

Isla De Gaspar Y Larravide

Processing Report
27 September 2021



Survey Data

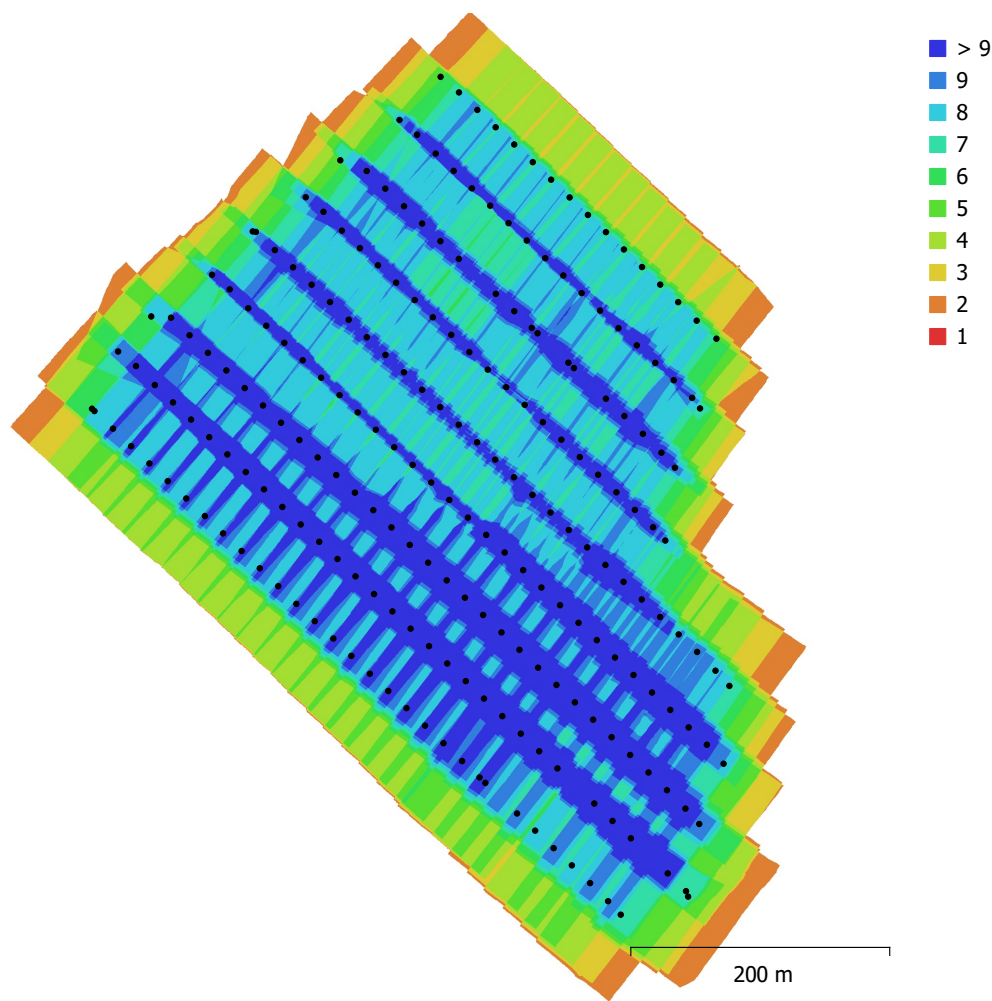


Fig. 1. Camera locations and image overlap.

Number of images:	223	Camera stations:	223
Flying altitude:	89.3 m	Tie points:	195,640
Ground resolution:	2.24 cm/pix	Projections:	875,478
Coverage area:	0.262 km ²	Reprojection error:	0.563 pix

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

Table 1. Cameras.

