

# **Agisoft Metashape**

**Processing Report**

**24 June 2024**



# Survey Data

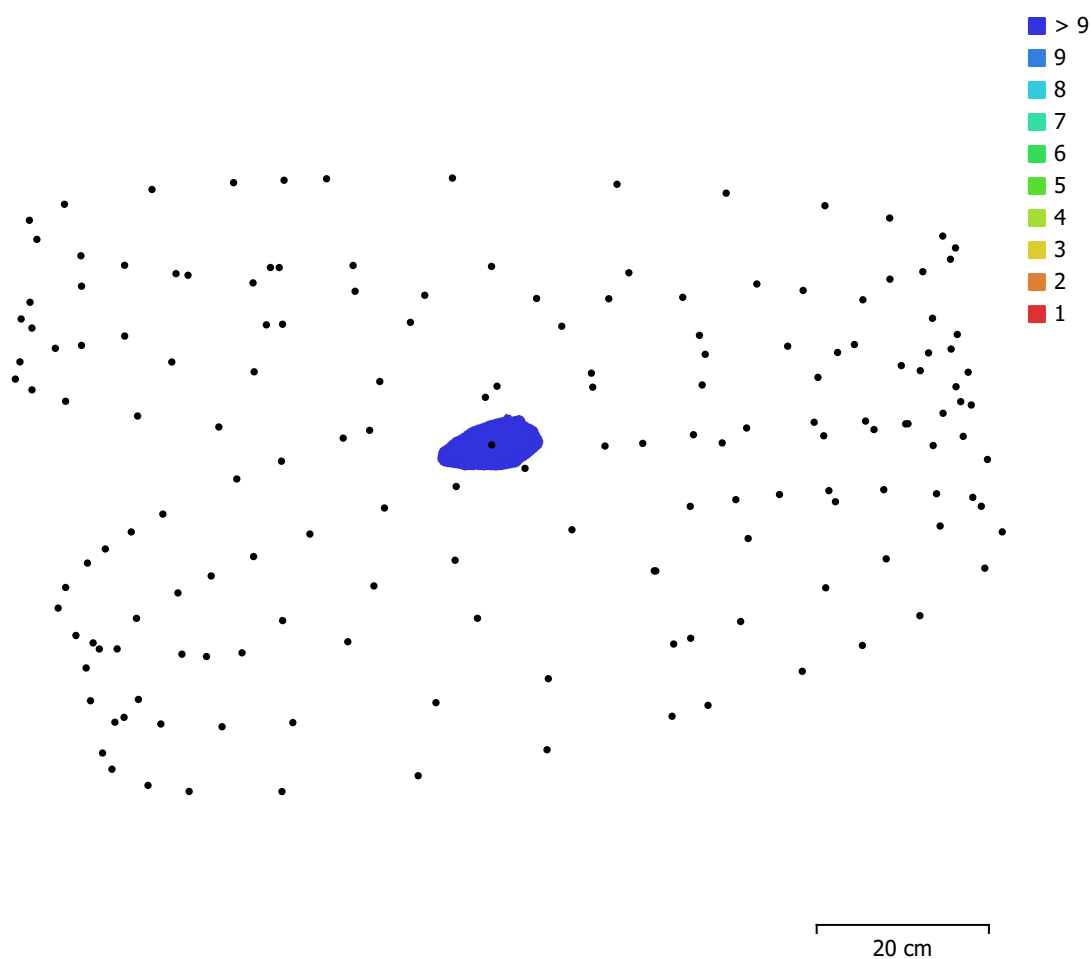


Fig. 1. Camera locations and image overlap.

Number of images:	165	Camera stations:	165
Flying altitude:	52.3 cm	Tie points:	105,628
Ground resolution:	0.0426 mm/pix	Projections:	352,035
Coverage area:	55.6 cm <sup>2</sup>	Reprojection error:	0.921 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
DMC-G7 (46mm)	4592 x 2584	46 mm	3.78 x 3.78 μm	No
DMC-G7 (46mm)	4592 x 2584	46 mm	3.78 x 3.78 μm	No

Table 1. Cameras.

