

P257752_report

Processing Report
10 July 2024



Survey Data

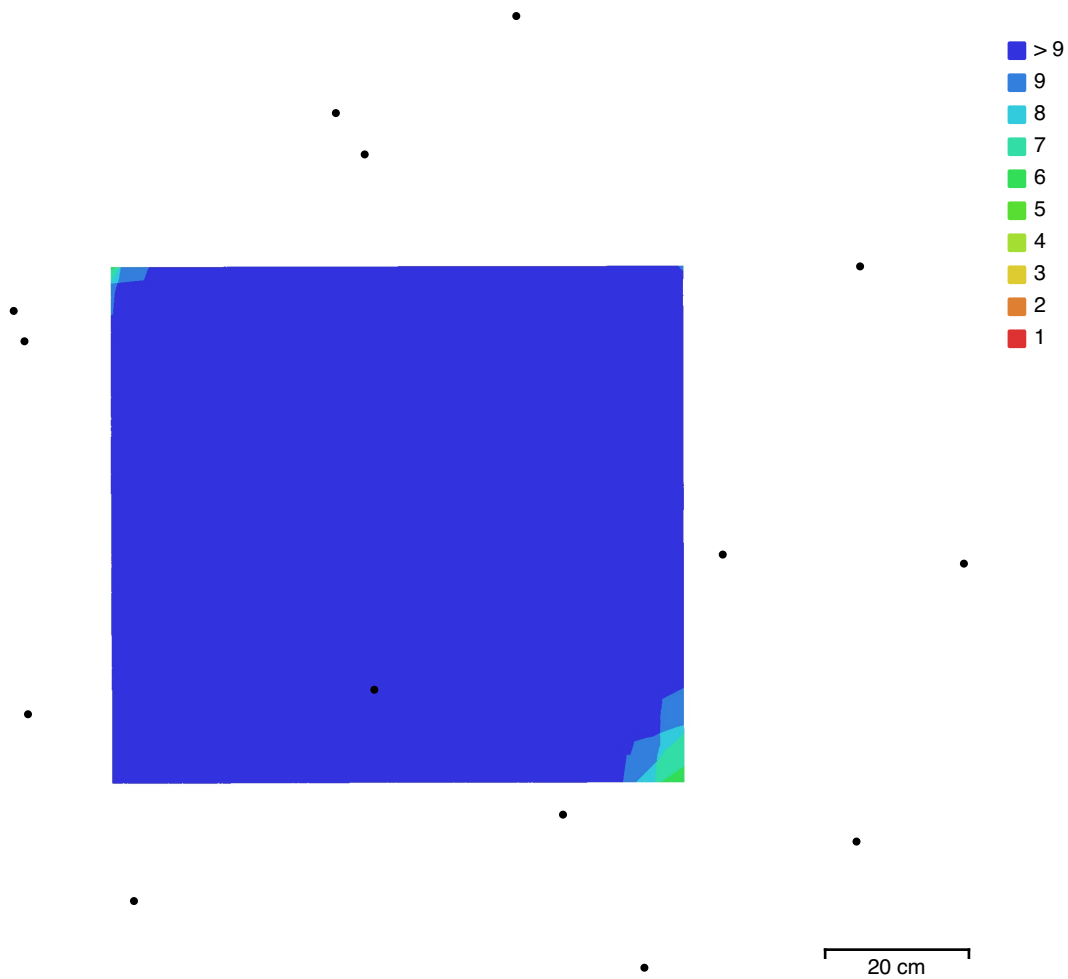


Fig. 1. Camera locations and image overlap.

Number of images:	15	Camera stations:	15
Flying altitude:	1 m	Tie points:	13,104
Ground resolution:	0.147 mm/pix	Projections:	62,376
Coverage area:	5.71e+03 cm ²	Reprojection error:	1.04 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
Canon EOS 5D Mark IV, E...	6720 x 4480	50 mm	5.36 x 5.36 μm	No
Canon EOS 5D Mark IV, E...	6720 x 4480	35 mm	5.36 x 5.36 μm	No

Table 1. Cameras.

