

Sarsoyra 1

**Processing Report
17 May 2020**



Survey Data

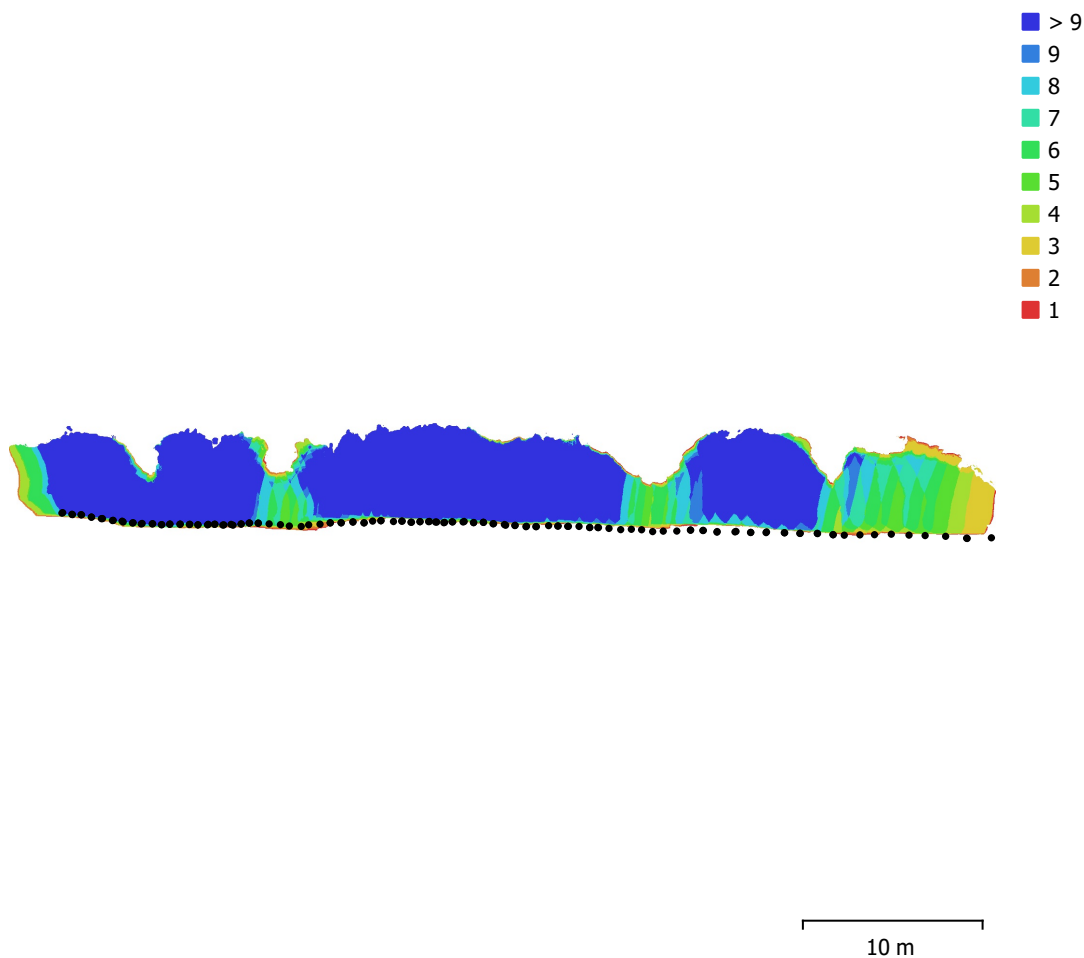


Fig. 1. Camera locations and image overlap.

