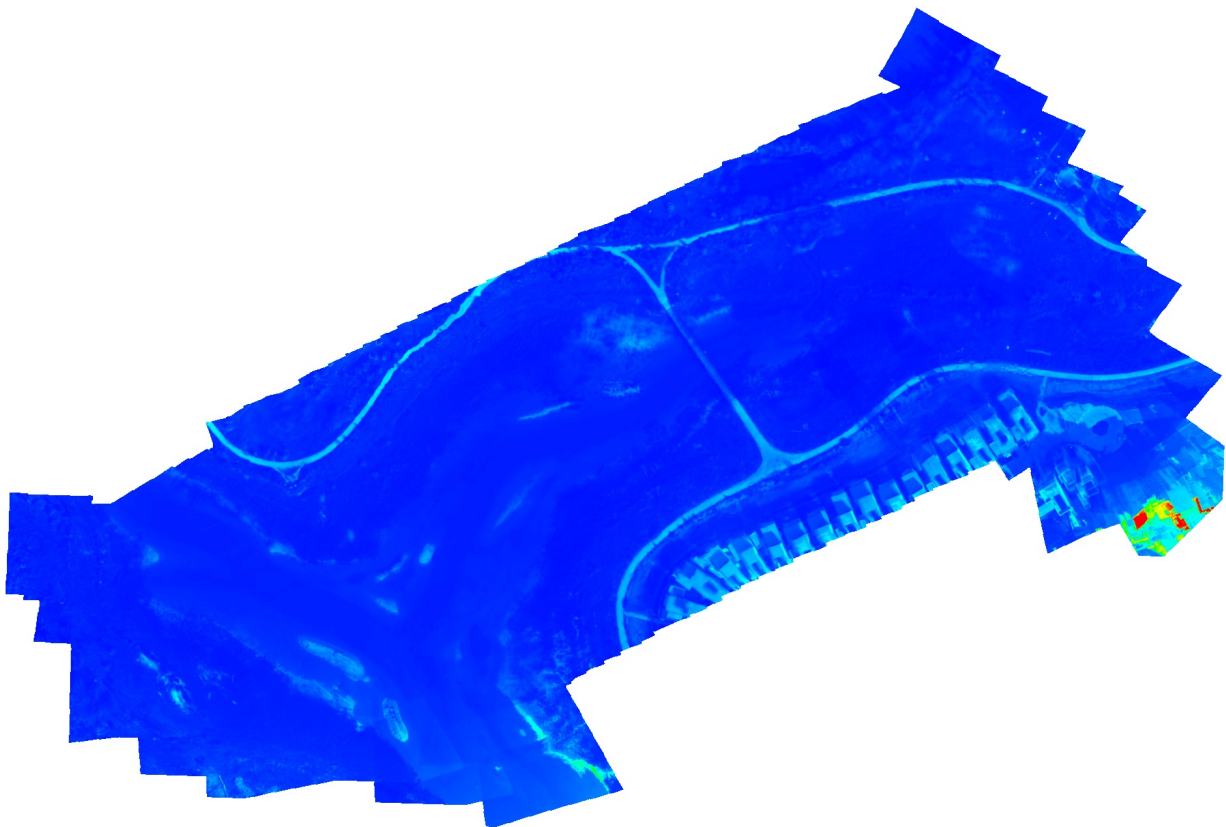


NCOS Processing Report

Processing Report

03 December 2025



Survey Data

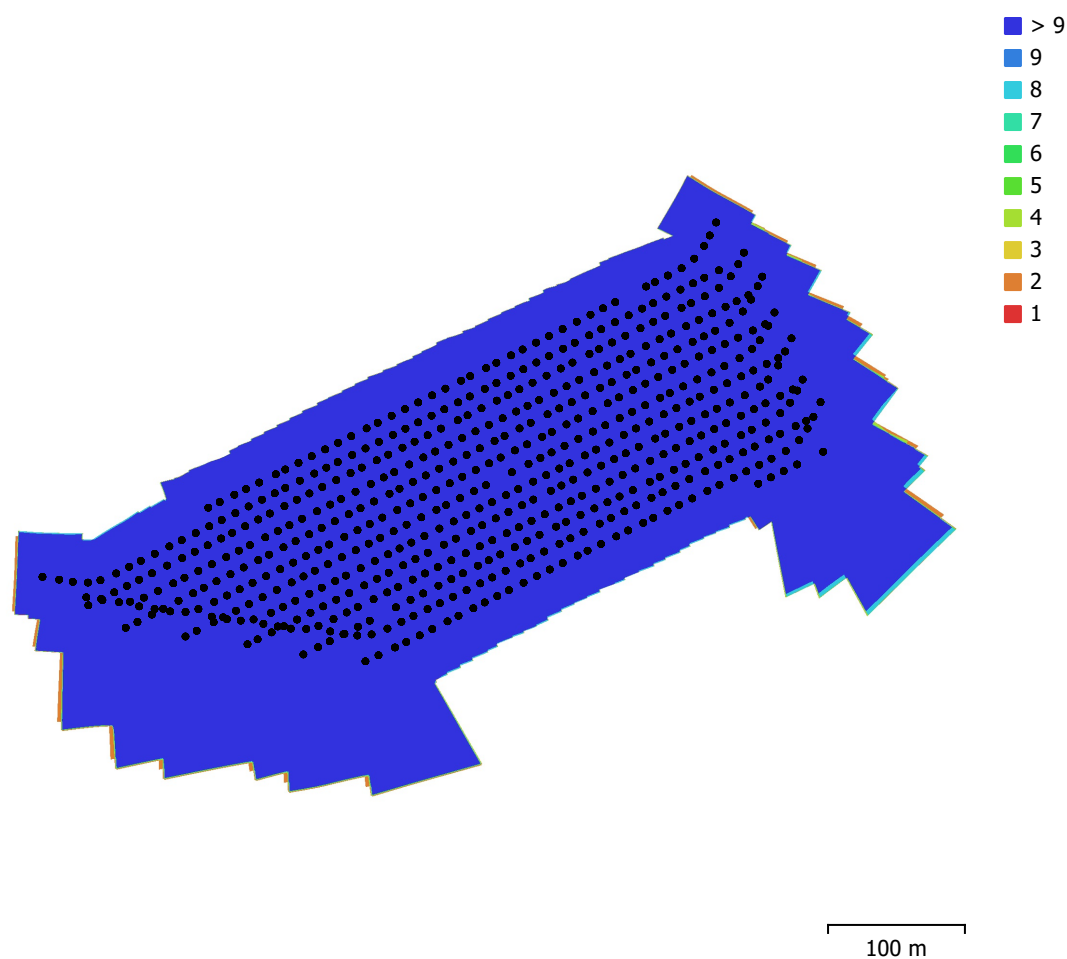


Fig. 1. Camera locations and image overlap.

Number of images:	7,140	Camera stations:	7,044
Flying altitude:	67.8 m	Tie points:	765,580
Ground resolution:	2.19 cm/pix	Projections:	18,420,450
Coverage area:	0.15 km ²	Reprojection error:	0.434 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
RedEdge-P, Blue (5.5mm)	1456 x 1088	5.5 mm	3.45 x 3.45 µm	Yes
RedEdge-P, Green (5.5mm)	1456 x 1088	5.5 mm	3.45 x 3.45 µm	Yes
RedEdge-P, Panchro (10.4mm)	2464 x 2056	10.4 mm	3.45 x 3.45 µm	Yes
RedEdge-P, Red (5.5mm)	1456 x 1088	5.5 mm	3.45 x 3.45 µm	Yes
RedEdge-P, Red edge (5.5mm)	1456 x 1088	5.5 mm	3.45 x 3.45 µm	Yes

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
RedEdge-P, NIR (5.5mm)	1456 x 1088	5.5 mm	3.45 x 3.45 μm	Yes

Table 1. Cameras.

