Quercus_petraea_7F

Processing Report

07 November 2018

Survey Data

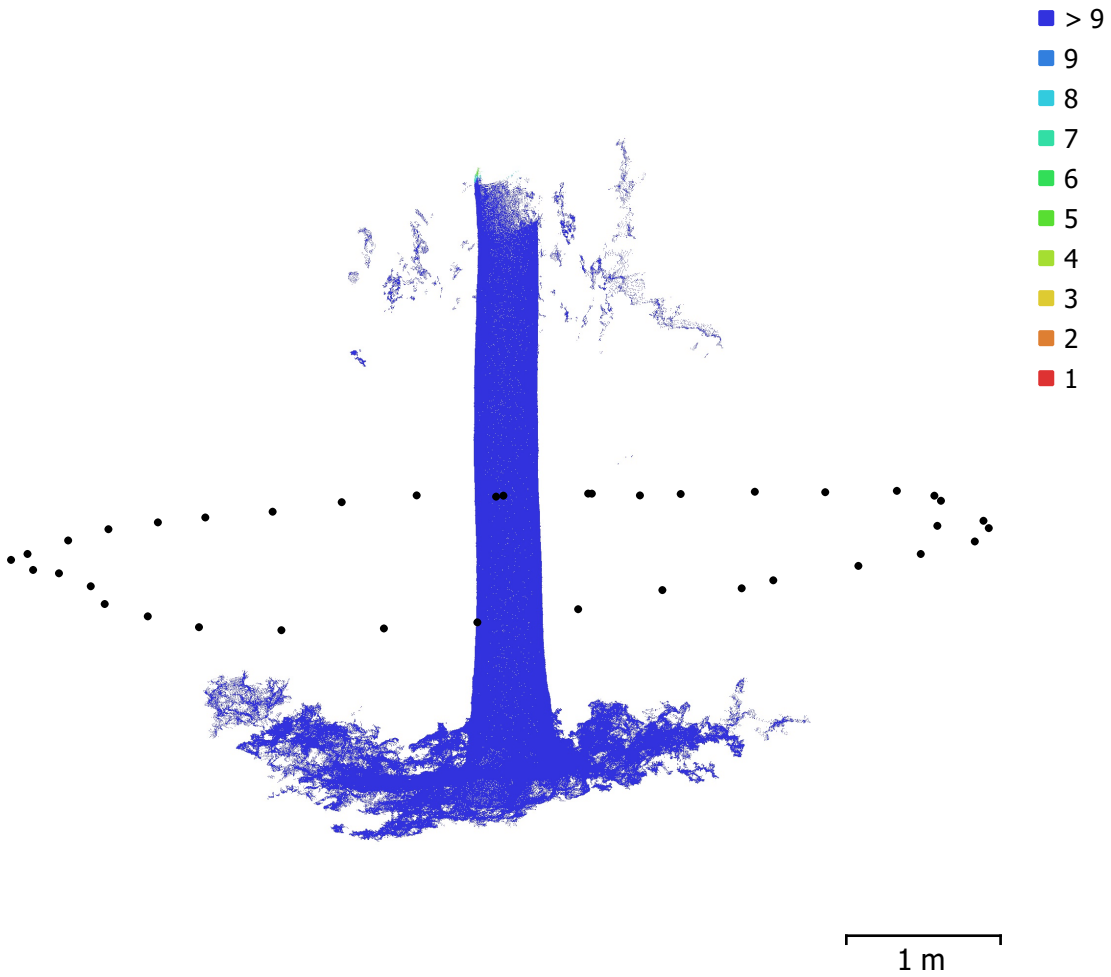

Fig. 1. Camera locations and image overlap.

Number of images:	39	Camera stations:	39
Flying altitude:	3.7 m	Tie points:	30,534
Ground resolution:	0.742 mm/pix	Projections:	82,424
Coverage area:	2.87 m²	Reprojection error:	0.429 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
Canon EOS 70D (15 mm)	5472 x 3648	15 mm	4.17 x 4.17 µm	No

Table 1. Cameras.