Number of images:	139	Camera stations:	139
Flying altitude:	4.12 m	Tie points:	106,171
Ground resolution:	1.42 mm/pix	Projections:	490,152
Coverage area:	245 m ²	Reprojection error:	1.37 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

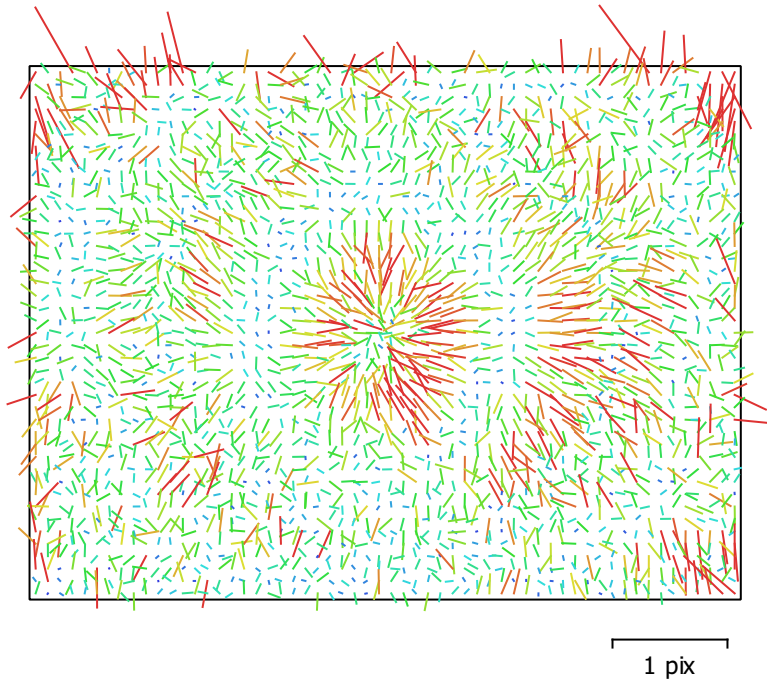


Fig. 2. Image residuals for iPhone 6, iPhone 6 back camera 4.15mm f/2.2 (4.15mm).

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

139 images

Type	Resolution	Focal Length	Pixel Size
Frame	3264 x 2448	4.15 mm	1.52 x 1.52 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2788.99	0.86	1.00	-0.04	-0.39	0.53	0.07	-0.25	-0.03	0.00
Cx	4.0481	0.36		1.00	0.07	-0.05	0.01	-0.02	0.60	0.04
Cy	5.88492	0.53			1.00	-0.27	-0.04	0.13	0.05	0.54
K1	0.0711561	0.00028				1.00	-0.68	0.50	-0.03	-0.10
K2	-0.0452428	0.0011					1.00	-0.96	0.02	-0.02
K3	-0.107011	0.0017						1.00	-0.02	0.03
P1	-0.000435042	5.3e-05							1.00	0.01
P2	0.000875422	5.4e-05								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

