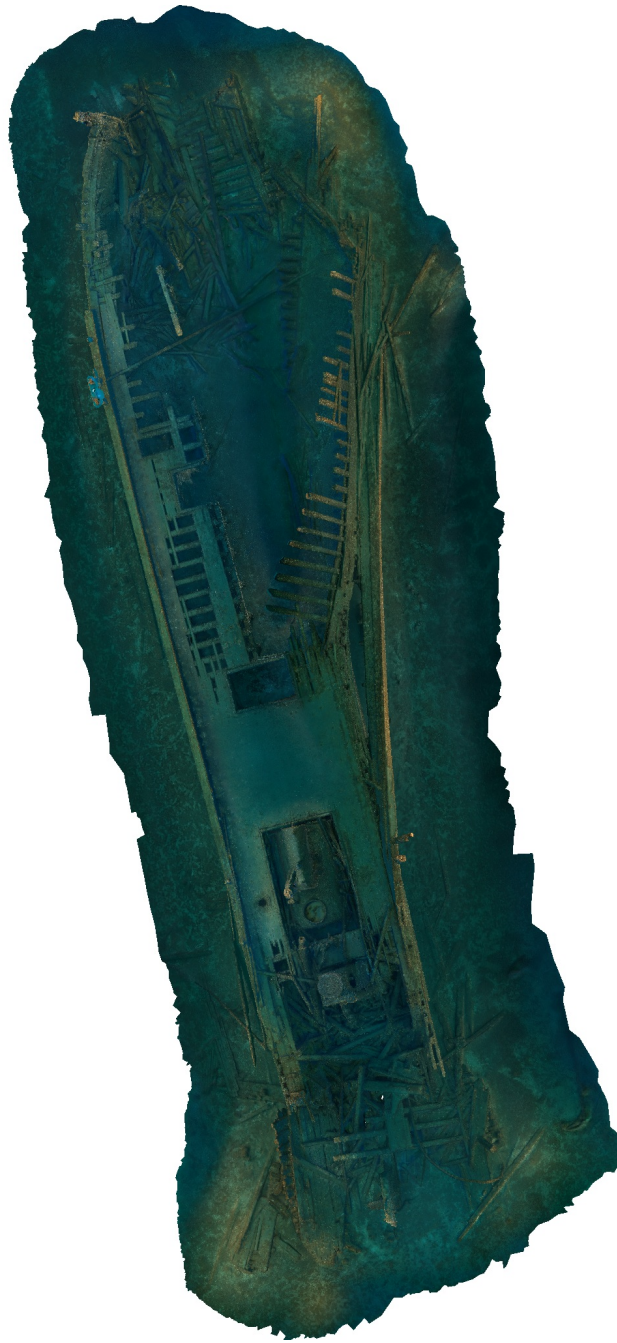


Arctic Processing Report 2023

Processing Report
28 June 2023



Survey Data

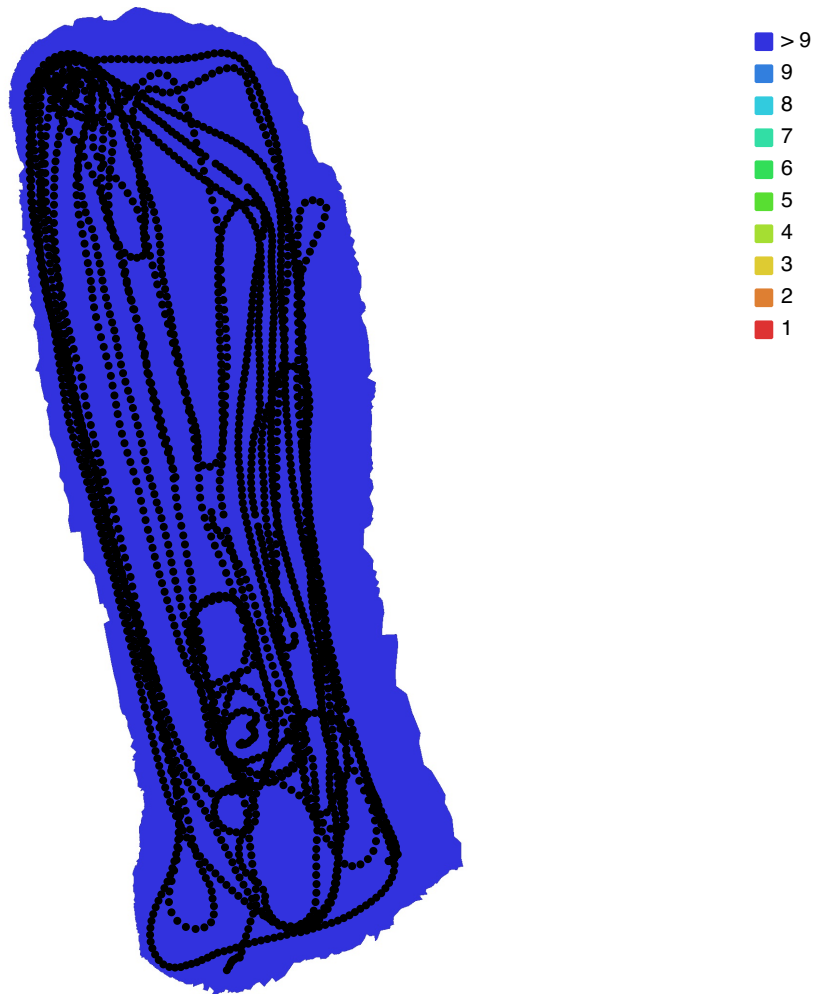


Fig. 1. Camera locations and image overlap.

Number of images: 2,812

Camera stations: 2,802

Tie points: 2,562,337

Projections: 7,958,141

