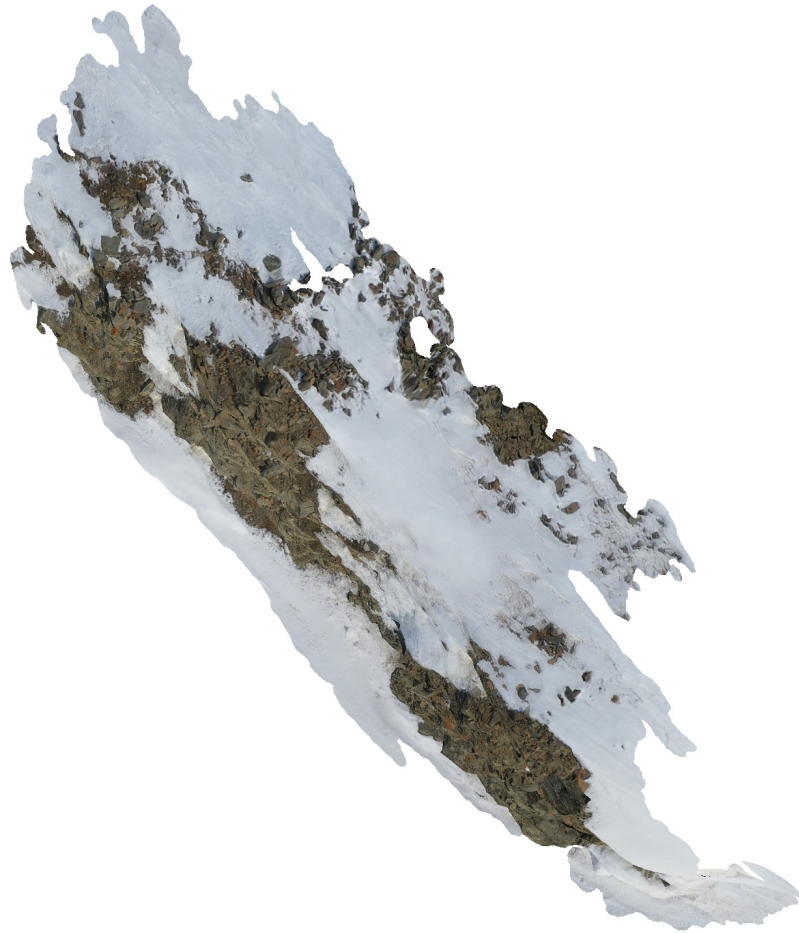


Synndalen

Filtering: --dense_cloud_confidence: 20-255 --mesn_connected_component_size:
99%

11 March 2022



Survey Data

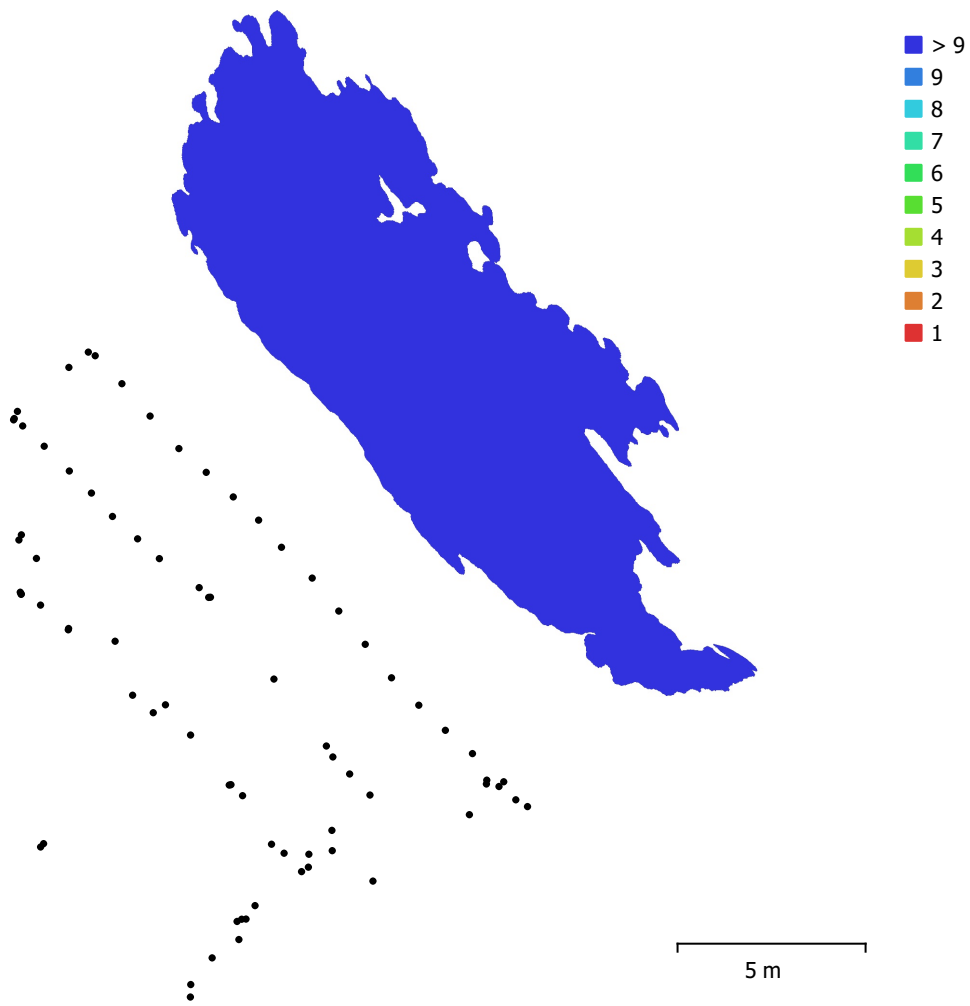


Fig. 1. Camera locations and image overlap.

Number of images:	77	Camera stations:	77
Flying altitude:	9.18 m	Tie points:	35,757
Ground resolution:	2.63 mm/pix	Projections:	268,833
Coverage area:	108 m ²	Reprojection error:	1.73 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

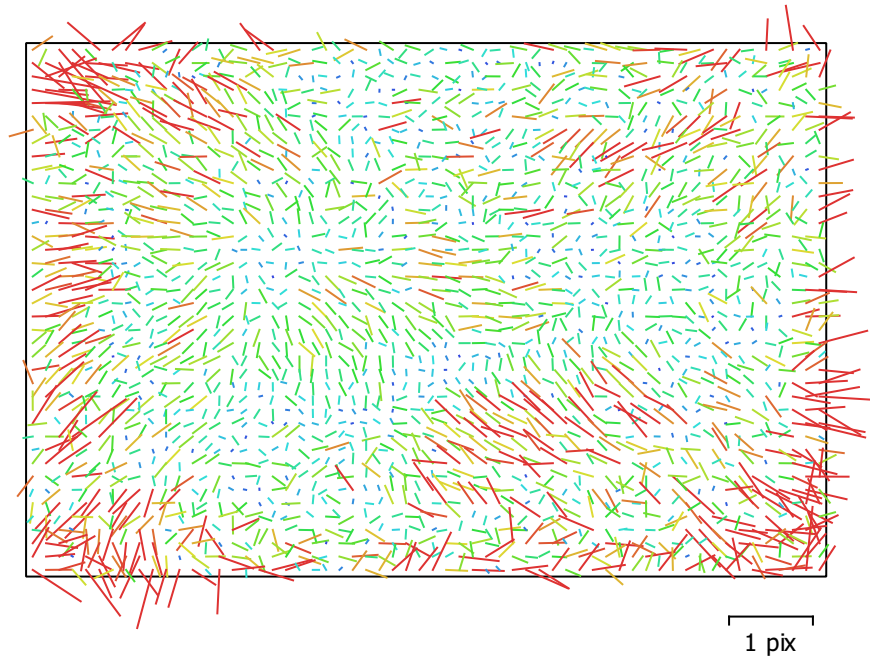


Fig. 2. Image residuals for Test_Pro (10.26mm).

Test_Pro (10.26mm)

77 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	B1	B2	K1	K2	K3	P1	P2
F	3237.64	2.1	1.00	-0.01	-0.16	-0.98	0.04	0.01	0.03	-0.04	-0.04	0.18
Cx	50.026	0.46		1.00	-0.06	0.05	0.57	0.05	-0.03	0.02	0.75	-0.01
Cy	-83.9634	0.32			1.00	0.07	-0.27	-0.06	-0.00	0.00	-0.01	0.58
B1	1109.79	2.1				1.00	0.02	-0.01	-0.00	0.02	0.08	-0.21
B2	96.6809	0.89					1.00	-0.01	0.01	-0.01	0.17	0.03
K1	0.00367015	0.0001						1.00	-0.93	0.85	0.05	-0.10
K2	0.0160279	0.00035							1.00	-0.98	-0.02	0.01
K3	-0.0145967	0.00038								1.00	0.01	-0.01
P1	0.00249422	2.1e-05									1.00	-0.01
P2	-0.0046578	1.7e-05										1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