# Camera Calibration

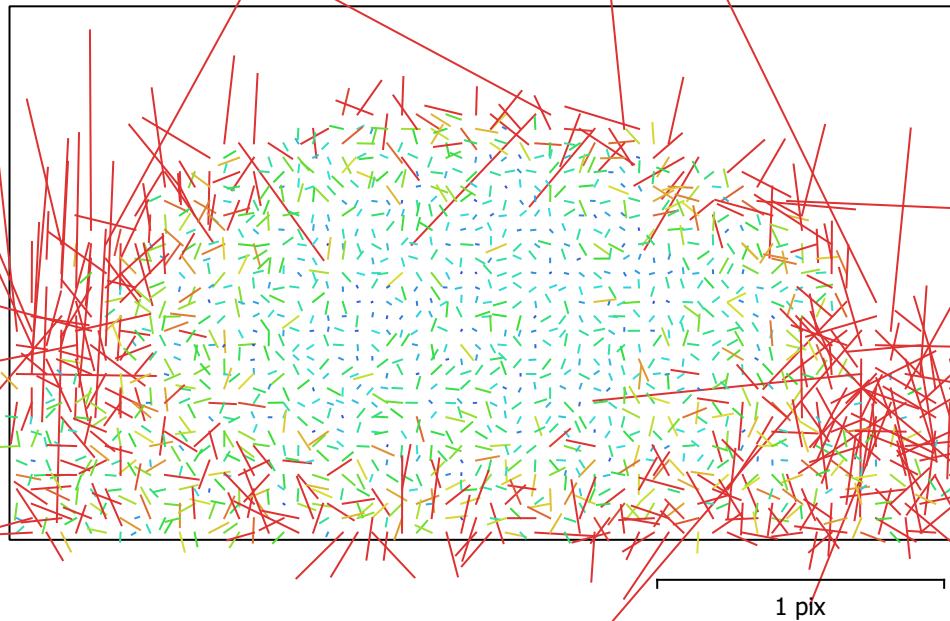


Fig. 2. Image residuals for DMC-G7 (46mm).

## DMC-G7 (46mm)

76 images

Type	Resolution	Focal Length	Pixel Size
Frame	4592 x 2584	46 mm	3.78 x 3.78 $\mu\text{m}$

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	12324.6	3.2	1.00	0.08	-0.36	-0.36	0.19	-0.16	0.04	0.07
Cx	90.9906	6.2		1.00	-0.05	-0.09	0.16	-0.15	0.95	0.03
Cy	-94.6398	6.5			1.00	0.10	-0.18	0.20	0.00	0.61
K1	0.094129	0.0036				1.00	-0.87	0.75	-0.06	-0.23
K2	-2.73292	0.2					1.00	-0.96	0.15	0.03
K3	32.8412	3.3						1.00	-0.14	0.02
P1	0.00380285	0.0002							1.00	0.03
P2	-0.00551382	0.00015								1.00

Table 2. Calibration coefficients and correlation matrix.

# Camera Calibration

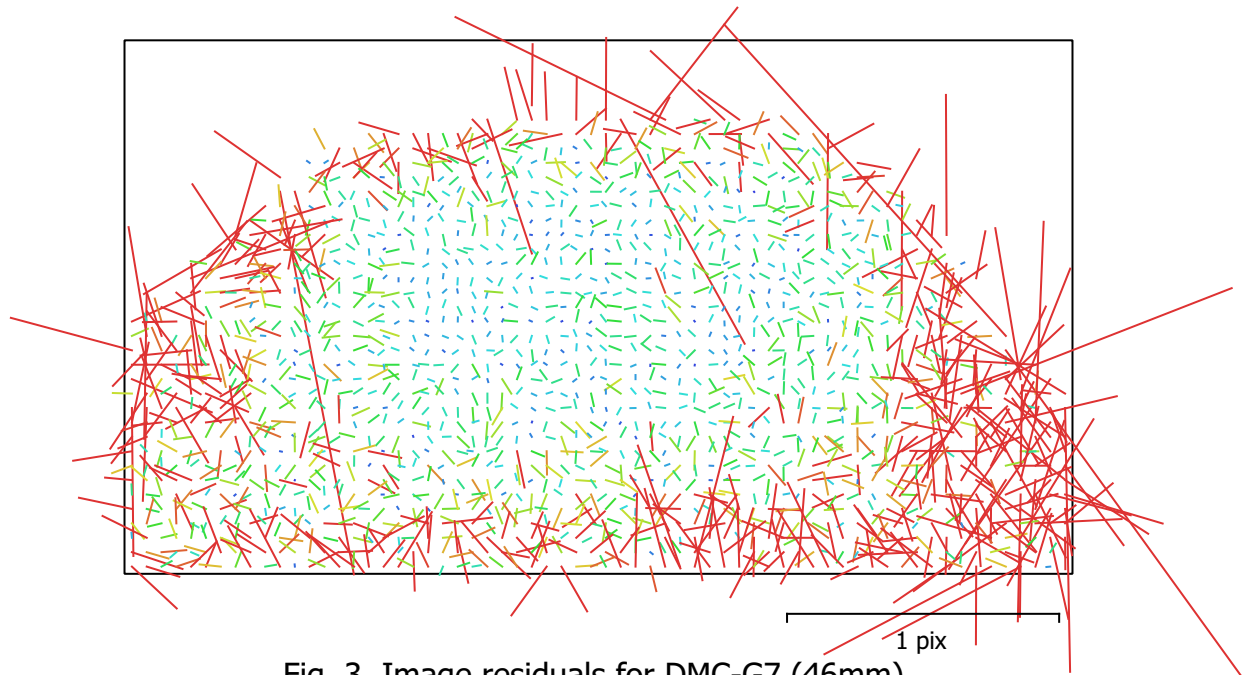


Fig. 3. Image residuals for DMC-G7 (46mm).