Camera Calibration

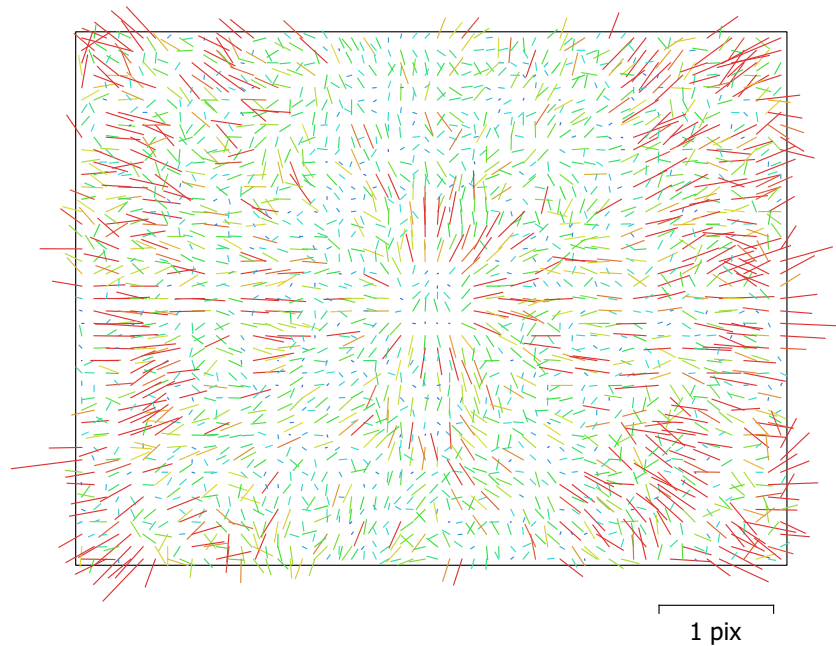


Fig. 2. Image residuals for FC6310 (8.8mm).

FC6310 (8.8mm)

223 images

Type
Frame

Resolution
4864 x 3648

Focal Length
8.8 mm

Pixel Size
2.61 x 2.61 μm

	Value	Error	F	Cx	Cy	B1	B2	K1	K2	K3	K4	P1	P2	P3	P4
F	3665.52	1	1.00	0.35	0.49	0.01	-0.03	0.16	-0.35	0.45	-0.51	-0.04	-0.06	0.00	-0.02
Cx	-6.64063	0.051		1.00	0.22	-0.09	-0.13	0.06	-0.13	0.16	-0.18	0.20	0.02	0.07	-0.07
Cy	14.9427	0.042			1.00	0.09	-0.02	0.09	-0.18	0.23	-0.26	-0.01	0.25	0.03	-0.03
B1	-0.726599	0.024				1.00	-0.03	0.01	-0.01	0.01	-0.01	0.01	0.00	-0.00	0.00
B2	-0.635179	0.025					1.00	-0.01	0.02	-0.02	0.02	-0.01	0.03	-0.01	0.01
K1	0.017962	5.4e-05						1.00	-0.96	0.89	-0.83	-0.02	-0.02	-0.02	0.01
K2	-0.10634	0.00033							1.00	-0.98	0.95	0.03	0.03	0.01	-0.01
K3	0.213362	0.00078								1.00	-0.99	-0.02	-0.03	-0.01	0.00
K4	-0.144532	0.00062									1.00	0.02	0.03	0.00	0.00
P1	-0.000430471	3e-06										1.00	0.54	0.70	-0.64
P2	-0.000605481	3.2e-06											1.00	0.72	-0.66
P3	-0.230331	0.018												1.00	-0.98
P4	-0.11961	0.024													1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