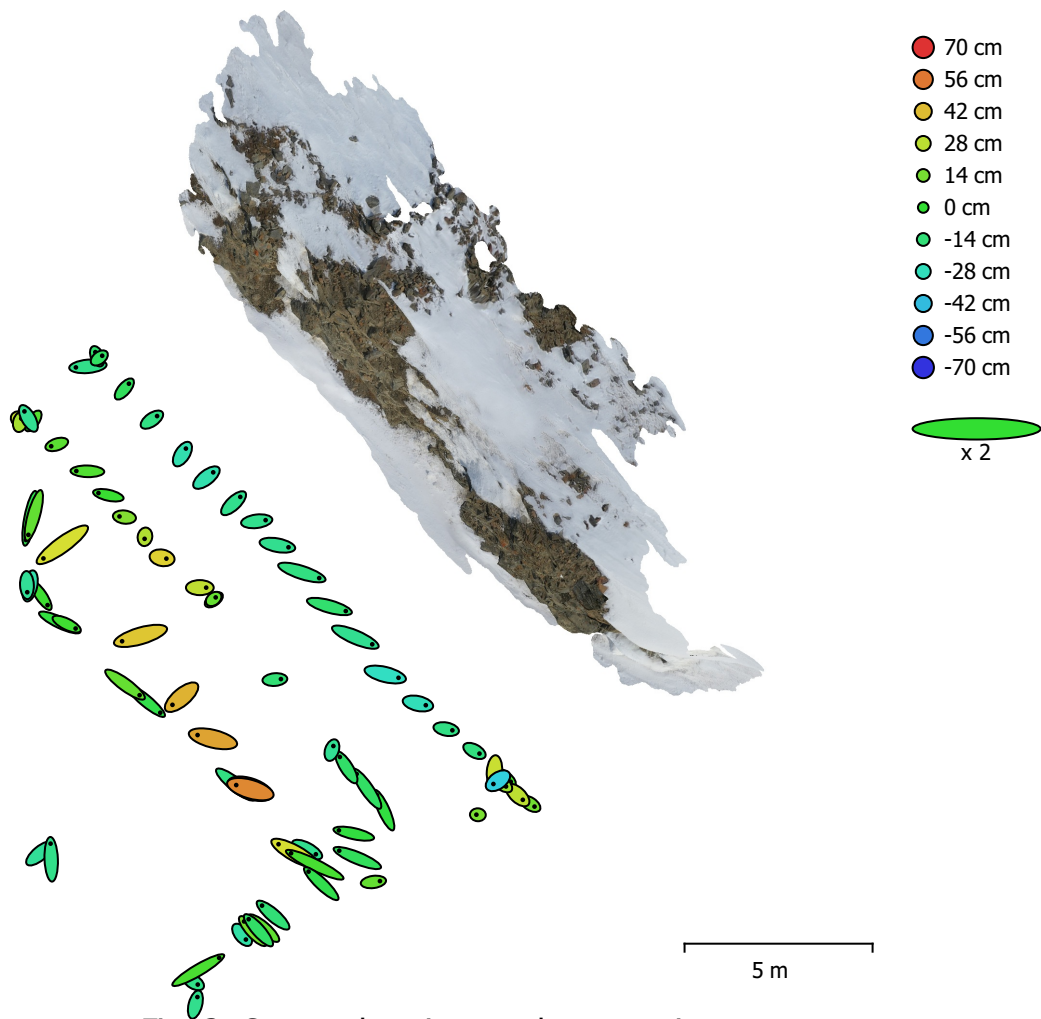


Fig. 3. Camera locations and error estimates.

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 (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total error (cm)
26.1136	20.1598	21.792	32.9899	39.5377

Table 3. Average camera location error.

