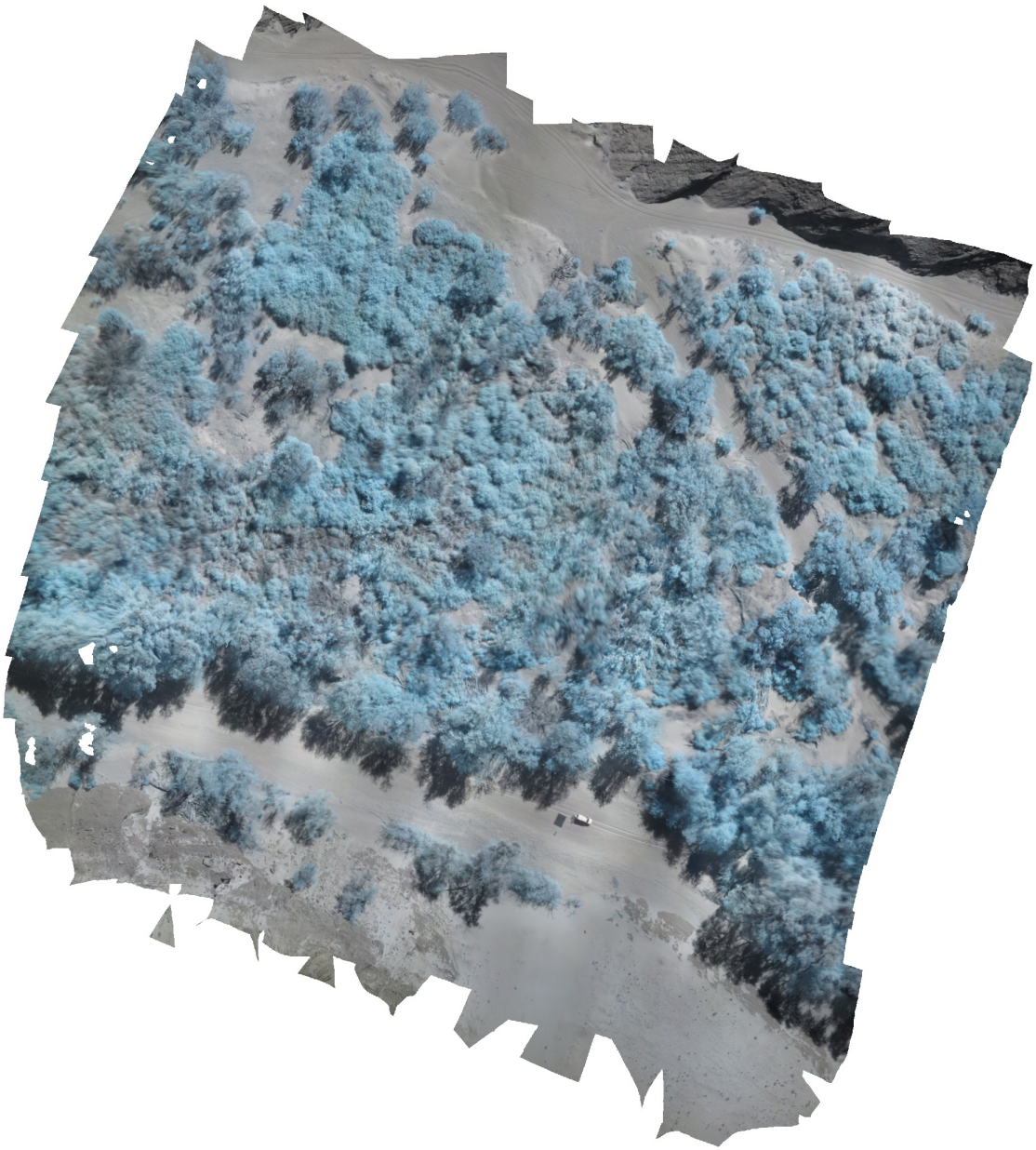
Alpha 2 NIR

Processing Report



Survey Data

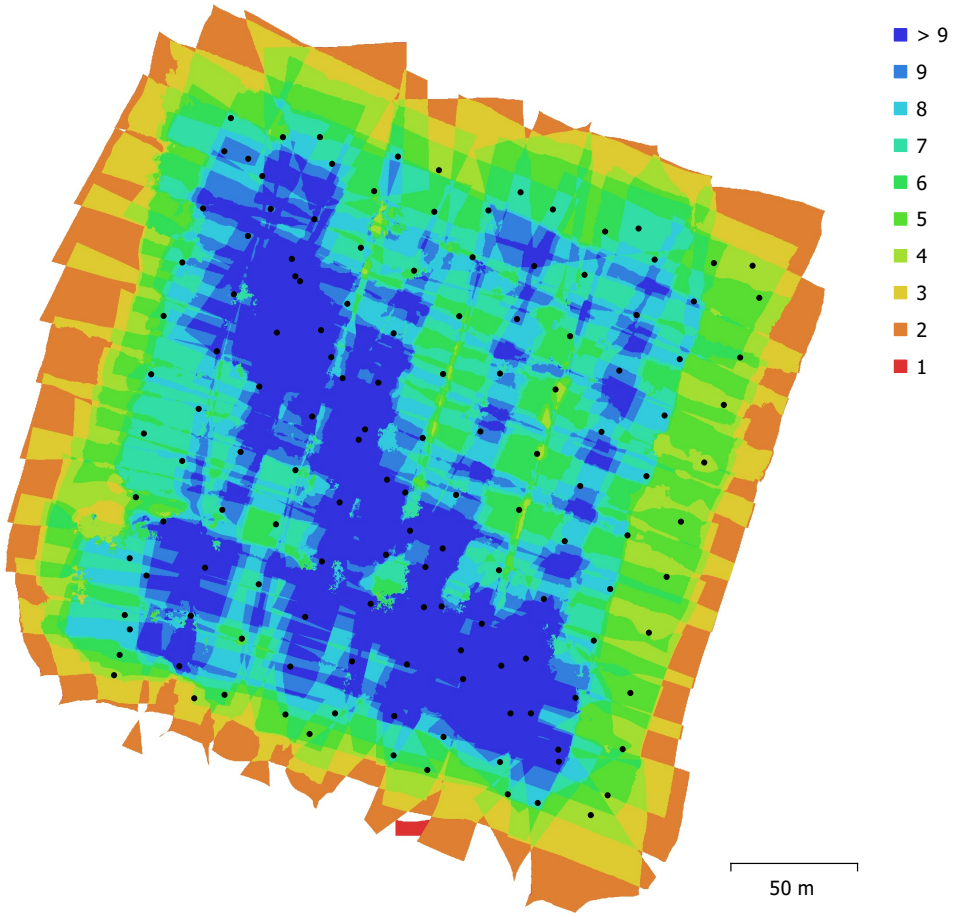


Fig. 1. Camera locations and image overlap.

Number of images:	140	Camera stations:	140
Flying altitude:	59.8 m	Tie points:	59,268
Ground resolution:	1.49 cm/pix	Projections:	150,245