Camera Calibration

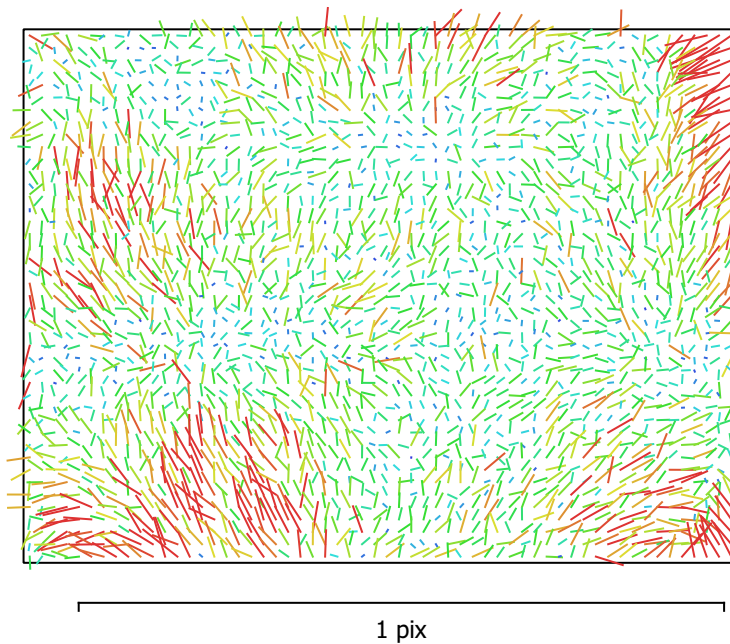


Fig. 2. Image residuals for RedEdge-P, Blue (5.5mm).

RedEdge-P, Blue (5.5mm)

1190 images, precalibrated

Type	Resolution	Focal Length	Pixel Size
Frame	1456 x 1088	5.5 mm	3.45 x 3.45 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	1568.72	0.011	1.00	0.07	0.11	-0.25	0.23	-0.20	0.01	-0.01
Cx	-0.791573	0.0069		1.00	-0.00	0.00	-0.00	0.00	0.88	-0.01
Cy	-36.8646	0.0054			1.00	0.02	-0.02	0.03	-0.01	0.76
K1	-0.0926094	3.9e-05				1.00	-0.97	0.93	0.01	-0.02
K2	0.138134	0.00026					1.00	-0.99	-0.00	0.02
K3	-0.028889	0.00052						1.00	0.00	-0.02
P1	0.000316313	1.4e-06							1.00	-0.01
P2	-5.29941e-05	1.1e-06								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration

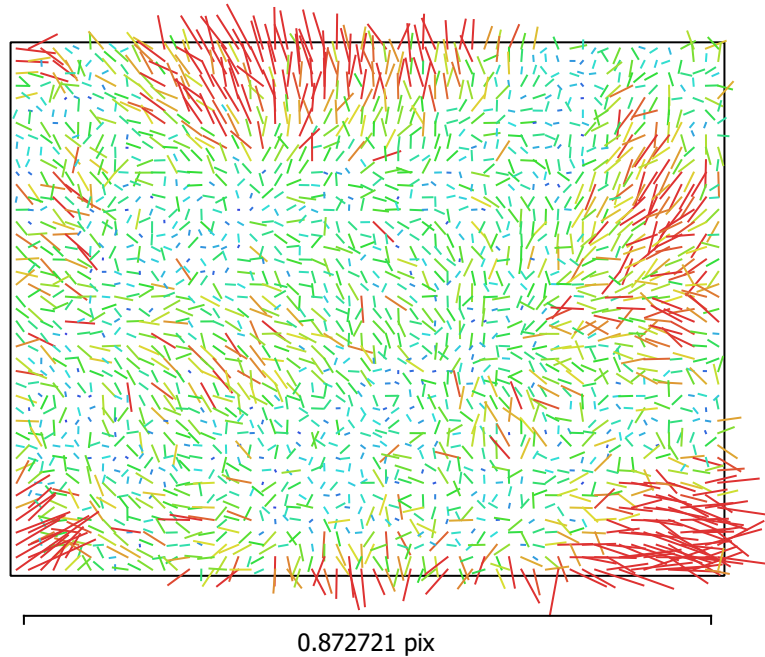


Fig. 3. Image residuals for RedEdge-P, Green (5.5mm).

RedEdge-P, Green (5.5mm)

1190 images, precalibrated

Type	Resolution	Focal Length	Pixel Size
Frame	1456 x 1088	5.5 mm	3.45 x 3.45 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	1570.1	0.011	1.00	0.08	0.12	-0.24	0.21	-0.18	0.00	-0.02
Cx	4.19693	0.0066		1.00	-0.03	-0.00	0.00	-0.00	0.87	-0.04
Cy	-43.7814	0.0052			1.00	0.02	-0.02	0.03	-0.04	0.74
K1	-0.099382	3.6e-05				1.00	-0.97	0.92	0.00	-0.01
K2	0.157298	0.00024					1.00	-0.98	-0.00	0.01
K3	-0.0552869	0.00047						1.00	0.00	-0.02
P1	-0.000260261	1.3e-06							1.00	-0.04
P2	3.50728e-05	1e-06								1.00

Table 3. Calibration coefficients and correlation matrix.

