

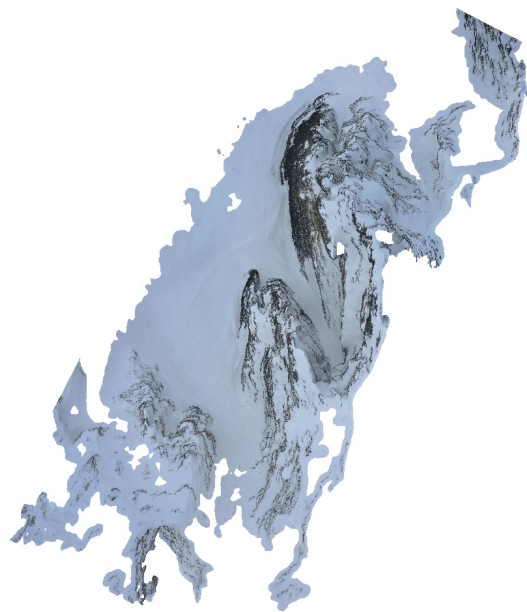
Grønfjordbreane

Filtering:

Dense cloud: 5-255

Connected mesh: 99%

19 February 2022



Survey Data

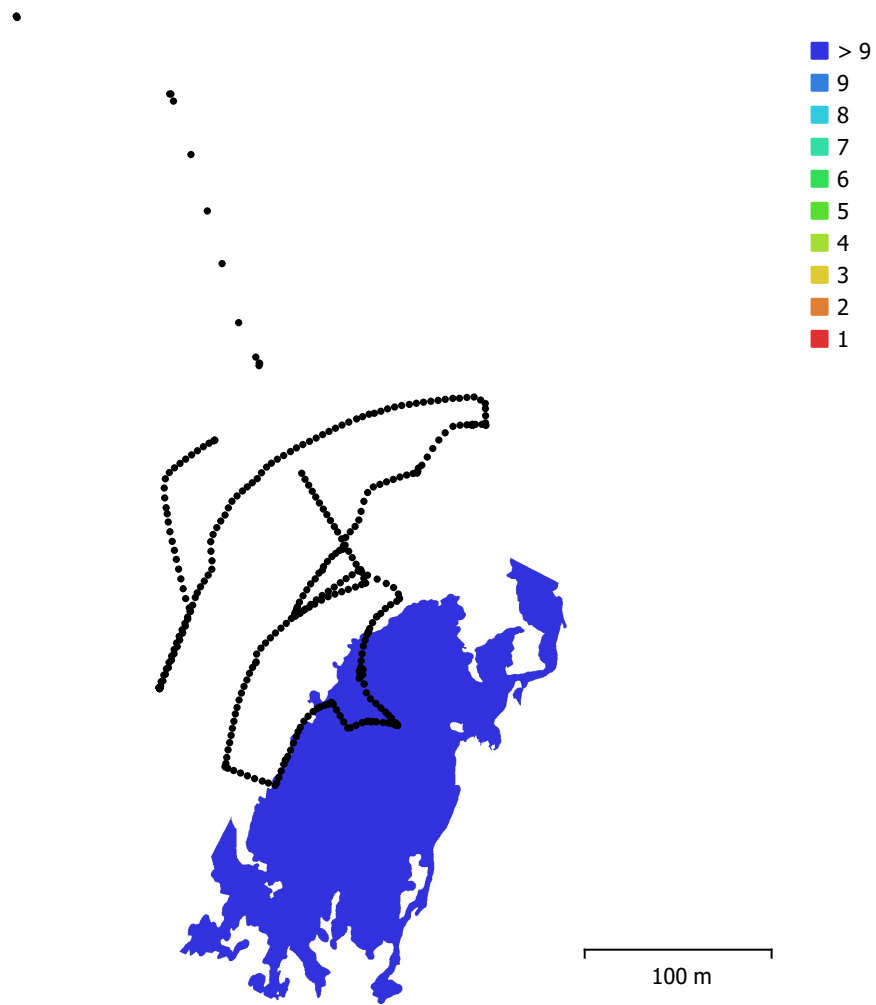


Fig. 1. Camera locations and image overlap.