Camera Calibration

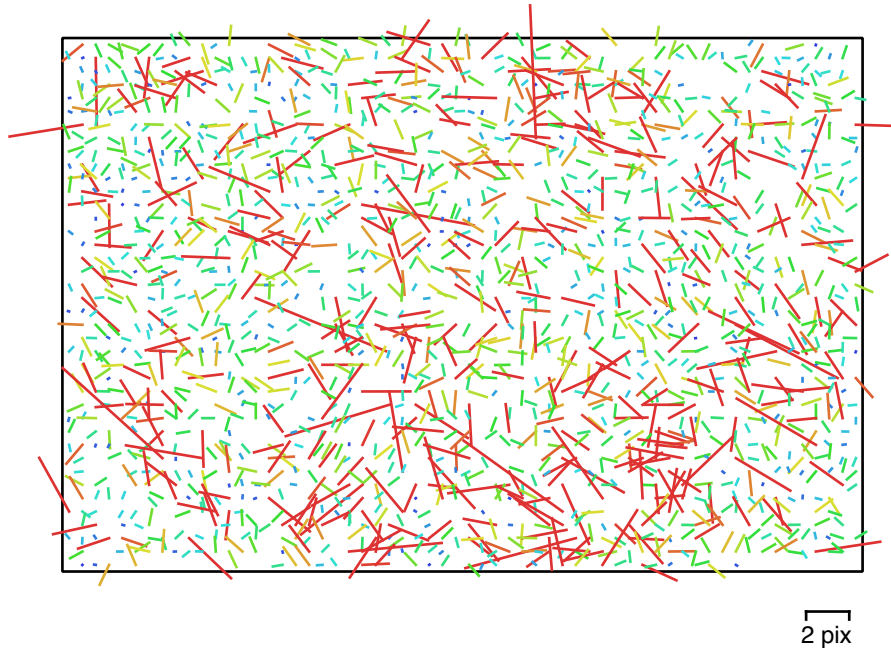


Fig. 2. Image residuals for Canon EOS 5D Mark IV, EF24-105mm f/4L IS II USM (50mm).

Canon EOS 5D Mark IV, EF24-105mm f/4L IS II USM (50mm)

1 images

Type	Resolution	Focal Length	Pixel Size
Frame	6720 x 4480	50 mm	5.36 x 5.36 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	8588.33	11	1.00	-0.08	-0.93	-0.27	0.31	-0.24	-0.07	-0.65
Cx	13.005	1.4		1.00	0.10	-0.03	0.02	-0.03	0.94	0.10
Cy	29.1151	2.9			1.00	0.21	-0.25	0.20	0.09	0.83
K1	0.122101	0.0023				1.00	-0.97	0.92	-0.03	0.17
K2	0.187394	0.025					1.00	-0.98	0.03	-0.19
K3	-0.433391	0.083						1.00	-0.03	0.15
P1	-0.000161775	9.5e-05							1.00	0.10
P2	0.0043566	8.5e-05								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration

