Kvalhovden

Processing Report
09 February 2022

Survey Data

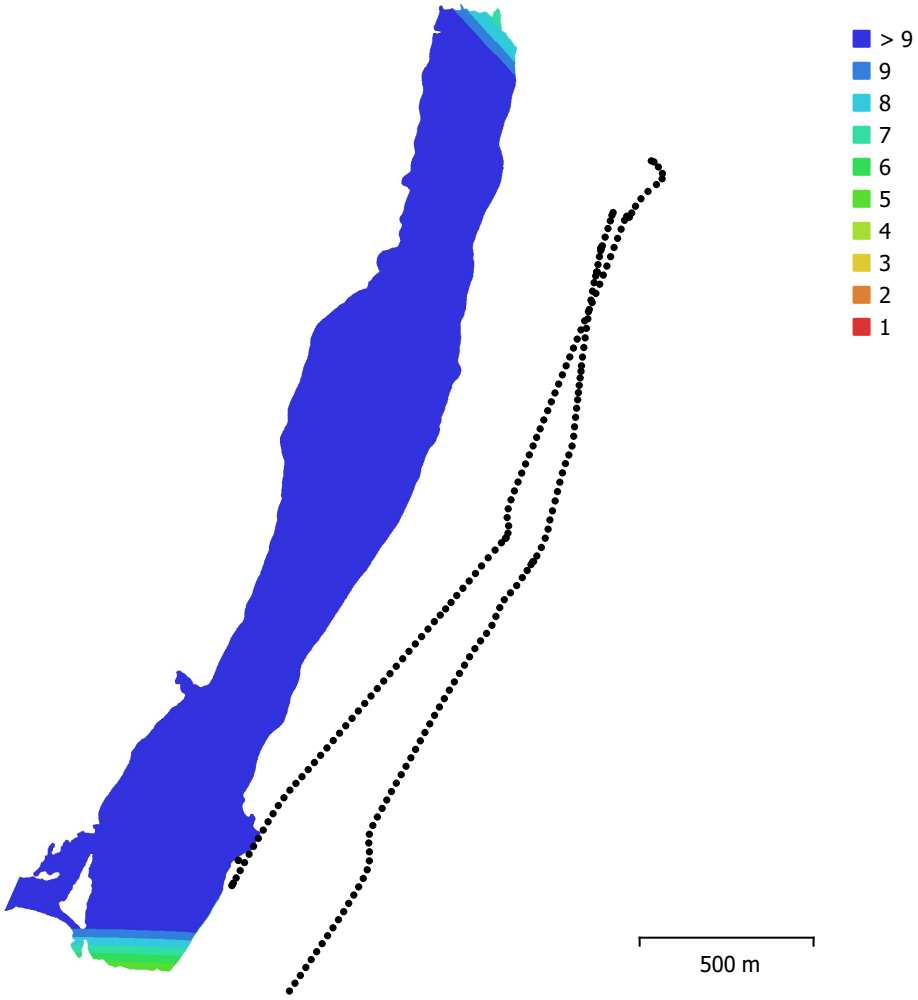

Fig. 1. Camera locations and image overlap.

Number of images:	222	Camera stations:	220
Flying altitude:	472 m	Tie points:	96,919
Ground resolution:	10.6 cm/pix	Projections:	435,893
Coverage area:	0.94 km²	Reprojection error:	0.211 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