Number of images:	428	Camera stations:	428
Flying altitude:	121 m	Tie points:	116,516
Ground resolution:	2.24 cm/pix	Projections:	1,122,493
Coverage area:	0.019 km ²	Reprojection error:	0.673 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
Test_Pro (10.26mm)	5472 x 3648	10.26 mm	2.41 x 2.41 μ m	No

Table 1. Cameras.

Camera Calibration

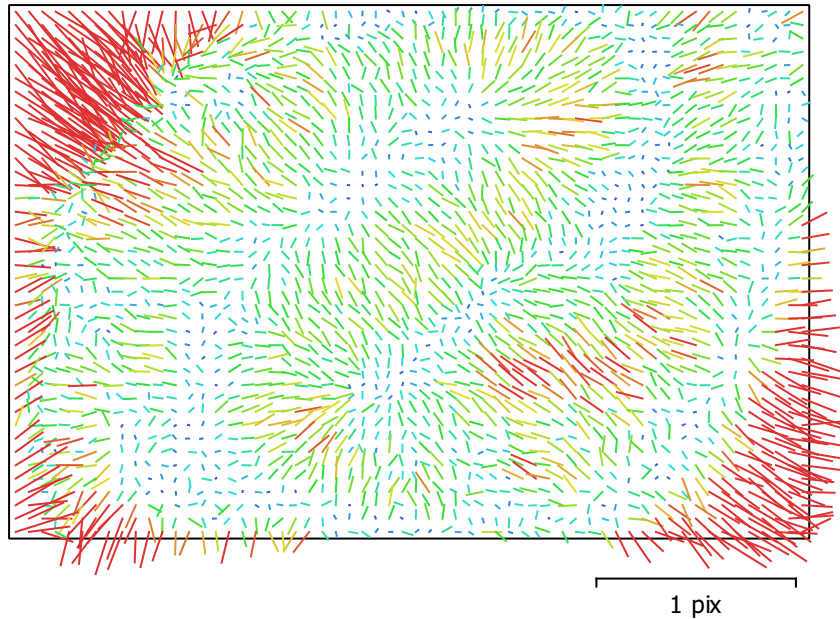


Fig. 2. Image residuals for Test_Pro (10.26mm).

Test_Pro (10.26mm)

428 images

Type
Frame

Resolution
5472 x 3648

Focal Length
10.26 mm

Pixel Size
2.41 x 2.41 μm

	Value	Error	F	Cx	Cy	B1	B2	K1	K2	K3	P1	P2
F	4348.92	0.029	1.00	0.09	-0.10	-0.59	-0.00	-0.08	0.16	-0.14	0.06	-0.16
Cx	6.67387	0.054		1.00	-0.21	-0.17	0.13	0.01	0.03	-0.03	0.95	-0.20
Cy	-51.4341	0.049			1.00	-0.11	-0.16	-0.07	0.03	-0.02	-0.19	0.91
B1	3.19852	0.024				1.00	-0.03	-0.05	0.04	-0.04	-0.15	0.02
B2	3.64771	0.022					1.00	0.03	-0.01	-0.00	0.03	-0.10
K1	0.00595936	2.3e-05						1.00	-0.95	0.89	0.00	-0.09
K2	0.0405716	9.7e-05							1.00	-0.98	0.02	0.04
K3	-0.045073	0.00013								1.00	-0.02	-0.03
P1	-0.0002071	3.7e-06									1.00	-0.19
P2	-0.00375004	3.1e-06										1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

