Agisoft Metashape

Processing Report
08 August 2020

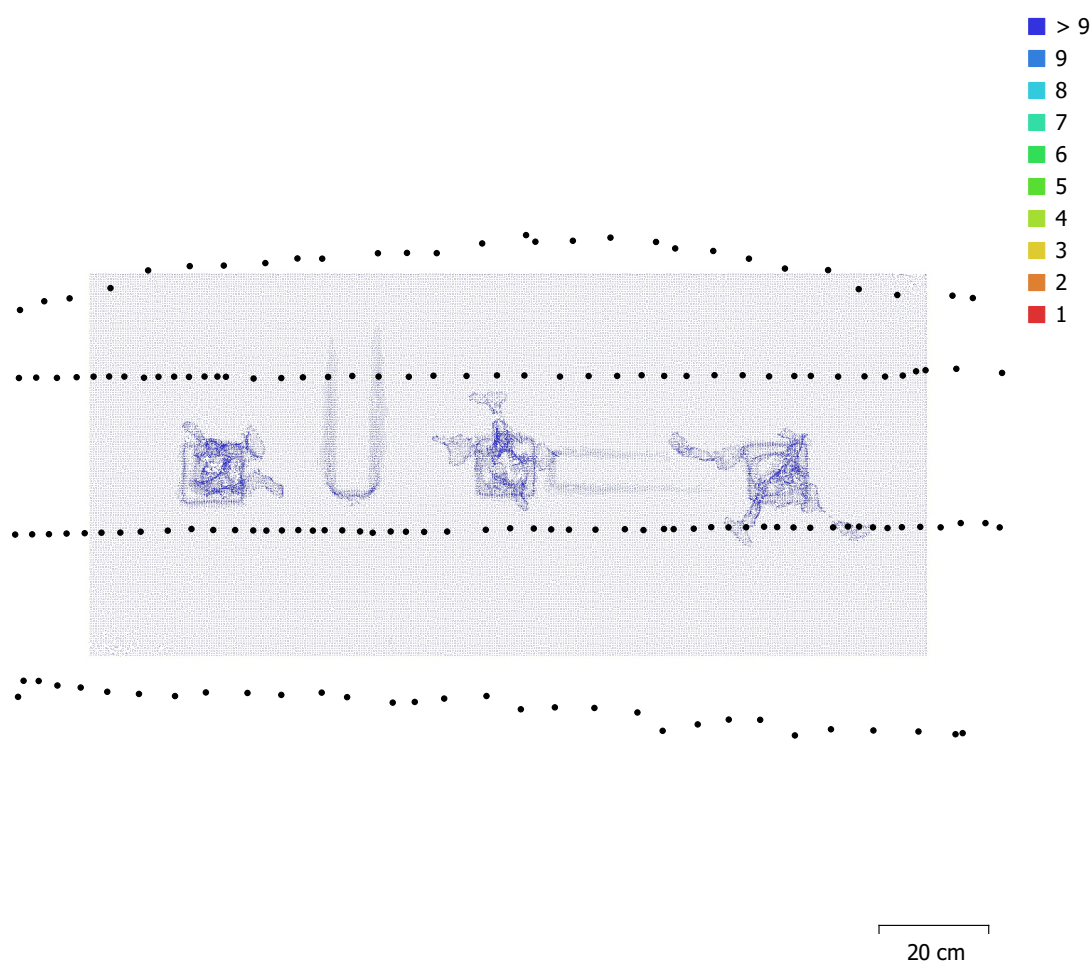# Survey Data

20 cm
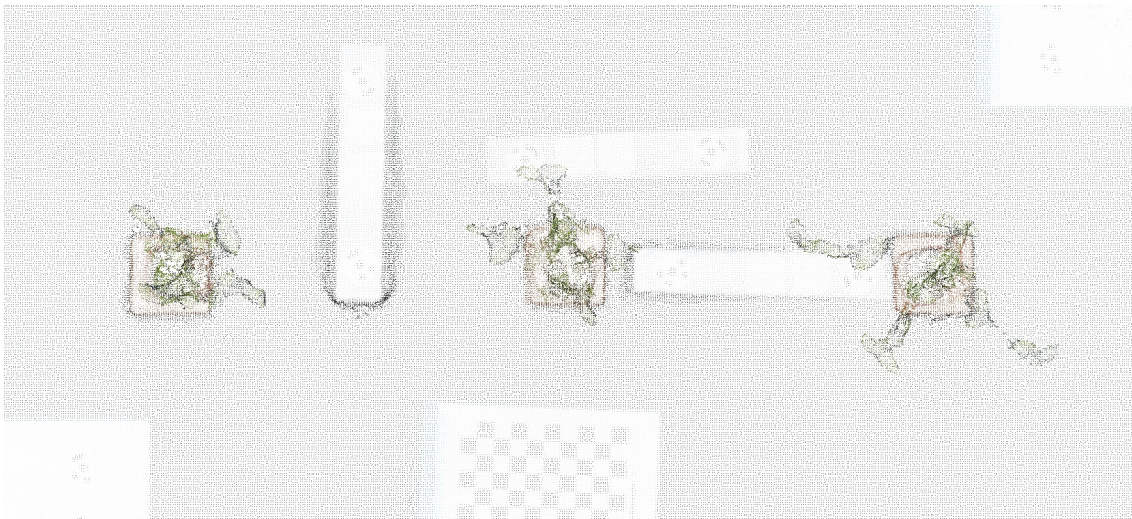
Fig. 1. Camera locations and image overlap.

