

Barrio La Calera

Processing Report
20 December 2021



Survey Data

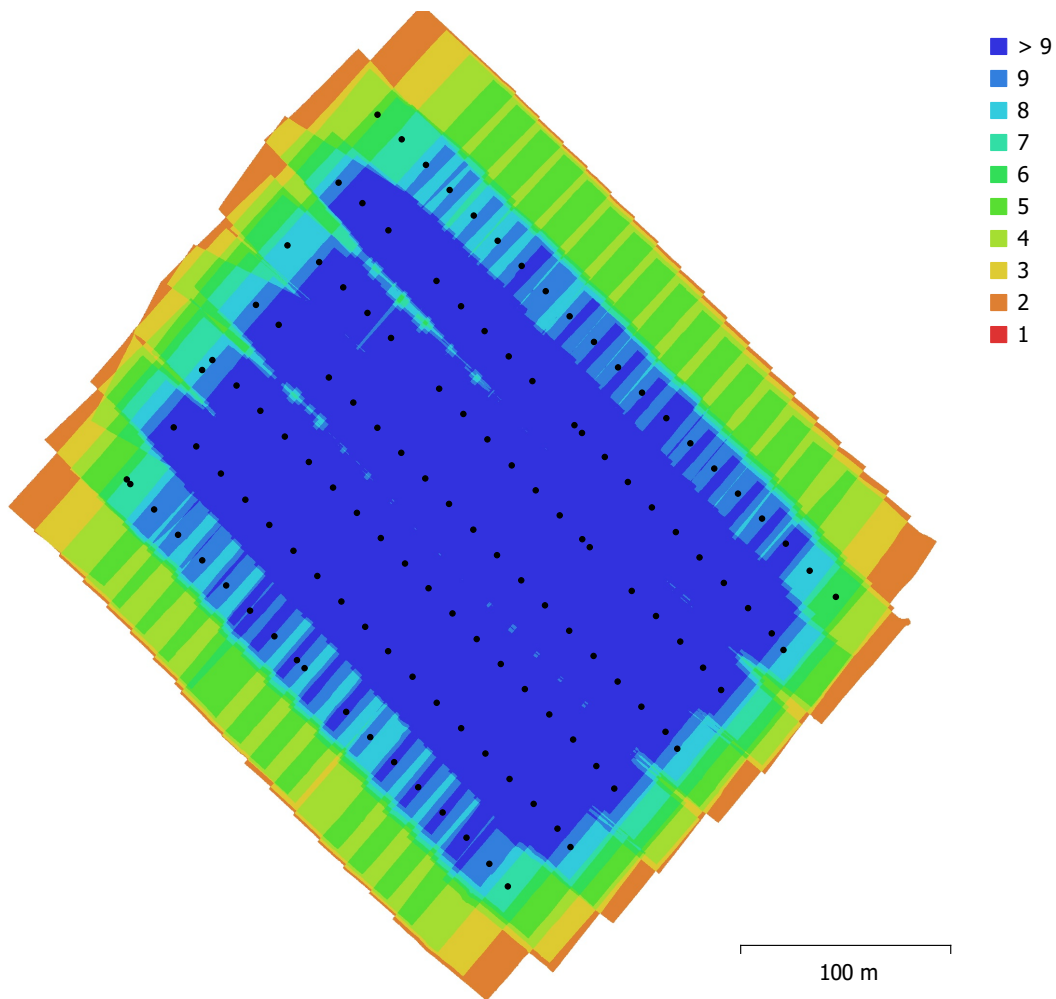


Fig. 1. Camera locations and image overlap.

Number of images:	130	Camera stations:	130
Flying altitude:	80.7 m	Tie points:	118,679
Ground resolution:	2.04 cm/pix	Projections:	490,402
Coverage area:	0.112 km ²	Reprojection error:	0.767 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

