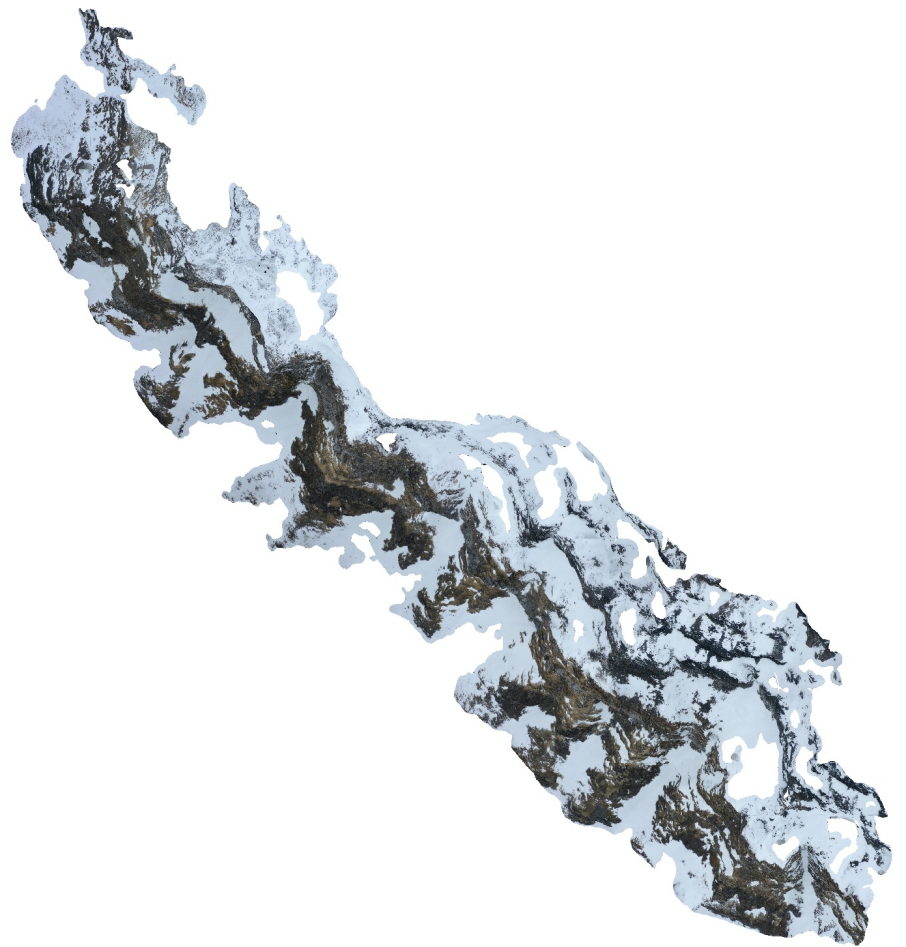


# Ingeborgfjellet

Dense Cloud Confidence 20-255  
Connected component size 99%

16 March 2022



# Survey Data

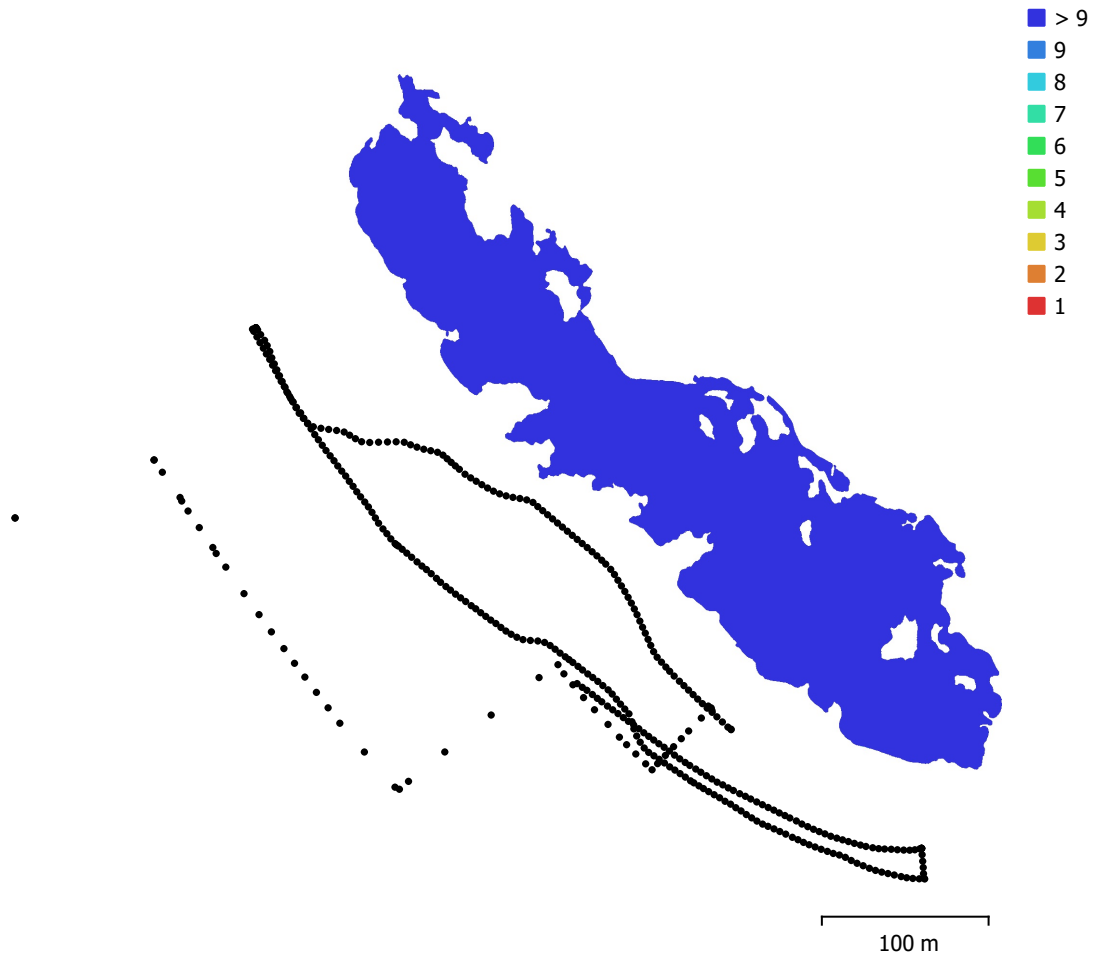


Fig. 1. Camera locations and image overlap.

Number of images:	378	Camera stations:	378
Flying altitude:	140 m	Tie points:	57,910
Ground resolution:	3.04 cm/pix	Projections:	887,071
Coverage area:	0.0442 km <sup>2</sup>	Reprojection error:	0.612 pix

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

Table 1. Cameras.

