

Fortet East

Processing Report
25 April 2020



Survey Data

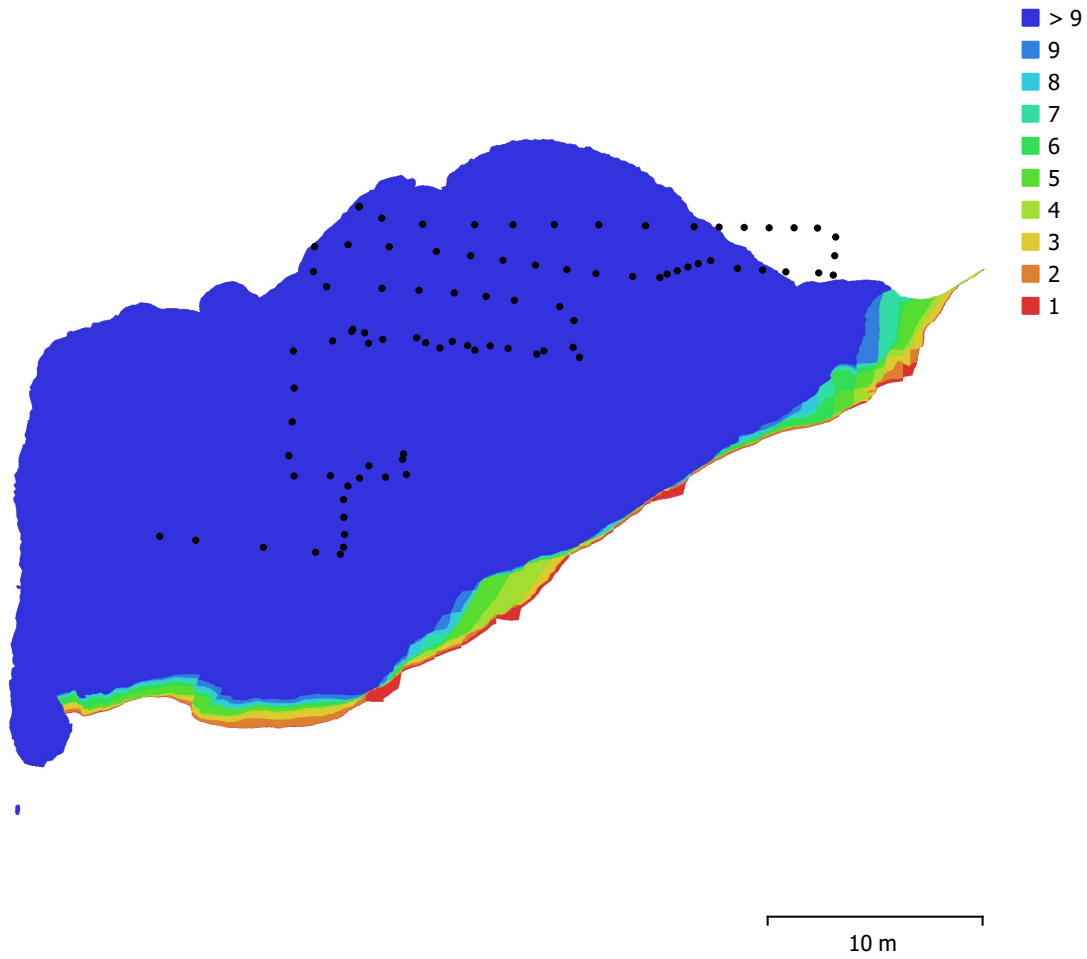


Fig. 1. Camera locations and image overlap.

Number of images:	88	Camera stations:	88
Flying altitude:	28.6 m	Tie points:	17,278
Ground resolution:	1.24 cm/pix	Projections:	276,604
Coverage area:	703 m ²	Reprojection error:	0.822 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
unknown	2688 x 1512	unknown	unknown	No

Table 1. Cameras.