Camera Calibration

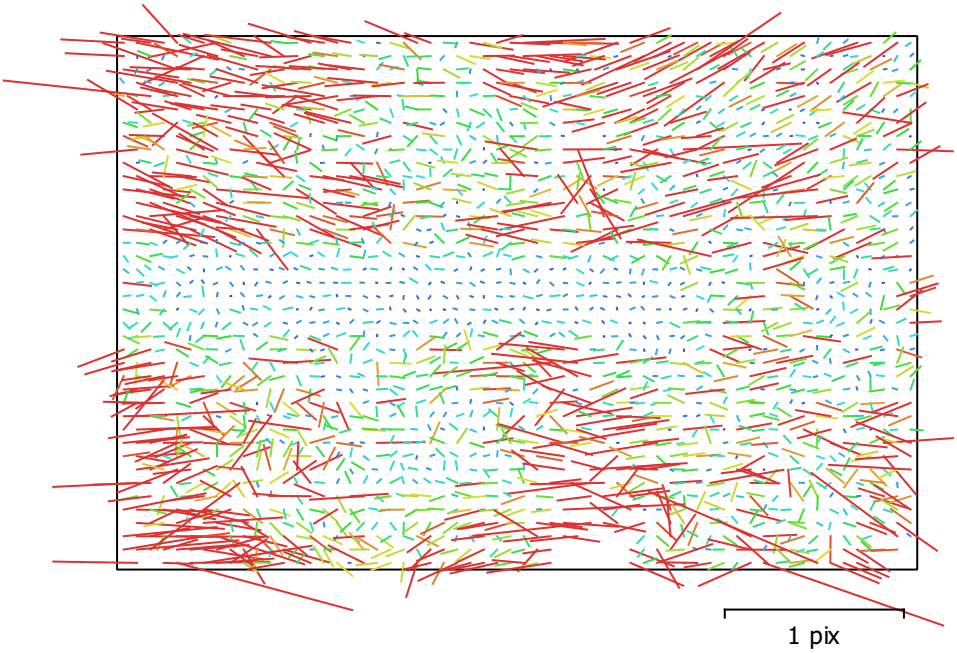

Fig. 2. Image residuals for Canon EOS 70D (15 mm).

Canon EOS 70D (15 mm)

39 images

Type	Resolution	Focal Length	Pixel Size
Fisheye	**5472 x 3648**	**15 mm**	**4.17 x 4.17 µm**

	Value	Error	F	B2	K1	P1	P2
F	**3738.47**	0.34	1.00	-0.09	-0.44	0.15	-0.04
B2	**5.54963**	0.067		1.00	0.05	-0.05	0.28
K1	**-0.0334751**	4.5e-05			1.00	0.39	-0.02
P1	**0.000987364**	1.8e-05				1.00	0.05
P2	**0.000475899**	1e-05					1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points

