Agisoft Metashape

Processing Report
24 June 2024

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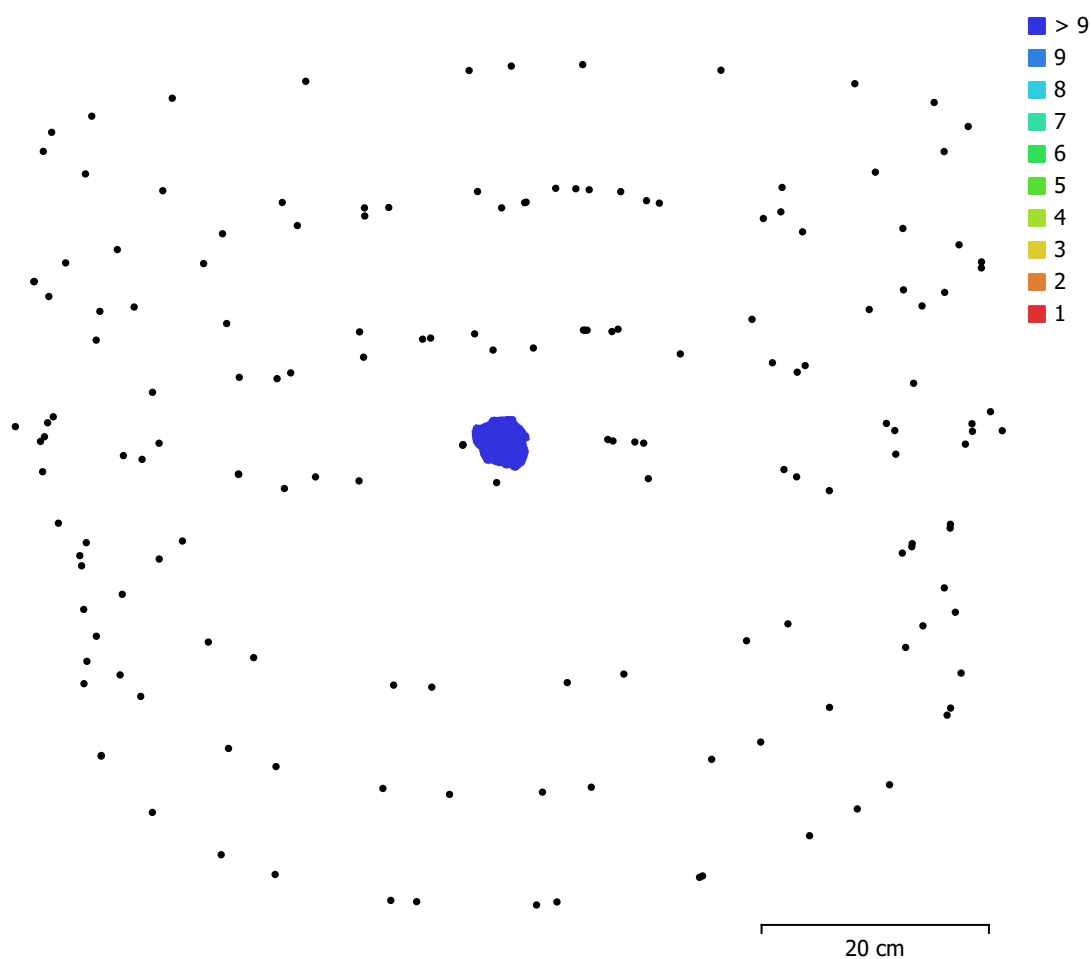
Fig. 1. Camera locations and image overlap.

Number of images:	165	Camera stations:	165
Flying altitude:	42 cm	Tie points:	624,548
Ground resolution:	0.0374 mm/pix	Projections:	1,884,189
Coverage area:	18.1 cm²	Reprojection error:	1.07 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

Table 1. Cameras.