Coverage area:	0.0785 km²	Reprojection error:	2.6 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
Canon PowerShot A4000 IS (5 mm)	4608 x 3456	5 mm	1.34 x 1.34 µm	No

Table 1. Cameras.

Camera Calibration

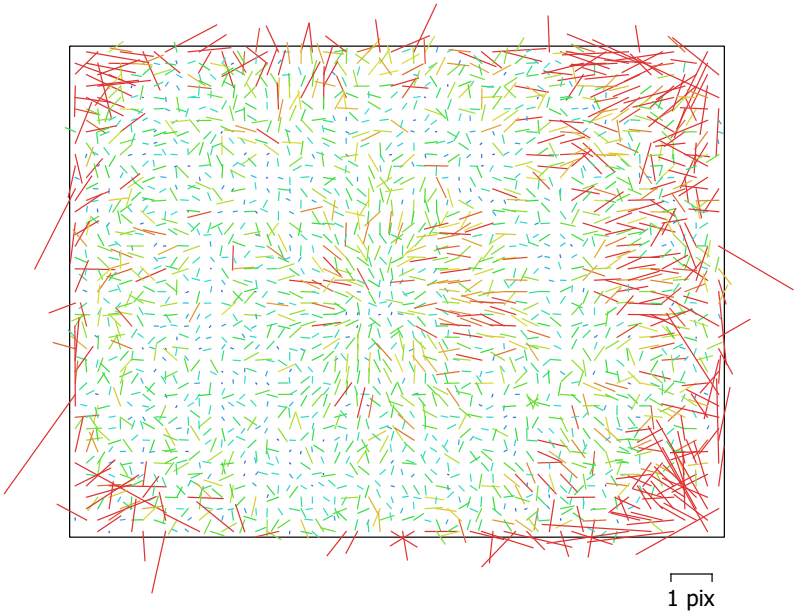


Fig. 2. Image residuals for Canon PowerShot A4000 IS (5 mm).

