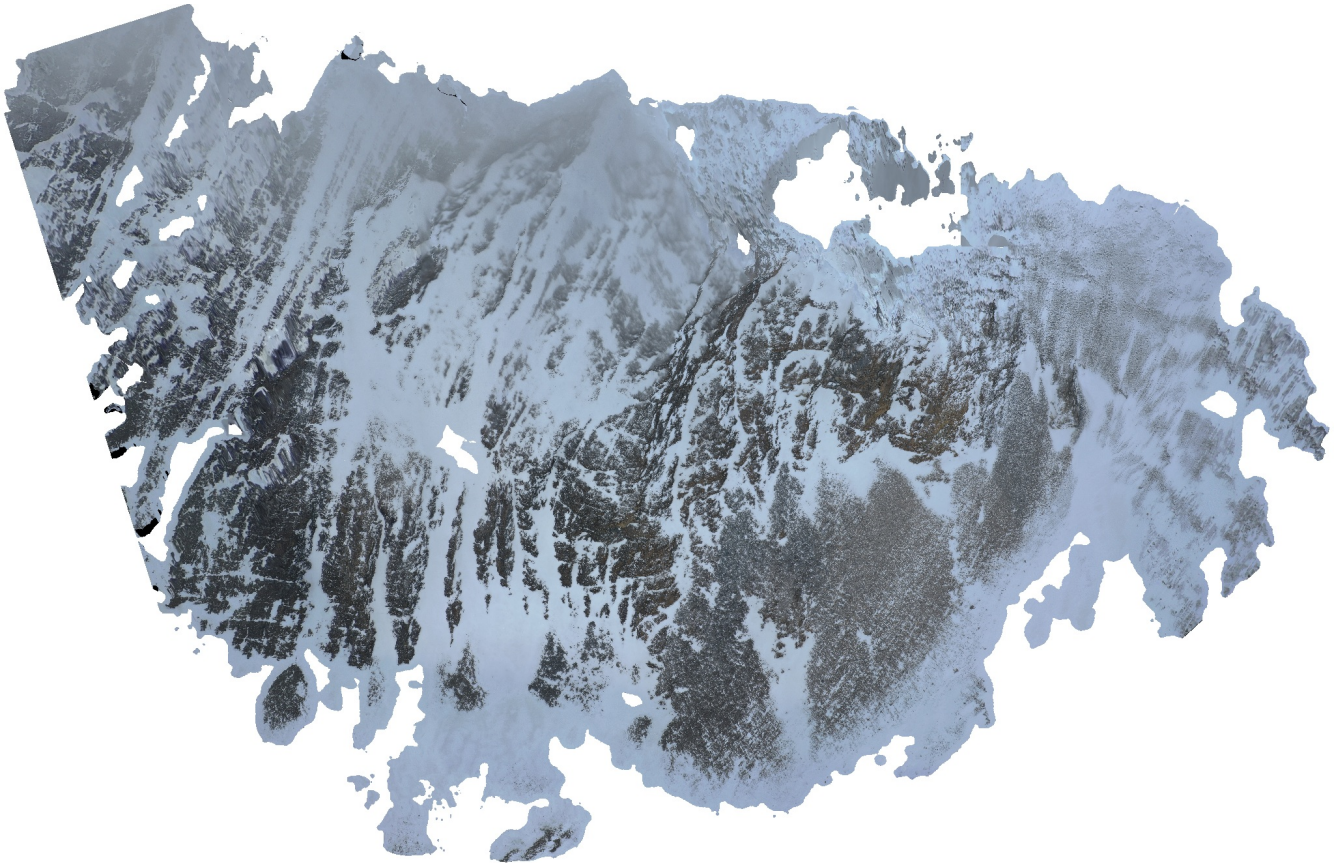


# Solryggen

Dense Cloud Confidence 2-255  
Filter component size 99%

31 March 2022



# Survey Data

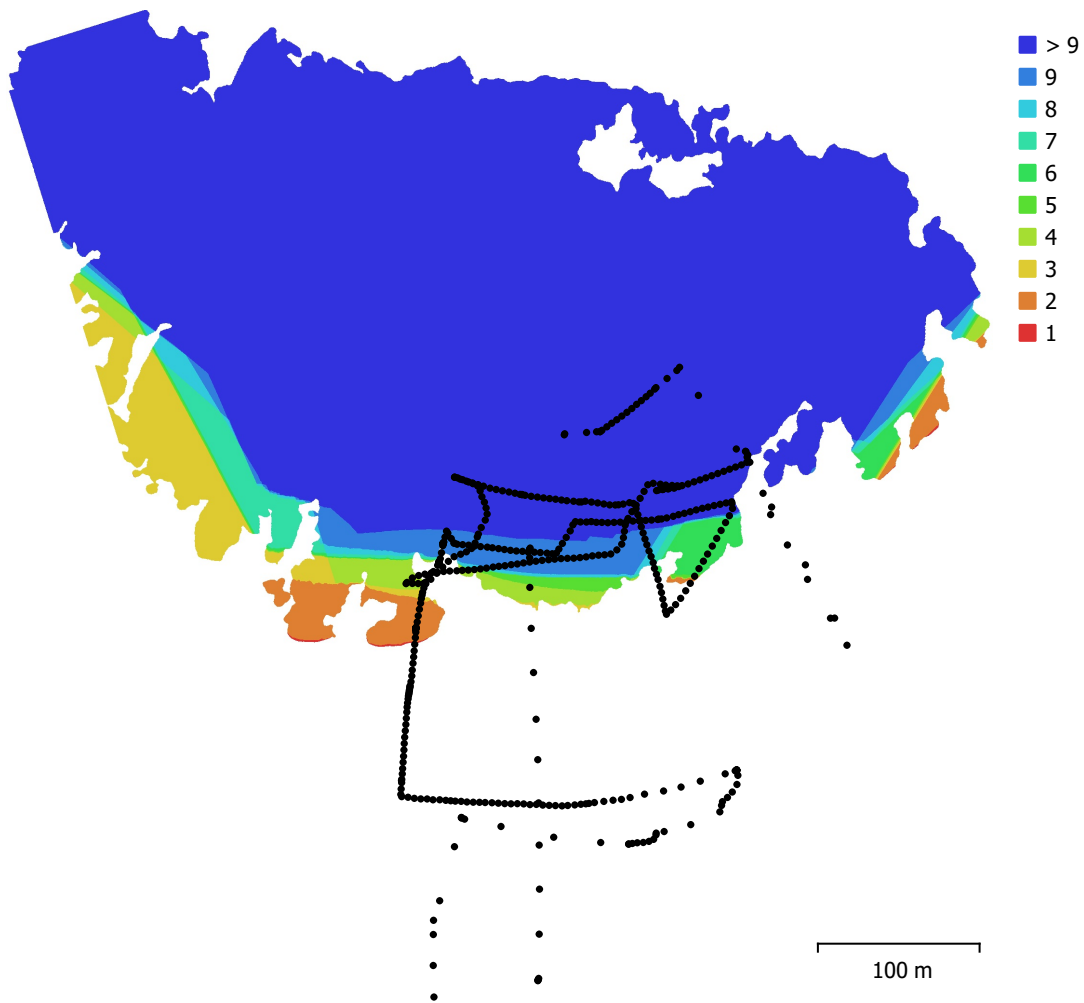


Fig. 1. Camera locations and image overlap.

Number of images:	455	Camera stations:	455
Flying altitude:	188 m	Tie points:	69,462
Ground resolution:	4.09 cm/pix	Projections:	993,808
Coverage area:	0.149 km <sup>2</sup>	Reprojection error:	0.55 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