# Camera Calibration

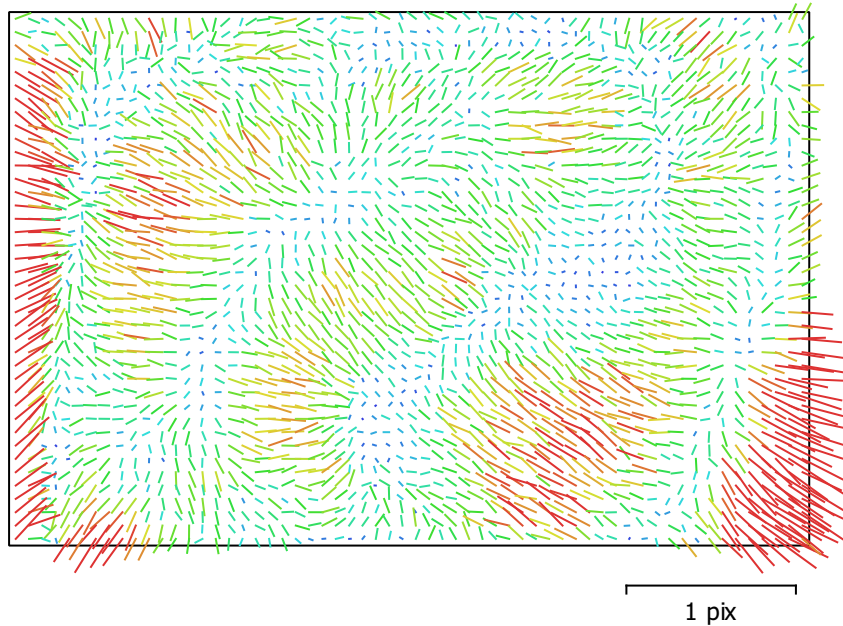


Fig. 2. Image residuals for Test\_Pro (10.26mm).

## Test\_Pro (10.26mm)

378 images

Type	Resolution	Focal Length	Pixel Size
<b>Frame</b>	<b>5472 x 3648</b>	<b>10.26 mm</b>	<b>2.41 x 2.41 <math>\mu\text{m}</math></b>

	Value	Error	F	Cx	Cy	B1	B2	K1	K2	K3	P1	P2
<b>F</b>	<b>4352.48</b>	0.035	1.00	-0.15	0.01	-0.26	-0.01	-0.06	0.13	-0.11	-0.08	0.14
<b>Cx</b>	<b>21.2741</b>	0.075		1.00	0.08	0.08	0.19	0.04	-0.02	0.02	0.94	0.00
<b>Cy</b>	<b>-43.2824</b>	0.051			1.00	-0.17	0.25	-0.00	0.02	-0.02	0.05	0.83
<b>B1</b>	<b>-0.86379</b>	0.029				1.00	-0.03	-0.02	0.02	-0.02	0.10	-0.10
<b>B2</b>	<b>11.8762</b>	0.03					1.00	0.00	0.01	-0.01	0.21	0.15
<b>K1</b>	<b>0.00616664</b>	2.1e-05						1.00	-0.95	0.89	0.03	-0.02
<b>K2</b>	<b>0.0350818</b>	8.7e-05							1.00	-0.98	-0.02	0.03
<b>K3</b>	<b>-0.0364064</b>	0.00011								1.00	0.02	-0.04
<b>P1</b>	<b>0.000280699</b>	4.7e-06									1.00	-0.00
<b>P2</b>	<b>-0.00350709</b>	2.7e-06										1.00

Table 2. Calibration coefficients and correlation matrix.

