Barrio La Roca

Processing Report

27 September 2021

Survey Data

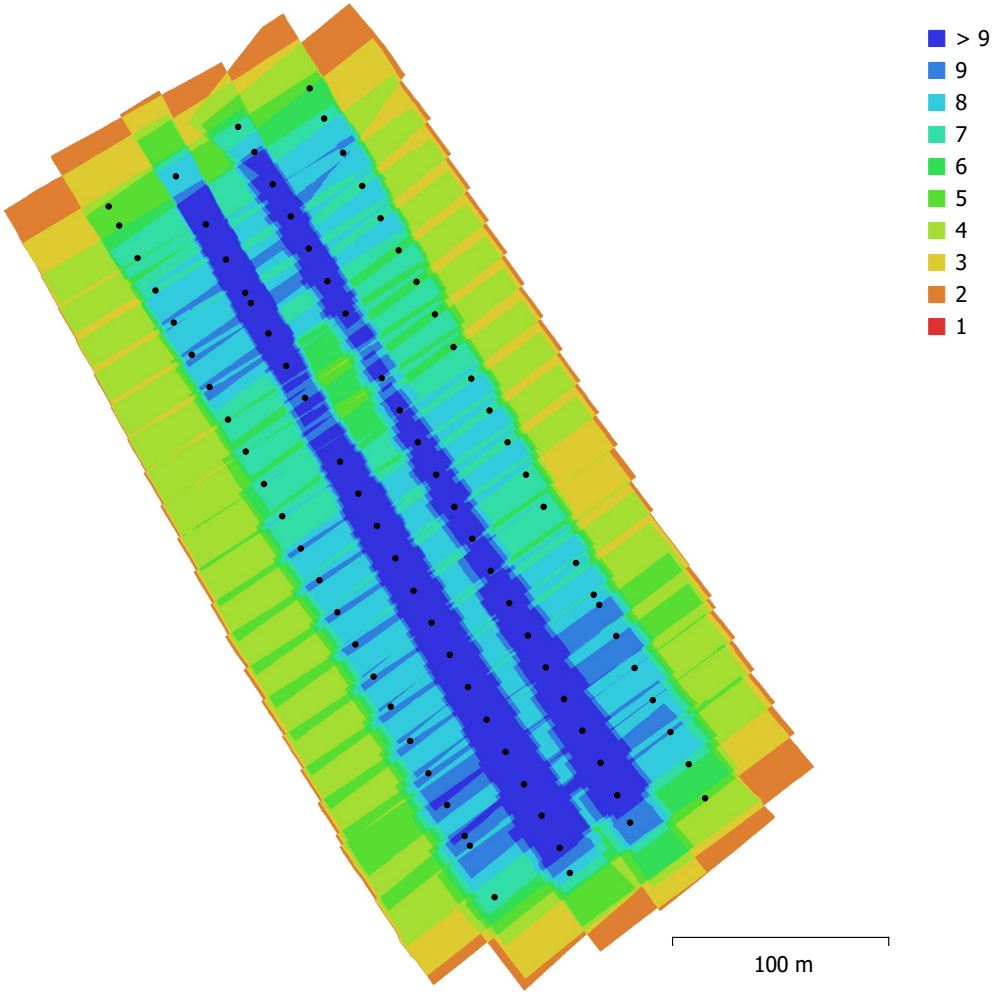

Fig. 1. Camera locations and image overlap.

Number of images:	90	Camera stations:	90
Flying altitude:	72.4 m	Tie points:	94,284
Ground resolution:	1.84 cm/pix	Projections:	354,007
Coverage area:	0.0851 km²	Reprojection error:	0.547 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
FC6310 (8.8mm)	4864 x 3648	8.8 mm	2.61 x 2.61 µm	No

Table 1. Cameras.

