# Agisoft Metashape

**Processing Report**

**12 July 2024**

# Survey Data

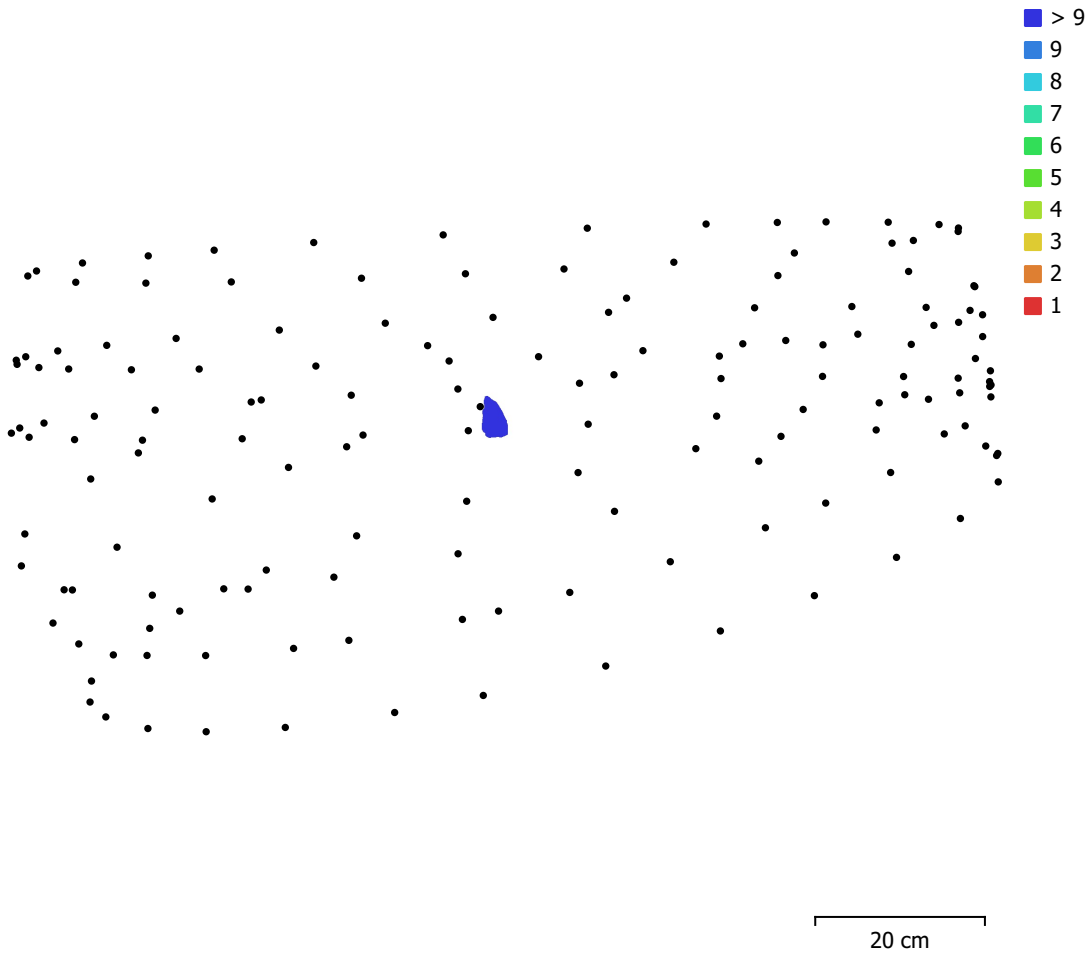


Fig. 1. Camera locations and image overlap.

| | | | |
|---|---|---|---|
| Number of images: | 157 | Camera stations: | 157 |
| Flying altitude: | 55.9 cm | Tie points: | 812,375 |
| Ground resolution: | 0.0354 mm/pix | Projections: | 2,578,181 |
| Coverage area: | 11.1 cm² | Reprojection error: | 0.685 pix |

| Camera Model | Resolution | Focal Length | Pixel Size | Precalibrated |
|---|---|---|---|---|
| DMC-G7 (60mm) | 4592 x 2584 | 60 mm | 3.79 x 3.79 µm | No |
| DMC-G7 (60mm) | 4592 x 2584 | 60 mm | 3.79 x 3.79 µm | No |

Table 1. Cameras.

