

Barrio La Paloma

Processing Report
28 June 2024



Survey Data

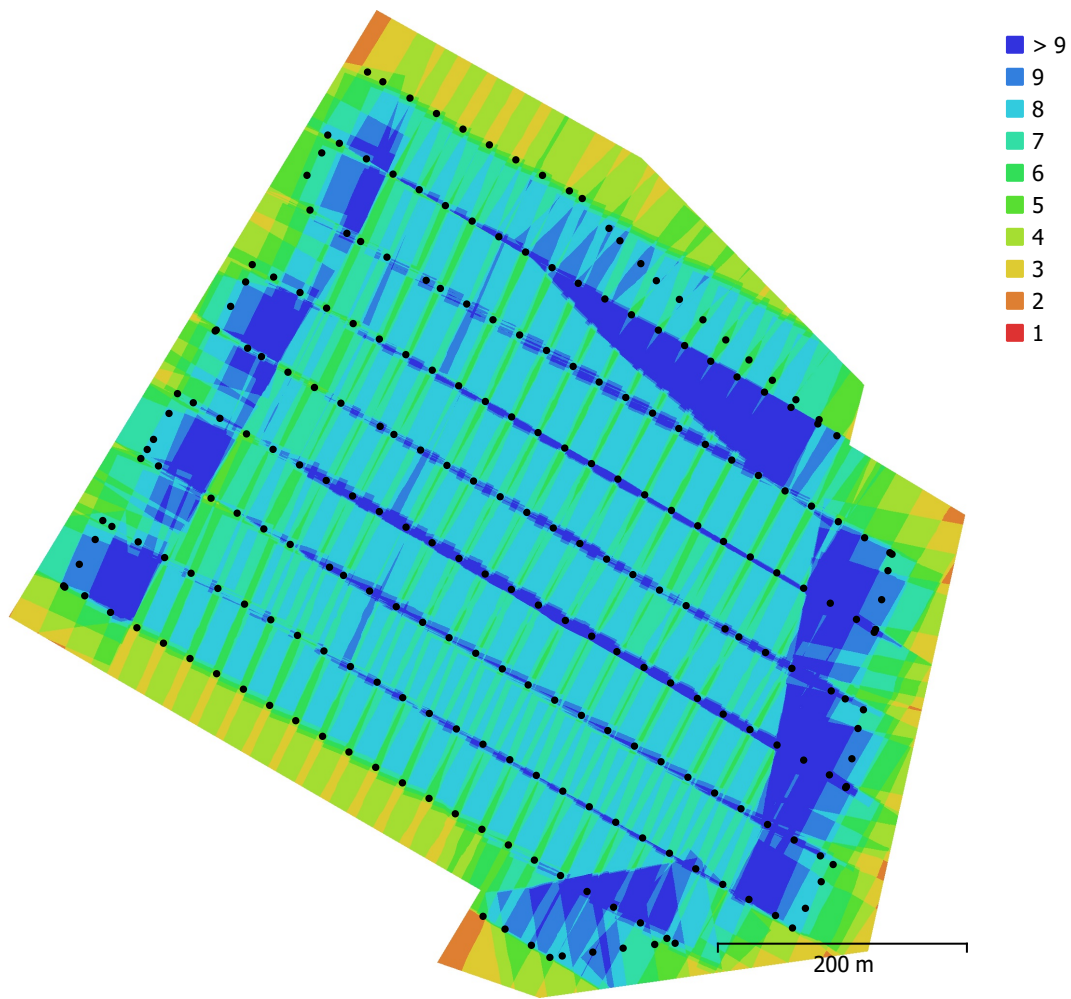


Fig. 1. Camera locations and image overlap.

Number of images:	251	Camera stations:	251
Flying altitude:	87.8 m	Tie points:	268,551
Ground resolution:	2.49 cm/pix	Projections:	942,959
Coverage area:	0.36 km ²	Reprojection error:	0.809 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