Number of images:	157	Camera stations:	157
Flying altitude:	1.19 m	Tie points:	15,126
Ground resolution:	0.192 mm/pix	Projections:	71,810
Coverage area:	1.05e+03 cm²	Reprojection error:	4.52 pix

ra Model	Resolution	Focal Length	Pixel Size	Precalib
EOS Kiss X7, EF-S18-55mm f/3.5-5.6 IS STM (24mm)	5184 x 3456	24 mm	4.38 x 4.38 μm	No

Table 1. Cameras.
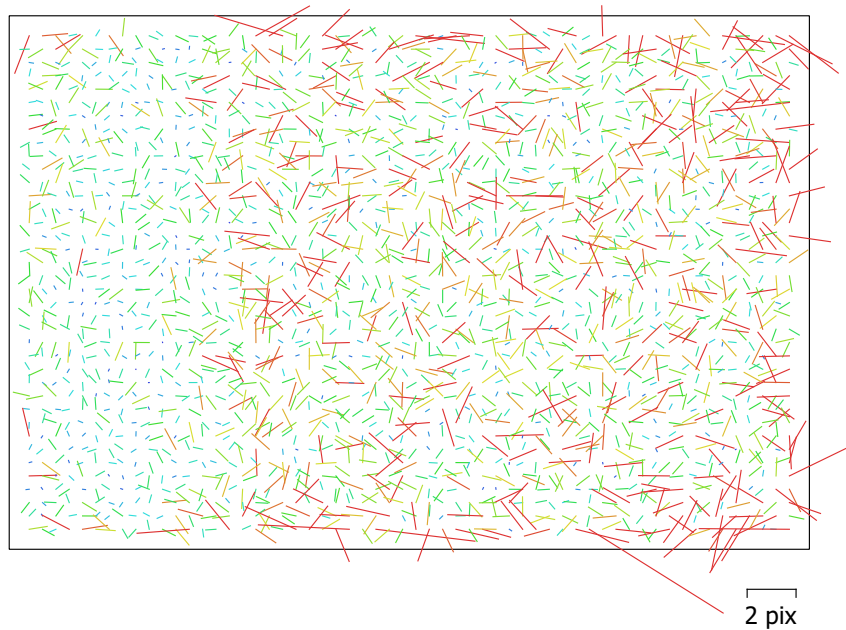
Camera Calibration

Fig. 2. Image residuals for Canon EOS Kiss X7, EF-S18-55mm f/3.5-5.6 IS STM (24mm).

Canon EOS Kiss X7, EF-S18-55mm f/3.5-5.6 IS STM (24mm)

157 images

Type	Resolution	Focal Length	Pixel Size
Frame	**5184 x 3456**	**24 mm**	**4.38 x 4.38 µm**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**5583.66**	2.1	1.00	-0.85	-0.16	0.09	-0.05	0.05	-0.18	0.19
Cx	**-43.1827**	1.6		1.00	0.20	-0.20	0.10	-0.08	0.33	-0.10
Cy	**2.50801**	0.77			1.00	-0.07	0.06	-0.02	0.05	0.43
K1	**-0.125521**	0.00061				1.00	-0.90	0.82	-0.24	-0.02
K2	**0.133089**	0.0049					1.00	-0.98	-0.07	-0.03
K3	**0.00688561**	0.012						1.00	0.09	0.05
P1	**-0.000476752**	5.8e-05							1.00	0.20
P2	**0.00061009**	3.3e-05								1.00

Table 2. Calibration coefficients and correlation matrix.

Scale Bars

Label	Distance (m)	Error (m)
target 1_target 2	0.0852615	0.000261479
target 1_target 3	0.126918	0.000917672
target 1_target 4	0.15292	-0.00108015
target 2_target 3	0.152963	-0.00103703
target 2_target 4	0.126944	0.000943615
target 3_target 4	0.0853873	0.000387254
target 5_target 6	0.0852747	0.000274723
target 5_target 7	0.127068	0.00106807
target 5_target 8	0.153035	-0.000964679
target 6_target 7	0.153058	-0.000941848
target 6_target 8	0.127074	0.00107371
target 7_target 8	0.0853311	0.000331095
Total		**0.000841101**

Table 3. Control scale bars.