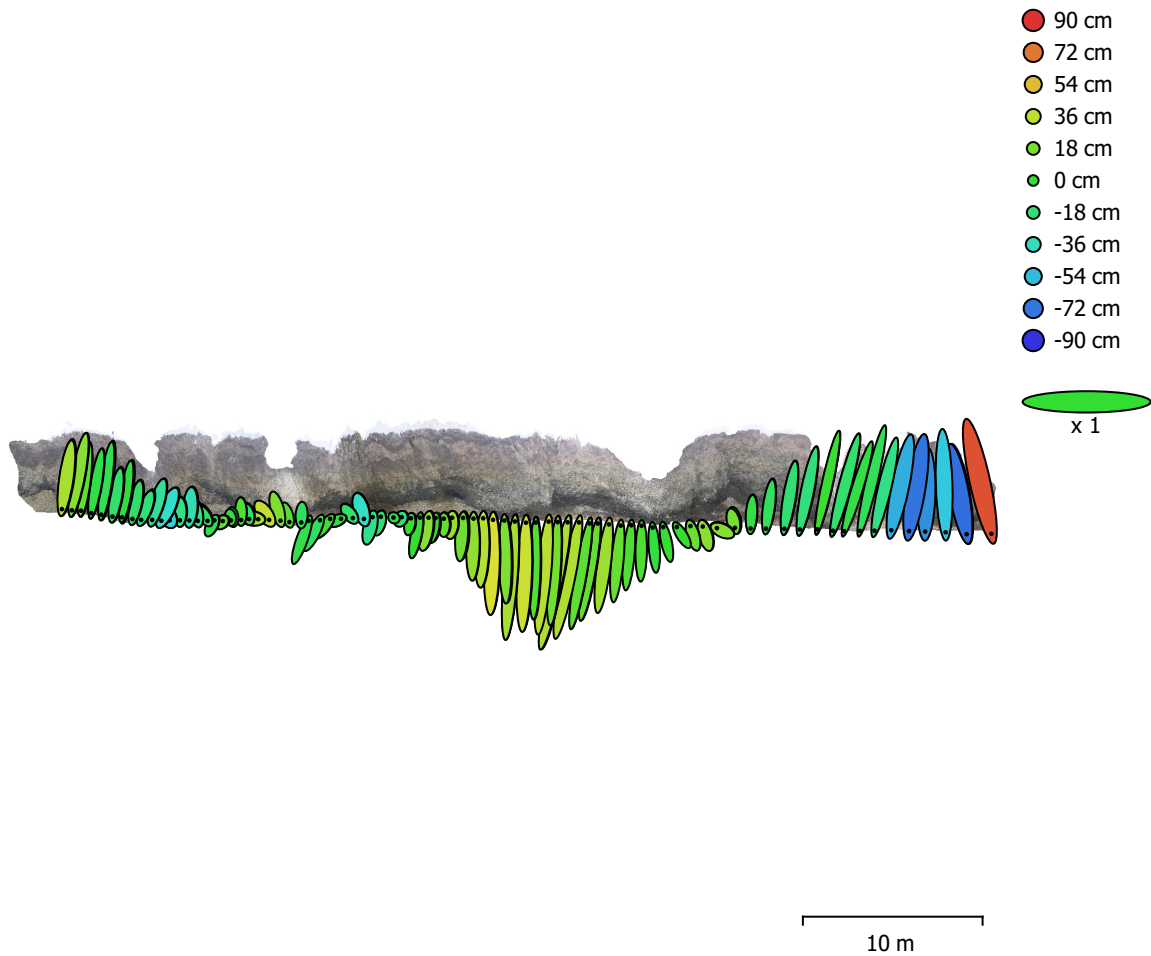


Fig. 3. Camera locations and error estimates.

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)
0.553115	3.14539	0.255858	3.19365	3.20389

