Agisoft Metashape

Processing Report
24 June 2024

Survey Data

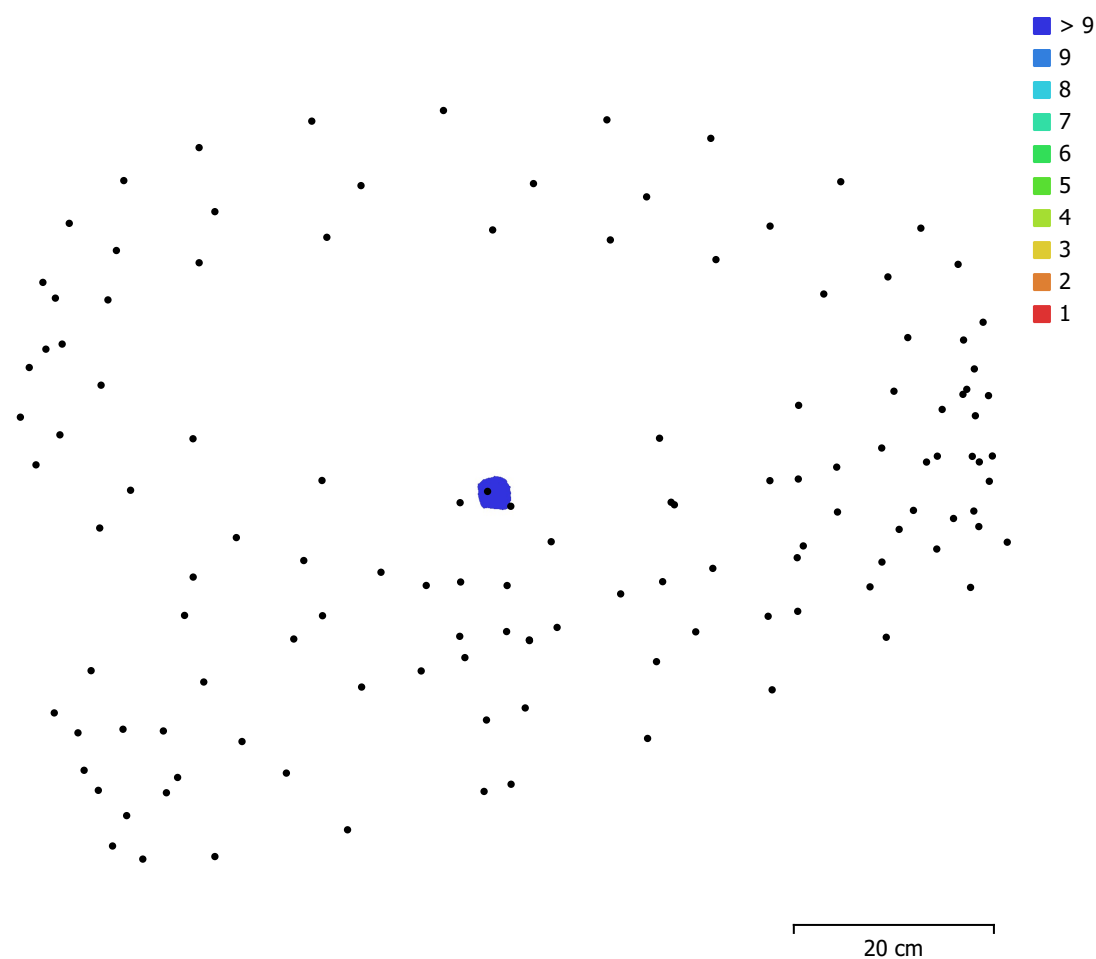
Fig. 1. Camera locations and image overlap.

Number of images:	127	Camera stations:	127
Flying altitude:	47.4 cm	Tie points:	266,038
Ground resolution:	0.045 mm/pix	Projections:	900,711
Coverage area:	9.31 cm²	Reprojection error:	0.608 pix

