

# Barrio Cauceglia

Reporte de procesamiento  
15 July 2024



# Survey Data

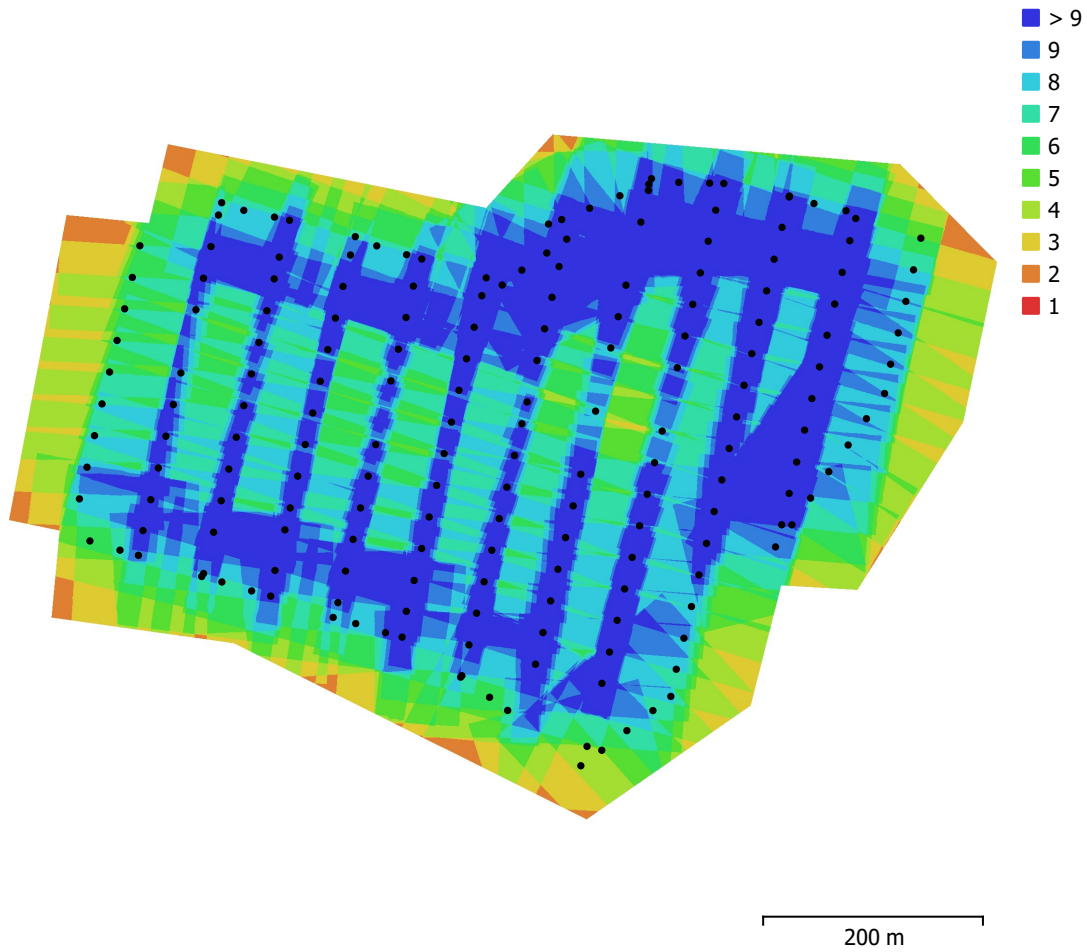


Fig. 1. Camera locations and image overlap.

Number of images:	188	Camera stations:	188
Flying altitude:	109 m	Tie points:	166,911
Ground resolution:	3.09 cm/pix	Projections:	697,704
Coverage area:	0.386 km <sup>2</sup>	Reprojection error:	0.93 pix

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

Table 1. Cameras.

