

May2019_PhotoscanReport

Processing Report

22 August 2019



Survey Data

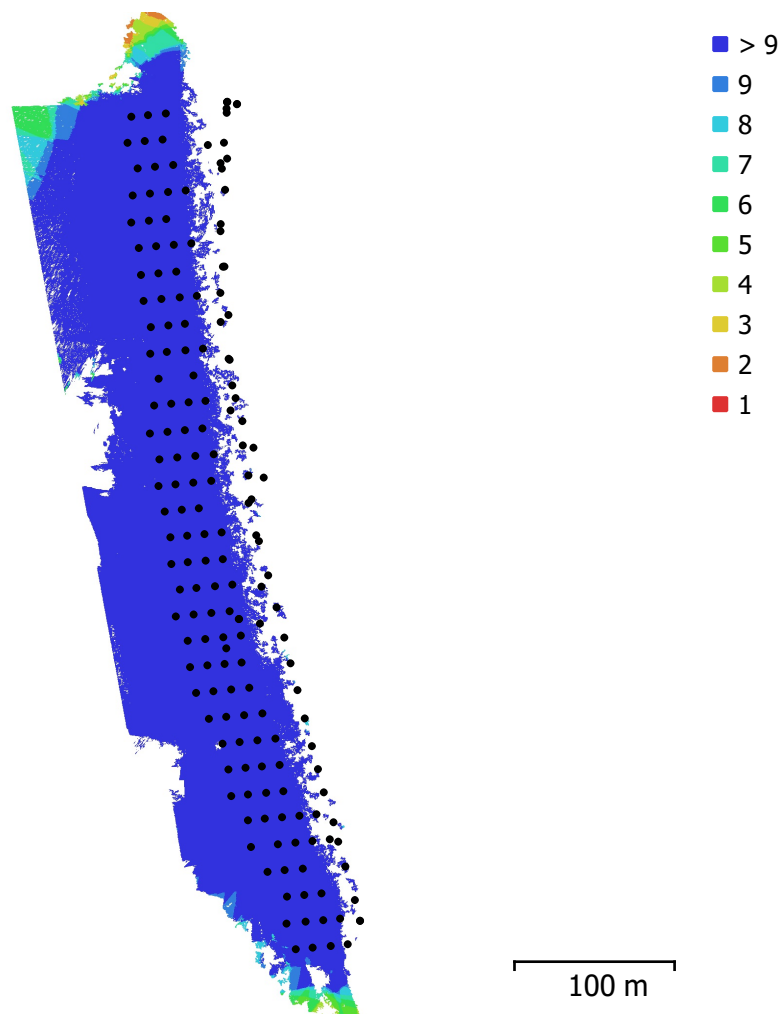


Fig. 1. Camera locations and image overlap.

Number of images:	177	Camera stations:	177
Flying altitude:	58.1 m	Tie points:	269,439
Ground resolution:	1.46 cm/pix	Projections:	812,196
Coverage area:	0.052 km ²	Reprojection error:	0.435 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
FC6310 (8.8mm)	5464 x 3640	8.8 mm	2.42 x 2.42 μm	No

Table 1. Cameras.

Camera Calibration

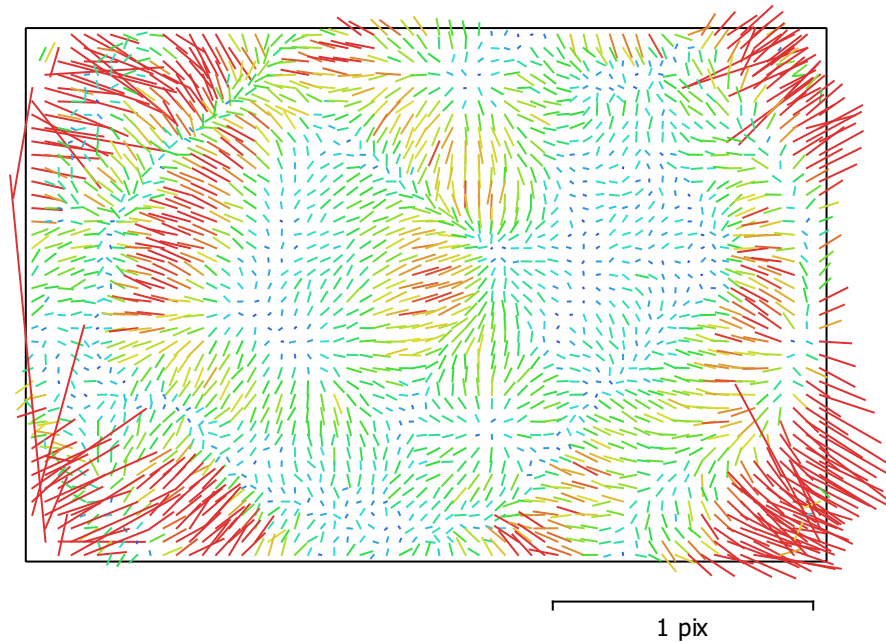


Fig. 2. Image residuals for FC6310 (8.8mm).