Camera Calibration

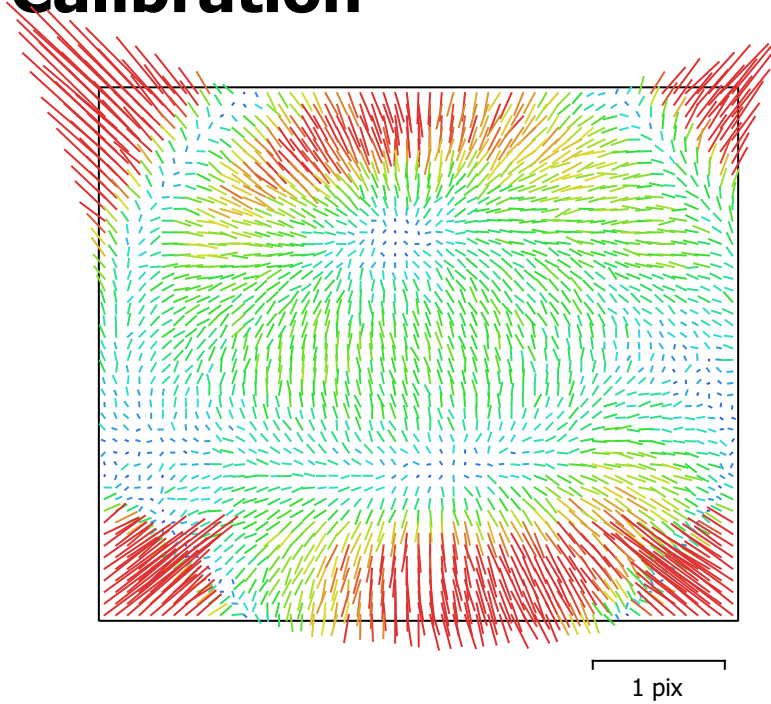


Fig. 4. Image residuals for RedEdge-P, Panchro (10.4mm).

RedEdge-P, Panchro (10.4mm)

1190 images, precalibrated

Type	Resolution	Focal Length	Pixel Size
Frame	2464 x 2056	10.4 mm	3.45 x 3.45 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2983.93	0.022	1.00	0.07	0.11	-0.27	0.22	-0.17	-0.01	-0.01
Cx	32.3972	0.012		1.00	0.00	-0.03	0.03	-0.04	0.81	-0.01
Cy	4.18181	0.011			1.00	-0.01	0.01	-0.00	-0.00	0.71
K1	-0.170007	4.3e-05				1.00	-0.97	0.93	-0.01	0.01
K2	0.140853	0.00033					1.00	-0.99	0.02	-0.00
K3	0.323004	0.00075						1.00	-0.03	0.00
P1	-0.000212298	1.1e-06							1.00	-0.01
P2	0.00269685	9.6e-07								1.00

Table 4. Calibration coefficients and correlation matrix.

