

Agisoft PhotoScan

Processing Report

04 October 2018



Survey Data

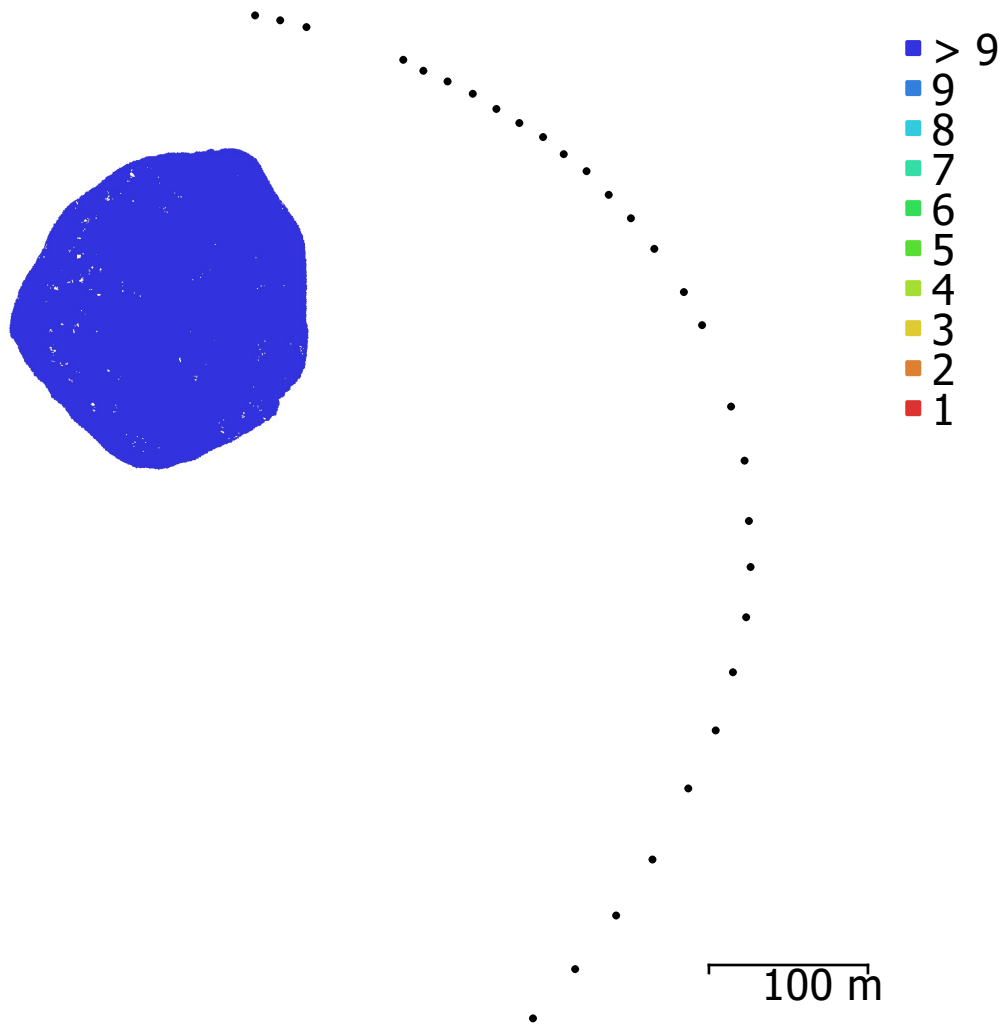


Fig. 1. Camera locations and image overlap.

Number of images:	29	Camera stations:	29
Flying altitude:	817 m	Tie points:	11,306
Ground resolution:	6.85 cm/pix	Projections:	197,469
Coverage area:	0.0281 km ²	Reprojection error:	0.863 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
NIKON D800E (50 mm)	7360 x 4912	50 mm	4.88 x 4.88 μ m	No

Table 1. Cameras.

Camera Calibration

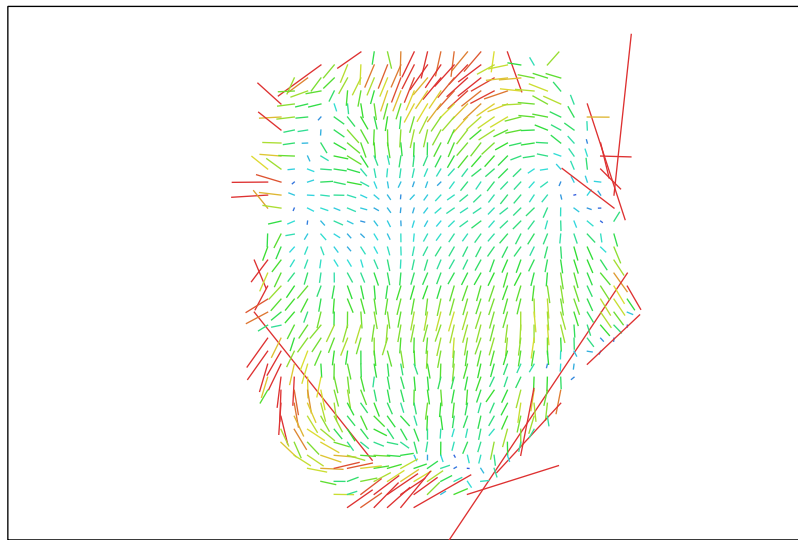


Fig. 2. Image residuals for NIKON D800E (50 mm). 1 pix

NIKON D800E (50 mm)

