

LA PALOMA

Reporte de procesamiento
10 July 2024



Survey Data

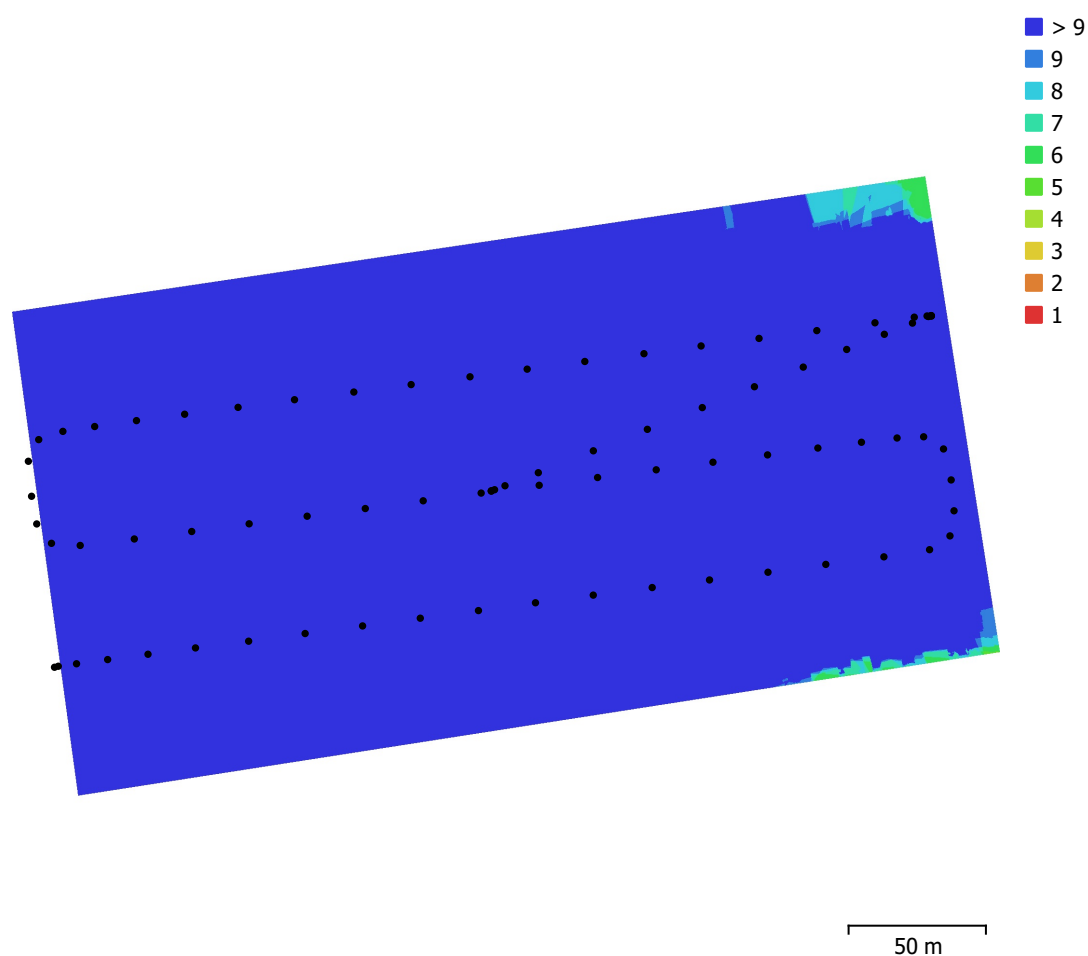


Fig. 1. Camera locations and image overlap.

Number of images:	80	Camera stations:	80
Flying altitude:	107 m	Tie points:	44,801
Ground resolution:	2.96 cm/pix	Projections:	293,002
Coverage area:	0.0595 km ²	Reprojection error:	0.854 pix

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

Table 1. Cameras.

