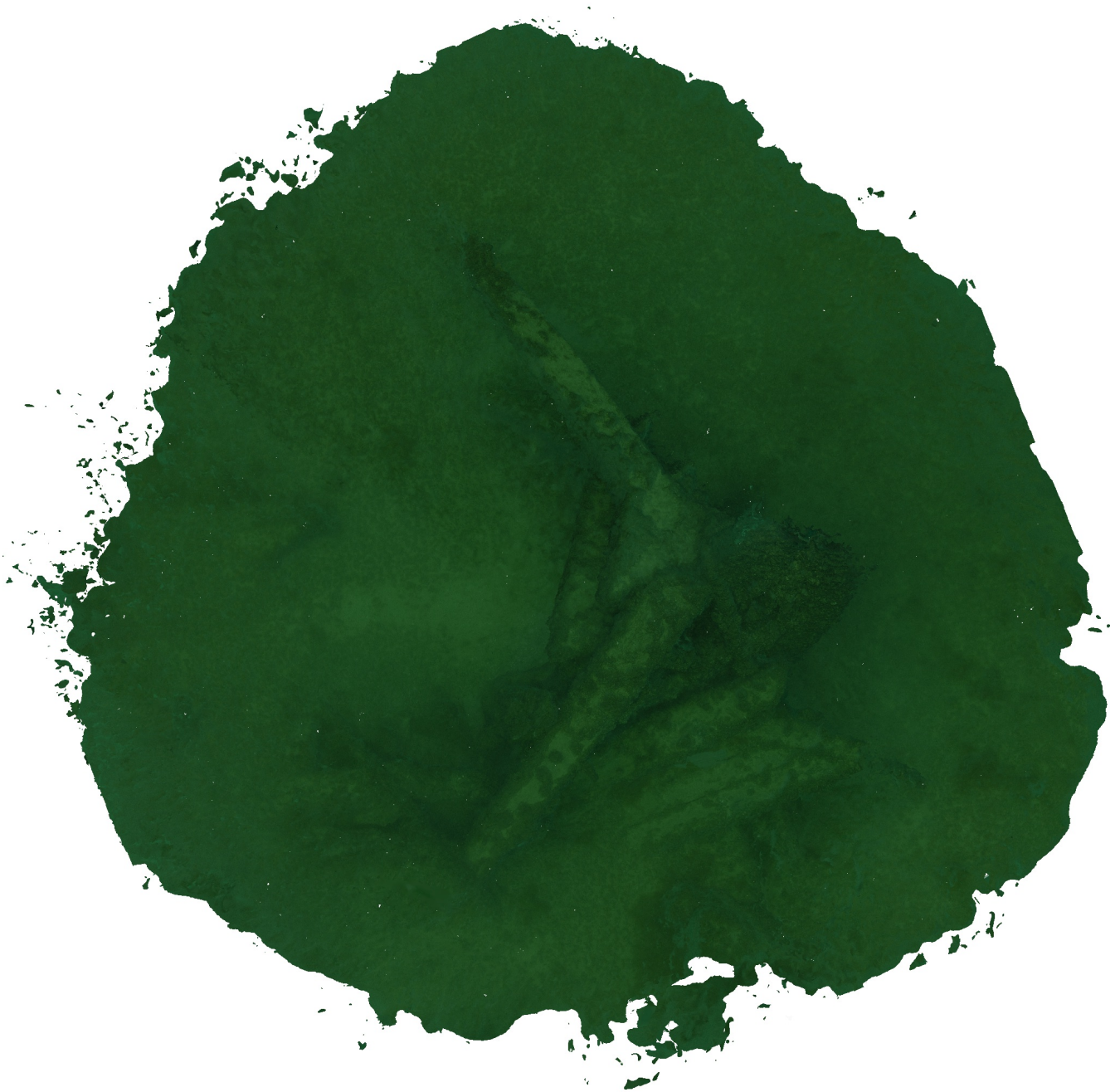


S.C. Baldwin

Processing Report
03 January 2022



Survey Data

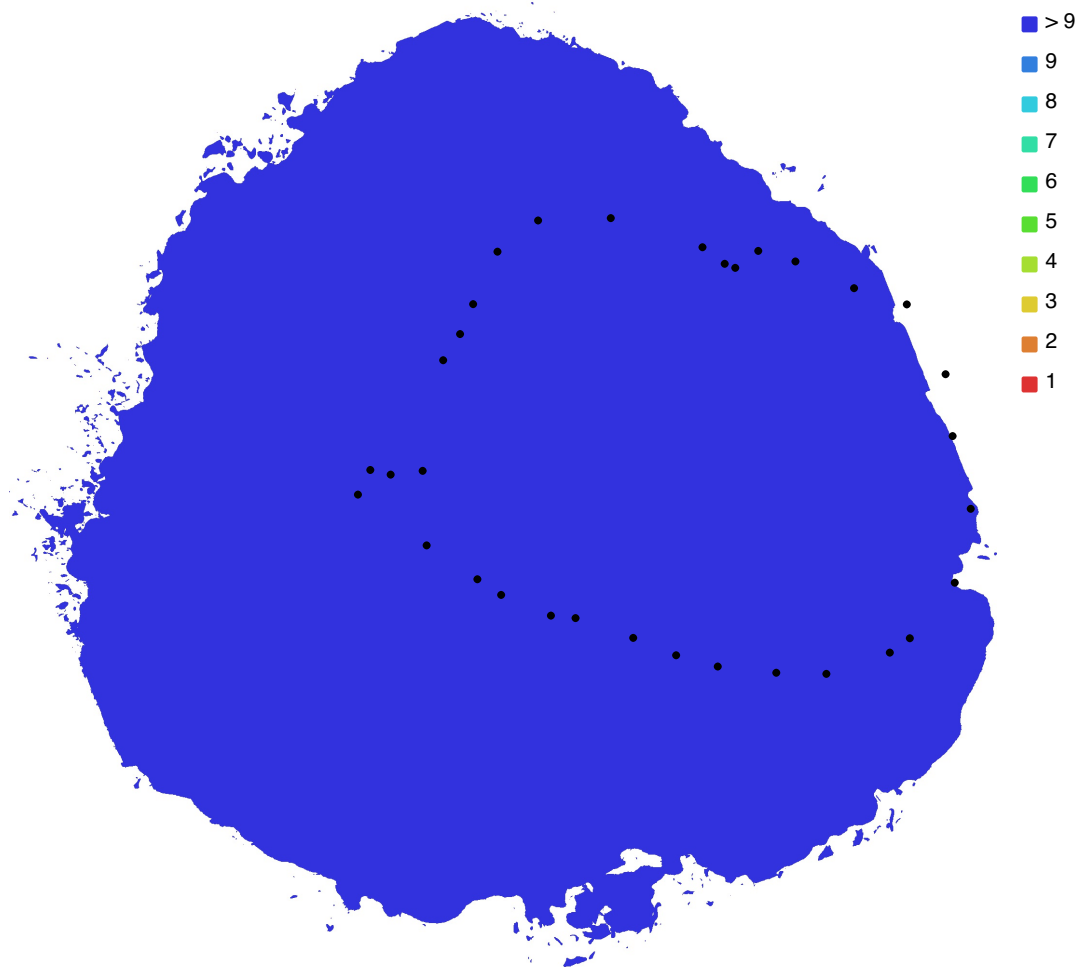


Fig. 1. Camera locations and image overlap.

Number of images: 33

Camera stations: 33

Tie points: 16,694

Projections: 40,235

Reprojection error: 2.26 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
NIKON D4 (15mm)	4928 x 3280	15 mm	7.31 x 7.31 μm	No
NIKON D4 (15mm)	3280 x 4928	15 mm	7.31 x 7.31 μm	No

Table 1. Cameras.

