Quercus_petraea_7N

Processing Report

07 November 2018

Survey Data

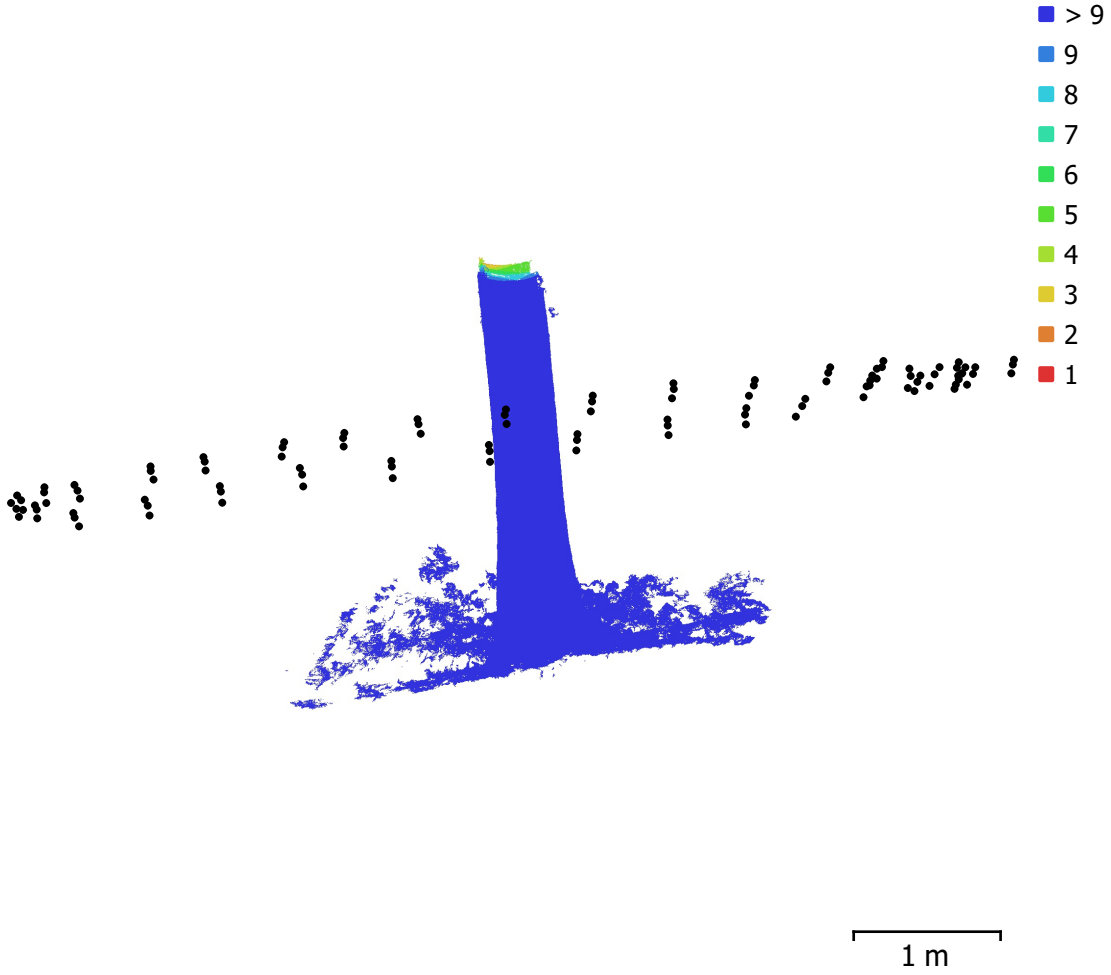

Fig. 1. Camera locations and image overlap.

Number of images:	108	Camera stations:	108
Flying altitude:	3.31 m	Tie points:	109,997
Ground resolution:	0.366 mm/pix	Projections:	352,622
Coverage area:	2.15 m²	Reprojection error:	0.699 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
Canon EOS 70D (35 mm)	5472 x 3648	35 mm	4.17 x 4.17 µm	No

Table 1. Cameras.

