

Agisoft Metashape

Processing Report

24 June 2024



Survey Data

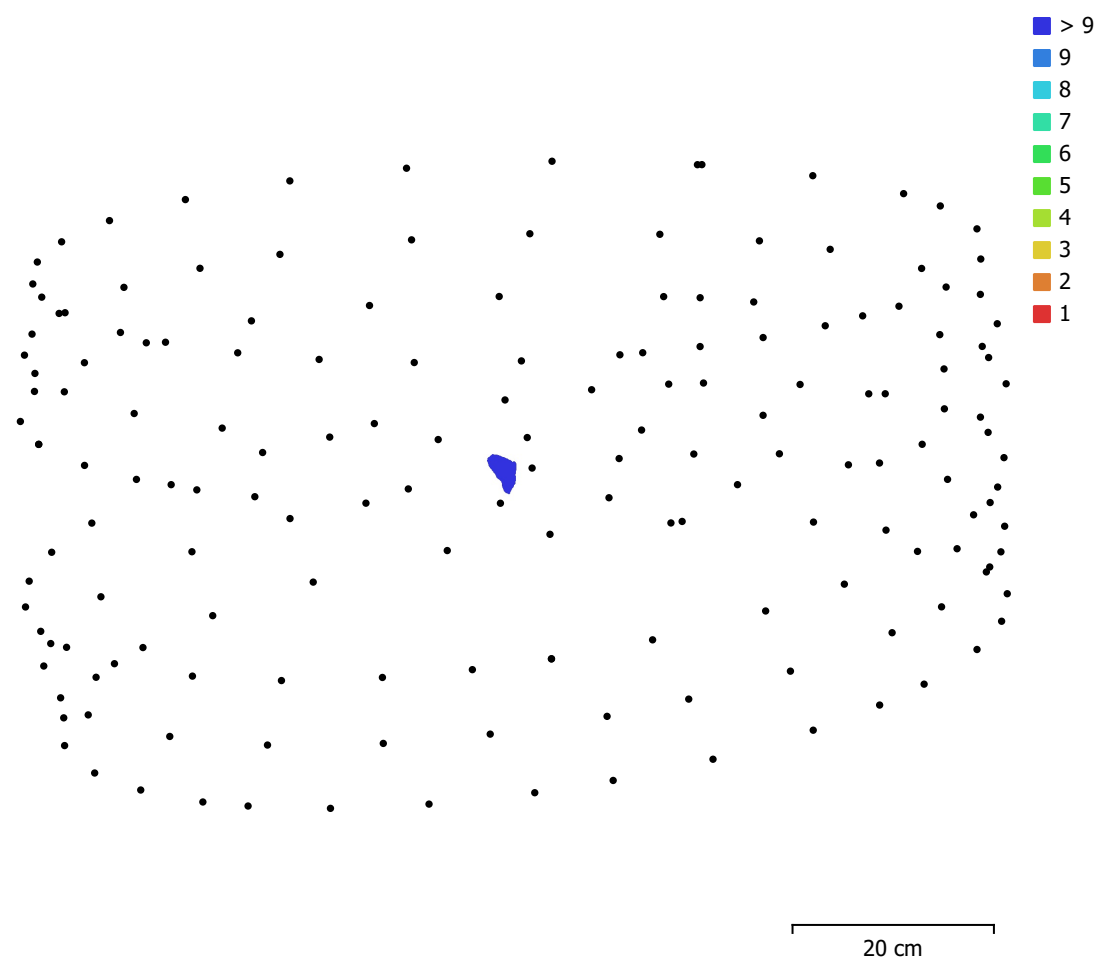


Fig. 1. Camera locations and image overlap.

Number of images:	170	Camera stations:	170
Flying altitude:	47.3 cm	Tie points:	318,902
Ground resolution:	0.043 mm/pix	Projections:	905,166
Coverage area:	6.87 cm ²	Reprojection error:	0.725 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
DMC-G7 (40mm)	4592 x 2584	40 mm	3.78 x 3.78 μm	No
DMC-G7 (40mm)	4592 x 2584	40 mm	3.78 x 3.78 μm	No

Table 1. Cameras.

