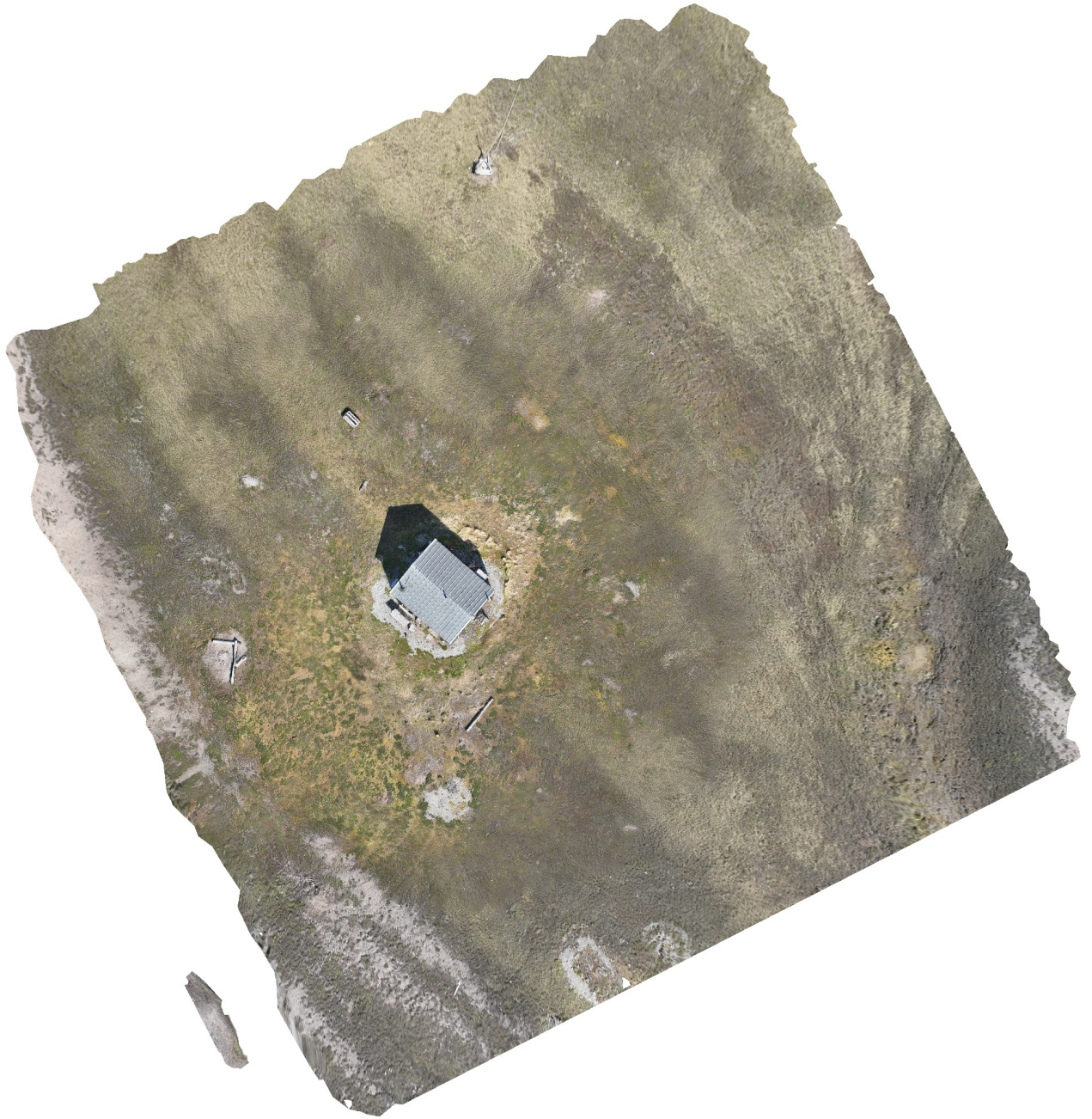


Scotthytta

Processing Report
30 June 2023



Survey Data

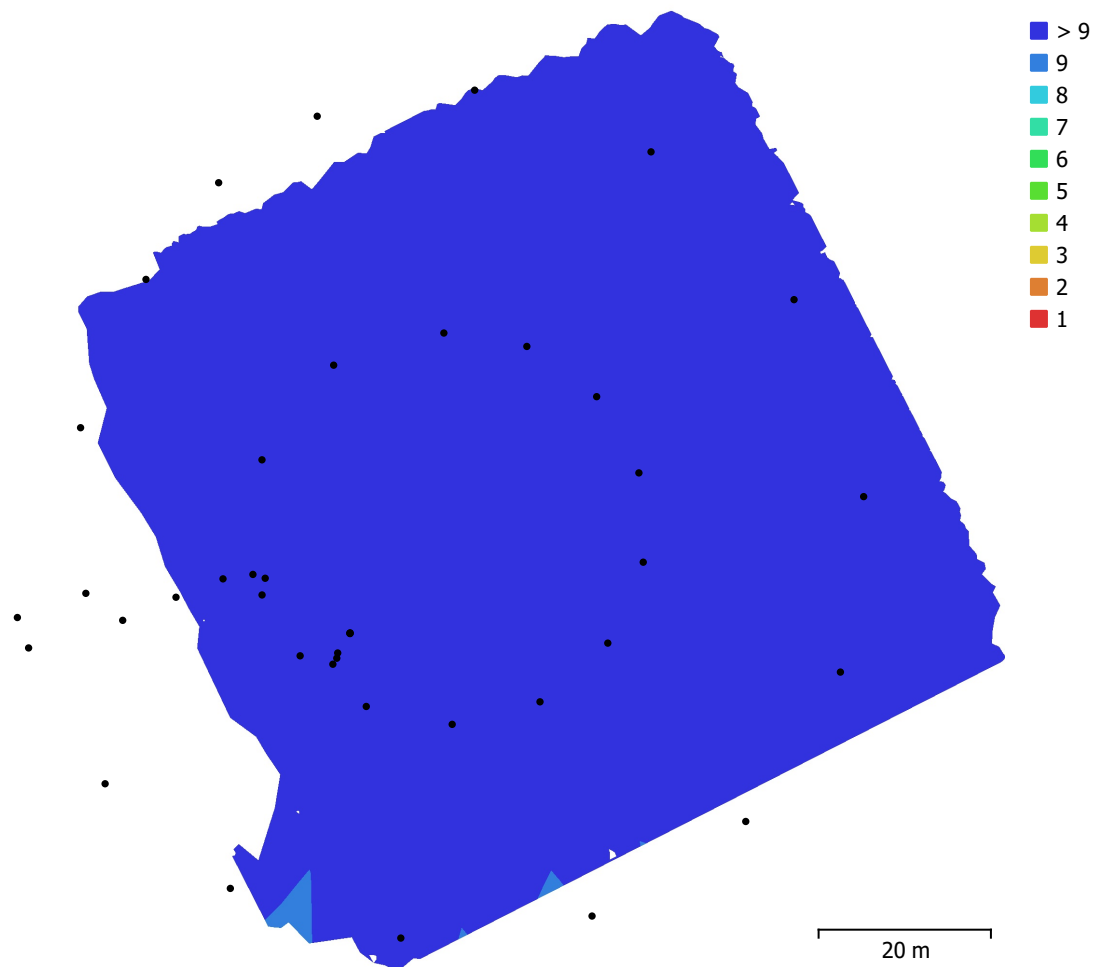


Fig. 1. Camera locations and image overlap.

| | | | |
|--------------------|-------------------------|---------------------|-----------|
| Number of images: | 41 | Camera stations: | 41 |
| Flying altitude: | 24.3 m | Tie points: | 38,250 |
| Ground resolution: | 9.35 mm/pix | Projections: | 107,412 |
| Coverage area: | 7.36e+03 m ² | Reprojection error: | 0.236 pix |

| Camera Model | Resolution | Focal Length | Pixel Size | Precalibrated |
|-------------------|-------------|--------------|---------------------|---------------|
| L2D-20c (12.29mm) | 5280 x 2970 | 12.29 mm | 3.66 x 3.66 μ m | No |

Table 1. Cameras.

