

BARRIO 17 METROS

Processing Report
28 June 2024



Survey Data

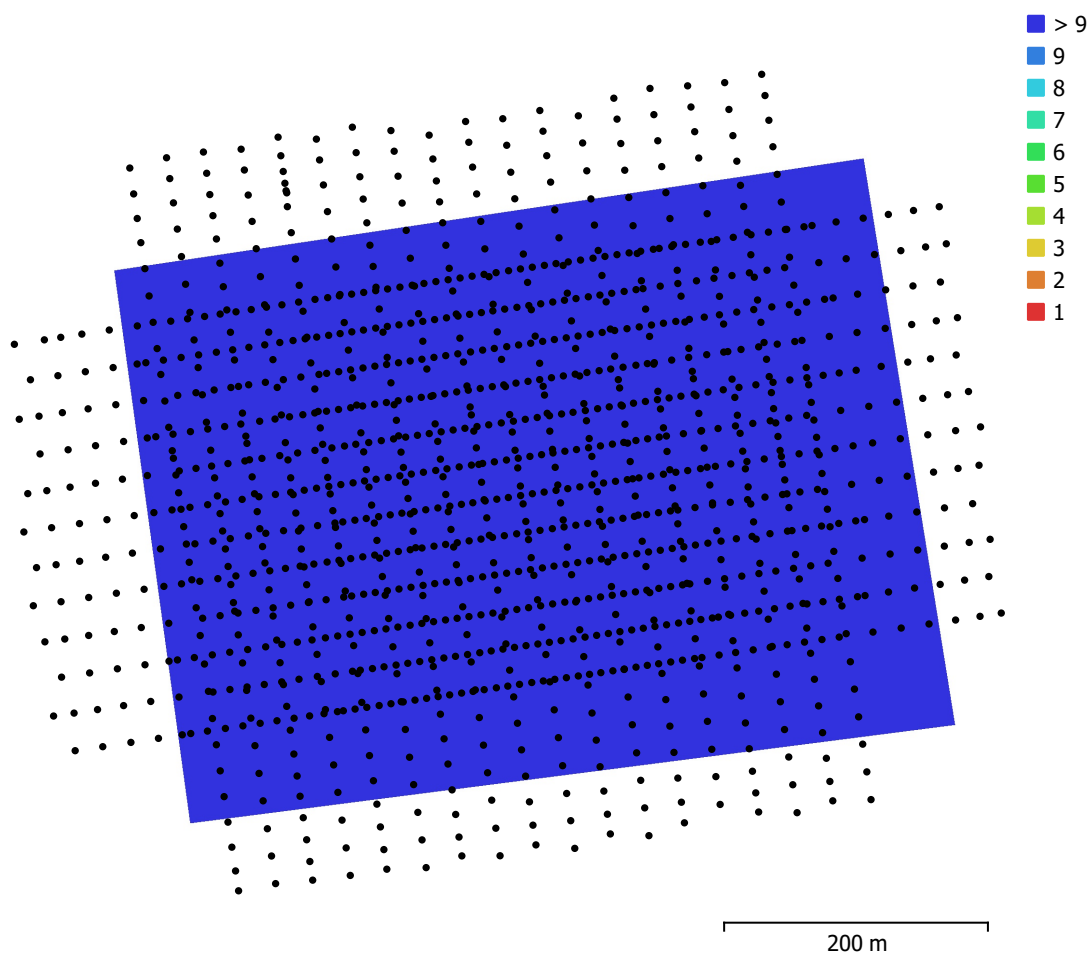


Fig. 1. Camera locations and image overlap.

Number of images:	1,298	Camera stations:	1,298
Flying altitude:	118 m	Tie points:	249,506
Ground resolution:	3.81 cm/pix	Projections:	3,062,664
Coverage area:	0.248 km ²	Reprojection error:	1.31 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
M3E (12.29mm)	5280 x 3956	12.29 mm	3.36 x 3.36 μ m	Yes

Table 1. Cameras.