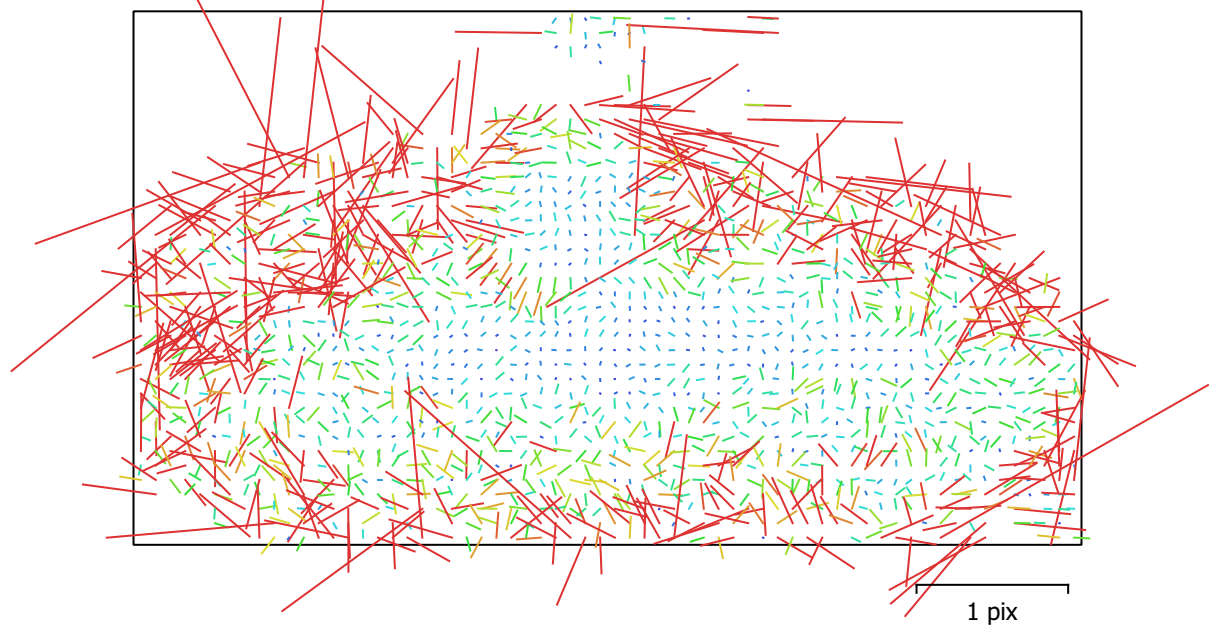| Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
DMC-G7 (39mm)	4592 x 2584	39 mm	3.77 x 3.77 μm	No
DMC-G7 (38mm)	4592 x 2584	38 mm	3.81 x 3.81 μm	No
DMC-G7 (39mm)	4592 x 2584	39 mm	3.77 x 3.77 μm	No

Table 1. Cameras.

Camera Calibration

Fig. 2. Image residuals for DMC-G7 (39mm).

DMC-G7 (39mm)

59 images

Type	Resolution	Focal Length	Pixel Size
Frame	**4592 x 2584**	**39 mm**	**3.77 x 3.77 µm**

	Value	Error	F	K1	K2	P1	P2
F	**10560.8**	1.2	1.00	-0.28	0.28	-0.04	0.45
K1	**0.0414033**	0.0017		1.00	-0.90	0.05	-0.07
K2	**-0.0894048**	0.029			1.00	0.14	0.07
P1	**0.00228724**	2.3e-05				1.00	-0.02
P2	**0.000532872**	8.6e-05					1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix
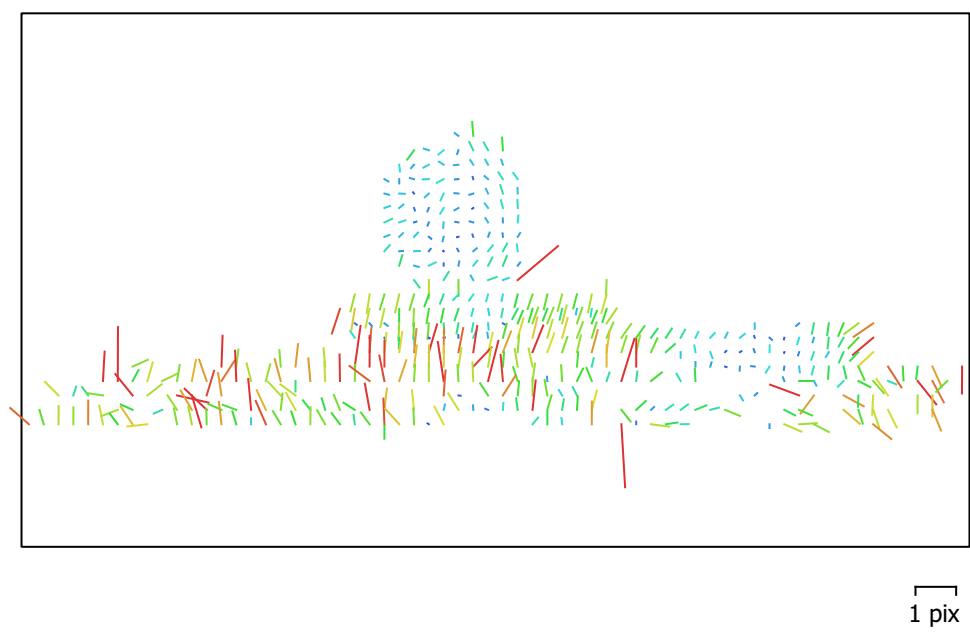
Fig. 3. Image residuals for DMC-G7 (38mm).