FC6310 (8.8mm)

177 images

Type	Resolution	Focal Length	Pixel Size
Frame	5464 x 3640	8.8 mm	2.42 x 2.42 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	3657.04	0.049	1.00	0.10	-0.08	-0.63	0.30	-0.21	-0.05	0.03
Cx	53.5166	0.016		1.00	-0.21	-0.05	0.03	-0.02	-0.05	0.05
Cy	18.2323	0.0094			1.00	0.01	-0.02	0.02	-0.06	-0.51
K1	-0.265473	1e-05				1.00	-0.89	0.80	0.06	-0.03
K2	0.106902	1.9e-05					1.00	-0.98	-0.04	0.02
K3	-0.0296055	1.3e-05						1.00	0.04	-0.02
P1	0.000566032	3.7e-07							1.00	0.01
P2	-0.000237318	4e-07								1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points

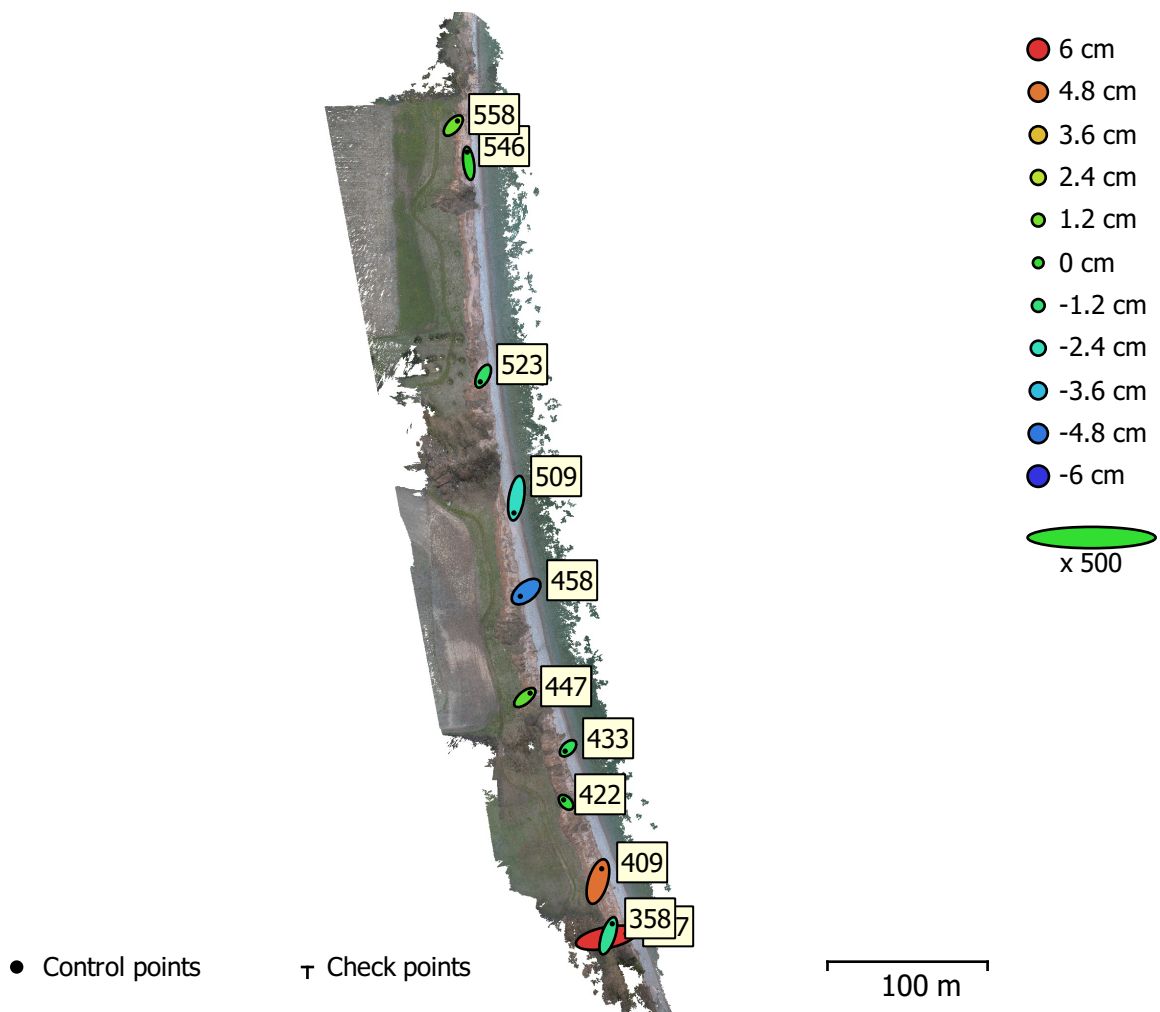


Fig. 3. GCP locations and error estimates.

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 (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
11	1.73816	2.09978	2.90425	2.72586	3.98308

Table 3. Control points RMSE.

X - Longitude, Y - Latitude, Z - Altitude.