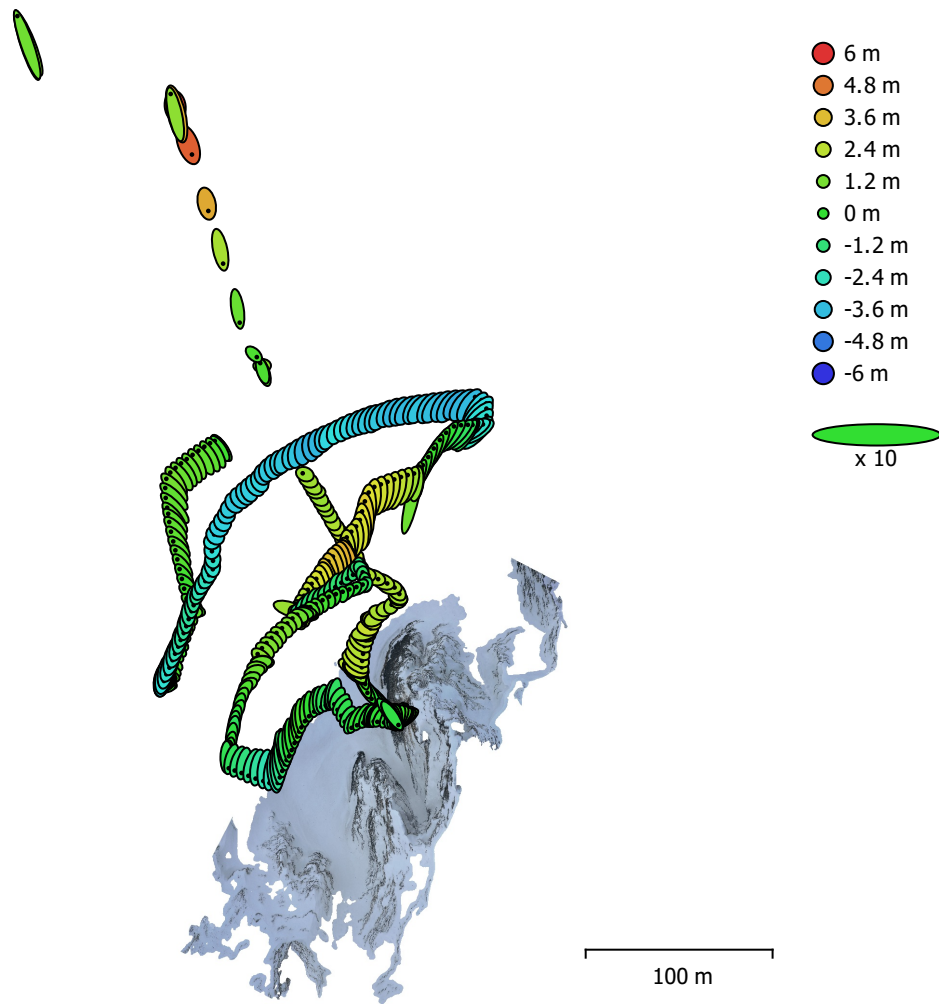


Fig. 3. Camera locations and error estimates.

Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
 Estimated camera locations are marked with a black dot.

X error (m)	Y error (m)	Z error (m)	XY error (m)	Total error (m)
0.440366	0.821582	1.90036	0.932158	2.11667

Table 3. Average camera location error.
 X - Longitude, Y - Latitude, Z - Altitude.