DMC-G7 (38mm)

1 images

Type	Resolution	Focal Length	Pixel Size
Frame	**4592 x 2584**	**38 mm**	**3.81 x 3.81 µm**

	Value	Error	F	K1	P1	P2
F	**10476.1**	2.7	1.00	0.21	-0.17	0.44
K1	**0.0193252**	0.00086		1.00	-0.37	-0.28
P1	**0.00220688**	3.3e-05			1.00	0.00
P2	**-0.00110239**	9.3e-05				1.00

Table 3. Calibration coefficients and correlation matrix.

Camera Calibration
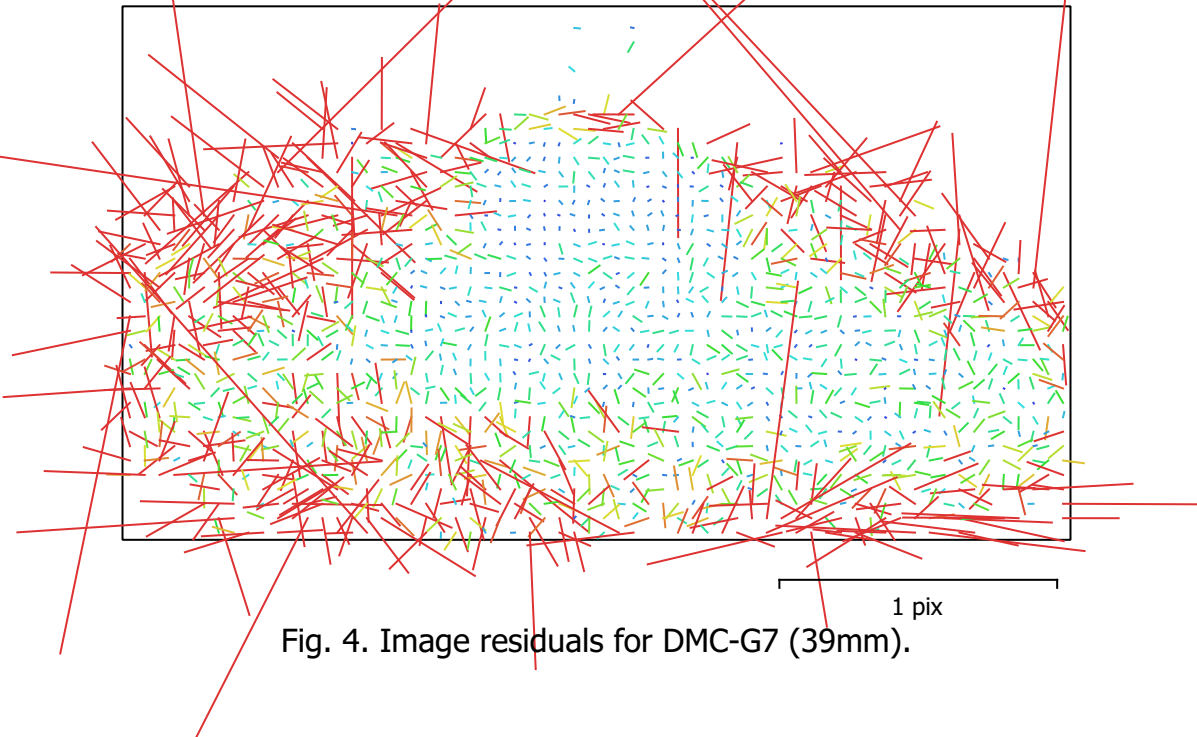
Fig. 4. Image residuals for DMC-G7 (39mm).