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

Digital Elevation Model

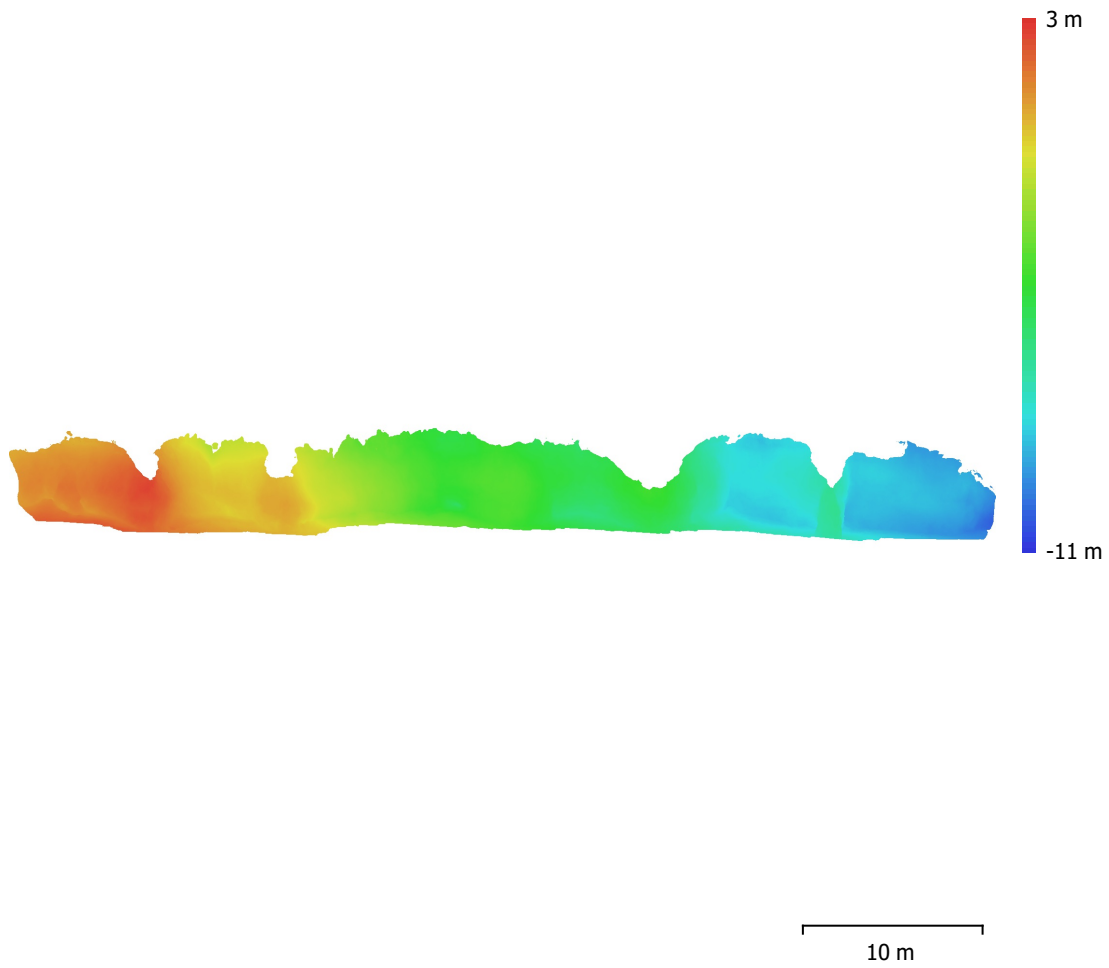


Fig. 4. Reconstructed digital elevation model.

Resolution: 2.84 mm/pix
Point density: 12.4 points/cm²

Processing Parameters

General

Cameras	139
Aligned cameras	139
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	106,171 of 123,421
RMS reprojection error	0.416185 (1.3745 pix)
Max reprojection error	1.50735 (19.9889 pix)
Mean key point size	3.3712 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	4.80262

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	11 minutes 7 seconds
Matching memory usage	332.43 MB
Alignment time	3 minutes 20 seconds
Alignment memory usage	44.79 MB

Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	23 seconds
Software version	1.6.1.10009

Depth Maps

Count	139
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	10 minutes 9 seconds
Software version	1.6.1.10009

Dense Point Cloud

Points	50,942,834
Point colors	3 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	10 minutes 9 seconds
Dense cloud generation parameters	
Processing time	19 minutes 1 seconds
Software version	1.6.1.10009

Model

Faces	1,999,999
Vertices	1,008,411

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 10 minutes 9 seconds

Reconstruction parameters

Surface type Arbitrary
Source data Dense cloud
Interpolation Enabled
Strict volumetric masks No
Processing time 27 minutes 23 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 48 seconds
Blending time 15 minutes 50 seconds
Software version 1.6.1.10009

Tiled Model

Texture 3 bands, uint8

Depth maps generation parameters

Quality High
Filtering mode Mild
Processing time 10 minutes 9 seconds

Reconstruction parameters

Source data Dense cloud
Tile size 256
Face count High
Enable ghosting filter Yes
Processing time 2 hours 0 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