

Kapp Schoultz

Processing Report
27 January 2022



Survey Data



Fig. 1. Camera locations and image overlap.

Number of images:	328	Camera stations:	328
Flying altitude:	592 m	Tie points:	64,147
Ground resolution:	14 cm/pix	Projections:	955,030
Coverage area:	3.36 km ²	Reprojection error:	0.532 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
L1D-20c (10.26mm)	5472 x 3648	10.26 mm	2.41 x 2.41 μm	No

Table 1. Cameras.

Camera Calibration

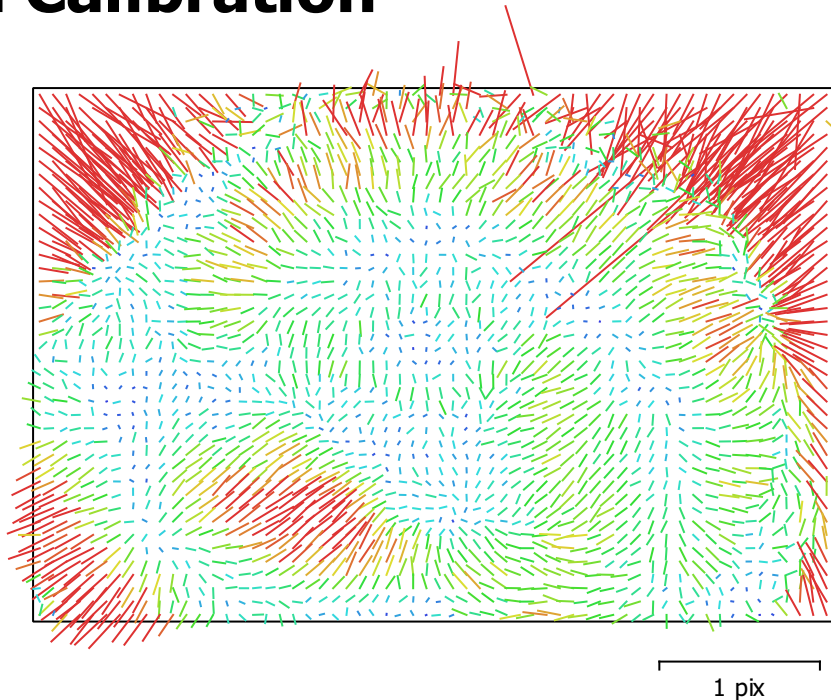


Fig. 2. Image residuals for L1D-20c (10.26mm).

L1D-20c (10.26mm)

328 images

Type
Frame

Resolution
5472 x 3648

Focal Length
10.26 mm

Pixel Size
2.41 x 2.41 μ m

	Value	Error	F	Cx	Cy	B1	B2	K1	K2	K3	K4	P1	P2
F	4339.33	0.062	1.00	0.01	0.53	-0.93	0.06	-0.10	0.09	-0.08	0.07	-0.02	0.10
Cx	9.85888	0.068		1.00	0.09	-0.01	0.28	-0.00	-0.00	0.00	-0.00	0.97	0.06
Cy	-41.5807	0.066			1.00	-0.73	0.13	-0.02	-0.00	0.01	-0.02	0.05	0.50
B1	-6.60036	0.074				1.00	-0.08	0.00	0.01	-0.01	0.02	0.02	-0.18
B2	-2.80574	0.044					1.00	-0.01	0.00	-0.00	0.00	0.11	0.07
K1	0.00249003	3.8e-05						1.00	-0.97	0.92	-0.87	0.00	-0.03
K2	-0.00119719	0.00026							1.00	-0.99	0.96	-0.00	-0.01
K3	0.0245154	0.00073								1.00	-0.99	0.00	0.01
K4	-0.0451118	0.00067									1.00	-0.00	-0.02
P1	0.000726199	4.8e-06										1.00	0.05
P2	-0.00271357	1.7e-06											1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