Camera Calibration

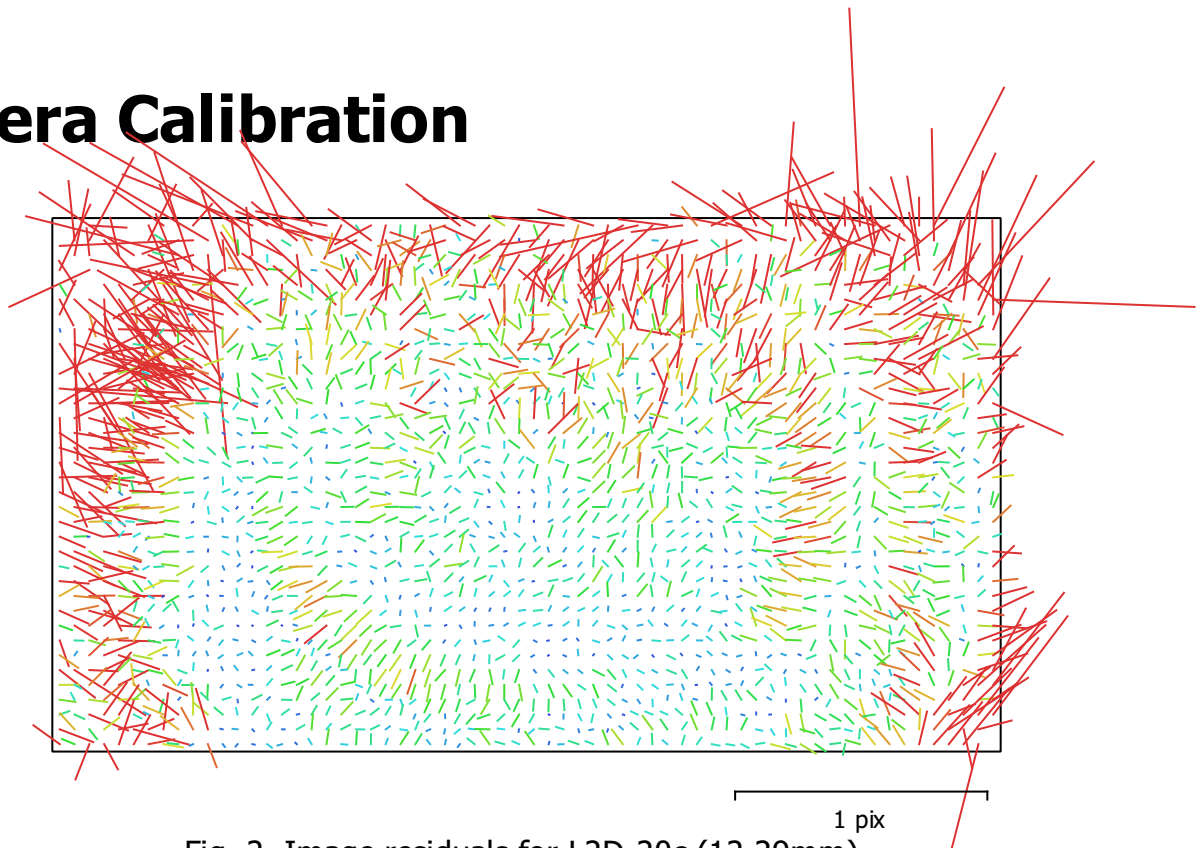


Fig. 2. Image residuals for L2D-20c (12.29mm).

L2D-20c (12.29mm)

41 images

| | | | |
|--------------|--------------------|-----------------|-----------------------|
| Type | Resolution | Focal Length | Pixel Size |
| Frame | 5280 x 2970 | 12.29 mm | 3.66 x 3.66 μm |

| | Value | Error | F | Cx | Cy | K1 | K2 | K3 | P1 | P2 |
|-----------|---------------------|---------|------|-------|-------|-------|-------|-------|-------|-------|
| F | 3703.42 | 0.14 | 1.00 | -0.06 | -0.64 | -0.03 | 0.08 | -0.06 | -0.04 | -0.27 |
| Cx | -32.9223 | 0.19 | | 1.00 | 0.04 | -0.03 | 0.02 | 0.01 | 0.91 | 0.11 |
| Cy | 6.8049 | 0.2 | | | 1.00 | -0.15 | 0.09 | -0.07 | 0.01 | 0.46 |
| K1 | 0.0236353 | 0.00011 | | | | 1.00 | -0.94 | 0.87 | -0.05 | -0.15 |
| K2 | -0.0782828 | 0.00038 | | | | | 1.00 | -0.98 | 0.04 | 0.02 |
| K3 | 0.106773 | 0.00044 | | | | | | 1.00 | -0.01 | 0.00 |
| P1 | -0.000733157 | 1.8e-05 | | | | | | | 1.00 | 0.08 |
| P2 | 0.000177192 | 1.5e-05 | | | | | | | | 1.00 |