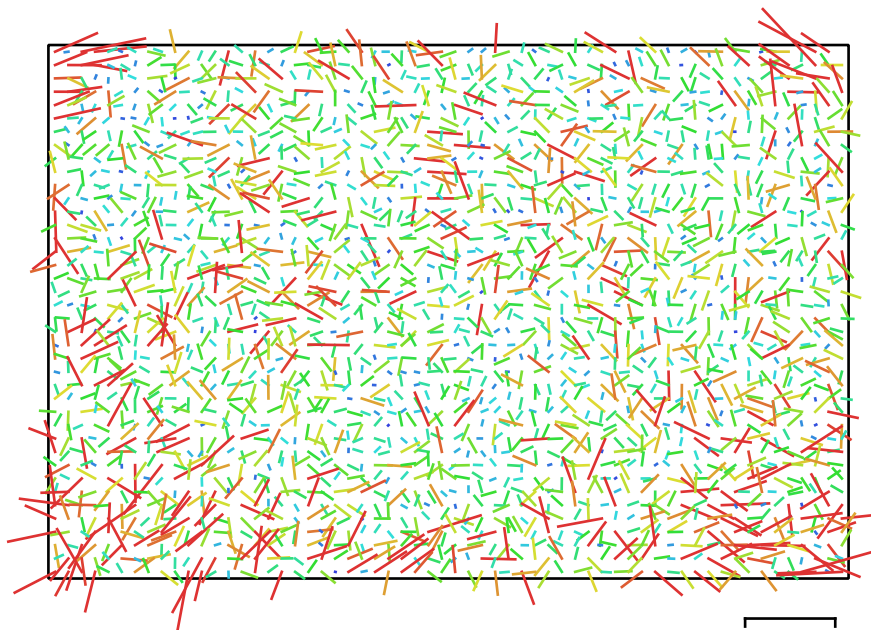


Fig. 3. Image residuals for Canon EOS 5D Mark IV, EF24-105mm f/4L IS II USM (35mm).

Canon EOS 5D Mark IV, EF24-105mm f/4L IS II USM (35mm)

14 images

Type	Resolution	Focal Length	Pixel Size
Frame	6720 x 4480	35 mm	5.36 x 5.36 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	6842.48	0.5	1.00	-0.06	-0.53	-0.23	0.26	-0.21	-0.00	-0.04
Cx	-14.2032	0.3		1.00	0.04	0.01	-0.00	0.00	0.96	0.02
Cy	32.4129	0.51			1.00	-0.14	0.09	-0.10	0.01	0.81
K1	0.0395899	0.00055				1.00	-0.95	0.89	0.01	-0.09
K2	0.126376	0.0035					1.00	-0.98	-0.00	0.08
K3	-0.173393	0.0073						1.00	0.00	-0.09
P1	-0.00062317	1.9e-05							1.00	0.04
P2	0.00256549	3.5e-05								1.00

Table 3. Calibration coefficients and correlation matrix.

Ground Control Points



● Control points

⊥ Check points

20 cm

Fig. 4. 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)
2	0.0215608	0.171804	0.306686	0.173152	0.35219

Table 4. Control points RMSE.

Label	X error (mm)	Y error (mm)	Z error (mm)	Total (mm)	Image (pix)
point 1	-0.0284778	-0.170158	-0.306781	0.351965	0.000 (15)
point 2	0.0108975	-0.173434	-0.306592	0.352416	0.000 (15)
Total	0.0215608	0.171804	0.306686	0.35219	0.000

Table 5. Control points.

Scale Bars

Label	Distance (m)	Error (m)
point 1_point 2	0.1	-1.54513e-09
Total		1.54513e-09

Table 6. Control scale bars.