Camera Calibration

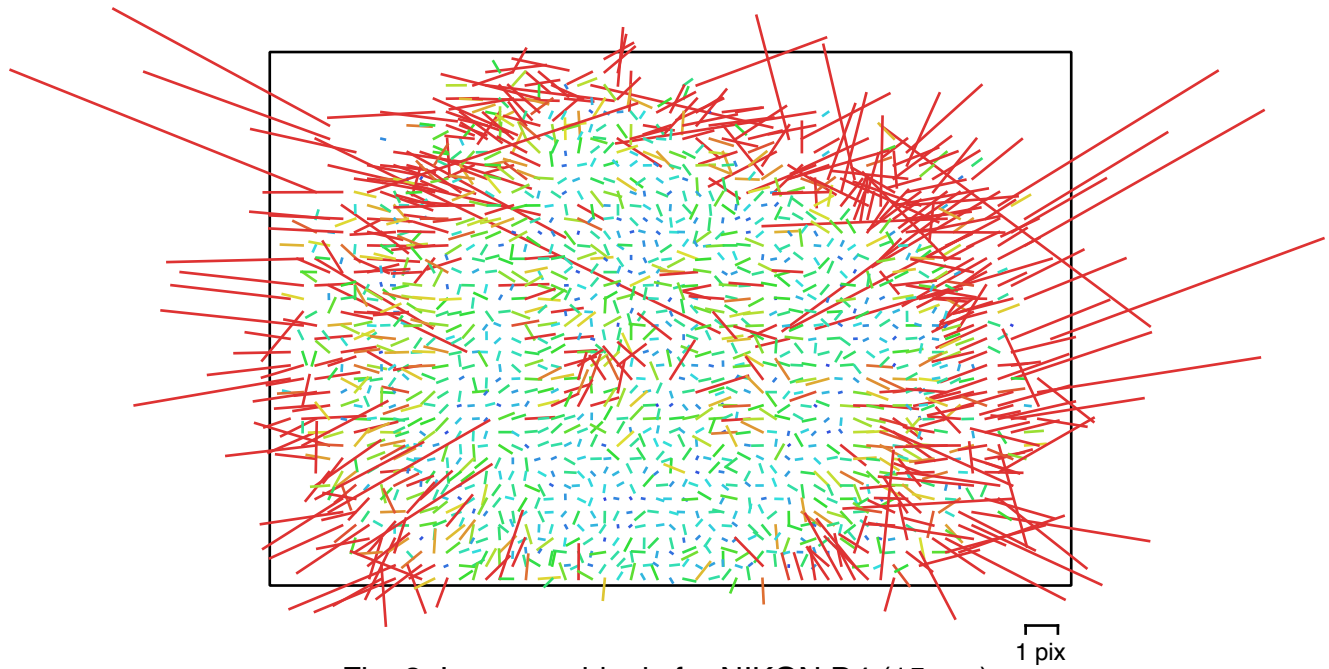


Fig. 2. Image residuals for NIKON D4 (15mm).

NIKON D4 (15mm)
28 images

Type	Resolution	Focal Length	Pixel Size
Frame	4928 x 3280	15 mm	7.31 x 7.31 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2342.21	1.3	1.00	0.17	-0.43	-0.67	0.67	-0.68	-0.21	0.30
Cx	-21.3299	0.85		1.00	-0.14	-0.01	-0.02	0.03	-0.55	0.04
Cy	6.21284	1.4			1.00	0.03	-0.01	0.02	0.21	-0.64
K1	-0.307042	0.00028				1.00	-0.95	0.88	0.13	-0.20
K2	0.0926008	0.00021					1.00	-0.98	-0.10	0.06
K3	-0.0121366	4.9e-05						1.00	0.11	-0.04
P1	-0.000134747	2.7e-05							1.00	-0.16
P2	-0.00013616	4.5e-05								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration

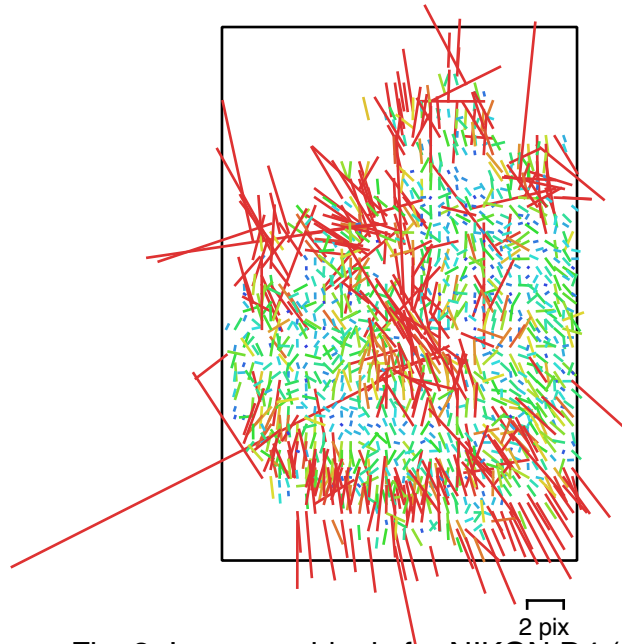


Fig. 3. Image residuals for NIKON D4 (15mm).

NIKON D4 (15mm)
5 images

Type	Resolution	Focal Length	Pixel Size
Frame	3280 x 4928	15 mm	7.31 x 7.31 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2337.93	1.6	1.00	-0.45	-0.09	-0.70	0.64	-0.63	0.33	0.28
Cx	-4.03875	1.4		1.00	-0.02	0.18	-0.14	0.15	-0.50	-0.21
Cy	31.5438	1.3			1.00	-0.27	0.33	-0.34	0.03	-0.40
K1	-0.29929	0.00043				1.00	-0.96	0.91	-0.24	-0.17
K2	0.0867158	0.00032					1.00	-0.99	0.08	0.06
K3	-0.0111014	7.3e-05						1.00	-0.07	-0.05
P1	-8.222e-05	4.3e-05							1.00	0.21
P2	0.000239934	3.8e-05								1.00

Table 3. Calibration coefficients and correlation matrix.

