

Sveasletta 2

Processing Report
10 March 2021



Survey Data

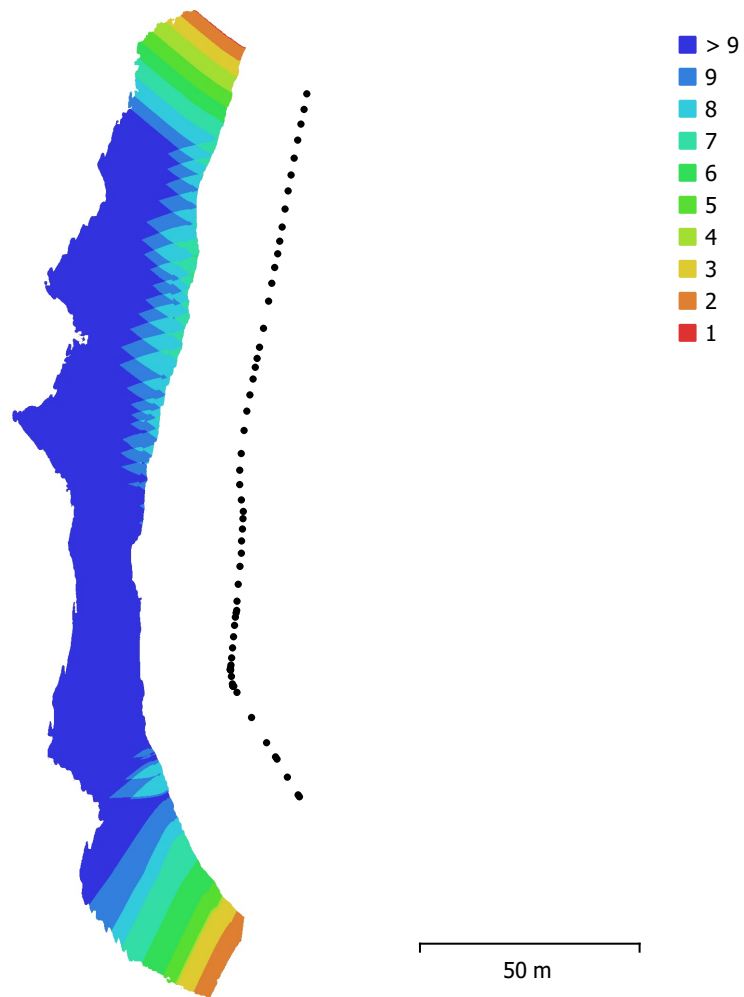


Fig. 1. Camera locations and image overlap.

| | | | |
|--------------------|-------------------------|---------------------|----------|
| Number of images: | 61 | Camera stations: | 61 |
| Flying altitude: | 25.5 m | Tie points: | 52,036 |
| Ground resolution: | 8.57 mm/pix | Projections: | 177,429 |
| Coverage area: | 4.99e+03 m ² | Reprojection error: | 0.36 pix |

| Camera Model | Resolution | Focal Length | Pixel Size | Precalibrated |
|----------------|-------------|--------------|----------------|---------------|
| FC3170 (4.5mm) | 4000 x 3000 | 4.5 mm | 1.62 x 1.62 μm | No |

Table 1. Cameras.