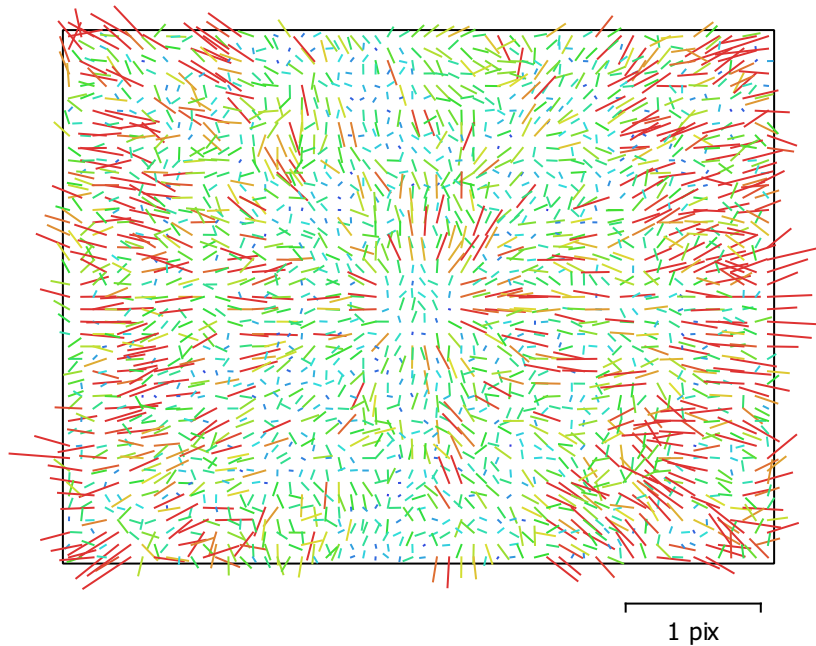


Fig. 2. Image residuals for FC6310 (8.8mm).

FC6310 (8.8mm)

251 images

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

	Value	Error	Cx	Cy	B1	B2	K1	K2	K3	K4	P1	P2
F	3372.58											
Cx	-8.31239	0.073	1.00	0.02	0.02	-0.16	0.01	-0.01	0.01	-0.01	0.21	-0.04
Cy	8.4656	0.053		1.00	0.14	0.00	0.00	-0.00	0.00	-0.00	-0.03	0.34
B1	-0.522551	0.0063			1.00	-0.01	0.04	-0.04	0.03	-0.02	-0.05	0.04
B2	-0.462456	0.0062				1.00	0.00	-0.00	0.00	-0.00	-0.02	-0.06
K1	0.0149615	5.6e-05					1.00	-0.97	0.92	-0.88	-0.00	-0.00
K2	-0.0732723	0.00027						1.00	-0.99	0.96	0.00	0.00
K3	0.121582	0.00051							1.00	-0.99	-0.00	-0.00
K4	-0.0681663	0.00033								1.00	0.00	0.00
P1	-0.000290576	1.8e-06									1.00	-0.09
P2	-0.000478358	2.1e-06										1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

