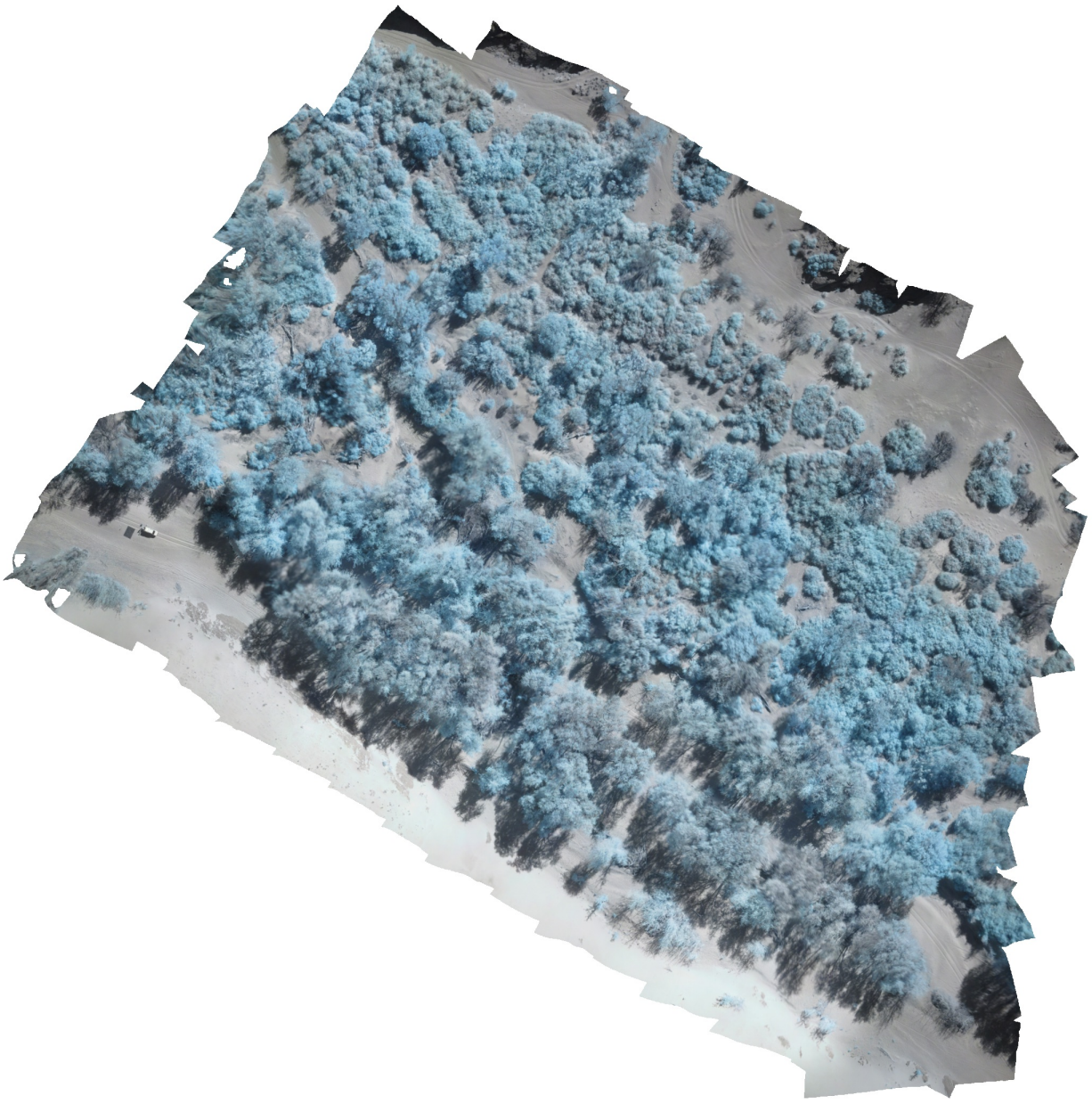
Alpha 1 NIR

Processing Report



Survey Data

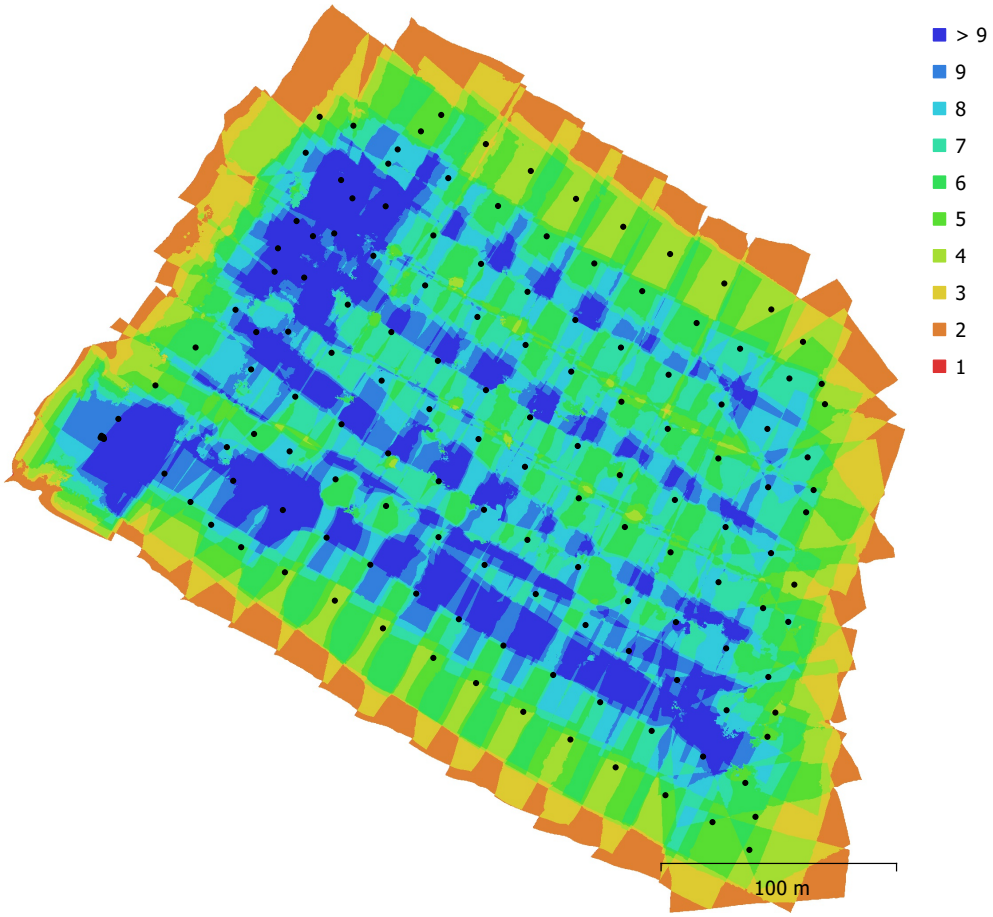


Fig. 1. Camera locations and image overlap.

Number of images:	142	Camera stations:	142
Flying altitude:	61.4 m	Tie points:	69,251
