Selmaneset East

Processing Report

23 August 2020

Survey Data

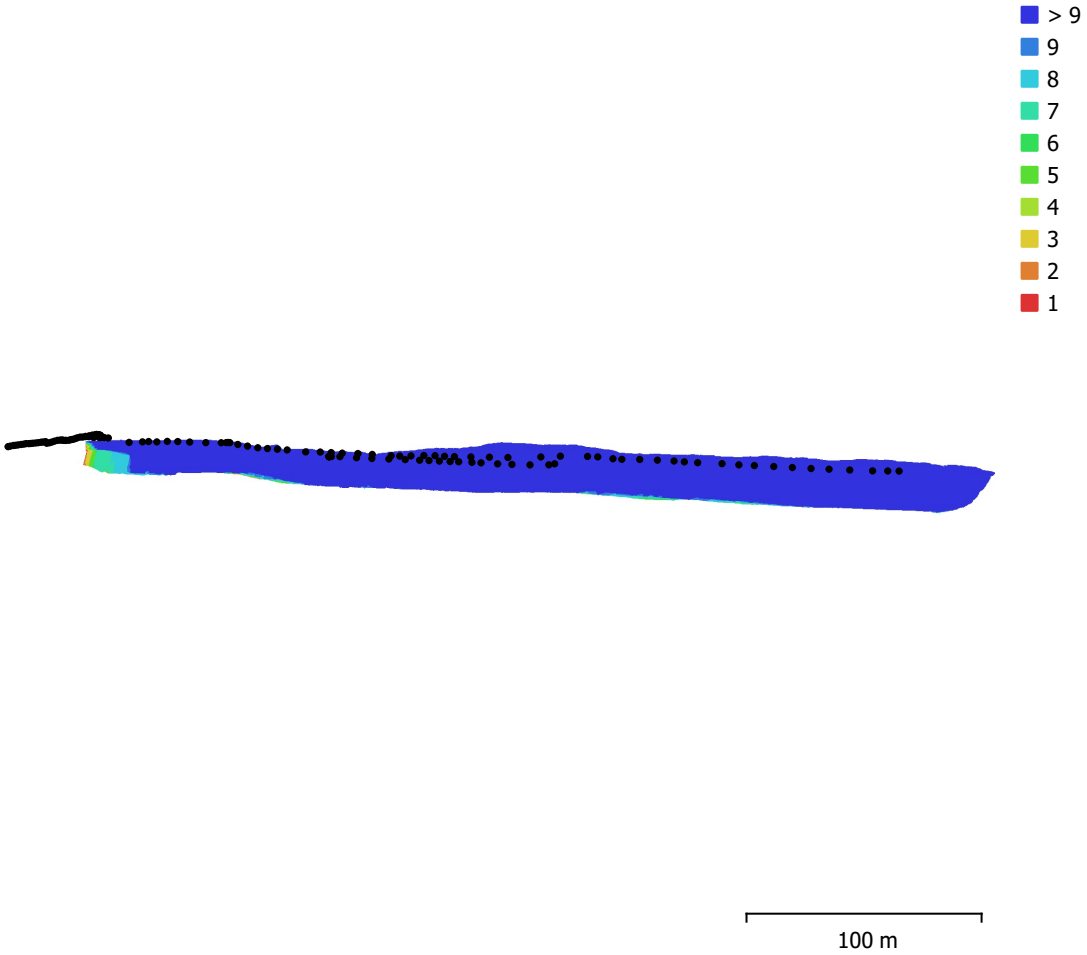

Fig. 1. Camera locations and image overlap.

Number of images:	133	Camera stations:	133
Flying altitude:	29.2 m	Tie points:	81,400
Ground resolution:	1.03 cm/pix	Projections:	265,251
Coverage area:	6.85e+03 m²	Reprojection error:	0.48 pix

Model	Resolution	Focal Length	Pixel Size	Preca
4.5mm)	4000 x 3000	4.5 mm	1.62 x 1.62 µm	No
S, iPhone XS back dual camera 4.25mm f/1.8 (4.25mm)	4032 x 3024	4.25 mm	1.4 x 1.4 µm	No

Table 1. Cameras.