Camera Calibration

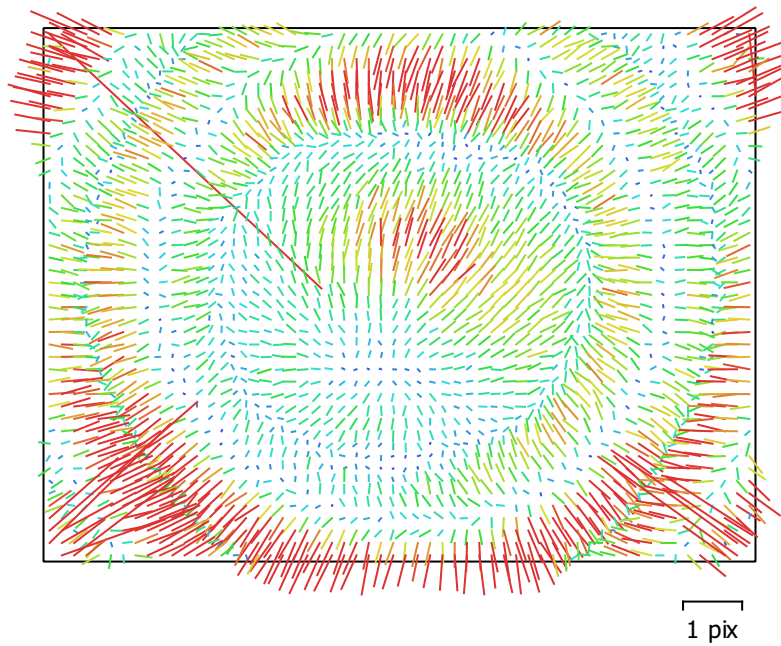


Fig. 2. Image residuals for M3E (12.29mm).

M3E (12.29mm)

80 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	3704.36	0.053	1.00	-0.03	-0.30	-0.11	-0.07	-0.35	0.29	-0.26	0.22	-0.00	0.19
Cx	23.5649	0.032		1.00	0.01	-0.10	-0.05	0.01	-0.00	-0.00	0.00	0.12	-0.02
Cy	-61.3103	0.036			1.00	0.04	-0.03	0.05	-0.04	0.04	-0.05	0.00	-0.09
B1	0.184848	0.0095				1.00	0.03	0.05	-0.05	0.04	-0.03	0.07	0.00
B2	-0.17728	0.009					1.00	-0.00	0.01	-0.01	0.01	-0.02	0.01
K1	-0.0885613	6.3e-05						1.00	-0.97	0.93	-0.88	0.00	0.02
K2	-0.0778119	0.00026							1.00	-0.99	0.96	0.00	-0.05
K3	0.11267	0.00042								1.00	-0.99	-0.00	0.06
K4	-0.0724133	0.00023									1.00	0.00	-0.07
P1	-3.61248e-05	1.4e-06										1.00	-0.01
P2	-0.000191821	1.6e-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 (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total error (cm)
2.89686	2.32263	4.67304	3.713	5.96856

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)
5	3.77138	5.93694	3.45108	7.03354	7.83457

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	-0.523906	-5.6882	-6.77152	8.8591	0.860 (13)
2	7.99076	7.69597	3.1655	11.5369	0.694 (6)
3	-1.22085	0.254829	-0.368679	1.30051	0.308 (6)
4	2.24114	4.65586	-1.73853	5.45181	0.626 (7)
5	-0.69043	-7.93164	-0.719362	7.99406	0.535 (7)
Total	3.77138	5.93694	3.45108	7.83457	0.676

