Alpha 2

Processing Report

Survey Data

> 9
9
8
7
6
5
4
3
2
1

50 m
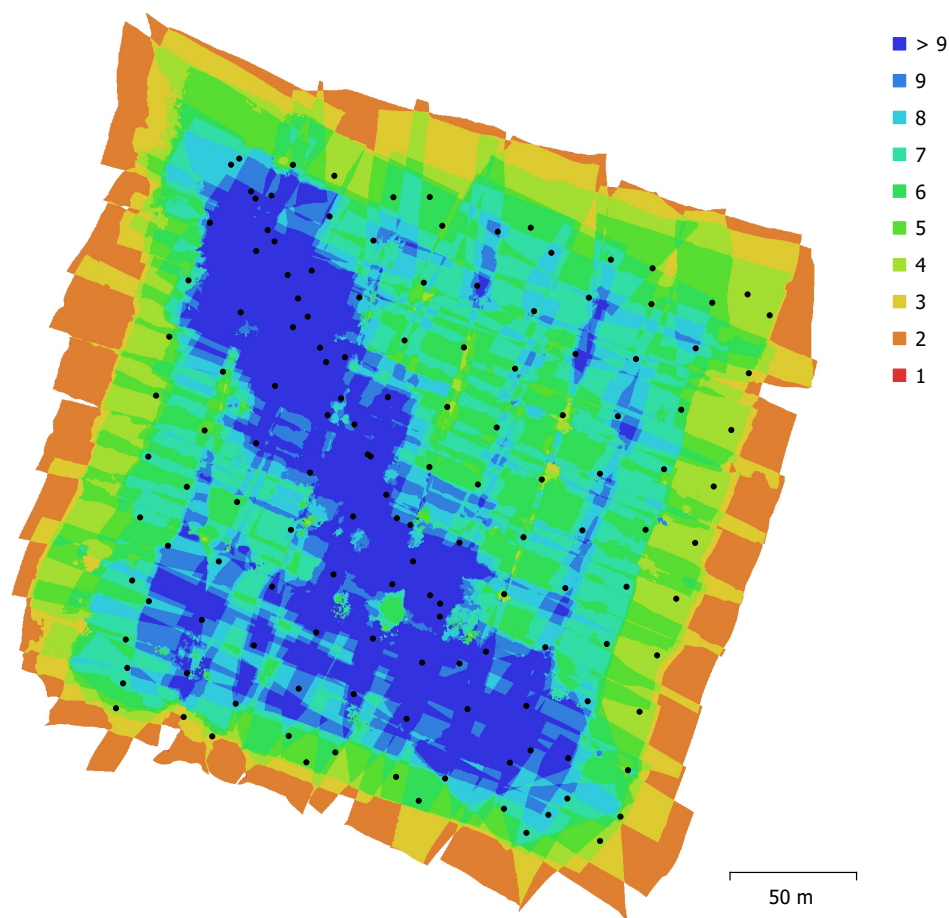
Fig. 1. Camera locations and image overlap.

Number of images:	142	Camera stations:	142
Flying altitude:	59.6 m	Tie points:	34,429
Ground resolution:	1.71 cm/pix	Projections:	107,802
Coverage area:	0.0772 km²	Reprojection error:	2.51 pix

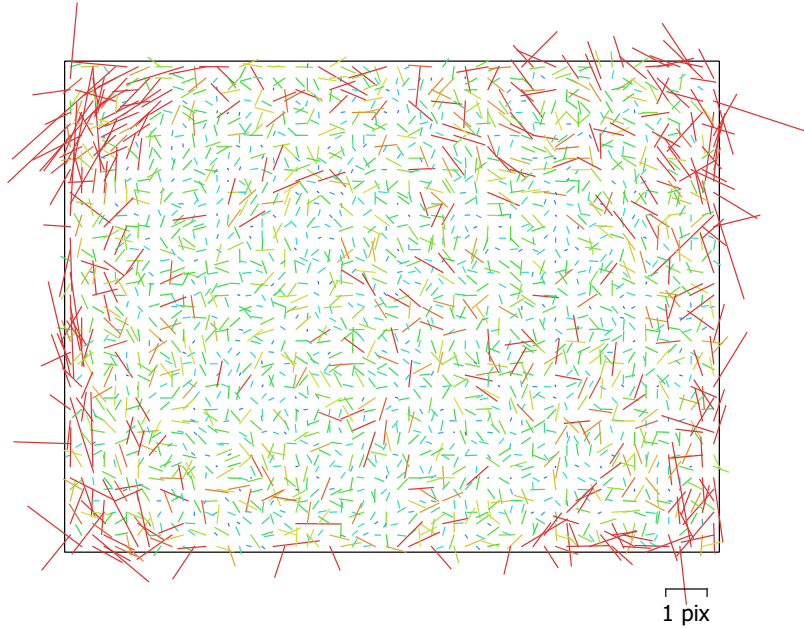| Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
Canon PowerShot D30 (5 mm)	4000 x 3000	5 mm	1.55 x 1.55 µm	No

Table 1. Cameras.

