Agisoft Metashape

Processing Report - Lake Wheeler (GIS/MEAS 584 Fall 2025)

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24 September 2025

Survey Data
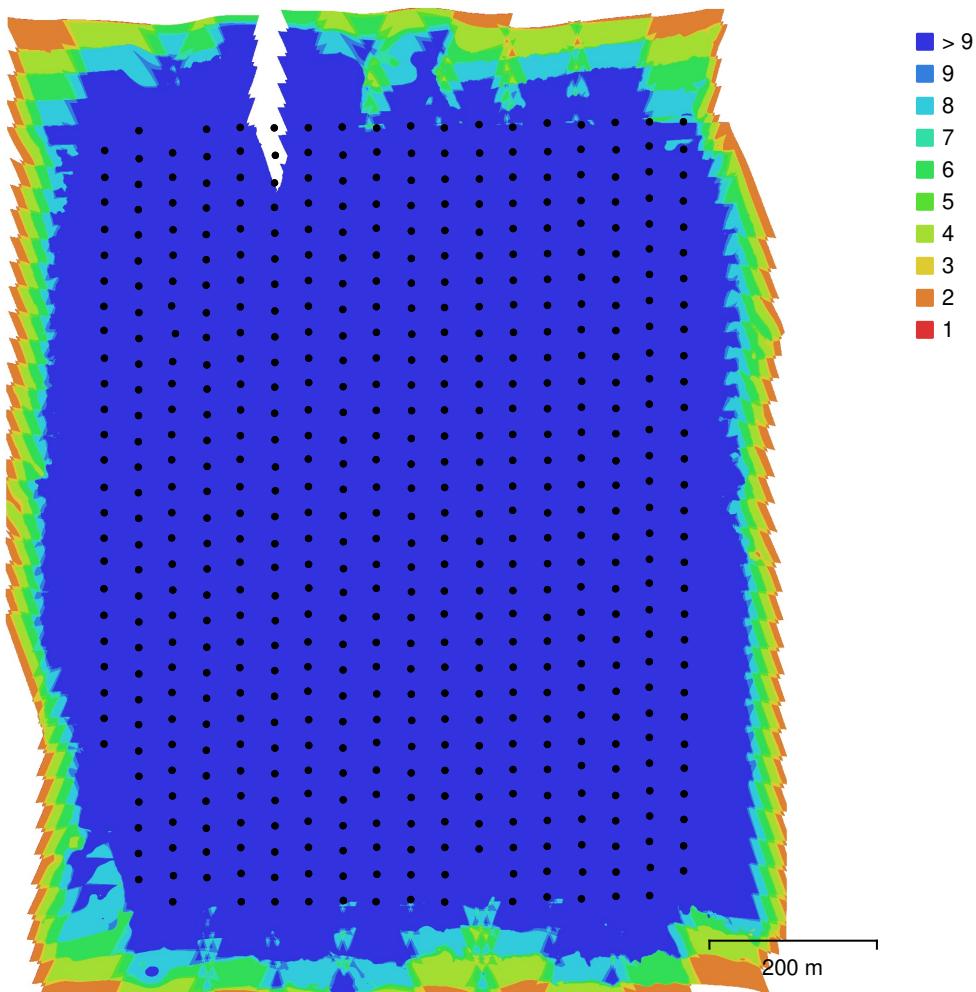
Fig. 1. Camera locations and image overlap.

Number of images:	1,108	Camera stations:	1,090
Flying altitude:	115 m	Tie points:	288,071
Ground resolution:	4.24 cm/pix	Projections:	3,296,336
Coverage area:	1.03 km²	Reprojection error:	0.92 pix

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

Table 1. Cameras.

