Quercus_petraea_6N

Processing Report

07 November 2018

Survey Data

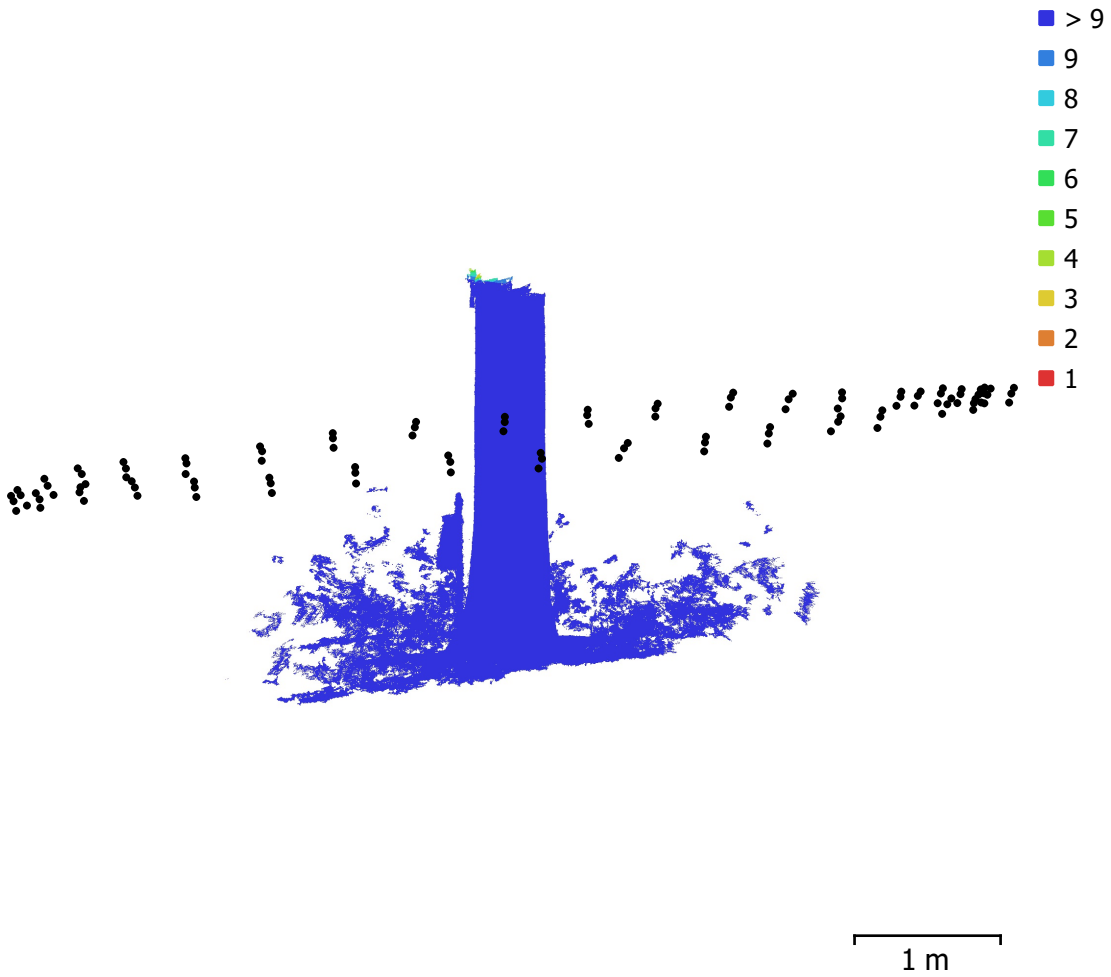

Fig. 1. Camera locations and image overlap.

Number of images:	114	Camera stations:	114
Flying altitude:	3.26 m	Tie points:	99,867
Ground resolution:	0.377 mm/pix	Projections:	337,911
Coverage area:	2.82 m²	Reprojection error:	0.689 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