Camera Calibration

1 pix

Fig. 2. Image residuals for Canon PowerShot D30 (5 mm).

Canon PowerShot D30 (5 mm)

142 images

Type	Resolution	Focal Length	Pixel Size
Frame	**4000 x 3000**	**5 mm**	**1.55 x 1.55 μm**

	Value	Error	Cx	Cy	B2	P1	P2
F	**3227.06**						
Cx	**1.87359**	0.43	1.00	-0.02	0.29	0.67	0.02
Cy	**61.6838**	0.36		1.00	-0.02	0.02	0.54
B2	**-1.45963**	0.14			1.00	0.08	-0.01
P1	**-0.000223899**	3.5e-005				1.00	0.03
P2	**0.00564619**	2.9e-005					1.00

Table 2. Calibration coefficients and correlation matrix.
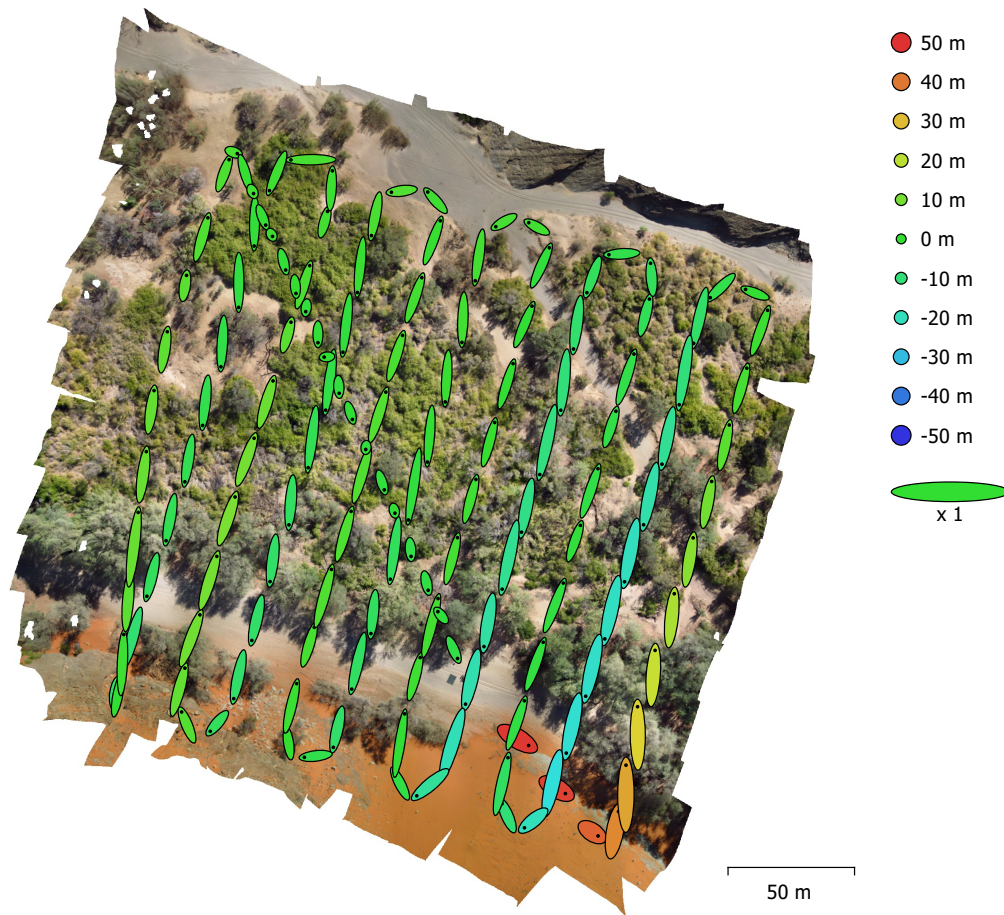
Camera Locations

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 (m)	Y error (m)	Z error (m)	XY error (m)	Total error (m)
4.53227	15.8111	11.3956	16.4479	20.0098