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

Digital Elevation Model

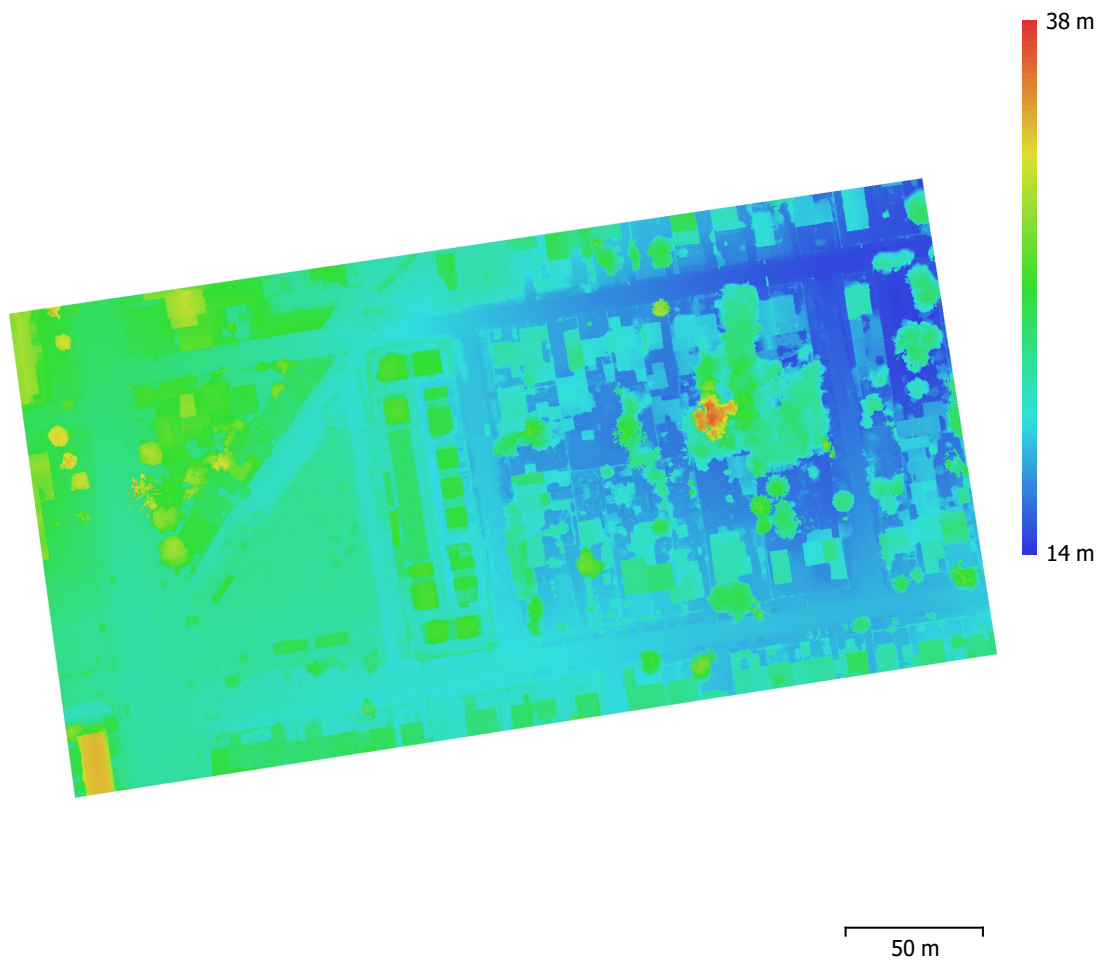


Fig. 5. Reconstructed digital elevation model.

Resolution: 5.93 cm/pix
Point density: 285 points/m²

Processing Parameters

General

Cameras	80
Aligned cameras	80
Markers	5
Shapes	
Polygon	1
Coordinate system	WGS 84 / UTM zone 21S EGM08
Rotation angles	Yaw, Pitch, Roll

Tie Points

Points	44,801 of 51,824
RMS reprojection error	0.229037 (0.854443 pix)
Max reprojection error	3.33226 (71.9141 pix)
Mean key point size	2.99901 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	6.77443

Alignment parameters

Accuracy	High
Generic preselection	No
Reference preselection	Source
Key point limit	40,000
Key point limit per Mpx	1,000
Tie point limit	4,000
Exclude stationary tie points	Yes
Guided image matching	No
Adaptive camera model fitting	Yes
Matching time	18 minutes 55 seconds
Matching memory usage	1.77 GB
Alignment time	21 seconds
Alignment memory usage	158.21 MB

Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	Yes
Optimization time	1 seconds
Date created	2024:07:10 12:35:34
Software version	2.1.0.17532
File size	17.24 MB

Depth Maps

Count	80
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Max neighbors	16
Processing time	45 minutes 6 seconds
Memory usage	3.90 GB
Date created	2024:07:10 13:59:21
Software version	2.1.0.17532
File size	668.80 MB

Point Cloud

Points	46,521,860
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Point attributes	
Color	3 bands, uint8
Normal	
Confidence	1 - 35
Point classes	
Created (never classified)	46,521,860
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Max neighbors	16
Processing time	45 minutes 6 seconds
Memory usage	3.90 GB
Point cloud generation parameters	
Processing time	11 minutes 46 seconds
Memory usage	5.26 GB
Date created	2024:07:10 14:11:09
Software version	2.1.0.17532
File size	672.53 MB
DEM	
Size	9,147 x 6,279
Coordinate system	WGS 84 / UTM zone 21S EGM08
Reconstruction parameters	
Source data	Point cloud
Interpolation	Enabled
Processing time	1 minutes 38 seconds
Memory usage	306.91 MB
Date created	2024:07:10 14:16:24
Software version	2.1.0.17532
File size	210.27 MB
Orthomosaic	
Size	18,059 x 12,397
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	2 minutes 44 seconds
Memory usage	2.30 GB
Date created	2024:07:10 14:45:16
Software version	2.1.0.17532
File size	2.27 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)