

Outcrop 3

Processing Report

19 April 2022



Survey Data

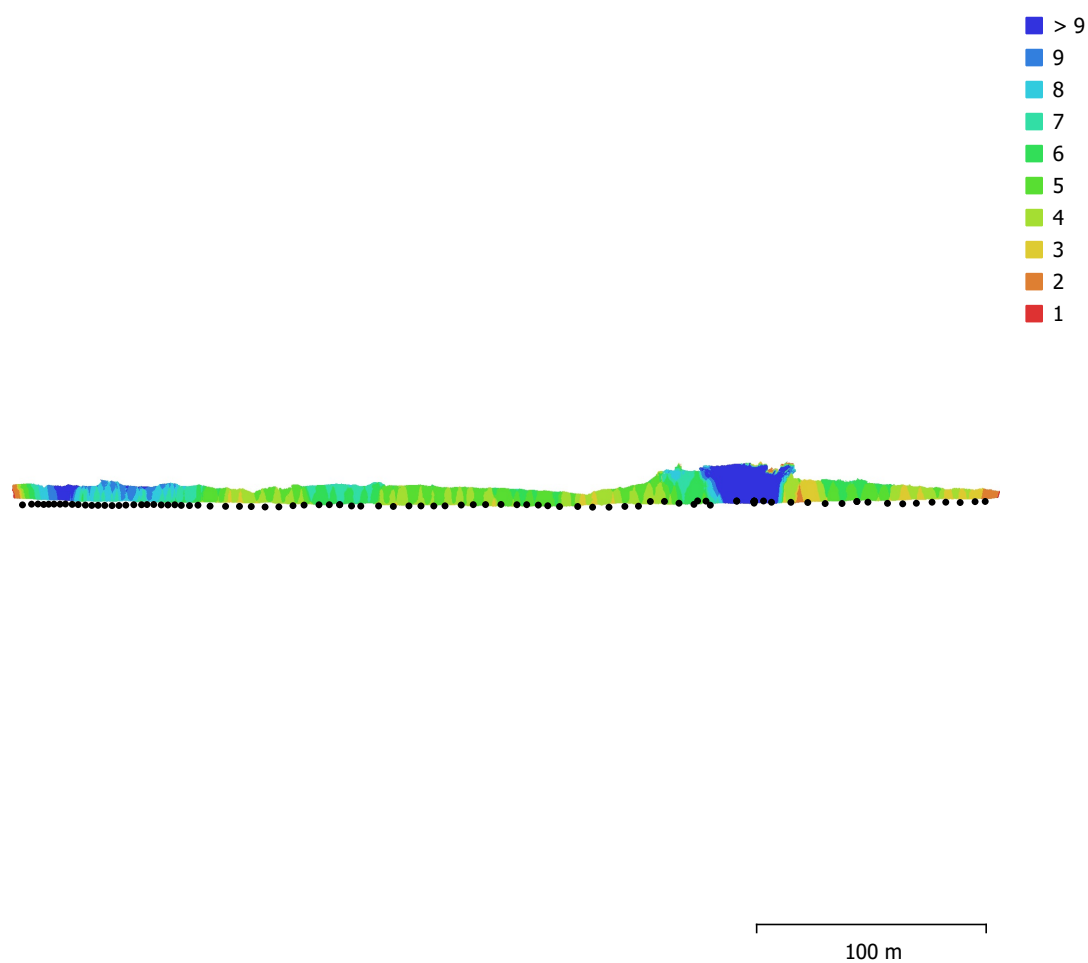


Fig. 1. Camera locations and image overlap.

| | | | |
|--------------------|-------------------------|---------------------|-----------|
| Number of images: | 96 | Camera stations: | 96 |
| Flying altitude: | 21 m | Tie points: | 131,292 |
| Ground resolution: | 4.6 mm/pix | Projections: | 395,393 |
| Coverage area: | 3.68e+03 m ² | Reprojection error: | 0.477 pix |

| Camera Model | Resolution | Focal Length | Pixel Size | Precalibrated |
|--------------------|-------------|--------------|----------------|---------------|
| Test_Pro (10.26mm) | 5472 x 3648 | 10.26 mm | 2.41 x 2.41 μm | No |

Table 1. Cameras.

