

BARRIO 12 DE DICIEMBRE

Processing Report

28 June 2024



Survey Data

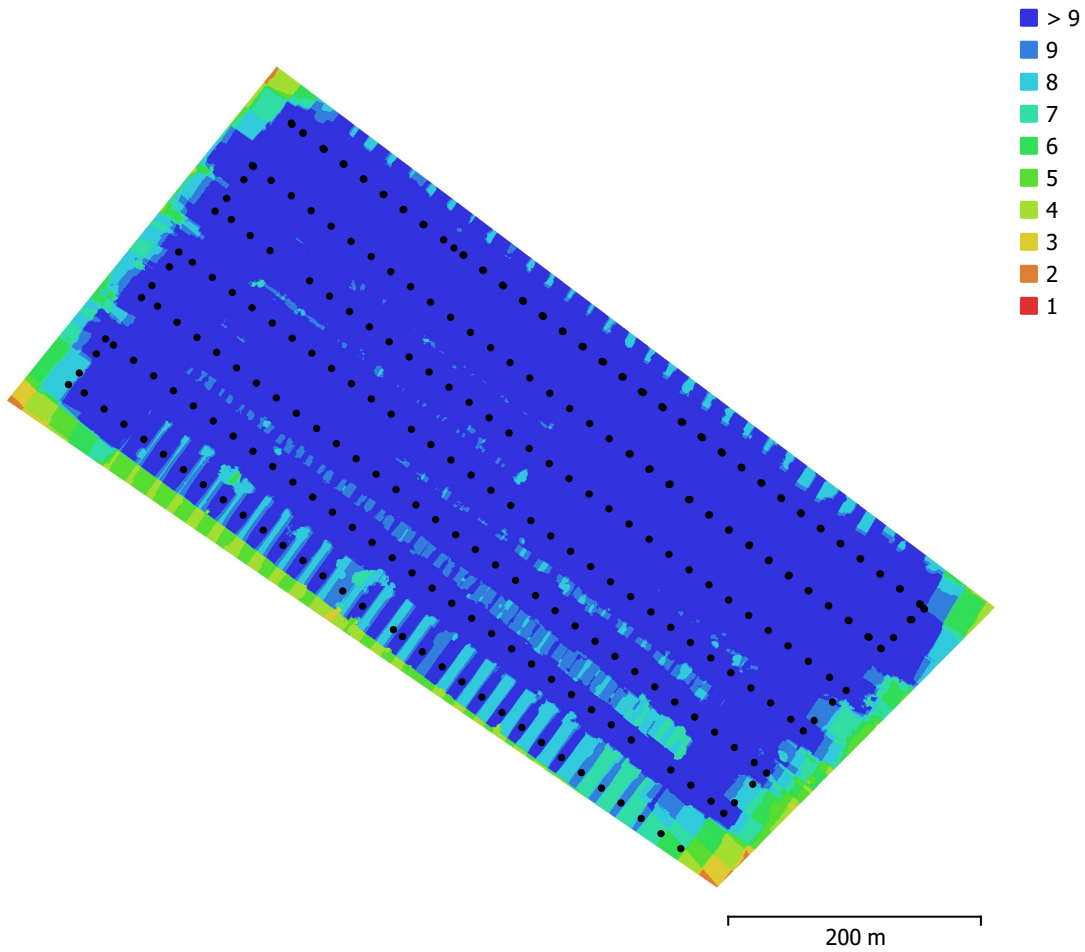


Fig. 1. Camera locations and image overlap.

Number of images:	291	Camera stations:	291
Flying altitude:	96.7 m	Tie points:	189,839
Ground resolution:	2.53 cm/pix	Projections:	1,044,852
Coverage area:	0.225 km ²	Reprojection error:	0.792 pix

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

Table 1. Cameras.

