

# Agisoft Metashape

Processing Report

14 November 2025



# Survey Data

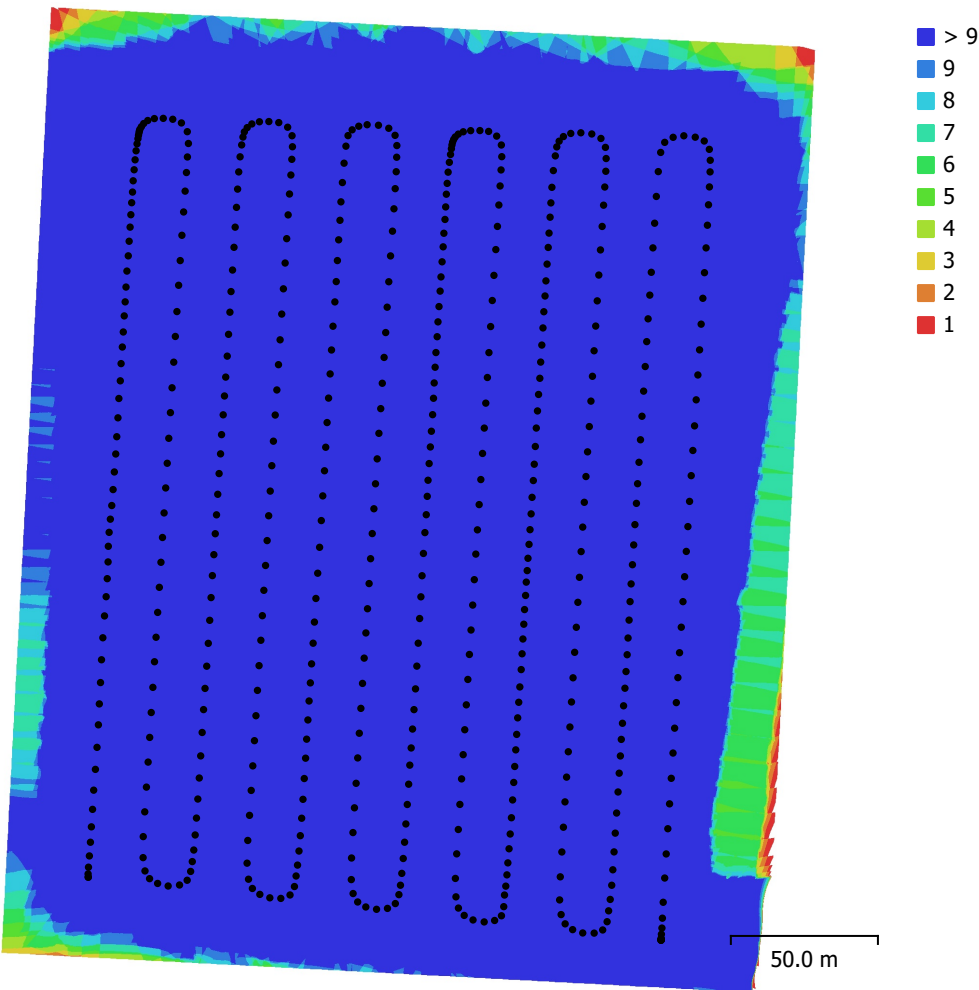


Fig. 1. Camera locations and image overlap.

|                    |             |                     |            |
|--------------------|-------------|---------------------|------------|
| Number of images:  | 545         | Camera stations:    | 545        |
| Flying altitude:   | 53.7 m      | Tie points:         | 2,512,647  |
| Ground resolution: | 1.43 cm/pix | Projections:        | 18,020,871 |
| Coverage area:     | 0.0834 km²  | Reprojection error: | 0.852 pix  |

| Camera Model  | Resolution  | Focal Length | Pixel Size     | Precalibrated |
|---------------|-------------|--------------|----------------|---------------|
| M3E (12.29mm) | 5280 x 3956 | 12.29 mm     | 3.36 x 3.36 µm | Yes           |

Table 1. Cameras.

# Camera Calibration



Fig. 2. Image residuals for M3E (12.29mm).