Camera Calibration

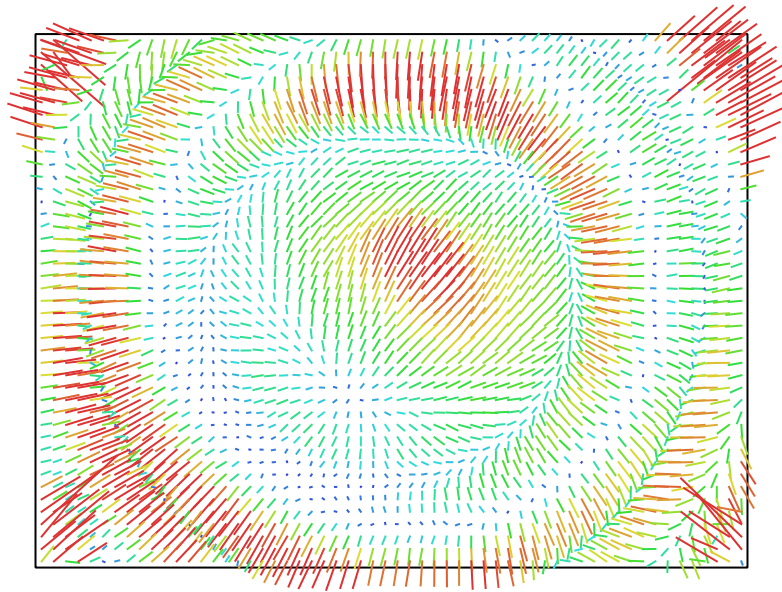


Fig. 2. Image residuals for M3E (12.29mm). 1 pix

M3E (12.29mm)

1298 images, precalibrated

Type	Resolution	Focal Length	Pixel Size
Frame	5280 x 3956	12.29 mm	3.36 x 3.36 μm

	Value	Error	F	Cx	Cy	B1	B2	K1	K2	K3	K4	P1	P2
F	3698.36	0.012	1.00	-0.02	0.03	-0.74	-0.02	-0.45	0.39	-0.36	0.32	0.00	-0.02
Cx	23.7005	0.006		1.00	0.01	0.01	-0.01	0.00	-0.00	0.00	-0.00	0.70	-0.00
Cy	-64.5596	0.0055			1.00	-0.03	0.01	-0.01	0.01	-0.01	0.01	0.01	0.38
B1	0.201388	0.0042				1.00	0.02	0.04	-0.02	0.02	-0.00	-0.00	0.05
B2	-0.220063	0.0025					1.00	0.00	-0.00	0.00	-0.00	-0.05	0.00
K1	-0.0849109	2e-05						1.00	-0.98	0.93	-0.89	0.01	-0.01
K2	-0.0986304	8.6e-05							1.00	-0.99	0.96	-0.01	0.02
K3	0.155923	0.00014								1.00	-0.99	0.01	-0.02
K4	-0.0999658	8e-05									1.00	-0.02	0.03
P1	1.64261e-05	3e-07										1.00	-0.01
P2	-0.00018826	3e-07											1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