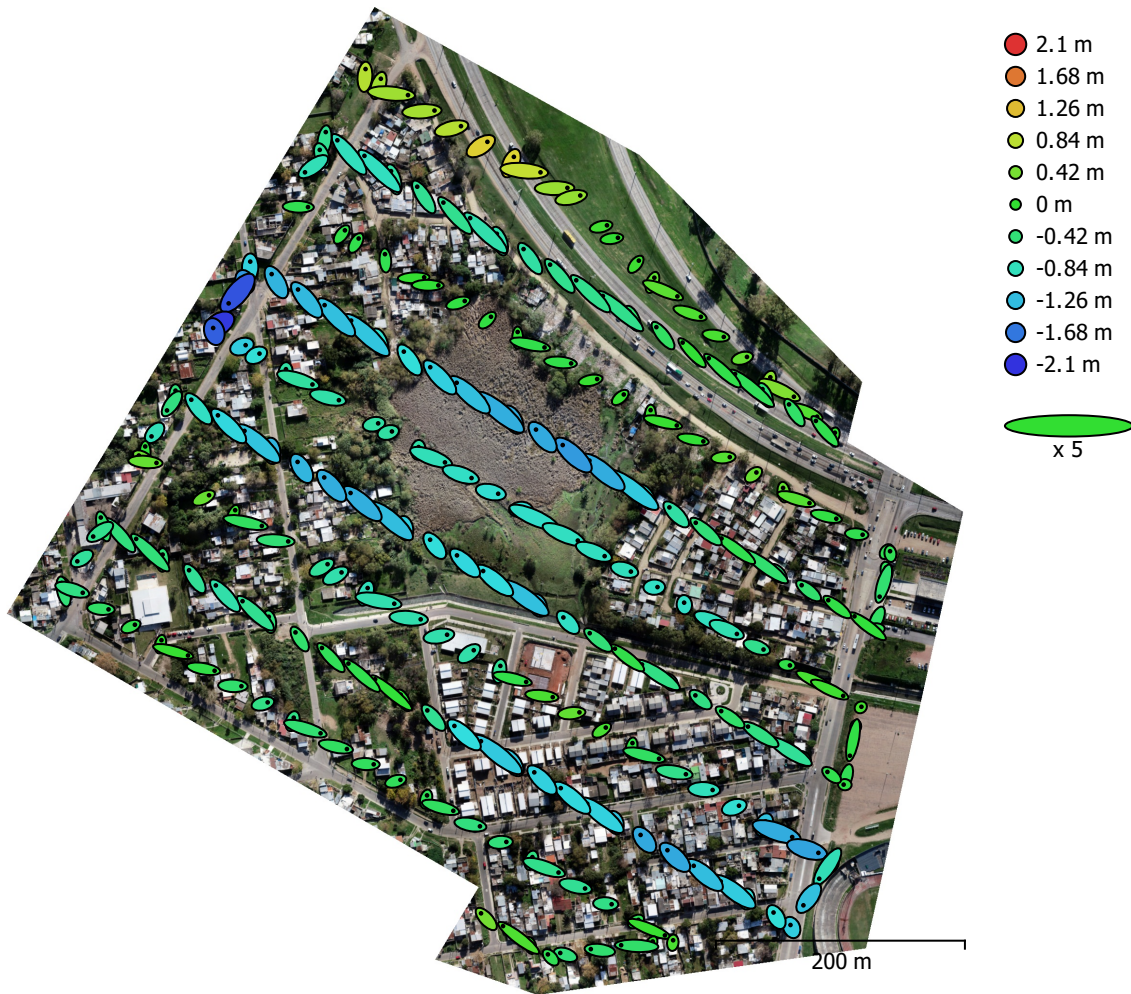


Fig. 3. Camera locations and error estimates.

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)
2.89024	2.15863	0.735936	3.60738	3.68168