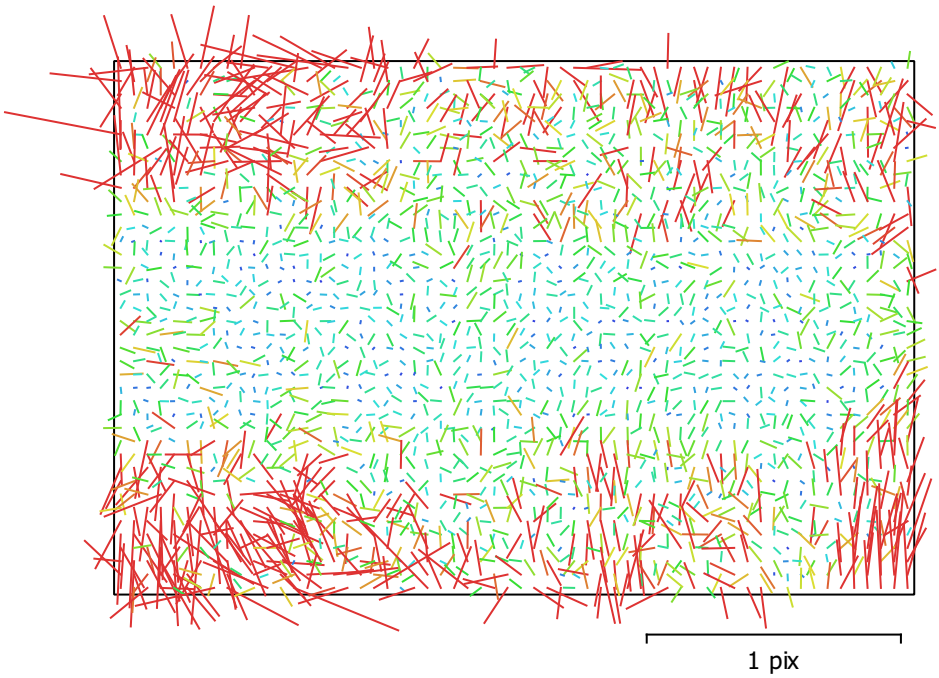

Fig. 2. Image residuals for Canon EOS 70D (35 mm).

Canon EOS 70D (35 mm)

114 images

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

	Value	**Error**	**F**	**B2**	**K1**	**K2**	**P1**	**P2**
F	**8466.08**	0.74	1.00	-0.04	0.47	0.03	-0.08	0.01
B2	**1.80343**	0.13		1.00	-0.02	-0.00	-0.05	0.02
K1	**-0.075778**	0.0001			1.00	-0.83	-0.02	0.02
K2	**0.0861076**	0.00067				1.00	0.03	-0.02
P1	**0.000508289**	3.6e-06					1.00	-0.00
P2	**0.000792701**	4e-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	0.749802	0.919493	0.00405438	1.18645	1.18646

Table 3. Control points RMSE.

Label	X error (mm)	Y error (mm)	Z error (mm)	Total (mm)	Image (pix)
point 3	-0.339423	-0.431225	0.004468	0.548801	0.004 (78)
point 4	1.03807	-0.054402	-0.003525	1.0395	0.003 (90)
point 5	-0.986404	1.48274	-0.00452301	1.78088	0.004 (97)
point 6	0.28813	-0.997219	0.00359246	1.03802	0.004 (110)
Total	**0.749802**	**0.919493**	**0.00405438**	**1.18646**	**0.004**

Table 4. Control points.

Label	X error (mm)	Y error (mm)	Z error (mm)	Total (mm)	Image (pix)
target 5					0.667 (12)
target 6					0.357 (3)
target 8					0.859 (33)
target 15					0.330 (4)
target 16					0.370 (4)
target 7					0.382 (106)
point 1					0.003 (48)
point 2					0.004 (73)
point 7					0.004 (114)
point 8					0.004 (114)
point 9					0.004 (114)
point 10					0.004 (114)
point 11					0.004 (76)
point 12					0.004 (76)
point 13					0.004 (76)
point 14					0.004 (76)
point 15					0.003 (76)
point 16					0.004 (76)
point 17					0.004 (76)
point 18					0.004 (76)
Total					

Table 5. Check points.

Scale Bars

Label	Distance (m)	Error (m)
target 5_target 6	0.146446	-0.00155402
target 15_target 16	0.147266	-0.000733713
target 8_target 7	0.151109	0.00310895
point 1_point 2	0.602774	-0.000226334
Total		**0.00177975**

Table 6. Control scale bars.

Label	Distance (m)	Error (m)
point 3_point 4	0.124433	
point 3_point 5	0.22794	
point 3_point 6	0.332178	
Total		

Table 7. Check scale bars.