Reprojection error: 1.94 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
Canon EOS 5D Mark IV, E...	6720 x 4480	15 mm	5.36 x 5.36 μm	No
ILCE-1, EF8-15mm f/4L Fl...	8640 x 5760	15 mm	4.16 x 4.16 μm	No

Table 1. Cameras.

Camera Calibration

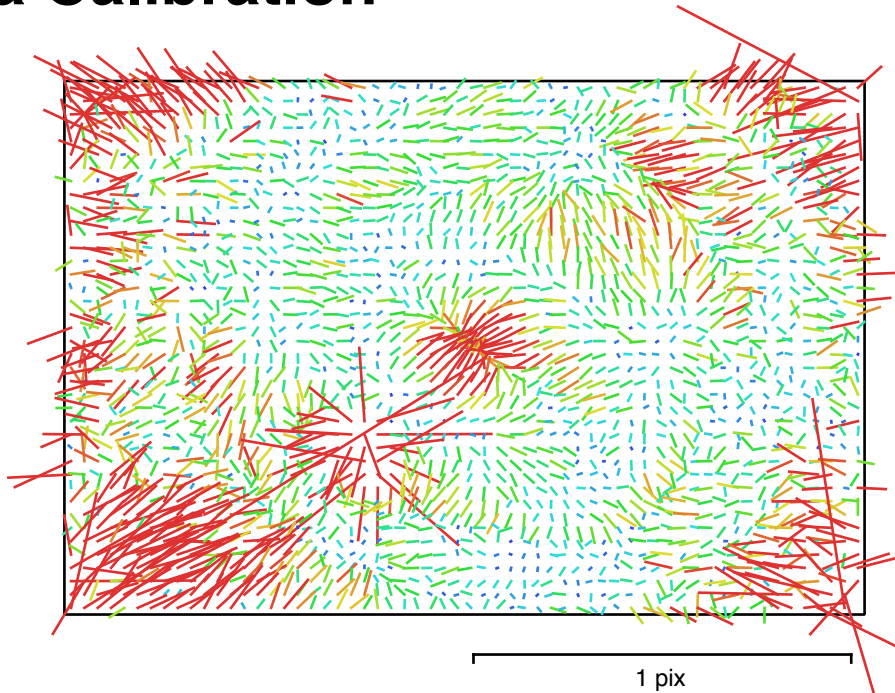


Fig. 2. Image residuals for Canon EOS 5D Mark IV, EF8-15mm f/4L FISHEYE USM (15mm).