## M3E (12.29mm)

545 images, precalibrated

|              |                    |                 |   |
|--------------|--------------------|-----------------|---|
| Type         | Resolution         | Focal Length    | Pixel Size                                  |
| <b>Frame</b> | <b>5280 x 3956</b> | <b>12.29 mm</b> | <b>3.36 x 3.36 <math>\mu\text{m}</math></b> |

|           | Value              | Error   | F    | Cx   | Cy   | K1    | K2    | K3    | P1    | P2    |
|-----------|--------------------|---------|------|------|------|-------|-------|-------|-------|-------|
| <b>F</b>  | <b>3758.86</b>     | 0.39    | 1.00 | 0.03 | 0.64 | -0.89 | 0.24  | -0.85 | 0.05  | -0.60 |
| <b>Cx</b> | <b>-0.0821658</b>  | 0.01    |      | 1.00 | 0.03 | -0.02 | -0.00 | -0.03 | -0.78 | -0.02 |
| <b>Cy</b> | <b>-8.17435</b>    | 0.013   |      |      | 1.00 | -0.58 | 0.16  | -0.55 | 0.02  | -0.85 |
| <b>K1</b> | <b>-0.113124</b>   | 2.5e-05 |      |      |      | 1.00  | -0.44 | 0.77  | -0.03 | 0.64  |
| <b>K2</b> | <b>0.00720663</b>  | 1.2e-05 |      |      |      |       | 1.00  | -0.65 | 0.01  | -0.18 |
| <b>K3</b> | <b>-0.0231217</b>  | 1.7e-05 |      |      |      |       |       | 1.00  | -0.05 | 0.47  |
| <b>P1</b> | <b>0.000282075</b> | 4e-07   |      |      |      |       |       |       | 1.00  | -0.01 |
| <b>P2</b> | <b>-2.5295e-05</b> | 4.7e-07 |      |      |      |       |       |       |       | 1.00  |

Table 2. Calibration coefficients and correlation matrix.



# Camera Locations

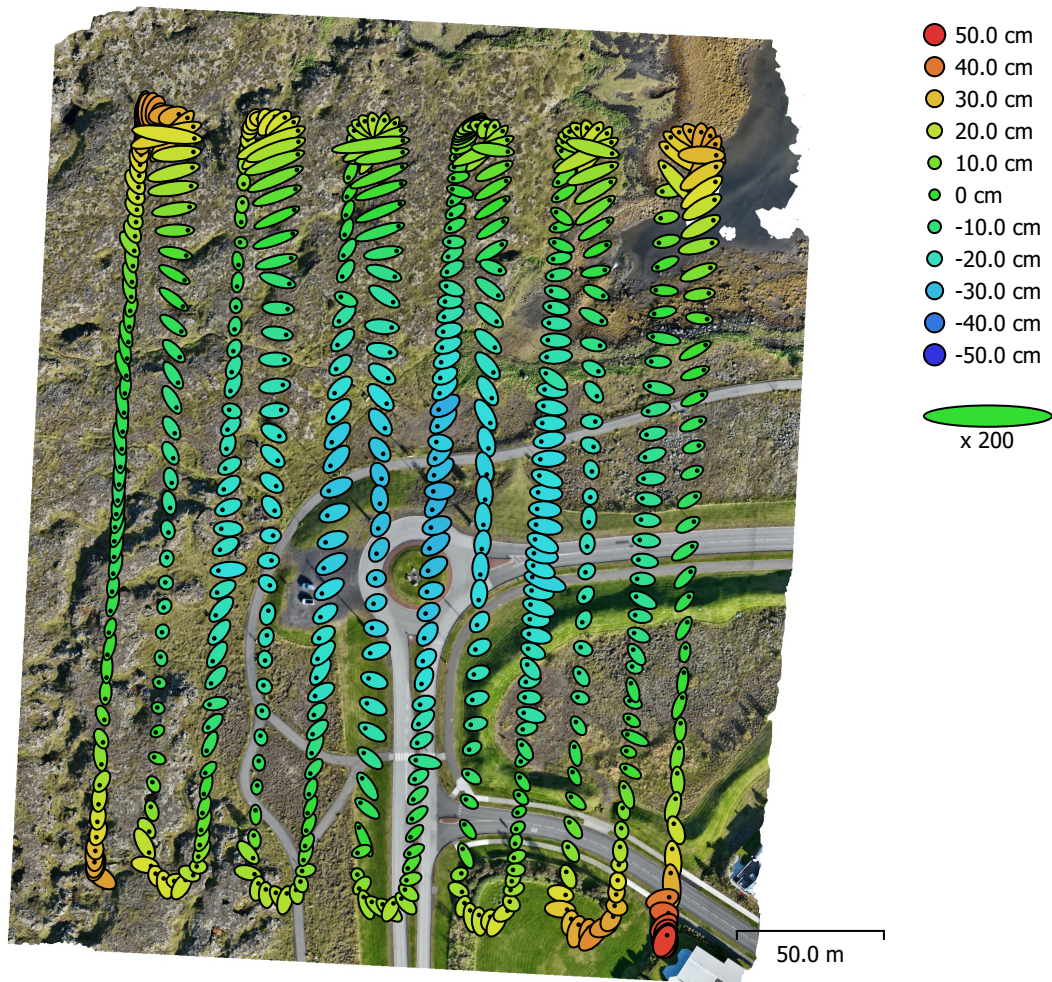


Fig. 3. Camera locations and error estimates.

