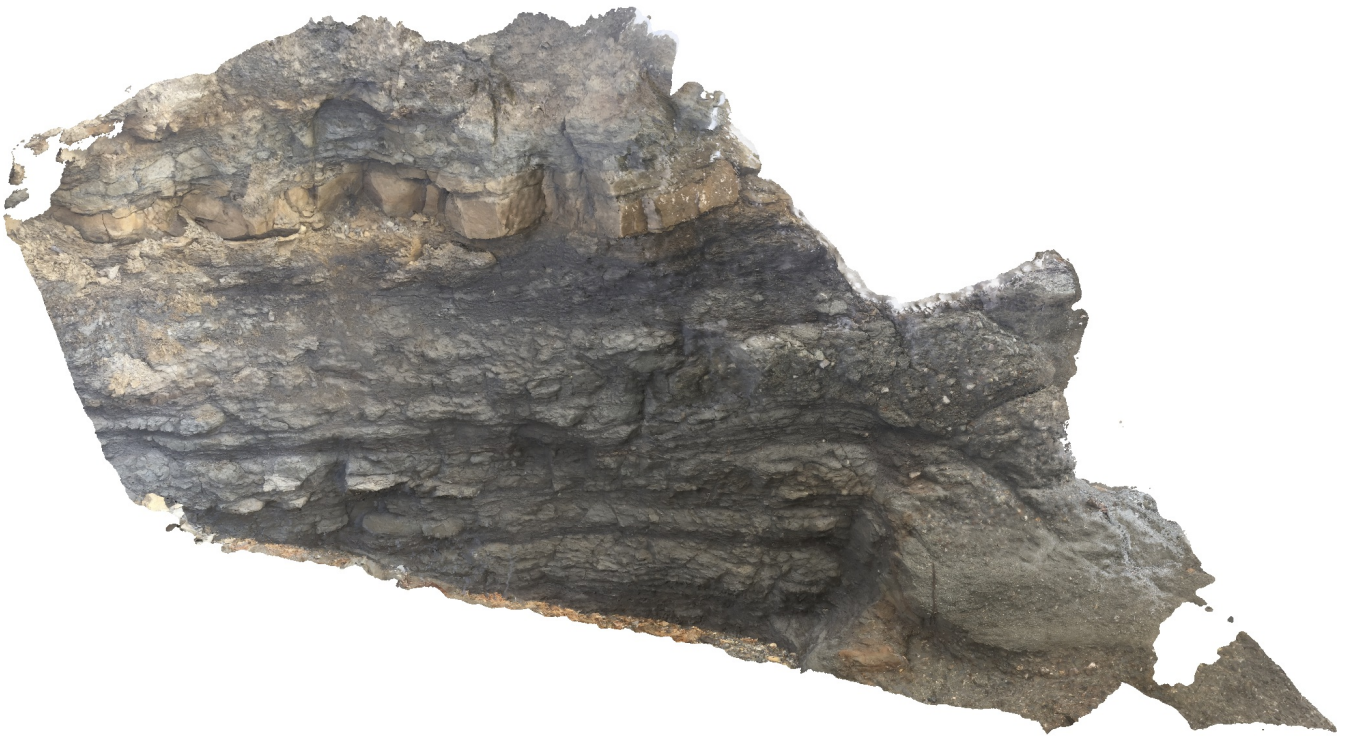


Sarsoyra 3

Processing Report

17 May 2020



Survey Data

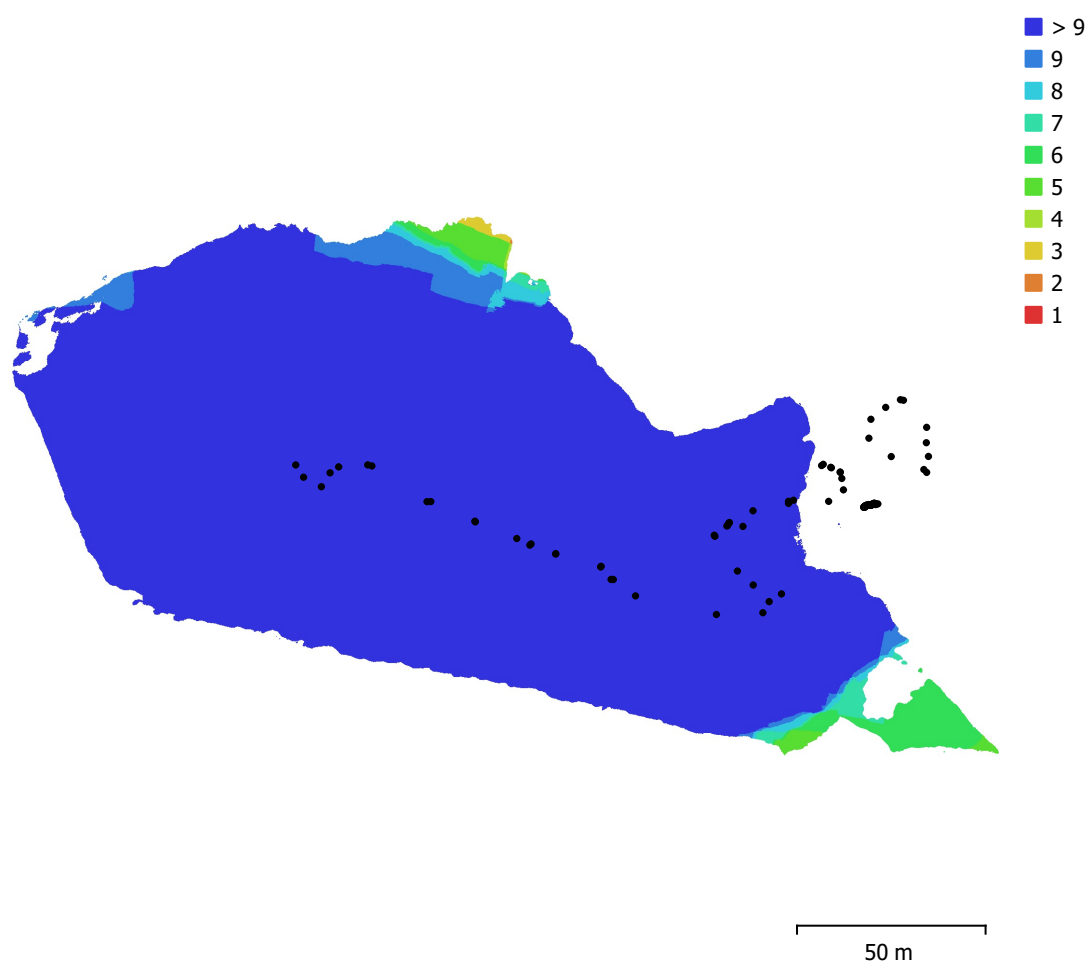


Fig. 1. Camera locations and image overlap.

Number of images:	93	Camera stations:	93
Flying altitude:	57.1 m	Tie points:	77,631
Ground resolution:	1.8 cm/pix	Projections:	303,568
Coverage area:	0.0206 km ²	Reprojection error:	1.72 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibration
iPhone 6, iPhone 6 back camera 4.15mm f/2.2 (4.15mm)	3264 x 2448	4.15 mm	1.52 x 1.52 μm	No

Table 1. Cameras.