## DMC-G7 (46mm)

89 images

Type	Resolution	Focal Length	Pixel Size
Frame	4592 x 2584	46 mm	3.78 x 3.78 $\mu\text{m}$

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	12278.3	3.1	1.00	0.05	-0.39	-0.35	0.15	-0.12	-0.02	-0.05
Cx	168.507	5.1		1.00	-0.04	-0.01	0.10	-0.08	0.95	-0.06
Cy	-82.0139	6.2			1.00	0.15	-0.18	0.17	0.03	0.76
K1	0.102475	0.0026				1.00	-0.85	0.74	0.04	-0.14
K2	-1.41535	0.13					1.00	-0.97	0.09	-0.03
K3	12.874	1.9						1.00	-0.07	0.06
P1	0.00662762	0.00018							1.00	-0.03
P2	-0.00428202	0.00015								1.00

Table 3. Calibration coefficients and correlation matrix.

# Scale Bars

Label	Distance (m)	Error (m)
target 15_target 16	0.0499903	-9.70641e-06
target 19_target 20	0.0500097	9.70345e-06
Total		<b>9.70493e-06</b>

Table 4. Control scale bars.

# Digital Elevation Model

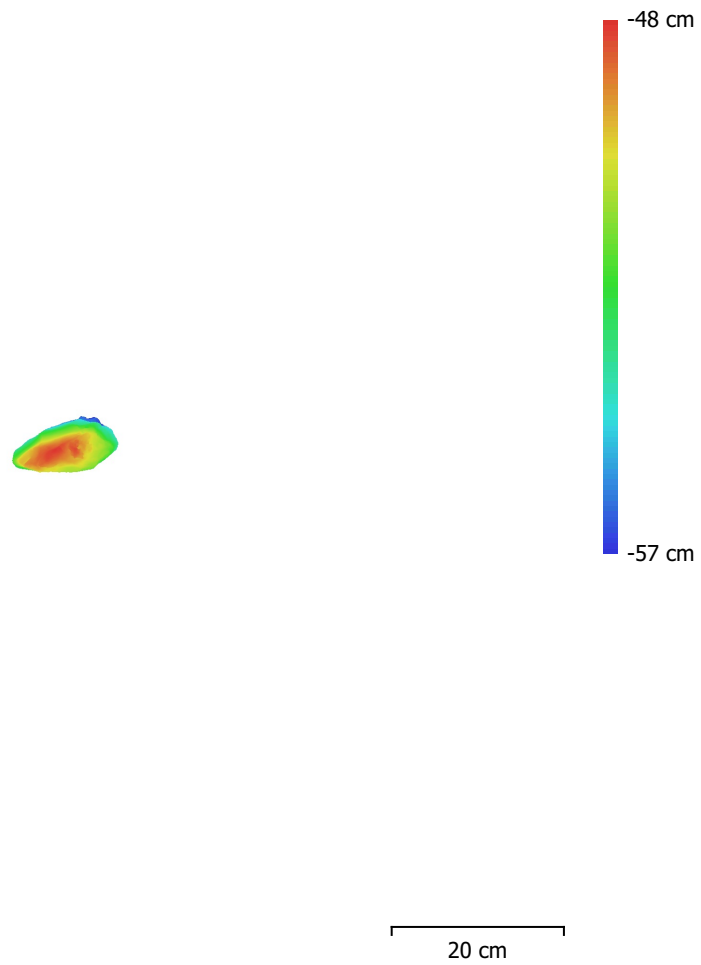


Fig. 4. Reconstructed digital elevation model.

Resolution: 0.15 mm/pix  
Point density: 44.7 points/mm<sup>2</sup>

# Processing Parameters

## General

Cameras	165
Aligned cameras	165
Markers	8
Scale bars	2
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll

## Point Cloud

Points	105,628 of 157,873
RMS reprojection error	0.152557 (0.92066 pix)
Max reprojection error	0.481683 (37.7299 pix)
Mean key point size	4.00171 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.8105
File size	12.07 MB

## Depth Maps

Count	165
<b>Depth maps generation parameters</b>	
Quality	Ultra High
Filtering mode	Mild
Max neighbors	16
Processing time	12 minutes 16 seconds
Memory usage	7.54 GB
Date created	2024:06:01 19:21:43
Software version	1.8.4.14671
File size	602.94 MB

## Model

Faces	1,125,500
Vertices	562,752
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	12 minutes 16 seconds
Memory usage	7.54 GB

## Reconstruction parameters

Surface type	Arbitrary
Source data	Depth maps
Interpolation	Enabled
Strict volumetric masks	No
Processing time	3 minutes 51 seconds
Memory usage	8.26 GB

## Texturing parameters

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

Enable ghosting filter	Yes
UV mapping time	1 minutes 5 seconds
UV mapping memory usage	2.68 GB
Blending time	1 minutes 34 seconds
Blending memory usage	13.97 GB
Blending GPU memory usage	11.95 GB
Date created	2024:06:01 19:33:33
Software version	1.8.4.14671
File size	306.18 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