Digital Elevation Model

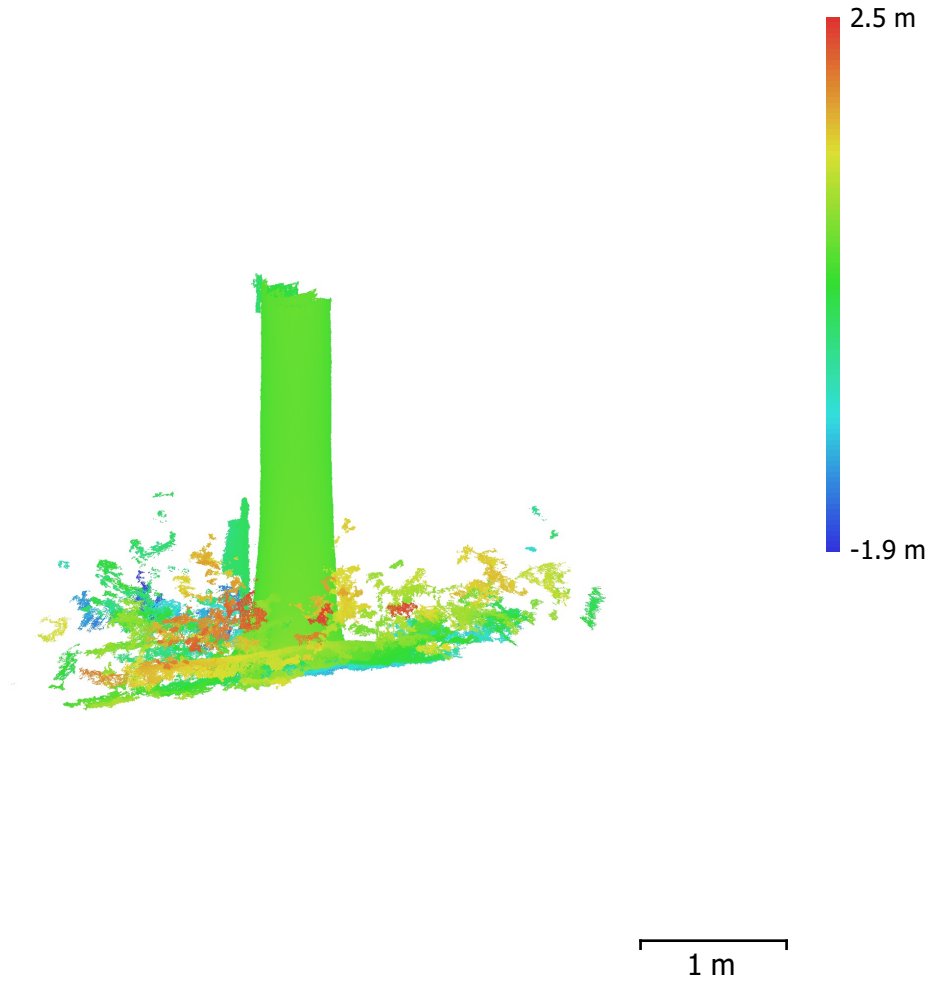

Fig. 4. Reconstructed digital elevation model.

Resolution:	unknown
Point density:	unknown

Processing Parameters

General	
Cameras	114
Aligned cameras	114
Markers	24
Scale bars	7
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll
Point Cloud	
Points	99,867 of 133,521
RMS reprojection error	0.144928 (0.688752 pix)
Max reprojection error	0.448792 (30.3812 pix)
Mean key point size	4.67567 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.65536
Alignment parameters	
Accuracy	High
Generic preselection	Yes
Key point limit	40,000
Tie point limit	4,000
Adaptive camera model fitting	Yes
Matching time	42 minutes 33 seconds
Alignment time	4 minutes 22 seconds
Depth Maps	
Count	114
Reconstruction parameters	
Quality	Medium
Filtering mode	Aggressive
Processing time	10 hours 18 minutes
Dense Point Cloud	
Points	5,055,579
Point colors	3 bands, uint8
Reconstruction parameters	
Quality	Medium
Depth filtering	Aggressive
Depth maps generation time	10 hours 18 minutes
Dense cloud generation time	25 minutes 0 seconds
Software	
Version	1.4.4 build 6848
Platform	Windows 64