Camera Calibration

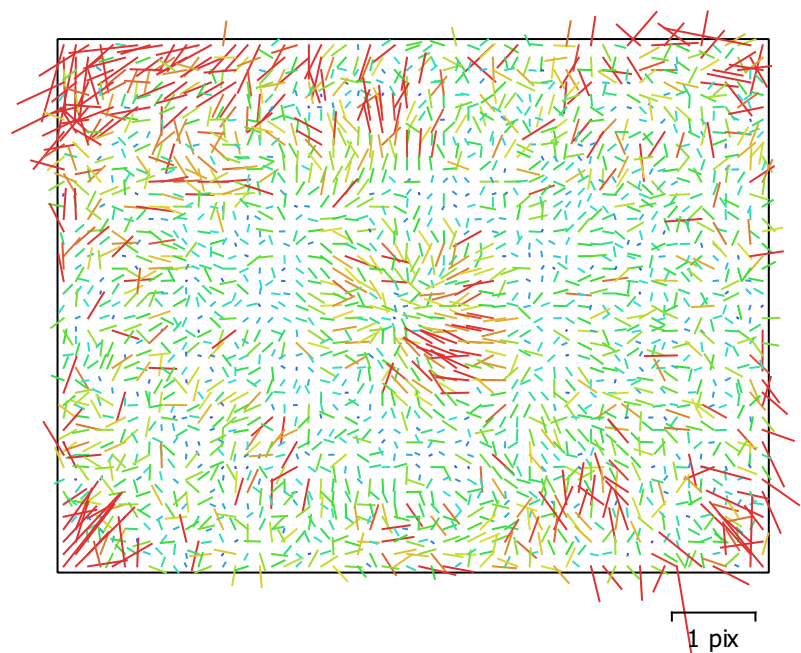


Fig. 2. Image residuals for iPhone 6, iPhone 6 back camera 4.15mm f/2.2 (4.15mm).

iPhone 6, iPhone 6 back camera 4.15mm f/2.2 (4.15mm)

93 images

Type	Resolution	Focal Length	Pixel Size
Frame	3264 x 2448	4.15 mm	1.52 x 1.52 μm
F:	2772.13		
Cx:	4.83205	B1:	0
Cy:	0.646648	B2:	0
K1:	0.0720639	P1:	0.00143144
K2:	-0.0702464	P2:	0.000408622
K3:	-0.0628624	P3:	0
K4:	0	P4:	0

