

Sayago FFCC

Processing Report
07 July 2023



Survey Data

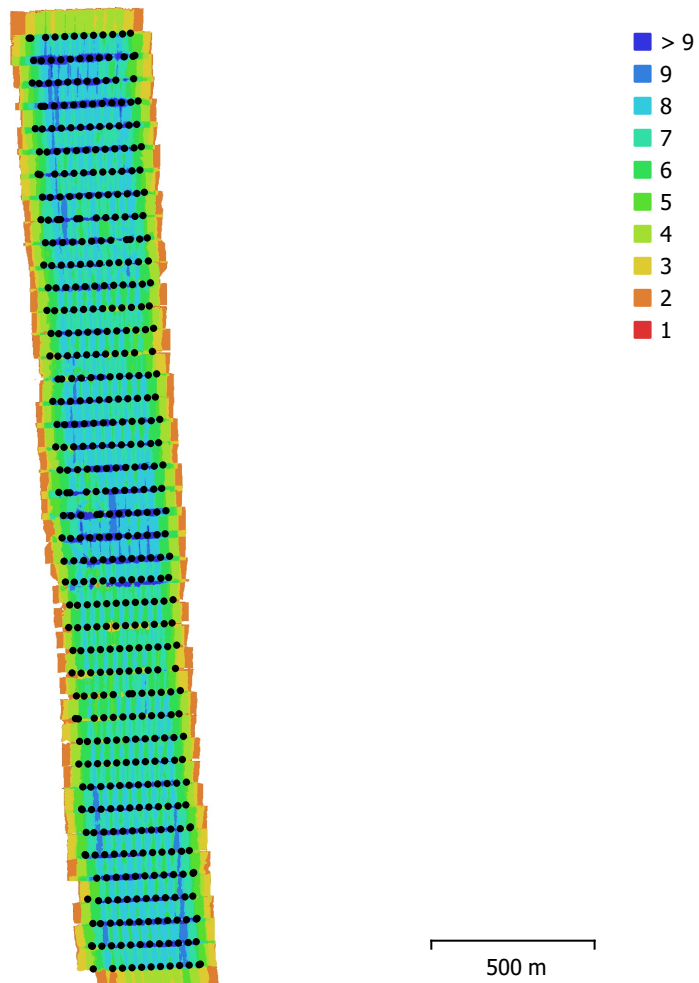


Fig. 1. Camera locations and image overlap.

Number of images:	506	Camera stations:	506
Flying altitude:	120 m	Tie points:	633,001
Ground resolution:	3.01 cm/pix	Projections:	1,829,297
Coverage area:	1.26 km ²	Reprojection error:	0.693 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

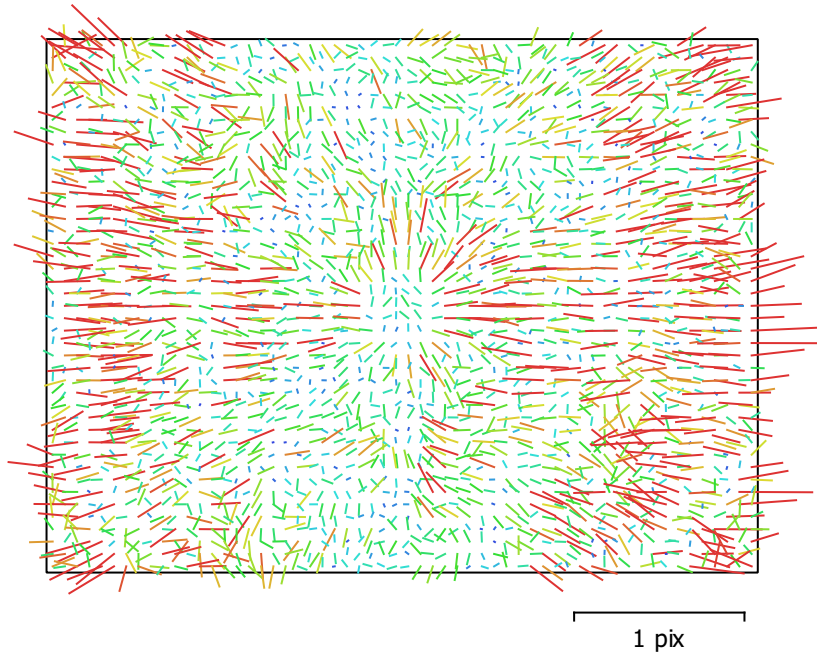


Fig. 2. Image residuals for FC6310 (8.8mm).