Camera Calibration

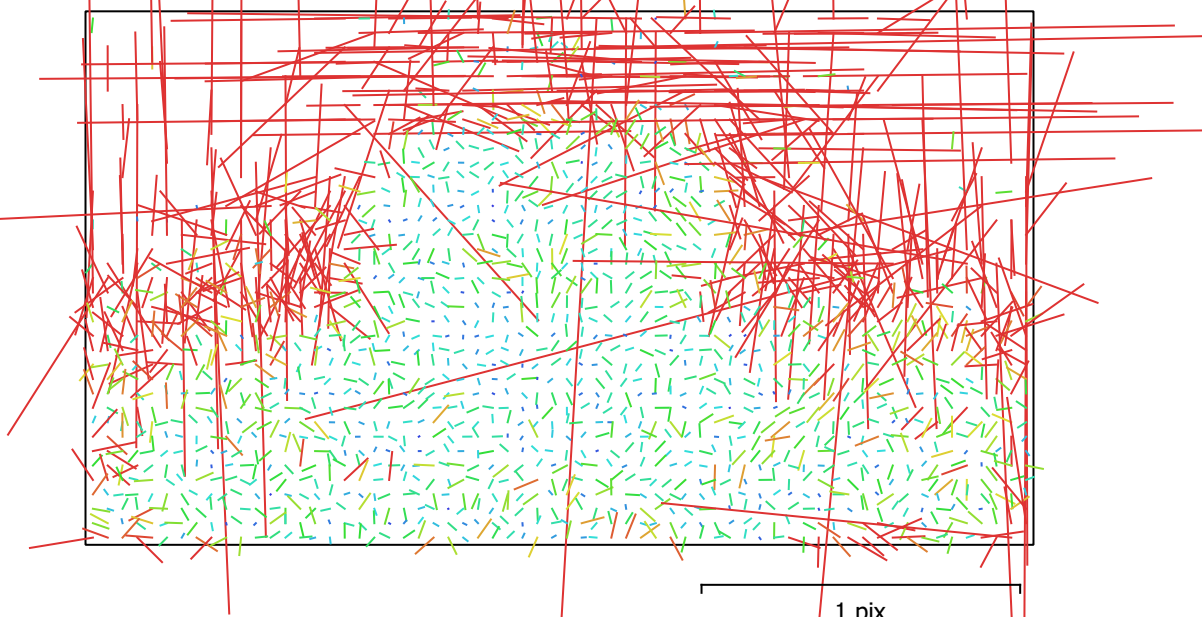


Fig. 2. Image residuals for DMC-G7 (40mm).

DMC-G7 (40mm)

83 images

Type	Resolution	Focal Length	Pixel Size
Frame	4592 x 2584	40 mm	3.78 x 3.78 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	10995.3	1.1	1.00	-0.02	-0.57	-0.25	0.19	-0.13	-0.03	-0.23
Cx	17.3858	4.3		1.00	0.07	-0.03	-0.01	0.07	0.99	0.02
Cy	-107.786	3.1			1.00	0.05	-0.04	0.01	0.07	0.75
K1	0.0405734	0.0021				1.00	-0.93	0.83	-0.03	-0.03
K2	0.556078	0.075					1.00	-0.97	-0.00	-0.04
K3	-9.27628	0.85						1.00	0.07	0.03
P1	0.00281745	0.00015							1.00	0.02
P2	-0.00704828	9.3e-05								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration

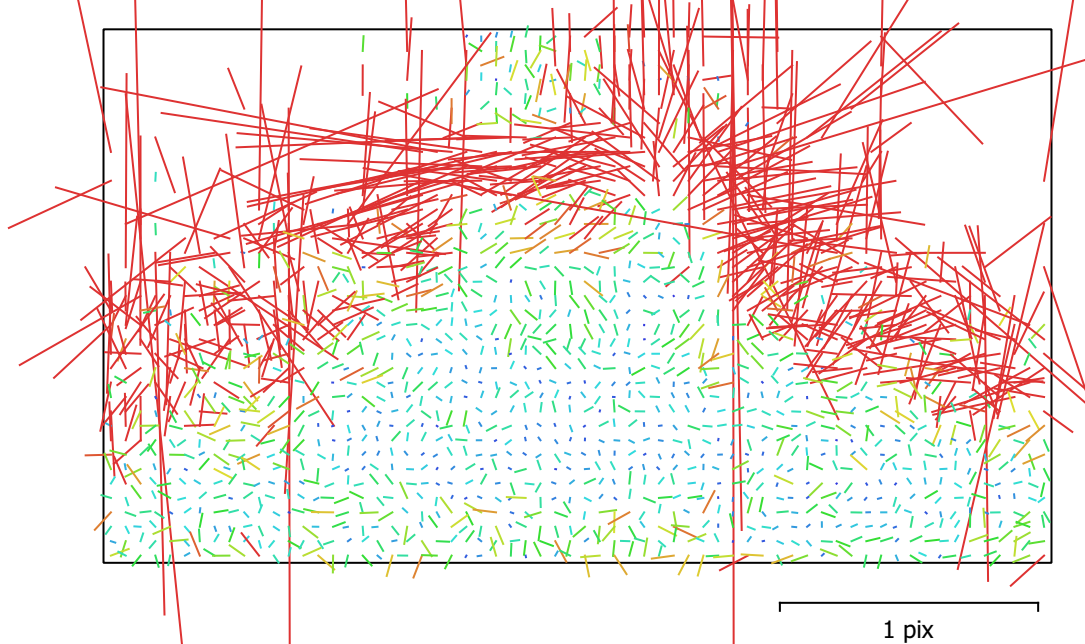


Fig. 3. Image residuals for DMC-G7 (40mm).