Camera Locations

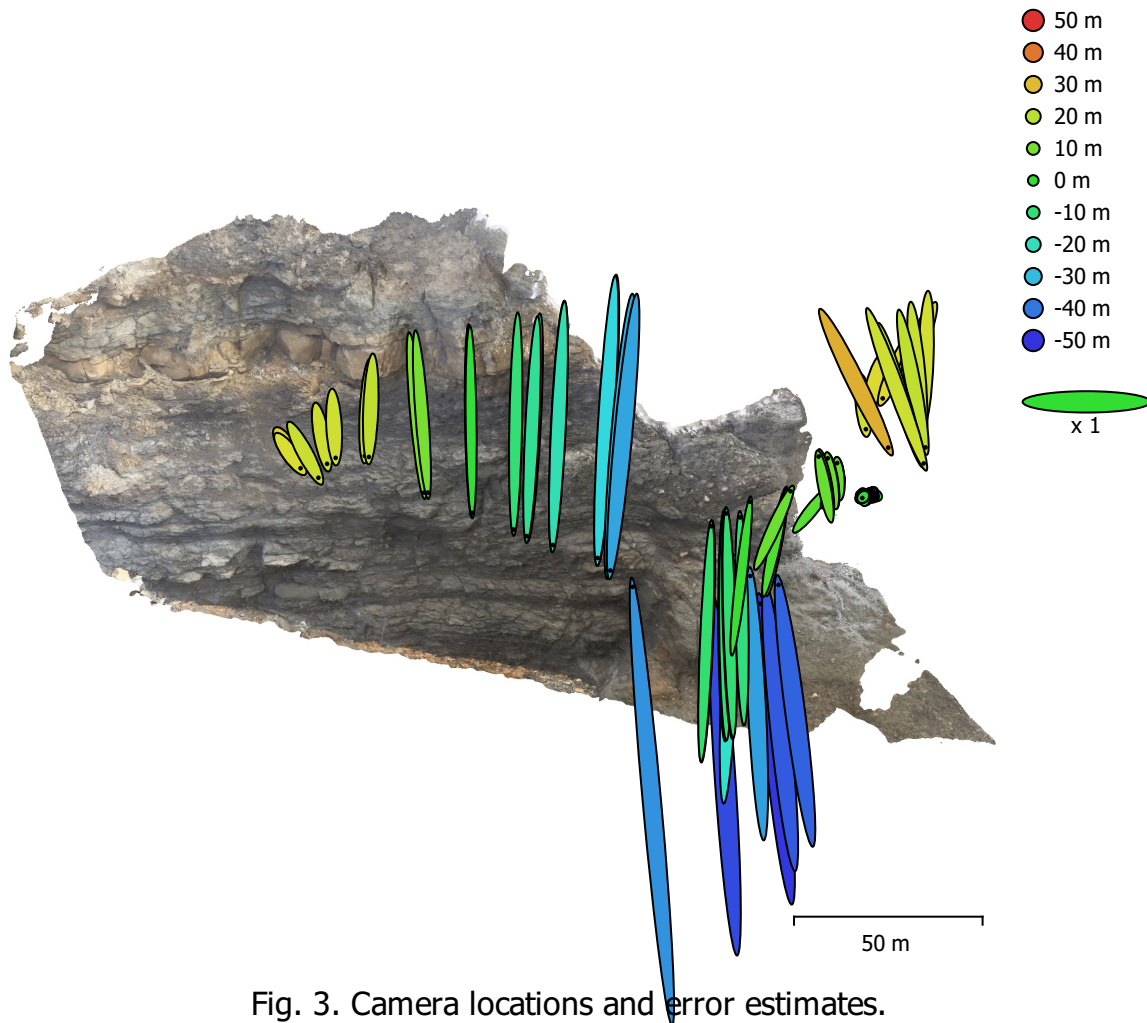


Fig. 3. Camera locations and error estimates.

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)
4.40353	37.3469	17.2743	37.6056	41.3834

Table 2. Average camera location error.

X - Longitude, Y - Latitude, Z - Altitude.