Camera Calibration

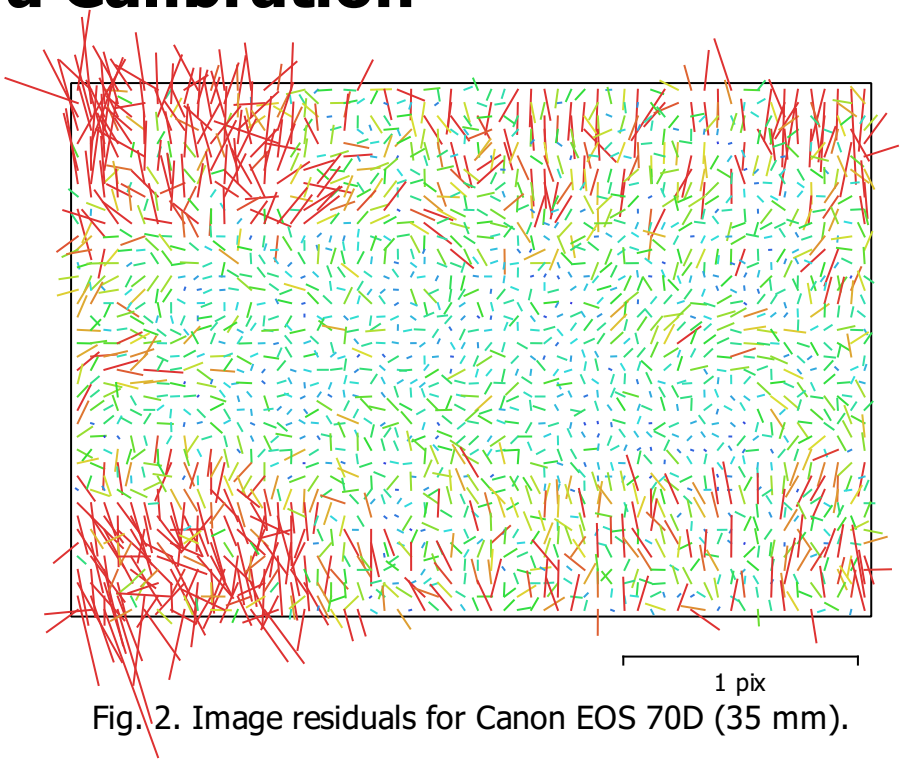

Fig. 2. Image residuals for Canon EOS 70D (35 mm).

Canon EOS 70D (35 mm)

108 images

Type	Resolution	Focal Length	Pixel Size
Frame	**5472 x 3648**	**35 mm**	**4.17 x 4.17 µm**

	Value	Error	F	K1	K2	P1	P2
F	**8475.69**	0.62	1.00	0.39	0.03	-0.10	-0.00
K1	**-0.0747403**	0.0001		1.00	-0.87	0.00	-0.00
K2	**0.081126**	0.0007			1.00	0.02	-0.01
P1	**0.000486721**	3.7e-06				1.00	-0.00
P2	**0.00080306**	4.3e-06					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	0.644832	0.0701626	0.00296457	0.648637	0.648644

Table 3. Control points RMSE.

Label	X error (mm)	Y error (mm)	Z error (mm)	Total (mm)	Image (pix)
point 1	0.564394	0.073919	0.00312867	0.569223	0.004 (89)
point 2	-0.461327	-0.0942628	-0.00305593	0.470869	0.004 (98)
point 3	-0.802092	-0.0403458	-0.0029314	0.803112	0.003 (106)
point 4	0.698939	0.0609418	0.0027266	0.701596	0.003 (108)
Total	**0.644832**	**0.0701626**	**0.00296457**	**0.648644**	**0.004**

Table 4. Control points.

Label	X error (mm)	Y error (mm)	Z error (mm)	Total (mm)	Image (pix)
target 2					0.732 (3)
target 8					1.370 (21)
target 10					0.062 (2)
target 12					0.496 (2)
target 13					0.064 (2)
target 14					0.360 (2)
target 15					0.371 (7)
target 16					0.275 (7)
target 9					0.920 (62)
target 7					0.003 (91)
point 5					0.004 (108)
point 6					0.004 (108)
point 7					0.004 (108)
point 8					0.004 (108)
point 9					0.004 (73)
point 10					0.004 (73)
point 11					0.004 (74)
point 12					0.004 (74)
point 13					0.004 (70)
point 14					0.003 (70)
point 15					0.003 (71)
point 16					0.003 (70)
Total					

Table 5. Check points.

