

Outcrop 1

Processing Report

19 April 2022



Survey Data

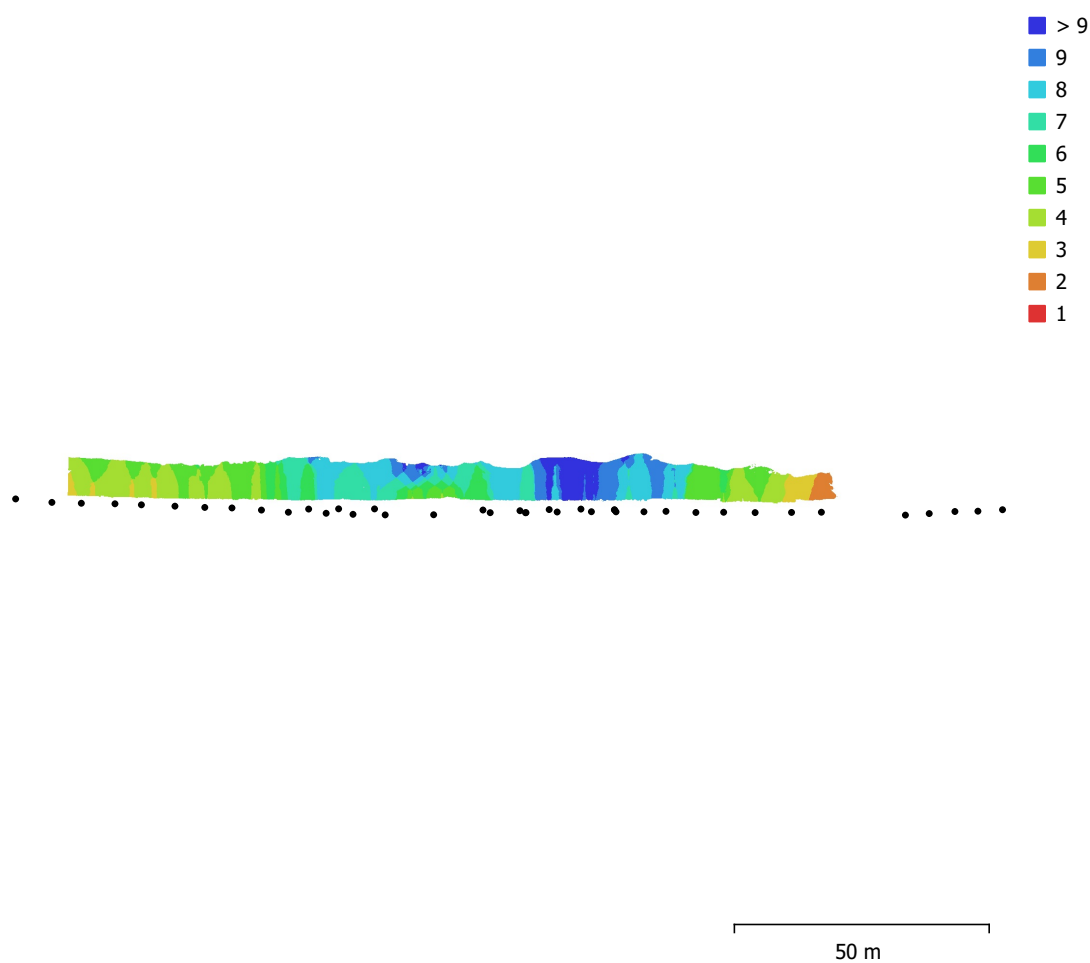


Fig. 1. Camera locations and image overlap.

Number of images:	41	Camera stations:	41
Flying altitude:	20.4 m	Tie points:	45,051
Ground resolution:	4.25 mm/pix	Projections:	115,323
Coverage area:	1.07e+03 m ²	Reprojection error:	0.388 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
Test_Pro (10.26mm)	5472 x 3648	10.26 mm	2.41 x 2.41 μm	No

Table 1. Cameras.