Camera Calibration
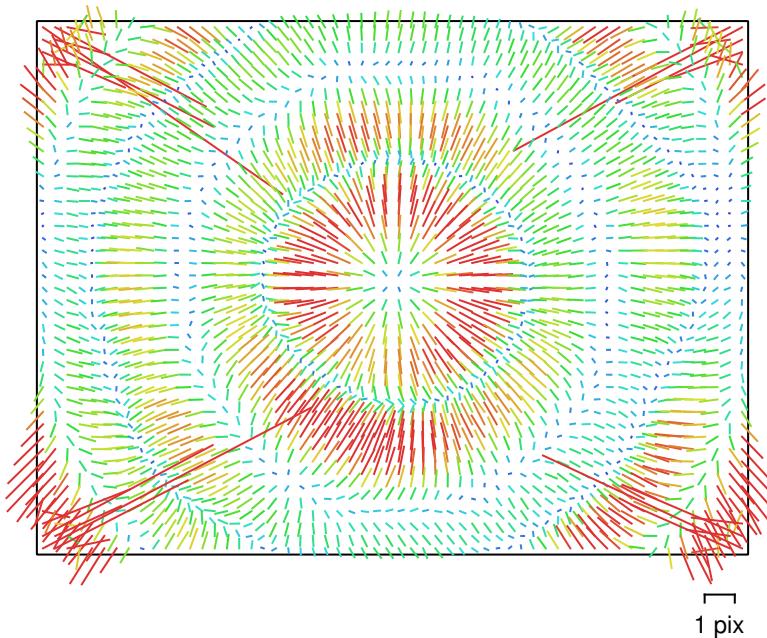
Fig. 2. Image residuals for Test_Pro (4.5mm).

Test_Pro (4.5mm)

554 images

Type	Resolution	Focal Length	Pixel Size
Frame	**4000 x 3000**	**4.5 mm**	**1.62 x 1.62 µm**

	Value	Error	F	Cx	Cy	B1	B2	K1	K2	K3	K4	P1	P2
F	**2874.58**	0.11	1.00	-0.07	-0.13	-0.33	0.16	0.17	-0.20	0.17	-0.18	0.06	-0.11
Cx	**9.26088**	0.028		1.00	-0.02	0.13	-0.05	-0.02	0.02	-0.03	0.03	-0.47	0.01
Cy	**-33.3746**	0.035			1.00	-0.23	0.01	-0.09	0.14	-0.11	0.09	0.00	-0.30
B1	**11.4546**	0.078				1.00	0.02	-0.02	-0.05	0.03	-0.02	-0.10	0.34
B2	**1.26803**	0.051					1.00	0.02	-0.04	0.04	-0.04	0.09	0.04
K1	**0.219682**	6.7e-05						1.00	-0.96	0.91	-0.87	0.00	-0.13
K2	**-0.741264**	0.00035							1.00	-0.99	0.96	-0.00	-0.06
K3	**0.892071**	0.00072								1.00	-0.99	0.00	0.07
K4	**-0.474177**	0.00051									1.00	-0.00	-0.07
P1	**0.000214947**	1.9e-06										1.00	0.00
P2	**0.00366089**	6.2e-06											1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration
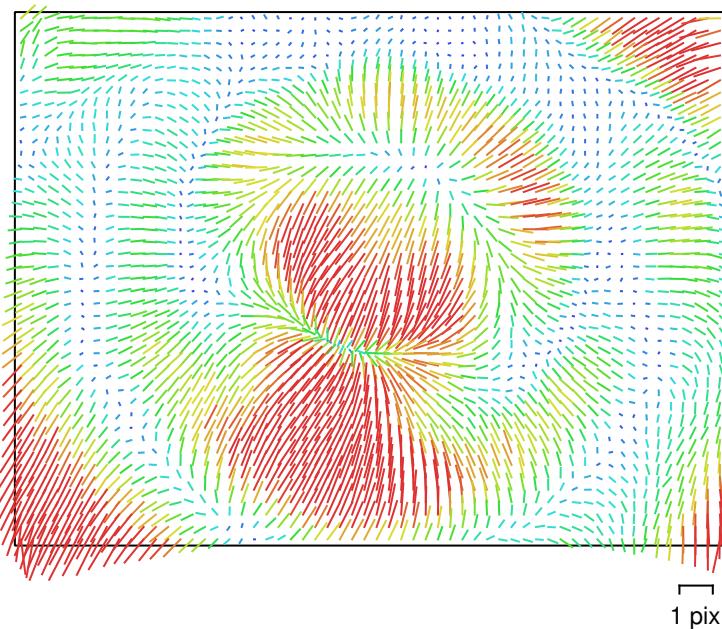
Fig. 3. Image residuals for Test_Pro (4.5mm).