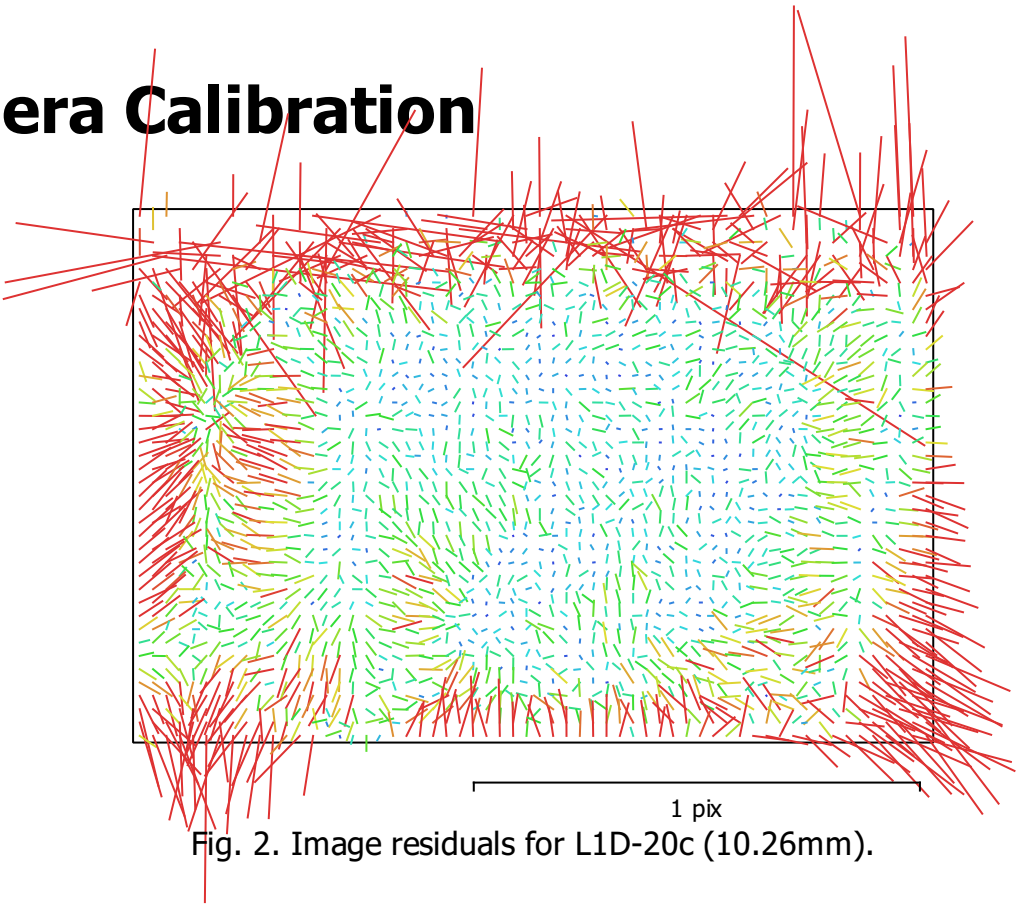

Fig. 2. Image residuals for L1D-20c (10.26mm).

L1D-20c (10.26mm)

222 images

Type	Resolution	Focal Length	Pixel Size
Frame	**5472 x 3648**	**10.26 mm**	**2.41 x 2.41 µm**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**4329.96**	0.079	1.00	-0.00	-0.76	-0.03	0.06	-0.06	0.11	-0.19
Cx	**73.015**	0.14		1.00	0.14	-0.02	0.03	-0.03	0.95	0.07
Cy	**-62.3887**	0.17			1.00	-0.06	0.03	-0.03	0.01	0.48
K1	**0.00500002**	2.4e-05				1.00	-0.89	0.82	0.00	-0.32
K2	**0.0273309**	9.5e-05					1.00	-0.98	0.02	0.07
K3	**-0.024**	0.00013						1.00	-0.03	-0.05
P1	**0.00221328**	1e-05							1.00	0.04
P2	**-0.0030316**	5.1e-06								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