Camera Calibration

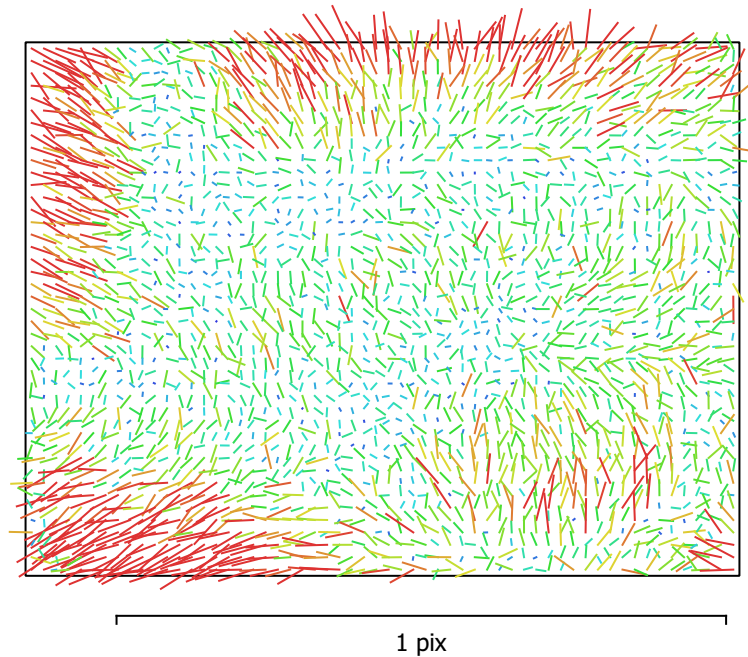


Fig. 5. Image residuals for RedEdge-P, Red (5.5mm).

RedEdge-P, Red (5.5mm)

1190 images, precalibrated

Type	Resolution	Focal Length	Pixel Size
Frame	1456 x 1088	5.5 mm	3.45 x 3.45 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	1564.94	0.011	1.00	0.07	0.11	-0.26	0.23	-0.20	0.00	-0.01
Cx	2.68917	0.007		1.00	-0.02	-0.00	0.00	-0.00	0.88	-0.03
Cy	-42.3804	0.0055			1.00	0.02	-0.02	0.03	-0.03	0.75
K1	-0.100634	3.9e-05				1.00	-0.97	0.93	0.00	-0.01
K2	0.164144	0.00026					1.00	-0.98	-0.00	0.01
K3	-0.0683319	0.00051						1.00	0.00	-0.02
P1	-0.000133772	1.4e-06							1.00	-0.03
P2	0.000177466	1.1e-06								1.00

Table 5. Calibration coefficients and correlation matrix.

Camera Calibration

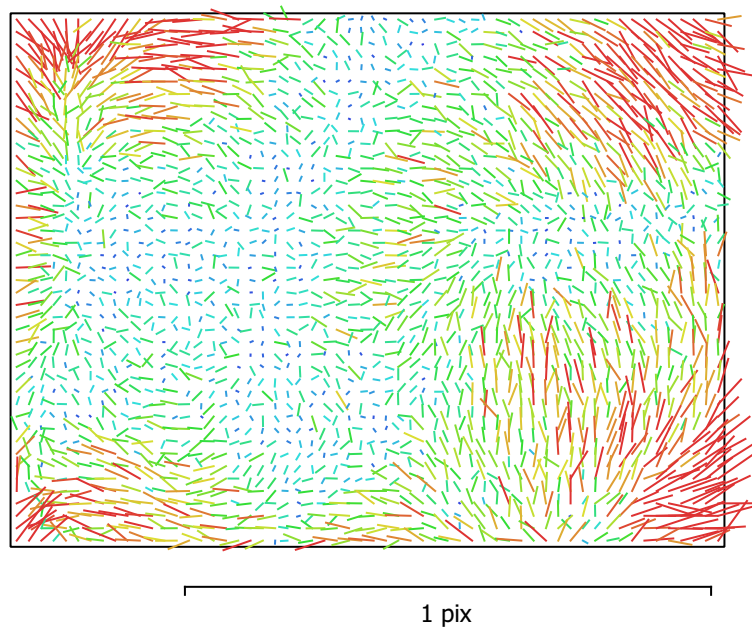


Fig. 6. Image residuals for RedEdge-P, Red edge (5.5mm).

RedEdge-P, Red edge (5.5mm)

1190 images, precalibrated

Type	Resolution	Focal Length	Pixel Size
Frame	1456 x 1088	5.5 mm	3.45 x 3.45 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	1568.99	0.011	1.00	0.07	0.10	-0.25	0.22	-0.19	0.00	-0.01
Cx	1.54937	0.0069		1.00	0.00	-0.00	-0.00	0.00	0.88	-0.01
Cy	-35.202	0.0054			1.00	0.02	-0.02	0.03	-0.00	0.74
K1	-0.103506	3.9e-05				1.00	-0.97	0.93	0.00	-0.01
K2	0.161127	0.00026					1.00	-0.99	0.00	0.01
K3	-0.065081	0.00051						1.00	-0.00	-0.02
P1	-0.000465786	1.3e-06							1.00	-0.01
P2	-3.38569e-05	1e-06								1.00

Table 6. Calibration coefficients and correlation matrix.