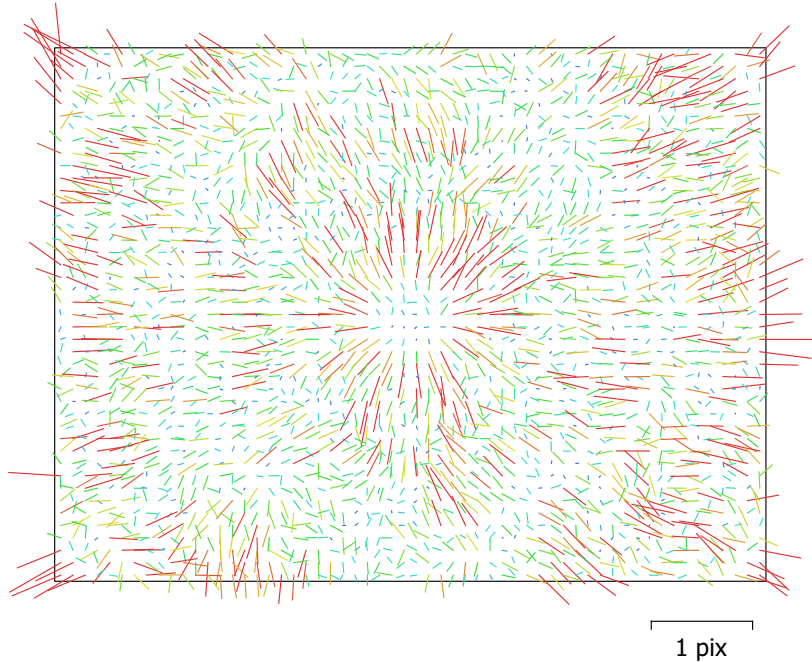


Fig. 2. Image residuals for FC6310 (8.8mm).

FC6310 (8.8mm)

130 images

Type
Frame

Resolution
4864 x 3648

Focal Length
8.8 mm

Pixel Size
2.61 x 2.61 μm

	Value	Error	F	Cx	Cy	B2	K1	K2	K3	P1	P2
F	3602.34	2.1	1.00	0.45	0.72	0.08	0.19	-0.38	0.51	-0.05	-0.09
Cx	-5.90559	0.066		1.00	0.31	0.01	0.07	-0.16	0.22	0.34	-0.07
Cy	14.1824	0.073			1.00	0.06	0.14	-0.28	0.37	-0.07	0.24
B2	-0.658801	0.026				1.00	0.02	-0.02	0.03	-0.01	0.00
K1	0.00578716	4.3e-05					1.00	-0.93	0.85	0.00	-0.00
K2	-0.0258162	0.00015						1.00	-0.98	0.01	0.03
K3	0.0250364	0.00016							1.00	-0.02	-0.04
P1	-0.000134959	2.8e-06								1.00	-0.06
P2	-0.000405948	2.7e-06									1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