Digital Elevation Model

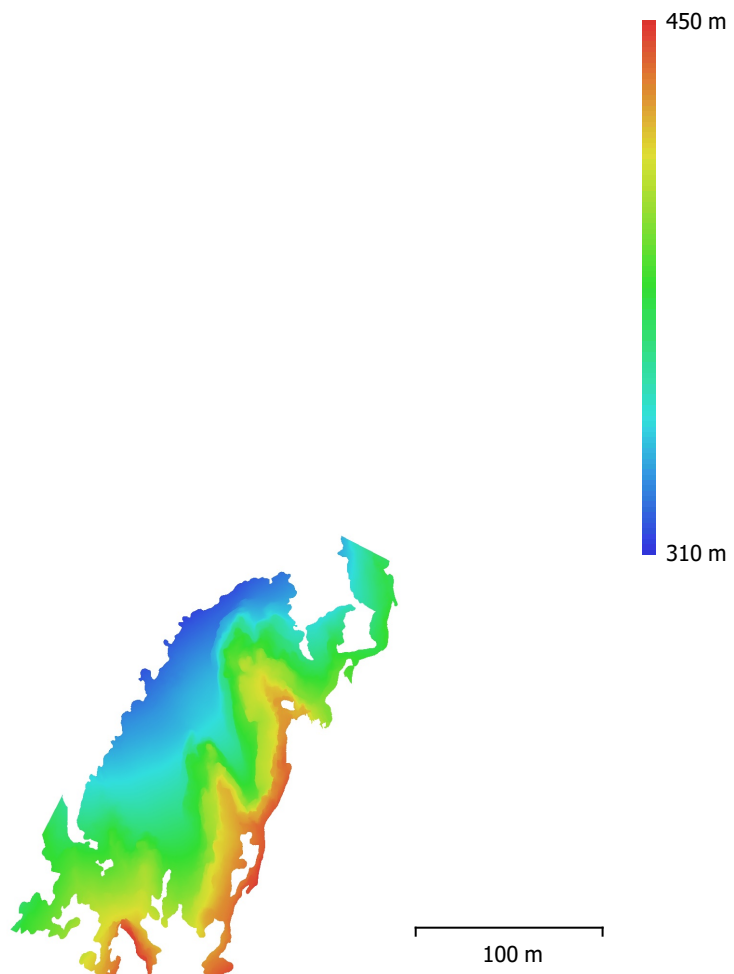


Fig. 4. Reconstructed digital elevation model.

Resolution: 4.47 cm/pix
Point density: 500 points/m²

Processing Parameters

General

Cameras	428
Aligned cameras	428
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	116,516 of 160,651
RMS reprojection error	0.261584 (0.672694 pix)
Max reprojection error	1.08363 (24.1755 pix)
Mean key point size	2.44018 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	12.3084

Alignment parameters

Accuracy	Highest
Generic preselection	Yes
Reference preselection	Source
Key point limit	40,000
Tie point limit	4,000
Exclude stationary tie points	Yes
Guided image matching	No
Adaptive camera model fitting	Yes
Matching time	5 minutes 39 seconds
Matching memory usage	650.49 MB
Alignment time	3 minutes 50 seconds
Alignment memory usage	464.55 MB

Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	Yes
Optimization time	10 seconds
Software version	1.7.3.12473
File size	33.35 MB

Depth Maps

Count	428
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Depth maps generation parameters

Quality	High
Filtering mode	Mild
Max neighbors	100
Processing time	39 minutes 46 seconds
Memory usage	12.24 GB
Software version	1.7.3.12473
File size	2.51 GB

Dense Point Cloud

Points	23,319,214
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	High
Filtering mode	Mild
Max neighbors	100
Processing time	39 minutes 46 seconds

Memory usage	12.24 GB
Dense cloud generation parameters	
Processing time	2 hours 32 minutes
Memory usage	26.40 GB
Software version	1.7.3.12473
File size	510.91 MB
Model	
Faces	1,456,183
Vertices	735,181
Vertex colors	3 bands, uint8
Texture	4,096 x 4,096 x 10, 4 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Max neighbors	100
Processing time	39 minutes 46 seconds
Memory usage	12.24 GB
Reconstruction parameters	
Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Enabled
Strict volumetric masks	No
Processing time	8 minutes 43 seconds
Memory usage	11.90 GB
Texturing parameters	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	4,096
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	4 minutes 4 seconds
UV mapping memory usage	3.10 GB
Blending time	3 minutes 39 seconds
Blending memory usage	5.03 GB
Software version	1.7.2.12040
File size	269.45 MB
Tiled Model	
Texture	3 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Max neighbors	100
Processing time	39 minutes 46 seconds
Memory usage	12.24 GB
Reconstruction parameters	
Source data	Dense cloud
Tile size	256
Face count	Medium
Enable ghosting filter	No
Processing time	28 minutes 5 seconds
Memory usage	2.61 GB
Software version	1.7.2.12040
File size	129.59 MB
System	
Software name	Agisoft Metashape Professional
Software version	1.7.2 build 12040

OS
RAM
CPU
GPU(s)

Windows 64 bit
127.71 GB
Intel(R) Xeon(R) Gold 5122 CPU @ 3.60GHz
Quadro P5000