Digital Elevation Model
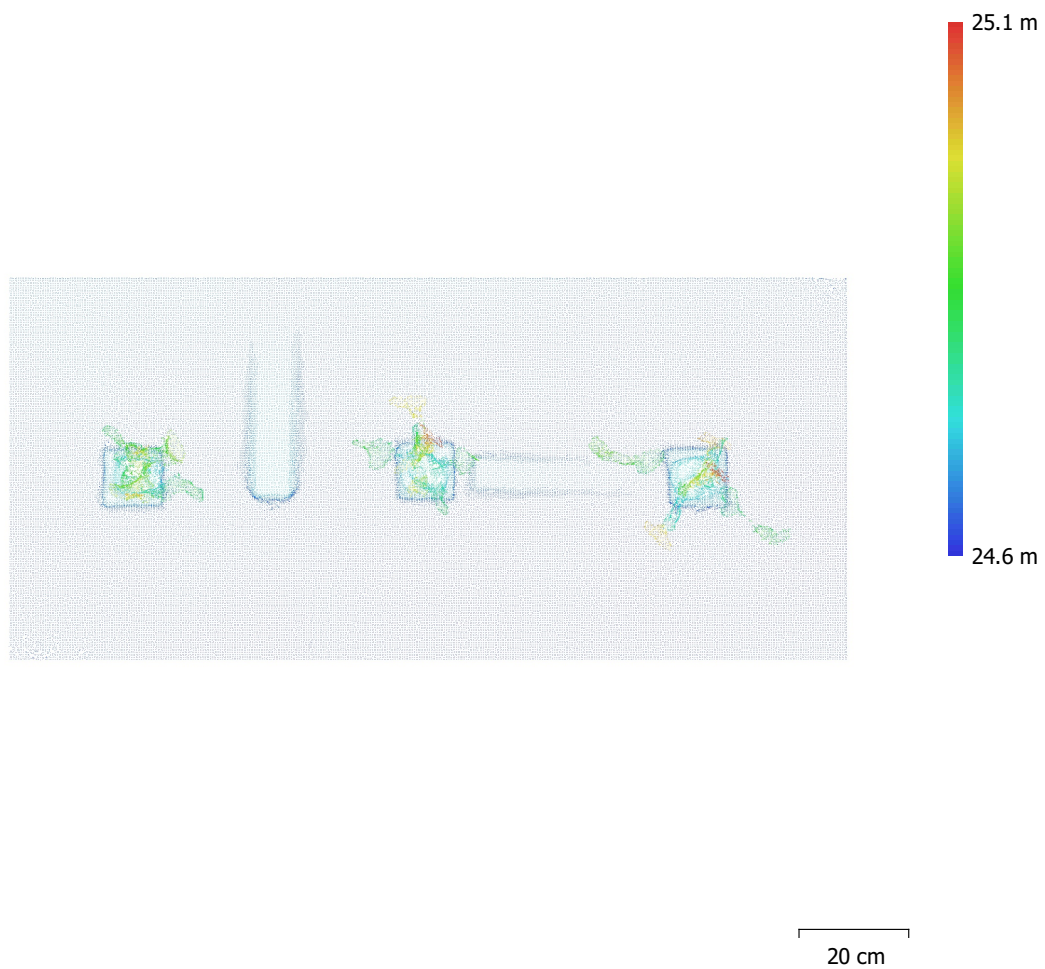
Fig. 3. Reconstructed digital elevation model.

Resolution:	unknown
Point density:	unknown

Processing Parameters

General

Cameras	157
Aligned cameras	157
Markers	14
Scale bars	12
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	15,126 of 18,563
RMS reprojection error	0.167051 (4.51894 pix)
Max reprojection error	2.62674 (92.7973 pix)
Mean key point size	26.9207 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	5.65711

Alignment parameters

Accuracy	Lowest
Generic preselection	No
Reference preselection	Sequential
Key point limit	40,000
Tie point limit	4,000
Guided image matching	No
Adaptive camera model fitting	No
Matching time	28 seconds
Matching memory usage	225.06 MB
Alignment time	23 seconds
Alignment memory usage	54.62 MB

Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	3 seconds
Software version	1.6.3.10732

Depth Maps

Count	149

Depth maps generation parameters

Quality	Lowest
Filtering mode	Mild
Processing time	25 seconds
Software version	1.6.3.10732

Dense Point Cloud

Points	151,056
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	Lowest
Filtering mode	Mild
Processing time	25 seconds

Dense cloud generation parameters

Processing time	17 seconds
Software version	1.6.3.10732

System

Software name	Agisoft Metashape Professional
Software version	1.6.3 build 10732
OS	Windows 64 bit
RAM	127.68 GB
CPU	Intel(R) Core(TM) i9-9940X CPU @ 3.30GHz
GPU(s)	GeForce GTX 1080 Ti
	GeForce RTX 2080 Ti