Camera Calibration

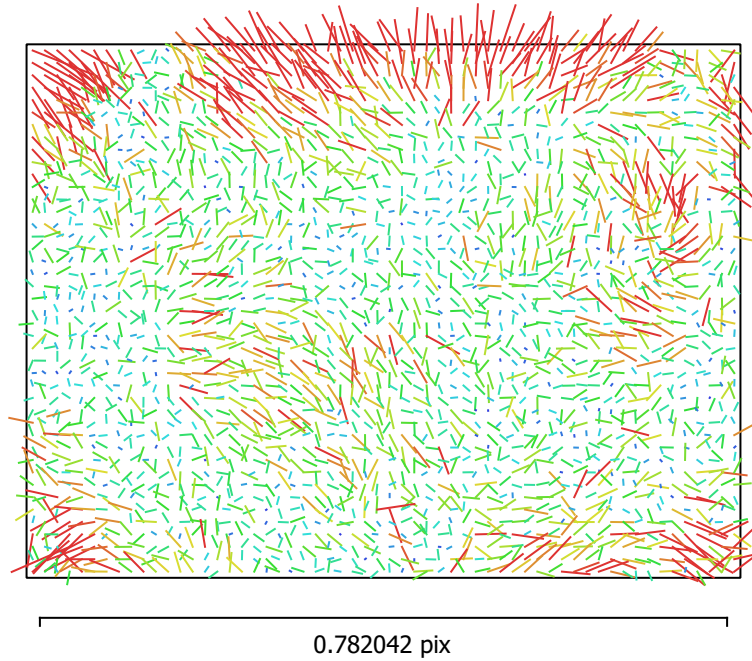


Fig. 7. Image residuals for RedEdge-P, NIR (5.5mm).

RedEdge-P, NIR (5.5mm)

1190 images, precalibrated

Type	Resolution	Focal Length	Pixel Size
Frame	1456 x 1088	5.5 mm	3.45 x 3.45 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	1584.31	0.011	1.00	0.07	0.11	-0.25	0.22	-0.19	0.00	-0.02
Cx	14.9356	0.0068		1.00	-0.00	-0.00	0.00	-0.01	0.87	-0.01
Cy	-36.4831	0.0053			1.00	0.02	-0.02	0.03	-0.01	0.74
K1	-0.103099	3.7e-05				1.00	-0.97	0.93	-0.00	-0.01
K2	0.144699	0.00025					1.00	-0.98	0.00	0.01
K3	-0.0380878	0.0005						1.00	-0.00	-0.02
P1	-0.000223481	1.3e-06							1.00	-0.01
P2	-0.000127928	1e-06								1.00

Table 7. Calibration coefficients and correlation matrix.