Ground resolution:	1.51 cm/pix	Projections:	176,476
Coverage area:	0.0871 km²	Reprojection error:	2.31 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

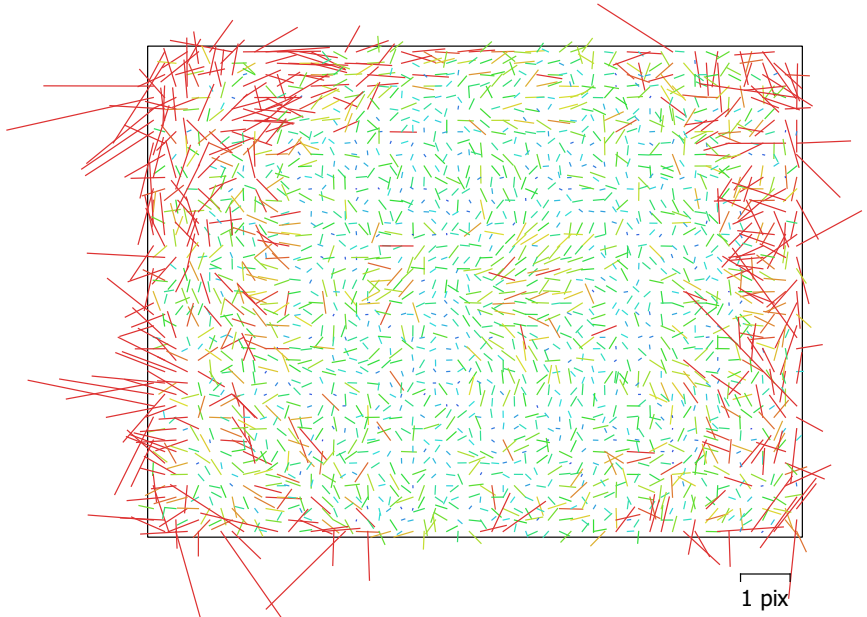


Fig. 2. Image residuals for Canon PowerShot A4000 IS (5 mm).