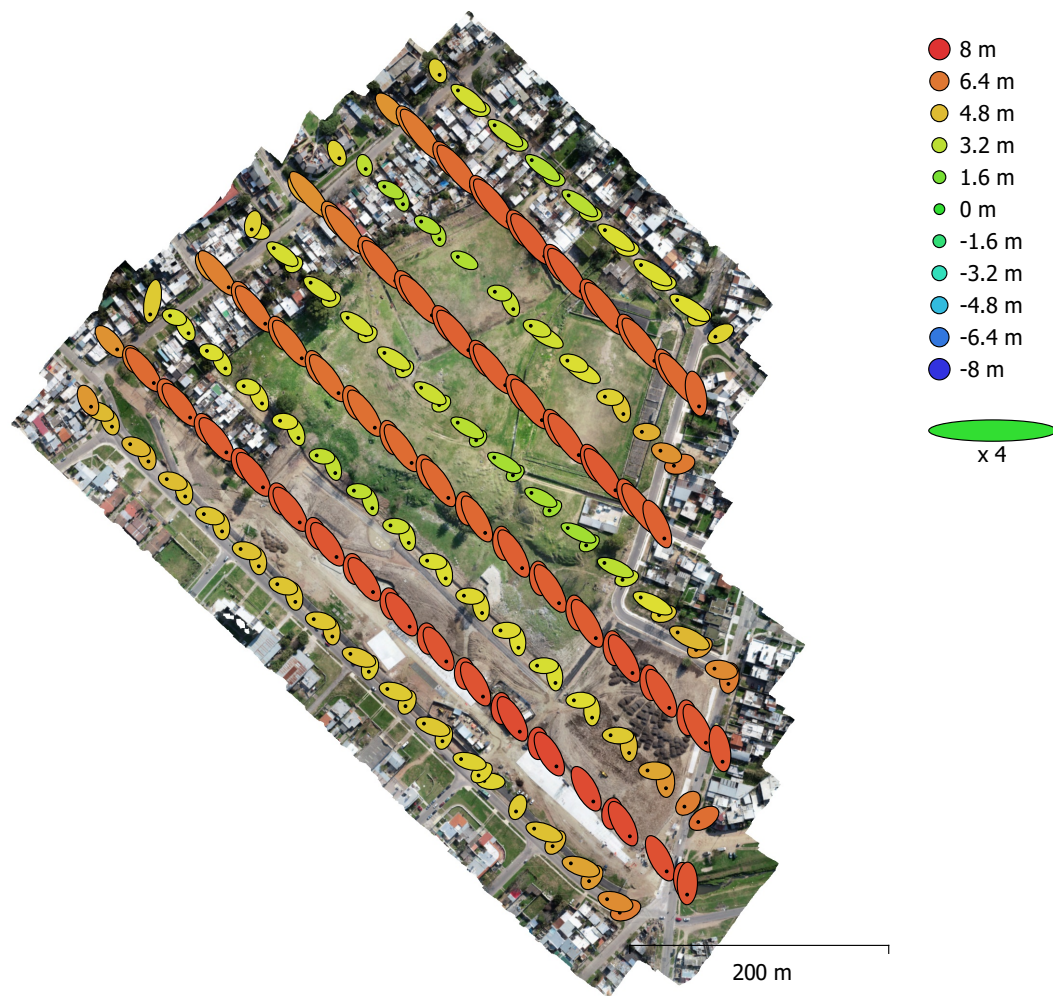


Fig. 3. Camera locations and error estimates.

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)
2.63948	3.3114	5.54385	4.23465	6.97614

Table 3. Average camera location error.