Canon PowerShot A4000 IS (5 mm)

140 images

Type	Resolution	Focal Length	Pixel Size
Frame	**4608 x 3456**	**5 mm**	**1.34 x 1.34 µm**

	Value	Error	Cx	Cy	B1	K1	P1	P2
F	**3743.14**							
Cx	**-65.9432**	0.43	1.00	-0.01	-0.01	-0.08	0.66	0.06
Cy	**35.1464**	0.35		1.00	-0.13	-0.04	-0.04	0.43
B1	**2.5501**	0.11			1.00	-0.13	-0.11	0.05
K1	**-0.0522999**	0.00011				1.00	-0.03	-0.44
P1	**-0.00550549**	2.7e-005					1.00	0.04
P2	**-0.000456396**	2.5e-005						1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points

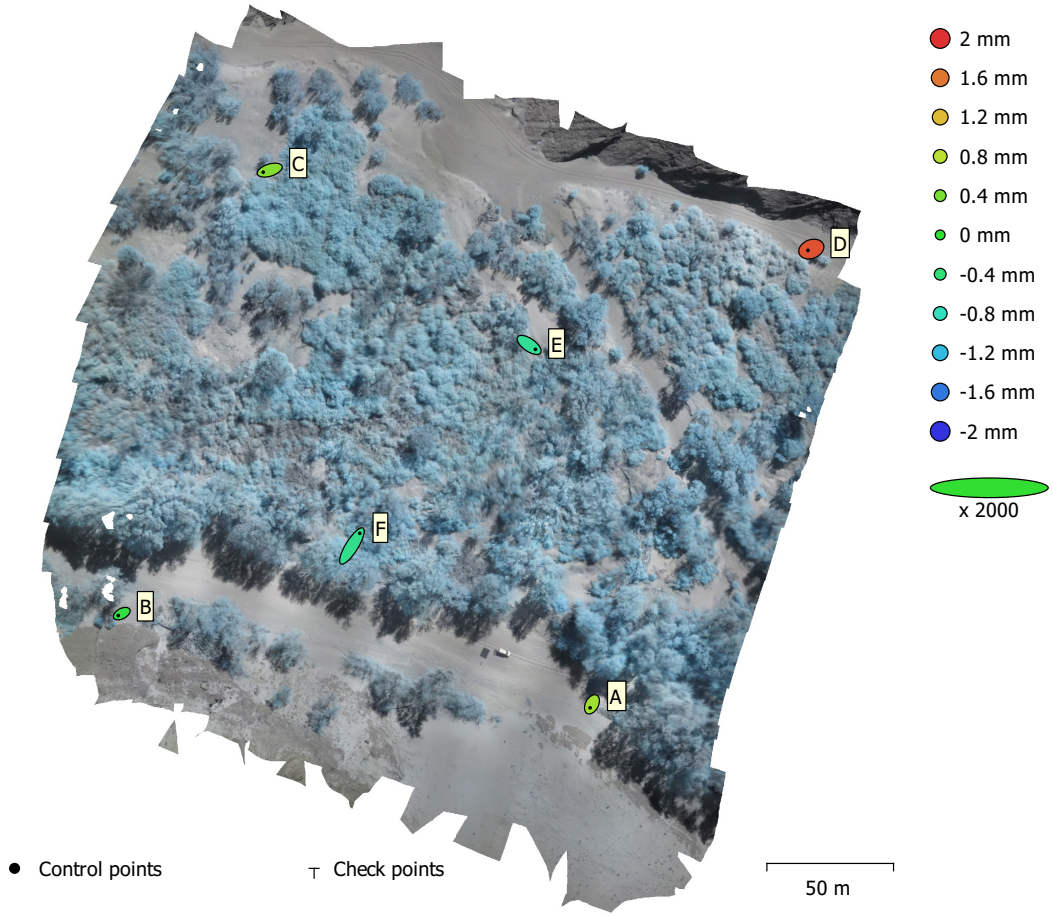


Fig. 3. GCP locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated GCP locations are marked with a dot or crossing.

Count	X error (mm)	Y error (mm)	Z error (mm)	XY error (mm)	Total (mm)
6	2.10632	2.28489	0.870682	3.10762	3.22728

Table 3. Control points RMSE.
X - Easting, Y - Northing, Z - Altitude.

Label	X error (mm)	Y error (mm)	Z error (mm)	Total (mm)	Image (pix)
A	-0.721338	-1.36503	0.632755	1.66854	0.374 (3)
B	-1.38751	-0.735338	-0.104276	1.57378	0.098 (7)
C	-2.57258	-0.809035	0.475719	2.73843	0.088 (7)
D	-1.32961	-0.500527	1.81372	2.3039	0.018 (2)
E	2.48306	-1.73977	-0.584205	3.08766	0.020 (5)
F	3.10199	4.99883	-0.529225	5.90684	0.031 (4)
Total	**2.10632**	**2.28489**	**0.870682**	**3.22728**	**0.140**

Table 4. Control points.

