

Sander_2021-10-17_Mavic2EA_RGB

Processing Report
28 June 2024



Survey Data

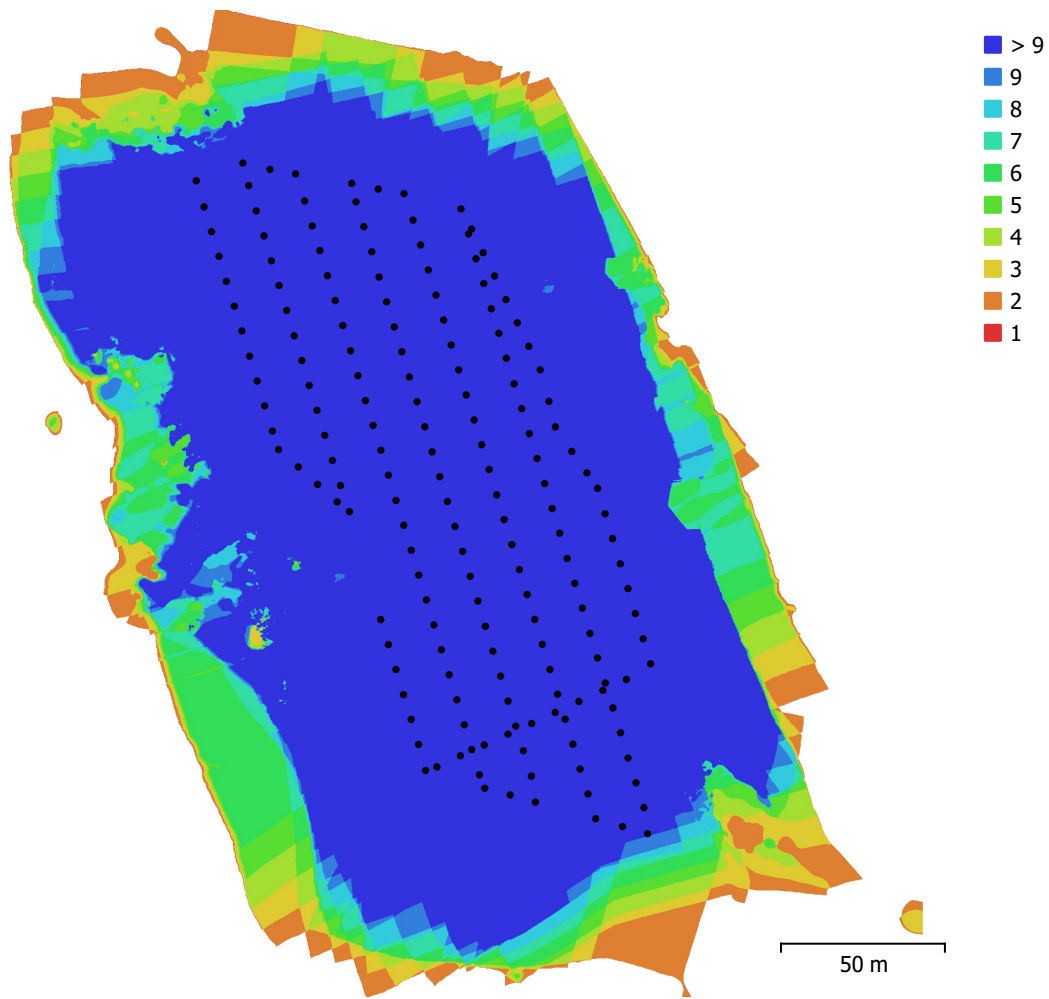


Fig. 1. Camera locations and image overlap.

Number of images:	173	Camera stations:	173
Flying altitude:	60 m	Tie points:	85,463
Ground resolution:	1.08 cm/pix	Projections:	571,742
Coverage area:	0.0512 km ²	Reprojection error:	1.19 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
MAVIC2-ENTERPRISE-...	8000 x 6000	4.5 mm	0.811 x 0.811 μ m	No

Table 1. Cameras.