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) |
|--------------|--------------|--------------|---------------|------------------|
| 2.52531      | 1.92643      | 19.0143      | 3.17621       | 19.2777          |

Table 3. Average camera location error.

X - Easting, Y - Northing, Z - Altitude.

# Ground Control Points

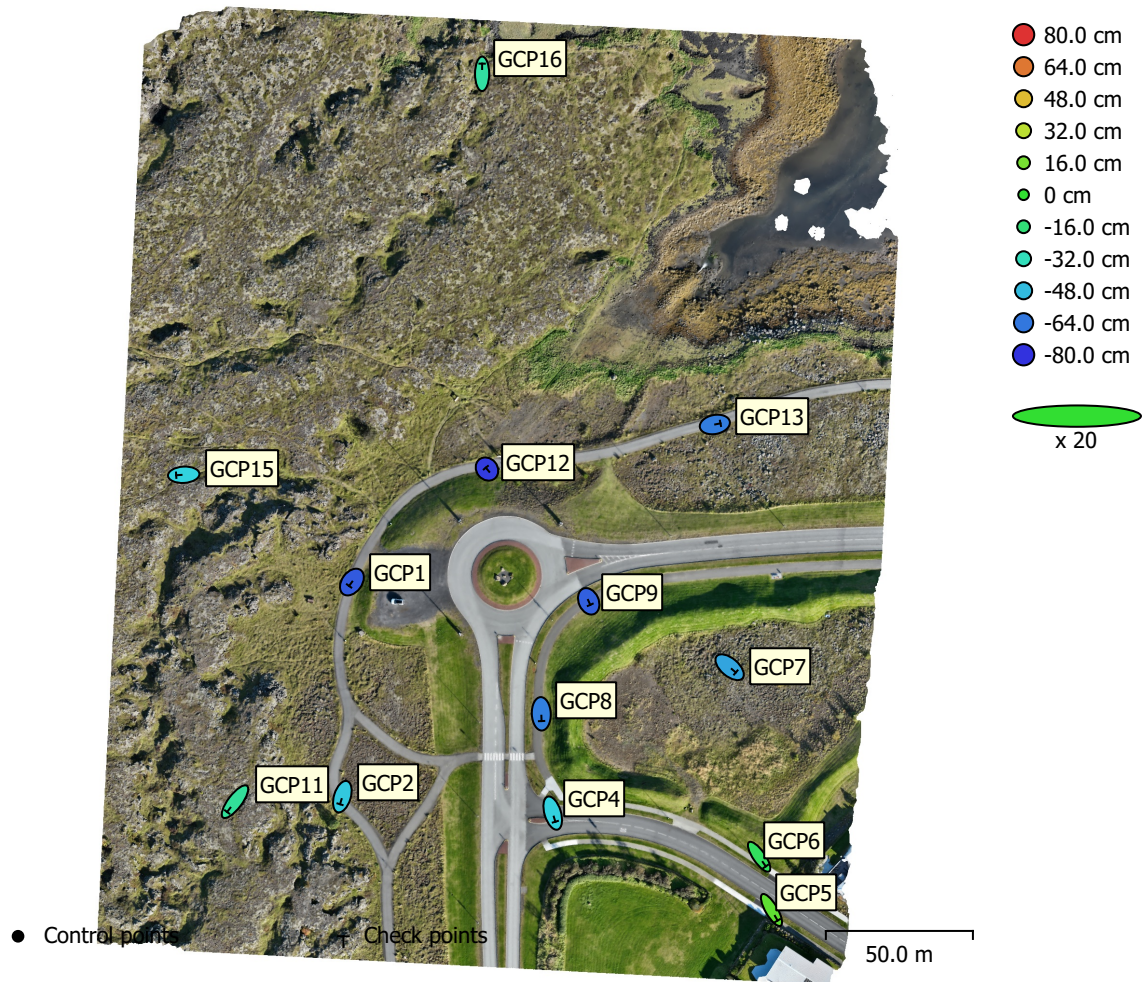


Fig. 4. GCP locations and error estimates.