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

Ground Control Points

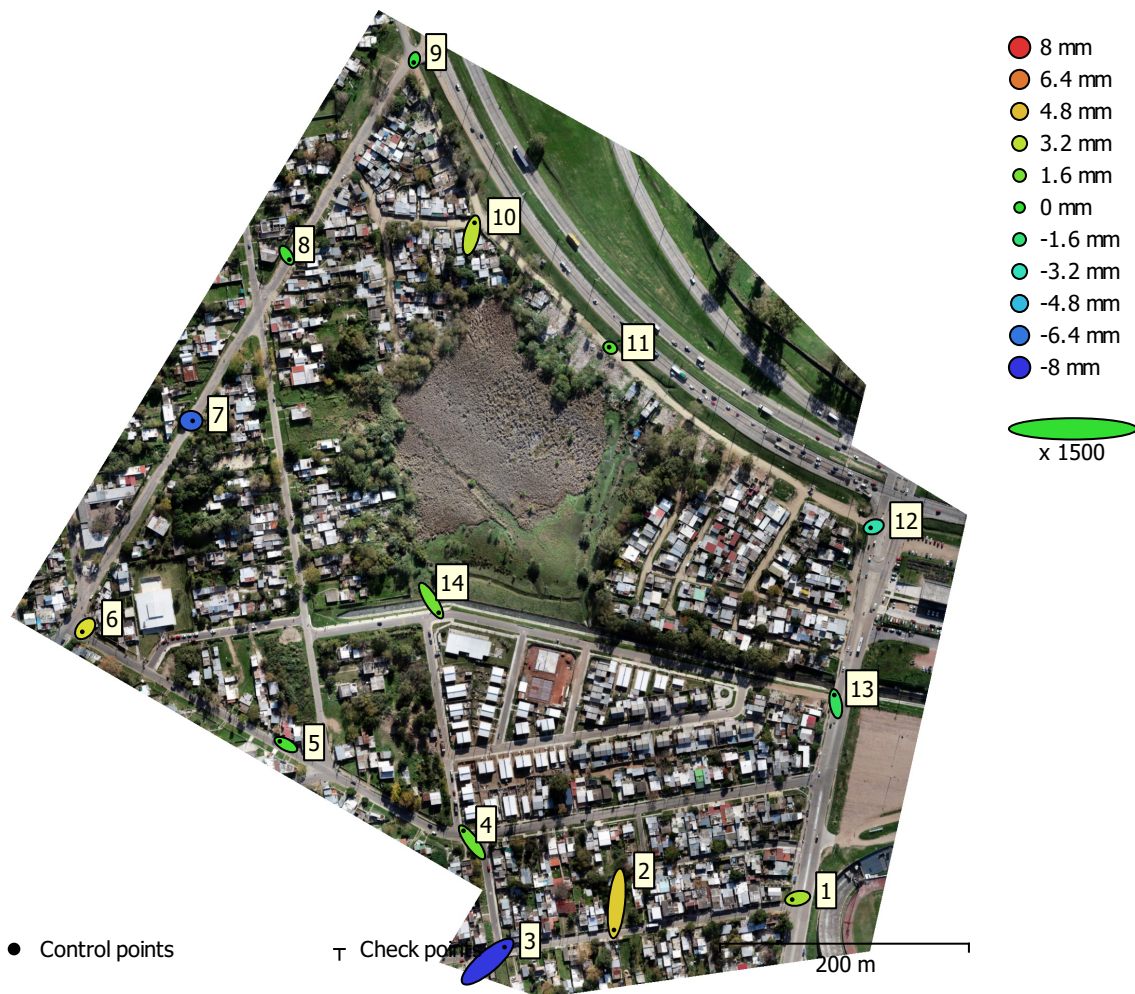


Fig. 4. GCP locations and error estimates.

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)
14	0.658912	1.10212	0.354397	1.28407	1.33208

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	-0.584078	-0.127566	0.271795	0.656728	0.426 (9)
2	-0.288414	-2.8517	0.442564	2.90022	1.084 (9)
3	1.8143	1.55893	-0.789889	2.5191	1.702 (4)
4	-0.908205	1.23836	0.131983	1.54136	1.079 (4)
5	-0.646218	0.342812	0.0529006	0.733427	0.737 (4)
6	-0.305412	-0.339097	0.394928	0.603516	0.663 (4)
7	0.170771	-0.00751817	-0.683187	0.704247	0.837 (9)
8	0.290857	-0.468007	0.0263054	0.551653	0.656 (6)
9	-0.0739121	-0.268605	-0.0210898	0.279385	0.472 (4)
10	0.325808	1.33281	0.322737	1.4095	0.753 (8)
11	-0.120547	0.0644726	0.0896802	0.163496	0.385 (8)
12	-0.324501	-0.107407	-0.27989	0.441786	0.735 (5)
13	-0.159833	0.932568	-0.0978261	0.95121	0.934 (8)
14	0.809831	-1.30678	0.143243	1.54402	0.596 (8)
Total	0.658912	1.10212	0.354397	1.33208	0.819