Camera Calibration

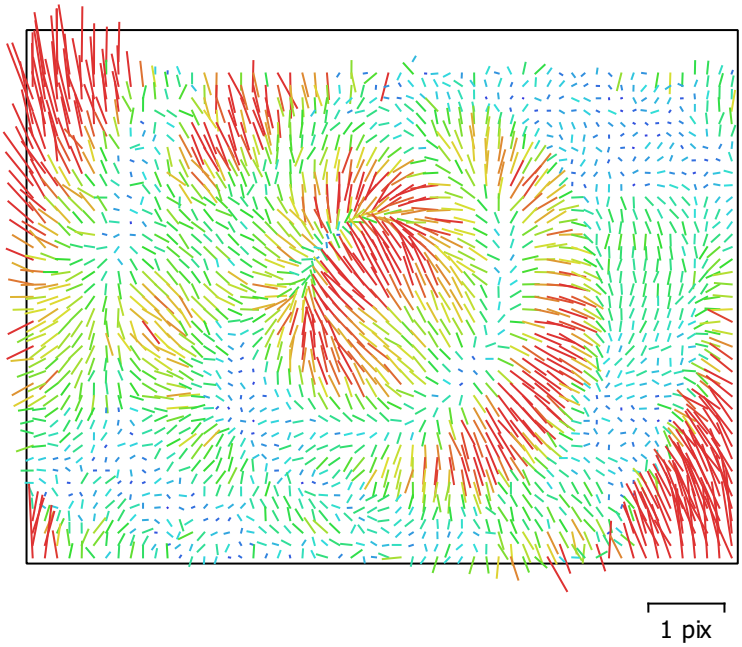

Fig. 2. Image residuals for FC3170 (4.5mm).

FC3170 (4.5mm)

85 images

Type	Resolution	Focal Length	Pixel Size
Frame	**4000 x 3000**	**4.5 mm**	**1.62 x 1.62 µm**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**2945.43**	0.076	1.00	0.08	-0.38	-0.17	0.27	-0.29	0.07	0.04
Cx	**7.85971**	0.15		1.00	-0.11	0.02	0.02	-0.02	0.96	-0.06
Cy	**5.49869**	0.094			1.00	0.01	-0.03	0.04	-0.05	0.67
K1	**-0.0346712**	7.2e-05				1.00	-0.95	0.88	0.03	-0.03
K2	**0.183021**	0.00025					1.00	-0.98	0.01	0.02
K3	**-0.194941**	0.00026						1.00	-0.00	-0.03
P1	**-1.94124e-05**	1.5e-05							1.00	-0.07
P2	**-4.14921e-05**	7.2e-06								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration

Fig. 3. Image residuals for iPhone XS, iPhone XS back dual camera 4.25mm f/1.8 (4.25mm).

iPhone XS, iPhone XS back dual camera 4.25mm f/1.8 (4.25mm)

48 images

Type	Resolution	Focal Length	Pixel Size
Frame	**4032 x 3024**	**4.25 mm**	**1.4 x 1.4 µm**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**3021.5**	0.7	1.00	-0.03	-0.25	0.49	-0.36	0.44	-0.06	0.09
Cx	**-56.0932**	0.48		1.00	0.00	0.09	-0.20	0.24	0.78	-0.03
Cy	**7.33268**	0.59			1.00	-0.27	0.31	-0.34	-0.02	0.55
K1	**0.150344**	0.00038				1.00	-0.94	0.91	0.05	-0.07
K2	**-0.483066**	0.0015					1.00	-0.98	-0.18	0.10
K3	**0.525833**	0.002						1.00	0.22	-0.12
P1	**-0.00466231**	5.8e-05							1.00	-0.07
P2	**0.00130901**	4.9e-05								1.00

Table 3. Calibration coefficients and correlation matrix.