FC6310 (8.8mm)

506 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
F	3639.75	0.84	1.00	0.17	0.45	-0.07	0.04	0.19	-0.35	0.44	-0.49	-0.02	-0.07
Cx	-5.55842	0.046		1.00	0.02	-0.03	-0.03	0.04	-0.06	0.08	-0.09	0.27	-0.03
Cy	14.9704	0.036			1.00	-0.00	0.03	0.08	-0.15	0.19	-0.22	0.00	0.43
B1	-0.614763	0.011				1.00	0.05	0.00	0.01	-0.02	0.02	0.01	-0.00
B2	-0.752573	0.011					1.00	0.01	-0.01	0.02	-0.02	0.00	0.03
K1	0.0175439	4.5e-05						1.00	-0.96	0.90	-0.84	0.00	-0.02
K2	-0.0998811	0.00027							1.00	-0.98	0.95	0.00	0.03
K3	0.196274	0.00062								1.00	-0.99	-0.00	-0.03
K4	-0.130366	0.00049									1.00	0.00	0.04
P1	-0.00013353	1.5e-06										1.00	0.00
P2	-0.000441887	1.9e-06											1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

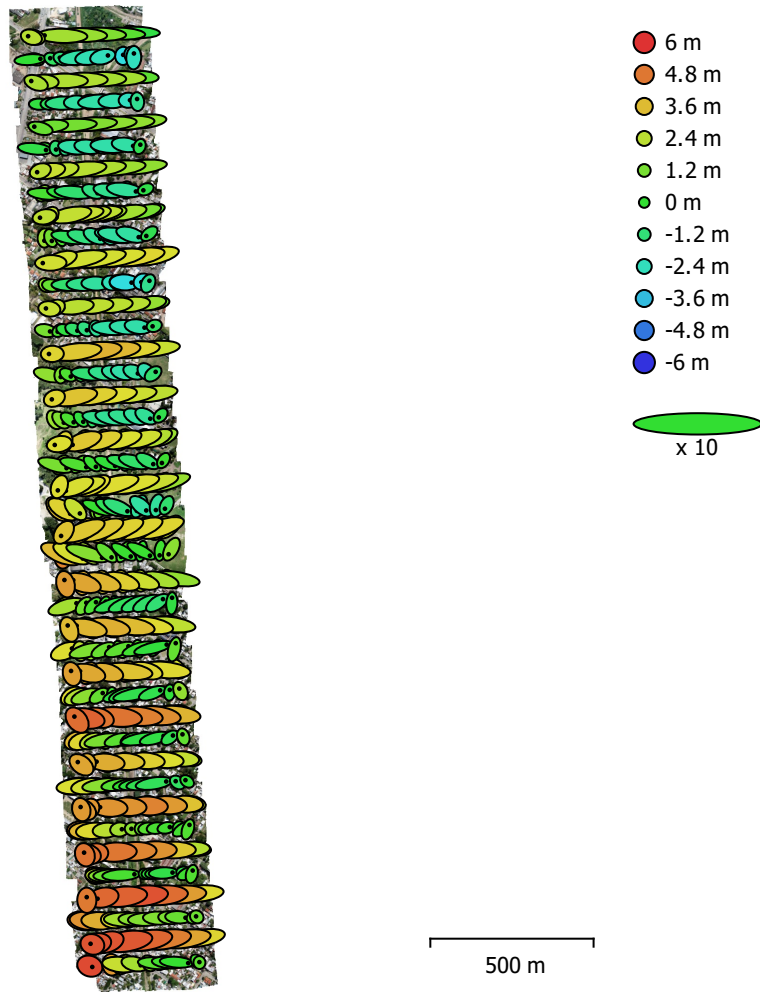


Fig. 3. Camera locations and error estimates.