Scale Bars

Label	Distance (m)	Error (m)
target 15_target 16	0.147935	-6.52918e-05
target 13_target 14	0.15036	0.00235964
target 10_target 9	0.14586	-0.00213964
target 8_target 7	0.149028	0.00102843
Total		**0.00167391**

Table 6. Control scale bars.

Label	Distance (m)	Error (m)
point 1_point 2	0.0815084	
point 1_point 3	0.149946	
point 1_point 4	0.225957	
Total		

Table 7. Check scale bars.

Digital Elevation Model

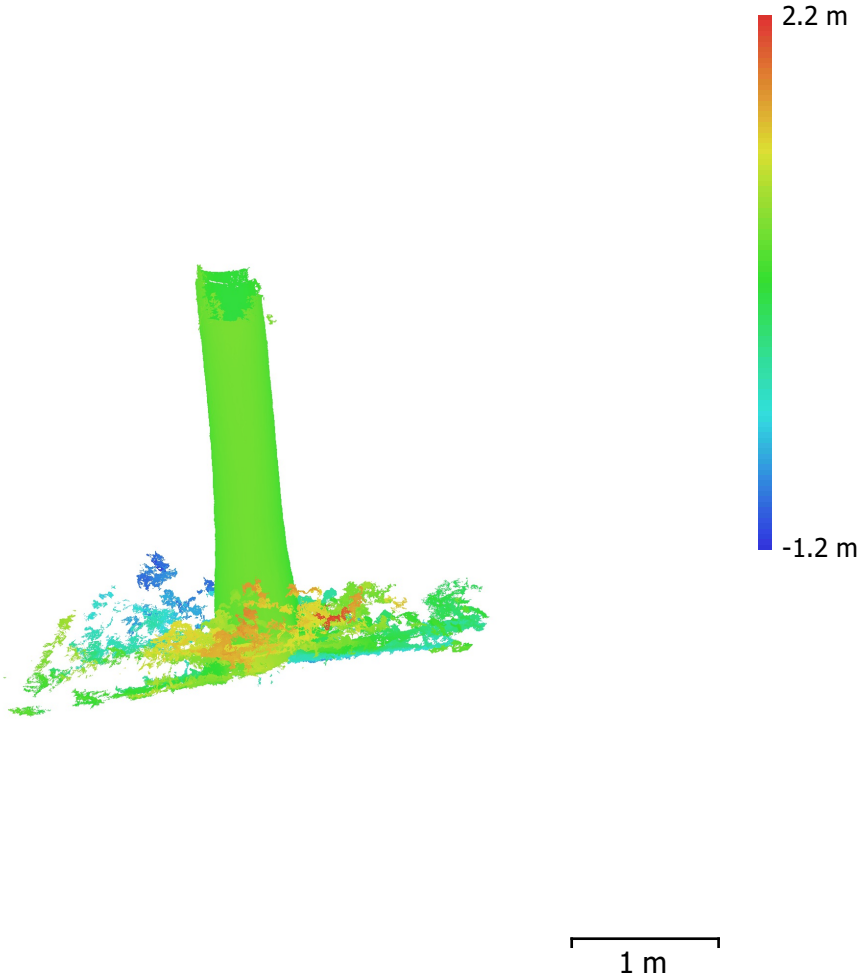

Fig. 4. Reconstructed digital elevation model.

Resolution:	unknown
Point density:	unknown

Processing Parameters

General	
Cameras	108
Aligned cameras	108
Markers	26
Scale bars	7
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll
Point Cloud	
Points	109,997 of 136,143
RMS reprojection error	0.141107 (0.698654 pix)
Max reprojection error	0.432884 (16.644 pix)
Mean key point size	5.06217 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.50312
Alignment parameters	
Accuracy	High
Generic preselection	Yes
Key point limit	40,000
Tie point limit	4,000
Adaptive camera model fitting	Yes
Matching time	39 minutes 27 seconds
Alignment time	1 minutes 34 seconds
Depth Maps	
Count	108
Reconstruction parameters	
Quality	Medium
Filtering mode	Aggressive
Processing time	1 hours 56 minutes
Dense Point Cloud	
Points	4,405,854
Point colors	3 bands, uint8
Reconstruction parameters	
Quality	Medium
Depth filtering	Aggressive
Depth maps generation time	1 hours 56 minutes
Dense cloud generation time	21 minutes 47 seconds
Software	
Version	1.4.4 build 6848
Platform	Windows 64