# Camera Locations

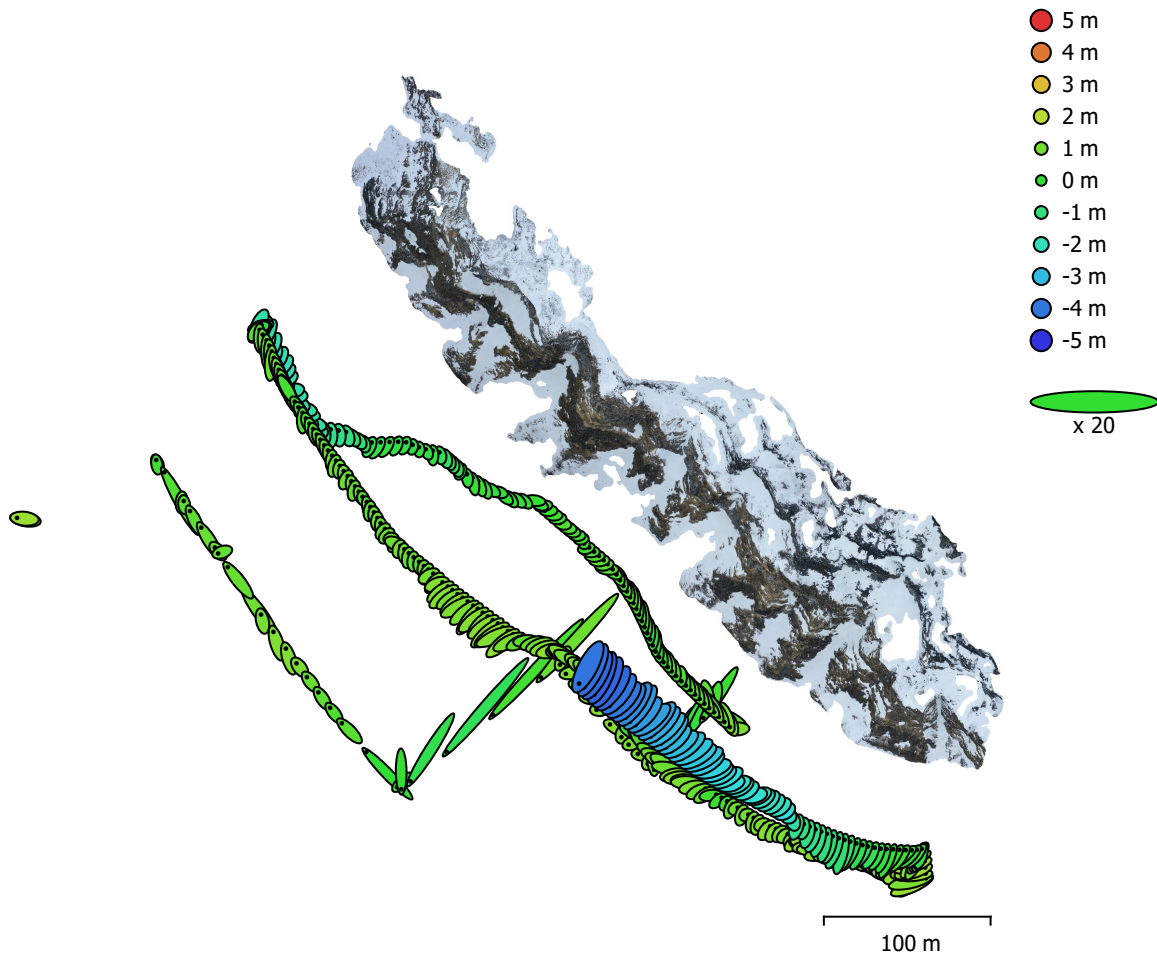


Fig. 3. Camera locations and error estimates.

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)
0.408588	0.481842	1.3175	0.631756	1.46114