DMC-G7 (40mm)

87 images

Type

Resolution

Focal Length

Pixel Size

Frame

4592 x 2584

40 mm

3.78 x 3.78 μ m

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	11019.5	1.2	1.00	0.01	-0.47	-0.36	0.28	-0.22	0.00	-0.04
Cx	-0.217357	5		1.00	0.03	-0.02	-0.01	0.00	0.99	0.04
Cy	-134.889	3.2			1.00	0.01	-0.01	0.00	0.04	0.63
K1	-0.045246	0.0025				1.00	-0.92	0.83	-0.00	-0.29
K2	0.583701	0.082					1.00	-0.98	-0.01	0.14
K3	-2.14616	0.9						1.00	0.00	-0.09
P1	0.00133802	0.00015							1.00	0.03
P2	0.00188583	9.9e-05								1.00

Table 3. Calibration coefficients and correlation matrix.

Ground Control Points

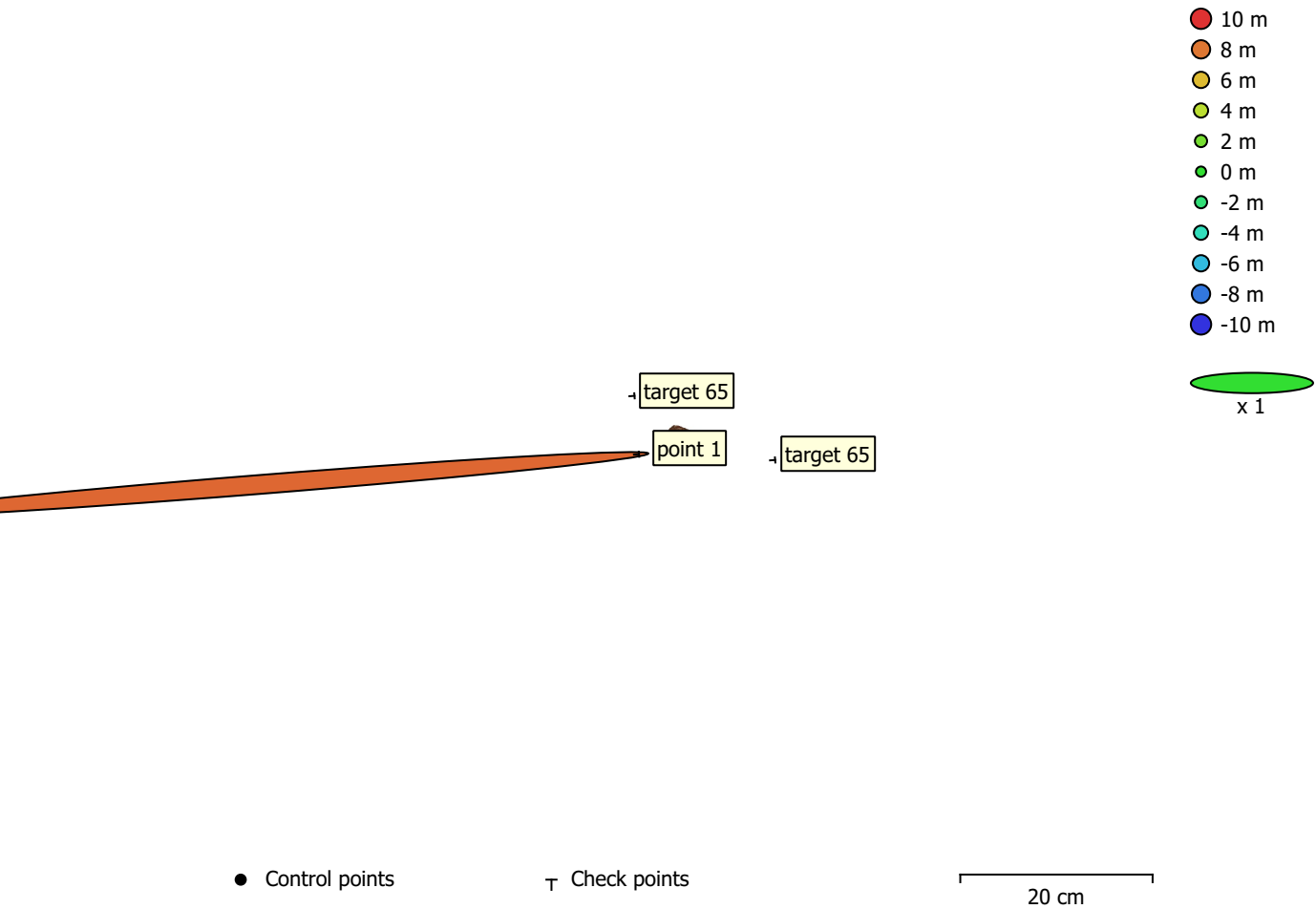


Fig. 4. GCP locations and error estimates.

