

Sander_2022-10-20_H20T_60m_Thermal

Processing Report

28 June 2024



Survey Data

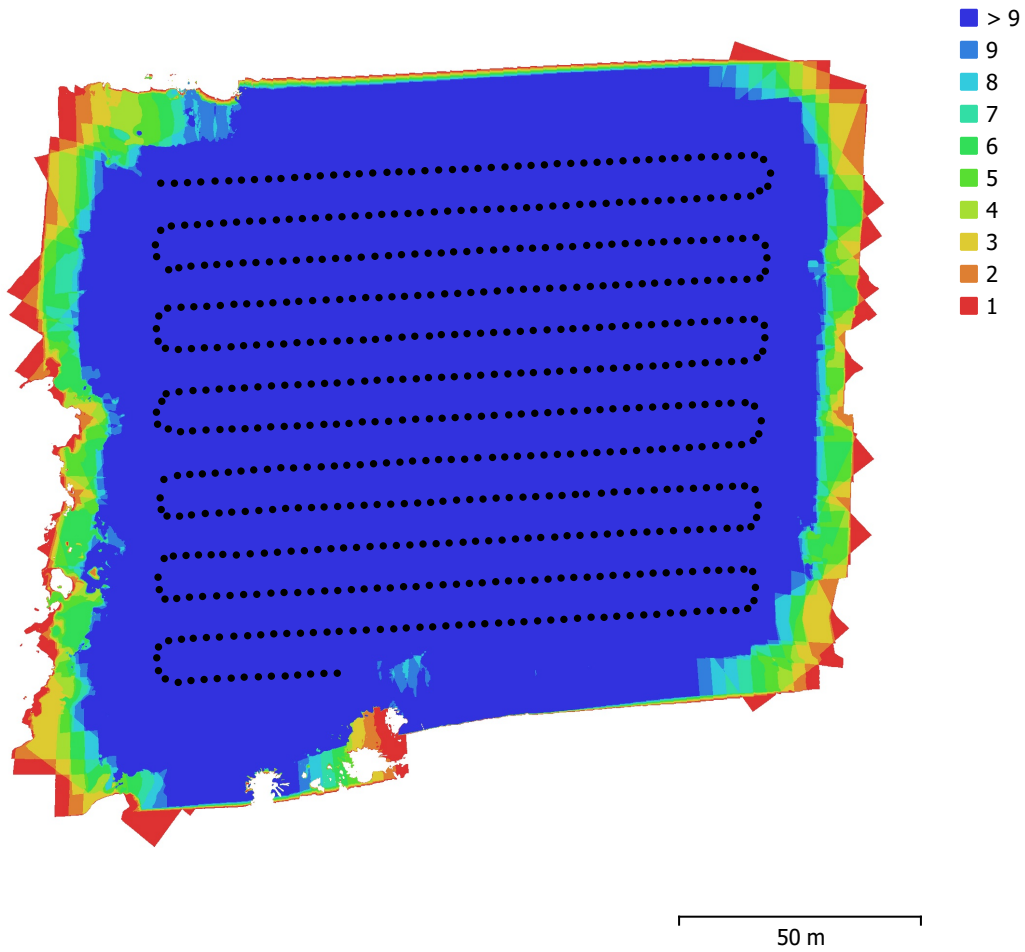


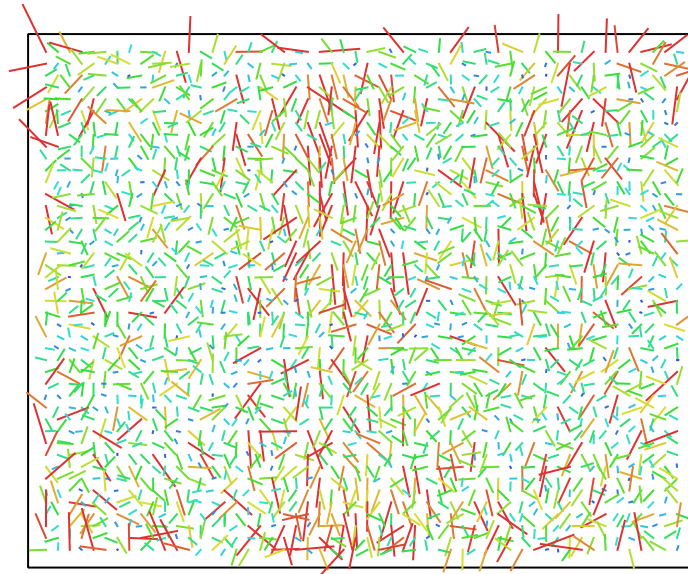
Fig. 1. Camera locations and image overlap.