Camera Calibration

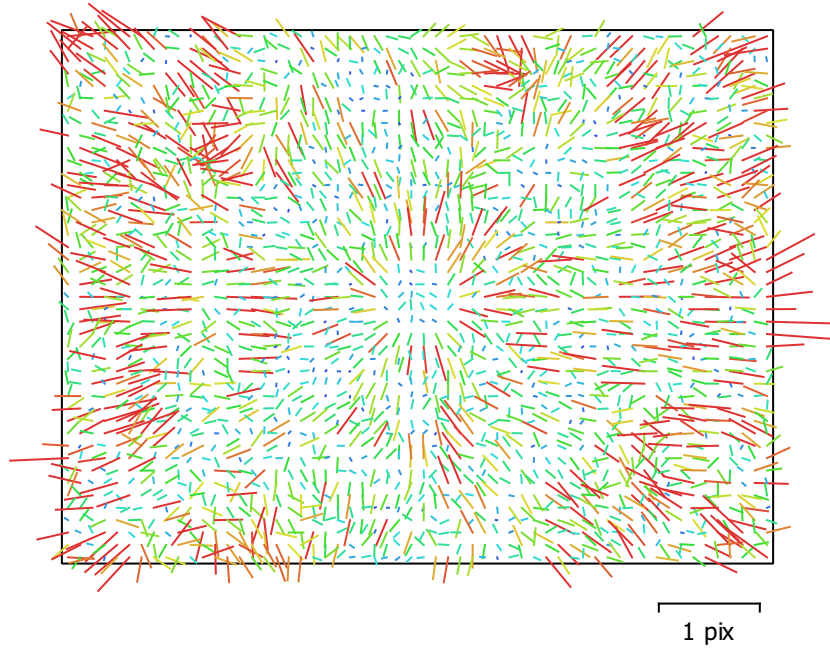


Fig. 2. Image residuals for FC6310 (8.8mm).

FC6310 (8.8mm)

291 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	B1	B2	K1	K2	K3	K4	P1	P2
F	3654.12	0.2	1.00	0.11	-0.29	-0.13	-0.00	0.00	-0.01	0.04	-0.06	-0.01	-0.03
Cx	-5.48175	0.038		1.00	-0.04	-0.10	-0.09	0.03	-0.02	0.02	-0.02	0.41	-0.03
Cy	15.245	0.038			1.00	0.11	-0.05	-0.01	0.02	-0.02	0.03	-0.02	0.46
B1	-0.759985	0.0076				1.00	-0.01	0.01	-0.01	0.00	0.00	-0.02	0.03
B2	-0.690983	0.0074					1.00	0.00	0.00	-0.00	0.00	-0.04	-0.05
K1	0.0170535	5.9e-05						1.00	-0.96	0.92	-0.87	0.01	0.00
K2	-0.0981032	0.00033							1.00	-0.99	0.96	-0.00	0.00
K3	0.19268	0.00073								1.00	-0.99	-0.00	-0.00
K4	-0.128301	0.00055									1.00	0.00	0.00
P1	-0.000185979	1.8e-06										1.00	-0.04
P2	-0.000454343	1.7e-06											1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

