

BARRIO AGUILES LANZA

Processing Report

28 June 2024



Survey Data

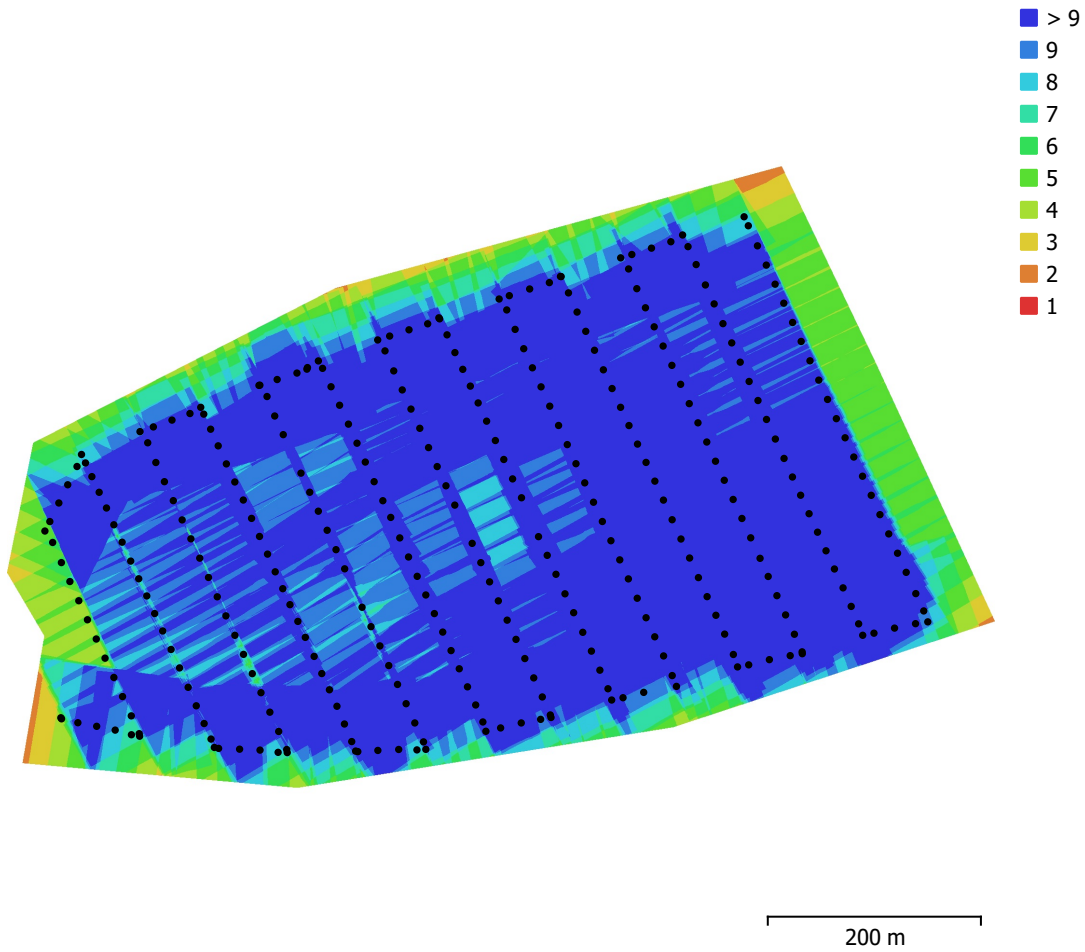


Fig. 1. Camera locations and image overlap.

Number of images:	317	Camera stations:	317
Flying altitude:	98.7 m	Tie points:	226,603
Ground resolution:	2.62 cm/pix	Projections:	1,195,978
Coverage area:	0.363 km ²	Reprojection error:	0.712 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