Number of images:	596	Camera stations:	596
Flying altitude:	59.8 m	Tie points:	90,948
Ground resolution:	5.45 cm/pix	Projections:	413,397
Coverage area:	0.0234 km ²	Reprojection error:	0.649 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
ZH20T (13.5mm)	640 x 512	13.5 mm	12.3 x 12.3 μ m	No

Table 1. Cameras.

Camera Calibration



1 pix

Fig. 2. Image residuals for ZH20T (13.5mm).

ZH20T (13.5mm)

596 images

Type	Resolution	Focal Length	Pixel Size
Frame	640 x 512	13.5 mm	12.3 x 12.3 μm

	Value	Error	Cx	Cy	K1	K2	P1	P2
F	1098.69							
Cx	2.76318	0.15	1.00	0.03	-0.04	0.01	0.39	-0.03
Cy	-6.60909	0.14		1.00	-0.01	-0.00	-0.00	0.27
K1	-0.185355	0.0018			1.00	-0.48	-0.26	0.62
K2	0.127678	0.0052				1.00	0.06	-0.10
P1	-0.000242921	3.1e-05					1.00	-0.18
P2	-2.19602e-05	3.4e-05						1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

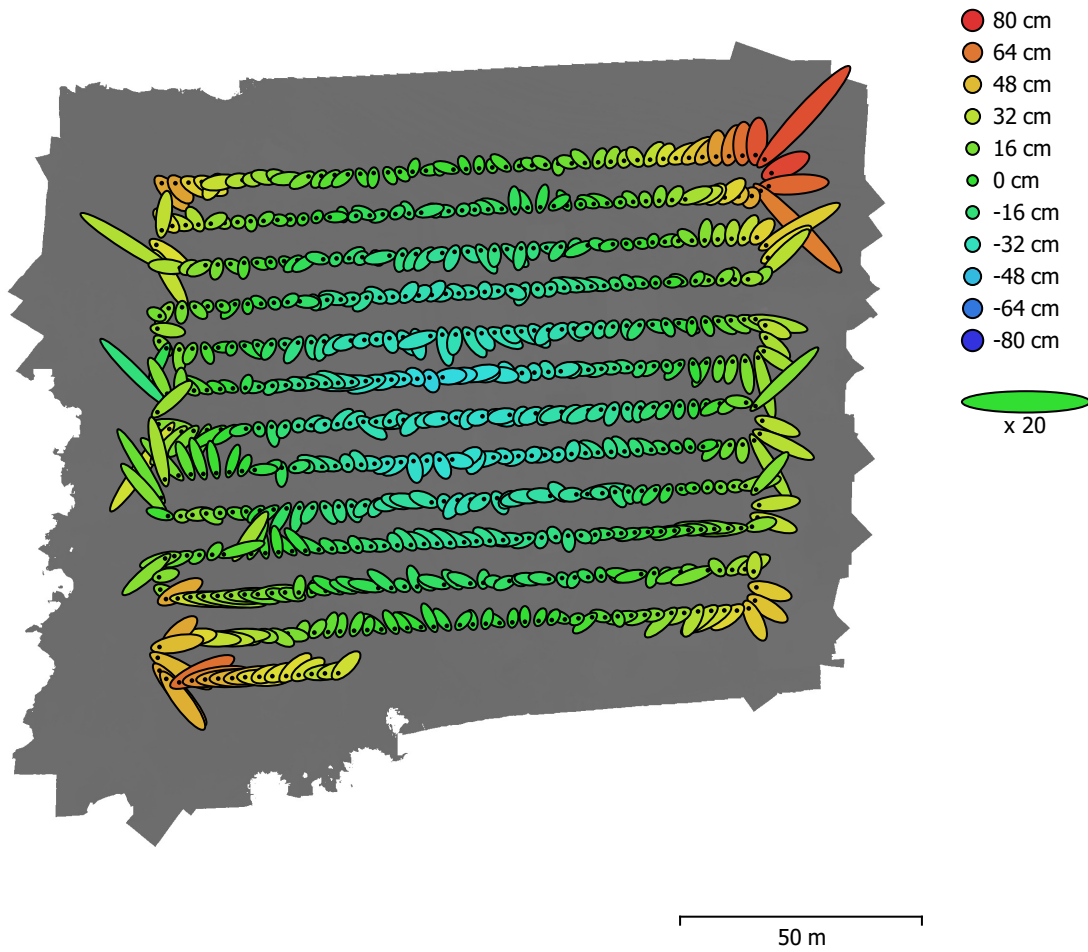


Fig. 3. Camera locations and error estimates.

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)
17.5606	13.6314	23.8963	22.2303	32.6377

Table 3. Average camera location error.