# Camera Calibration

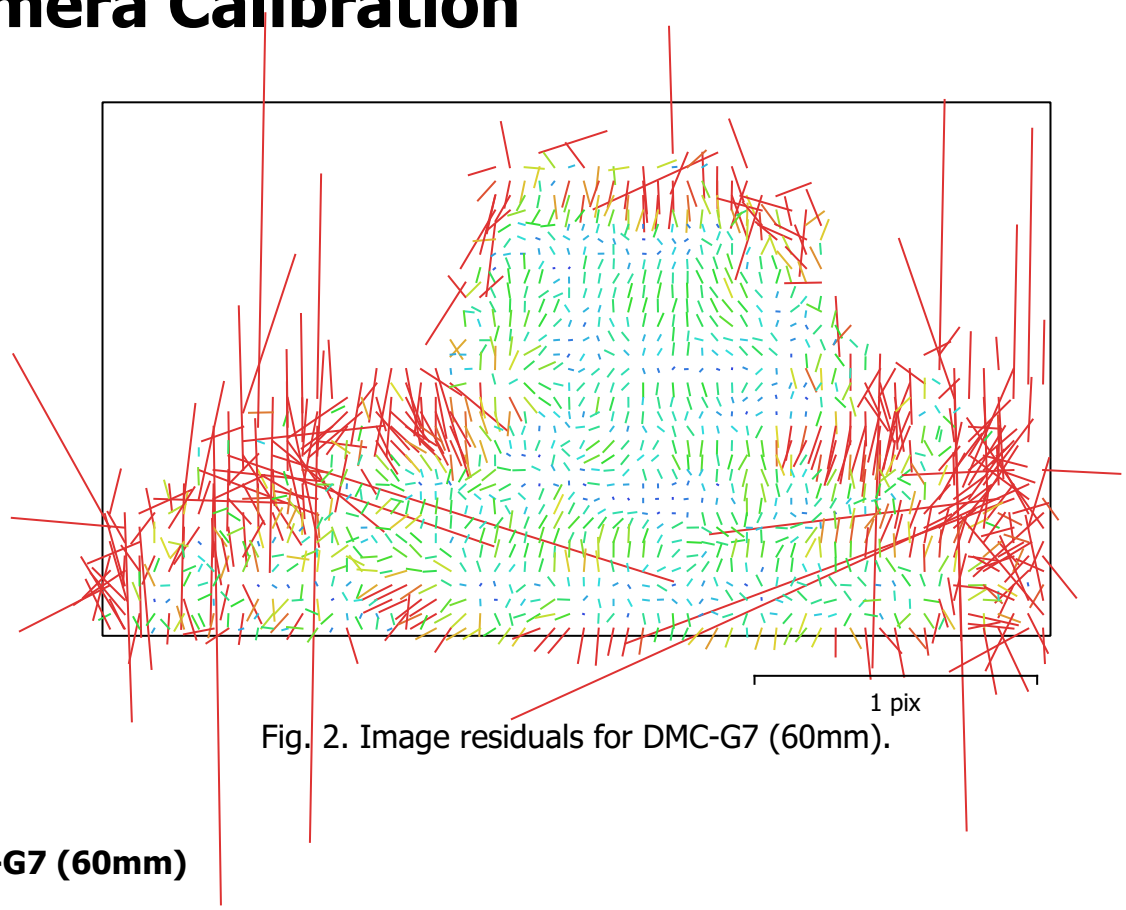


Fig. 2. Image residuals for DMC-G7 (60mm).

**DMC-G7 (60mm)**

81 images

| Type | Resolution | Focal Length | Pixel Size |
|---|---|---|---|
| **Frame** | **4592 x 2584** | **60 mm** | **3.79 x 3.79 µm** |

| | Value | Error | F | Cx | Cy | K1 | K2 | K3 | P1 | P2 |
|---|---|---|---|---|---|---|---|---|---|---|
| **F** | **15674.7** | 2.3 | 1.00 | -0.29 | -0.16 | -0.16 | 0.10 | -0.10 | -0.14 | 0.07 |
| **Cx** | **-553.6** | 3.4 | | 1.00 | 0.38 | 0.17 | -0.44 | 0.35 | 0.88 | 0.39 |
| **Cy** | **-182.621** | 4 | | | 1.00 | 0.15 | -0.34 | 0.27 | 0.17 | 0.85 |
| **K1** | **0.241507** | 0.0018 | | | | 1.00 | -0.81 | 0.73 | -0.13 | -0.10 |
| **K2** | **-4.26464** | 0.096 | | | | | 1.00 | -0.97 | -0.28 | -0.25 |
| **K3** | **31.4285** | 1.9 | | | | | | 1.00 | 0.24 | 0.20 |
| **P1** | **-0.0179219** | 0.00011 | | | | | | | 1.00 | 0.34 |
| **P2** | **-0.004772** | 9.2e-05 | | | | | | | | 1.00 |

Table 2. Calibration coefficients and correlation matrix.