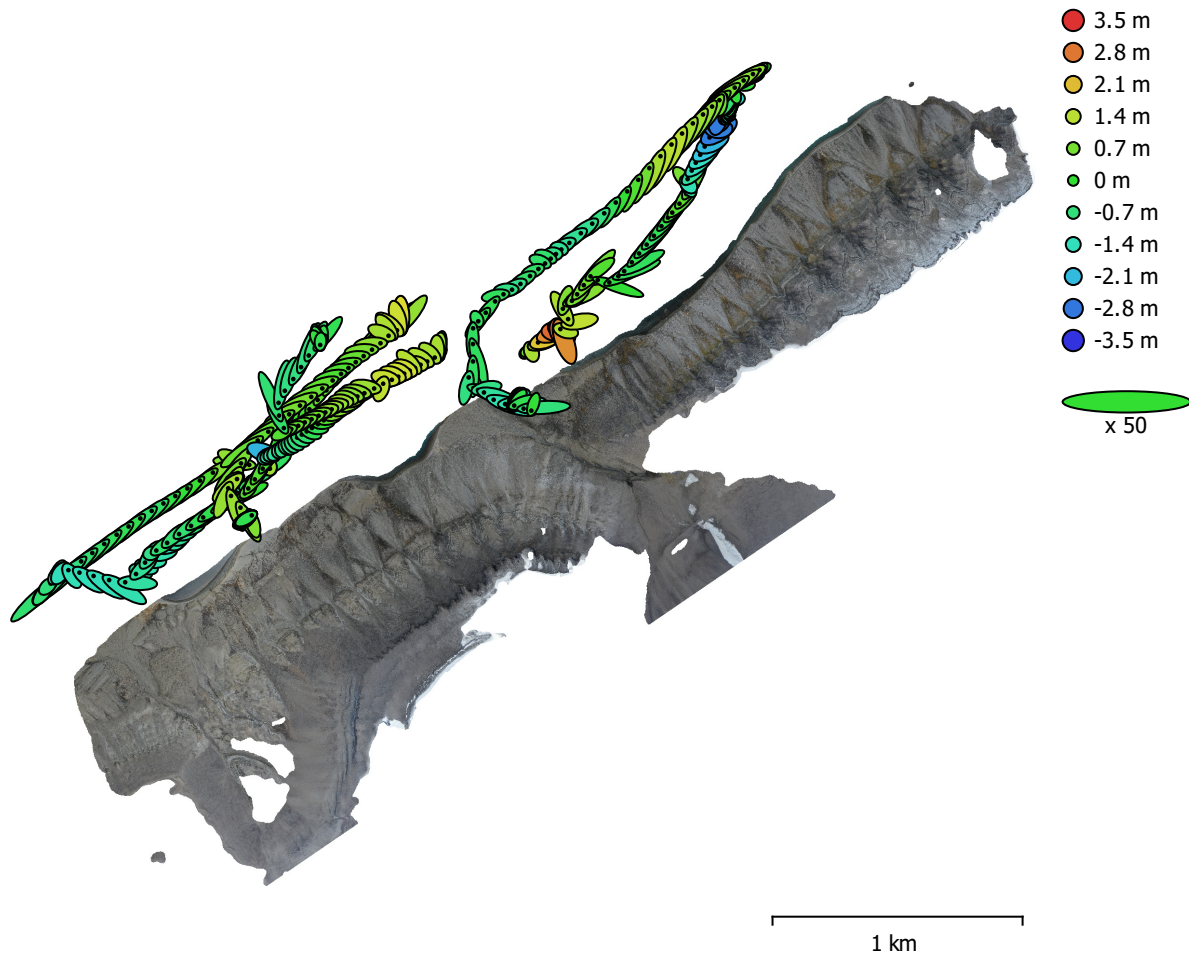


Fig. 3. Camera locations and error estimates.

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)
1.32514	1.30845	0.97998	1.86227	2.10438