Camera Calibration

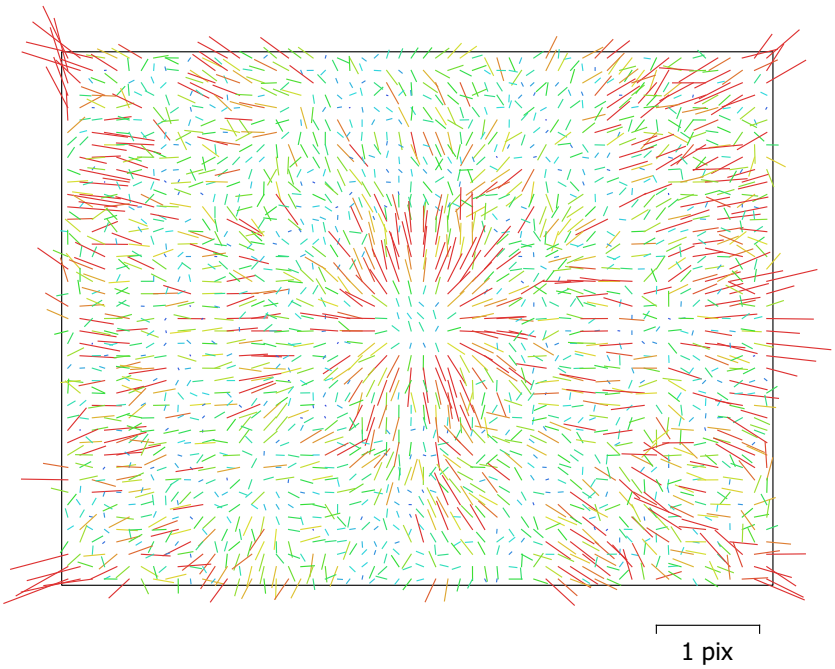

Fig. 2. Image residuals for FC6310 (8.8mm).

FC6310 (8.8mm)

90 images

Type	Resolution	Focal Length	Pixel Size
Frame	**4864 x 3648**	**8.8 mm**	**2.61 x 2.61 µm**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**3587.68**	2.6	1.00	0.10	0.56	0.16	-0.48	0.63	-0.04	-0.15
Cx	**-5.05659**	0.096		1.00	0.14	0.02	-0.05	0.06	0.21	-0.06
Cy	**15.0151**	0.098			1.00	0.09	-0.27	0.35	-0.05	0.20
K1	**0.00613876**	4.2e-05				1.00	-0.90	0.79	-0.01	-0.01
K2	**-0.0269096**	0.00016					1.00	-0.97	0.01	0.07
K3	**0.0260341**	0.00018						1.00	-0.02	-0.10
P1	**-0.000137118**	2.8e-06							1.00	-0.07
P2	**-0.000382268**	3.2e-06								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

