

# Outcrop 5

Processing Report  
19 April 2022



# Survey Data

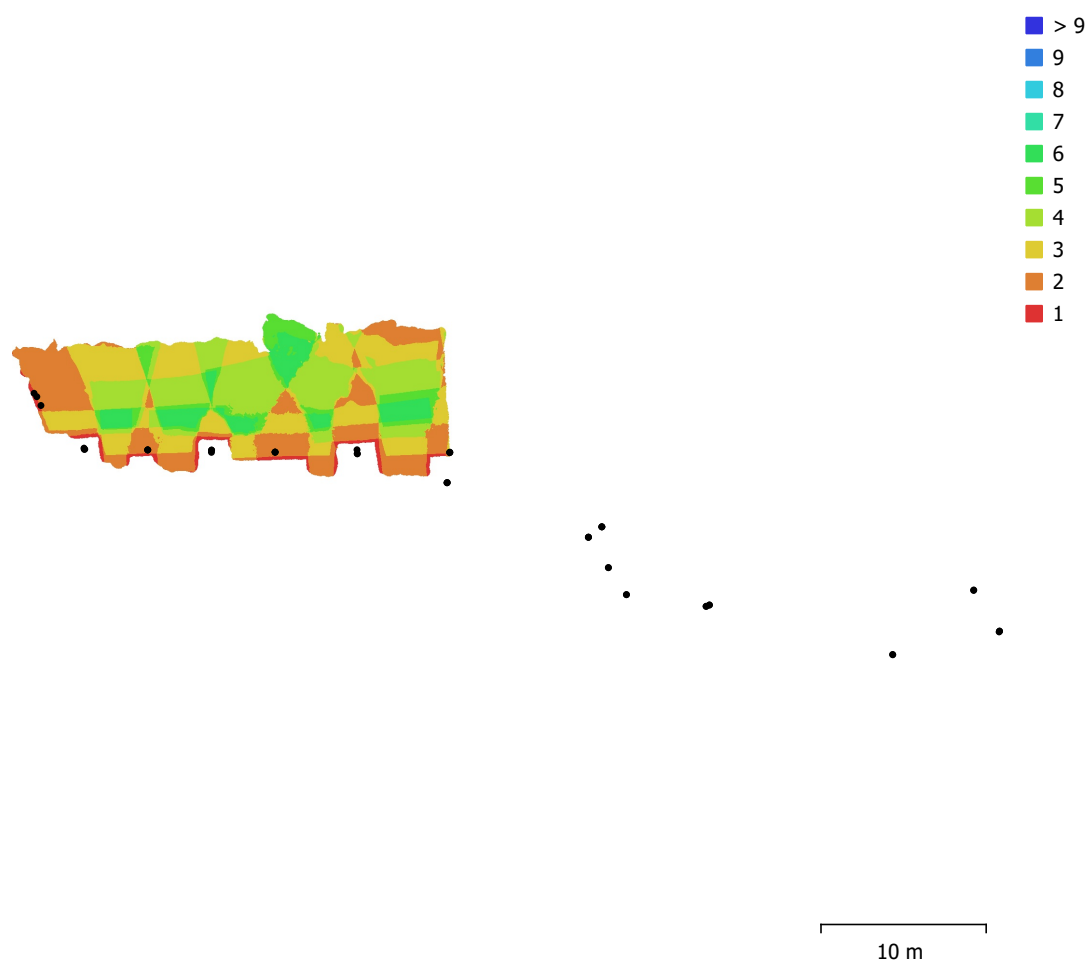


Fig. 1. Camera locations and image overlap.