Camera Calibration

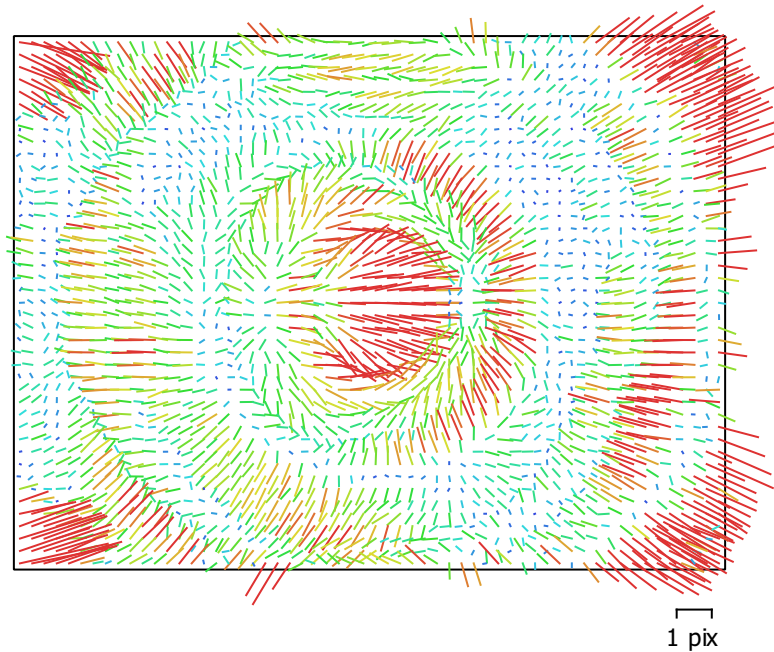


Fig. 2. Image residuals for MAVIC2-ENTERPRISE-ADVANCED (4.5mm).

MAVIC2-ENTERPRISE-ADVANCED (4.5mm)

173 images

Type	Resolution	Focal Length	Pixel Size
Frame	8000 x 6000	4.5 mm	0.811 x 0.811 μm

	Value	Error	Cx	Cy	B1	B2	K1	K2	K3	P1	P2
F	5547										
Cx	-23.5653	0.048	1.00	-0.08	0.04	-0.03	-0.04	0.02	-0.02	0.39	-0.03
Cy	-4.09936	0.039		1.00	0.07	0.05	-0.01	-0.01	0.01	-0.01	0.31
B1	-4.22167	0.013			1.00	0.03	-0.00	-0.04	0.04	-0.03	-0.01
B2	1.37844	0.013				1.00	-0.06	-0.00	0.00	0.04	-0.06
K1	-0.00253884	7.1e-05					1.00	-0.39	0.32	-0.53	0.43
K2	-0.00795635	9.3e-05						1.00	-0.98	-0.00	0.03
K3	-0.00596963	8.2e-05							1.00	0.03	-0.05
P1	-0.000130793	2.4e-06								1.00	-0.28
P2	-0.000512956	2e-06									1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points