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

Digital Elevation Model

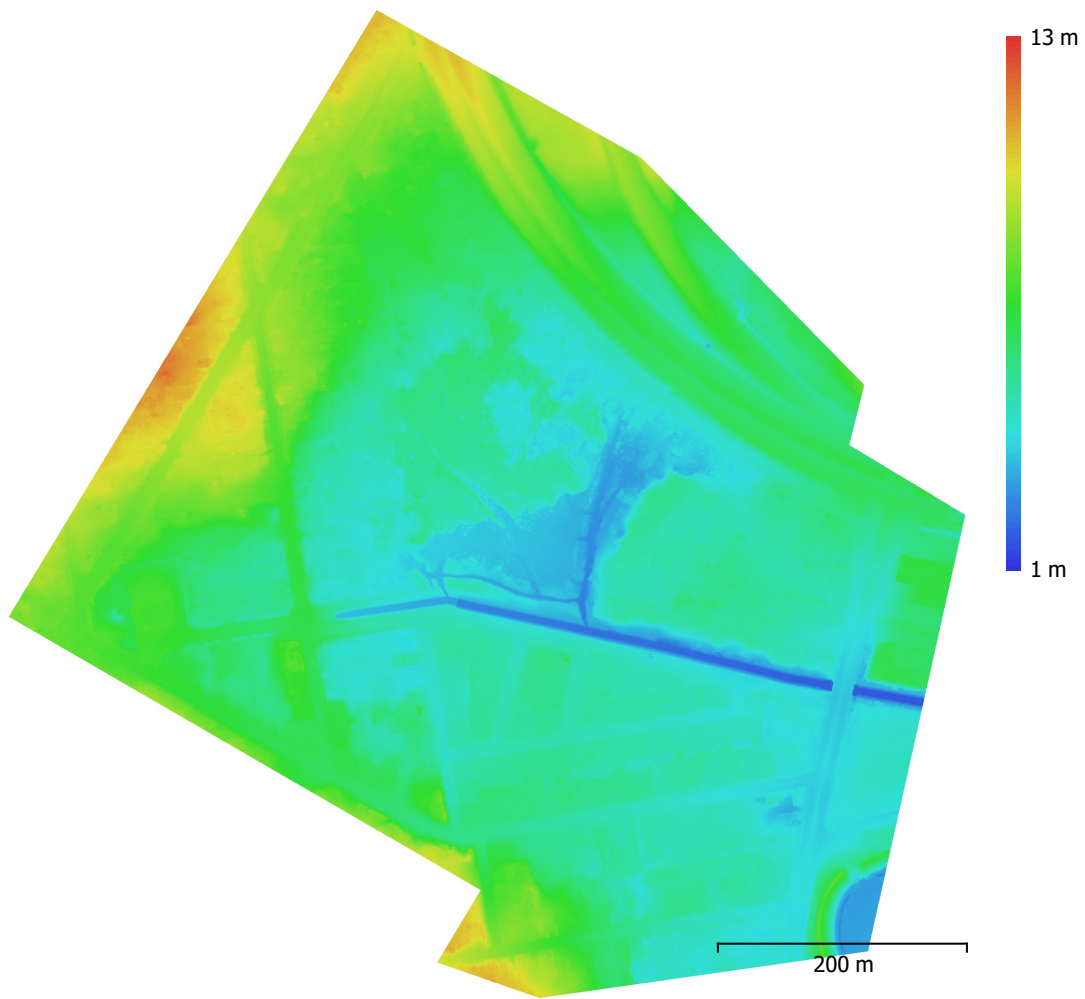


Fig. 5. Reconstructed digital elevation model.

Resolution: 4.97 cm/pix
Point density: 404 points/m²

Processing Parameters

General

Cameras	251
Aligned cameras	251
Markers	14

Shapes

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

Tie Points

Points	268,551 of 297,546
RMS reprojection error	0.190821 (0.809018 pix)
Max reprojection error	0.705526 (35.8615 pix)
Mean key point size	3.63759 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.60784

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 55 seconds
Matching memory usage	1.54 GB
Alignment time	1 minutes 32 seconds
Alignment memory usage	175.44 MB

Optimization parameters

Parameters	b1, b2, cx, cy, k1-k4, p1, p2
Adaptive camera model fitting	Yes
Optimization time	2 seconds
Date created	2023:06:12 14:52:45
Software version	1.7.2.12070
File size	23.41 MB

Depth Maps

Count	251
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Depth maps generation parameters

Quality	High
Filtering mode	Aggressive
Processing time	1 hours 6 minutes
Memory usage	3.46 GB
Date created	2023:06:13 12:14:15
Software version	1.7.2.12070
File size	1.50 GB

Point Cloud

Points	198,455,335
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Point attributes

Color	3 bands, uint8
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Normal	
Confidence	1 - 15
Point classes	
Created (never classified)	87,505,069
Ground	110,907,942
Low Point (noise)	42,324
Depth maps generation parameters	
Quality	High
Filtering mode	Aggressive
Processing time	1 hours 6 minutes
Memory usage	3.46 GB
Point cloud generation parameters	
Processing time	13 minutes 58 seconds
Memory usage	4.39 GB
Ground points classification parameters	
Max angle (°)	15
Max distance (m)	0.2
Cell size (m)	50
Classification time	7 minutes 31 seconds
Classification memory usage	7.84 GB
Date created	2023:06:13 12:28:14
Software version	1.7.2.12070
File size	2.81 GB
DEM	
Size	24,437 x 24,873
Coordinate system	WGS 84 / UTM zone 21S EGM08
Reconstruction parameters	
Source data	Point cloud
Interpolation	Enabled
Processing time	8 minutes 1 seconds
Memory usage	314.75 MB
Date created	2023:06:13 15:25:24
Software version	1.7.2.12070
File size	748.52 MB
Orthomosaic	
Size	32,054 x 33,640
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 18 seconds
Memory usage	1.91 GB
Date created	2023:06:13 14:22:31
Software version	1.7.2.12070
File size	4.66 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)