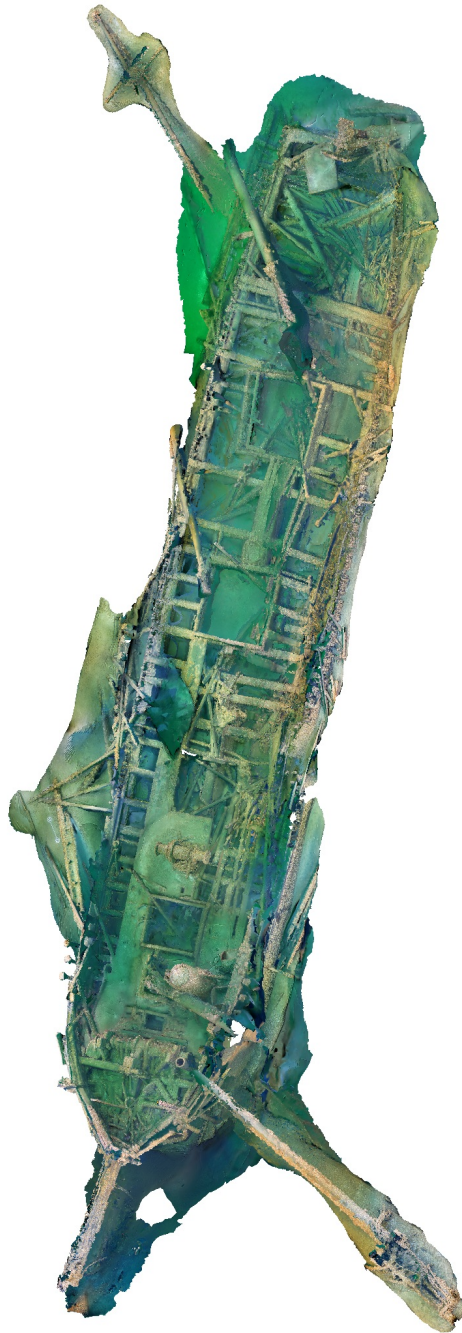


Oliver Mowat

Processing Report
20 March 2024



Survey Data

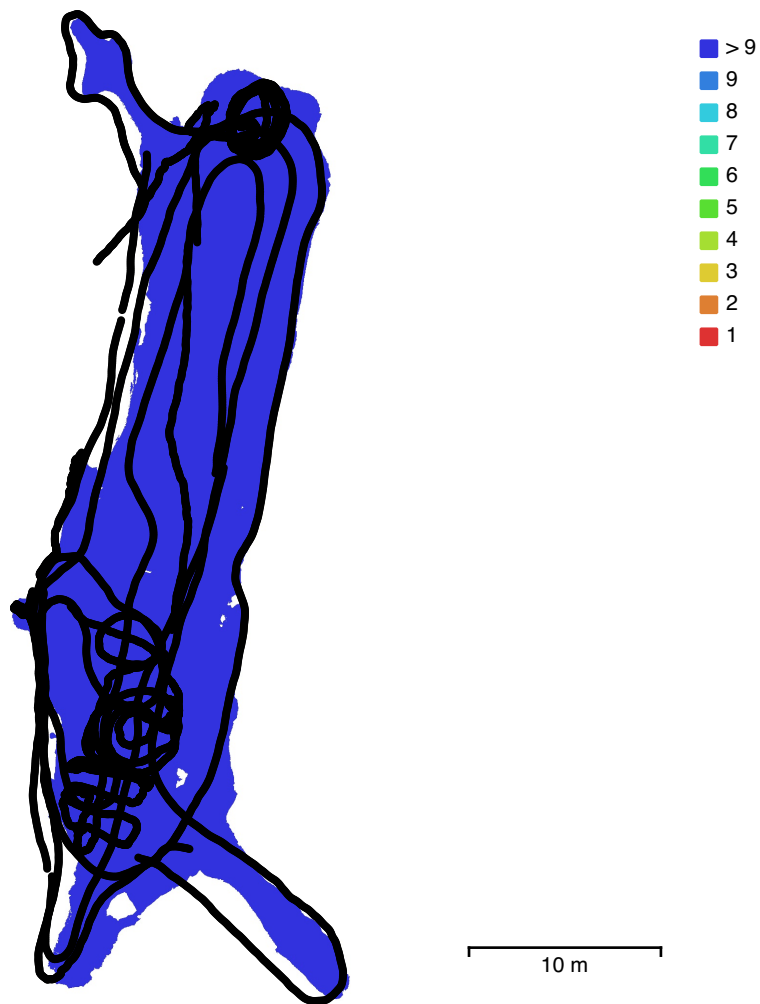


Fig. 1. Camera locations and image overlap.

Number of images:	9,535	Camera stations:	9,485
Flying altitude:	1.31 m	Tie points:	4,183,609
Ground resolution:	0.61 mm/pix	Projections:	19,317,559
Coverage area:	422 m ²	Reprojection error:	1.6 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
unknown	4096 x 2160	unknown	unknown	Yes
unknown	4096 x 2160	unknown	unknown	Yes

Table 1. Cameras.

Camera Calibration

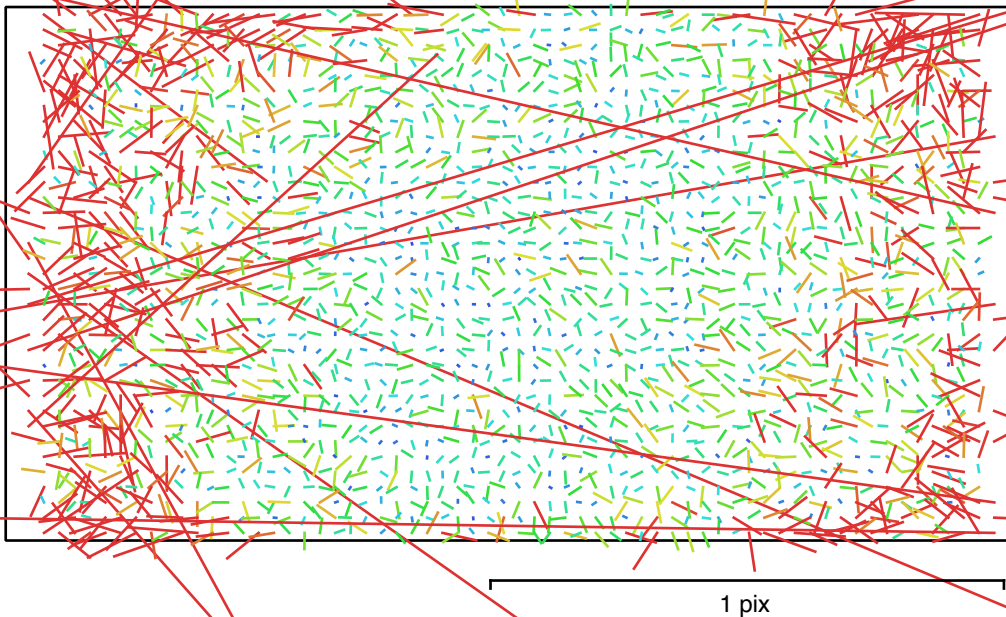


Fig. 2. Image residuals for unknown.

unknown

5107 images, precalibrated

Type	Resolution	Focal Length	Pixel Size
Fisheye	4096 x 2160	unknown	unknown

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2006.89	0.035	1.00	-0.02	-0.14	-0.39	0.26	-0.22	0.04	0.07
Cx	-12.9685	0.039		1.00	0.00	-0.02	0.03	-0.02	-0.59	-0.04
Cy	-39.5541	0.038			1.00	0.03	-0.01	0.01	-0.01	-0.47
K1	-0.0271587	3.2e-05				1.00	-0.94	0.86	-0.00	-0.05
K2	-0.00497622	6.2e-05					1.00	-0.98	-0.02	0.01
K3	-0.00179428	3.6e-05						1.00	0.01	0.00
P1	-3.26841e-05	2.5e-06							1.00	0.09
P2	0.000197767	2.5e-06								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration

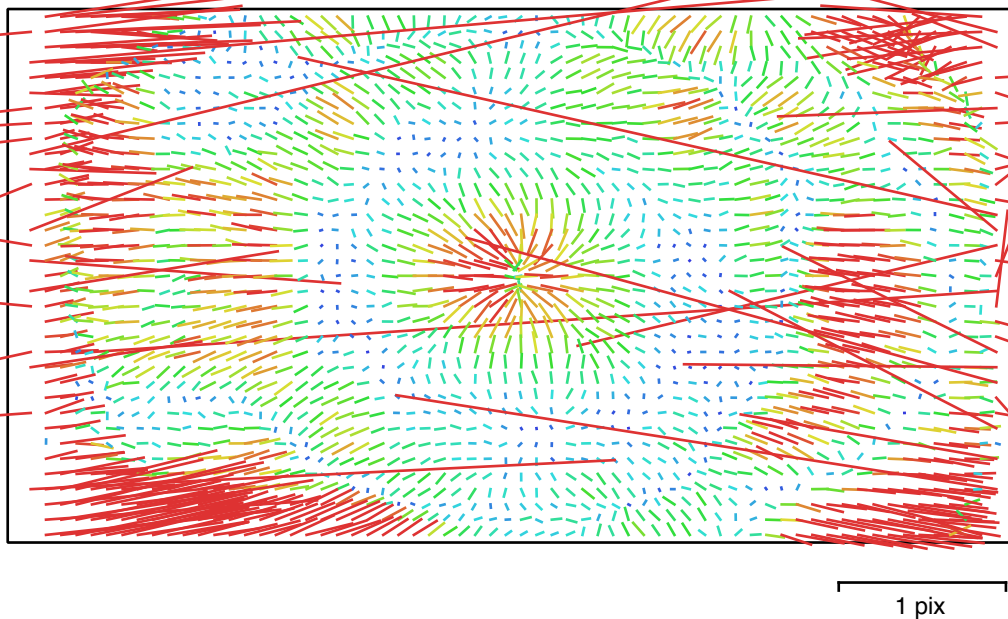


Fig. 3. Image residuals for unknown.

unknown

4378 images, precalibrated

Type	Resolution	Focal Length	Pixel Size
Frame	4096 x 2160	unknown	unknown

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2348.47	0.054	1.00	-0.16	0.14	-0.05	0.26	-0.16	-0.11	-0.01
Cx	-2.06319	0.043		1.00	-0.07	-0.02	-0.02	0.05	0.66	-0.02
Cy	2.22162	0.046			1.00	0.03	0.00	-0.01	0.02	0.70
K1	-0.113227	3.2e-05				1.00	-0.89	0.83	-0.04	0.05
K2	0.132449	8.2e-05					1.00	-0.97	-0.04	-0.03
K3	-0.0305901	6.6e-05						1.00	0.06	0.00
P1	-0.00312499	5.1e-06							1.00	0.01
P2	-0.000276706	5.8e-06								1.00

Table 3. Calibration coefficients and correlation matrix.

Scale Bars

Label	Distance (m)	Error (m)
target 37_target 101	0.91508	0.000680167
Total		0.000680167

Table 4. Control scale bars.