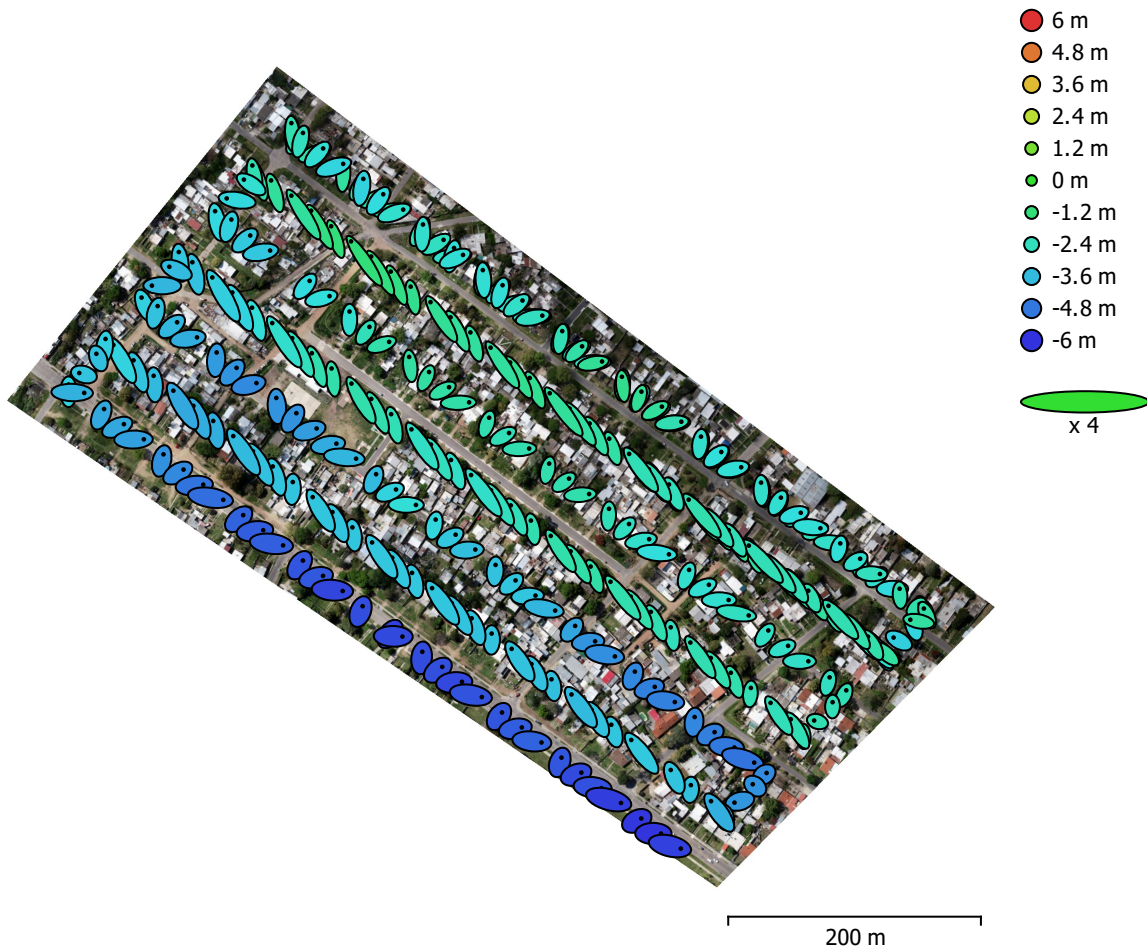


Fig. 3. Camera locations and error estimates.

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)
2.75727	3.47522	3.2029	4.43618	5.47159

