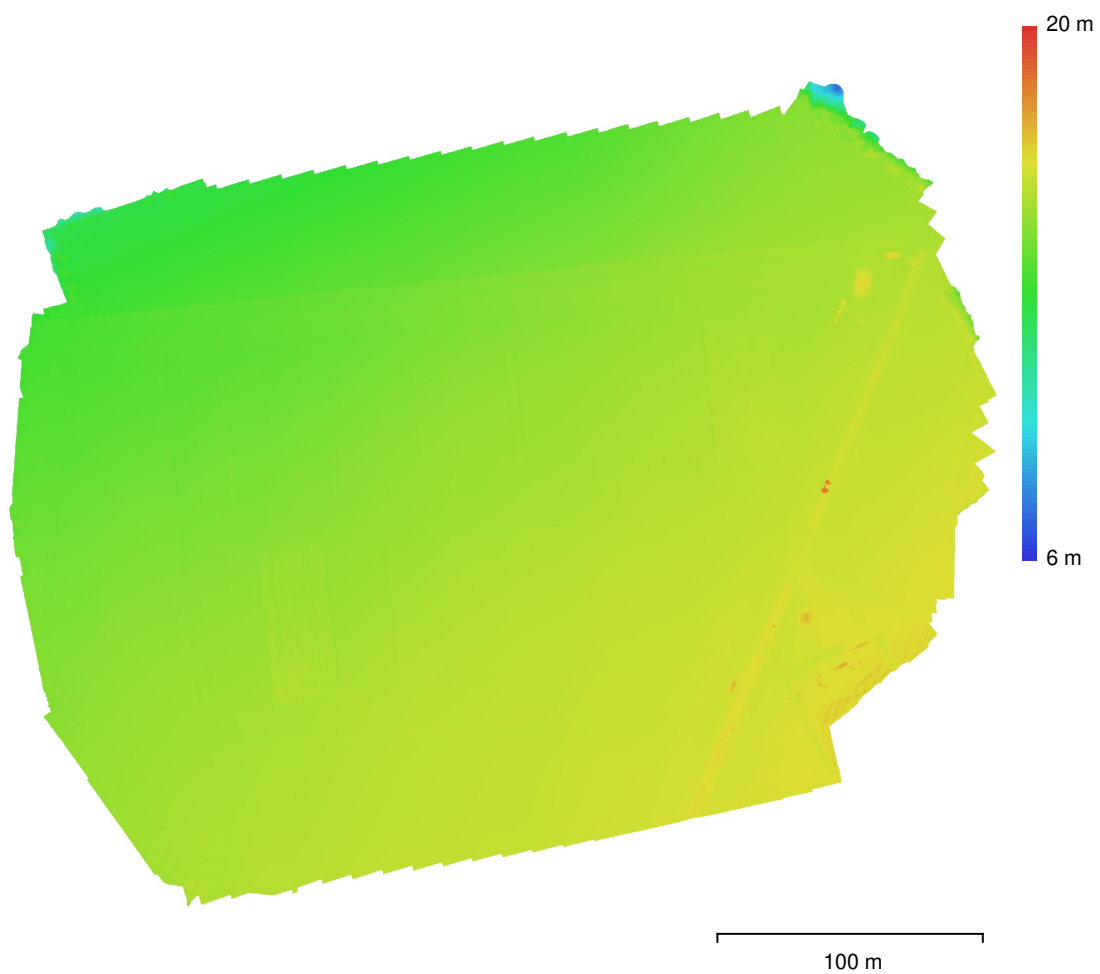


Fig. 5. Reconstructed digital elevation model.

Resolution: 3.26 cm/pix
Point density: 942 points/m²

Processing Parameters

General

Cameras	211
Aligned cameras	211
Markers	6
Coordinate system	SWEREF99 TM (EPSG::3006)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	118,026 of 124,846
RMS reprojection error	0.207232 (0.504496 pix)
Max reprojection error	5.4798 (10.1316 pix)
Mean key point size	2.46576 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	7.40168

Alignment parameters

Accuracy	High
Generic preselection	Yes
Reference preselection	Source
Key point limit	40,000
Tie point limit	4,000
Guided image matching	No
Adaptive camera model fitting	No
Matching time	3 minutes 21 seconds
Matching memory usage	1.36 GB
Alignment time	14 minutes 56 seconds
Alignment memory usage	306.02 MB

Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	2 minutes 33 seconds
Software version	1.6.2.10247

Depth Maps

Count	211
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	31 minutes 52 seconds
Software version	1.6.2.10247

Dense Point Cloud

Points	83,828,470
Point colors	3 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	31 minutes 52 seconds
Dense cloud generation parameters	
Processing time	23 minutes 39 seconds
Software version	1.6.2.10247

DEM

Size	16,144 x 13,843
Coordinate system	SWEREF99 TM (EPSG::3006)

Reconstruction parameters	
Source data	Dense cloud
Interpolation	Enabled
Processing time	3 minutes 20 seconds
Software version	1.6.2.10247
Orthomosaic	
Size	22,827 x 19,083
Coordinate system	SWEREF99 TM (EPSG::3006)
Colors	3 bands, uint8
Reconstruction parameters	
Blending mode	Mosaic
Surface	DEM
Enable hole filling	Yes
Processing time	8 minutes 36 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	62.65 GB
CPU	Intel(R) Xeon(R) CPU E5-2650 v3 @ 2.30GHz
GPU(s)	Tesla K80
	Tesla K80
	Tesla K80
	Tesla K80