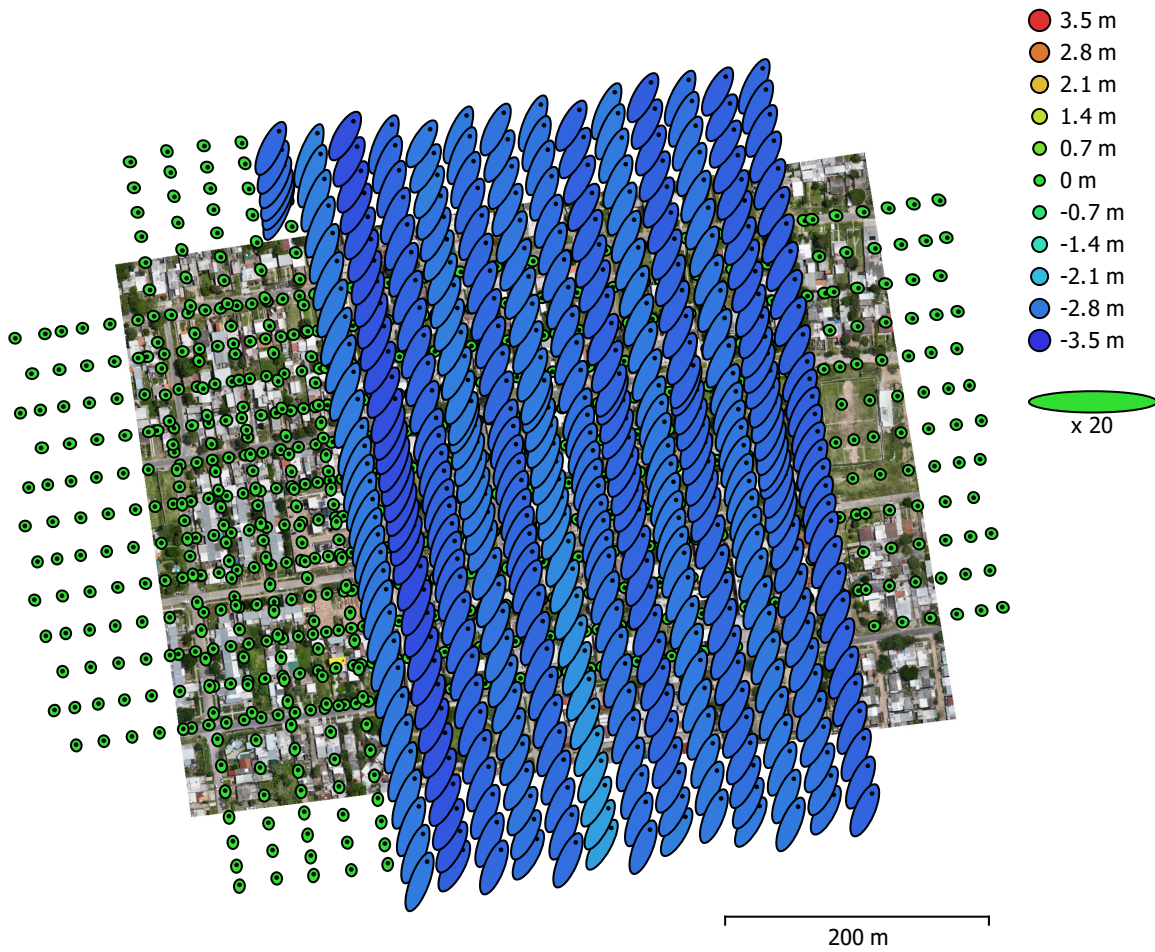


Fig. 3. Camera locations and error estimates.

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)
0.339345	0.745961	1.64489	0.81952	1.83774

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)
9	1.96455	1.59475	1.06997	2.53035	2.74727

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	-2.33617	-1.47362	1.1237	2.98194	0.641 (32)
2	-0.0418779	-0.0294612	-0.102238	0.114343	0.662 (16)
3	-0.399037	2.21702	1.65765	2.79682	0.585 (20)
4	-0.022207	0.553774	0.205702	0.591162	0.414 (10)
5	-0.366159	-0.626184	-1.02304	1.25411	0.301 (7)
6	4.26227	-3.76193	1.51875	5.88436	0.460 (46)
7	1.9014	0.623081	1.17624	2.32101	0.545 (14)
8	-2.07646	-0.563609	-0.93732	2.3469	0.433 (22)
9	1.69935	0.494536	0.790459	1.93835	0.538 (25)
Total	1.96455	1.59475	1.06997	2.74727	0.533