# Camera Calibration

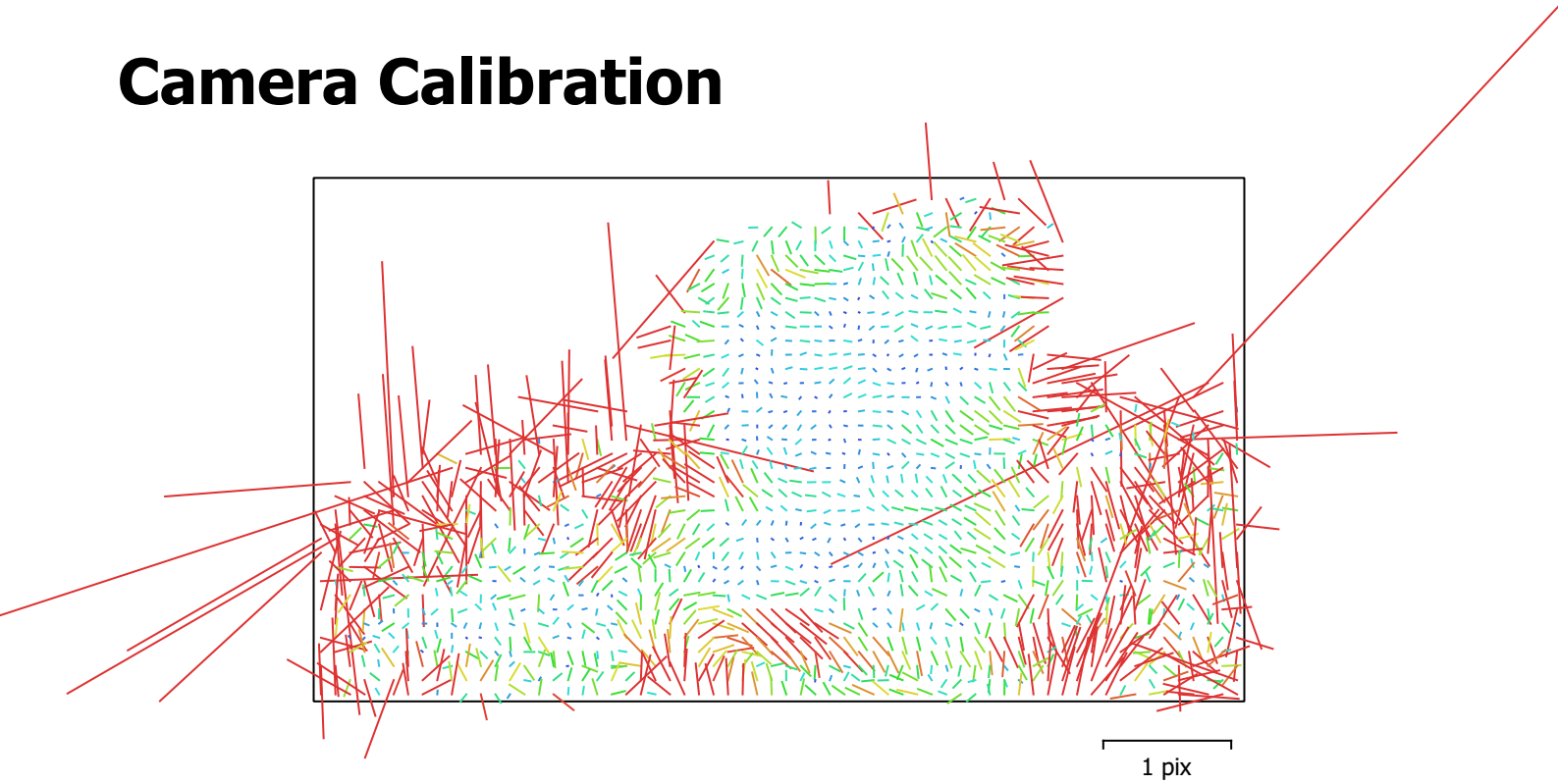


Fig. 3. Image residuals for DMC-G7 (60mm).

**DMC-G7 (60mm)**

76 images

| Type | Resolution | Focal Length | Pixel Size |
|---|---|---|---|
| **Frame** | **4592 x 2584** | **60 mm** | **3.79 x 3.79 µm** |

| | Value | Error | F | Cx | Cy | K1 | K2 | K3 | P1 | P2 |
|---|---|---|---|---|---|---|---|---|---|---|
| **F** | **15866.3** | 4.6 | 1.00 | -0.18 | 0.20 | 0.07 | -0.13 | 0.13 | -0.14 | 0.14 |
| **Cx** | **-787.631** | 8.3 | | 1.00 | -0.27 | -0.34 | 0.78 | -0.81 | 0.75 | 0.20 |
| **Cy** | **507.987** | 3.8 | | | 1.00 | 0.09 | -0.38 | 0.38 | -0.08 | 0.46 |
| **K1** | **-0.29232** | 0.0028 | | | | 1.00 | -0.75 | 0.66 | -0.61 | 0.18 |
| **K2** | **14.9015** | 0.23 | | | | | 1.00 | -0.98 | 0.65 | 0.01 |
| **K3** | **-201.467** | 5 | | | | | | 1.00 | -0.64 | -0.06 |
| **P1** | **-0.01346** | 0.00017 | | | | | | | 1.00 | 0.02 |
| **P2** | **-0.00270389** | 7.6e-05 | | | | | | | | 1.00 |

Table 3. Calibration coefficients and correlation matrix.