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)
5.44606	1.46524	2.57002	5.63973	6.19771

Table 3. Average camera location error.

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

Ground Control Points

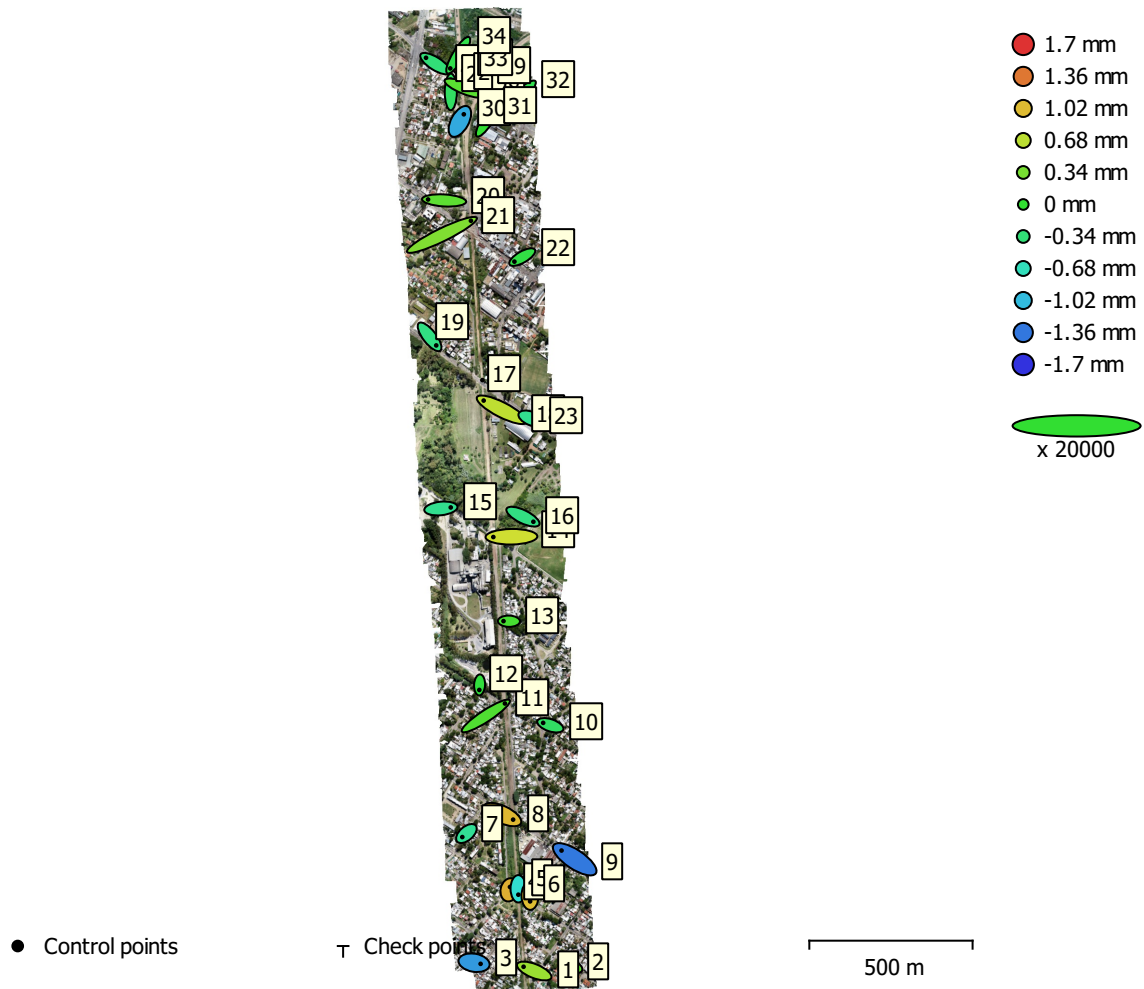


Fig. 4. GCP locations and error estimates.