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	0.792227	0.0631896	8.47829	0.794743	8.51546

Table 4. Check points RMSE.

Label	X error (m)	Y error (m)	Z error (m)	Total (m)	Image (pix)
point 1	0.792227	0.0631896	8.47829	8.51546	0.001 (79)
target 65					0.571 (9)
target 65					0.990 (12)
Total	0.792227	0.0631896	8.47829	8.51546	0.001

Table 5. Check points.

Scale Bars

Label	Distance (m)	Error (m)
target 65_point 1	0.15	-1.38778e-16
Total		1.38778e-16

Table 6. Control scale bars.

Digital Elevation Model

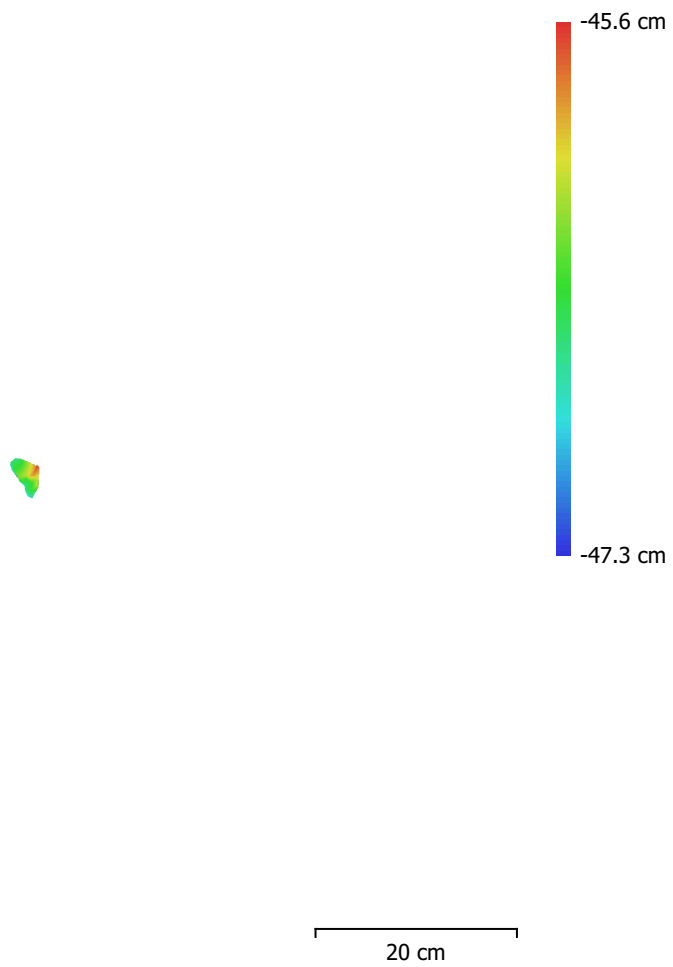


Fig. 5. Reconstructed digital elevation model.

Resolution: 0.14 mm/pix
Point density: 51.2 points/mm²

Processing Parameters

General

Cameras	170
Aligned cameras	170
Markers	4
Scale bars	1
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	318,902 of 688,882
RMS reprojection error	0.277126 (0.725481 pix)
Max reprojection error	0.908978 (33.2946 pix)
Mean key point size	2.12755 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.02544
File size	41.09 MB

Depth Maps

Count	169
Depth maps generation parameters	
Quality	Ultra High
Filtering mode	Mild
Max neighbors	16
Processing time	10 minutes 14 seconds
Memory usage	6.75 GB
Date created	2024:06:15 17:05:52
Software version	1.8.4.14671
File size	69.83 MB

Model

Faces	61,412
Vertices	30,708
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	10 minutes 14 seconds
Memory usage	6.75 GB

Reconstruction parameters

Surface type	Arbitrary
Source data	Depth maps
Interpolation	Enabled
Strict volumetric masks	No
Processing time	1 minutes 29 seconds
Memory usage	11.76 GB

Texturing parameters

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

Enable ghosting filter	Yes
UV mapping time	6 seconds
UV mapping memory usage	199.49 MB
Blending time	1 minutes 22 seconds
Blending memory usage	13.21 GB
Blending GPU memory usage	11.89 GB
Date created	2024:06:15 17:07:22
Software version	1.8.4.14671
File size	117.16 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