Digital Elevation Model

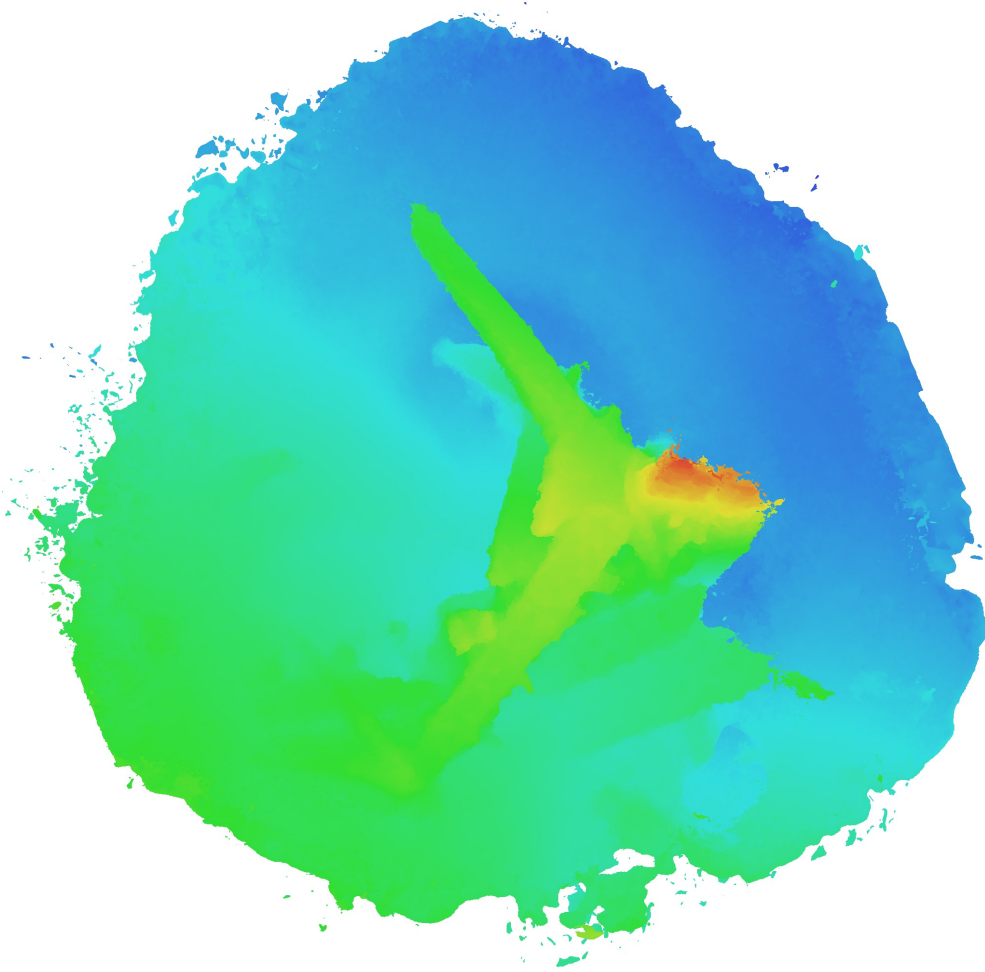


Fig. 4. Reconstructed digital elevation model.

Processing Parameters

General

Cameras	33
Aligned cameras	33

Point Cloud

Points	16,694 of 18,072
RMS reprojection error	0.234693 (2.25631 pix)
Max reprojection error	0.731451 (35.5129 pix)
Mean key point size	9.53436 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	2.43011

Alignment parameters

Accuracy	High
Generic preselection	Yes
Key point limit	40,000
Tie point limit	4,000
Adaptive camera model fitting	No
Matching time	46 seconds
Alignment time	9 seconds
Software version	1.5.5.9097

Depth Maps

Count	33
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	12 minutes 46 seconds

Dense Point Cloud

Points	27,512,976
Point colors	3 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	12 minutes 46 seconds
Dense cloud generation parameters	
Processing time	2 minutes 20 seconds
Software version	1.5.5.9097

Model

Faces	1,834,194
Vertices	928,981
Vertex colors	3 bands, uint8
Texture	4,096 x 4,096, 4 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	12 minutes 46 seconds
Reconstruction parameters	
Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Enabled
Strict volumetric masks	No
Processing time	18 minutes 27 seconds

General

Texturing parameters

Mapping mode

Generic

Blending mode

Mosaic

Texture size

4,096

Enable hole filling

Yes

Enable ghosting filter

Yes

UV mapping time

3 minutes 32 seconds

Blending time

1 minutes 49 seconds

Software version

1.5.5.9097

Software

Version

1.5.5 build 9097

Platform

Mac OS 64