Camera Calibration

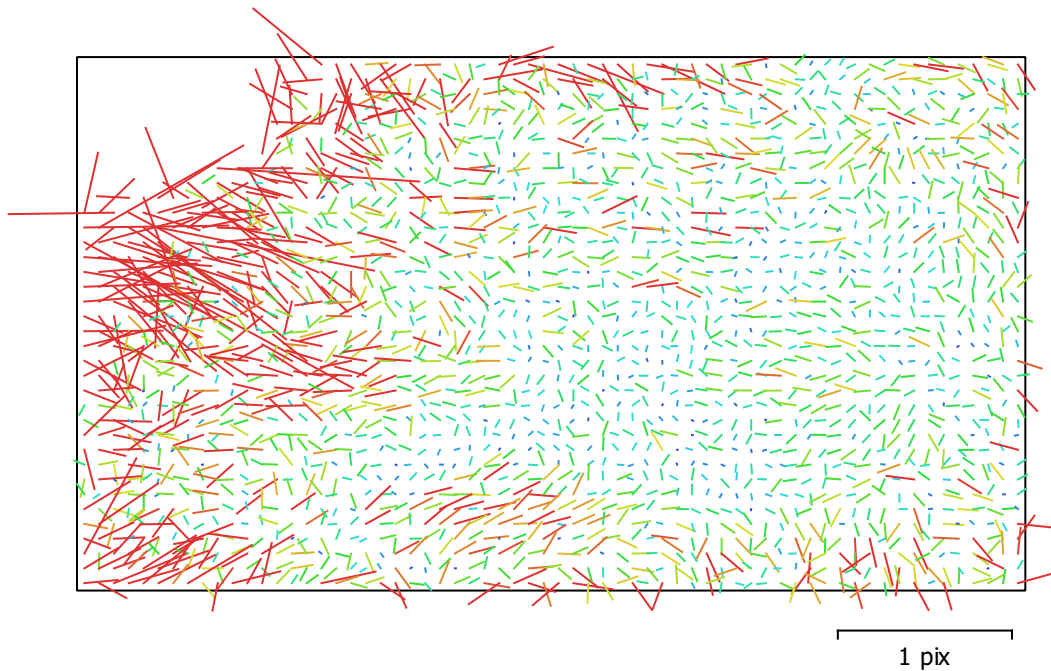


Fig. 2. Image residuals for unknown.

unknown

88 images

Type
Frame

Resolution
2688 x 1512

Focal Length
unknown

Pixel Size
unknown

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2215.8	0.37	1.00	-0.42	-0.39	0.13	0.05	-0.04	-0.35	-0.20
Cx	-33.8055	0.5		1.00	0.17	-0.16	0.03	-0.02	0.90	0.15
Cy	-27.8551	0.47			1.00	-0.14	0.05	-0.05	0.05	0.76
K1	0.00995347	0.00016				1.00	-0.90	0.84	-0.18	-0.20
K2	0.019295	0.00072					1.00	-0.98	0.02	0.09
K3	-0.0191121	0.001						1.00	-0.01	-0.08
P1	-0.00417955	5.7e-05							1.00	0.08
P2	-0.00370669	4e-05								1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points