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

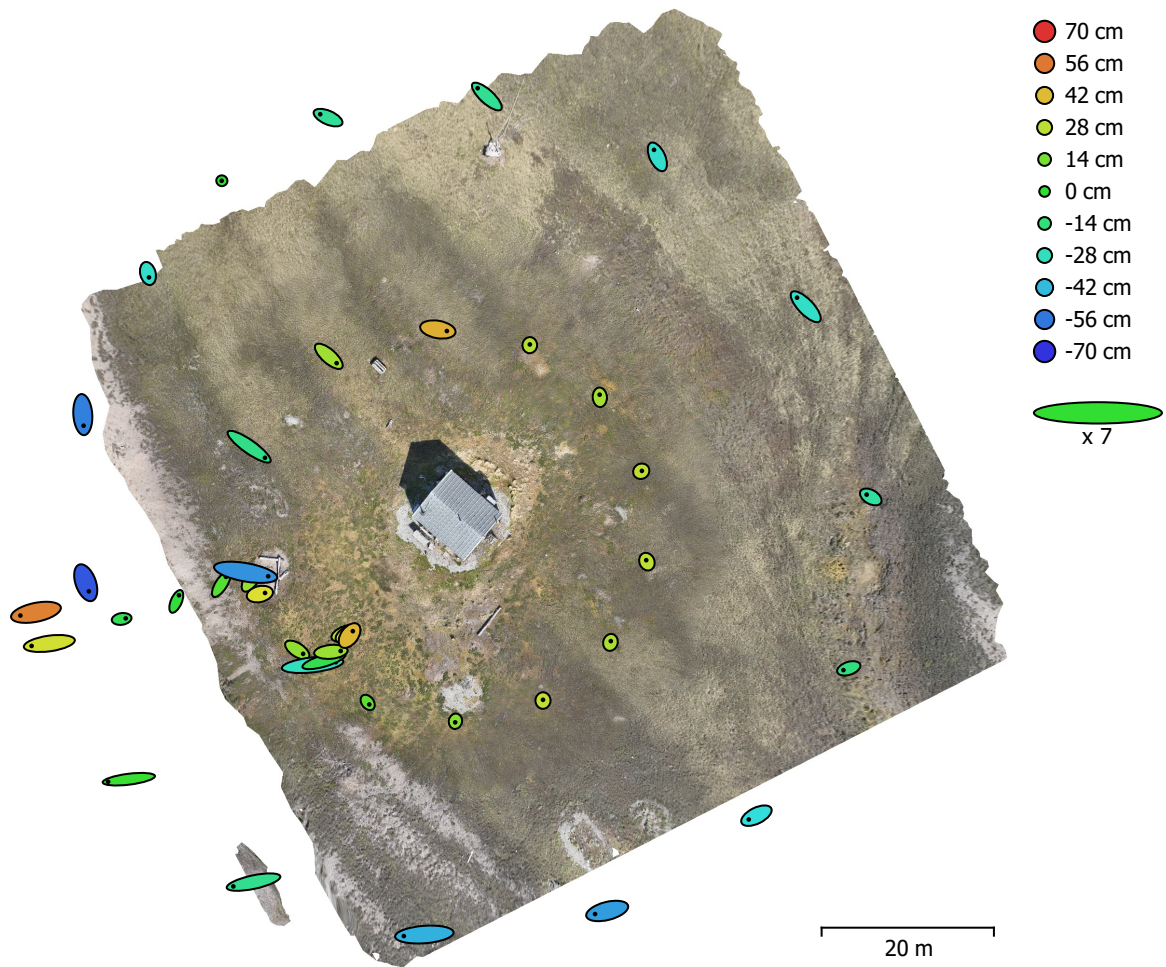


Fig. 3. Camera locations and error estimates.

Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.

Estimated camera locations are marked with a black dot.

| X error (cm) | Y error (cm) | Z error (cm) | XY error (cm) | Total error (cm) |
|---------------------|---------------------|---------------------|----------------------|-------------------------|
| 34.0606 | 15.7111 | 30.3648 | 37.5095 | 48.2595 |

Table 3. Average camera location error.