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

Digital Elevation Model

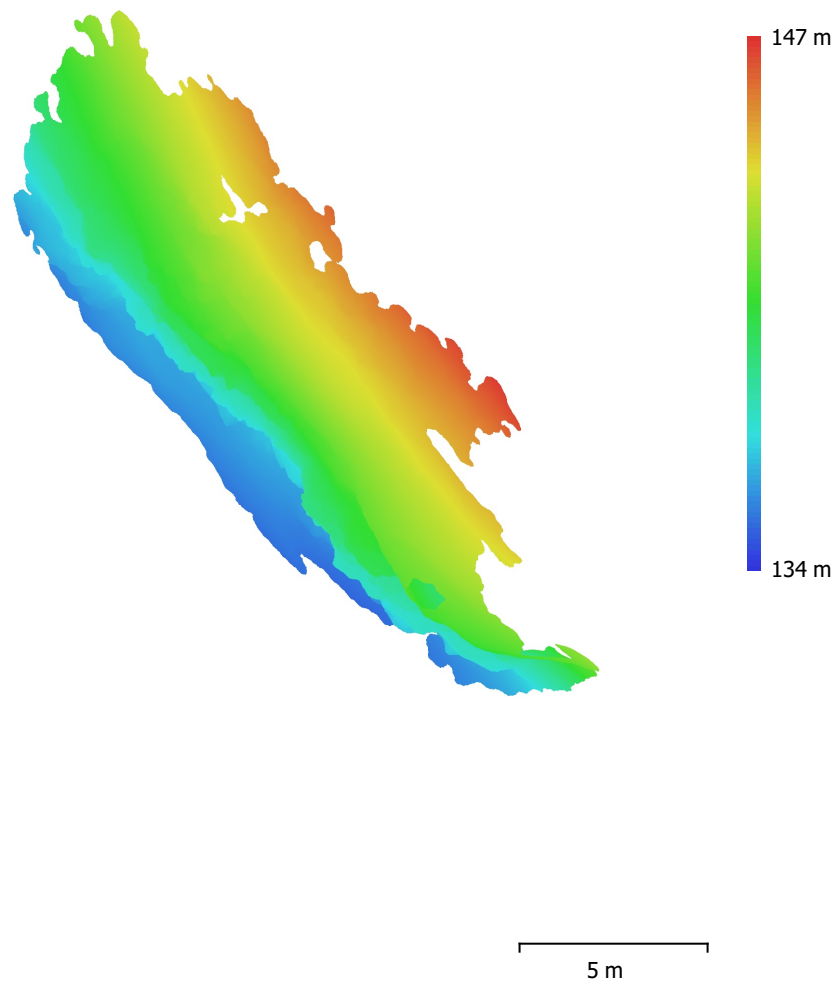


Fig. 4. Reconstructed digital elevation model.

Resolution: 5.26 mm/pix
Point density: 3.61 points/cm²

Processing Parameters

General

Cameras	77
Aligned cameras	77
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	35,757 of 49,816
RMS reprojection error	0.543678 (1.72989 pix)
Max reprojection error	2.19731 (79.1097 pix)
Mean key point size	3.34618 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	8.80922

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	43 seconds
Matching memory usage	475.68 MB
Alignment time	57 seconds
Alignment memory usage	98.80 MB

Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	Yes
Optimization time	2 seconds
Software version	1.7.3.12473
File size	7.67 MB

Depth Maps

Count	77
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Depth maps generation parameters

Quality	High
Filtering mode	Mild
Max neighbors	100
Processing time	5 minutes 26 seconds
Memory usage	5.65 GB
Software version	1.7.3.12473
File size	470.54 MB

Dense Point Cloud

Points	3,149,342
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	High
Filtering mode	Mild
Max neighbors	100
Processing time	5 minutes 26 seconds

Memory usage	5.65 GB
Dense cloud generation parameters	
Processing time	13 minutes 22 seconds
Memory usage	7.12 GB
Software version	1.7.3.12473
File size	383.54 MB
Model	
Faces	627,590
Vertices	316,919
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	5 minutes 26 seconds
Memory usage	5.65 GB
Reconstruction parameters	
Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Enabled
Strict volumetric masks	No
Processing time	1 minutes 37 seconds
Memory usage	2.07 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 29 seconds
UV mapping memory usage	3.64 GB
Blending time	1 minutes 8 seconds
Blending memory usage	5.29 GB
Software version	1.7.3.12473
File size	178.34 MB
Tiled Model	
Texture	3 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Max neighbors	100
Processing time	5 minutes 26 seconds
Memory usage	5.65 GB
Reconstruction parameters	
Source data	Dense cloud
Tile size	128
Face count	Low
Enable ghosting filter	No
Processing time	2 minutes 36 seconds
Memory usage	2.24 GB
Software version	1.7.3.12473
File size	3.25 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