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

Ground Control Points

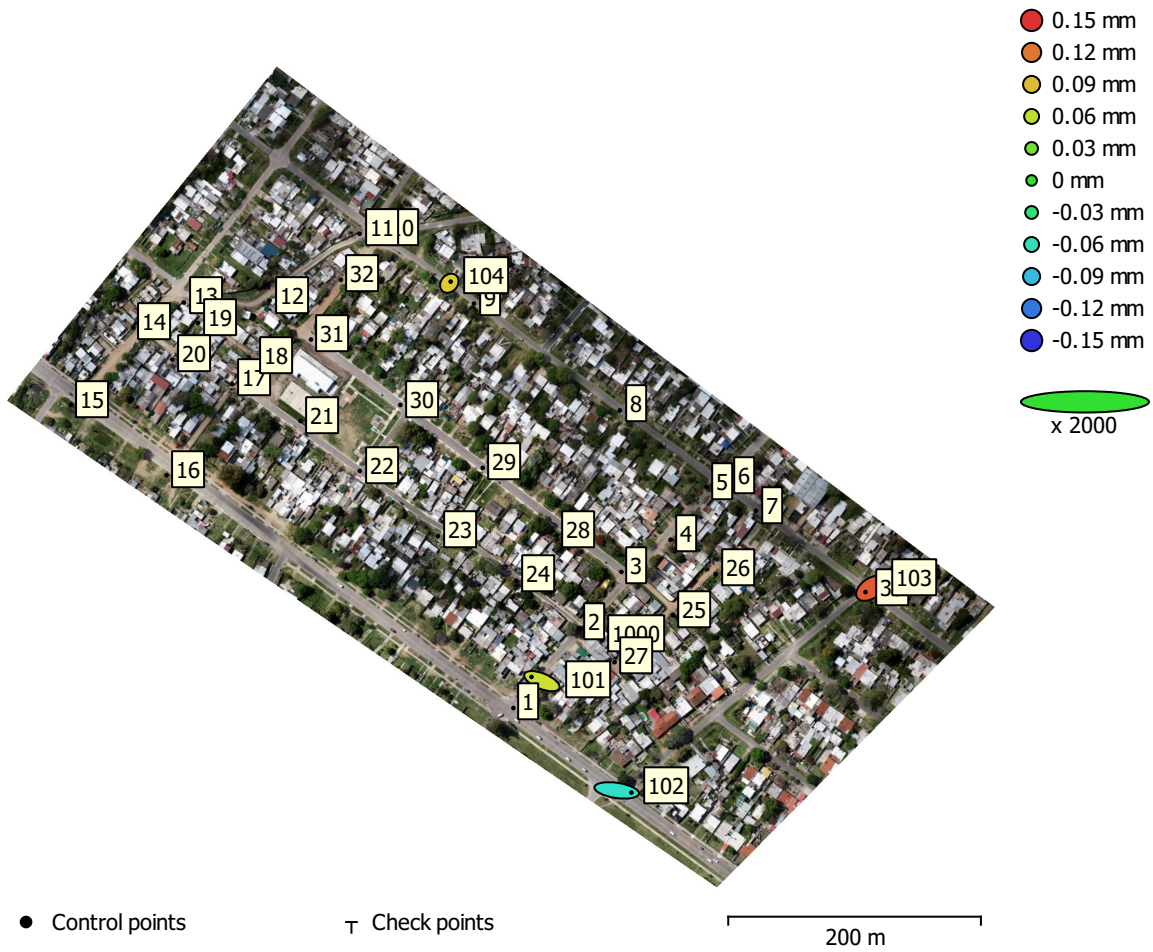


Fig. 4. GCP locations and error estimates.

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 (mm)	Y error (mm)	Z error (mm)	XY error (mm)	Total (mm)
4	7.4943	2.49952	0.0913288	7.90014	7.90067

Table 4. Control points RMSE.

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

Label	X error (mm)	Y error (mm)	Z error (mm)	Total (mm)	Image (pix)
1000					
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Label	X error (mm)	Y error (mm)	Z error (mm)	Total (mm)	Image (pix)
31					
32					
33					
101	-8.15953	3.31985	0.0676195	8.80931	0.623 (11)
102	11.6538	-1.7175	-0.0642741	11.7798	0.632 (8)
103	-4.59147	-3.06878	0.132795	5.52418	0.605 (18)
104	1.09025	1.26562	0.0838197	1.67256	0.451 (15)
Total	7.4943	2.49952	0.0913288	7.90067	0.573