29 images

Type
Frame

Resolution
7360 x 4912

Focal Length
50 mm

Pixel Size
4.88 x 4.88 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	11810.1	12	1.00	-0.51	-0.88	-0.35	0.51	-0.48	-0.18	-0.31
Cx	-290.519	3.5		1.00	0.42	0.12	-0.19	0.20	0.62	0.09
Cy	-1636.25	11			1.00	0.32	-0.59	0.57	0.15	0.58
K1	0.0408782	0.0017				1.00	-0.81	0.70	-0.45	-0.35
K2	-0.860889	0.022					1.00	-0.97	0.23	-0.16
K3	2.97386	0.11						1.00	-0.12	0.24
P1	-0.00462511	7e-05							1.00	0.31
P2	-0.0285213	0.00015								1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points



- Control points τ Check points 100 m

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)
6	15.5228	9.31004	92.0654	18.1006	93.8279

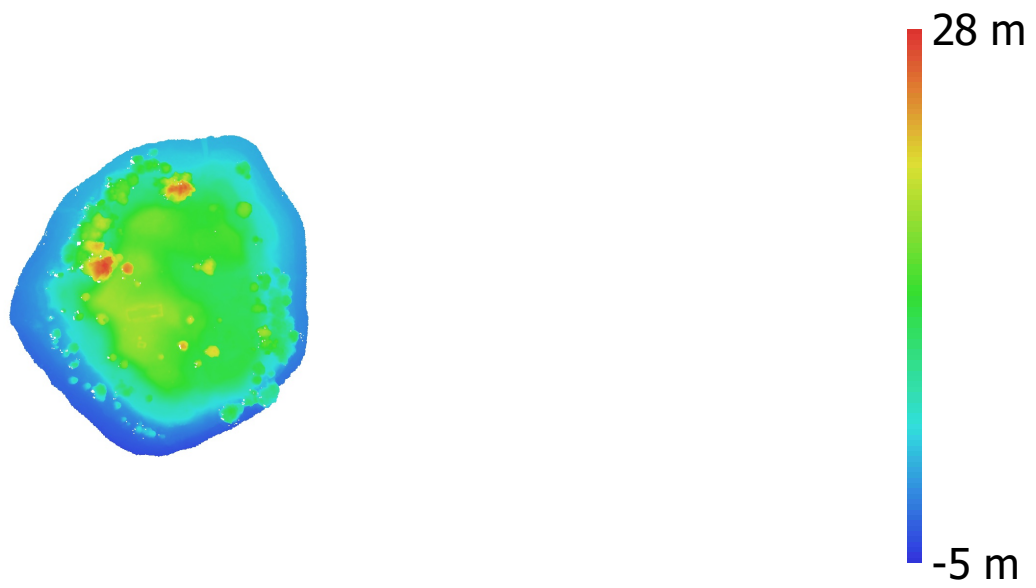
Table 3. Control points RMSE.

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

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
1	-29.7883	-14.7882	16.3484	37.0582	1.340 (29)
2	-8.71164	13.3228	52.7911	55.1388	0.674 (29)
3	5.88807	6.29961	82.8077	83.2554	1.168 (22)
4	10.7782	-3.8952	-190.396	190.74	0.525 (20)
5	16.1974	-6.53984	58.1627	60.7292	1.016 (28)
6	-8.32494	-5.12302	-36.215	37.511	0.653 (29)
Total	15.5228	9.31004	92.0654	93.8279	0.951

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

Digital Elevation Model



100 m

Fig. 4. Reconstructed digital elevation model.

Resolution: 13.7 cm/pix
Point density: 53.3 points/m²

Processing Parameters

General

Cameras	29
Aligned cameras	29
Markers	6

Shapes

Polylines	9
Polygons	595
Coordinate system	OSGB 1936 / British National Grid (EPSG::27700)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	11,306 of 28,615
RMS reprojection error	0.297331 (0.863072 pix)
Max reprojection error	1.16958 (25.2097 pix)
Mean key point size	2.95649 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	10.6428

Alignment parameters

Accuracy	High
Generic preselection	No
Reference preselection	Yes
Key point limit	500,000
Tie point limit	10,000
Adaptive camera model fitting	No
Matching time	17 minutes 18 seconds
Alignment time	25 seconds

Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Optimization time	11 seconds

Depth Maps

Count	29
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Reconstruction parameters

Quality	High
Filtering mode	Mild
Processing time	1 hours 21 minutes

Dense Point Cloud

Points	2,420,072
Point colors	3 bands, uint8

Reconstruction parameters

Quality	High
Depth filtering	Mild
Depth maps generation time	1 hours 21 minutes
Dense cloud generation time	6 minutes 12 seconds

Model

Faces	400,000
Vertices	200,614
Vertex colors	3 bands, uint8
Texture	8,192 x 8,192, 4 bands, uint8

Reconstruction parameters

Surface type	Arbitrary
Source data	Dense
Interpolation	Enabled
Quality	High
Depth filtering	Mild
Face count	484,014

Processing time	1 minutes 45 seconds
Texturing parameters	
Mapping mode	Orthophoto
Blending mode	Mosaic
Texture size	8,192 x 8,192
Enable color correction	No
Enable hole filling	Yes
UV mapping time	3 seconds
Blending time	2 minutes 58 seconds
Tiled Model	
Texture	3 bands, uint8
Reconstruction parameters	
Source data	Dense cloud
Tile size	8192
Processing time	3 minutes 54 seconds
DEM	
Size	2,247 x 2,253
Coordinate system	OSGB 1936 / British National Grid (EPSG::27700)
Reconstruction parameters	
Source data	Dense cloud
Interpolation	Disabled
Processing time	8 seconds
Orthomosaic	
Size	1,884 x 2,026
Coordinate system	OSGB 1936 / British National Grid (EPSG::27700)
Colors	3 bands, uint8
Reconstruction parameters	
Blending mode	Mosaic
Surface	DEM
Enable hole filling	Yes
Processing time	40 seconds
Software	
Version	1.4.3 build 6529
Platform	Windows 64