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 (mm)	Y error (mm)	Z error (mm)	XY error (mm)	Total (mm)
33	3.21042	2.13319	0.656471	3.85451	3.91001

Table 4. Control points RMSE.

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

Label	X error (mm)	Y error (mm)	Z error (mm)	Total (mm)	Image (pix)
1	-3.2575	1.30338	0.516037	3.54632	0.286 (6)
2	1.61173	-0.622875	0.238697	1.74431	0.178 (4)
3	2.00195	-0.340978	-1.19088	2.3542	0.537 (6)
4	0.193629	0.885613	1.08726	1.41561	0.323 (8)
5	0.0123208	-1.8057	-0.78263	1.96805	0.446 (8)
6	0.0450966	-1.67183	1.00526	1.9513	0.373 (5)
7	-1.26485	-1.08243	-0.48874	1.73505	0.340 (4)
8	3.29863	-1.54699	1.0395	3.78876	0.456 (5)
9	-4.03571	2.67707	-1.35102	5.02781	0.675 (4)
10	-2.20622	0.733543	-0.240066	2.33733	0.360 (4)
11	5.84434	3.81576	0.148267	6.98128	0.497 (8)
12	-0.0789933	-1.54058	-0.0509077	1.54344	0.176 (5)
13	-1.65828	0.0298643	0.100204	1.66157	0.254 (6)
14	-5.55001	-0.0864638	0.777846	5.60492	0.540 (6)
15	3.01716	0.31177	-0.45826	3.06765	0.586 (4)
16	3.19575	-1.55615	-0.394429	3.57631	0.291 (6)
17					
18	-5.55185	2.82284	0.692501	6.26666	0.557 (10)
19	2.03851	-2.62857	-0.400322	3.35039	0.321 (6)
20	-4.9142	0.293753	0.21204	4.92754	0.532 (6)
21	8.87311	4.32775	0.385923	9.87979	0.729 (5)
22	-2.40301	-1.3857	-0.0918045	2.77543	0.449 (9)
23	1.8649	-0.749865	-0.457228	2.06136	0.435 (5)
24	-2.84039	1.78883	-0.344158	3.37434	0.816 (9)
25	0.0194284	3.74924	-0.234325	3.7566	0.396 (10)
26	0.139464	-0.732305	-0.301098	0.803978	0.410 (5)
27	-0.281347	0.524734	1.66364	1.76697	0.251 (8)
28	4.54982	-1.76909	0.197308	4.88564	0.590 (4)
29	0.283491	-0.769662	0.206935	0.845913	0.219 (6)
30	1.20387	2.18197	-1.1134	2.72946	0.553 (8)
31	2.1249	3.25859	-0.00355294	3.89019	0.352 (8)

Label	X error (mm)	Y error (mm)	Z error (mm)	Total (mm)	Image (pix)
32	-3.76888	-3.53295	-0.149512	5.16803	0.416 (8)
33	0.0714343	-2.87098	-0.15772	2.87619	0.358 (6)
34	-2.44258	-4.04017	-0.125473	4.72281	0.374 (8)
Total	3.21042	2.13319	0.656471	3.91001	0.456