Camera Calibration

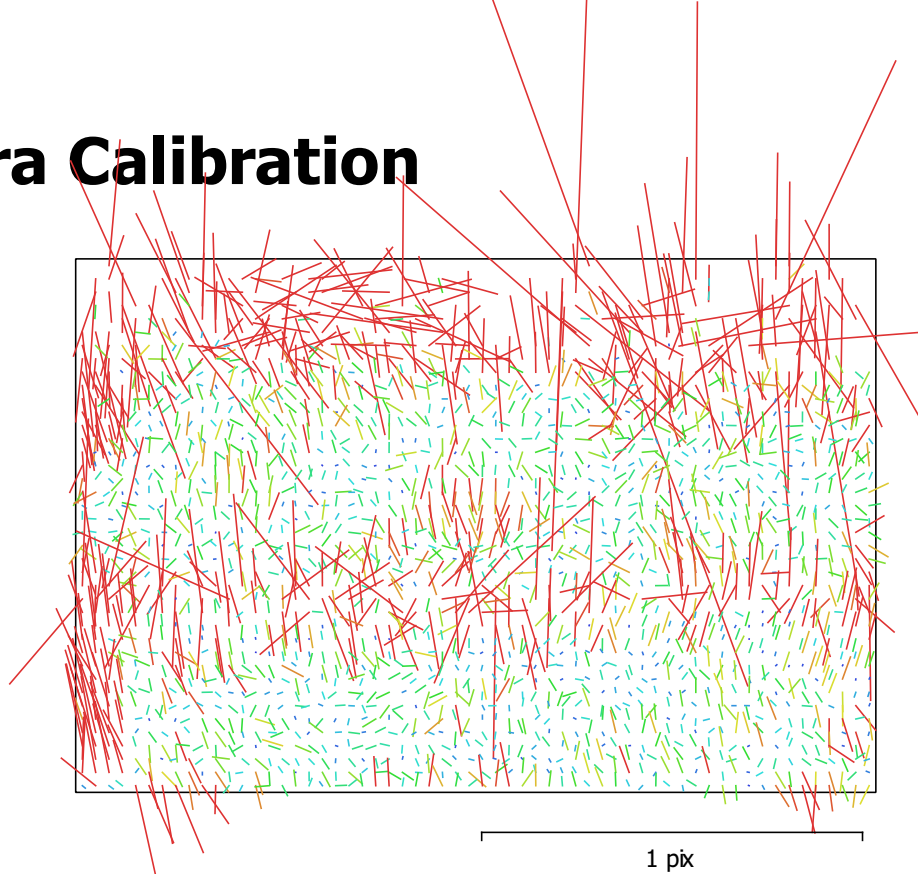


Fig. 2. Image residuals for Test_Pro (10.26mm).

Test_Pro (10.26mm)

41 images

Type	Resolution	Focal Length	Pixel Size
Frame	5472 x 3648	10.26 mm	2.41 x 2.41 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	4284.87	0.61	1.00	0.44	-0.14	0.34	0.15	-0.19	0.37	0.06
Cx	-12.0018	1		1.00	-0.02	-0.08	0.11	-0.14	0.96	0.11
Cy	-26.1323	0.76			1.00	-0.11	0.08	-0.09	0.02	0.69
K1	-0.0114616	0.00012				1.00	-0.66	0.56	-0.06	-0.08
K2	0.0338427	0.00042					1.00	-0.97	0.09	0.12
K3	-0.045204	0.00057						1.00	-0.12	-0.13
P1	-0.000432699	6.3e-05							1.00	0.12
P2	-0.00278003	3.2e-05								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