Canon PowerShot A4000 IS (5 mm)

142 images

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

	Value	Error	B1	B2	K1	K2	P1	P2
F	**3743.14**							
B1	**1.18663**	0.13	1.00	0.03	-0.09	0.02	-0.02	0.18
B2	**3.25637**	0.14		1.00	0.02	0.02	-0.18	0.02
K1	**-0.0682373**	0.00022			1.00	-0.86	0.03	-0.13
K2	**0.0348456**	0.0004				1.00	-0.06	-0.02
P1	**-0.00439993**	2.7e-005					1.00	0.01
P2	**-0.000441654**	2.6e-005						1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points

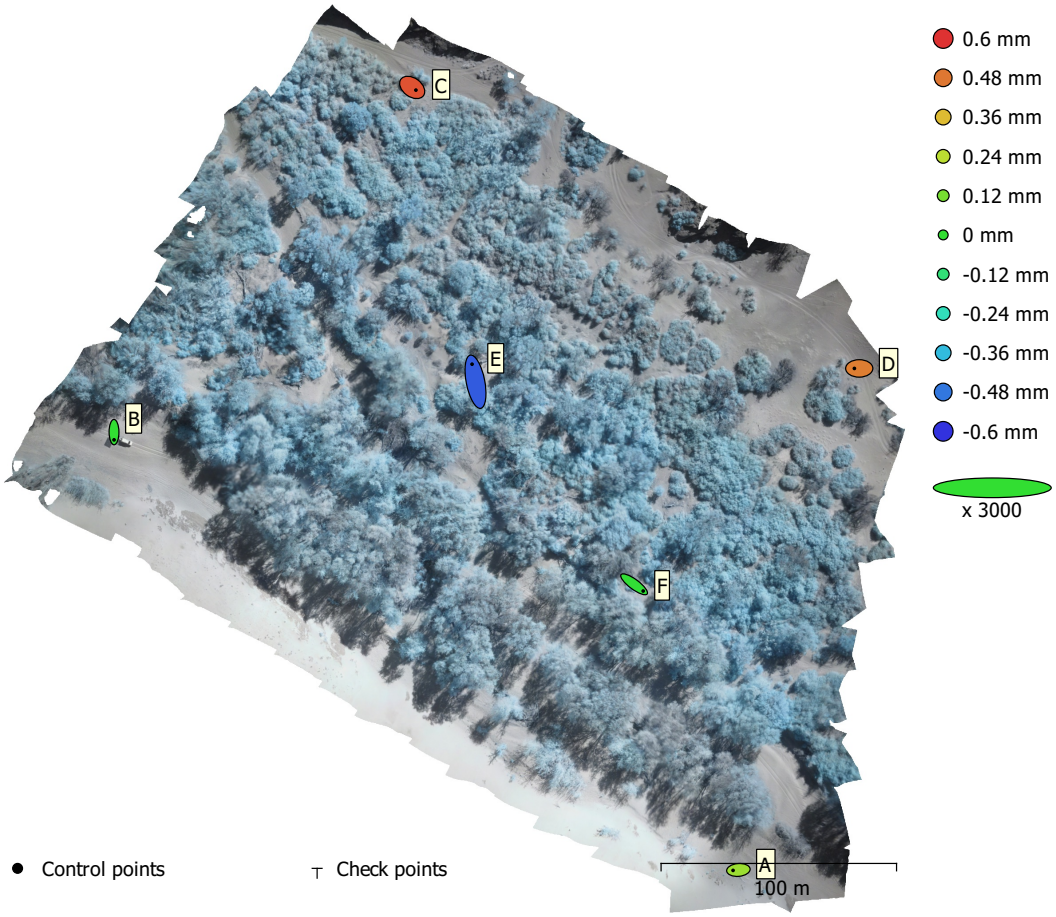


Fig. 3. GCP locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated GCP locations are marked with a dot or crossing.

Count	X error (mm)	Y error (mm)	Z error (mm)	XY error (mm)	Total (mm)
6	1.46221	2.37087	0.371735	2.78551	2.81021

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	-1.50934	-0.129038	0.183498	1.52592	0.022 (3)
B	0.0129892	-2.19519	-0.000816773	2.19523	0.739 (8)
C	1.05046	-0.761389	0.544829	1.40713	0.045 (5)
D	-1.37401	-0.00621768	0.467932	1.45152	0.239 (2)
E	-0.975507	4.96995	-0.528779	5.09231	0.033 (6)
F	2.57043	-1.90008	-0.00665678	3.19648	0.012 (5)
Total	**1.46221**	**2.37087**	**0.371735**	**2.81021**	**0.394**

Table 4. Control points.