# Camera Calibration

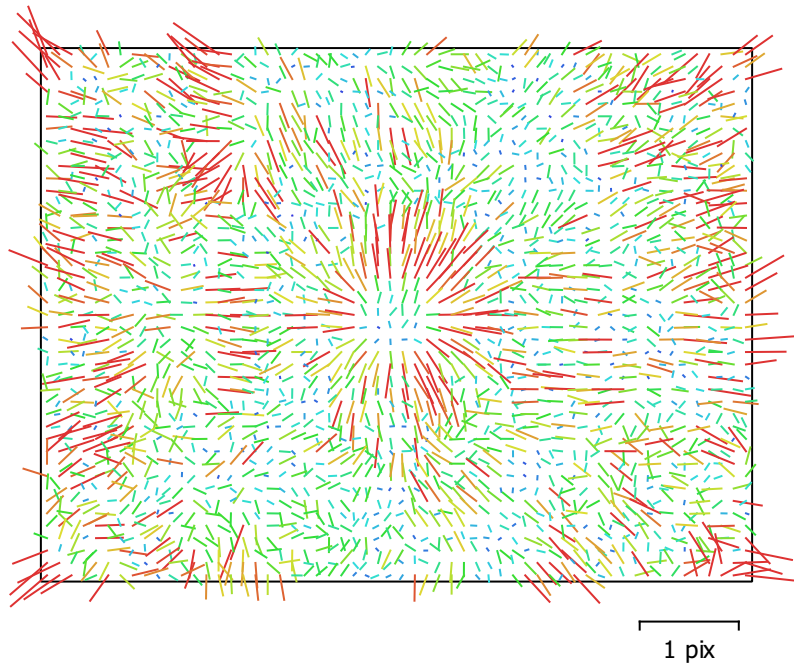


Fig. 2. Image residuals for FC6310 (8.8mm).

## FC6310 (8.8mm)

188 images

Type	Resolution	Focal Length	Pixel Size
<b>Frame</b>	<b>4864 x 3648</b>	<b>8.8 mm</b>	<b>2.61 x 2.61 <math>\mu\text{m}</math></b>

	Value	Error	Cx	Cy	B1	B2	K1	K2	K3	P1	P2
<b>F</b>	<b>3372.58</b>										
<b>Cx</b>	<b>-8.22732</b>	0.099	1.00	0.01	-0.11	-0.15	0.00	-0.01	0.01	0.19	-0.00
<b>Cy</b>	<b>8.05756</b>	0.084		1.00	0.13	-0.10	0.00	-0.01	0.00	-0.02	0.25
<b>B1</b>	<b>-0.662685</b>	0.0068			1.00	0.00	0.04	-0.05	0.05	-0.02	0.03
<b>B2</b>	<b>-0.407542</b>	0.0069				1.00	0.01	-0.00	0.00	-0.03	-0.02
<b>K1</b>	<b>0.00506149</b>	3.4e-05					1.00	-0.96	0.92	-0.00	0.01
<b>K2</b>	<b>-0.0196341</b>	9.7e-05						1.00	-0.99	-0.00	-0.00
<b>K3</b>	<b>0.0167727</b>	8.4e-05							1.00	0.00	0.00
<b>P1</b>	<b>-0.000269546</b>	2.2e-06								1.00	-0.02
<b>P2</b>	<b>-0.000465652</b>	2.3e-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)
1.15608	2.63042	0.982927	2.87326	3.03674

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)
16	1.45973	1.46933	3.00243	2.07117	3.64751

Table 4. Control points RMSE.