Camera Locations

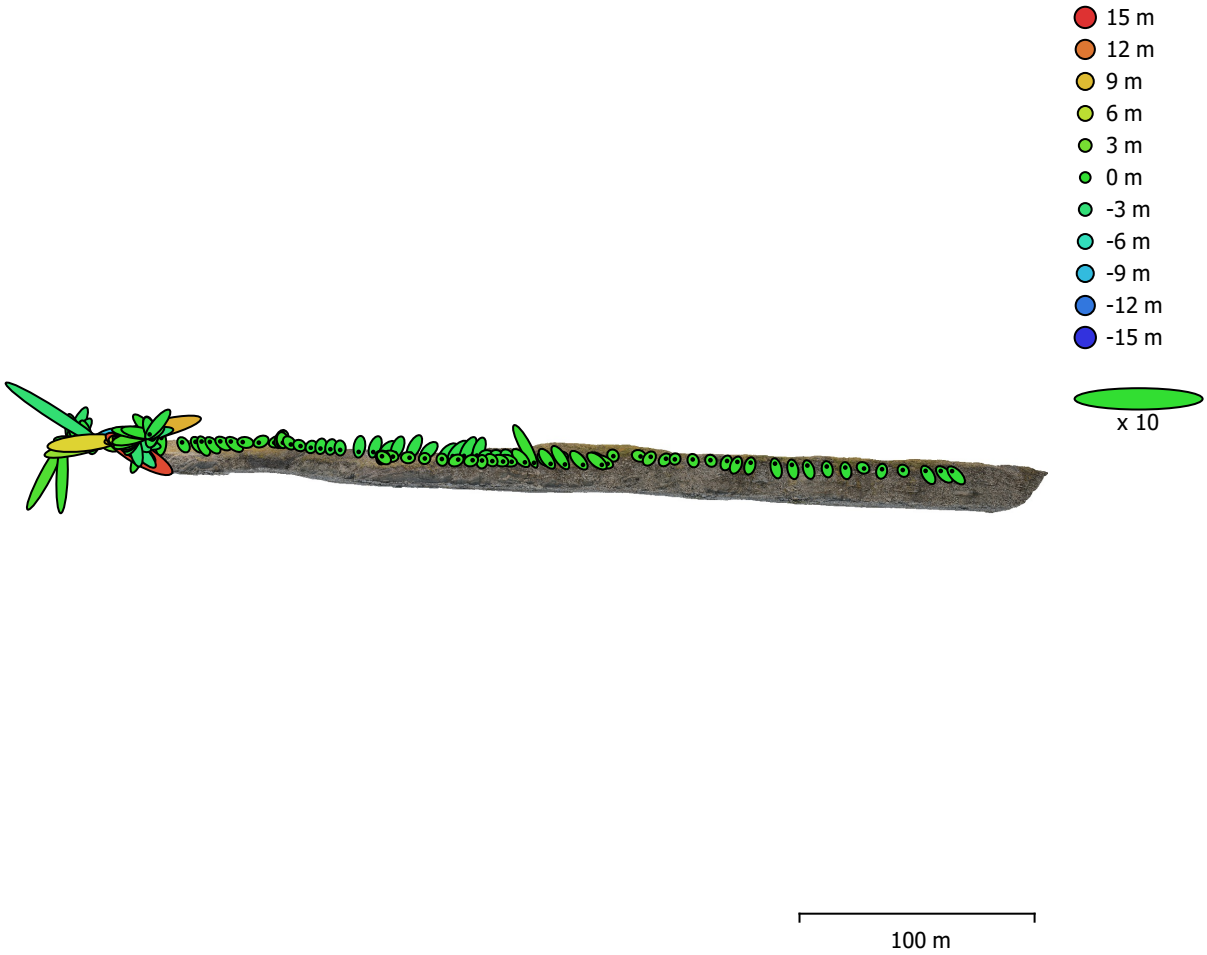

Fig. 4. Camera locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated camera locations are marked with a black dot.

X error (m)	Y error (m)	Z error (m)	XY error (m)	Total error (m)
0.754027	0.573292	2.18038	0.947217	2.37724

Table 4. Average camera location error.
X - Longitude, Y - Latitude, Z - Altitude.