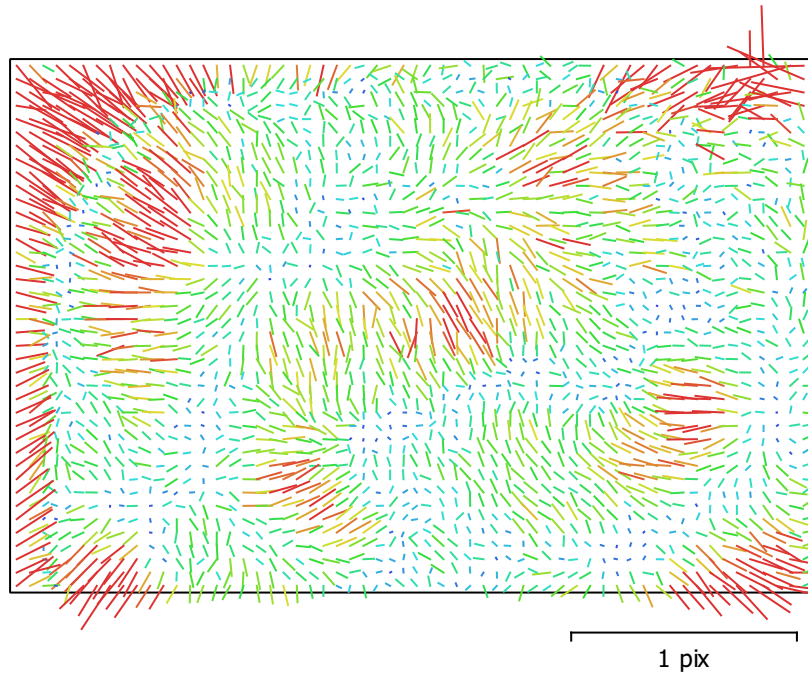


Fig. 2. Image residuals for Test\_Pro (10.26mm).

## Test\_Pro (10.26mm)

455 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>4351.59</b>	0.038	1.00	0.11	0.10	-0.48	0.01	-0.00	0.08	-0.07	0.11	0.14
<b>Cx</b>	<b>2.75865</b>	0.076		1.00	0.05	0.04	0.25	0.01	0.00	-0.00	0.96	0.08
<b>Cy</b>	<b>-51.2297</b>	0.063			1.00	-0.43	0.01	0.02	-0.02	0.01	0.11	0.82
<b>B1</b>	<b>-0.184064</b>	0.032				1.00	-0.04	-0.10	0.06	-0.04	-0.01	-0.24
<b>B2</b>	<b>-2.67383</b>	0.03					1.00	0.03	-0.01	0.01	0.24	-0.01
<b>K1</b>	<b>0.00637203</b>	2.2e-05						1.00	-0.94	0.88	0.01	-0.07
<b>K2</b>	<b>0.0352842</b>	8.4e-05							1.00	-0.98	0.00	0.01
<b>K3</b>	<b>-0.0374855</b>	0.0001								1.00	-0.00	-0.00
<b>P1</b>	<b>-0.000395263</b>	5e-06									1.00	0.10
<b>P2</b>	<b>-0.00370617</b>	3.6e-06										1.00

Table 2. Calibration coefficients and correlation matrix.