Digital Elevation Model

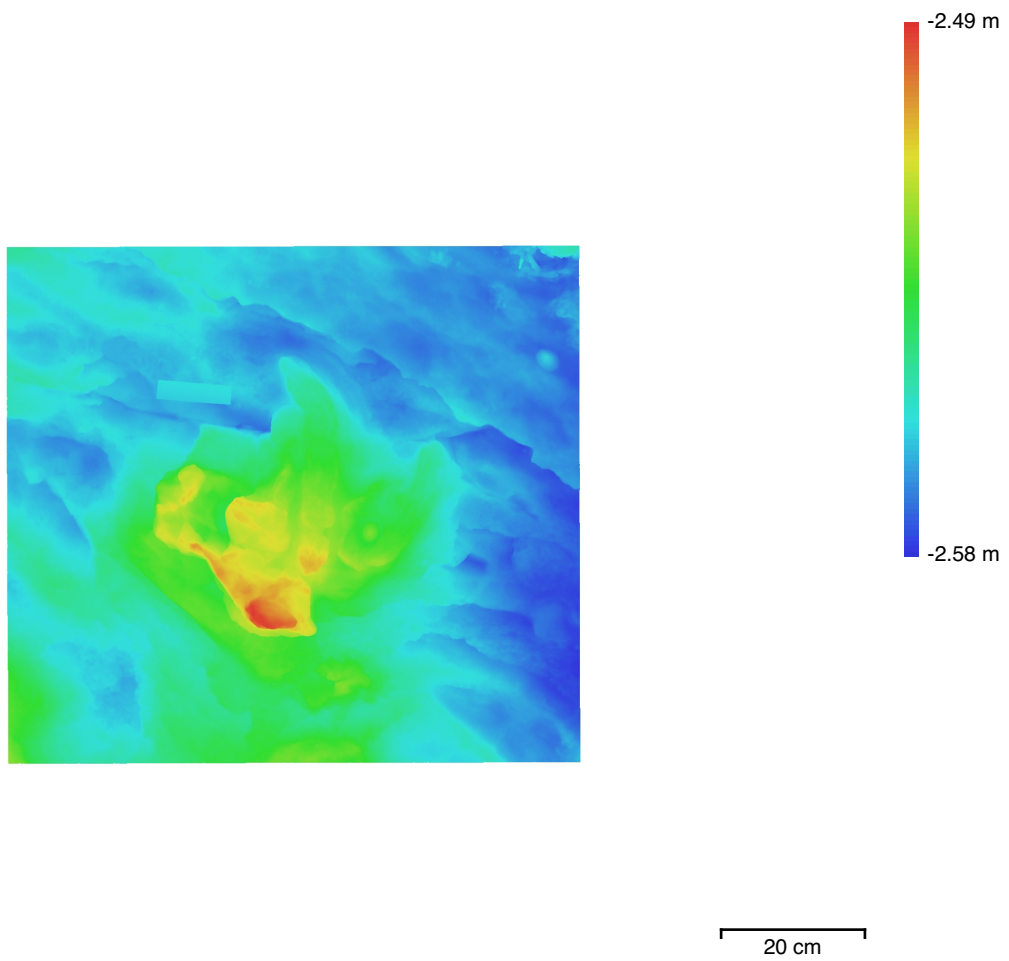


Fig. 5. Reconstructed digital elevation model.

Resolution: 0.744 mm/pix
Point density: 1.81 points/mm²

Processing Parameters

General

Cameras	15
Aligned cameras	15
Markers	2
Scale bars	1
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll

Tie Points

Points	13,104 of 14,514
RMS reprojection error	0.158406 (1.03962 pix)
Max reprojection error	0.477355 (21.2254 pix)
Mean key point size	5.89326 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	5.05643

Alignment parameters

Accuracy	Medium
Generic preselection	Yes
Reference preselection	No
Key point limit	40,000
Key point limit per Mpx	1,000
Tie point limit	4,000
Exclude stationary tie points	Yes
Guided image matching	No
Adaptive camera model fitting	No
Matching time	4 seconds
Matching memory usage	3.00 MB
Alignment time	3 seconds
Alignment memory usage	64.00 KB
Date created	2024:06:28 05:29:00
Software version	2.0.3.16960
File size	1.46 MB

Depth Maps

Count	15
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Max neighbors	16
Processing time	8 minutes 28 seconds
File size	159.17 MB

Model

Faces	1,019,030
Vertices	512,168
Vertex colors	3 bands, uint8
Texture	8,192 x 8,192, 4 bands, uint8

Depth maps generation parameters

Quality	High
Filtering mode	Mild
Max neighbors	16
Processing time	8 minutes 28 seconds

Reconstruction parameters

Surface type	Arbitrary
Source data	Depth maps
Interpolation	Enabled
Strict volumetric masks	No
Processing time	51 seconds
Memory usage	2.69 GB
Texturing parameters	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	8,192
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	53 seconds
UV mapping memory usage	787.44 MB
Blending time	54 seconds
Blending memory usage	14.43 GB
Date created	2024:06:28 05:44:31
Software version	2.0.3.16960
File size	132.30 MB
System	
Software name	Agisoft Metashape Professional
Software version	2.0.3 build 16960
OS	Mac OS 64 bit
RAM	64.00 GB
CPU	
GPU(s)	Apple M1 Max