Digital Elevation Model

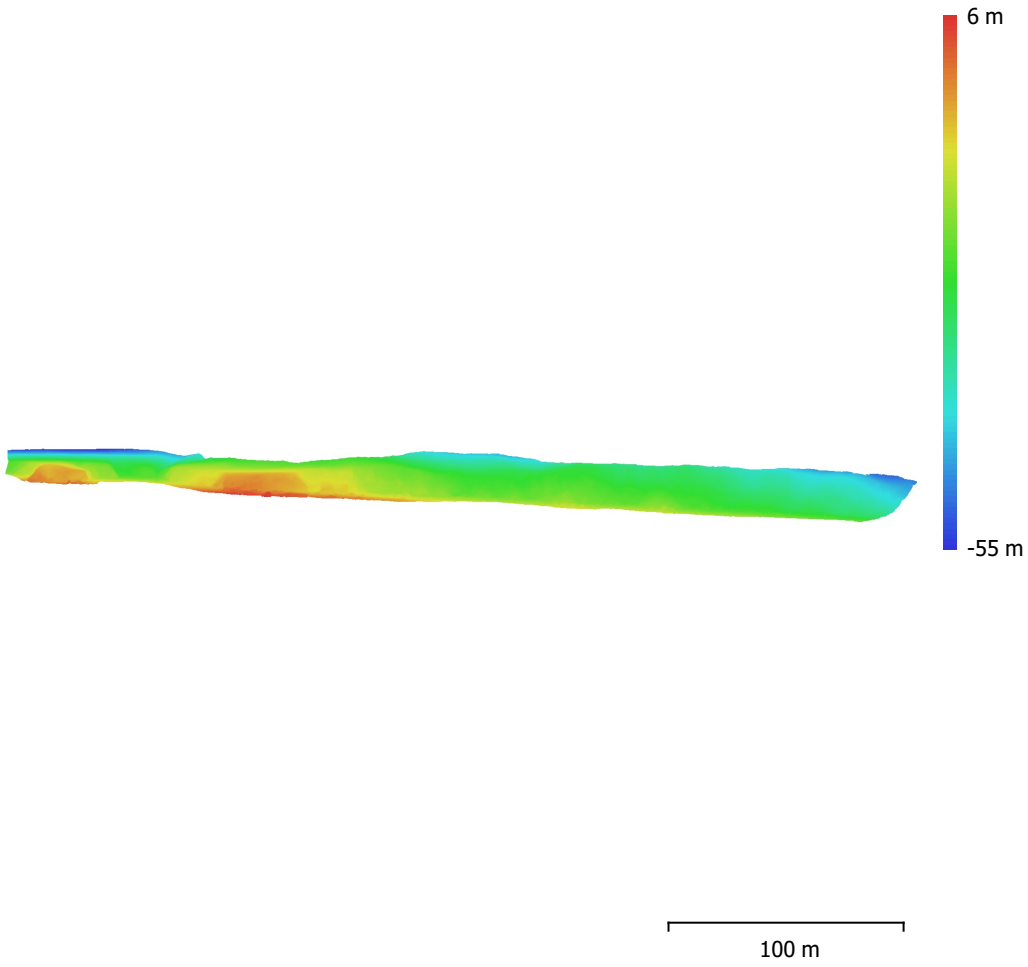

Fig. 5. Reconstructed digital elevation model.

Resolution:	1.63 cm/pix
Point density:	0.377 points/cm²

Processing Parameters

General	
Cameras	133
Aligned cameras	133
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll
Point Cloud	
Points	81,400 of 156,877
RMS reprojection error	0.307745 (0.47966 pix)
Max reprojection error	0.970895 (8.27449 pix)
Mean key point size	1.61495 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.09622
Alignment parameters	
Accuracy	Highest
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	1 minutes 36 seconds
Matching memory usage	204.04 MB
Alignment time	1 minutes 23 seconds
Alignment memory usage	40.81 MB
Software version	1.6.3.10732
Depth Maps	
Count	85
Depth maps generation parameters	
Quality	Ultra High
Filtering mode	Mild
Processing time	8 minutes 39 seconds
Software version	1.6.3.10732
Dense Point Cloud	
Points	166,050,000
Point colors	3 bands, uint8
Depth maps generation parameters	
Quality	Ultra High
Filtering mode	Mild
Processing time	8 minutes 39 seconds
Dense cloud generation parameters	
Processing time	24 minutes 10 seconds
Software version	1.6.3.10732
Model	
Faces	33,209,999
Vertices	16,617,349
Vertex colors	3 bands, uint8
Texture	4,096 x 4,096, 4 bands, uint8
Depth maps generation parameters	
Quality	Ultra High

Filtering mode	Mild
Processing time	8 minutes 39 seconds
Reconstruction parameters	
Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Enabled
Strict volumetric masks	No
Processing time	1 hours 1 minutes
Texturing parameters	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	4,096
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	8 minutes 26 seconds
Blending time	2 minutes 41 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	127.78 GB
CPU	Intel(R) Core(TM) i9-9900K CPU @ 3.60GHz
GPU(s)	GeForce RTX 2080