Camera Calibration

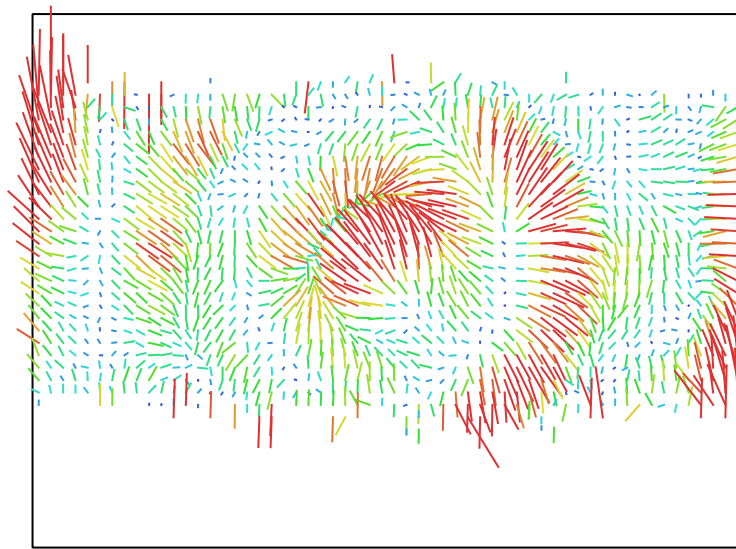


Fig. 2. Image residuals for FC3170 (4.5mm). 1 pix

FC3170 (4.5mm)

61 images

Type
Frame

Resolution
4000 x 3000

Focal Length
4.5 mm

Pixel Size
1.62 x 1.62 μm

| | Value | Error | F | Cx | Cy | K1 | K2 | K3 | P1 | P2 |
|-----------|--------------------|---------|------|-------|------|-------|-------|-------|-------|-------|
| F | 2959.43 | 0.29 | 1.00 | -0.03 | 0.29 | 0.46 | 0.25 | -0.27 | -0.09 | 0.57 |
| Cx | -26.1117 | 0.23 | | 1.00 | 0.03 | -0.13 | 0.14 | -0.19 | 0.91 | 0.05 |
| Cy | -13.6747 | 0.38 | | | 1.00 | 0.47 | -0.18 | 0.26 | -0.04 | 0.82 |
| K1 | -0.0359718 | 8.9e-05 | | | | 1.00 | -0.68 | 0.62 | -0.20 | 0.51 |
| K2 | 0.190559 | 0.00026 | | | | | 1.00 | -0.97 | 0.16 | -0.03 |
| K3 | -0.203267 | 0.00031 | | | | | | 1.00 | -0.21 | 0.06 |
| P1 | -0.00401745 | 2.6e-05 | | | | | | | 1.00 | 0.00 |
| P2 | -0.00169428 | 2.8e-05 | | | | | | | | 1.00 |