Camera Calibration

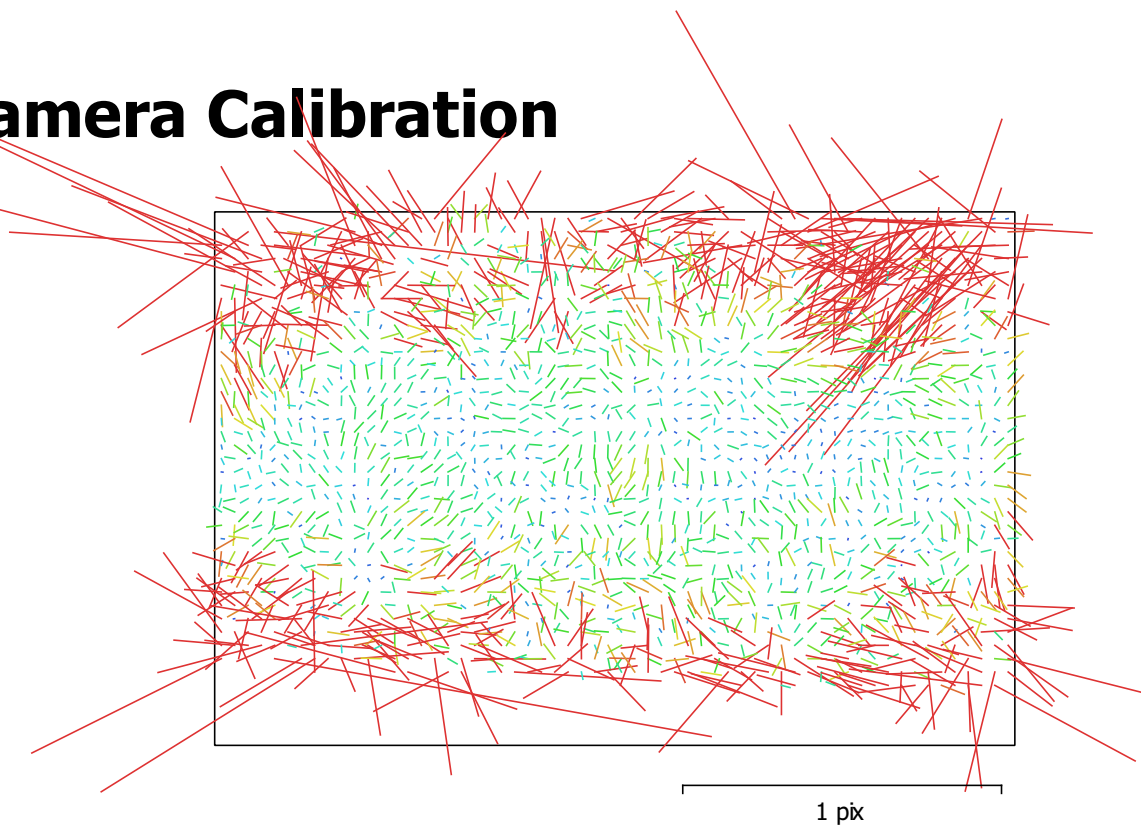


Fig. 2. Image residuals for Test_Pro (10.26mm).