X - Longitude, Y - Latitude, Z - Altitude.

Digital Elevation Model

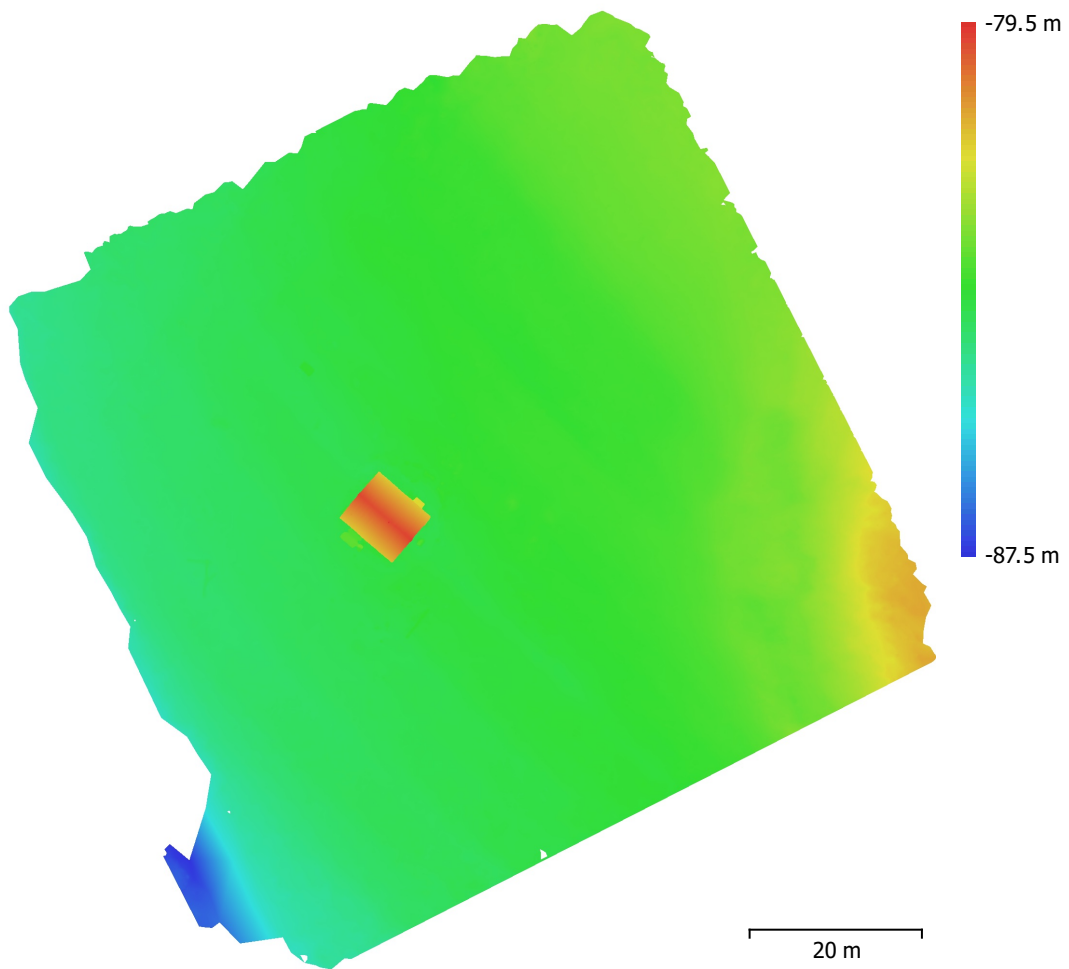


Fig. 4. Reconstructed digital elevation model.

Resolution: 3.74 cm/pix
Point density: 715 points/m²

Processing Parameters

General

| | |
|-------------------|---------------------|
| Cameras | 41 |
| Aligned cameras | 41 |
| Coordinate system | WGS 84 (EPSG::4326) |
| Rotation angles | Yaw, Pitch, Roll |

Tie Points

| | |
|--------------------------------|------------------------|
| Points | 38,250 of 156,841 |
| RMS reprojection error | 0.13136 (0.235746 pix) |
| Max reprojection error | 0.416363 (1.41754 pix) |
| Mean key point size | 1.73067 pix |
| Point colors | 3 bands, uint8 |
| Key points | No |
| Average tie point multiplicity | 2.85871 |