Table 3. Average camera location error.
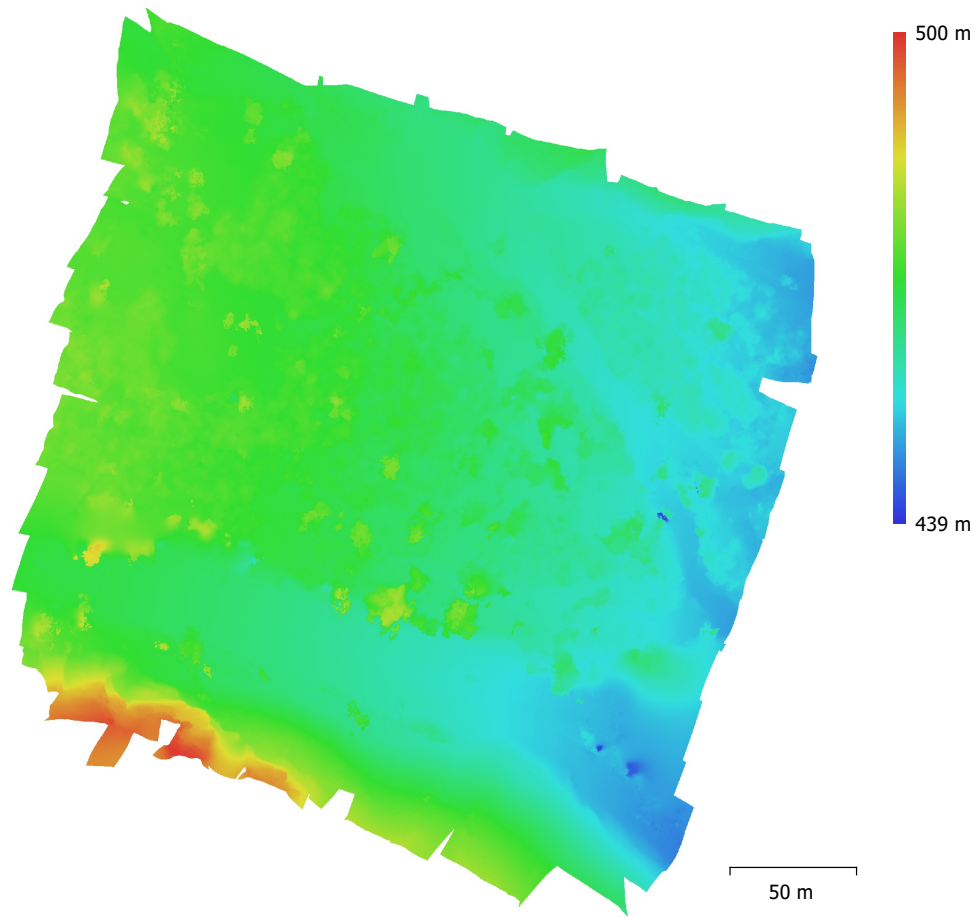X - Easting, Y - Northing, Z - Altitude.

Digital Elevation Model

500 m

439 m

50 m

Fig. 4. Reconstructed digital elevation model.

Resolution:	6.85 cm/pix
Point density:	213 points/m²

Processing Parameters

General

Cameras	142
Aligned cameras	142
Coordinate system	WGS 84 / UTM zone 33S (EPSG::32733)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	34,429 of 43,698
RMS reprojection error	0.295869 (2.51294 pix)
Max reprojection error	0.900321 (31.8843 pix)
Mean key point size	9.2463 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.30789

Alignment parameters

Accuracy	Medium
Generic preselection	No
Reference preselection	No
Key point limit	40,000
Tie point limit	1,000
Filter points by mask	No
Adaptive camera model fitting	Yes
Matching time	24 minutes 27 seconds
Alignment time	49 seconds

Dense Point Cloud

Points	18,176,783
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	Medium
Filtering mode	Aggressive
Processing time	13 minutes 35 seconds

Dense cloud generation parameters

Processing time	1 minutes 56 seconds

DEM

Size	5,356 x 5,708
Coordinate system	WGS 84 / UTM zone 33S (EPSG::32733)

Reconstruction parameters

Source data	Dense cloud
Interpolation	Enabled
Processing time	52 seconds

Orthomosaic

Size	18,603 x 20,979
Coordinate system	WGS 84 / UTM zone 33S (EPSG::32733)
Colors	3 bands, uint8

Reconstruction parameters

Blending mode	Mosaic
Surface	DEM
Enable color correction	No
Enable hole filling	Yes
Processing time	4 minutes 2 seconds

Software

General
    Version   1.5.3 build 8407
    Platform   Windows 64