Agisoft Metashape

Processing Report
24 June 2024

Survey Data
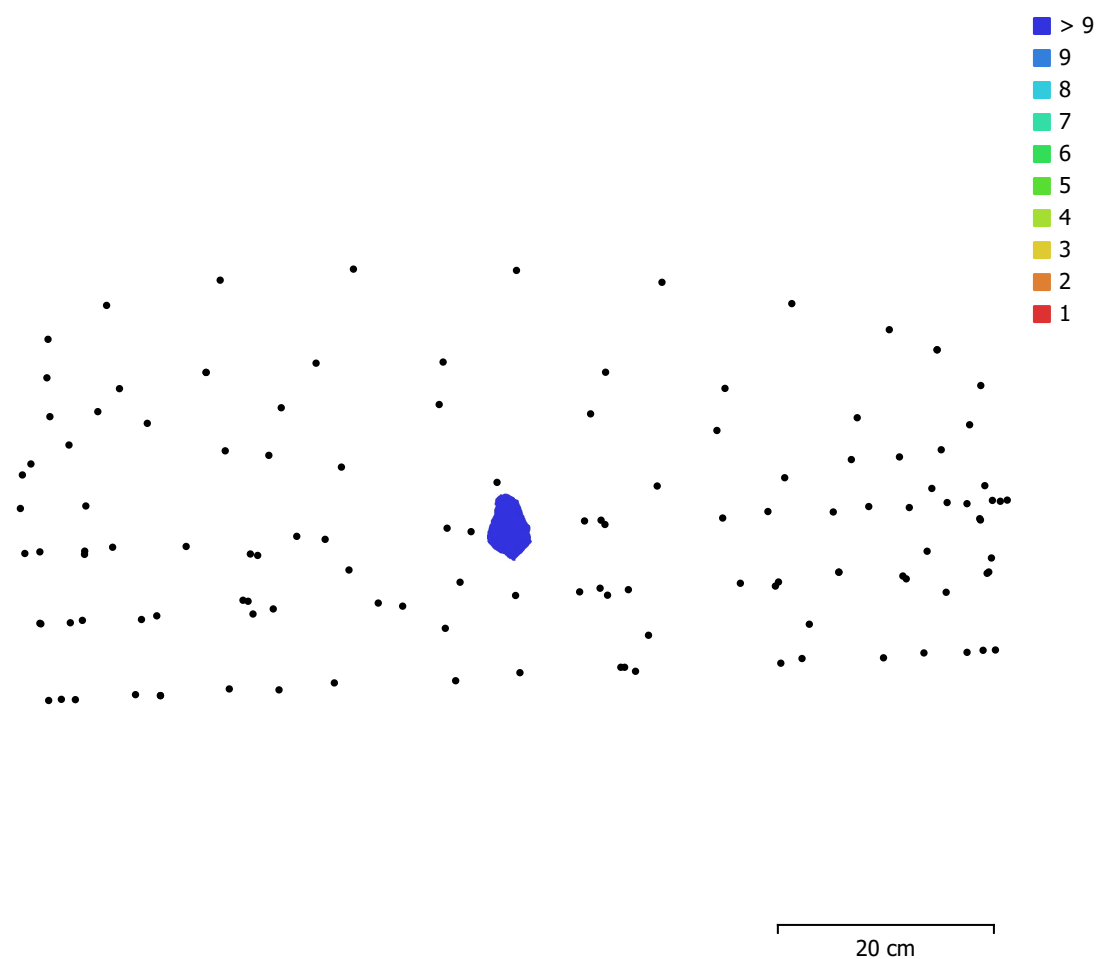
Fig. 1. Camera locations and image overlap.

Number of images:	126	Camera stations:	126
Flying altitude:	43.6 cm	Tie points:	93,852
Ground resolution:	0.0444 mm/pix	Projections:	353,979
Coverage area:	17.2 cm²	Reprojection error:	0.692 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
DMC-G7 (36mm)	4592 x 2584	36 mm	3.79 x 3.79 µm	No
DMC-G7 (36mm)	4592 x 2584	36 mm	3.79 x 3.79 µm	No

Table 1. Cameras.