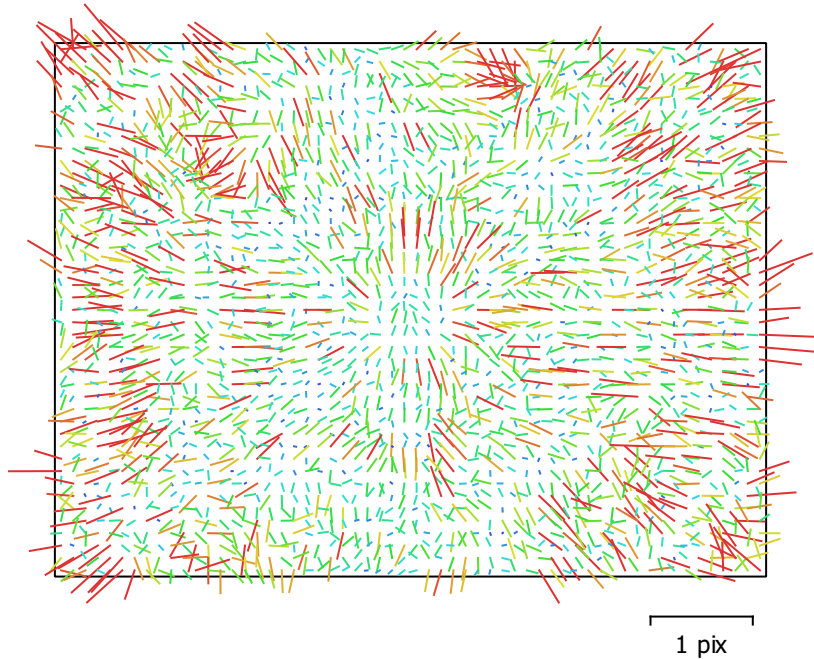


Fig. 2. Image residuals for FC6310 (8.8mm).

FC6310 (8.8mm)

317 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	3648.57	0.69	1.00	0.44	0.64	-0.04	-0.18	0.13	-0.23	0.31	-0.36	-0.02	-0.04
Cx	-6.46277	0.036		1.00	0.29	-0.08	-0.22	0.06	-0.11	0.14	-0.16	0.38	-0.03
Cy	14.9226	0.035			1.00	0.09	-0.16	0.09	-0.16	0.20	-0.24	-0.03	0.37
B1	-0.666478	0.0045				1.00	0.01	0.03	-0.02	0.01	-0.01	-0.06	0.04
B2	-0.638185	0.0046					1.00	-0.03	0.05	-0.06	0.07	-0.04	-0.05
K1	0.0170474	5.3e-05						1.00	-0.97	0.91	-0.86	-0.01	-0.01
K2	-0.0968619	0.0003							1.00	-0.98	0.95	0.01	0.01
K3	0.189747	0.00068								1.00	-0.99	-0.01	-0.02
K4	-0.125888	0.00052									1.00	0.01	0.02
P1	-0.000236243	1.6e-06										1.00	-0.04
P2	-0.000486584	1.7e-06											1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