Canon EOS 5D Mark IV, EF8-15mm f/4L FISHEYE USM (15mm)

1558 images

Type	Resolution	Focal Length	Pixel Size
Fisheye	6720 x 4480	15 mm	5.36 x 5.36 μm

F:	3089.38		
Cx:	2.03165	B1:	0
Cy:	-28.8769	B2:	0
K1:	-0.0476327	P1:	-0.000288778
K2:	0.00637301	P2:	-0.000165323
K3:	-0.00153807	P3:	0
K4:	0	P4:	0

Camera Calibration

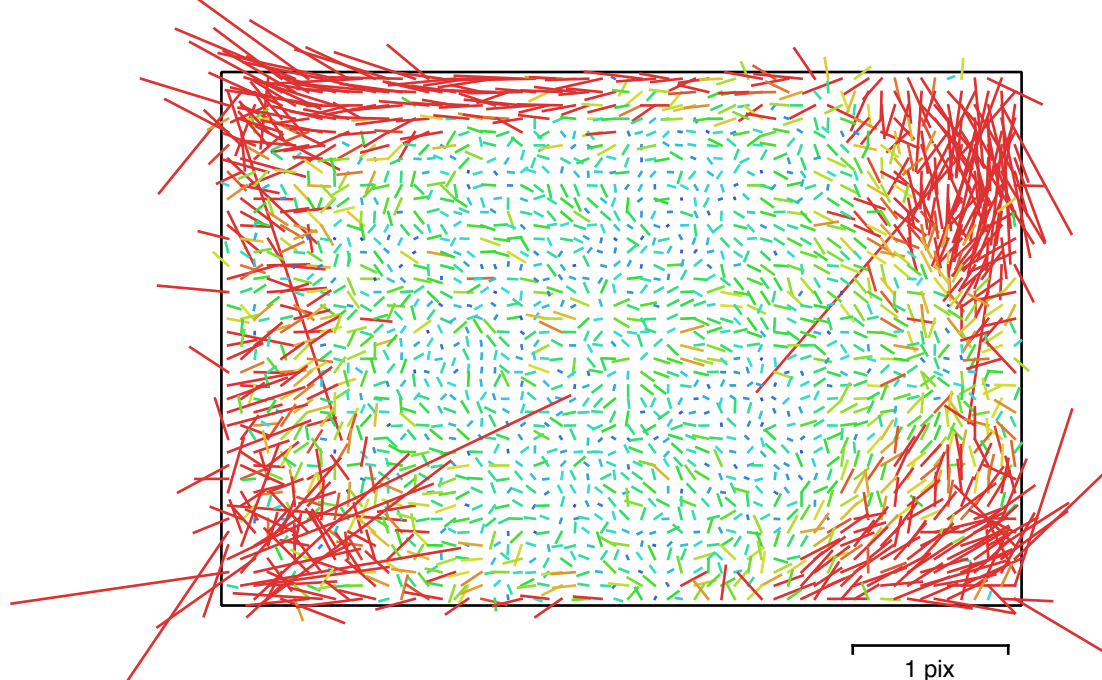


Fig. 3. Image residuals for ILCE-1, EF8-15mm f/4L FISHEYE USM (15mm).