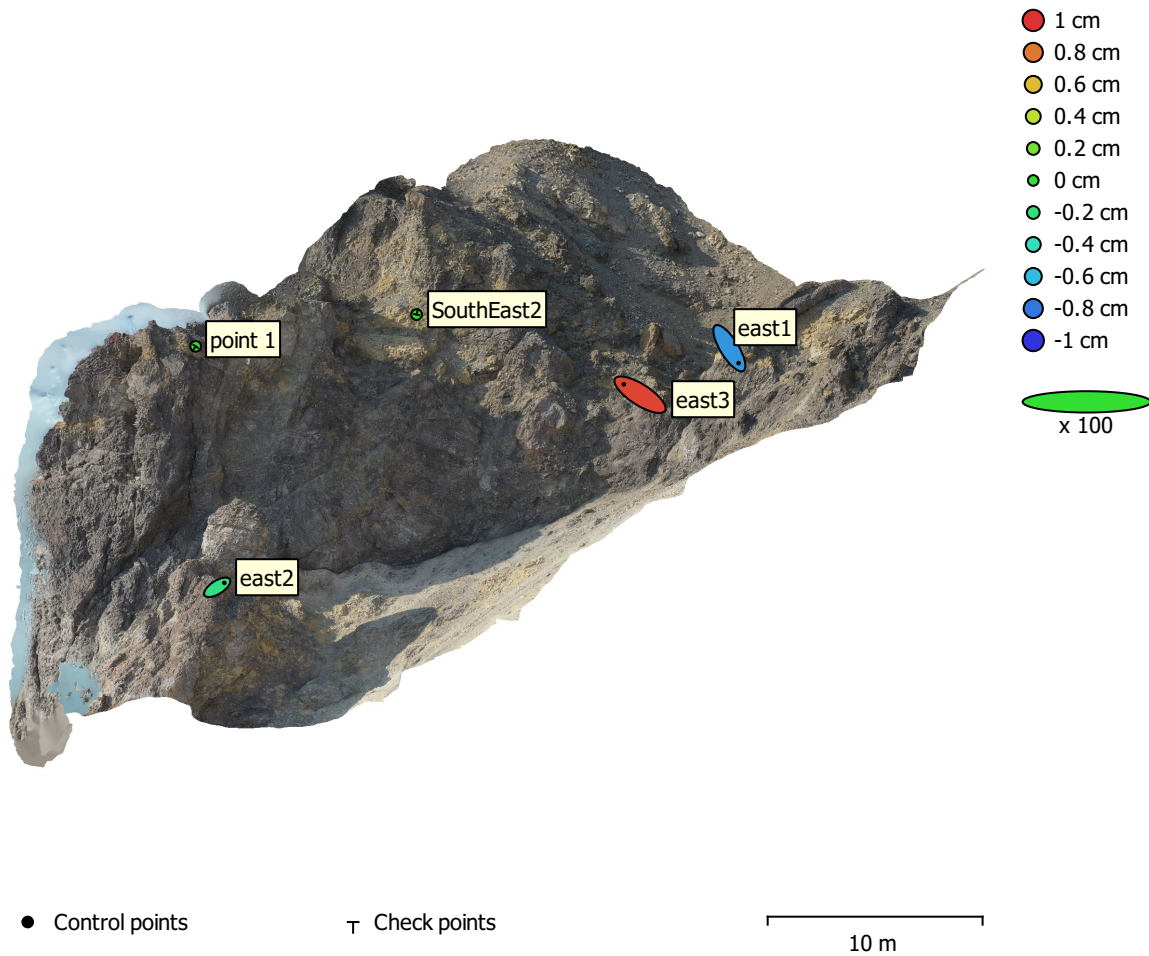


Fig. 3. GCP locations and error estimates.

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)
3	1.07397	1.0072	0.697919	1.47236	1.6294

Table 3. Control points RMSE.

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

Count	X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
2	0.000705051	0.00121041	0.000312163	0.00140078	0.00143514

Table 4. Check points RMSE.

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

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
east1	0.857125	-1.3876	-0.711152	1.77928	0.108 (23)
east2	0.657308	0.415231	-0.237158	0.812843	0.169 (21)
east3	-1.51443	0.972368	0.948309	2.03428	0.145 (52)
Total	1.07397	1.0072	0.697919	1.6294	0.143

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

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
SouthEast2	-0.000182919	-0.000820292	0.0002253	0.000870114	0.002 (69)
point 1	0.00098017	0.00150243	-0.000379647	0.00183362	0.002 (59)
Total	0.000705051	0.00121041	0.000312163	0.00143514	0.002

Table 6. Check points.
X - Easting, Y - Northing, Z - Altitude.