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

Digital Elevation Model

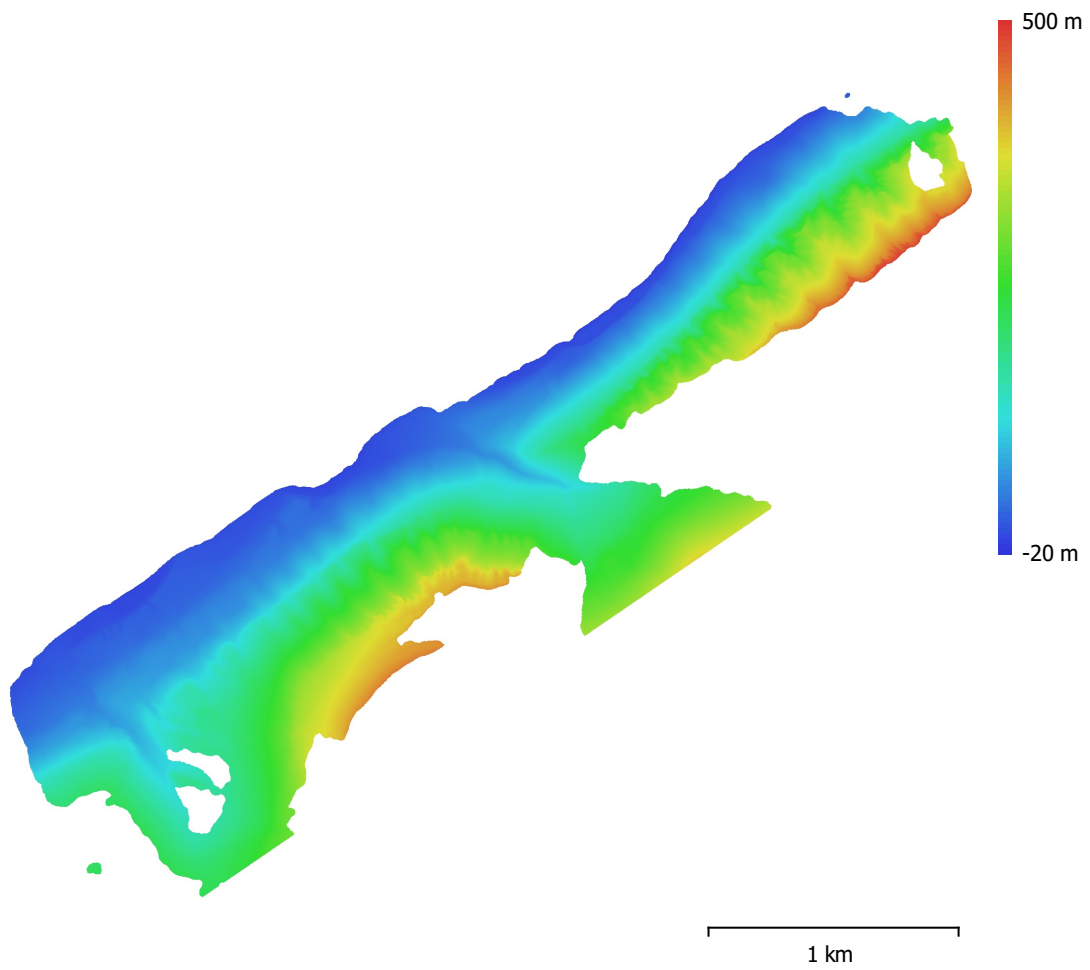


Fig. 4. Reconstructed digital elevation model.

Resolution: 56.2 cm/pix
Point density: 3.17 points/m²

Processing Parameters

General

Cameras	328
Aligned cameras	328
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	64,147 of 103,798
RMS reprojection error	0.326369 (0.532035 pix)
Max reprojection error	1.17747 (35.5643 pix)
Mean key point size	1.41206 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	17.3789

Alignment parameters

Accuracy	Highest
Generic preselection	No
Reference preselection	No
Key point limit	40,000
Tie point limit	4,000
Exclude stationary tie points	No
Guided image matching	No
Adaptive camera model fitting	Yes
Matching time	2 hours 8 minutes
Matching memory usage	1.30 GB
Alignment time	7 minutes 13 seconds
Alignment memory usage	188.62 MB

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k4, p1, p2
Adaptive camera model fitting	No
Optimization time	15 seconds
Software version	1.7.2.12040
File size	29.33 MB

Depth Maps

Count	328
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Depth maps generation parameters

Quality	Medium
Filtering mode	Mild
Processing time	20 minutes 39 seconds
Memory usage	1.70 GB
Software version	1.7.2.12040
File size	509.70 MB

Dense Point Cloud

Points	12,579,280
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	Medium
Filtering mode	Mild
Processing time	20 minutes 39 seconds
Memory usage	1.70 GB

Dense cloud generation parameters

Processing time	26 minutes 43 seconds
Memory usage	4.68 GB
Software version	1.7.2.12040
File size	261.22 MB
Model	
Faces	838,618
Vertices	423,584
Vertex colors	3 bands, uint8
Texture	4,096 x 4,096 x 10, 4 bands, uint8
Depth maps generation parameters	
Quality	Medium
Filtering mode	Mild
Processing time	20 minutes 39 seconds
Memory usage	1.70 GB
Reconstruction parameters	
Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Enabled
Strict volumetric masks	No
Processing time	4 minutes 49 seconds
Memory usage	6.78 GB
Texturing parameters	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	4,096
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	2 minutes 53 seconds
UV mapping memory usage	3.87 GB
Blending time	3 minutes 58 seconds
Blending memory usage	5.41 GB
Software version	1.7.2.12040
File size	234.47 MB
Tiled Model	
Texture	3 bands, uint8
Depth maps generation parameters	
Quality	Medium
Filtering mode	Mild
Processing time	20 minutes 39 seconds
Memory usage	1.70 GB
Reconstruction parameters	
Source data	Dense cloud
Tile size	256
Face count	Medium
Enable ghosting filter	No
Processing time	43 minutes 43 seconds
Memory usage	3.05 GB
Software version	1.7.2.12040
File size	293.30 MB
System	
Software name	Agisoft Metashape Professional
Software version	1.7.2 build 12040
OS	Windows 64 bit
RAM	127.78 GB
CPU	Intel(R) Core(TM) i9-10900 CPU @ 2.80GHz
GPU(s)	NVIDIA GeForce RTX 2080 SUPER