Test_Pro (4.5mm)

554 images

Type	Resolution	Focal Length	Pixel Size
Frame	**4000 x 3000**	**4.5 mm**	**1.62 x 1.62 µm**

	Value	Error	F	Cx	Cy	B1	B2	K1	K2	K3	K4	P1	P2
F	**2944.24**	0.12	1.00	-0.08	-0.30	-0.28	0.13	-0.12	0.18	-0.16	0.11	0.02	-0.15
Cx	**10.8128**	0.042		1.00	0.02	0.13	0.11	-0.02	0.02	-0.03	0.03	0.21	0.01
Cy	**-33.3522**	0.059			1.00	-0.25	0.02	0.08	-0.09	0.09	-0.07	-0.00	-0.05
B1	**11.6862**	0.081				1.00	0.04	-0.08	0.03	-0.02	0.02	-0.04	0.31
B2	**1.87061**	0.055					1.00	-0.02	0.02	-0.01	0.01	0.05	0.04
K1	**-0.0478961**	6.7e-05						1.00	-0.96	0.92	-0.87	-0.01	-0.11
K2	**0.206663**	0.00037							1.00	-0.99	0.96	0.02	-0.05
K3	**-0.252584**	0.0008								1.00	-0.99	-0.02	0.04
K4	**0.0531366**	0.00059									1.00	0.02	-0.02
P1	**0.000530578**	1.9e-06										1.00	-0.00
P2	**0.0032881**	6.3e-06											1.00

Table 3. Calibration coefficients and correlation matrix.

Camera Locations
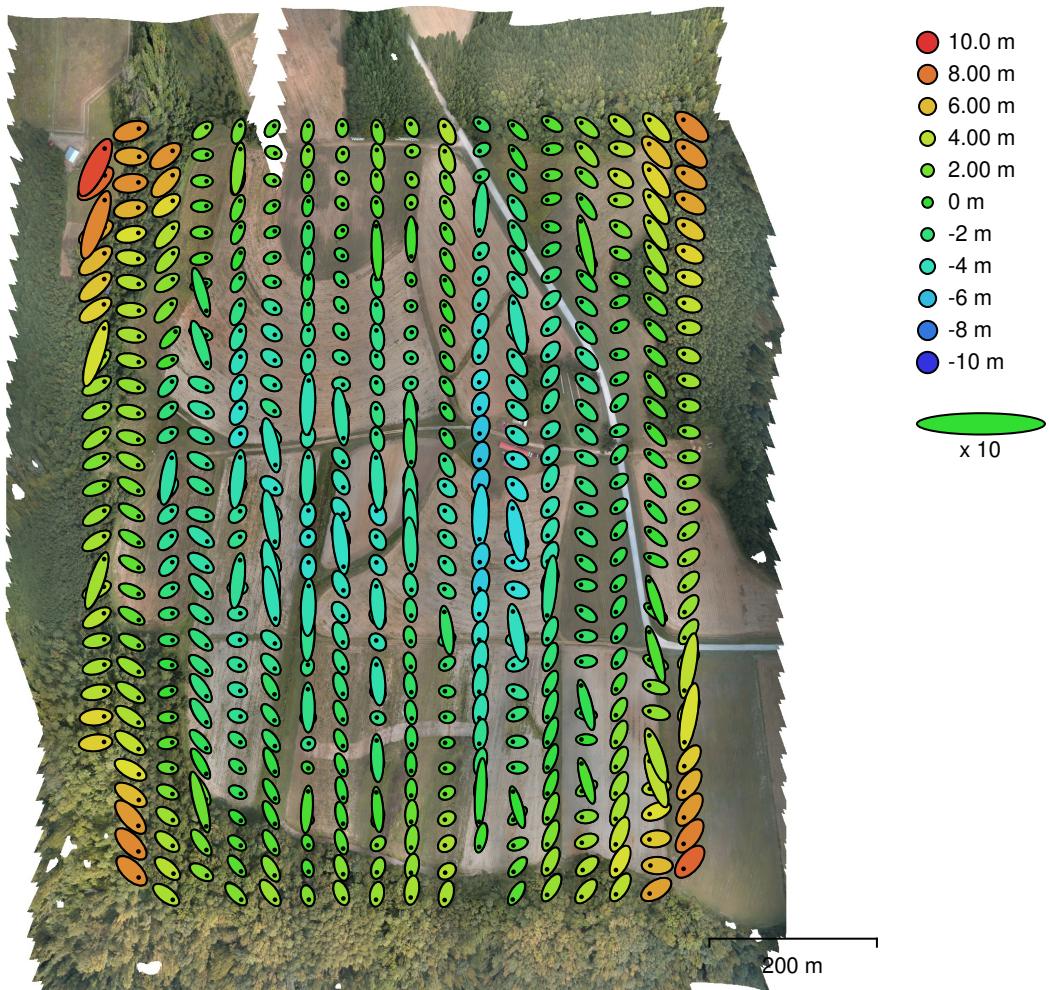
Fig. 4. Camera locations and error estimates.