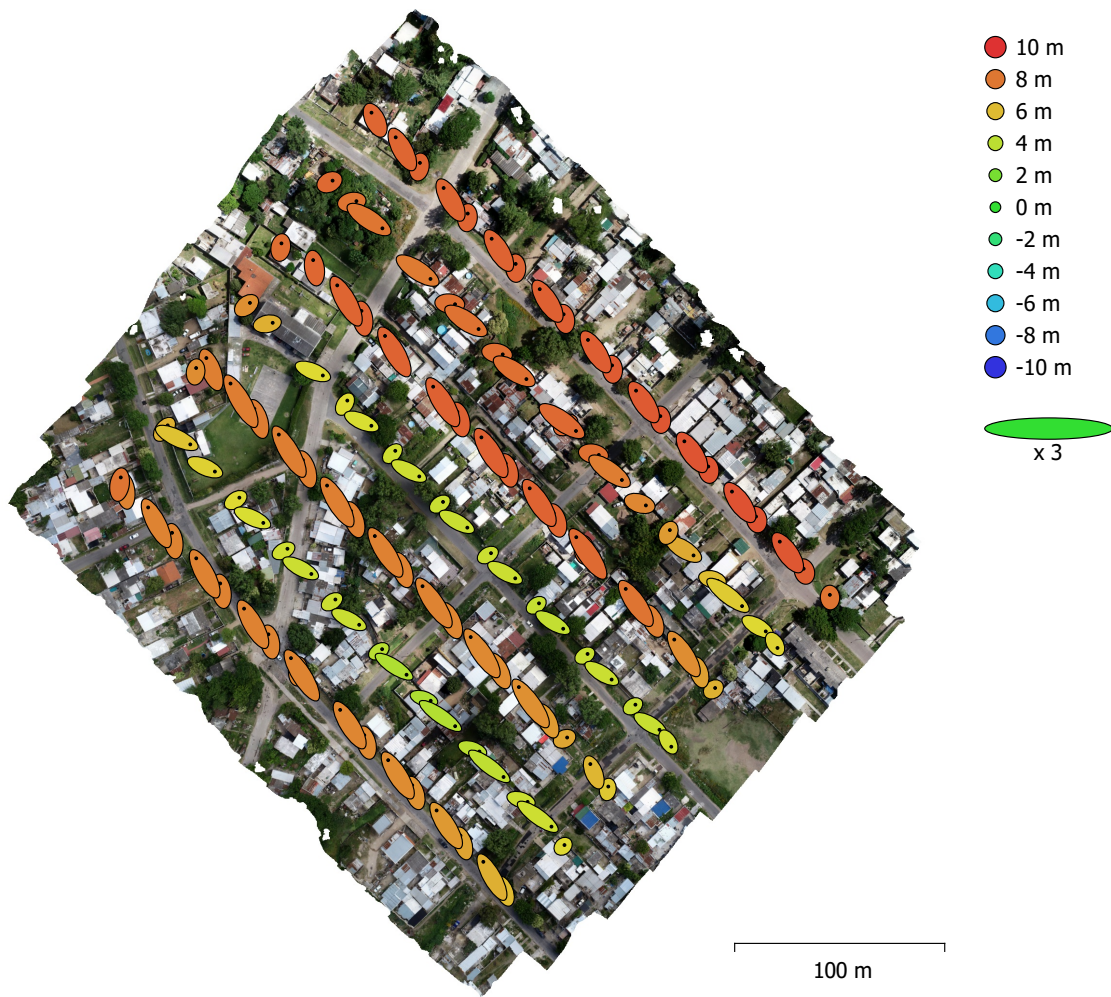


Fig. 3. Camera locations and error estimates.

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)
2.33316	2.85857	7.14354	3.68986	8.04023

Table 3. Average camera location error.