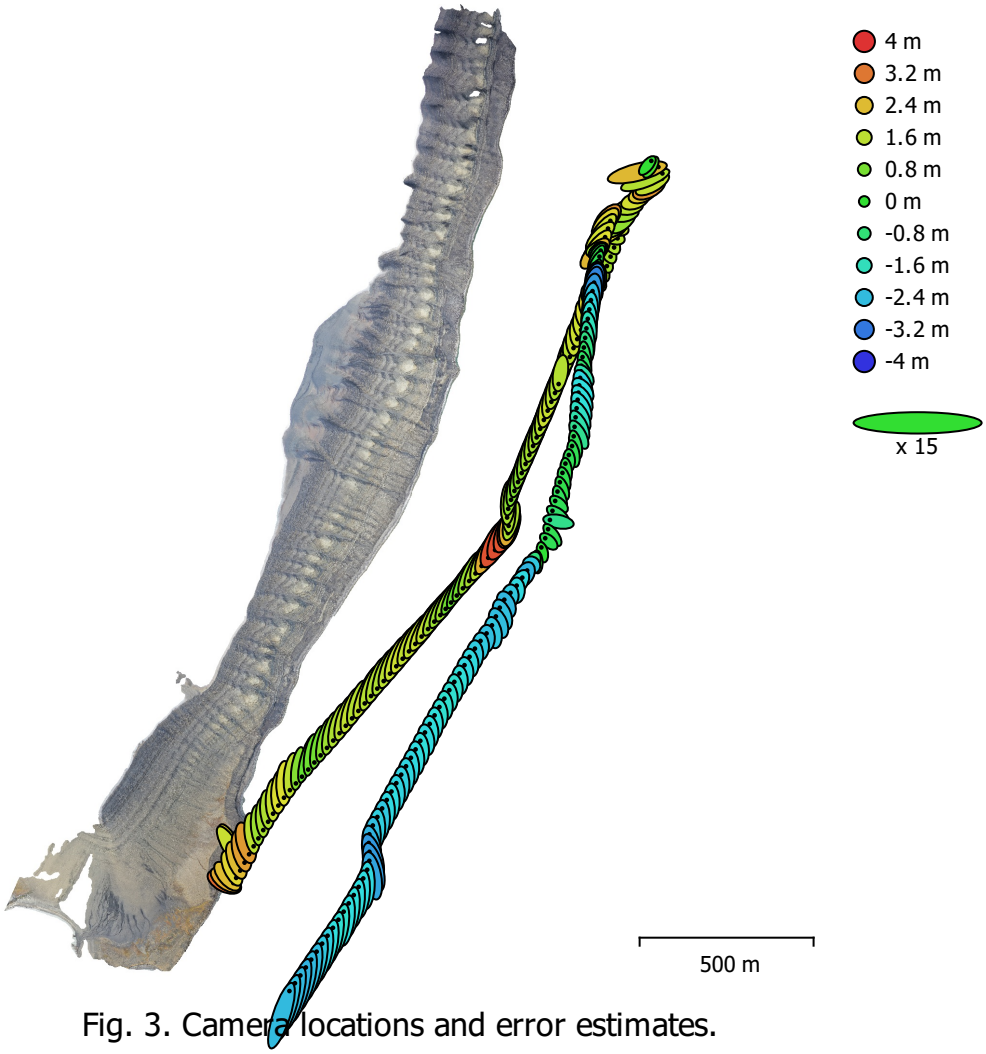

Fig. 3. Camera locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated camera locations are marked with a black dot.

X error (m)	Y error (m)	Z error (m)	XY error (m)	Total error (m)
1.75304	4.31467	1.83394	4.6572	5.00529