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

Digital Elevation Model

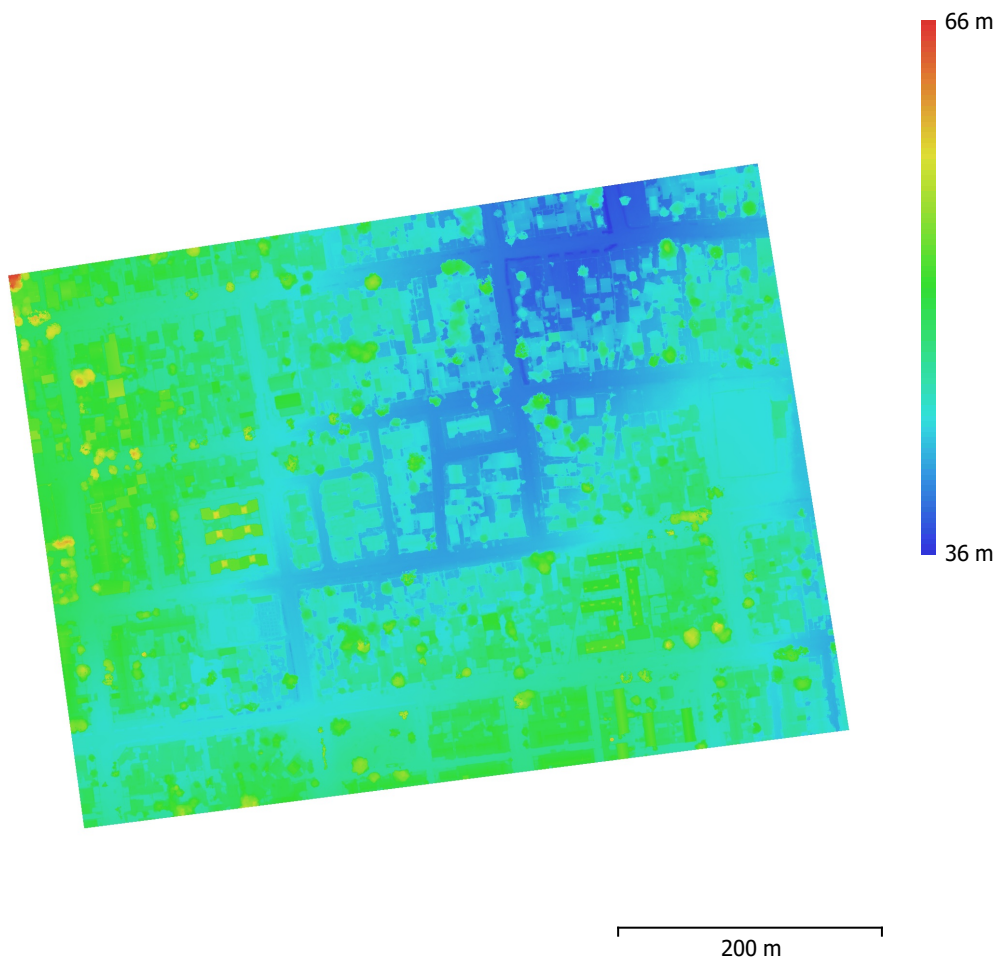


Fig. 5. Reconstructed digital elevation model.

Resolution: 7.63 cm/pix
Point density: 172 points/m²

Processing Parameters

General

Cameras	1298
Aligned cameras	1298
Markers	9
Shapes	
Polygon	1
Coordinate system	WGS 84 / UTM zone 21S EGM08
Rotation angles	Yaw, Pitch, Roll

Tie Points

Points	249,506 of 364,612
RMS reprojection error	0.258142 (1.30634 pix)
Max reprojection error	1.03846 (78.4663 pix)
Mean key point size	3.54528 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	20.9215

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	1 hours 9 minutes
Matching memory usage	6.58 GB
Alignment time	45 minutes 27 seconds
Alignment memory usage	2.73 GB

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k4, p1, p2
Adaptive camera model fitting	No
Optimization time	31 seconds
Date created	2023:12:12 14:15:16
Software version	1.7.2.12070
File size	123.32 MB

Depth Maps

Count	1298
Depth maps generation parameters	
Quality	High
Filtering mode	Aggressive
Processing time	13 hours 10 minutes
Memory usage	14.62 GB
Date created	2023:12:13 23:35:02
Software version	1.7.2.12070
File size	9.40 GB

Point Cloud

Points	187,040,931
Point attributes	
Color	3 bands, uint8

Normal	
Confidence	1 - 255
Point classes	
Created (never classified)	187,040,931
Depth maps generation parameters	
Quality	High
Filtering mode	Aggressive
Processing time	13 hours 10 minutes
Memory usage	14.62 GB
Point cloud generation parameters	
Processing time	9 hours 25 minutes
Memory usage	50.64 GB
Date created	2023:12:14 09:00:57
Software version	1.7.2.12070
File size	2.68 GB
Model	
Faces	4,156,465
Vertices	5,246,794
Vertex colors	3 bands, uint8
Texture	4,096 x 4,096, 4 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Aggressive
Processing time	13 hours 10 minutes
Memory usage	14.62 GB
Reconstruction parameters	
Surface type	Arbitrary
Source data	Point cloud
Interpolation	Disabled
Strict volumetric masks	No
Processing time	1 hours 11 minutes
Memory usage	53.55 GB
Texturing parameters	
Mapping mode	Adaptive orthophoto
Blending mode	Mosaic
Texture size	4,096
Enable hole filling	No
Enable ghosting filter	Yes
UV mapping time	1 minutes 18 seconds
UV mapping memory usage	1.91 GB
Blending time	1 seconds
Blending memory usage	184.93 MB
Date created	2023:12:20 11:40:51
Software version	1.7.2.12070
File size	250.54 MB
Tiled Model	
Texture	3 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Aggressive
Processing time	13 hours 10 minutes
Memory usage	14.62 GB
Reconstruction parameters	
Source data	Point cloud
Tile size	256
Face count	Medium

Enable ghosting filter	No
Processing time	4 hours 45 minutes
Memory usage	6.08 GB
Date created	2024:01:30 19:35:19
Software version	1.7.2.12070
File size	985.78 MB
DEM	
Size	13,992 x 11,853
Coordinate system	WGS 84 / UTM zone 21S EGM08
Reconstruction parameters	
Source data	Point cloud
Interpolation	Enabled
Processing time	2 minutes 42 seconds
Memory usage	396.21 MB
Date created	2023:12:14 11:28:30
Software version	1.7.2.12070
File size	574.01 MB
Orthomosaic	
Size	26,671 x 22,596
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	1 hours 13 minutes
Memory usage	4.81 GB
Date created	2023:12:14 12:17:44
Software version	1.7.2.12070
File size	50.10 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)