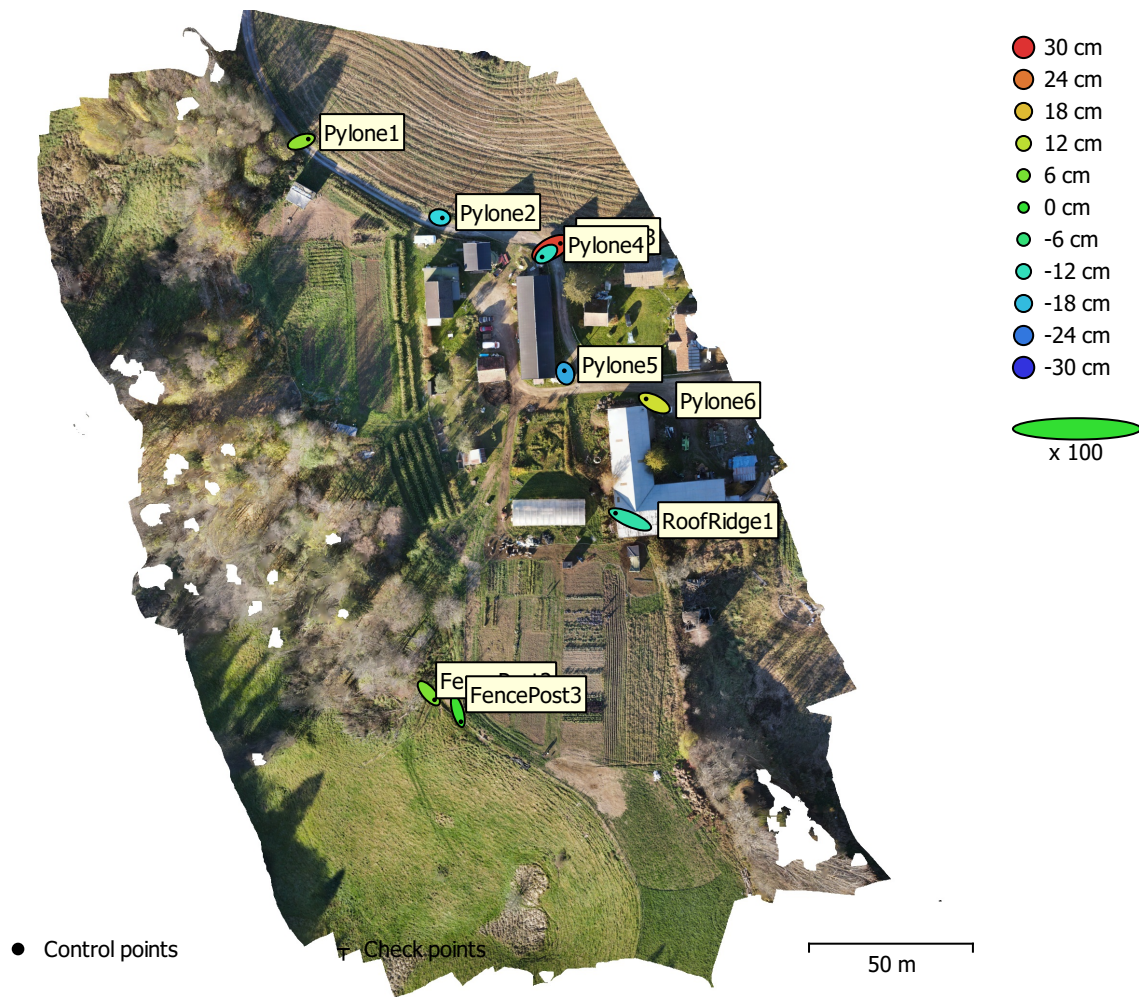


Fig. 3. GCP locations and error estimates.

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)
9	4.43647	3.25637	14.8829	5.50329	15.8678

Table 3. Control points RMSE.

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

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
Pylone1	4.2678	1.57406	8.21094	9.38677	1.484 (7)
Pylone2	1.53631	-0.303783	-15.6188	15.6971	1.297 (11)
Pylone3	5.6446	3.02327	28.3632	29.0771	0.692 (10)
Pylone4	-2.49484	-1.74538	-12.3022	12.6734	1.130 (8)
Pylone5	-0.5081	1.53821	-19.7436	19.8099	1.100 (10)
Pylone6	-4.99893	2.55259	13.7418	14.8439	1.182 (6)
FencePost2	3.49483	-4.00076	6.53762	8.42379	1.334 (12)
FencePost3	1.86414	-6.43338	1.00972	6.77369	8.526 (13)
RoofRidge1	-8.8059	3.79513	-10.1937	13.9949	0.865 (10)
Total	4.43647	3.25637	14.8829	15.8678	3.463

Table 4. Control points.
X - Easting, Y - Northing, Z - Altitude.