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

Ground Control Points

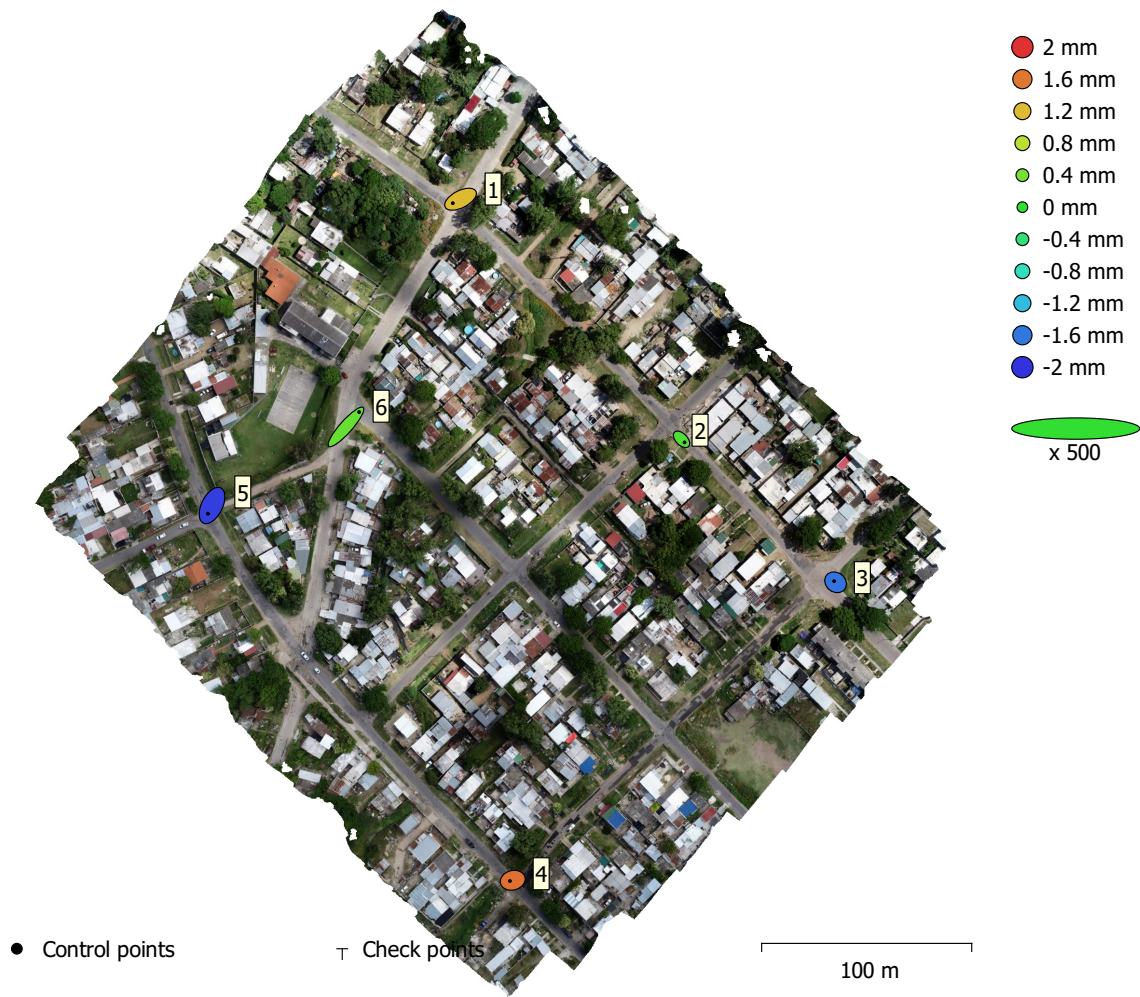


Fig. 4. GCP locations and error estimates.

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)
6	1.27325	1.37412	0.1331	1.87333	1.87805

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	-1.4765	-0.759988	0.120762	1.665	0.741 (8)
2	0.56735	-0.580909	0.0173358	0.812184	0.722 (10)
3	-0.275114	0.210984	-0.162128	0.382737	0.491 (8)
4	-0.541483	-0.141162	0.163846	0.583075	0.455 (8)
5	-0.775617	-1.55164	-0.193227	1.74542	0.669 (8)
6	2.50092	2.81818	0.0306974	3.76798	0.914 (12)
Total	1.27325	1.37412	0.1331	1.87805	0.704

Table 5. Control points.
X - Easting, Y - Northing, Z - Altitude.