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

Ground Control Points

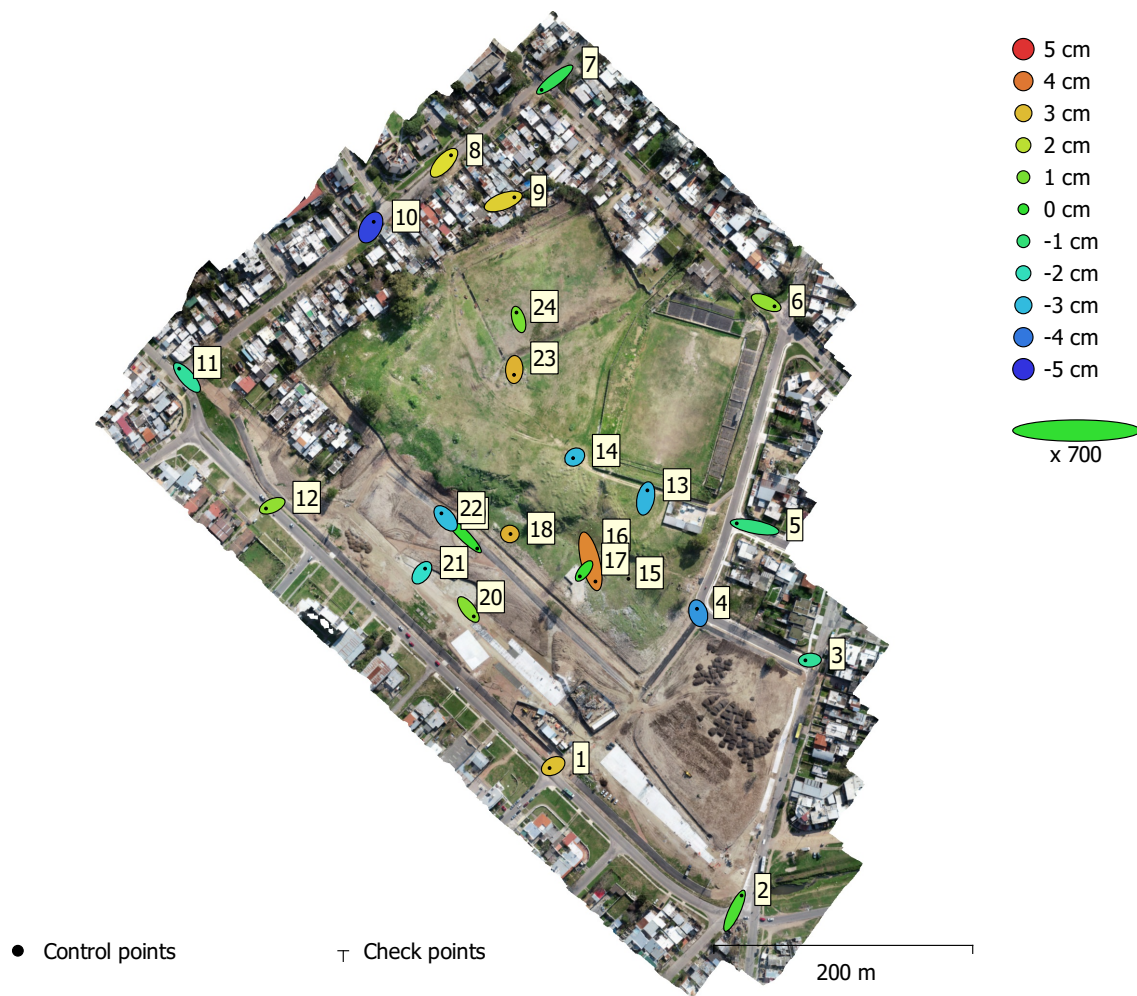


Fig. 4. GCP locations and error estimates.

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)
23	1.62779	1.76026	2.43413	2.39755	3.41661

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	-0.795712	-0.437054	2.93293	3.07022	0.234 (9)
2	1.55349	3.36572	0.374906	3.72585	0.109 (6)
3	-0.994376	-0.048252	-1.49717	1.79795	0.115 (7)
4	-0.271026	0.960255	-3.54051	3.67842	0.252 (9)
5	-3.95383	0.789027	-1.12069	4.18465	0.155 (10)
6	1.83902	-0.819424	1.4135	2.45997	0.120 (6)
7	-2.91243	-2.25909	-0.499986	3.71964	0.116 (5)
8	1.53576	1.66333	2.50753	3.3783	0.257 (6)
9	2.43284	0.895489	2.72224	3.75915	0.189 (7)
10	0.676271	1.23157	-4.74414	4.94783	0.212 (7)
11	-1.72054	1.95864	-1.54742	3.03167	0.134 (6)
12	-1.37807	-0.605394	1.38318	2.0442	0.176 (7)
13	0.376473	1.79015	-3.08926	3.59025	0.240 (7)
14	-0.360446	-0.234742	-2.99224	3.023	0.142 (11)
15					
16	1.11099	-4.45277	3.76374	5.93525	0.215 (10)
17	-0.940412	-1.20216	0.102388	1.52972	0.207 (8)
18	0.130559	-0.00706934	3.18532	3.188	0.171 (9)
19	3.21404	-3.2397	0.0292172	4.56361	0.262 (10)
20	1.19249	-1.53113	1.2134	2.28883	0.212 (14)
21	0.695854	0.908886	-2.21156	2.49024	0.233 (12)
22	-0.938579	1.10057	-2.96436	3.29843	0.307 (10)
23	-0.0436193	-1.17709	3.13039	3.34467	0.250 (7)
24	-0.465729	1.53035	0.984151	1.87814	0.179 (12)
Total	1.62779	1.76026	2.43413	3.41661	0.207