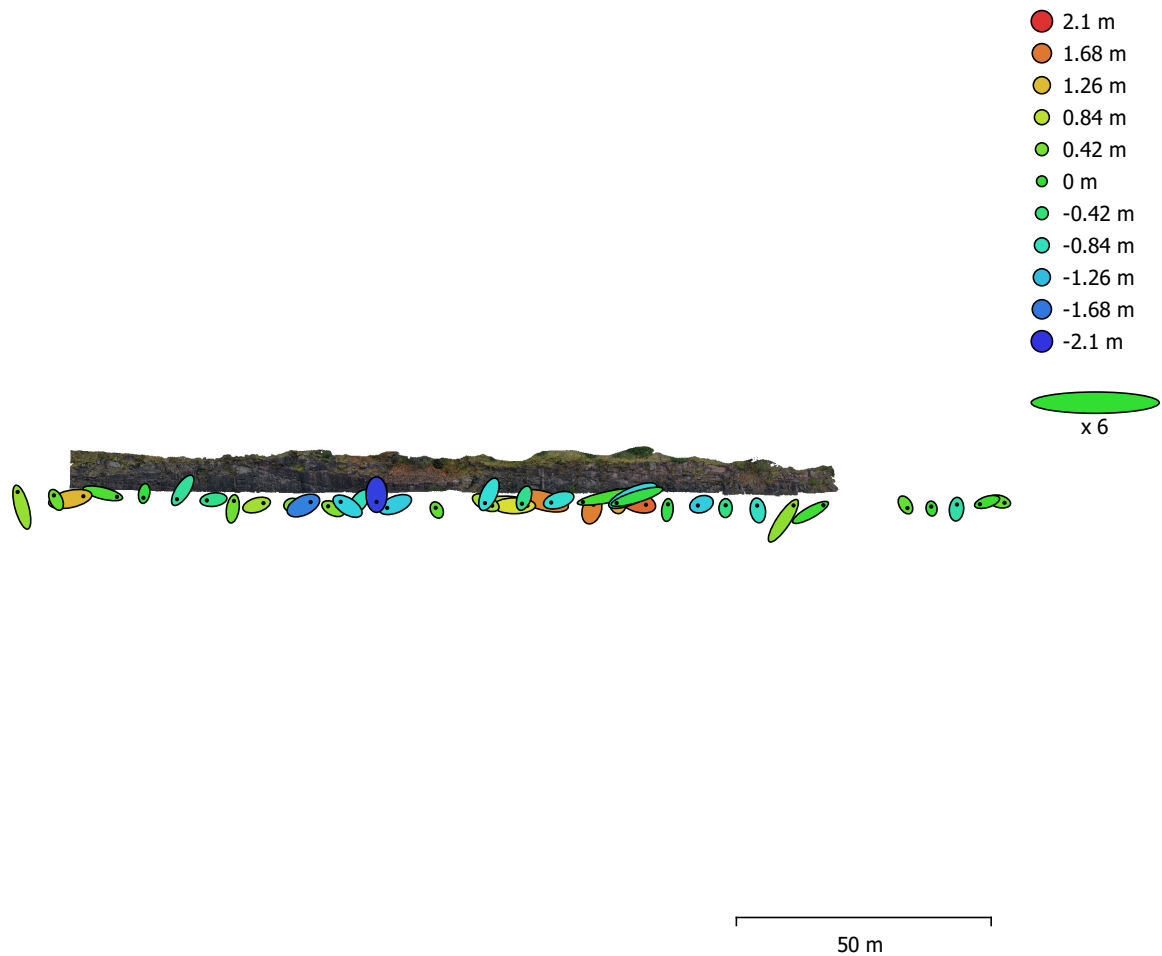


Fig. 3. Camera locations and error estimates.

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)
0.597106	0.364119	0.902991	0.69937	1.14215

Table 3. Average camera location error.
X - Longitude, Y - Latitude, Z - Altitude.