Camera Calibration
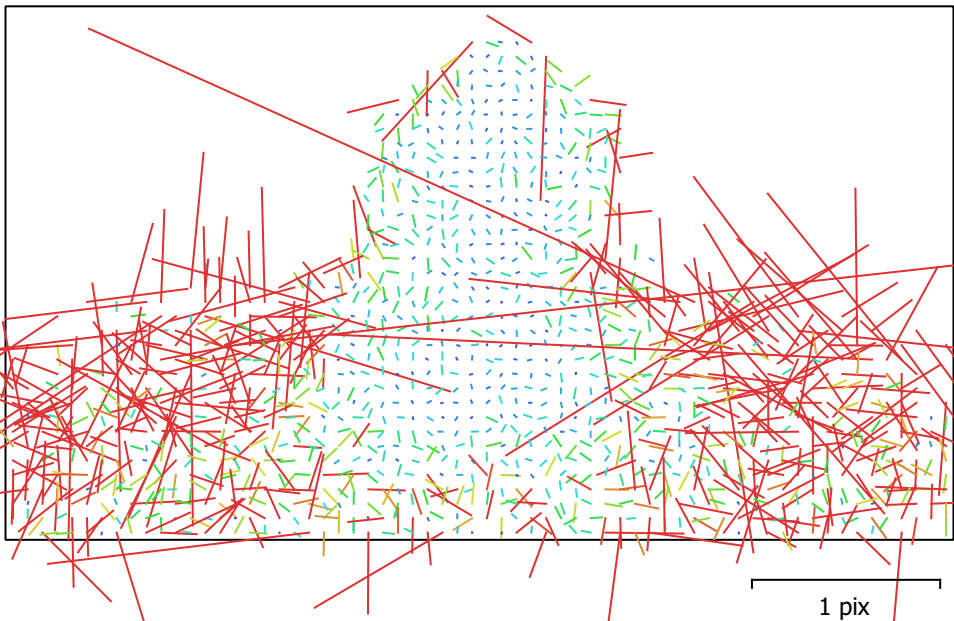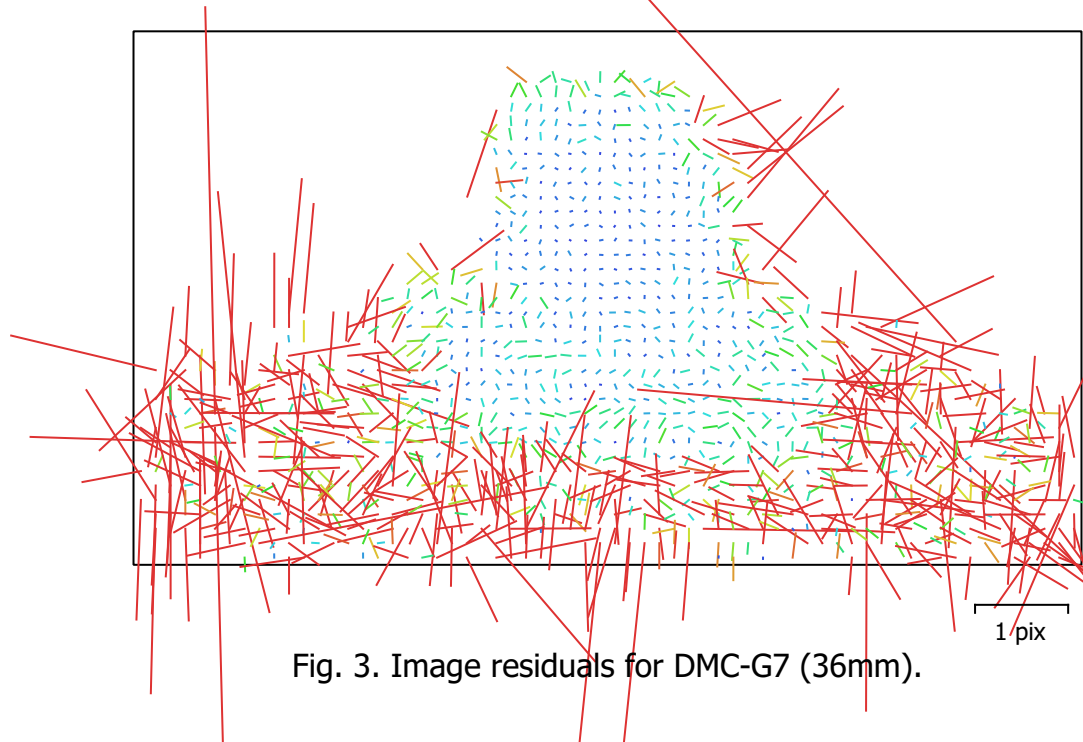

Fig. 2. Image residuals for DMC-G7 (36mm).

DMC-G7 (36mm)

63 images

Type	Resolution	Focal Length	Pixel Size
Frame	**4592 x 2584**	**36 mm**	**3.79 x 3.79 μm**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**9846.42**	1.8	1.00	0.22	-0.52	0.12	0.05	-0.05	0.17	-0.37
Cx	**55.6217**	4.5		1.00	-0.30	0.16	-0.03	0.05	0.99	-0.22
Cy	**229.079**	7.3			1.00	-0.29	0.02	-0.01	-0.24	0.84
K1	**-0.0559424**	0.0034				1.00	-0.85	0.77	0.14	-0.14
K2	**3.40103**	0.17					1.00	-0.97	-0.04	-0.01
K3	**-33.0849**	2.1						1.00	0.05	-0.00
P1	**0.00392219**	0.00018							1.00	-0.17
P2	**0.00193981**	0.00021								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration

Fig. 3. Image residuals for DMC-G7 (36mm).