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

Digital Elevation Model

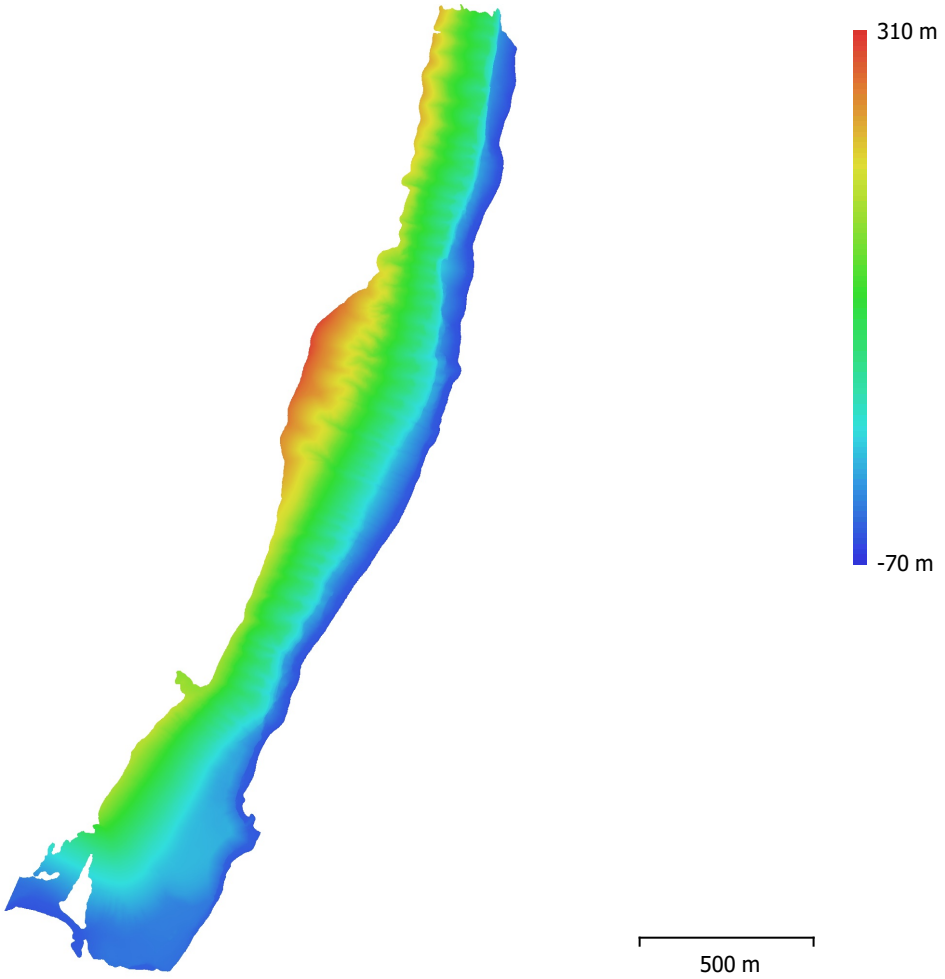

Fig. 4. Reconstructed digital elevation model.

Resolution:	21.3 cm/pix
Point density:	22.1 points/m²

Processing Parameters

General	
Cameras	222
Aligned cameras	220
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll
Point Cloud	
Points	96,919 of 1,251,560
RMS reprojection error	0.144358 (0.21105 pix)
Max reprojection error	0.47685 (1.55034 pix)
Mean key point size	1.44909 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	4.64071
Alignment parameters	
Accuracy	Highest
Generic preselection	Yes
Reference preselection	No
Key point limit	60,000
Tie point limit	0
Exclude stationary tie points	Yes
Guided image matching	No
Adaptive camera model fitting	No
Matching time	14 minutes 31 seconds
Matching memory usage	2.51 GB
Alignment time	13 minutes 5 seconds
Alignment memory usage	495.82 MB
Optimization parameters	
Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	5 seconds
Software version	1.7.2.12040
File size	94.45 MB
Depth Maps	
Count	220
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	23 minutes 58 seconds
Memory usage	3.62 GB
Software version	1.7.2.12040
File size	1.25 GB
Dense Point Cloud	
Points	34,655,025
Point colors	3 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	23 minutes 58 seconds
Memory usage	3.62 GB
Dense cloud generation parameters	

Processing time	1 hours 9 minutes
Memory usage	11.22 GB
Software version	1.7.2.12040
File size	569.20 MB
Model	
Faces	6,920,906
Vertices	3,466,220
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
Processing time	23 minutes 58 seconds
Memory usage	3.62 GB
Reconstruction parameters	
Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Enabled
Strict volumetric masks	No
Processing time	12 minutes 57 seconds
Memory usage	16.60 GB
Texturing parameters	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	4,096
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	5 minutes 33 seconds
UV mapping memory usage	4.19 GB
Blending time	3 minutes 24 seconds
Blending memory usage	6.44 GB
Software version	1.7.2.12040
File size	499.98 MB
Tiled Model	
Texture	3 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	23 minutes 58 seconds
Memory usage	3.62 GB
Reconstruction parameters	
Source data	Dense cloud
Tile size	256
Face count	High
Enable ghosting filter	No
Processing time	53 minutes 47 seconds
Memory usage	4.17 GB
Software version	1.7.2.12040
File size	516.11 MB
System	
Software name	Agisoft Metashape Professional
Software version	1.7.2 build 12040
OS	Windows 64 bit
RAM	127.71 GB
CPU	Intel(R) Xeon(R) Gold 5122 CPU @ 3.60GHz
GPU(s)	Quadro P5000