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
347	4.95485	1.02251	5.95906	7.81706	3.487 (19)
358	0.987139	3.0015	-1.68513	3.58094	2.491 (17)
409	0.940104	3.19533	4.91417	5.93658	1.704 (33)
422	-0.593024	0.613906	-0.198117	0.876247	0.758 (26)
433	-0.729918	-0.709498	-0.674207	1.22095	1.848 (31)
447	1.32067	1.11221	0.834335	1.91763	1.534 (31)
458	-1.44877	-1.16468	-4.55001	4.91508	0.831 (33)
509	-0.597231	-3.68536	-2.52462	4.50692	0.612 (34)
523	-0.732005	-1.41024	-0.895397	1.82383	1.711 (30)
546	-0.368992	2.80445	0.0809418	2.82978	0.661 (29)
558	1.03365	1.15152	1.09887	1.89788	1.180 (24)
Total	1.73816	2.09978	2.90425	3.98308	1.610

Table 4. Control points.
X - Longitude, Y - Latitude, Z - Altitude.

Digital Elevation Model

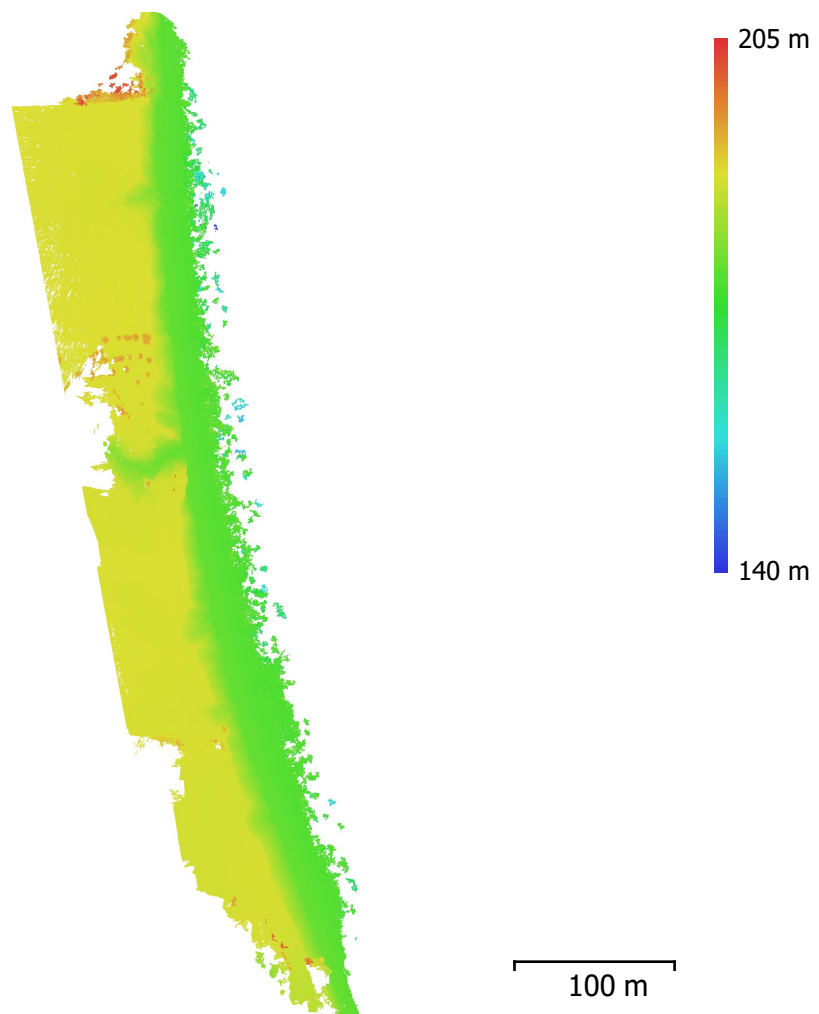


Fig. 4. Reconstructed digital elevation model.

Resolution: unknown

Point density: unknown

Processing Parameters

General

Cameras	177
Aligned cameras	177
Markers	11
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	269,439 of 286,254
RMS reprojection error	0.118123 (0.435486 pix)
Max reprojection error	0.356806 (17.511 pix)
Mean key point size	2.74455 pix
Point colors	3 bands, uint16
Key points	No
Average tie point multiplicity	3.24279

Alignment parameters

Accuracy	Highest
Generic preselection	Yes
Reference preselection	Yes
Key point limit	40,000
Tie point limit	10,000
Adaptive camera model fitting	No
Matching time	36 minutes 47 seconds
Alignment time	1 minutes 19 seconds

Depth Maps

Count	177
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Reconstruction parameters

Quality	High
Filtering mode	Moderate
Processing time	2 hours 1 minutes

Dense Point Cloud

Points	64,616,988
Point colors	3 bands, uint16
Reconstruction parameters	
Quality	High
Depth filtering	Moderate
Depth maps generation time	2 hours 1 minutes
Dense cloud generation time	42 minutes 13 seconds

Software

Version	1.4.3 build 6529
Platform	Windows 64