Digital Elevation Model

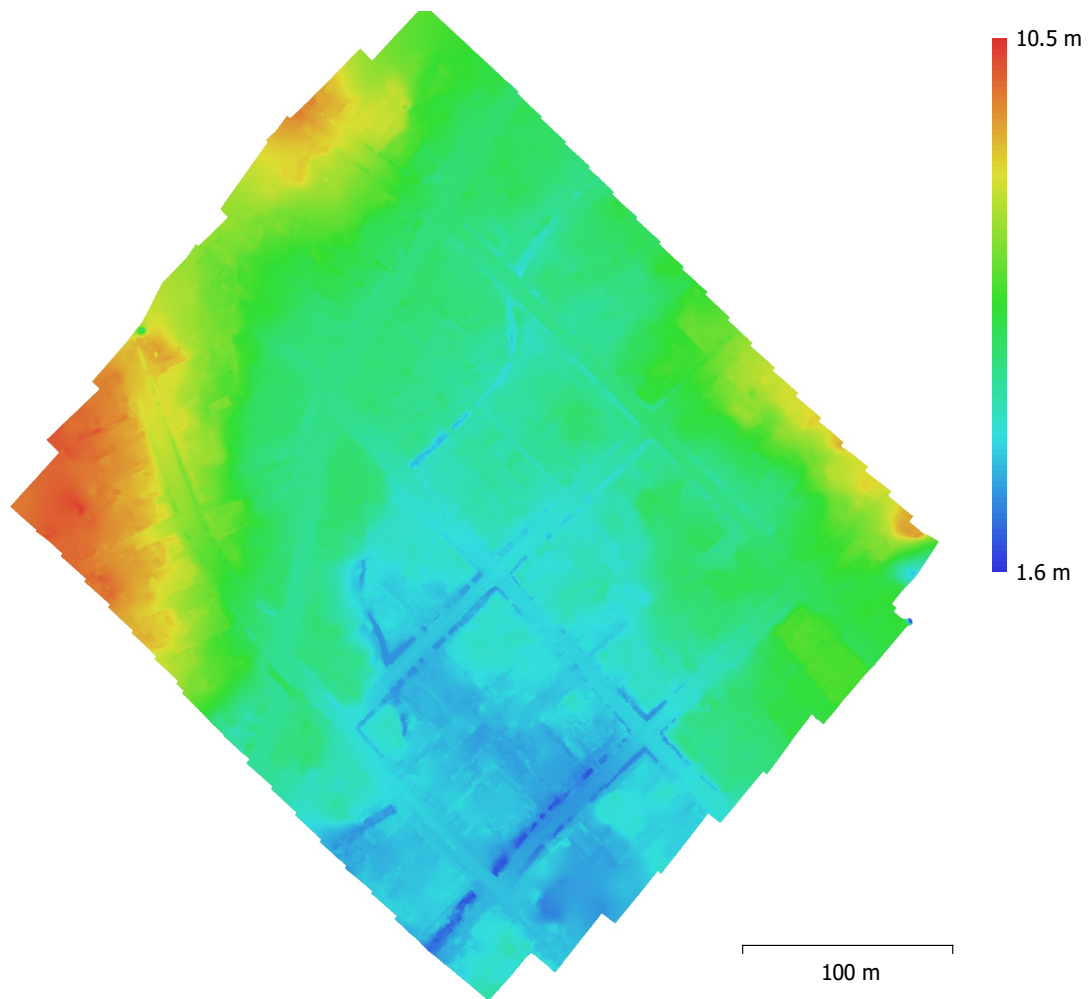


Fig. 5. Reconstructed digital elevation model.

Resolution: 4.09 cm/pix
Point density: 598 points/m²

Processing Parameters

General

Cameras	130
Aligned cameras	130
Markers	6
Coordinate system	WGS 84 / UTM zone 21S EGM08
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	118,679 of 131,482
RMS reprojection error	0.195269 (0.766575 pix)
Max reprojection error	0.797253 (27.144 pix)
Mean key point size	3.61359 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	4.24391

Alignment parameters

Accuracy	High
Generic preselection	No
Reference preselection	Source
Key point limit	40,000
Tie point limit	4,000
Exclude stationary tie points	Yes
Guided image matching	No
Adaptive camera model fitting	Yes
Matching time	20 minutes 49 seconds
Matching memory usage	1.13 GB
Alignment time	36 seconds
Alignment memory usage	88.94 MB

Optimization parameters

Parameters	f, b2, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	Yes
Optimization time	3 seconds
Software version	1.7.2.12070
File size	11.62 MB

Depth Maps

Count	130
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Depth maps generation parameters

Quality	High
Filtering mode	Aggressive
Processing time	2 hours 10 minutes
Memory usage	4.08 GB
Software version	1.7.2.12070
File size	783.38 MB

Dense Point Cloud

Points	90,145,558
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	High
Filtering mode	Aggressive
Processing time	2 hours 10 minutes
Memory usage	4.08 GB

Dense cloud generation parameters

Processing time 10 minutes 41 seconds
Memory usage 4.25 GB

Ground points classification parameters

Max angle (°) 15
Max distance (m) 0.2
Cell size (m) 50
Classification time 6 minutes 36 seconds
Classification memory usage 3.45 GB
Software version 1.7.2.12070
File size 1.27 GB

DEM

Size 15,186 x 15,739
Coordinate system WGS 84 / UTM zone 21S EGM08

Reconstruction parameters

Source data Dense cloud
Interpolation Enabled
Processing time 2 minutes 40 seconds
Memory usage 320.14 MB
Software version 1.7.2.12070
File size 315.43 MB

Orthomosaic

Size 21,234 x 22,976
Coordinate system WGS 84 / UTM zone 21S EGM08
Colors 3 bands, uint8

Reconstruction parameters

Blending mode Mosaic
Surface DEM
Enable hole filling Yes
Enable ghosting filter No
Processing time 9 minutes 14 seconds
Memory usage 2.04 GB
Software version 1.7.2.12070
File size 2.14 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)