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

Digital Elevation Model

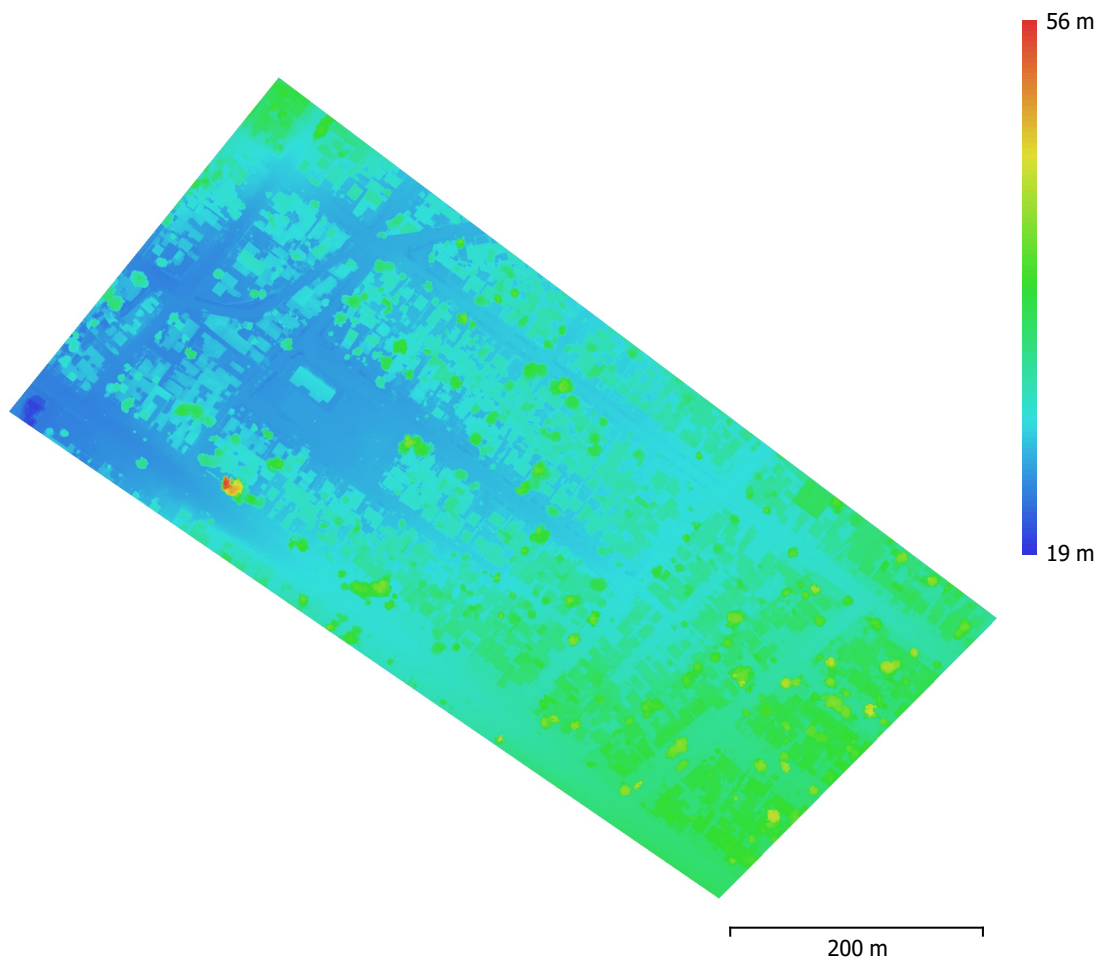


Fig. 5. Reconstructed digital elevation model.

Resolution: 5.07 cm/pix
Point density: 389 points/m²

Processing Parameters

General

Cameras	291
Aligned cameras	291
Markers	38

Shapes

Polygon	1
Coordinate system	WGS 84 / UTM zone 21S EGM08
Rotation angles	Yaw, Pitch, Roll

Tie Points

Points	189,839 of 222,044
RMS reprojection error	0.209675 (0.79159 pix)
Max reprojection error	0.847782 (28.0679 pix)
Mean key point size	3.45994 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	5.72804

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	14 minutes 10 seconds
Matching memory usage	1.68 GB
Alignment time	3 minutes 6 seconds
Alignment memory usage	167.66 MB

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k4, p1, p2
Adaptive camera model fitting	Yes
Optimization time	5 seconds
Date created	2023:10:26 16:46:23
Software version	1.7.2.12070
File size	24.43 MB

Depth Maps

Count	291
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Depth maps generation parameters

Quality	High
Filtering mode	Aggressive
Processing time	2 hours 21 minutes
Memory usage	5.07 GB
Date created	2023:11:10 17:46:46
Software version	1.7.2.12070
File size	1.82 GB

Point Cloud

Points	156,359,202
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Point attributes

Color	3 bands, uint8
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Normal	
Confidence	1 - 28
Point classes	
Created (never classified)	156,359,202
Depth maps generation parameters	
Quality	High
Filtering mode	Aggressive
Processing time	2 hours 21 minutes
Memory usage	5.07 GB
Point cloud generation parameters	
Processing time	21 minutes 34 seconds
Memory usage	6.90 GB
Date created	2023:11:10 18:08:20
Software version	1.7.2.12070
File size	2.21 GB
DEM	
Size	22,685 x 20,584
Coordinate system	WGS 84 / UTM zone 21S EGM08
Reconstruction parameters	
Source data	Point cloud
Interpolation	Enabled
Processing time	2 minutes 21 seconds
Memory usage	308.07 MB
Date created	2023:11:11 09:11:29
Software version	1.7.2.12070
File size	478.10 MB
Orthomosaic	
Size	32,302 x 27,586
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	7 minutes 43 seconds
Memory usage	2.11 GB
Date created	2023:11:11 10:08:53
Software version	1.7.2.12070
File size	4.82 GB
System	
Software name	Agisoft Metashape Professional
Software version	2.1.0 build 17532
OS	Windows 64 bit
RAM	63.93 GB
CPU	Intel(R) Core(TM) i7-9700F CPU @ 3.00GHz
GPU(s)	Intel(R) FPGA Emulation Device Radeon(TM) RX 460 Graphics (Baffin)