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

Estimated GCP locations are marked with a dot or crossing.

| Count | X error (cm) | Y error (cm) | Z error (cm) | XY error (cm) | Total (cm) |
|-------|--------------|--------------|--------------|---------------|------------|
| 13    | 16.185       | 24.146       | 50.8884      | 29.0686       | 58.6056    |

Table 4. Check points RMSE.

X - Easting, Y - Northing, Z - Altitude.

| <b>Label</b> | <b>X error (cm)</b> | <b>Y error (cm)</b> | <b>Z error (cm)</b> | <b>Total (cm)</b> | <b>Image (pix)</b> |
|--------------|---------------------|---------------------|---------------------|-------------------|--------------------|
| GCP16        | 0.128818            | 34.5754             | -26.1608            | 43.3574           | 1.122 (22)         |
| GCP15        | -25.6373            | -1.55452            | -42.6533            | 49.7895           | 1.052 (16)         |
| GCP13        | 19.0961             | 3.80718             | -62.5531            | 65.5137           | 1.178 (34)         |
| GCP12        | -3.80902            | 4.60698             | -77.8518            | 78.081            | 1.372 (35)         |
| GCP11        | -26.6603            | -35.0352            | -24.1097            | 50.1947           | 2.500 (30)         |
| GCP9         | 5.35383             | -11.8749            | -69.4558            | 70.6667           | 2.628 (34)         |
| GCP8         | 0.979289            | -24.652             | -61.9863            | 66.7157           | 1.392 (32)         |
| GCP7         | 21.0152             | -17.8219            | -53.5009            | 60.1797           | 0.990 (22)         |
| GCP6         | 22.643              | -32.7411            | -10.2525            | 41.1072           | 1.773 (25)         |
| GCP5         | 20.9368             | -35.8271            | 10.3792             | 42.7745           | 1.251 (19)         |
| GCP4         | 8.90737             | -29.2958            | -42.9769            | 52.7693           | 1.395 (45)         |
| GCP2         | -7.96173            | -25.7778            | -45.0253            | 52.4897           | 1.514 (40)         |
| GCP1         | -9.65065            | -13.1795            | -70.6434            | 72.5074           | 1.138 (30)         |
| <b>Total</b> | <b>16.185</b>       | <b>24.146</b>       | <b>50.8884</b>      | <b>58.6056</b>    | <b>1.606</b>       |

Table 5. Check points.  
X - Easting, Y - Northing, Z - Altitude.