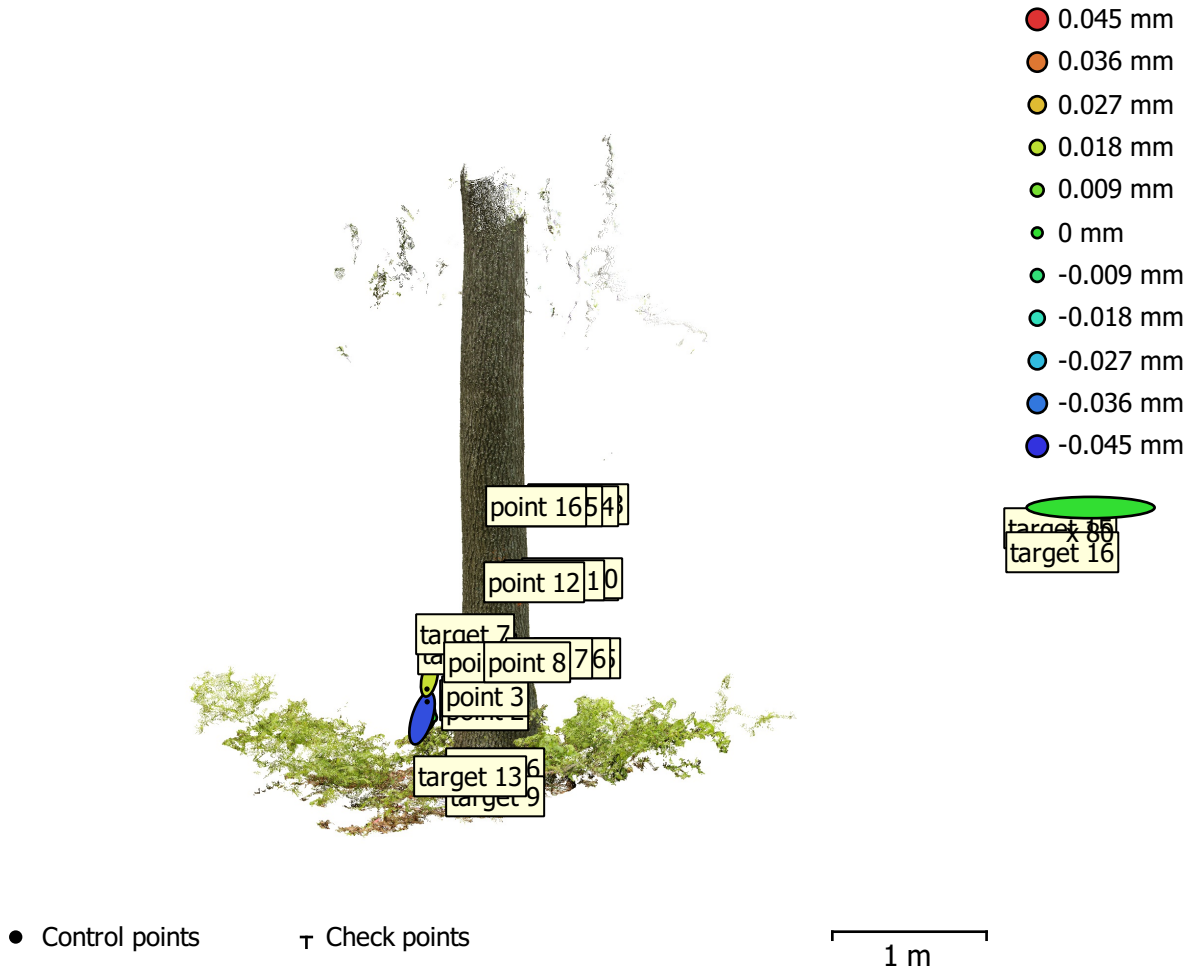

Fig. 3. GCP locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated GCP locations are marked with a dot or crossing.

Count	X error (mm)	Y error (mm)	Z error (mm)	XY error (mm)	Total (mm)
4	0.499525	1.71836	0.0252501	1.78949	1.78967

Table 3. Control points RMSE.

Label	X error (mm)	Y error (mm)	Z error (mm)	Total (mm)	Image (pix)
point 1	-0.0378428	-1.28167	0.0215103	1.2824	0.004 (39)
point 2	-0.400074	0.36791	-0.00071849	0.543523	0.004 (39)
point 3	0.827372	2.6496	-0.0413639	2.77608	0.004 (39)
point 4	-0.389957	-1.73568	0.0193927	1.77905	0.004 (39)
Total	**0.499525**	**1.71836**	**0.0252501**	**1.78967**	**0.004**

Table 4. Control points.

Label	X error (mm)	Y error (mm)	Z error (mm)	Total (mm)	Image (pix)
target 6					0.382 (3)
target 8					1.248 (14)
target 9					0.052 (3)
target 13					0.246 (2)
target 15					1.033 (10)
target 16					1.051 (10)
target 7					0.004 (39)
point 5					0.004 (39)
point 6					0.004 (39)
point 7					0.004 (39)
point 8					0.004 (39)
point 9					0.004 (39)
point 10					0.004 (39)
point 11					0.004 (39)
point 12					0.004 (39)
point 13					0.004 (39)
point 14					0.004 (39)
point 15					0.004 (39)
point 16					0.004 (39)
Total					

Table 5. Check points.

Scale Bars

Label	Distance (m)	Error (m)
target 15_target 16	0.148752	0.000752068
target 8_target 7	0.147241	-0.000759071
Total		**0.000755577**

Table 6. Control scale bars.

Label	Distance (m)	Error (m)
point 1_point 2	0.0631144	
point 1_point 3	0.131256	
point 1_point 4	0.213701	
Total		

Table 7. Check scale bars.