Digital Elevation Model

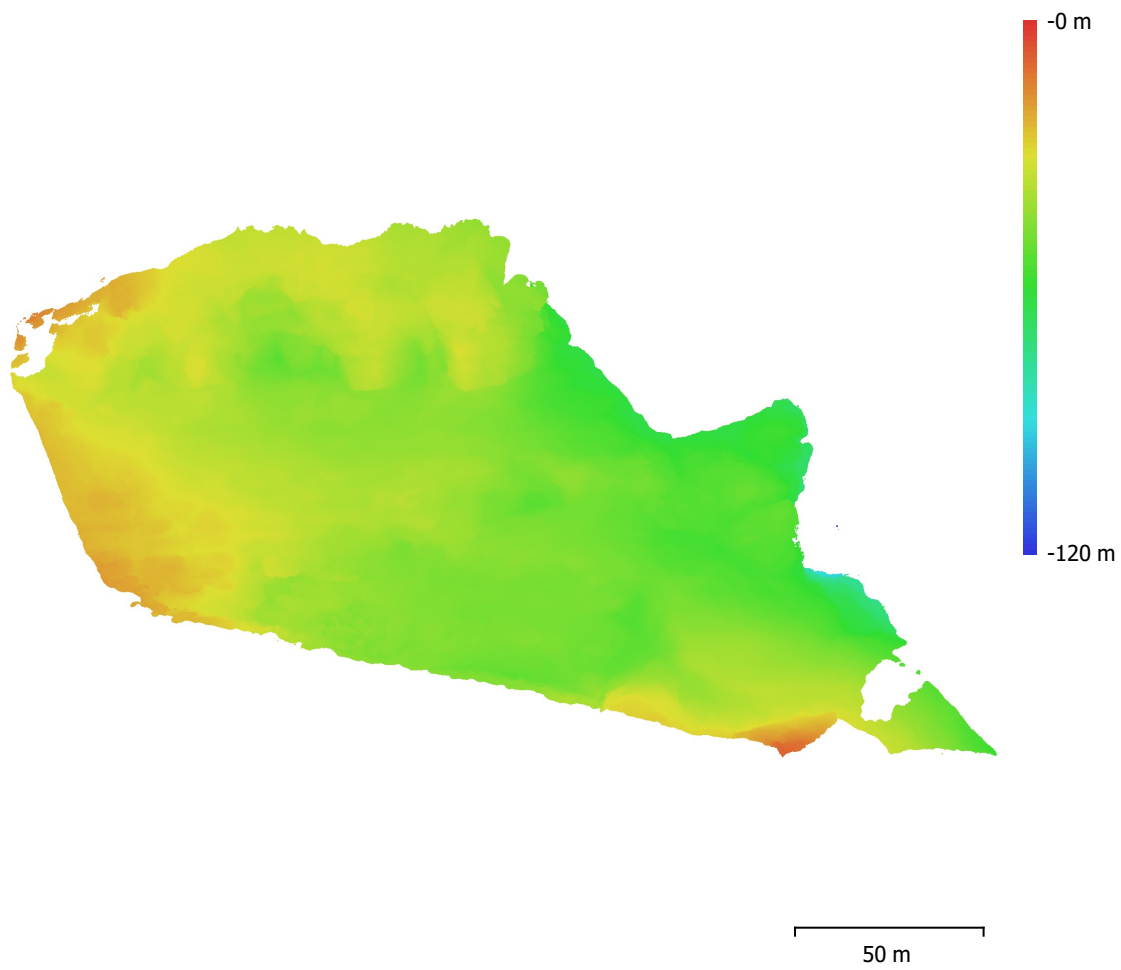


Fig. 4. Reconstructed digital elevation model.

Resolution: 3.6 cm/pix
Point density: 772 points/m²

Processing Parameters

General

Cameras	93
Aligned cameras	93
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	77,631 of 91,923
RMS reprojection error	0.409018 (1.71938 pix)
Max reprojection error	1.93446 (22.4892 pix)
Mean key point size	4.41333 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	4.23712

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	6 minutes 26 seconds
Matching memory usage	320.41 MB
Alignment time	55 seconds
Alignment memory usage	38.71 MB

Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	5 seconds
Software version	1.6.1.10009

Depth Maps

Count	93
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	5 minutes 22 seconds
Software version	1.6.1.10009

Dense Point Cloud

Points	28,609,615
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	High
Filtering mode	Mild
Processing time	5 minutes 22 seconds

Dense cloud generation parameters

Processing time	15 minutes 20 seconds
Software version	1.6.1.10009

Model

Faces	2,000,000
Vertices	1,007,007

General

Vertex colors 3 bands, uint8
Texture 4,096 x 4,096 x 10, 4 bands, uint8

Depth maps generation parameters

Quality High
Filtering mode Mild
Processing time 5 minutes 22 seconds

Reconstruction parameters

Surface type Arbitrary
Source data Dense cloud
Interpolation Enabled
Strict volumetric masks No
Processing time 31 minutes 34 seconds

Texturing parameters

Mapping mode Generic
Blending mode Mosaic
Texture size 4,096
Enable hole filling Yes
Enable ghosting filter Yes
UV mapping time 12 minutes 26 seconds
Blending time 18 minutes 55 seconds
Software version 1.6.1.10009

Tiled Model

Texture 3 bands, uint8

Depth maps generation parameters

Quality High
Filtering mode Mild
Processing time 5 minutes 22 seconds

Reconstruction parameters

Source data Dense cloud
Tile size 256
Face count High
Enable ghosting filter Yes
Processing time 1 hours 31 minutes
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