Digital Elevation Model

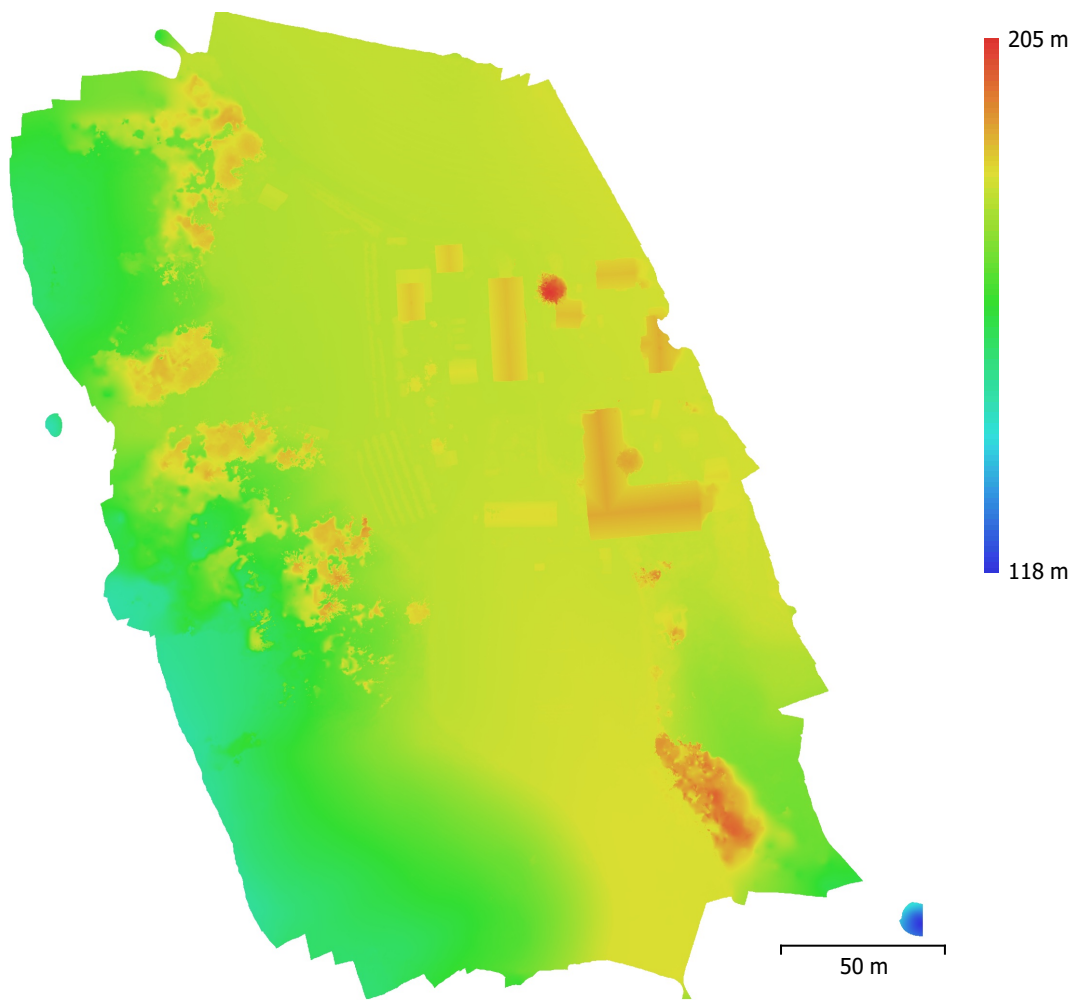


Fig. 4. Reconstructed digital elevation model.

Resolution: 5 cm/pix
Point density: 400 points/m²

Processing Parameters

General

Cameras	173
Aligned cameras	173
Markers	9
Coordinate system	ETRS89 / UTM zone 32N + NN2000 height (EPSG::5972)
Rotation angles	Yaw, Pitch, Roll

Tie Points

Points	85,463 of 97,833
RMS reprojection error	0.328472 (1.18938 pix)
Max reprojection error	1.49701 (75.5659 pix)
Mean key point size	3.44597 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	7.61299

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
Exclude stationary tie points	Yes
Guided image matching	No
Adaptive camera model fitting	Yes
Matching time	1 minutes 11 seconds
Matching memory usage	518.70 MB
Alignment time	24 seconds
Alignment memory usage	825.38 MB

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	Yes
Optimization time	1 seconds
Date created	2024:06:28 10:10:04
Software version	2.1.0.17532
File size	36.33 MB

Depth Maps

Count	173
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Depth maps generation parameters

Quality	High
Filtering mode	Mild
Max neighbors	16
Processing time	15 minutes 21 seconds
Memory usage	9.71 GB
Date created	2024:06:28 10:44:20
Software version	2.1.0.17532
File size	3.02 GB

DEM

Size	5,565 x 6,029
Coordinate system	ETRS89 / UTM zone 32N + NN2000 height (EPSG::5972)

Depth maps generation parameters

Quality	High
Filtering mode	Mild
Max neighbors	16
Processing time	15 minutes 21 seconds
Memory usage	9.71 GB
Reconstruction parameters	
Source data	Depth maps
Interpolation	Enabled
Processing time	3 minutes 44 seconds
Memory usage	18.35 GB
Date created	2024:06:28 10:48:06
Software version	2.1.0.17532
File size	87.73 MB
Orthomosaic	
Size	11,120 x 12,040
Coordinate system	ETRS89 / UTM zone 32N + NN2000 height (EPSG::5972)
Colors	3 bands, uint8
Reconstruction parameters	
Blending mode	Mosaic
Surface	DEM
Enable hole filling	Yes
Enable ghosting filter	No
Processing time	1 minutes 30 seconds
Memory usage	1.49 GB
Date created	2024:06:28 10:51:35
Software version	2.1.0.17532
File size	2.00 GB
System	
Software name	Agisoft Metashape Professional
Software version	2.1.0 build 17532
OS	Windows 64 bit
RAM	127.15 GB
CPU	AMD Ryzen 9 7950X 16-Core Processor
GPU(s)	NVIDIA GeForce RTX 4080 SUPER