Number of images:	45	Camera stations:	45
Flying altitude:	15.3 m	Tie points:	38,363
Ground resolution:	1.53 mm/pix	Projections:	97,526
Coverage area:	185 m <sup>2</sup>	Reprojection error:	1.44 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

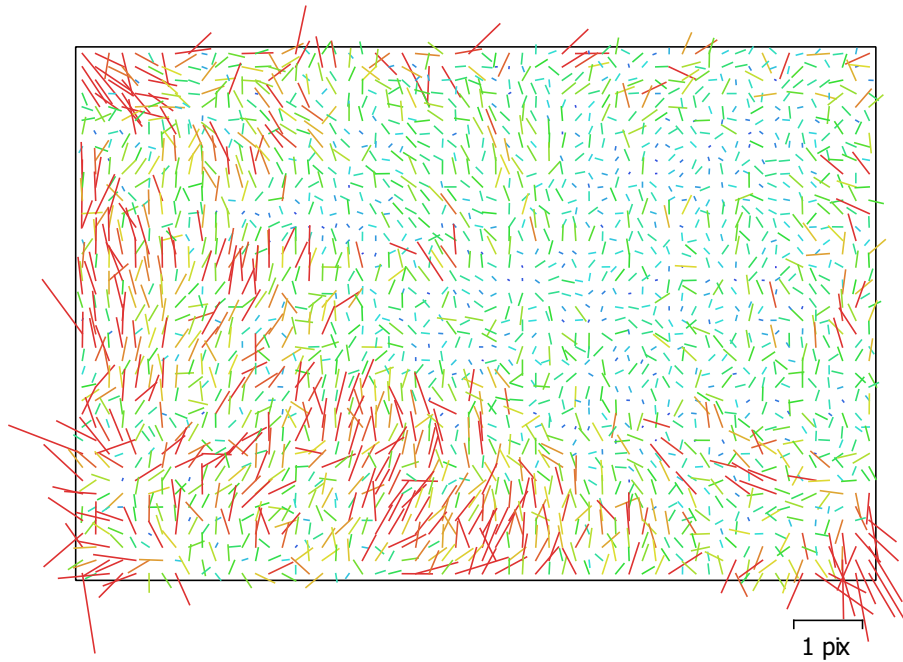


Fig. 2. Image residuals for Test\_Pro (10.26mm).

## Test\_Pro (10.26mm)

45 images

Type	Resolution	Focal Length	Pixel Size
<b>Frame</b>	<b>5472 x 3648</b>	<b>10.26 mm</b>	<b>2.41 x 2.41 <math>\mu\text{m}</math></b>

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
<b>F</b>	<b>4326.8</b>	0.54	1.00	0.08	0.18	0.06	0.06	-0.04	0.07	0.17
<b>Cx</b>	<b>27.7627</b>	5.2		1.00	-0.02	0.05	-0.03	0.06	1.00	-0.02
<b>Cy</b>	<b>-17.7849</b>	1.1			1.00	0.00	-0.01	0.02	-0.02	0.98
<b>K1</b>	<b>-0.00389081</b>	0.0003				1.00	-0.96	0.90	0.05	0.01
<b>K2</b>	<b>0.016469</b>	0.0012					1.00	-0.98	-0.03	-0.01
<b>K3</b>	<b>-0.0216575</b>	0.0015						1.00	0.06	0.02
<b>P1</b>	<b>0.00197858</b>	0.00029							1.00	-0.02
<b>P2</b>	<b>-0.00113403</b>	6.6e-05								1.00

Table 2. Calibration coefficients and correlation matrix.