Digital Elevation Model

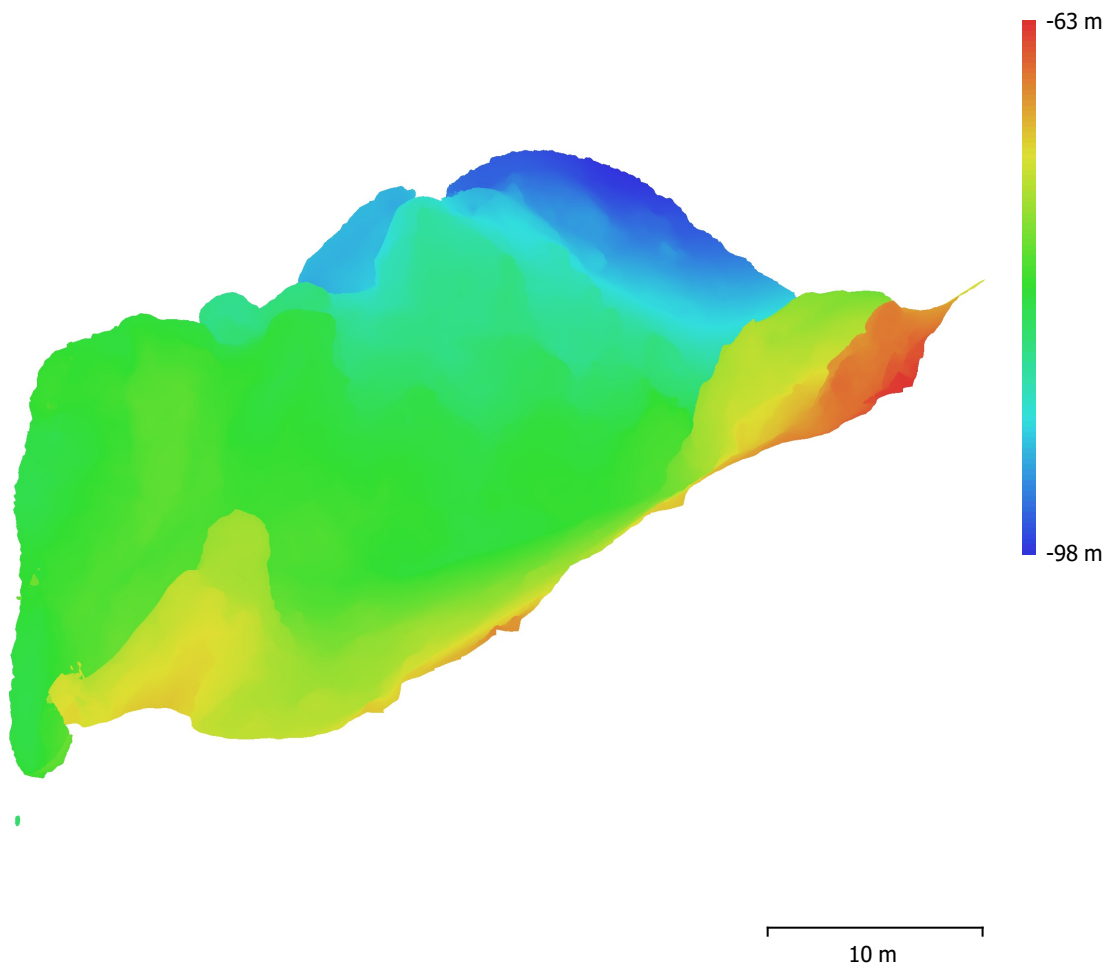


Fig. 4. Reconstructed digital elevation model.

Resolution: 2.48 cm/pix
Point density: 0.163 points/cm²

Processing Parameters

General

Cameras	88
Aligned cameras	88
Markers	5
Coordinate system	WGS 84 / UTM zone 33N (EPSG::32633)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	17,278 of 25,825
RMS reprojection error	0.227468 (0.821604 pix)
Max reprojection error	0.697834 (13.3058 pix)
Mean key point size	3.59135 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	16.669

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	43 seconds
Matching memory usage	293.18 MB
Alignment time	1 minutes 14 seconds
Alignment memory usage	48.20 MB
Software version	1.6.1.10009

Depth Maps

Count	88
Depth maps generation parameters	
Quality	High
Filtering mode	Aggressive
Processing time	19 minutes 10 seconds
Software version	1.6.1.10009

Dense Point Cloud

Points	2,496,987
Point colors	3 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Aggressive
Processing time	19 minutes 10 seconds
Dense cloud generation parameters	
Processing time	5 minutes 49 seconds
Software version	1.6.1.10009

Model

Faces	499,396
Vertices	251,216
Vertex colors	3 bands, uint8
Texture	4,096 x 4,096 x 25, 4 bands, uint8
Depth maps generation parameters	

General

Quality High
Filtering mode Aggressive
Processing time 19 minutes 10 seconds

Reconstruction parameters

Surface type Arbitrary
Source data Dense cloud
Interpolation Enabled
Strict volumetric masks No
Processing time 2 minutes 14 seconds

Texturing parameters

Mapping mode Generic
Blending mode Mosaic
Texture size 4,096
Enable hole filling Yes
Enable ghosting filter Yes
UV mapping time 10 minutes 20 seconds
Blending time 6 minutes 33 seconds
Software version 1.6.1.10009

Tiled Model

Texture 3 bands, uint8

Depth maps generation parameters

Quality High
Filtering mode Aggressive
Processing time 19 minutes 10 seconds

Reconstruction parameters

Source data Dense cloud
Tile size 256
Face count High
Enable ghosting filter Yes
Processing time 7 minutes 2 seconds
Software version 1.6.1.10009

Orthomosaic

Size 3,793 x 2,403
Coordinate system WGS 84 (EPSG::4978)
Colors 3 bands, uint8

Reconstruction parameters

Blending mode Mosaic
Surface Mesh
Enable hole filling Yes
Processing time 27 seconds
Software version 1.6.1.10009

System

Software name Agisoft Metashape Professional
Software version 1.6.1 build 10009
OS Windows 64 bit
RAM 127.78 GB
CPU Intel(R) Core(TM) i9-9900K CPU @ 3.60GHz
GPU(s) GeForce RTX 2080