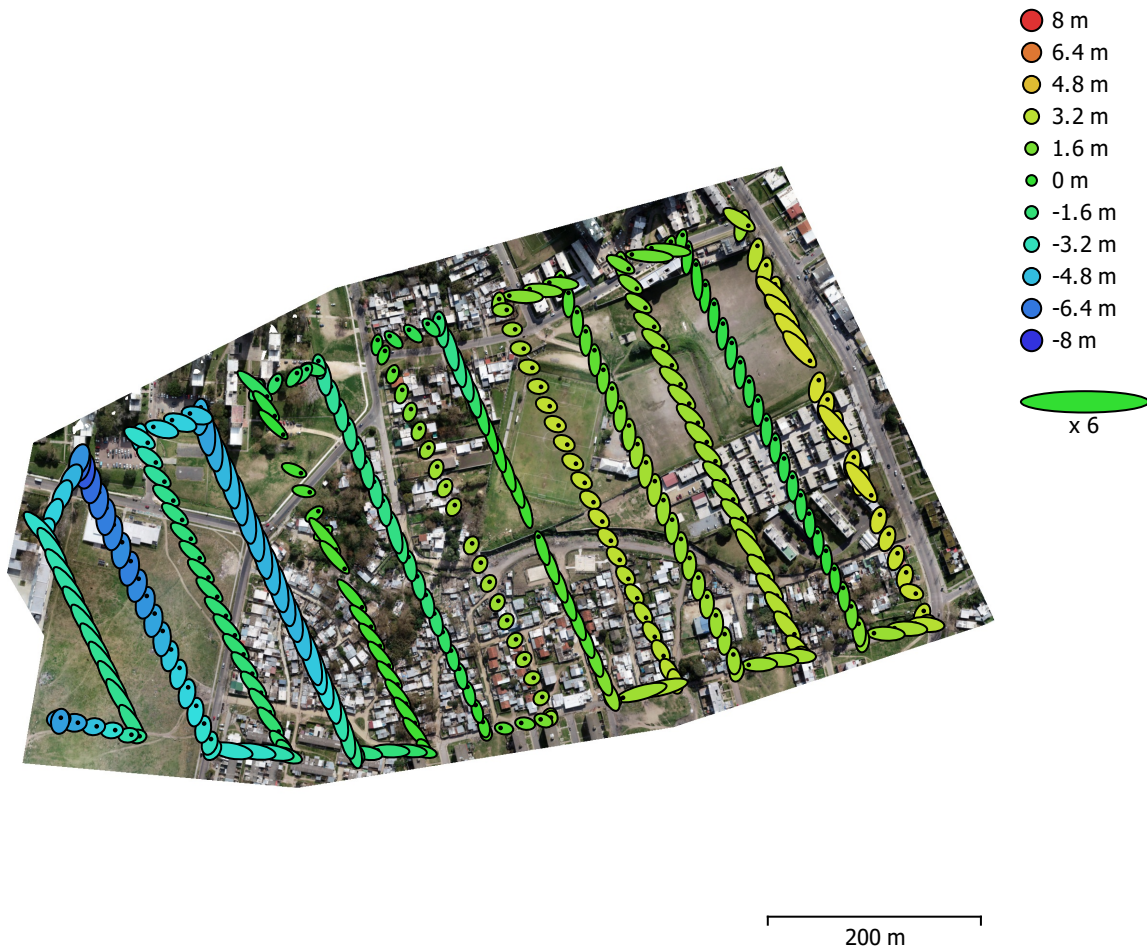


Fig. 3. Camera locations and error estimates.

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)
1.75471	2.62155	2.83936	3.1546	4.24423

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)
11	1.50902	1.7036	0.335625	2.27583	2.30045

Table 4. Control points RMSE.
 X - Easting, Y - Northing, Z - Altitude.

Count	X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
1	1.71912	2.78595	2.50232	3.27366	4.12049

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

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
3	-0.658692	0.635505	-0.142186	0.926261	0.812 (5)
4	-0.0391792	-0.32963	0.0237135	0.332796	0.332 (5)
5	0.0186793	0.650538	0.192347	0.678635	0.904 (8)
6	-0.181798	-0.987817	-0.0741538	1.00714	0.852 (15)
7	0.0974067	0.799808	0.239053	0.840433	0.814 (10)
8	-0.978977	-4.67334	0.0311957	4.77488	2.256 (10)
9	-0.115123	0.932534	-0.435888	1.03579	0.955 (9)
10	-1.58606	0.980107	0.791573	2.02553	0.852 (11)
11	0.224192	2.35357	-0.467379	2.40998	0.756 (13)
13	-1.20711	0.0357594	0.109068	1.21255	0.675 (12)
14	4.42445	-0.403531	-0.266015	4.45077	1.550 (10)
Total	1.50902	1.7036	0.335625	2.30045	1.105

Table 6. Control points.
X - Easting, Y - Northing, Z - Altitude.

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
12	1.71912	2.78595	-2.50232	4.12049	0.826 (14)
Total	1.71912	2.78595	2.50232	4.12049	0.826

Table 7. Check points.
X - Easting, Y - Northing, Z - Altitude.