ILCE-1, EF8-15mm f/4L FISHEYE USM (15mm)

1254 images

Type	Resolution	Focal Length	Pixel Size
Fisheye	8640 x 5760	15 mm	4.16 x 4.16 μm

F:	3772.45		
Cx:	7.54962	B1:	0
Cy:	-0.55951	B2:	0
K1:	-0.0310665	P1:	0.000113117
K2:	0.00308637	P2:	3.97573e-06
K3:	-0.000715097	P3:	0
K4:	0	P4:	0

Digital Elevation Model

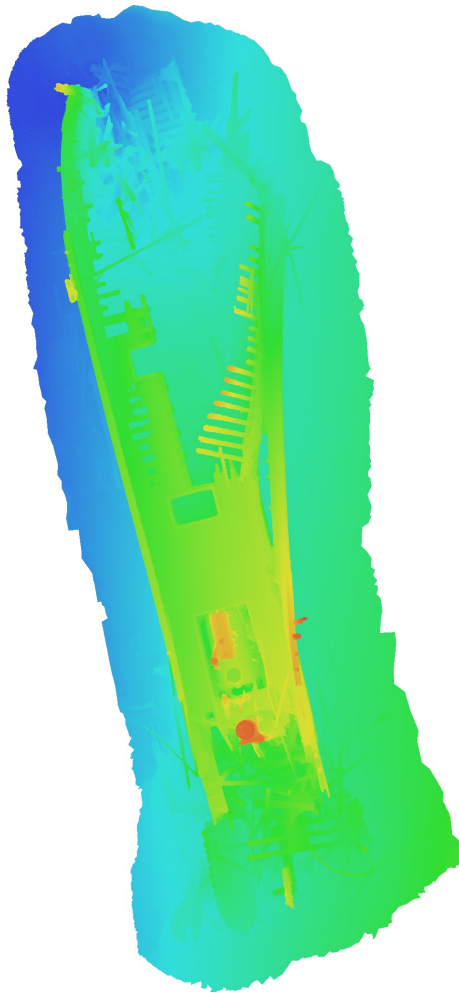


Fig. 4. Reconstructed digital elevation model.

Processing Parameters

General

Cameras	2812
Aligned cameras	2802
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll

Tie Points

Points	2,562,337 of 2,881,787
RMS reprojection error	0.171332 (1.94397 pix)
Max reprojection error	0.52095 (55.7375 pix)
Mean key point size	8.99057 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.48791

Alignment parameters

Accuracy	High
Generic preselection	Yes
Reference preselection	Estimated
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	1 hours 21 minutes
Matching memory usage	3.61 GB
Alignment time	37 minutes 42 seconds
Alignment memory usage	4.30 GB
Date created	2023:06:27 15:21:50
Software version	2.0.1.16069
File size	296.95 MB

Depth Maps

Count	2794
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Depth maps generation parameters

Quality	Medium
Filtering mode	Moderate
Max neighbors	16
Processing time	2 hours 26 minutes
Memory usage	629.88 MB
Date created	2023:06:27 18:26:04
Software version	2.0.1.16069
File size	4.87 GB

Model

Faces	34,060,222
Vertices	17,037,776
Vertex colors	3 bands, uint8
Texture	8,192 x 8,192, 4 bands, uint8

Depth maps generation parameters

Quality	Medium
Filtering mode	Moderate
Max neighbors	16
Processing time	2 hours 26 minutes

Memory usage	629.88 MB
Reconstruction parameters	
Surface type	Arbitrary
Source data	Depth maps
Interpolation	Enabled
Strict volumetric masks	No
Processing time	31 minutes 57 seconds
Memory usage	13.49 GB
Texturing parameters	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	8,192
Enable hole filling	No
Enable ghosting filter	Yes
UV mapping time	1 minutes 48 seconds
UV mapping memory usage	2.69 GB
Blending time	12 hours 43 minutes
Blending memory usage	17.64 GB
Date created	2023:06:27 18:57:17
Software version	2.0.1.16069
File size	1.49 GB
System	
Software name	Agisoft Metashape Professional
Software version	2.0.1 build 16069
OS	Mac OS 64 bit
RAM	96.00 GB
CPU	
GPU(s)	Apple M2 Max