DMC-G7 (36mm)

63 images

Type	Resolution	Focal Length	Pixel Size
Frame	**4592 x 2584**	**36 mm**	**3.79 x 3.79 µm**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	9775.69	3.1	1.00	-0.23	-0.55	0.23	-0.19	0.17	-0.22	-0.44
Cx	-311.912	8.5		1.00	0.23	-0.17	0.21	-0.20	0.97	0.29
Cy	286.917	9.6			1.00	-0.35	0.22	-0.19	0.22	0.86
K1	0.00379754	0.0034				1.00	-0.86	0.80	-0.18	-0.22
K2	1.5959	0.14					1.00	-0.98	0.13	0.15
K3	-11.9896	1.4						1.00	-0.14	-0.13
P1	-0.0116274	0.00034							1.00	0.26
P2	-0.00101735	0.00026								1.00

Table 3. Calibration coefficients and correlation matrix.
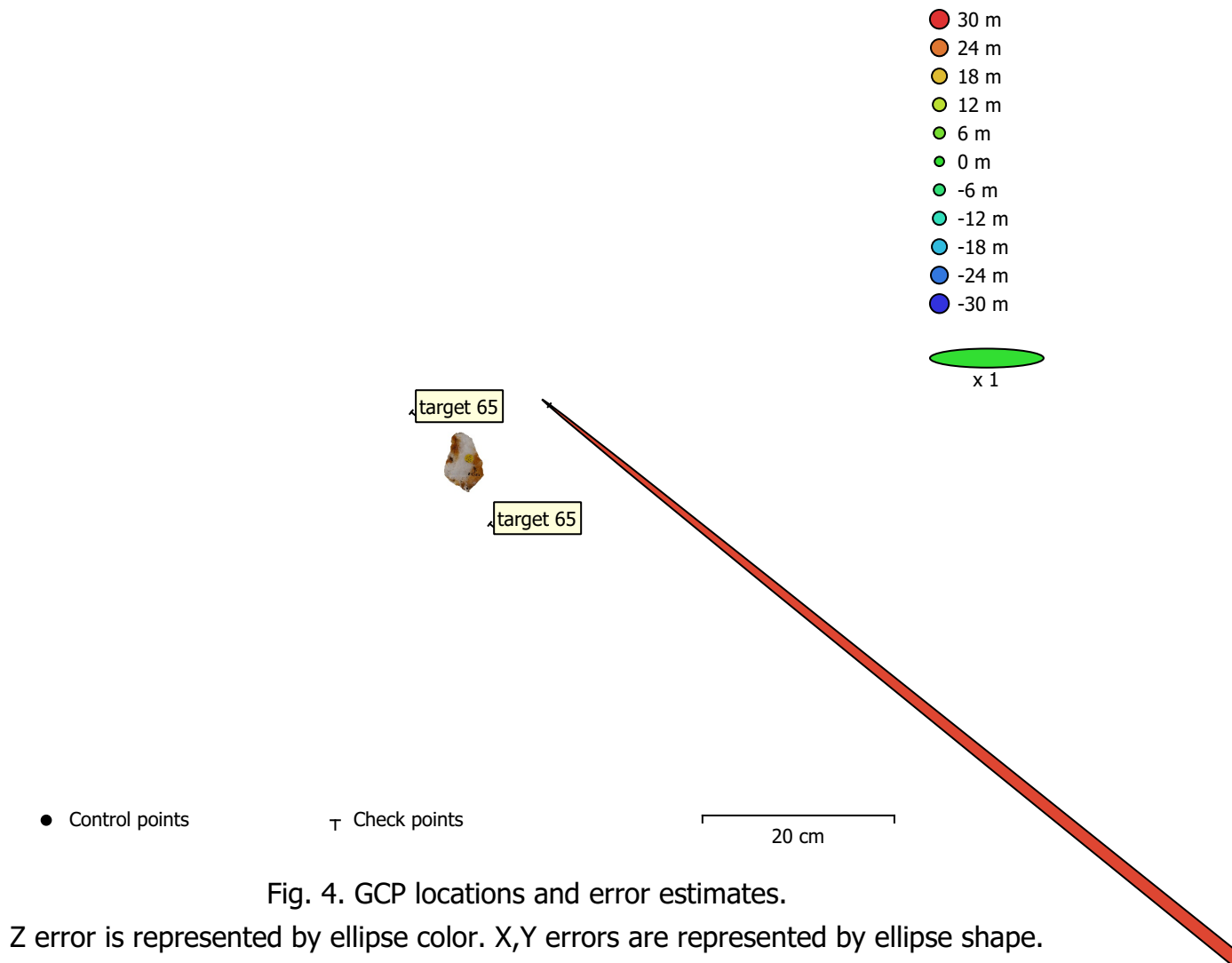
Ground Control Points

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 (m)	Y error (m)	Z error (m)	XY error (m)	Total (m)
1	4.09655	3.30562	28.3072	5.26392	28.7925

Table 4. Check points RMSE.