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

# Digital Elevation Model

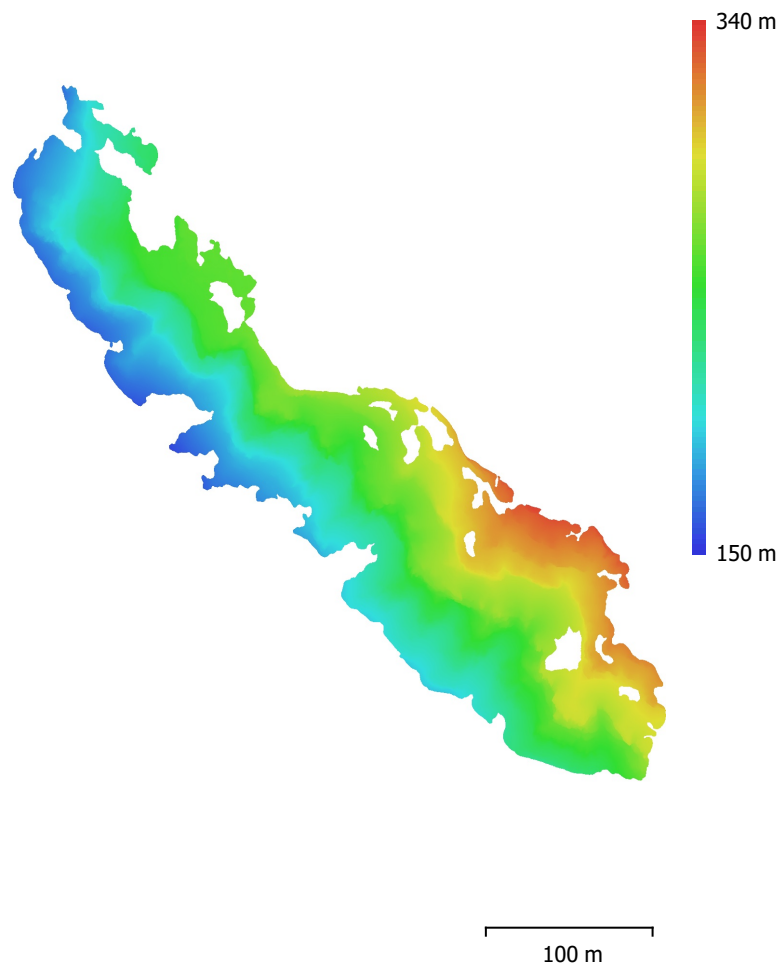


Fig. 4. Reconstructed digital elevation model.

Resolution: 6.08 cm/pix  
Point density: 271 points/m<sup>2</sup>

# Processing Parameters

## General

Cameras	378
Aligned cameras	378
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

## Point Cloud

Points	57,910 of 88,044
RMS reprojection error	0.256443 (0.611564 pix)
Max reprojection error	0.99569 (21.3727 pix)
Mean key point size	2.26774 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	22.3594

## 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	31 minutes 48 seconds
Matching memory usage	593.91 MB
Alignment time	57 minutes 45 seconds
Alignment memory usage	352.91 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	31.67 MB

## Depth Maps

Count	378
-------	-----

## Depth maps generation parameters

Quality	High
Filtering mode	Mild
Max neighbors	100
Processing time	1 hours 38 minutes
Memory usage	11.88 GB
Software version	1.7.3.12473
File size	2.48 GB

## Dense Point Cloud

Points	22,820,996
Point colors	3 bands, uint8

## Depth maps generation parameters

Quality	High
Filtering mode	Mild
Max neighbors	100
Processing time	1 hours 38 minutes

Memory usage	11.88 GB
<b>Dense cloud generation parameters</b>	
Processing time	7 hours 52 minutes
Memory usage	20.66 GB
Software version	1.7.3.12473
File size	973.95 MB
<b>Model</b>	
Faces	4,484,337
Vertices	2,249,932
Vertex colors	3 bands, uint8
Texture	4,096 x 4,096 x 10, 4 bands, uint8
<b>Depth maps generation parameters</b>	
Quality	High
Filtering mode	Mild
Max neighbors	100
Processing time	1 hours 38 minutes
Memory usage	11.88 GB
<b>Reconstruction parameters</b>	
Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Enabled
Strict volumetric masks	No
Processing time	1 hours 0 minutes
Memory usage	11.11 GB
<b>Texturing parameters</b>	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	4,096
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	2 minutes 41 seconds
UV mapping memory usage	3.34 GB
Blending time	33 minutes 19 seconds
Blending memory usage	5.22 GB
Software version	1.7.3.12473
File size	407.04 MB
<b>Tiled Model</b>	
Texture	3 bands, uint8
<b>Depth maps generation parameters</b>	
Quality	High
Filtering mode	Mild
Max neighbors	100
Processing time	1 hours 38 minutes
Memory usage	11.88 GB
<b>Reconstruction parameters</b>	
Source data	Dense cloud
Tile size	128
Face count	Low
Enable ghosting filter	No
Processing time	8 hours 31 minutes
Memory usage	2.03 GB
Software version	1.7.3.12473
File size	824.32 MB
<b>System</b>	
Software name	Agisoft Metashape Professional
Software version	1.7.2 build 12040

OS  
RAM  
CPU  
GPU(s)

Windows 64 bit  
127.78 GB  
Intel(R) Core(TM) i9-9900K CPU @ 3.60GHz  
GeForce RTX 2080