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

Digital Elevation Model

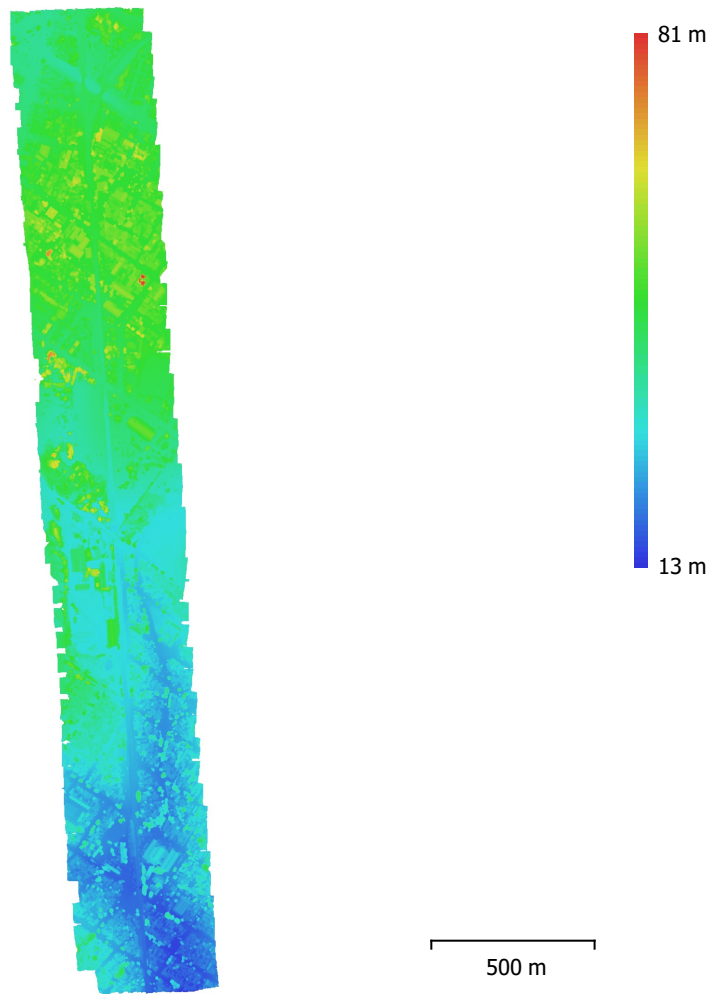


Fig. 5. Reconstructed digital elevation model.

Resolution: 6.01 cm/pix
Point density: 276 points/m²

Processing Parameters

General

Cameras	506
Aligned cameras	506
Markers	34
Coordinate system	WGS 84 / UTM zone 21S EGM08
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	633,001 of 670,839
RMS reprojection error	0.131365 (0.69326 pix)
Max reprojection error	0.520803 (34.1737 pix)
Mean key point size	4.76023 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	2.96608

Alignment parameters

Accuracy	High
Generic preselection	No
Reference preselection	Source
Key point limit	40,000
Tie point limit	4,000
Guided image matching	No
Adaptive camera model fitting	Yes
Matching time	23 minutes 37 seconds
Matching memory usage	2.30 GB
Alignment time	1 minutes 31 seconds
Alignment memory usage	312.27 MB

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k4, p1, p2
Adaptive camera model fitting	No
Optimization time	3 seconds
Software version	1.6.1.10009
File size	46.84 MB

Depth Maps

Count	506
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Depth maps generation parameters

Quality	High
Filtering mode	Aggressive
Processing time	49 minutes 14 seconds
Memory usage	1.78 GB
Software version	1.6.1.10009
File size	2.32 GB

Dense Point Cloud

Points	516,266,228
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	High
Filtering mode	Aggressive
Processing time	49 minutes 14 seconds
Memory usage	1.78 GB

Dense cloud generation parameters

Processing time	35 minutes 11 seconds
Memory usage	5.25 GB
Software version	1.6.1.10009
File size	7.22 GB
DEM	
Size	18,931 x 69,509
Coordinate system	WGS 84 / UTM zone 21S EGM08
Reconstruction parameters	
Source data	Dense cloud
Interpolation	Enabled
Processing time	7 minutes 17 seconds
Memory usage	431.31 MB
Software version	1.6.1.10009
File size	1.53 GB
Orthomosaic	
Size	21,311 x 100,513
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	12 minutes 34 seconds
Memory usage	1.56 GB
Software version	1.6.1.10009
File size	8.66 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)