# Camera Locations

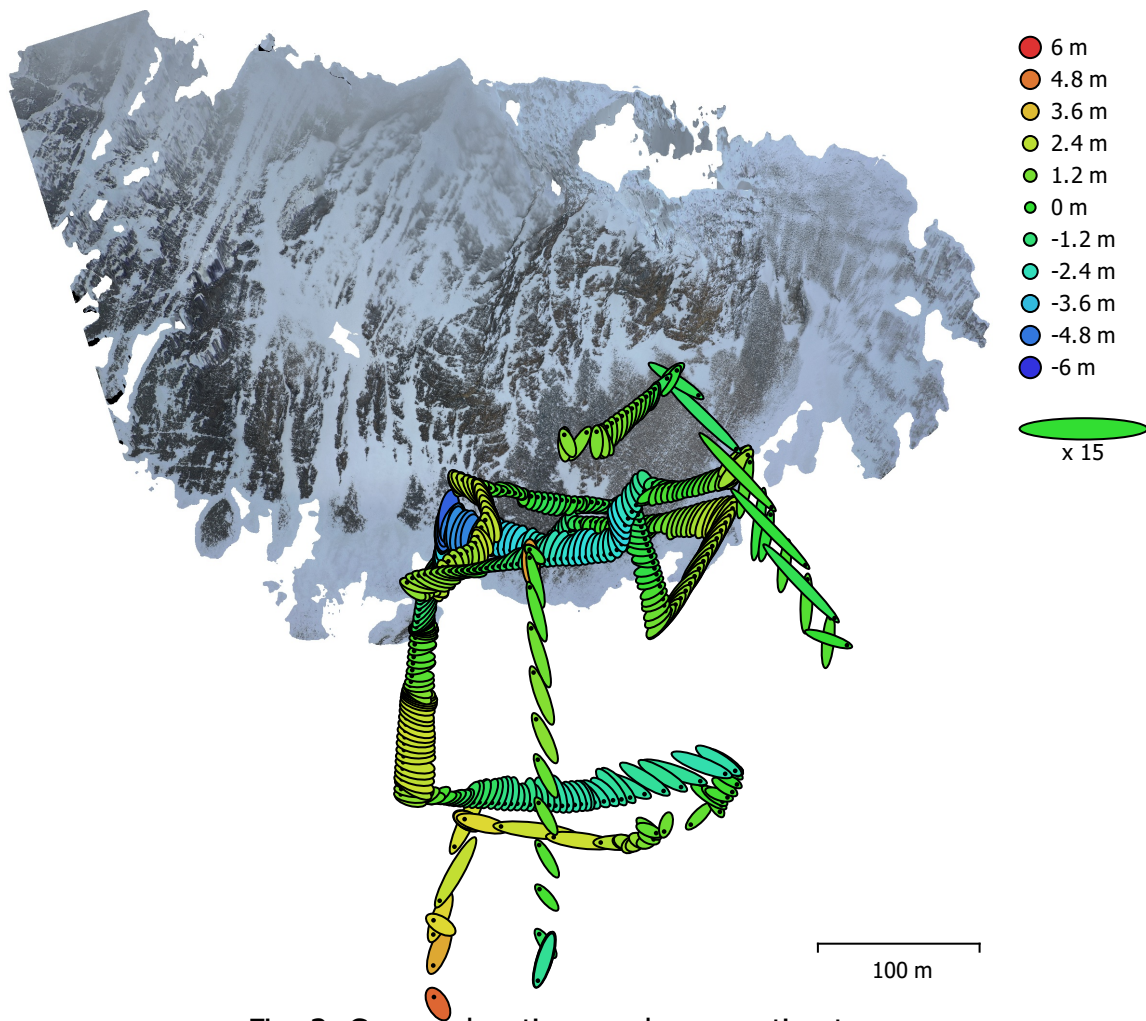


Fig. 3. Camera locations and error estimates.

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)
0.662391	0.801576	1.8582	1.03985	2.12937

Table 3. Average camera location error.

X - Longitude, Y - Latitude, Z - Altitude.