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

<b>Label</b>	<b>X error (cm)</b>	<b>Y error (cm)</b>	<b>Z error (cm)</b>	<b>Total (cm)</b>	<b>Image (pix)</b>
2	0.640816	2.26218	-3.73294	4.41168	1.962 (13)
3	-2.30503	0.271659	5.2667	5.75544	0.960 (10)
4	0.415225	1.356	0.74802	1.60333	0.961 (11)
5	1.16515	1.91444	-3.00595	3.74945	1.056 (7)
6	1.42935	1.61565	-2.77245	3.51281	0.544 (8)
7	-0.382559	-1.44556	2.86691	3.23344	2.884 (10)
8	-0.838631	2.23918	-0.261905	2.40538	1.087 (10)
10	0.371808	-0.403206	-1.15217	1.27605	1.050 (11)
11	-2.26614	-1.40391	3.50057	4.40004	1.019 (8)
12	-1.63866	-0.393539	0.101438	1.6883	1.370 (9)
13	2.09957	-0.135433	-3.76433	4.31239	1.120 (8)
14	-1.44268	-3.01318	0.412178	3.36608	0.808 (10)
15	-0.0271601	-0.589262	5.54047	5.57179	1.211 (9)
16	2.91896	-1.12658	-4.12742	5.17929	1.379 (13)
17	0.623392	-0.0702097	-0.602434	0.869755	1.432 (8)
18	-0.767095	-1.06149	0.981576	1.63667	0.600 (9)
<b>Total</b>	<b>1.45973</b>	<b>1.46933</b>	<b>3.00243</b>	<b>3.64751</b>	<b>1.363</b>