DMC-G7 (39mm)

67 images

Type	Resolution	Focal Length	Pixel Size
Frame	**4592 x 2584**	**39 mm**	**3.77 x 3.77 µm**

	Value	Error	F	Cx	Cy	K1	P1	P2
F	**10539**	0.84	1.00	-0.03	-0.53	0.13	-0.04	-0.24
Cx	**-30.3813**	3.5		1.00	0.07	-0.01	0.99	0.02
Cy	**-22.0328**	2.4			1.00	-0.25	0.07	0.79
K1	**0.03164**	0.00031				1.00	-0.02	-0.27
P1	**0.00109905**	0.00012					1.00	0.02
P2	**-0.00331676**	8e-05						1.00

Table 4. Calibration coefficients and correlation matrix.
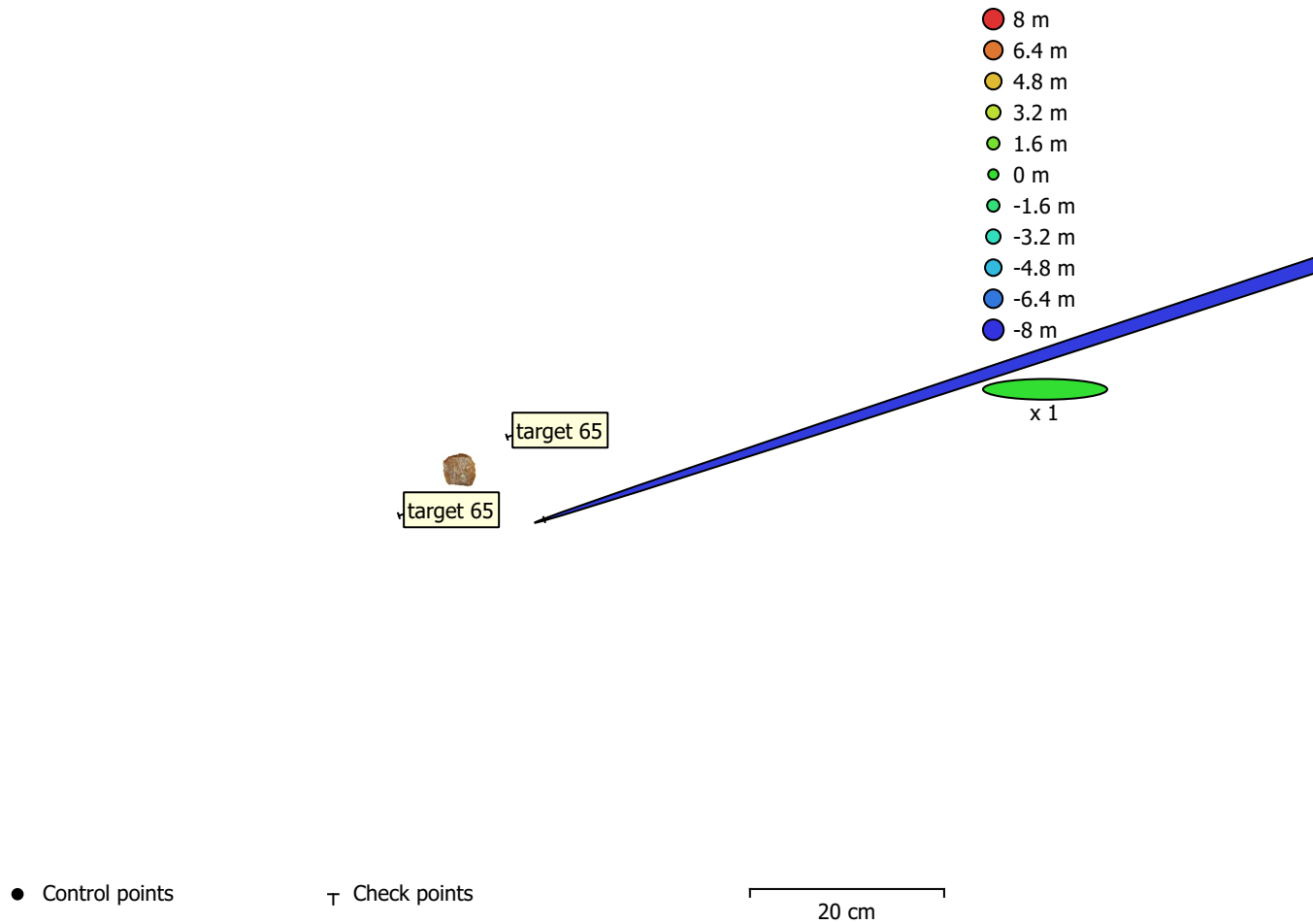
Ground Control Points

Fig. 5. 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	4.93743	1.6287	7.76863	5.19912	9.34786

Table 5. Check points RMSE.