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

Digital Elevation Model

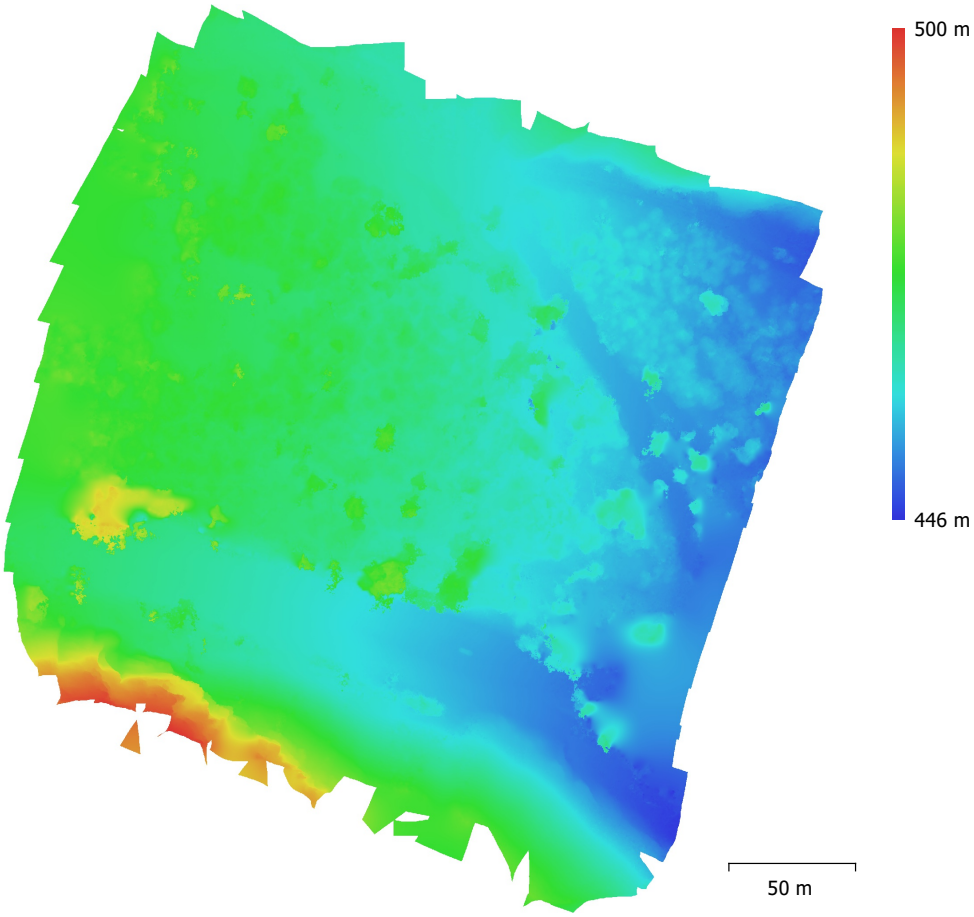


Fig. 4. Reconstructed digital elevation model.

Resolution:	5.94 cm/pix
Point density:	283 points/m²

Processing Parameters

General	
Cameras	140
Aligned cameras	140
Markers	6
Coordinate system	WGS 84 / UTM zone 33S (EPSG::32733)
Rotation angles	Yaw, Pitch, Roll
Point Cloud	
Points	59,268 of 97,052
RMS reprojection error	0.191176 (2.59694 pix)
Max reprojection error	1.47505 (42.4316 pix)
Mean key point size	13.7392 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	2.58389
Alignment parameters	
Accuracy	Medium
Generic preselection	No
Reference preselection	No
Key point limit	40,000
Tie point limit	8,000
Filter points by mask	No
Adaptive camera model fitting	Yes
Matching time	26 minutes 23 seconds
Alignment time	49 seconds
Optimization parameters	
Parameters	b1, cx, cy, k1, p1, p2
Optimization time	1 seconds
Dense Point Cloud	
Points	21,909,235
Point colors	3 bands, uint8
Depth maps generation parameters	
Quality	Medium
Filtering mode	Aggressive
Processing time	13 minutes 36 seconds
Dense cloud generation parameters	
Processing time	2 minutes 27 seconds
DEM	
Size	6,150 x 7,178
Coordinate system	WGS 84 / UTM zone 33S (EPSG::32733)
Reconstruction parameters	
Source data	Dense cloud
Interpolation	Enabled
Processing time	1 minutes 5 seconds
Orthomosaic	
Size	21,759 x 24,131
Coordinate system	WGS 84 / UTM zone 33S (EPSG::32733)
Colors	3 bands, uint8
Reconstruction parameters	
Blending mode	Mosaic
Surface	DEM

General

Enable color correction	No
Enable hole filling	Yes
Processing time	4 minutes 57 seconds

Software

Version	1.5.3 build 8407
Platform	Windows 64