Test_Pro (10.26mm)

96 images

| | | | |
|--------------|--------------------|-----------------|---|
| Type | Resolution | Focal Length | Pixel Size |
| Frame | 5472 x 3648 | 10.26 mm | 2.41 x 2.41 μm |

| | Value | Error | F | Cx | Cy | K1 | K2 | K3 | P1 | P2 |
|-----------|--------------------|---------|------|-------|-------|-------|-------|-------|-------|-------|
| F | 4309.97 | 0.38 | 1.00 | -0.06 | -0.05 | 0.64 | 0.07 | -0.06 | -0.09 | 0.07 |
| Cx | -31.6657 | 0.57 | | 1.00 | -0.07 | -0.09 | -0.02 | 0.02 | 0.98 | -0.03 |
| Cy | -31.4234 | 0.48 | | | 1.00 | -0.04 | 0.08 | -0.08 | -0.08 | 0.94 |
| K1 | 0.00175995 | 7.2e-05 | | | | 1.00 | -0.63 | 0.57 | -0.11 | 0.01 |
| K2 | -0.00684874 | 0.00024 | | | | | 1.00 | -0.98 | -0.03 | 0.08 |
| K3 | 0.0121783 | 0.00034 | | | | | | 1.00 | 0.03 | -0.08 |
| P1 | -0.00127774 | 3.8e-05 | | | | | | | 1.00 | -0.03 |
| P2 | -0.002057 | 2.5e-05 | | | | | | | | 1.00 |