# Digital Elevation Model

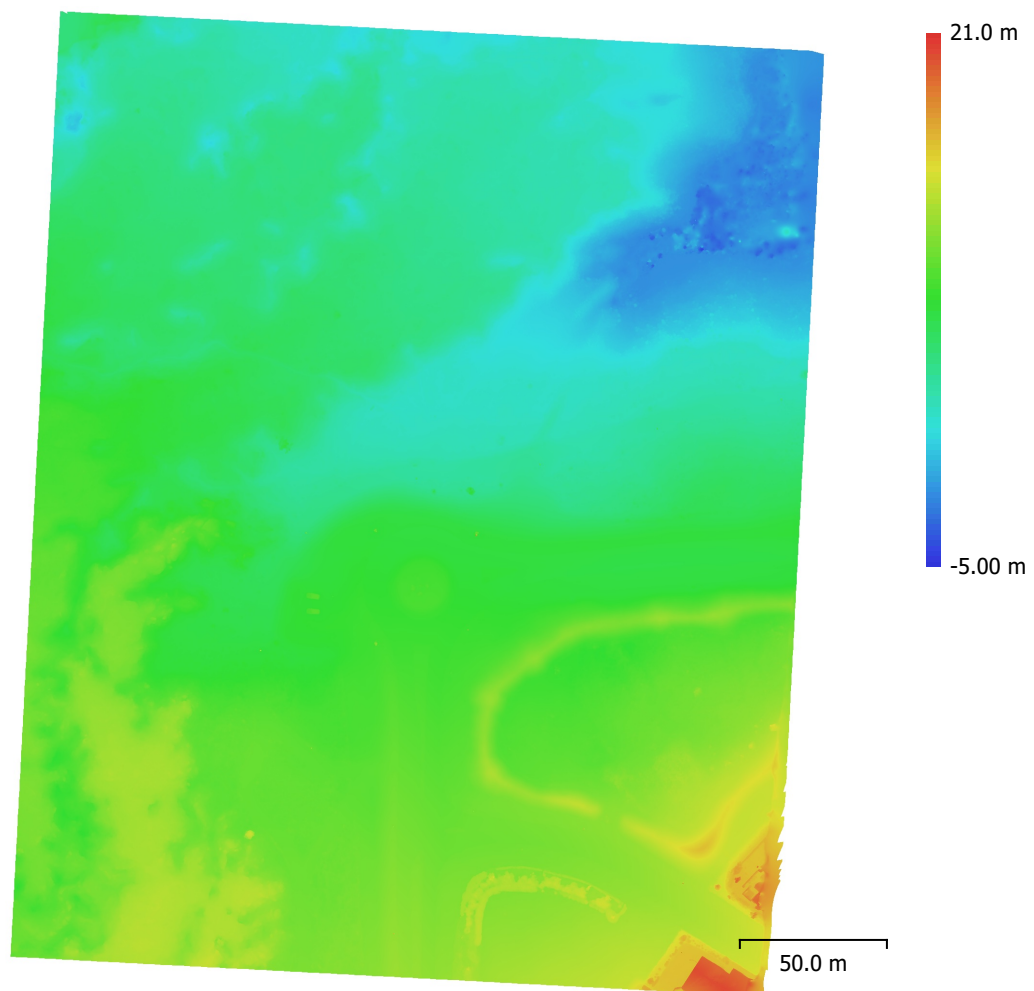


Fig. 5. Reconstructed digital elevation model.

Resolution: 10.5 cm/pix  
Point density: 91.3 points/m<sup>2</sup>

# Processing Parameters

## General

|                   |                   |
|-------------------|-------------------|
| Images            | 545               |
| Aligned images    | 545               |
| Markers           | 16                |
| Coordinate system | ISN2016 + ISH2004 |
| Rotation angles   | Yaw, Pitch, Roll  |

## Tie Points

|                                |                         |
|--------------------------------|-------------------------|
| Points                         | 2,512,647 of 2,703,885  |
| RMS reprojection error         | 0.272942 (0.852005 pix) |
| Max reprojection error         | 0.819624 (64.3499 pix)  |
| Mean key point size            | 3.24623 pix             |
| Point colors                   | 3 bands, uint8          |
| Key points                     | No                      |
| Average tie point multiplicity | 7.68293                 |

## Alignment parameters

|                               |                       |
|-------------------------------|-----------------------|
| Accuracy                      | High                  |
| Generic preselection          | No                    |
| Reference preselection        | Source                |
| 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                 | 20 minutes 51 seconds |
| Matching memory usage         | 2.20 GB               |
| Alignment time                | 13 minutes 48 seconds |
| Alignment memory usage        | 5.63 GB               |
| Date created                  | 2025:11:14 13:25:12   |
| Software version              | 2.3.0.21427           |
| File size                     | 1.15 GB               |

## Model

|               |                |
|---------------|----------------|
| Faces         | 6,740,729      |
| Vertices      | 3,377,118      |
| Vertex colors | 3 bands, uint8 |

## Depth maps generation parameters

|                 |                       |
|-----------------|-----------------------|
| Quality         | High                  |
| Filtering mode  | Mild                  |
| Max neighbors   | 16                    |
| Processing time | 25 minutes 12 seconds |
| Memory usage    | 6.85 GB               |

## Reconstruction parameters

|                         |                       |
|-------------------------|-----------------------|
| Surface type            | Arbitrary             |
| Source data             | Depth maps            |
| Interpolation           | Enabled               |
| Strict volumetric masks | No                    |
| Processing time         | 18 minutes 46 seconds |
| Memory usage            | 13.56 GB              |
| Date created            | 2025:11:14 12:00:28   |
| Software version        | 2.3.0.21427           |



|                                  |                                      |
|----------------------------------|--------------------------------------|
| File size                        | 144.76 MB                            |
| <b>DEM</b>                       |                                      |
| Size                             | 2,647 x 3,207                        |
| Resolution                       | 10.5 cm/pix                          |
| Coordinate system                | ISN2016 + ISH2004                    |
| <b>Reconstruction parameters</b> |                                      |
| Source data                      | Model                                |
| Interpolation                    | Enabled                              |
| Processing time                  | 6 seconds                            |
| Memory usage                     | 398.05 MB                            |
| Date created                     | 2025:11:14 13:01:06                  |
| Software version                 | 2.3.0.21427                          |
| File size                        | 39.68 MB                             |
| <b>System</b>                    |                                      |
| Software name                    | Agisoft Metashape Professional       |
| Software version                 | 2.3.0 build 21427                    |
| OS                               | Windows 64 bit                       |
| RAM                              | 127.76 GB                            |
| CPU                              | 12th Gen Intel(R) Core(TM) i9-12900K |
| GPU(s)                           | NVIDIA GeForce RTX 3070 Ti           |