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

# Digital Elevation Model

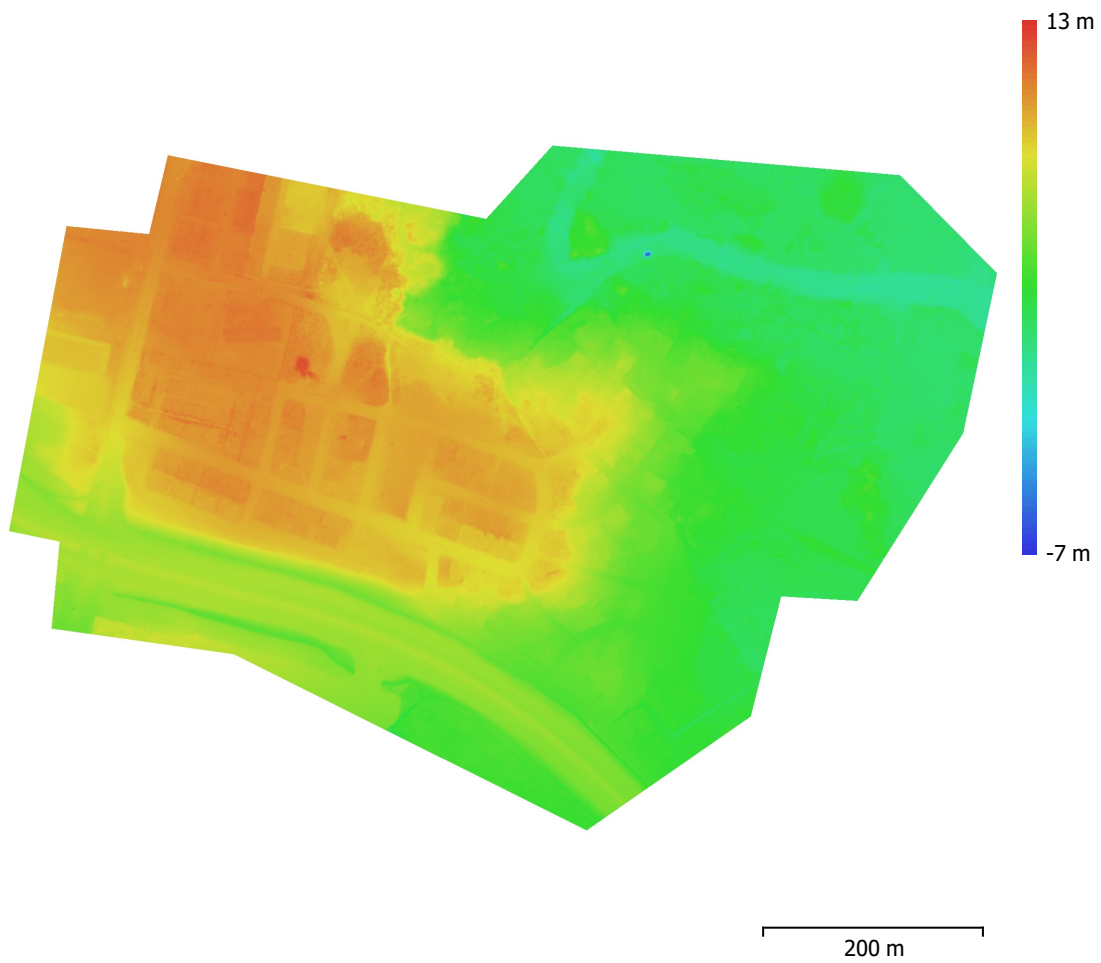


Fig. 5. Reconstructed digital elevation model.

Resolution: 6.18 cm/pix  
Point density: 262 points/m<sup>2</sup>

# Processing Parameters

## General

Cameras	188
Aligned cameras	188
Markers	16

## Shapes

LineString	58140
Polygon	1
Coordinate system	WGS 84 / UTM zone 21S EGM08
Rotation angles	Yaw, Pitch, Roll

## Tie Points

Points	166,911 of 189,211
RMS reprojection error	0.198347 (0.930349 pix)
Max reprojection error	0.66248 (31.2449 pix)
Mean key point size	4.14831 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	4.28357

## 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	11 minutes 13 seconds
Matching memory usage	821.29 MB
Alignment time	51 seconds
Alignment memory usage	130.41 MB

## Optimization parameters

Parameters	b1, b2, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	Yes
Optimization time	2 seconds
Date created	2023:08:09 11:25:12
Software version	1.7.2.12070
File size	16.75 MB

## Depth Maps

Count	188
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## Depth maps generation parameters

Quality	High
Filtering mode	Aggressive
Processing time	54 minutes 42 seconds
Memory usage	3.09 GB
Date created	2023:08:09 12:36:30
Software version	1.7.2.12070
File size	1.14 GB

## Point Cloud

Points	135,156,781
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## Point attributes

Color	3 bands, uint8
Normal	
Confidence	1 - 18
<b>Point classes</b>	
Created (never classified)	42,409,369
Ground	92,706,544
Low Point (noise)	40,868
<b>Depth maps generation parameters</b>	
Quality	High
Filtering mode	Aggressive
Processing time	54 minutes 42 seconds
Memory usage	3.09 GB
<b>Point cloud generation parameters</b>	
Processing time	11 minutes 54 seconds
Memory usage	4.68 GB
<b>Ground points classification parameters</b>	
Max angle (°)	15
Max distance (m)	0.2
Cell size (m)	50
Classification time	4 minutes 9 seconds
Classification memory usage	5.11 GB
Date created	2023:08:09 12:48:24
Software version	1.7.2.12070
File size	1.91 GB
<b>DEM</b>	
Size	18,487 x 13,719
Coordinate system	WGS 84 / UTM zone 21S EGM08
<b>Reconstruction parameters</b>	
Source data	Point cloud
Interpolation	Enabled
Processing time	3 minutes 13 seconds
Memory usage	321.25 MB
Date created	2023:08:10 10:57:21
Software version	1.7.2.12070
File size	517.22 MB
<b>Orthomosaic</b>	
Size	29,894 x 21,532
Coordinate system	WGS 84 / UTM zone 21S EGM08
Colors	3 bands, uint8
<b>Reconstruction parameters</b>	
Blending mode	Mosaic
Surface	DEM
Enable hole filling	Yes
Enable ghosting filter	No
Processing time	5 minutes 4 seconds
Memory usage	1.96 GB
Date created	2023:08:09 13:12:14
Software version	1.7.2.12070
File size	3.39 GB
<b>System</b>	
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