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

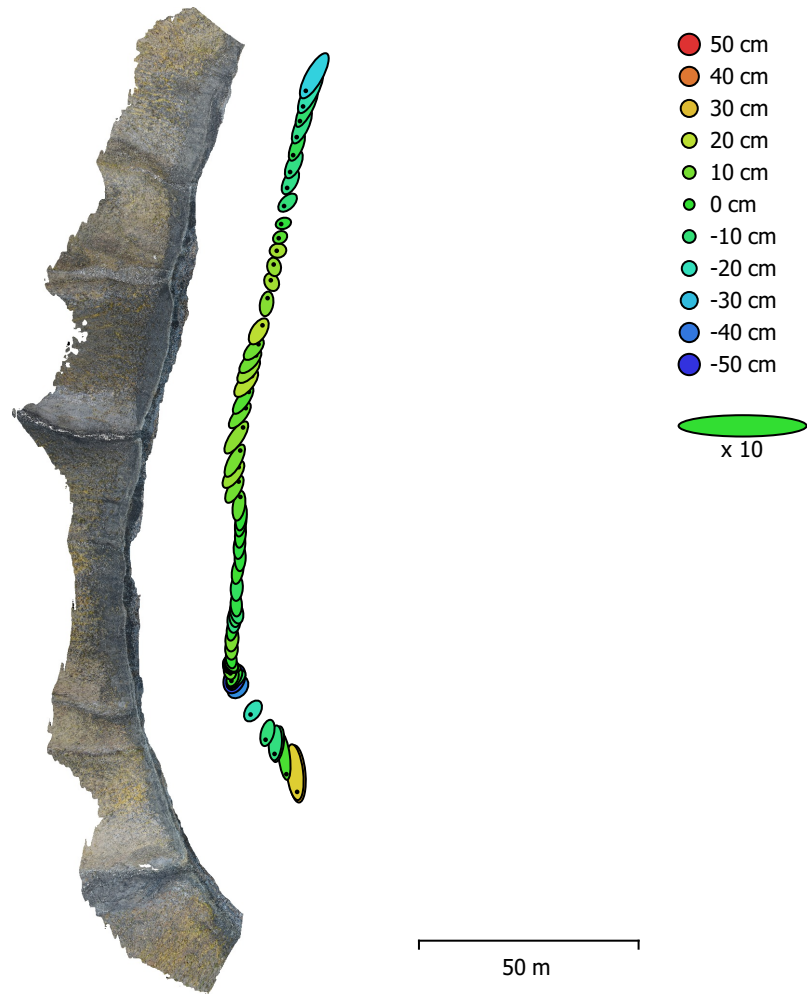


Fig. 3. Camera locations and error estimates.

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) |
|---------------------|---------------------|---------------------|----------------------|-------------------------|
| 15.1952 | 36.2436 | 13.6529 | 39.3 | 41.604 |

Table 3. Average camera location error.

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

Digital Elevation Model

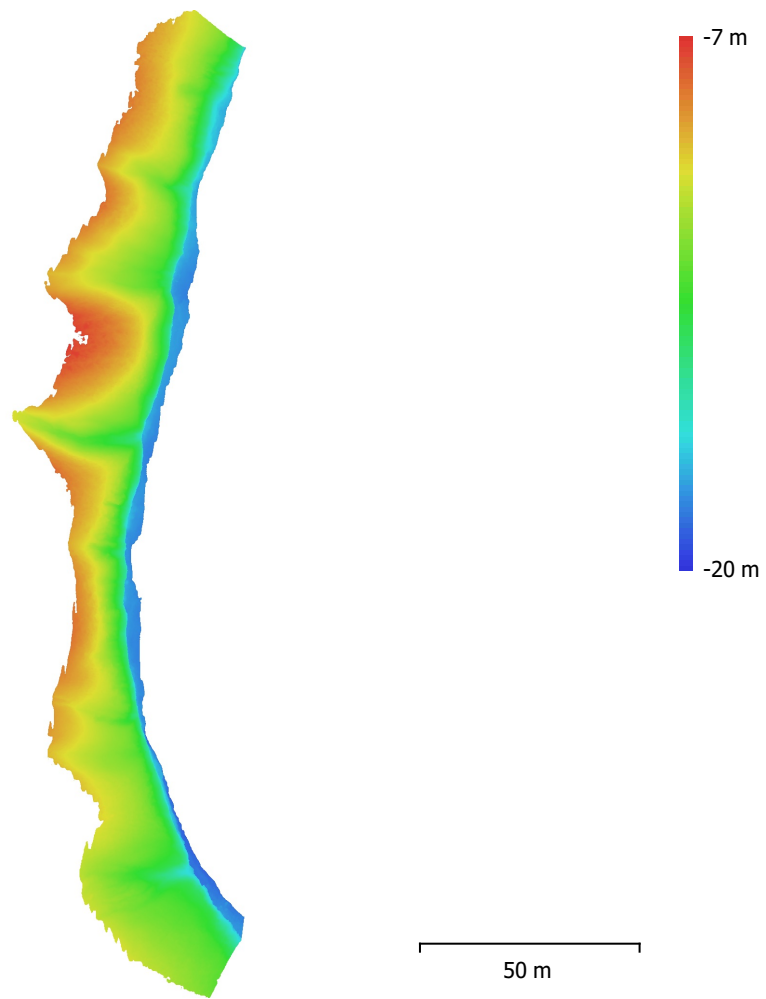


Fig. 4. Reconstructed digital elevation model.