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

Digital Elevation Model

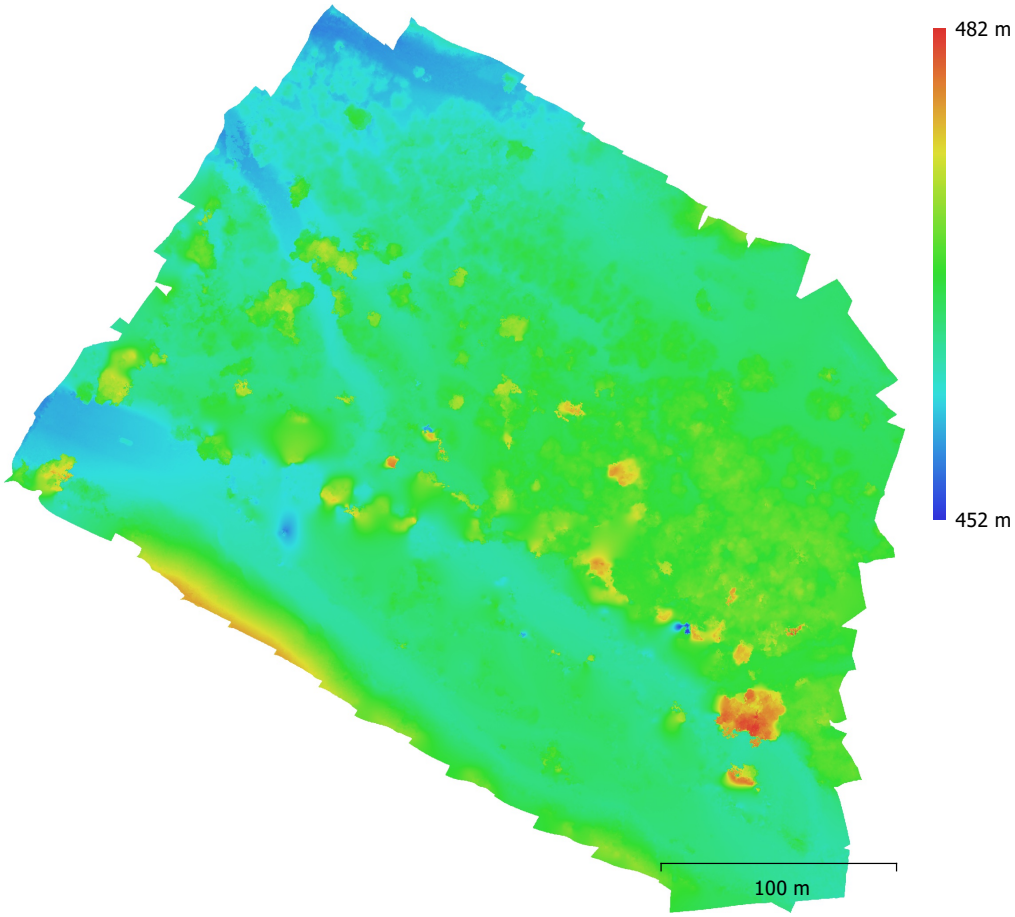


Fig. 4. Reconstructed digital elevation model.

Resolution:	6.02 cm/pix
Point density:	276 points/m²

Processing Parameters

General	
Cameras	142
Aligned cameras	142
Markers	6
Coordinate system	WGS 84 / UTM zone 33S (EPSG::32733)
Rotation angles	Yaw, Pitch, Roll
Point Cloud	
Points	69,251 of 110,612
RMS reprojection error	0.199602 (2.31013 pix)
Max reprojection error	1.44699 (33.4863 pix)
Mean key point size	12.1084 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	2.57557
Alignment parameters	
Accuracy	Medium
Generic preselection	No
Reference preselection	No
Key point limit	40,000
Tie point limit	0
Filter points by mask	No
Adaptive camera model fitting	Yes
Matching time	31 minutes 57 seconds
Alignment time	53 seconds
Optimization parameters	
Parameters	b1, b2, k1, k2, p1, p2
Optimization time	7 seconds
Dense Point Cloud	
Points	22,381,829
Point colors	3 bands, uint8
Depth maps generation parameters	
Quality	Medium
Filtering mode	Aggressive
Processing time	12 minutes 45 seconds
Dense cloud generation parameters	
Processing time	2 minutes 0 seconds
DEM	
Size	8,540 x 7,758
Coordinate system	WGS 84 / UTM zone 33S (EPSG::32733)
Reconstruction parameters	
Source data	Dense cloud
Interpolation	Enabled
Processing time	1 minutes 15 seconds
Orthomosaic	
Size	25,424 x 25,616
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	6 minutes 26 seconds

Software

Version	1.5.3 build 8407
Platform	Windows 64