Alignment parameters

| | |
|-------------------------------|---------------------|
| Accuracy | Highest |
| Generic preselection | Yes |
| Reference preselection | No |
| Key point limit | 60,000 |
| Key point limit per Mpx | 1,000 |
| Tie point limit | 0 |
| Exclude stationary tie points | Yes |
| Guided image matching | No |
| Adaptive camera model fitting | No |
| Matching time | 1 minutes 7 seconds |
| Matching memory usage | 364.44 MB |
| Alignment time | 1 minutes 5 seconds |
| Alignment memory usage | 208.87 MB |

Optimization parameters

| | |
|-------------------------------|--------------------------|
| Parameters | f, cx, cy, k1-k3, p1, p2 |
| Adaptive camera model fitting | No |
| Optimization time | 0 seconds |
| Date created | 2023:06:30 10:31:30 |
| Software version | 2.0.2.16334 |
| File size | 8.17 MB |

Depth Maps

| | |
|-----------------------------------------|---------------------|
| Count | 39 |
| Depth maps generation parameters | |
| Quality | Medium |
| Filtering mode | Mild |
| Max neighbors | 16 |
| Processing time | 52 seconds |
| Memory usage | 673.41 MB |
| Date created | 2023:06:30 10:44:14 |
| Software version | 2.0.2.16334 |
| File size | 51.91 MB |

Point Cloud

| | |
|-------------------------|----------------|
| Points | 2,728,233 |
| Point attributes | |
| Color | 3 bands, uint8 |
| Normal | |

| | |
|------------------------------------------|------------------------------------|
| Confidence | 5 - 37 |
| Point classes | |
| Created (never classified) | 2,728,233 |
| Depth maps generation parameters | |
| Quality | Medium |
| Filtering mode | Mild |
| Max neighbors | 16 |
| Processing time | 52 seconds |
| Memory usage | 673.41 MB |
| Point cloud generation parameters | |
| Processing time | 1 minutes 18 seconds |
| Memory usage | 1.58 GB |
| Date created | 2023:06:30 10:45:25 |
| Software version | 2.0.2.16334 |
| File size | 76.66 MB |
| Model | |
| Faces | 84,021 |
| Vertices | 42,449 |
| Vertex colors | 3 bands, uint8 |
| Texture | 4,096 x 4,096 x 10, 4 bands, uint8 |
| Depth maps generation parameters | |
| Quality | Medium |
| Filtering mode | Mild |
| Max neighbors | 16 |
| Processing time | 52 seconds |
| Memory usage | 673.41 MB |
| Point cloud generation parameters | |
| Processing time | 1 minutes 18 seconds |
| Memory usage | 1.58 GB |
| Reconstruction parameters | |
| Surface type | Arbitrary |
| Source data | Point cloud |
| Interpolation | Disabled |
| Strict volumetric masks | No |
| Processing time | 2 minutes 43 seconds |
| Memory usage | 1.35 GB |
| Texturing parameters | |
| Mapping mode | Generic |
| Blending mode | Mosaic |
| Texture size | 4,096 |
| Enable hole filling | Yes |
| Enable ghosting filter | Yes |
| UV mapping time | 40 seconds |
| UV mapping memory usage | 314.74 MB |
| Blending time | 1 minutes 30 seconds |
| Blending memory usage | 4.83 GB |
| Blending GPU memory usage | 4.24 GB |
| Date created | 2023:06:30 10:52:11 |
| Software version | 2.0.2.16334 |
| File size | 139.38 MB |
| Tiled Model | |
| Texture | 3 bands, uint8 |
| Depth maps generation parameters | |
| Quality | Medium |
| Filtering mode | Mild |
| Max neighbors | 16 |

Processing time 52 seconds
Memory usage 673.41 MB

Reconstruction parameters

Source data Point cloud
Tile size 256
Face count Medium
Enable ghosting filter No
Processing time 6 minutes 49 seconds
Memory usage 2.12 GB
Date created 2023:06:30 11:05:47
Software version 2.0.2.16334
File size 60.19 MB

System

Software name Agisoft Metashape Professional
Software version 2.0.2 build 16334
OS Windows 64 bit
RAM 127.71 GB
CPU Intel(R) Core(TM) i9-10900K CPU @ 3.70GHz
GPU(s) Quadro RTX 5000