Resolution: 8.75 mm/pix
Point density: 1.31 points/cm²

Processing Parameters

General

| | |
|-------------------|---------------------|
| Cameras | 61 |
| Aligned cameras | 61 |
| Coordinate system | WGS 84 (EPSG::4326) |
| Rotation angles | Yaw, Pitch, Roll |

Point Cloud

| | |
|--------------------------------|-------------------------|
| Points | 52,036 of 71,425 |
| RMS reprojection error | 0.230545 (0.360072 pix) |
| Max reprojection error | 0.691755 (3.52447 pix) |
| Mean key point size | 1.70263 pix |
| Point colors | 3 bands, uint8 |
| Key points | No |
| Average tie point multiplicity | 3.55381 |

Alignment parameters

| | |
|-------------------------------|----------------------|
| Accuracy | Highest |
| Generic preselection | Yes |
| Reference preselection | Source |
| Key point limit | 40,000 |
| Tie point limit | 4,000 |
| Guided image matching | No |
| Adaptive camera model fitting | No |
| Matching time | 1 minutes 22 seconds |
| Matching memory usage | 332.68 MB |
| Alignment time | 6 minutes 47 seconds |
| Alignment memory usage | 37.27 MB |
| Software version | 1.6.3.10732 |
| File size | 5.28 MB |

Depth Maps

| | |
|---|-----------------------|
| Count | 61 |
| Depth maps generation parameters | |
| Quality | Ultra High |
| Filtering mode | Mild |
| Processing time | 36 minutes 47 seconds |
| Memory usage | 3.10 GB |
| Software version | 1.6.3.10732 |
| File size | 570.37 MB |

Dense Point Cloud

| | |
|--|-----------------------|
| Points | 81,952,421 |
| Point colors | 3 bands, uint8 |
| Depth maps generation parameters | |
| Quality | Ultra High |
| Filtering mode | Mild |
| Processing time | 36 minutes 47 seconds |
| Memory usage | 3.10 GB |
| Dense cloud generation parameters | |
| Processing time | 43 minutes 59 seconds |
| Memory usage | 7.40 GB |
| Software version | 1.6.3.10732 |
| File size | 1.48 GB |

Model

| | |
|---|--|
| Faces | 1,499,999 |
| Vertices | 759,251 |
| Vertex colors | 3 bands, uint8 |
| Texture | 8,192 x 8,192, 4 bands, uint8 |
| Depth maps generation parameters | |
| Quality | Ultra High |
| Filtering mode | Mild |
| Processing time | 36 minutes 47 seconds |
| Memory usage | 3.10 GB |
| Reconstruction parameters | |
| Surface type | Arbitrary |
| Source data | Dense cloud |
| Interpolation | Enabled |
| Strict volumetric masks | No |
| Processing time | 46 minutes 57 seconds |
| Memory usage | 41.81 GB |
| Texturing parameters | |
| Mapping mode | Generic |
| Blending mode | Mosaic |
| Texture size | 8,192 |
| Enable hole filling | Yes |
| Enable ghosting filter | Yes |
| UV mapping time | 10 minutes 35 seconds |
| Blending time | 53 seconds |
| Software version | 1.6.3.10732 |
| File size | 165.59 MB |
| Tiled Model | |
| Texture | 3 bands, uint8 |
| Depth maps generation parameters | |
| Quality | Ultra High |
| Filtering mode | Mild |
| Processing time | 36 minutes 47 seconds |
| Memory usage | 3.10 GB |
| Reconstruction parameters | |
| Source data | Dense cloud |
| Tile size | 256 |
| Face count | Low |
| Enable ghosting filter | No |
| Processing time | 52 minutes 26 seconds |
| Memory usage | 6.72 GB |
| Software version | 1.7.1.11797 |
| File size | 76.18 MB |
| System | |
| Software name | Agisoft Metashape Professional |
| Software version | 1.7.1 build 11797 |
| OS | Windows 64 bit |
| RAM | 127.78 GB |
| CPU | Intel(R) Core(TM) i9-9900K CPU @ 3.60GHz |
| GPU(s) | GeForce RTX 2080 |