Label	X error (m)	Y error (m)	Z error (m)	Total (m)	Image (pix)
point 1	-4.93743	-1.6287	-7.76863	9.34786	0.000 (68)
target 65					1.871 (15)
target 65					0.733 (16)
Total	**4.93743**	**1.6287**	**7.76863**	**9.34786**	**0.000**

Table 6. Check points.

Scale Bars

Label	Distance (m)	Error (m)
target 65_point 1	0.15	8.32667e-17
Total		**8.32667e-17**

Table 7. Control scale bars.
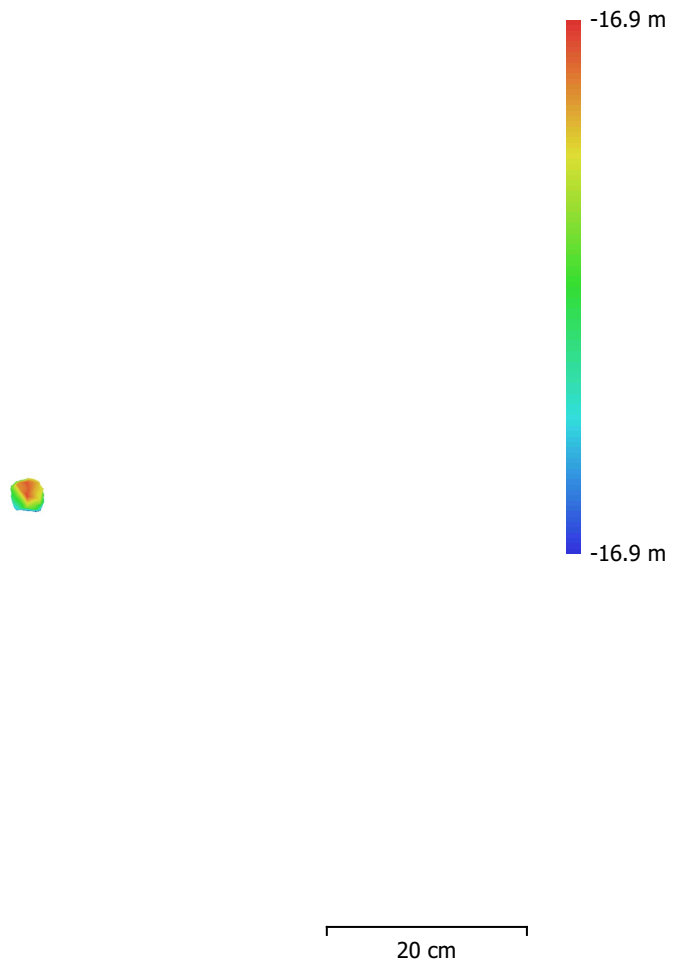
Digital Elevation Model

-16.9 m

-16.9 m

20 cm

Fig. 6. Reconstructed digital elevation model.

Resolution: 0.166 mm/pix

Point density: 36.1 points/mm²

Processing Parameters

General

Cameras	127
Aligned cameras	127
Markers	3
Scale bars	1
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	266,038 of 323,182
RMS reprojection error	0.270324 (0.608405 pix)
Max reprojection error	0.941321 (29.6802 pix)
Mean key point size	2.12777 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.70777
File size	25.31 MB

Depth Maps

Count	126

   Depth maps generation parameters

Quality	Ultra High
Filtering mode	Mild
Max neighbors	16
Processing time	7 minutes 19 seconds
Memory usage	6.35 GB
Date created	2024:06:15 14:31:13
Software version	1.8.4.14671
File size	54.19 MB

Model

Faces	70,622
Vertices	35,313
Vertex colors	3 bands, uint8
Texture	16,000 x 16,000 x 2, 4 bands, uint8

   Depth maps generation parameters

Quality	Ultra High
Filtering mode	Mild
Max neighbors	16
Processing time	7 minutes 19 seconds
Memory usage	6.35 GB

   Reconstruction parameters

Surface type	Arbitrary
Source data	Depth maps
Interpolation	Enabled
Strict volumetric masks	No
Processing time	1 minutes 7 seconds
Memory usage	11.14 GB

   Texturing parameters

Mapping mode	Generic
Blending mode	Mosaic
Texture size	16,000
Enable hole filling	Yes

Enable ghosting filter	Yes
UV mapping time	8 seconds
UV mapping memory usage	754.18 MB
Blending time	1 minutes 15 seconds
Blending memory usage	13.96 GB
Blending GPU memory usage	11.89 GB
Date created	2024:06:15 14:32:20
Software version	1.8.4.14671
File size	163.18 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