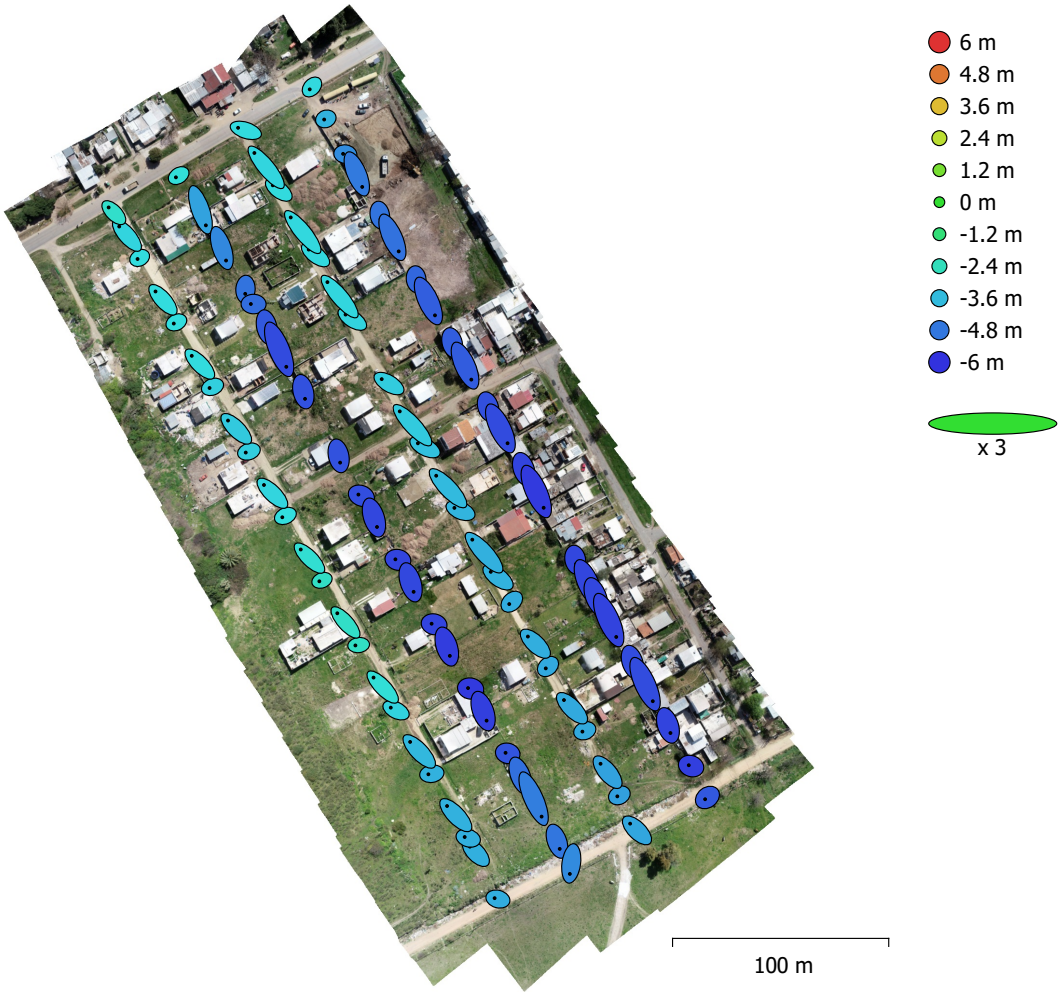

Fig. 3. Camera locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated camera locations are marked with a black dot.

X error (m)	Y error (m)	Z error (m)	XY error (m)	Total error (m)
1.81821	2.62941	4.40396	3.19682	5.44192

Table 3. Average camera location error.
X - Easting, Y - Northing, Z - Altitude.