Camera Locations

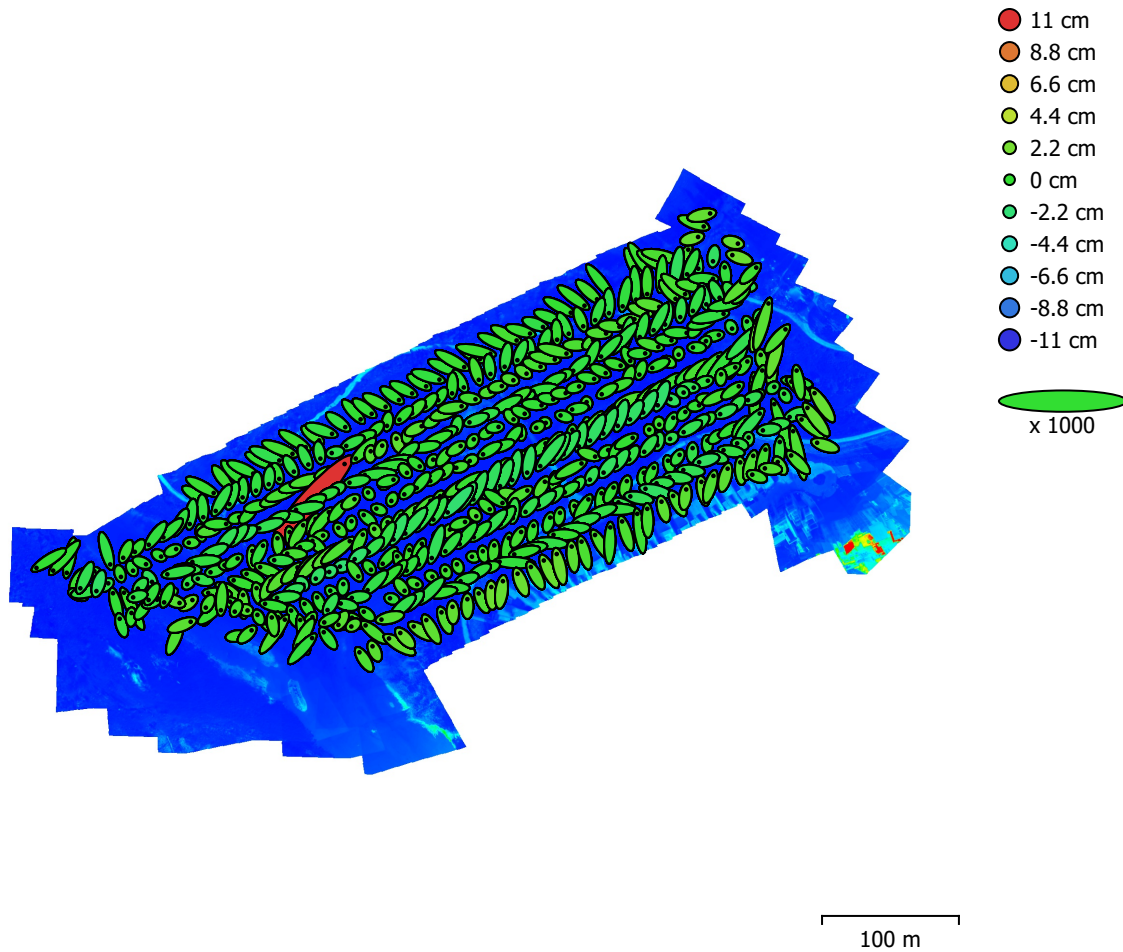


Fig. 8. Camera locations and error estimates.

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)
0.867642	0.938884	0.857275	1.2784	1.53923

Table 8. Average camera location error.