# Camera Locations

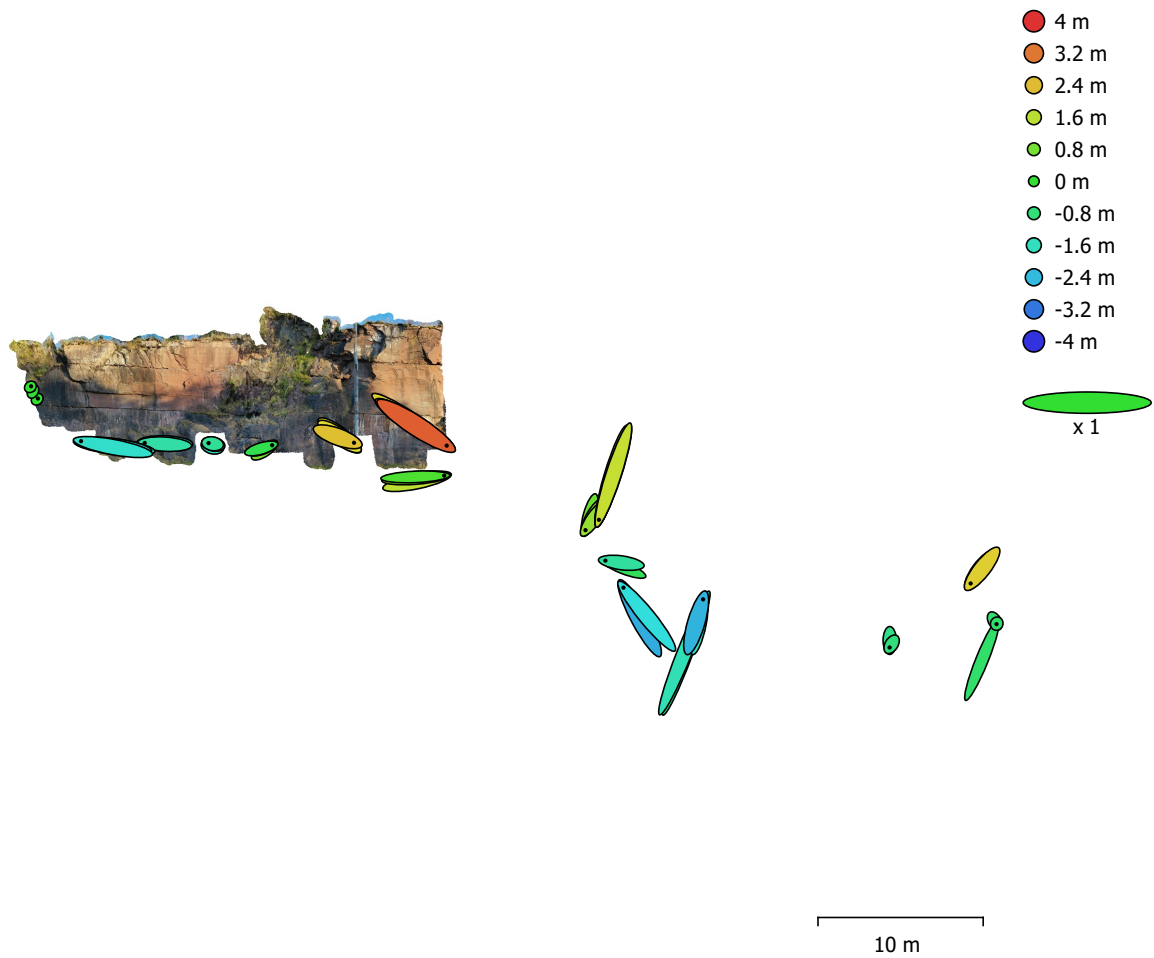


Fig. 3. Camera locations and error estimates.

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)
2.14908	2.47593	1.61004	3.27853	3.65253