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

Digital Elevation Model

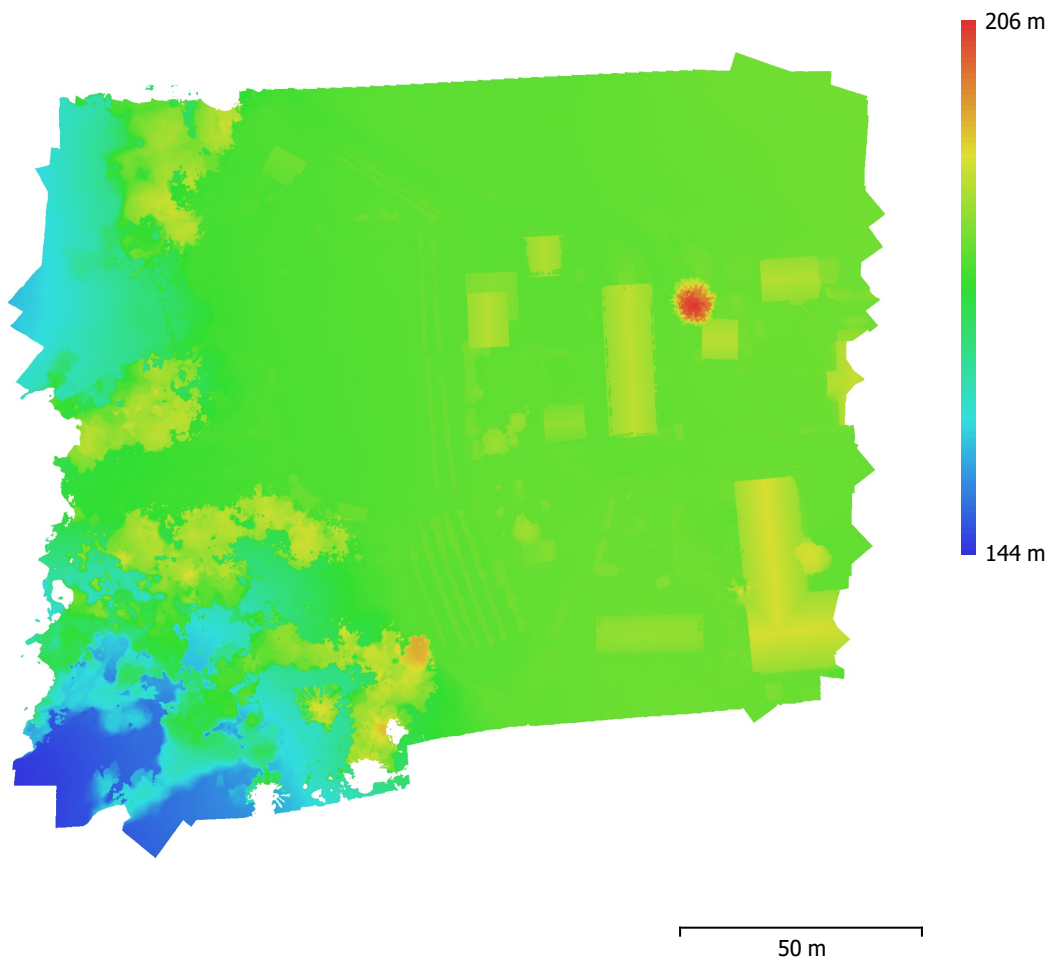


Fig. 4. Reconstructed digital elevation model.

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

Processing Parameters

General

Cameras	596
Aligned cameras	596
Coordinate system	ETRS89 / UTM zone 32N + NN2000 height (EPSG::5972)
Rotation angles	Yaw, Pitch, Roll

Tie Points

Points	90,948 of 109,218
RMS reprojection error	0.177523 (0.649139 pix)
Max reprojection error	0.53763 (10.1068 pix)
Mean key point size	3.25206 pix
Point colors	1 bands, uint16
Key points	No
Average tie point multiplicity	5.47586

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	17 seconds
Matching memory usage	262.61 MB
Alignment time	1 minutes 40 seconds
Alignment memory usage	763.59 MB
Date created	2024:06:28 13:46:10
Software version	2.1.0.17532
File size	29.67 MB

Depth Maps

Count	596
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Max neighbors	16
Processing time	1 minutes 35 seconds
Memory usage	382.18 MB
Date created	2024:06:28 13:51:04
Software version	2.1.0.17532
File size	14.23 MB

DEM

Size	4,760 x 4,380
Coordinate system	ETRS89 / UTM zone 32N + NN2000 height (EPSG::5972)
File size	70.38 MB

Orthomosaic

Size	4,080 x 3,840
Coordinate system	ETRS89 / UTM zone 32N + NN2000 height (EPSG::5972)
Colors	1 bands, uint16

Reconstruction parameters

Blending mode	Mosaic
Surface	DEM
Enable hole filling	Yes
Enable ghosting filter	No
Processing time	36 seconds
Memory usage	478.14 MB
Date created	2024:06:28 14:54:14
Software version	2.1.0.17532
File size	555.64 MB

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