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

Digital Elevation Model

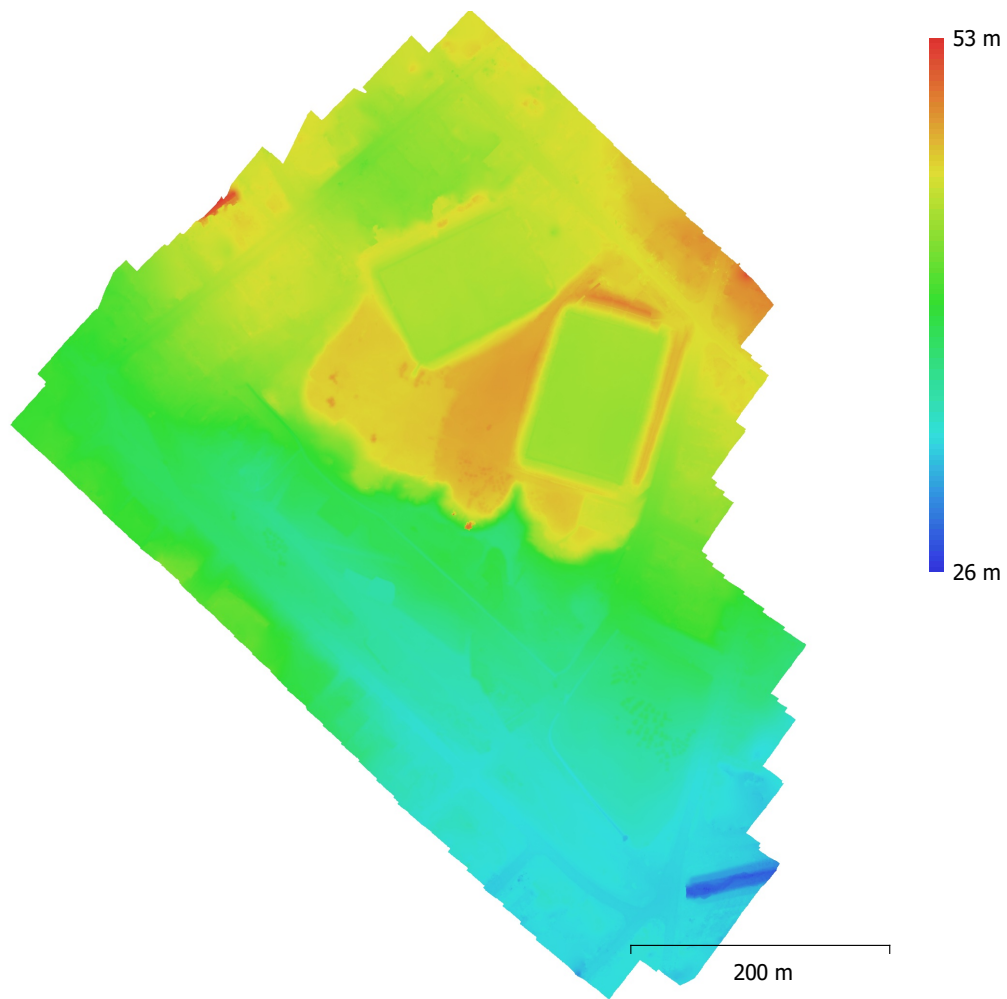


Fig. 5. Reconstructed digital elevation model.

Resolution: 4.48 cm/pix
Point density: 497 points/m²

Processing Parameters

General

Cameras	223
Aligned cameras	223
Markers	24

Shapes

LineString	364
Polygon	52935
Coordinate system	WGS 84 / UTM zone 21S EGM08
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	195,640 of 208,927
RMS reprojection error	0.178048 (0.562809 pix)
Max reprojection error	0.896945 (25.3388 pix)
Mean key point size	3.19059 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	4.60365

Alignment parameters

Accuracy	High
Generic preselection	No
Reference preselection	Yes
Key point limit	40,000
Tie point limit	4,000
Adaptive camera model fitting	Yes
Matching time	8 minutes 0 seconds
Alignment time	1 minutes 15 seconds

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k4, p1-p4
Adaptive camera model fitting	No
Optimization time	6 seconds
File size	19.78 MB

Dense Point Cloud

Points	160,034,007
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	High
Filtering mode	Aggressive
Processing time	24 minutes 32 seconds

Dense cloud generation parameters

Processing time	25 minutes 59 seconds
File size	2.04 GB

DEM

Size	20,864 x 23,175
Coordinate system	WGS 84 / UTM zone 21S EGM08

Reconstruction parameters

Source data	Dense cloud
Interpolation	Enabled
Processing time	3 minutes 11 seconds
Memory usage	312.67 MB
Software version	1.6.1.10009

File size	517.62 MB
Orthomosaic	
Size	27,323 x 34,005
Coordinate system	WGS 84 / UTM zone 21S EGM08
Colors	3 bands, uint8
Reconstruction parameters	
Blending mode	Mosaic
Surface	DEM
Enable hole filling	Yes
Processing time	8 minutes 39 seconds
File size	4.04 GB
System	
Software name	Agisoft Metashape Professional
Software version	1.7.2 build 12070
OS	Windows 64 bit
RAM	63.93 GB
CPU	Intel(R) Core(TM) i7-9700F CPU @ 3.00GHz
GPU(s)	Radeon(TM) RX 460 Graphics (Baffin)