Label	X error (m)	Y error (m)	Z error (m)	Total (m)	Image (pix)
point 1	-4.09655	3.30562	28.3072	28.7925	0.001 (55)
target 65					0.529 (6)
target 65					6.983 (5)
Total	**4.09655**	**3.30562**	**28.3072**	**28.7925**	**0.001**

Table 5. Check points.

Scale Bars

Label	Distance (m)	Error (m)
target 65_point 1	0.15	1.66533e-16
Total		**1.66533e-16**

Table 6. Control scale bars.

Digital Elevation Model
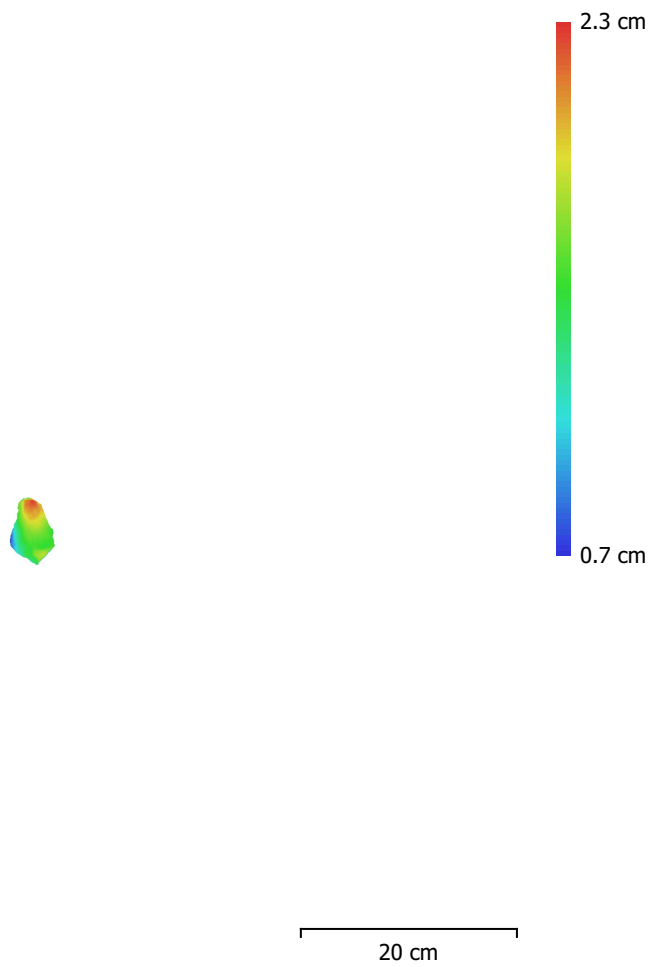
Fig. 5. Reconstructed digital elevation model.

Resolution:	0.115 mm/pix
Point density:	76.2 points/mm²

Processing Parameters

General

Cameras	126
Aligned cameras	126
Markers	3
Scale bars	1
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	93,852 of 122,690
RMS reprojection error	0.210316 (0.691596 pix)
Max reprojection error	0.734354 (34.1127 pix)
Mean key point size	2.96278 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	4.27871
File size	10.53 MB

Depth Maps

Count	126
Depth maps generation parameters	
Quality	Ultra High
Filtering mode	Mild
Max neighbors	16
Processing time	7 minutes 26 seconds
Memory usage	7.50 GB
Date created	2024:05:24 13:45:18
Software version	1.8.4.14671
File size	104.96 MB

Model

Faces	486,420
Vertices	243,212
Vertex colors	3 bands, uint8
Texture	16,000 x 16,000 x 2, 4 bands, uint8
Texturing parameters	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	16,000
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	20 seconds
UV mapping memory usage	804.22 MB
Blending time	1 minutes 24 seconds
Blending memory usage	14.44 GB
Blending GPU memory usage	11.91 GB
File size	191.52 MB

System

Software name	Agisoft Metashape Professional
Software version	1.8.4 build 14671
OS	Windows 64 bit
RAM	127.71 GB
CPU	Intel(R) Core(TM) i9-10940X CPU @ 3.30GHz

GPU(s)   Quadro RTX 5000