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

# Digital Elevation Model

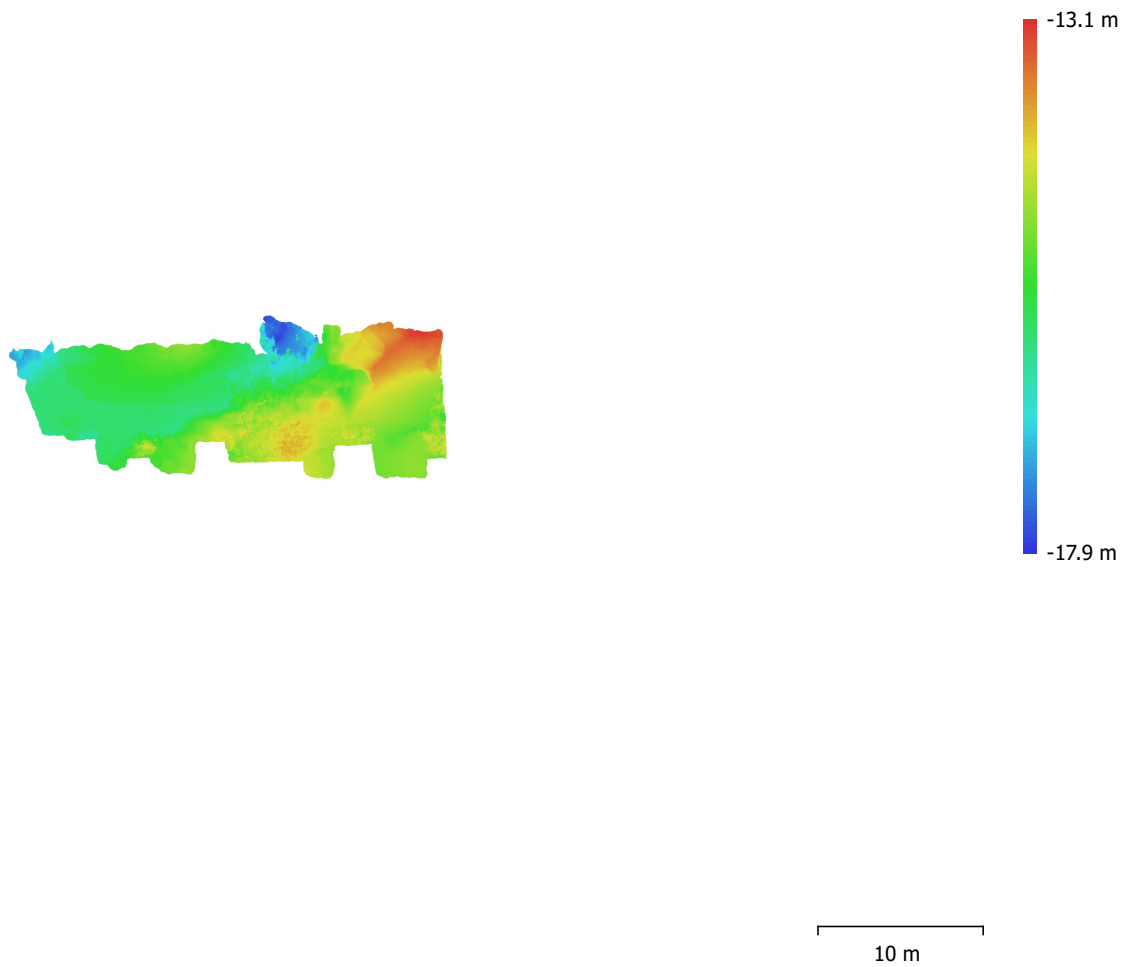


Fig. 4. Reconstructed digital elevation model.

Resolution: 6.11 mm/pix  
Point density: 2.68 points/cm<sup>2</sup>

# Processing Parameters

## General

Cameras	45
Aligned cameras	45
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

## Point Cloud

Points	38,363 of 134,547
RMS reprojection error	0.140707 (1.43643 pix)
Max reprojection error	0.434973 (40.9291 pix)
Mean key point size	8.57338 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	2.24558

## Alignment parameters

Accuracy	Medium
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	22 seconds
Matching memory usage	278.90 MB
Alignment time	32 seconds
Alignment memory usage	95.97 MB
Date created	2021:12:04 12:26:36
Software version	1.7.3.12426
File size	5.88 MB

## Depth Maps

Count	35
<b>Depth maps generation parameters</b>	
Quality	Medium
Filtering mode	Mild
Processing time	1 minutes 1 seconds
File size	35.76 MB

## Dense Point Cloud

Points	10,443,742
Point colors	3 bands, uint8

## Depth maps generation parameters

Quality	Medium
Filtering mode	Mild
Processing time	1 minutes 1 seconds

## Dense cloud generation parameters

Processing time	1 minutes 5 seconds
Date created	2021:12:04 12:32:11
Software version	1.7.3.12426
File size	138.25 MB

## Model

Faces	202,287
Vertices	104,328
Vertex colors	3 bands, uint8
Texture	4,096 x 4,096, 4 bands, uint8
<b>Depth maps generation parameters</b>	
Quality	Medium
Filtering mode	Mild
Processing time	1 minutes 1 seconds
<b>Reconstruction parameters</b>	
Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Enabled
Strict volumetric masks	No
Processing time	7 minutes 38 seconds
Memory usage	6.62 GB
<b>Texturing parameters</b>	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	4,096
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	8 minutes 24 seconds
UV mapping memory usage	424.48 MB
Blending time	21 seconds
Blending memory usage	6.74 GB
Date created	2021:12:04 12:32:23
Software version	1.7.3.12426
File size	36.43 MB
<b>System</b>	
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