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

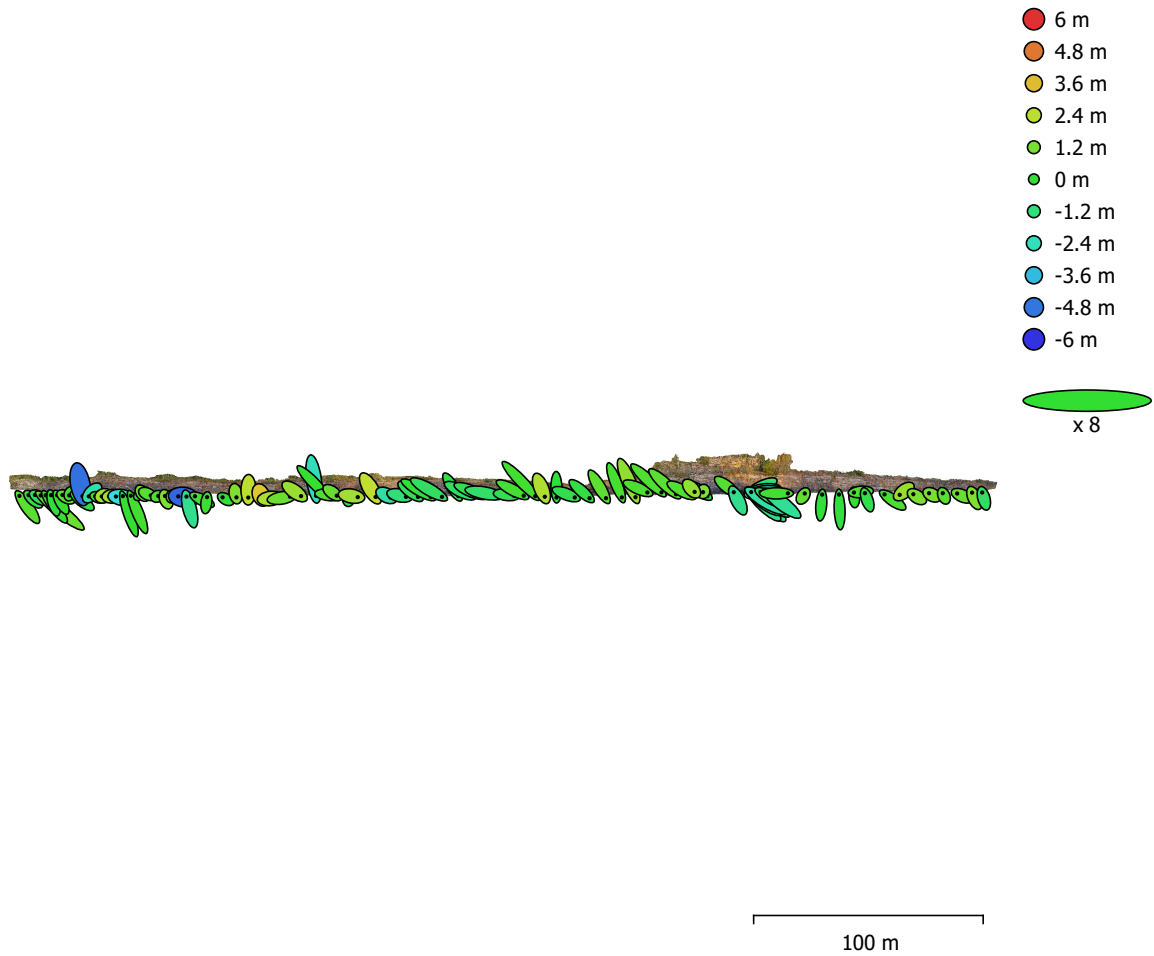


Fig. 3. Camera locations and error estimates.

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 (m) | Y error (m) | Z error (m) | XY error (m) | Total error (m) |
|-------------|-------------|-------------|--------------|-----------------|
| 0.839806 | 0.81374 | 1.40449 | 1.16938 | 1.82758 |

Table 3. Average camera location error.

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

Digital Elevation Model

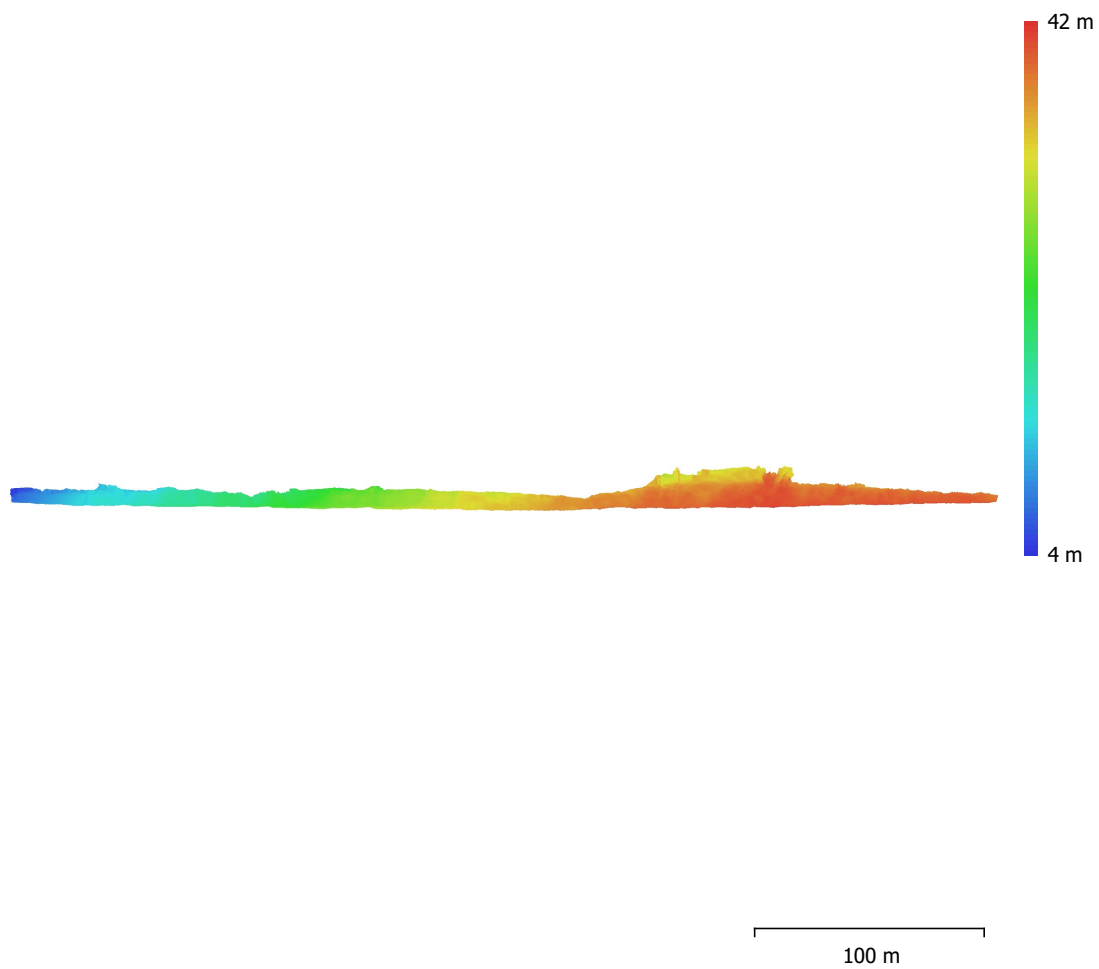


Fig. 4. Reconstructed digital elevation model.