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

Digital Elevation Model

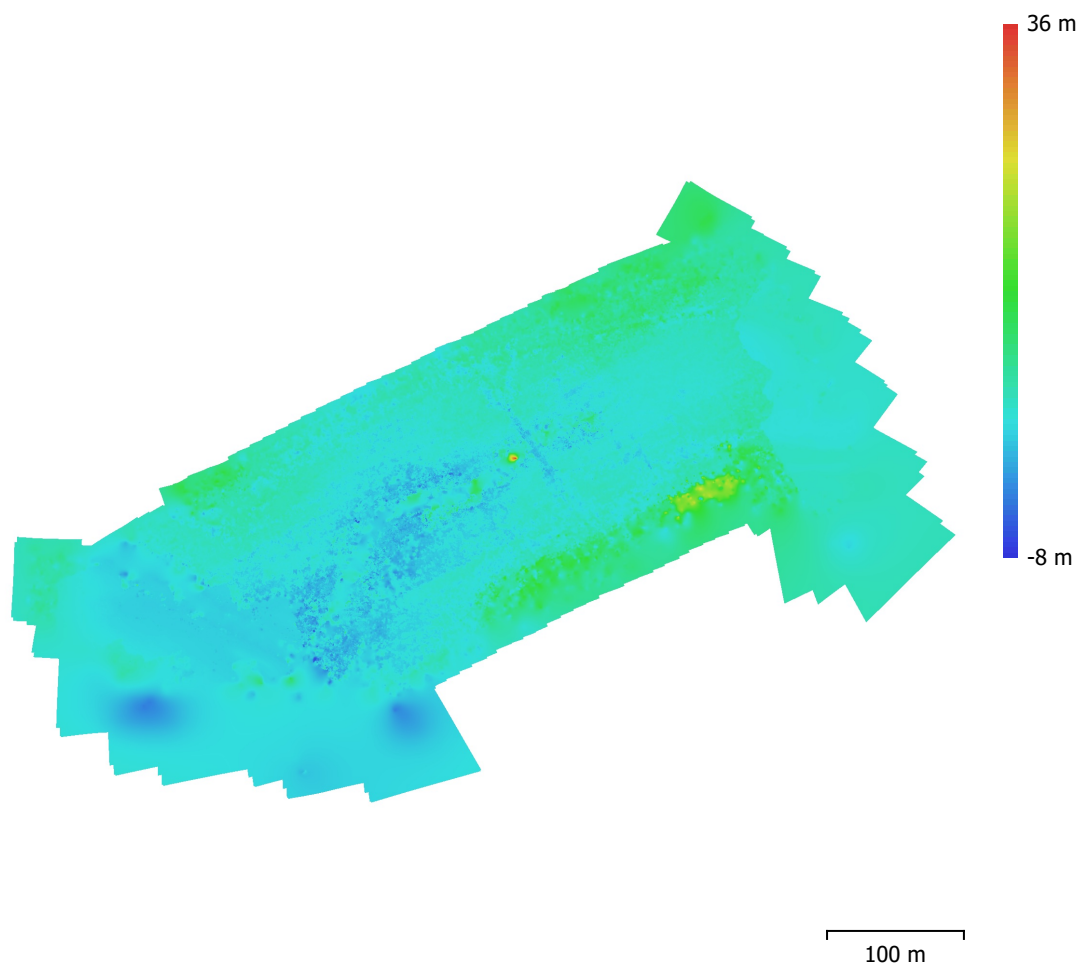


Fig. 9. Reconstructed digital elevation model.

Resolution: 4.38 cm/pix
Point density: 521 points/m²

Processing Parameters

General

Cameras	7140
Aligned cameras	7044
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	765,580 of 1,274,268
RMS reprojection error	0.236633 (0.433894 pix)
Max reprojection error	1.28295 (40.6454 pix)
Mean key point size	1.64513 pix
Point colors	1 bands, uint16
Key points	No
Average tie point multiplicity	25.5984

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	4,000
Filter points by mask	No
Mask tie points	No
Exclude stationary tie points	Yes
Guided image matching	No
Adaptive camera model fitting	No
Matching time	34 minutes 1 seconds
Matching memory usage	14.11 GB
Alignment time	18 minutes 43 seconds
Alignment memory usage	3.17 GB

Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	30 seconds
Date created	2025:12:03 21:18:29
Software version	1.8.5.15709
File size	766.55 MB

Depth Maps

Count	1174
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Depth maps generation parameters

Quality	High
Filtering mode	Mild
Max neighbors	16
Processing time	9 minutes 29 seconds
Memory usage	3.02 GB
Date created	2025:12:03 21:52:11
Software version	1.8.5.15709
File size	1.28 GB

Dense Point Cloud

Points	20,999,153
Point colors	6 bands, uint16

Depth maps generation parameters

Quality	High
Filtering mode	Mild
Max neighbors	16
Processing time	9 minutes 29 seconds
Memory usage	3.02 GB

Dense cloud generation parameters

Processing time	9 minutes 32 seconds
Memory usage	9.03 GB
Date created	2025:12:03 22:01:43
Software version	1.8.5.15709
File size	2.53 GB

DEM

Size	21,781 x 16,922
Coordinate system	NAD83(2011) / UTM zone 10N (EPSG::6339)

Reconstruction parameters

Source data	Dense cloud
Interpolation	Extrapolated
Processing time	28 seconds
Memory usage	228.36 MB
Date created	2025:12:03 23:01:42
Software version	1.8.5.15709
File size	894.27 MB

Orthomosaic

Size	32,256 x 21,504
Coordinate system	NAD83(2011) / UTM zone 10N (EPSG::6339)
Colors	6 bands, uint16

Reconstruction parameters

Blending mode	Average
Surface	DEM
Enable hole filling	Yes
Enable ghosting filter	No
Processing time	59 minutes 41 seconds
Memory usage	3.75 GB
Date created	2025:12:03 23:20:19
Software version	1.8.5.15709
File size	107.97 GB

Raster Transform

Expression	$B1 * (B3 / (0.2 * B1 + 0.2 * B2 + 0.2 * B4 + 0.2 * B5 + 0.2 * B6)) / 32768; B2...$
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System

Software name	Agisoft Metashape Professional
Software version	1.8.5 build 15709
OS	Windows 64 bit
RAM	63.71 GB
CPU	Intel(R) Core(TM) Ultra 9 285K
GPU(s)	NVIDIA GeForce RTX 5080