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)
1.04204	1.91935	3.08458	2.18397	3.77947

Table 4. Average camera location error.

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

Digital Elevation Model
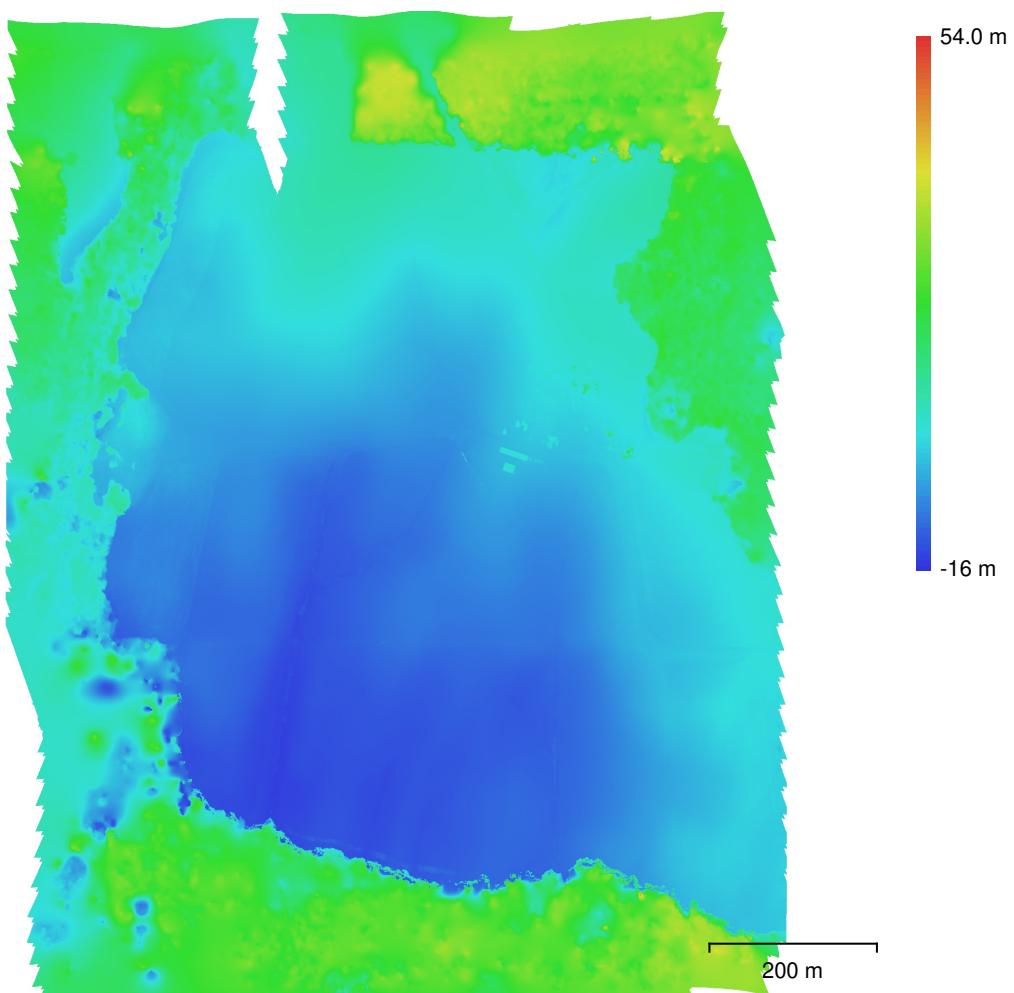
Fig. 5. Reconstructed digital elevation model.