Resolution: 1.84 cm/pix
Point density: 0.296 points/cm²

Processing Parameters

General

| | |
|-------------------|---------------------|
| Cameras | 96 |
| Aligned cameras | 96 |
| Coordinate system | WGS 84 (EPSG::4326) |
| Rotation angles | Yaw, Pitch, Roll |

Point Cloud

| | |
|--------------------------------|-------------------------|
| Points | 131,292 of 203,251 |
| RMS reprojection error | 0.116178 (0.476554 pix) |
| Max reprojection error | 0.354281 (7.56492 pix) |
| Mean key point size | 3.90518 pix |
| Point colors | 3 bands, uint8 |
| Key points | No |
| Average tie point multiplicity | 2.9358 |

Alignment parameters

| | |
|-------------------------------|----------------------|
| Accuracy | High |
| Generic preselection | Yes |
| Reference preselection | Source |
| Key point limit | 40,000 |
| 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 23 seconds |
| Matching memory usage | 848.98 MB |
| Alignment time | 1 minutes 15 seconds |
| Alignment memory usage | 207.60 MB |
| Date created | 2021:10:26 07:00:44 |
| Software version | 1.7.3.12426 |
| File size | 12.70 MB |

Depth Maps

| | |
|---|----------------------|
| Count | 96 |
| Depth maps generation parameters | |
| Quality | Medium |
| Filtering mode | Mild |
| Processing time | 3 minutes 55 seconds |
| File size | 135.22 MB |

Dense Point Cloud

| | |
|--------------|----------------|
| Points | 25,384,579 |
| Point colors | 3 bands, uint8 |

Depth maps generation parameters

| | |
|-----------------|----------------------|
| Quality | Medium |
| Filtering mode | Mild |
| Processing time | 3 minutes 55 seconds |

Dense cloud generation parameters

| | |
|------------------|----------------------|
| Processing time | 1 minutes 51 seconds |
| Date created | 2021:10:26 07:10:43 |
| Software version | 1.7.3.12426 |
| File size | 332.28 MB |

Model

| | |
|---|---|
| Faces | 502,985 |
| Vertices | 257,512 |
| Vertex colors | 3 bands, uint8 |
| Texture | 4,096 x 4,096, 4 bands, uint8 |
| Depth maps generation parameters | |
| Quality | Medium |
| Filtering mode | Mild |
| Processing time | 3 minutes 55 seconds |
| Reconstruction parameters | |
| Surface type | Arbitrary |
| Source data | Dense cloud |
| Interpolation | Enabled |
| Strict volumetric masks | No |
| Processing time | 18 minutes 28 seconds |
| Memory usage | 15.48 GB |
| Texturing parameters | |
| Mapping mode | Generic |
| Blending mode | Mosaic |
| Texture size | 4,096 |
| Enable hole filling | Yes |
| Enable ghosting filter | Yes |
| UV mapping time | 5 minutes 27 seconds |
| UV mapping memory usage | 1.24 GB |
| Blending time | 34 seconds |
| Blending memory usage | 5.51 GB |
| Date created | 2021:10:26 07:17:44 |
| Software version | 1.7.3.12426 |
| File size | 54.69 MB |
| System | |
| Software name | Agisoft Metashape Professional |
| Software version | 1.7.3 build 12426 |
| OS | Windows 64 bit |
| RAM | 63.91 GB |
| CPU | Intel(R) Xeon(R) CPU E5-2643 v3 @ 3.40GHz |
| GPU(s) | Quadro M4000 |