Digital Elevation Model

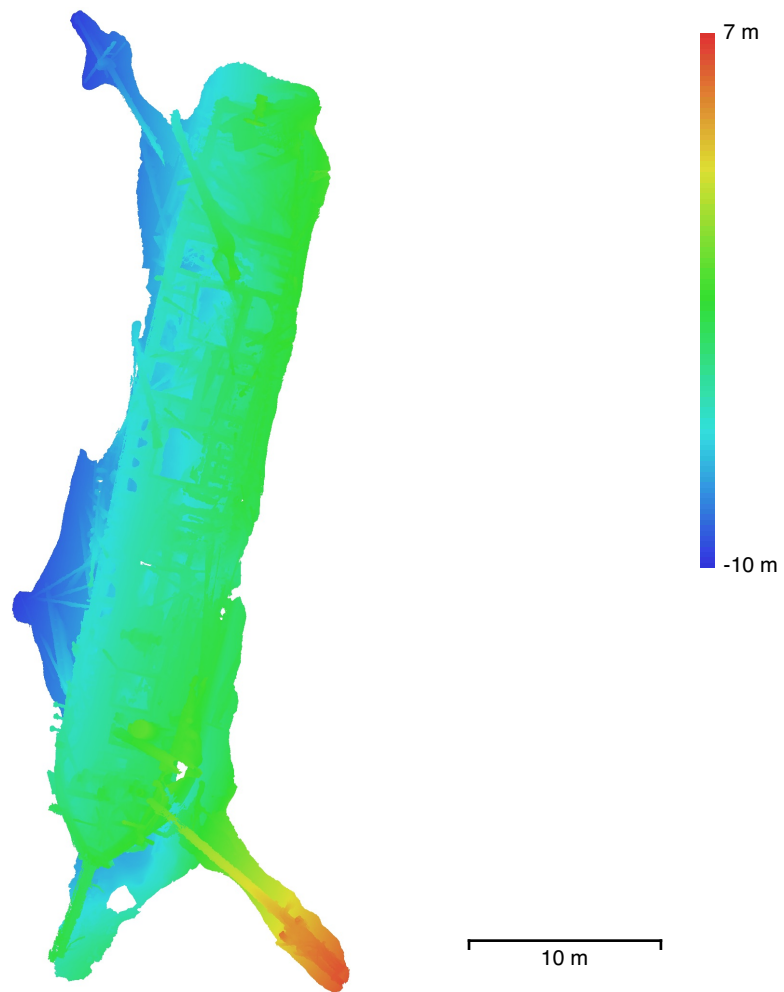


Fig. 4. Reconstructed digital elevation model.

Resolution: unknown
Point density: unknown

Processing Parameters

General

Cameras	9485
Aligned cameras	9485
Markers	2
Scale bars	1
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll

Tie Points

Points	4,183,609 of 5,747,281
RMS reprojection error	0.284305 (1.60023 pix)
Max reprojection error	0.87334 (57.3543 pix)
Mean key point size	5.2701 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	5.2681

Alignment parameters

Accuracy	High
Generic preselection	Yes
Reference preselection	No
Key point limit	40,000
Key point limit per Mpx	1,000
Tie point limit	3,000
Exclude stationary tie points	Yes
Guided image matching	No
Adaptive camera model fitting	No
Matching time	1 days 15 hours
Matching memory usage	10.12 GB
Alignment time	7 hours 37 minutes
Alignment memory usage	8.90 GB
Date created	2024:03:14 04:43:26
Software version	2.1.0.17532
File size	1.46 GB

Depth Maps

Count	9482
Depth maps generation parameters	
Quality	Medium
Filtering mode	Mild
Max neighbors	16
Processing time	12 hours 9 minutes
Memory usage	1.49 GB
Date created	2024:03:15 01:09:57
Software version	2.1.0.17532
File size	6.27 GB

Model

Faces	7,999,999
Vertices	4,016,207
Vertex colors	3 bands, uint8
Texture	8,192 x 8,192, 4 bands, uint8

Depth maps generation parameters

Quality	Medium
Filtering mode	Mild

Max neighbors	16
Processing time	12 hours 9 minutes
Memory usage	1.49 GB
Reconstruction parameters	
Surface type	Arbitrary
Source data	Depth maps
Interpolation	Enabled
Strict volumetric masks	No
Processing time	14 hours 55 minutes
Memory usage	8.66 GB
Texturing parameters	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	8,192
Enable hole filling	Yes
Enable ghosting filter	No
UV mapping time	6 minutes 31 seconds
UV mapping memory usage	2.50 GB
Blending time	6 hours 40 minutes
Blending memory usage	3.79 GB
Date created	2024:03:15 16:04:44
Software version	2.1.0.17532
File size	479.55 MB
System	
Software name	Agisoft Metashape Professional
Software version	2.1.0 build 17532
OS	Mac OS 64 bit
RAM	16.00 GB
CPU	Intel(R) Core(TM) i7-4870HQ CPU @ 2.50GHz
GPU(s)	AMD Radeon R9 M370X Compute Engine Iris Pro