Camera Calibration

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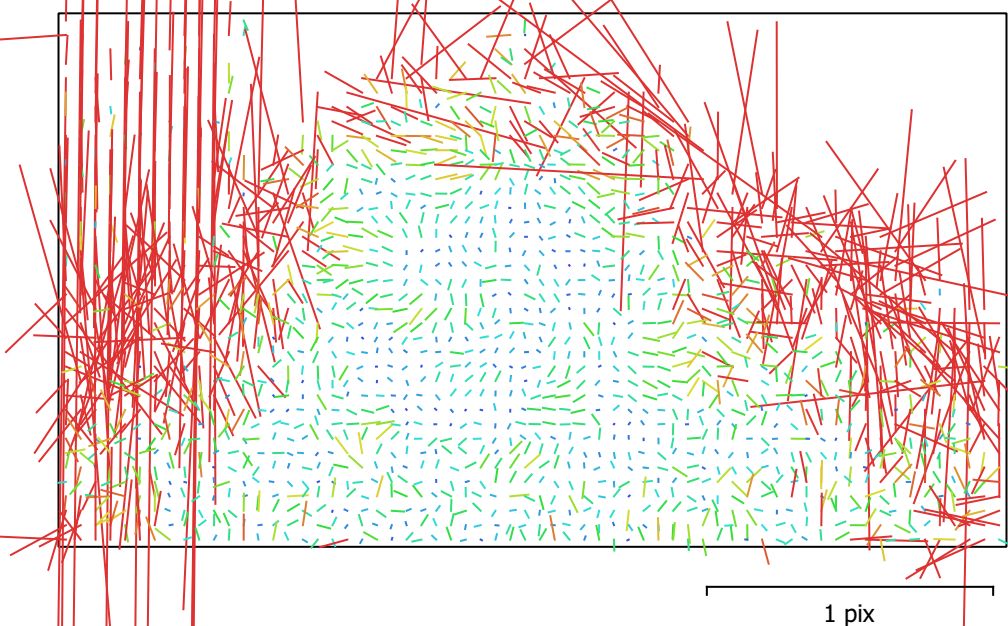
Fig. 2. Image residuals for DMC-G7 (39mm).

DMC-G7 (39mm)

99 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	**10625.3**	1.2	1.00	-0.23	0.22	-0.07	0.19
K1	**0.0355633**	0.0013		1.00	-0.91	0.24	-0.43
K2	**-0.389108**	0.018			1.00	-0.13	0.24
P1	**0.00221597**	2.6e-05				1.00	-0.21
P2	**-0.000853443**	6.4e-05					1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration
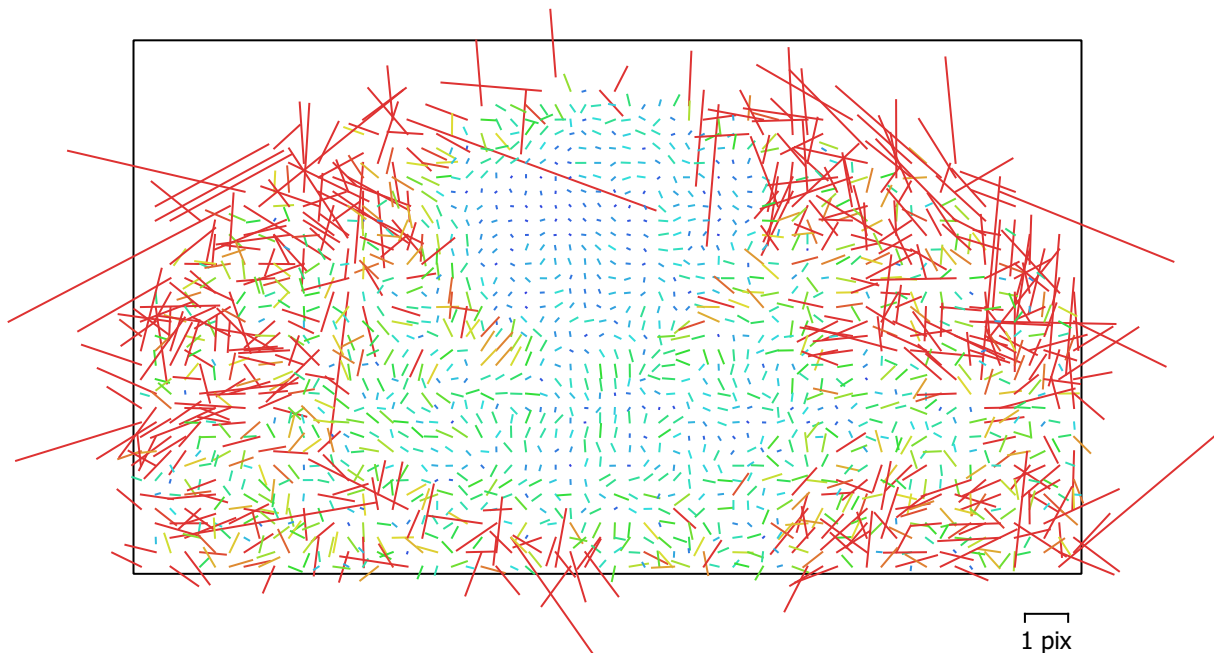
Fig. 3. Image residuals for DMC-G7 (38mm).