# Digital Elevation Model

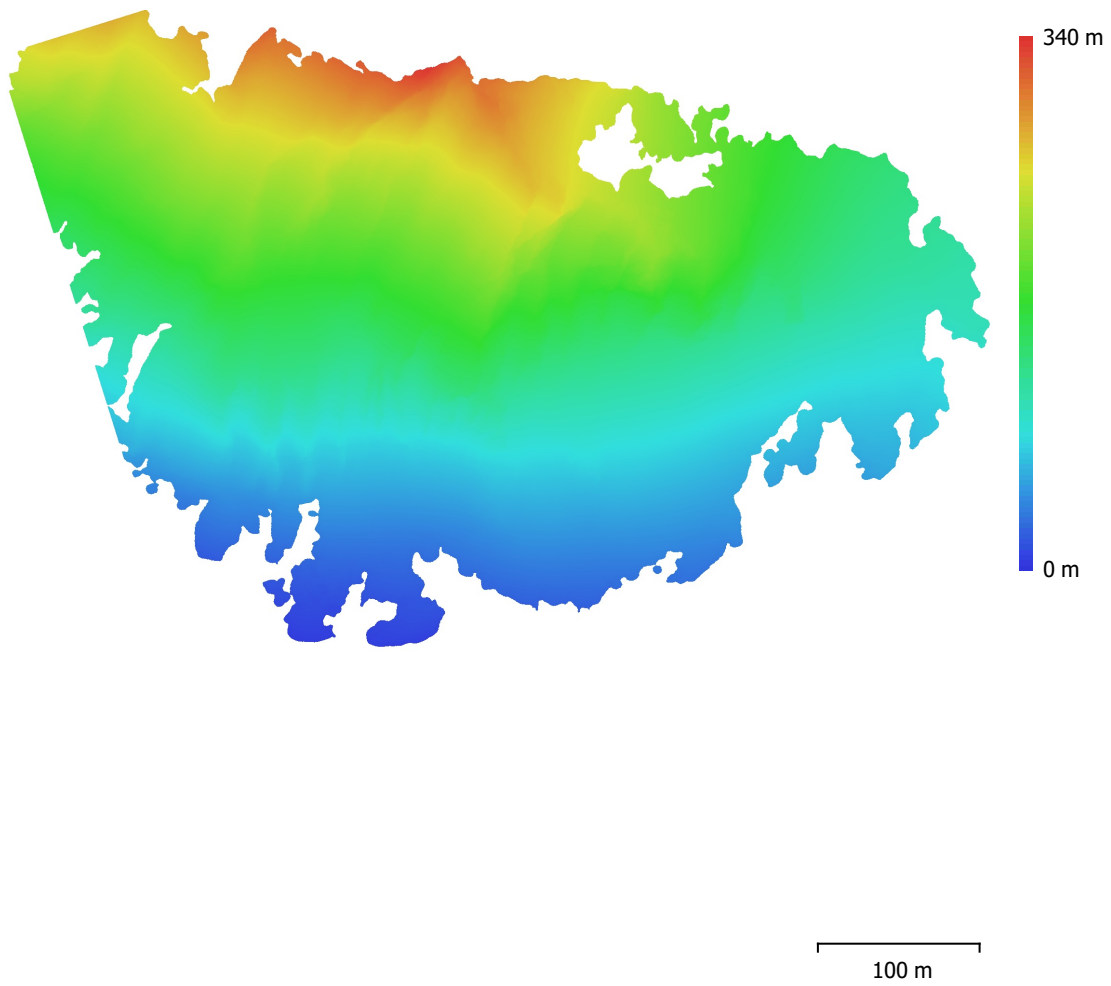


Fig. 4. Reconstructed digital elevation model.

Resolution: 8.19 cm/pix  
Point density: 149 points/m<sup>2</sup>

# Processing Parameters

## General

Cameras	455
Aligned cameras	455
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

## Point Cloud

Points	69,462 of 107,427
RMS reprojection error	0.219681 (0.550342 pix)
Max reprojection error	0.882971 (21.7125 pix)
Mean key point size	2.47212 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	25.935

## 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	9 minutes 46 seconds
Matching memory usage	621.32 MB
Alignment time	16 minutes 44 seconds
Alignment memory usage	580.07 MB

## Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	Yes
Optimization time	15 seconds
Software version	1.7.3.12473
File size	44.47 MB

## Depth Maps

Count	455
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## Depth maps generation parameters

Quality	High
Filtering mode	Mild
Max neighbors	100
Processing time	53 minutes 48 seconds
Memory usage	13.79 GB
Software version	1.7.3.12473
File size	2.80 GB

## Dense Point Cloud

Points	34,536,675
Point colors	3 bands, uint8

## Depth maps generation parameters

Quality	High
Filtering mode	Mild
Max neighbors	100
Processing time	53 minutes 48 seconds

Memory usage	13.79 GB
<b>Dense cloud generation parameters</b>	
Processing time	3 hours 1 minutes
Memory usage	25.27 GB
Software version	1.7.3.12473
File size	673.98 MB
<b>Model</b>	
Faces	2,094,375
Vertices	1,054,998
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	53 minutes 48 seconds
Memory usage	13.79 GB
<b>Reconstruction parameters</b>	
Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Enabled
Strict volumetric masks	No
Processing time	12 minutes 58 seconds
Memory usage	17.38 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	3 minutes 14 seconds
UV mapping memory usage	3.54 GB
Blending time	23 minutes 23 seconds
Blending memory usage	6.33 GB
Software version	1.7.2.12040
File size	283.53 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	53 minutes 48 seconds
Memory usage	13.79 GB
<b>Reconstruction parameters</b>	
Source data	Dense cloud
Tile size	256
Face count	Medium
Enable ghosting filter	No
Processing time	2 hours 19 minutes
Memory usage	2.45 GB
Software version	1.7.2.12040
File size	194.42 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