Ground Control Points

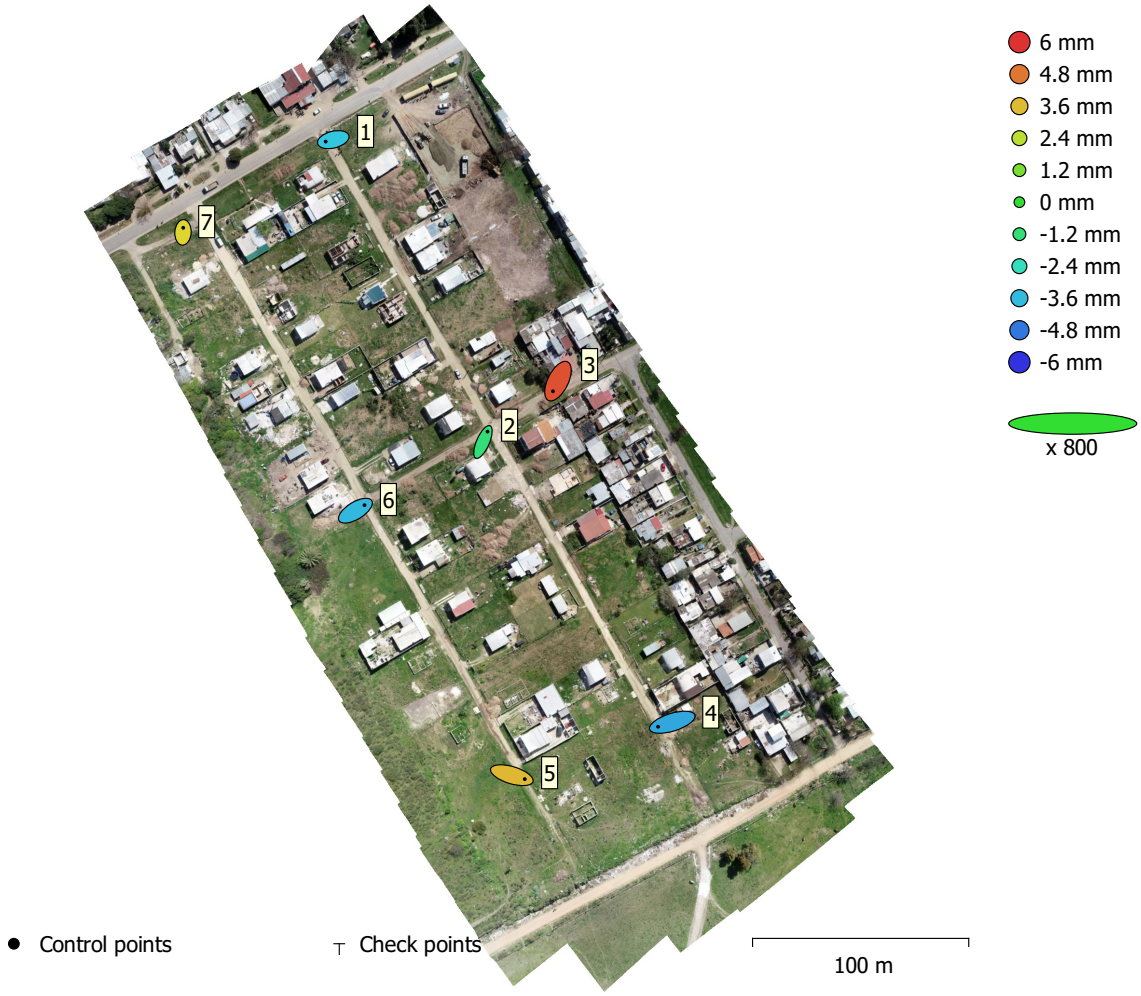

Fig. 4. GCP locations and error estimates.

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)
7	1.02914	0.758338	0.369137	1.27836	1.33059

Table 4. Control points RMSE.

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

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
1	-0.876314	-0.224144	-0.339043	0.965979	0.927 (8)
2	0.524224	1.20036	-0.119399	1.31527	0.933 (11)
3	-0.584113	-1.17169	0.547638	1.41913	1.088 (8)
4	-1.64017	-0.516387	-0.395874	1.76452	0.746 (12)
5	1.49828	-0.453105	0.365475	1.60739	0.748 (9)
6	1.04594	0.639842	-0.365505	1.27945	0.759 (6)
7	0.0310115	0.52937	0.317554	0.61809	0.614 (5)
Total	**1.02914**	**0.758338**	**0.369137**	**1.33059**	**0.853**

Table 5. Control points.