DMC-G7 (38mm)

66 images

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

	Value	Error	F	K1	K2	P1	P2
F	**11253.2**	5.5	1.00	-0.41	0.43	0.07	0.47
K1	**-0.268143**	0.0085		1.00	-0.87	0.12	0.00
K2	**4.05275**	0.15			1.00	0.11	-0.02
P1	**0.00568634**	6.6e-05				1.00	0.06
P2	**0.00240318**	0.0003					1.00

Table 3. Calibration coefficients and correlation matrix.

Ground Control Points

Legend:
- 🔴 30 m
- 🟠 24 m
- 🟡 18 m
- 🟡 12 m
- 🟢 6 m
- 🟢 0 m
- 🟢 -6 m
- 🟢 -12 m
- 🔵 -18 m
- 🔵 -24 m
- 🔵 -30 m

x 1
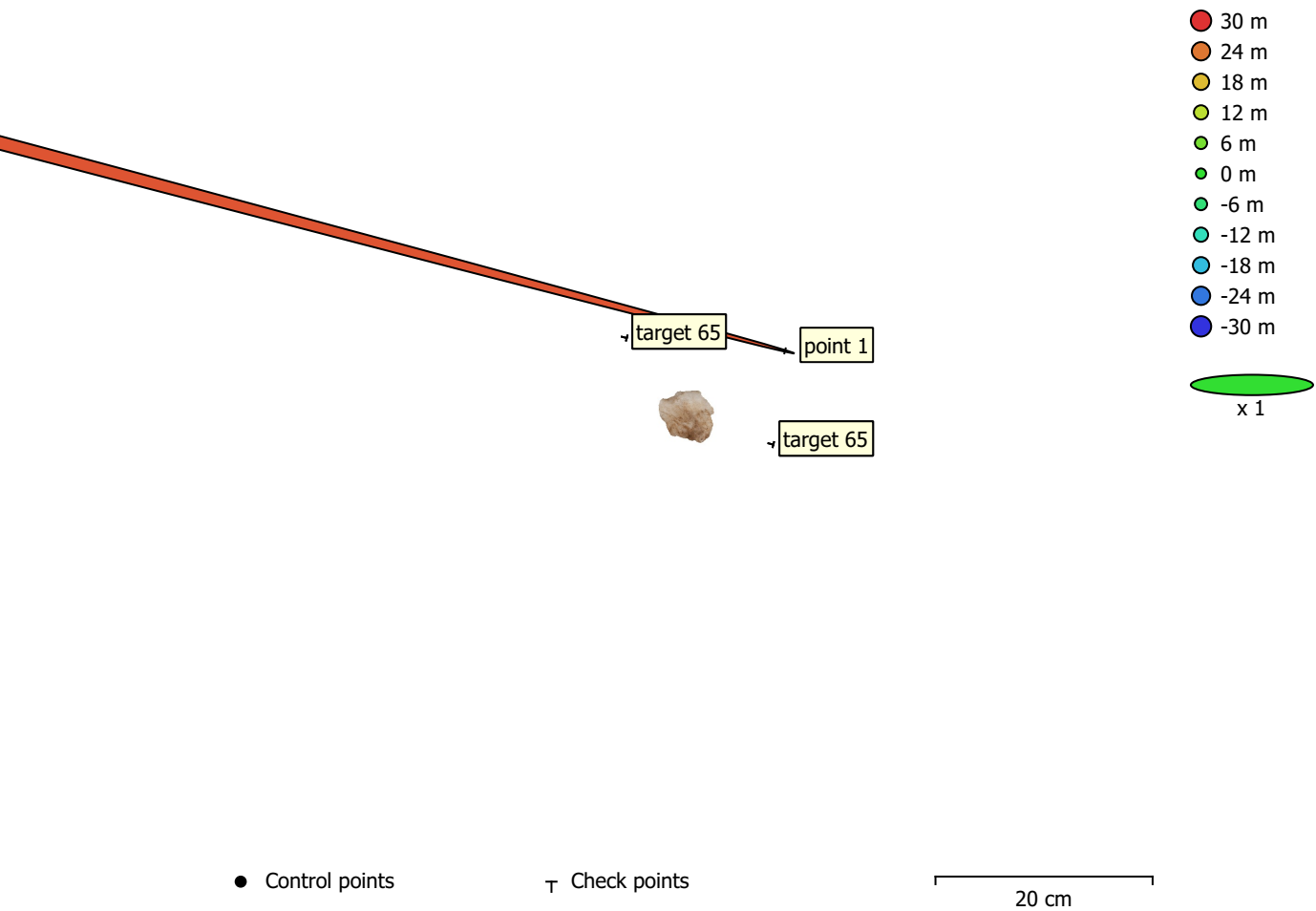
● Control points   ⊤ Check points   20 cm

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	5.22789	1.38485	27.063	5.4082	27.5981

Table 4. Check points RMSE.