Digital Elevation Model

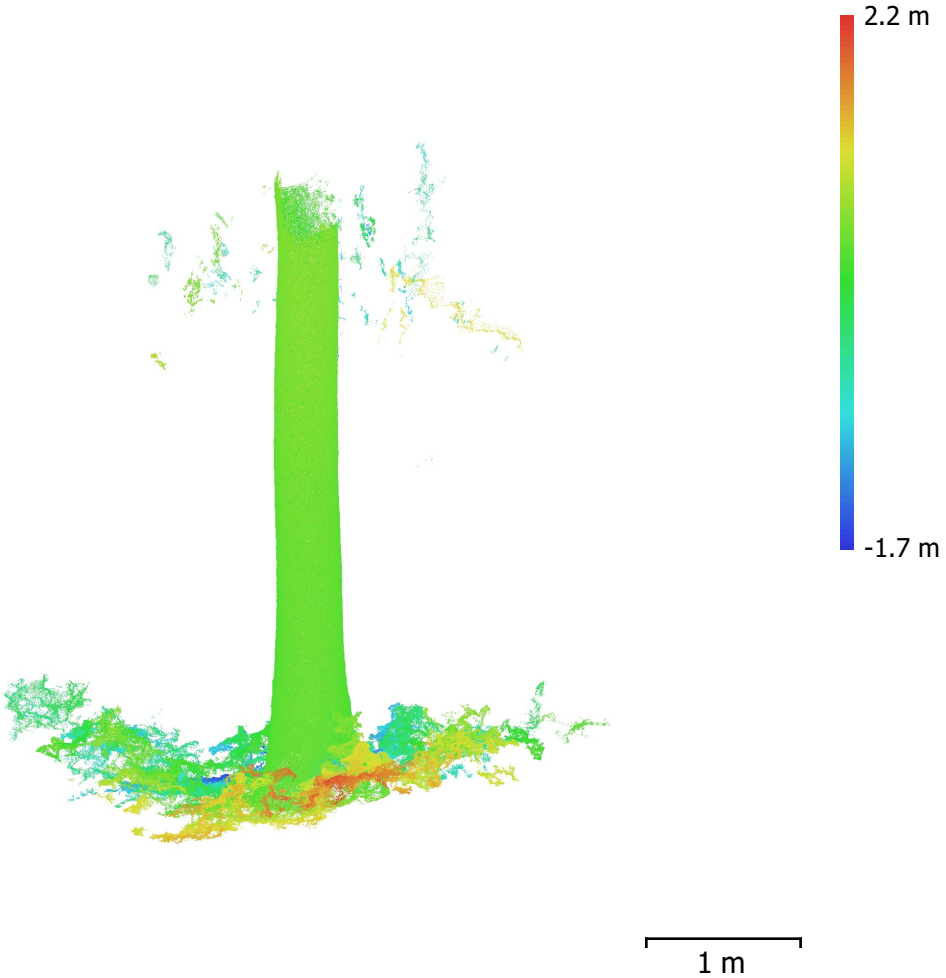

Fig. 4. Reconstructed digital elevation model.

Resolution:	unknown
Point density:	unknown

Processing Parameters

General	
Cameras	39
Aligned cameras	39
Markers	26
Scale bars	7
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll
Point Cloud	
Points	30,534 of 33,864
RMS reprojection error	0.0967368 (0.429293 pix)
Max reprojection error	0.293979 (7.505 pix)
Mean key point size	3.94993 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	2.8018
Alignment parameters	
Accuracy	High
Generic preselection	Yes
Key point limit	40,000
Tie point limit	4,000
Adaptive camera model fitting	Yes
Matching time	5 minutes 30 seconds
Alignment time	16 seconds
Depth Maps	
Count	39
Reconstruction parameters	
Quality	Medium
Filtering mode	Aggressive
Processing time	14 minutes 59 seconds
Dense Point Cloud	
Points	1,539,124
Point colors	3 bands, uint8
Reconstruction parameters	
Quality	Medium
Depth filtering	Aggressive
Depth maps generation time	14 minutes 59 seconds
Dense cloud generation time	3 minutes 23 seconds
Software	
Version	1.4.4 build 6848
Platform	Windows 64