# Scale Bars

| Label | Distance (m) | Error (m) |
|---|---|---|
| target 15_target 16 | 0.0499887 | -1.12714e-05 |
| target 19_target 20 | 0.0500113 | 1.12667e-05 |
| **Total** | | **1.12691e-05** |

Table 4. Control scale bars.

# Digital Elevation Model

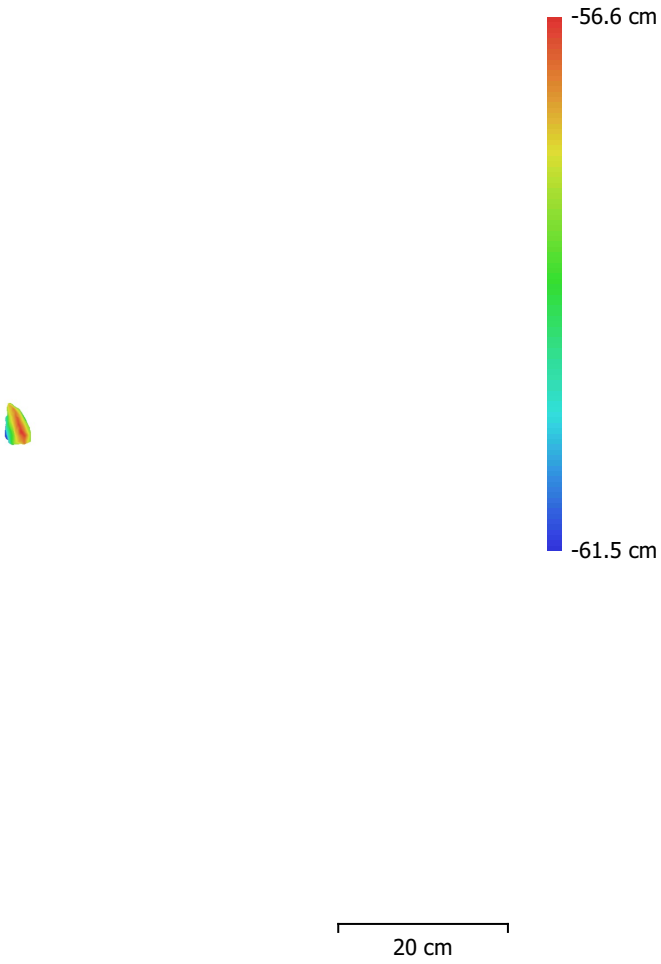


Fig. 4. Reconstructed digital elevation model.

| | |
|---|---|
| Resolution: | 0.0999 mm/pix |
| Point density: | 100 points/mm² |

# Processing Parameters

| | |
|---|---|
| **General** | |
| Cameras | 157 |
| Aligned cameras | 157 |
| Markers | 7 |
| Scale bars | 2 |
| Coordinate system | Local Coordinates (m) |
| Rotation angles | Yaw, Pitch, Roll |
| **Point Cloud** | |
| Points | 812,375 of 1,044,306 |
| RMS reprojection error | 0.31432 (0.684805 pix) |
| Max reprojection error | 1.1134 (30.8557 pix) |
| Mean key point size | 2.03038 pix |
| Point colors | 3 bands, uint8 |
| Key points | No |
| Average tie point multiplicity | 3.56203 |
| File size | 78.36 MB |
| **Depth Maps** | |
| Count | 156 |
| **Depth maps generation parameters** | |
| Quality | Medium |
| Filtering mode | Mild |
| Max neighbors | 16 |
| Processing time | 1 minutes 6 seconds |
| Memory usage | 978.36 MB |
| Date created | 2024:07:12 16:39:12 |
| Software version | 1.8.4.14671 |
| File size | 12.31 MB |
| **Model** | |
| Faces | 839,450 |
| Vertices | 419,727 |
| Vertex colors | 3 bands, uint8 |
| Texture | 16,384 x 16,384, 4 bands, uint8 |
| **Texturing parameters** | |
| Mapping mode | Generic |
| Blending mode | Mosaic |
| Texture size | 16,384 |
| Enable hole filling | Yes |
| Enable ghosting filter | Yes |
| UV mapping time | 26 seconds |
| UV mapping memory usage | 612.76 MB |
| Blending time | 57 seconds |
| Blending memory usage | 7.66 GB |
| Blending GPU memory usage | 6.44 GB |
| File size | 144.88 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 |