Digital Elevation Model

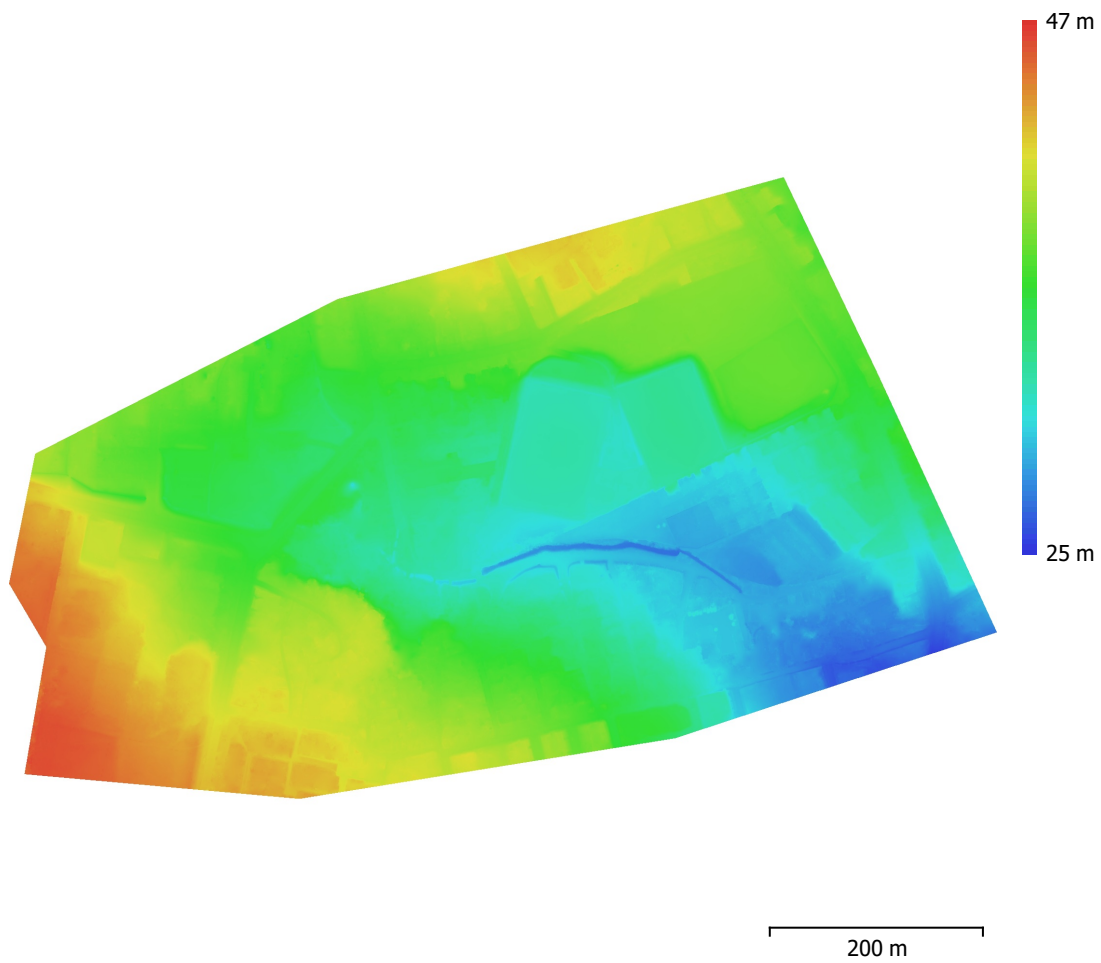


Fig. 5. Reconstructed digital elevation model.

Resolution: 5.23 cm/pix
Point density: 365 points/m²

Processing Parameters

General

Cameras	317
Aligned cameras	317
Markers	12
Shapes	
LineString	51633
Polygon	1
Coordinate system	WGS 84 / UTM zone 21S EGM08
Rotation angles	Yaw, Pitch, Roll

Tie Points

Points	226,603 of 255,641
RMS reprojection error	0.210077 (0.712344 pix)
Max reprojection error	0.810597 (30.9404 pix)
Mean key point size	3.18296 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	5.39579

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	17 minutes 47 seconds
Matching memory usage	907.78 MB
Alignment time	2 minutes 43 seconds
Alignment memory usage	79.23 MB

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k4, p1, p2
Adaptive camera model fitting	No
Optimization time	1 seconds
Date created	2023:08:18 13:43:24
Software version	1.7.2.12070
File size	27.01 MB

Depth Maps

Count	317
Depth maps generation parameters	
Quality	High
Filtering mode	Aggressive
Processing time	1 hours 18 minutes
Memory usage	4.30 GB
Date created	2023:08:21 13:14:11
Software version	1.7.2.12070
File size	1.96 GB

Point Cloud

Points	190,283,147
Point attributes	

Color	3 bands, uint8
Normal	
Confidence	1 - 21
Point classes	
Created (never classified)	80,018,355
Ground	110,191,967
Low Point (noise)	72,825
Depth maps generation parameters	
Quality	High
Filtering mode	Aggressive
Processing time	1 hours 18 minutes
Memory usage	4.30 GB
Point cloud generation parameters	
Processing time	19 minutes 58 seconds
Memory usage	5.80 GB
Ground points classification parameters	
Max angle (°)	15
Max distance (m)	0.2
Cell size (m)	50
Classification time	9 minutes 18 seconds
Classification memory usage	7.37 GB
Date created	2023:08:21 13:34:10
Software version	1.7.2.12070
File size	2.69 GB
DEM	
Size	24,620 x 17,968
Coordinate system	WGS 84 / UTM zone 21S EGM08
Reconstruction parameters	
Source data	Point cloud
Interpolation	Enabled
Processing time	2 minutes 59 seconds
Memory usage	346.98 MB
Date created	2023:08:21 15:20:03
Software version	1.7.2.12070
File size	610.35 MB
Orthomosaic	
Size	36,847 x 24,013
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 38 seconds
Memory usage	2.31 GB
Date created	2023:08:21 14:31:47
Software version	1.7.2.12070
File size	5.31 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