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

Digital Elevation Model

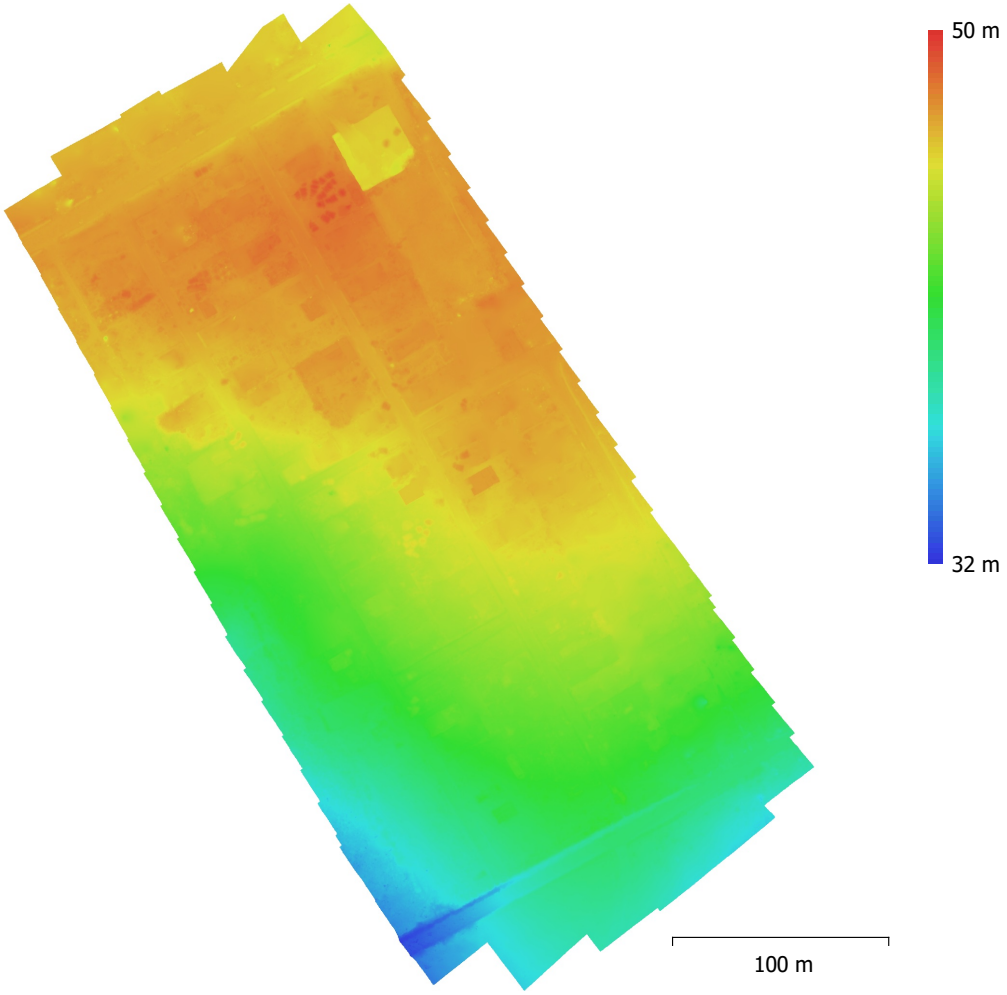

Fig. 5. Reconstructed digital elevation model.

Resolution:	3.69 cm/pix
Point density:	735 points/m²

Processing Parameters

General	
Cameras	90
Aligned cameras	90
Markers	7
Shapes	
LineString	123
Polygon	10585
Coordinate system	WGS 84 / UTM zone 21S EGM08
Rotation angles	Yaw, Pitch, Roll
Point Cloud	
Points	94,284 of 99,058
RMS reprojection error	0.167211 (0.547332 pix)
Max reprojection error	0.592571 (16.854 pix)
Mean key point size	3.26998 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.84093
Alignment parameters	
Accuracy	High
Generic preselection	No
Reference preselection	Source
Key point limit	40,000
Tie point limit	4,000
Guided image matching	No
Adaptive camera model fitting	Yes
Matching time	4 minutes 11 seconds
Matching memory usage	932.36 MB
Alignment time	14 seconds
Alignment memory usage	58.92 MB
Optimization parameters	
Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	0 seconds
Software version	1.6.1.10009
File size	8.26 MB
Depth Maps	
Count	90
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	12 minutes 7 seconds
Memory usage	1.38 GB
Software version	1.6.1.10009
File size	483.38 MB
Dense Point Cloud	
Points	73,766,450
Point colors	3 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Mild

Processing time	12 minutes 7 seconds
Memory usage	1.38 GB
Dense cloud generation parameters	
Processing time	5 minutes 54 seconds
Memory usage	2.98 GB
Software version	1.6.1.10009
File size	1.04 GB
DEM	
Size	14,719 x 17,565
Coordinate system	WGS 84 / UTM zone 21S EGM08
Reconstruction parameters	
Source data	Dense cloud
Interpolation	Enabled
Processing time	1 minutes 33 seconds
Memory usage	309.75 MB
Software version	1.6.1.10009
File size	244.54 MB
Orthomosaic	
Size	18,736 x 22,819
Coordinate system	WGS 84 / UTM zone 21S EGM08
Colors	3 bands, uint8
Reconstruction parameters	
Blending mode	Mosaic
Surface	DEM
Enable hole filling	Yes
Processing time	2 minutes 47 seconds
Memory usage	1.98 GB
Software version	1.6.1.10009
File size	1.50 GB
System	
Software name	Agisoft Metashape Professional
Software version	1.7.2 build 12070
OS	Windows 64 bit
RAM	63.93 GB
CPU	Intel(R) Core(TM) i7-9700F CPU @ 3.00GHz
GPU(s)	Radeon(TM) RX 460 Graphics (Baffin)