Resolution: 8.49 cm/pix

Point density: 139 points/m²

Processing Parameters

General

Images	1108
Aligned images	1090
Coordinate system	WGS 84 (EPSG::4326)
Camera coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

Tie Points

Points	288,071 of 831,393
RMS reprojection error	0.313759 (0.919817 pix)
Max reprojection error	9.02989 (40.1663 pix)
Mean key point size	2.9897 pix
Point colors	3 bands, uint16
Key points	No
Average tie point multiplicity	5.99526

Alignment parameters

Accuracy	High
Generic preselection	No
Reference preselection	Source
Key point limit	40,000
Key point limit per Mpx	1,000
Tie point limit	4,000
Exclude stationary tie points	No
Guided image matching	No
Adaptive camera model fitting	Yes
Matching time	23 minutes 53 seconds
Matching memory usage	9.45 GB
Alignment time	13 minutes 27 seconds
Alignment memory usage	3.22 GB
Date created	2025:09:17 15:07:28
Software version	2.1.3.18946
File size	87.55 MB

Point Cloud

Points	113,307,636
Coordinate precision	2.12 cm

Point attributes

Color	3 bands, uint16
Normal	
Confidence	1 - 53

Point classes

Ground	60,839,196
High Vegetation	23,585,787
Building	4,157,326
Road Surface	24,173,066
Car	208,878
Man-made Object	343,383

Depth maps generation parameters

Quality	High
Filtering mode	Moderate
Max neighbors	16
Processing time	42 minutes 22 seconds

Memory usage	8.52 GB
Point cloud generation parameters	
Source data	Depth maps
Processing time	1 hours 1 minutes
Memory usage	16.23 GB
Points classification parameters	
Confidence	0
Classification time	5 minutes 2 seconds
Classification memory usage	10.22 GB
Date created	2025:09:17 17:44:08
Software version	2.1.3.18946
File size	2.10 GB
Model	
Faces	4,972,985
Vertices	2,487,121
Vertex colors	3 bands, uint8
Texture	4,096 x 4,096, 3 bands, uint16
Depth maps generation parameters	
Quality	High
Filtering mode	Aggressive
Max neighbors	16
Processing time	42 minutes 2 seconds
Memory usage	9.68 GB
Reconstruction parameters	
Surface type	Arbitrary
Source data	Depth maps
Interpolation	Enabled
Strict volumetric masks	No
Processing time	14 minutes 45 seconds
Memory usage	17.59 GB
Texturing parameters	
Mapping mode	Orthophoto
Blending mode	Mosaic
Texture size	4,096
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	7 seconds
UV mapping memory usage	384.00 MB
Blending time	4 minutes 28 seconds
Blending memory usage	3.23 GB
Blending GPU memory usage	1.24 GB
Date created	2025:09:18 15:35:29
Software version	2.1.3.18946
File size	297.34 MB
DEM	
Size	10,985 x 13,855
Resolution	8.49 cm/pix
Coordinate system	NAD83(HARN) / North Carolina (EPSG::3358)
Reconstruction parameters	
Source data	Point cloud
Interpolation	Enabled
Processing time	51 seconds
Memory usage	335.39 MB
Date created	2025:09:17 20:27:55
Software version	2.1.3.18946
File size	697.00 MB

Orthomosaic

Size	18,640 x 23,510
Resolution	5.00 cm/pix
Coordinate system	NAD83(HARN) / North Carolina (EPSG::3358)
Colors	3 bands, uint16
Orthophotos	104.45 GB
Reconstruction parameters	
Blending mode	Mosaic
Surface	DEM
Enable hole filling	Yes
Enable ghosting filter	No
Processing time	13 minutes 30 seconds
Memory usage	4.04 GB
Date created	2025:09:19 16:36:00
Software version	2.1.3.18946
File size	108.54 GB

System

Software name	Agisoft Metashape Professional
Software version	2.1.3 build 18946
OS	Linux 64 bit
RAM	62.64 GB
CPU	13th Gen Intel(R) Core(TM) i9-13900HX
GPU(s)	None