Digital Elevation Model

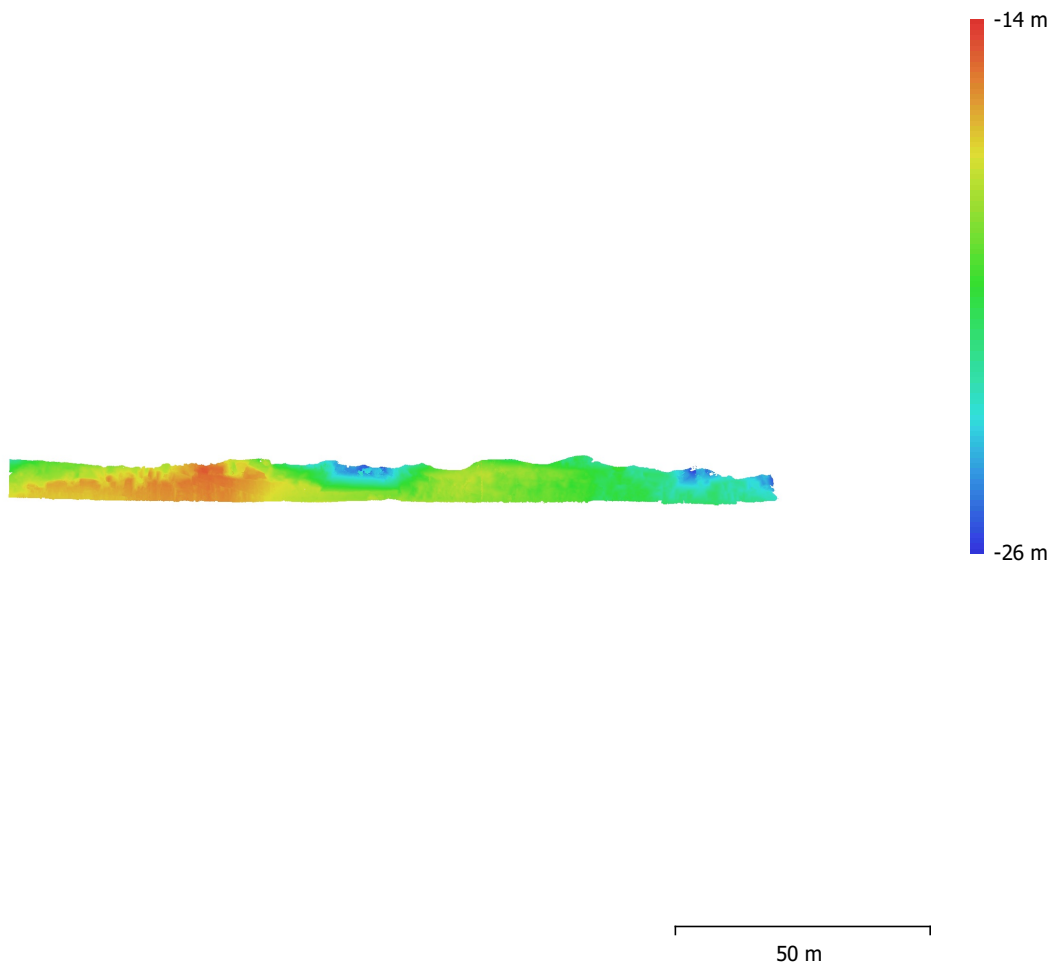


Fig. 4. Reconstructed digital elevation model.

Resolution: 8.5 mm/pix
Point density: 1.38 points/cm²

Processing Parameters

General

Cameras	41
Aligned cameras	41
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	45,051 of 59,398
RMS reprojection error	0.0913666 (0.387779 pix)
Max reprojection error	0.273179 (6.15564 pix)
Mean key point size	3.78745 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	2.55073

Alignment parameters

Accuracy	High
Generic preselection	Yes
Reference preselection	Source
Key point limit	40,000
Key point limit per Mpx	1,000
Tie point limit	0
Exclude stationary tie points	Yes
Guided image matching	No
Adaptive camera model fitting	No
Matching time	38 seconds
Matching memory usage	456.91 MB
Alignment time	23 seconds
Alignment memory usage	57.81 MB
Date created	2021:10:21 10:55:33
Software version	1.7.3.12426
File size	3.52 MB

Depth Maps

Count	36
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	5 minutes 15 seconds
File size	148.24 MB

Dense Point Cloud

Points	31,773,764
Point colors	3 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	5 minutes 15 seconds
Dense cloud generation parameters	
Processing time	2 minutes 3 seconds
Date created	2021:10:21 11:07:50
Software version	1.7.3.12426
File size	415.21 MB

Model

Faces	2,138,003
Vertices	1,078,302
Vertex colors	3 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	5 minutes 15 seconds
Reconstruction parameters	
Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Enabled
Strict volumetric masks	No
Processing time	23 minutes 47 seconds
Memory usage	18.79 GB
Date created	2021:10:21 11:11:42
Software version	1.7.3.12426
File size	49.08 MB
System	
Software name	Agisoft Metashape Professional
Software version	1.7.3 build 12426
OS	Windows 64 bit
RAM	63.91 GB
CPU	Intel(R) Xeon(R) CPU E5-2643 v3 @ 3.40GHz
GPU(s)	Quadro M4000