Label	X error (m)	Y error (m)	Z error (m)	Total (m)	Image (pix)
point 1	5.22789	-1.38485	27.063	27.5981	2.293 (70)
target 65					1.269 (7)
target 65					1.269 (7)
target 65					2.770 (5)
target 65					2.770 (5)
Total	**5.22789**	**1.38485**	**27.063**	**27.5981**	**2.293**

Table 5. Check points.

Scale Bars

Label	Distance (m)	Error (m)
target 65_point 1	0.15	2.91683e-13
Total		**2.91683e-13**

Table 6. Control scale bars.

Digital Elevation Model

79.7 cm

78 cm

20 cm
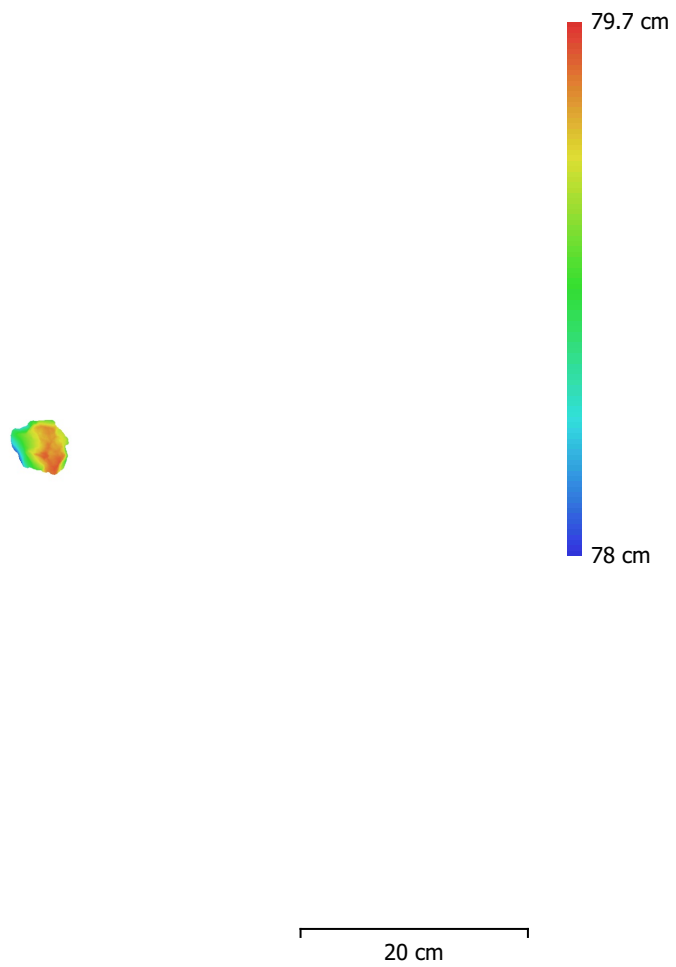
Fig. 5. Reconstructed digital elevation model.

Resolution: 0.189 mm/pix
Point density: 28 points/mm²

Processing Parameters

General

Cameras	165
Aligned cameras	165
Markers	5
Scale bars	1
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	624,548 of 955,465
RMS reprojection error	0.498718 (1.07264 pix)
Max reprojection error	2.46989 (49.4852 pix)
Mean key point size	2.1766 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.07519
File size	61.88 MB

Depth Maps

Count	165

Depth maps generation parameters

Quality	High
Filtering mode	Mild
Max neighbors	16
Processing time	3 minutes 14 seconds
Memory usage	2.21 GB
Date created	2024:06:15 13:19:14
Software version	1.8.4.14671
File size	45.63 MB

Model

Faces	189,430
Vertices	94,721
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	33 seconds
UV mapping memory usage	585.61 MB
Blending time	1 minutes 19 seconds
Blending memory usage	13.47 GB
Blending GPU memory usage	11.90 GB
File size	171.98 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