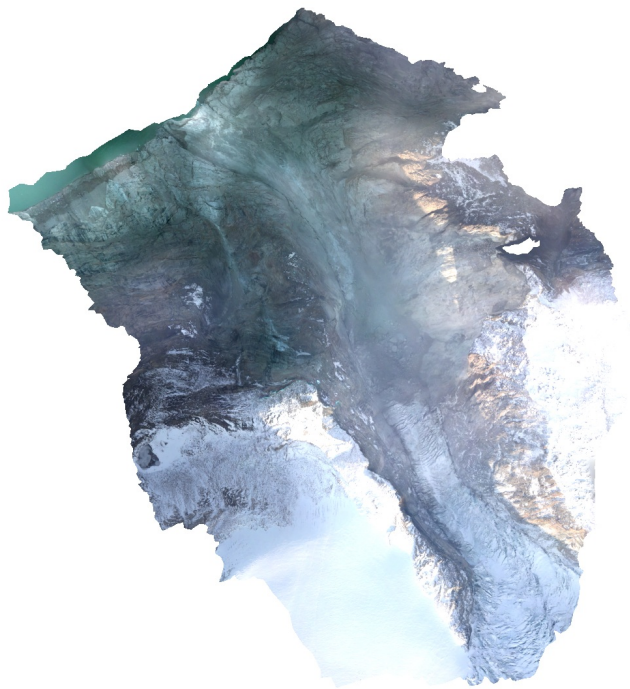


# **Agisoft Metashape**

**Processing Report**

**11 December 2023**



# Survey Data

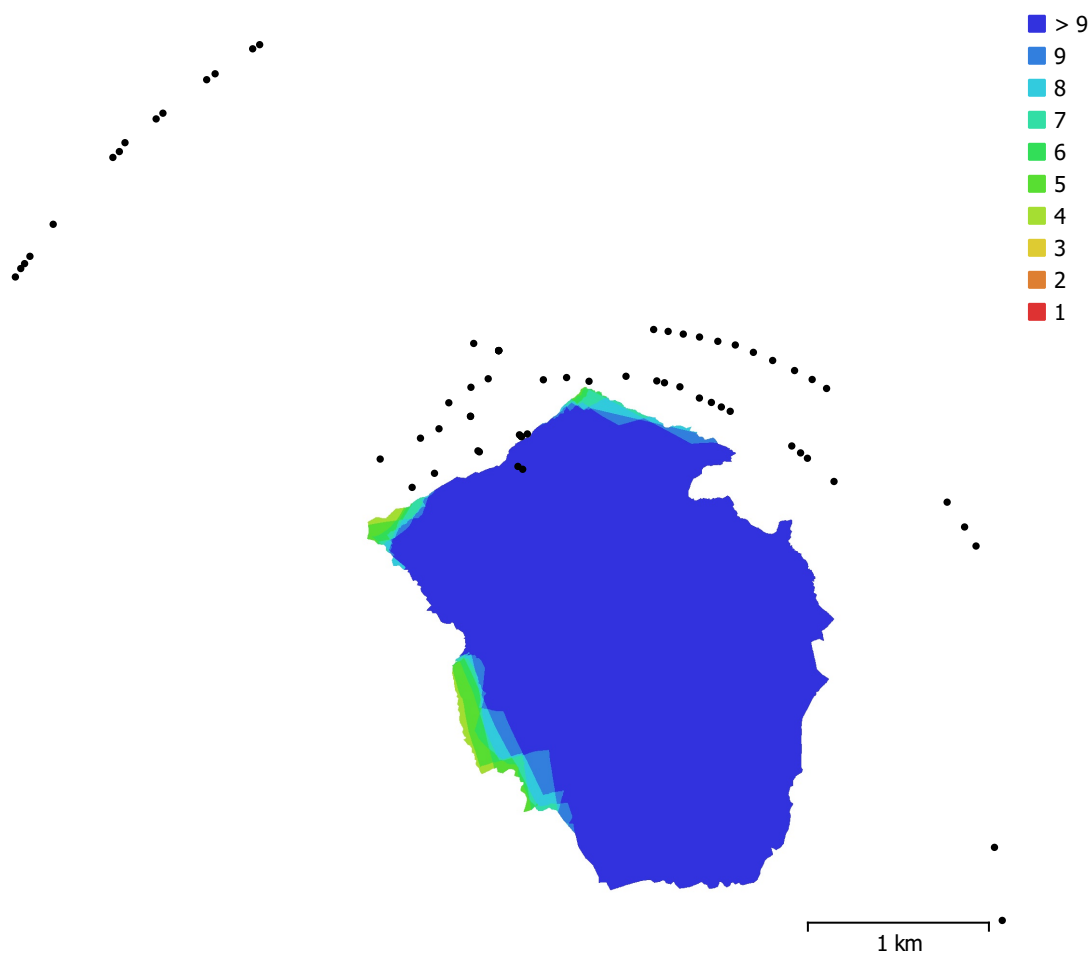


Fig. 1. Camera locations and image overlap.

Number of images:	70	Camera stations:	68
Flying altitude:	2.67 km	Tie points:	20,956
Ground resolution:	20.9 cm/pix	Projections:	81,096
Coverage area:	4.38 km <sup>2</sup>	Reprojection error:	1.46 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
Canon EOS 5D Mark IV, ...	6720 x 4480	105 mm	4.44 x 4.44 μm	No
Canon EOS 5D Mark IV, ...	6720 x 4480	70 mm	4.44 x 4.44 μm	No
Canon EOS 5D Mark IV, ...	6720 x 4480	65 mm	4.44 x 4.44 μm	No
Canon EOS 5D Mark IV, ...	6720 x 4480	40 mm	4.44 x 4.44 μm	No
Canon EOS 5D Mark IV, ...	6720 x 4480	75 mm	4.44 x 4.44 μm	No

<b>Camera Model</b>	<b>Resolution</b>	<b>Focal Length</b>	<b>Pixel Size</b>	<b>Precalibrated</b>
Canon EOS 5D Mark IV, ...	6720 x 4480	35 mm	4.44 x 4.44 $\mu\text{m}$	No
Canon EOS 5D Mark IV, ...	6720 x 4480	58 mm	4.44 x 4.44 $\mu\text{m}$	No
Canon EOS 5D Mark IV, ...	6720 x 4480	47 mm	4.44 x 4.44 $\mu\text{m}$	No
Canon EOS 5D Mark IV, ...	6720 x 4480	55 mm	4.44 x 4.44 $\mu\text{m}$	No
Canon EOS 5D Mark IV, ...	6720 x 4480	67 mm	4.44 x 4.44 $\mu\text{m}$	No
Canon EOS 5D Mark IV, ...	6720 x 4480	95 mm	4.44 x 4.44 $\mu\text{m}$	No
Canon EOS 5D Mark IV, ...	6720 x 4480	88 mm	4.44 x 4.44 $\mu\text{m}$	No
FC3582 (6.72mm)	4032 x 3024	6.72 mm	2.4 x 2.4 $\mu\text{m}$	No

Table 1. Cameras.

# Camera Locations

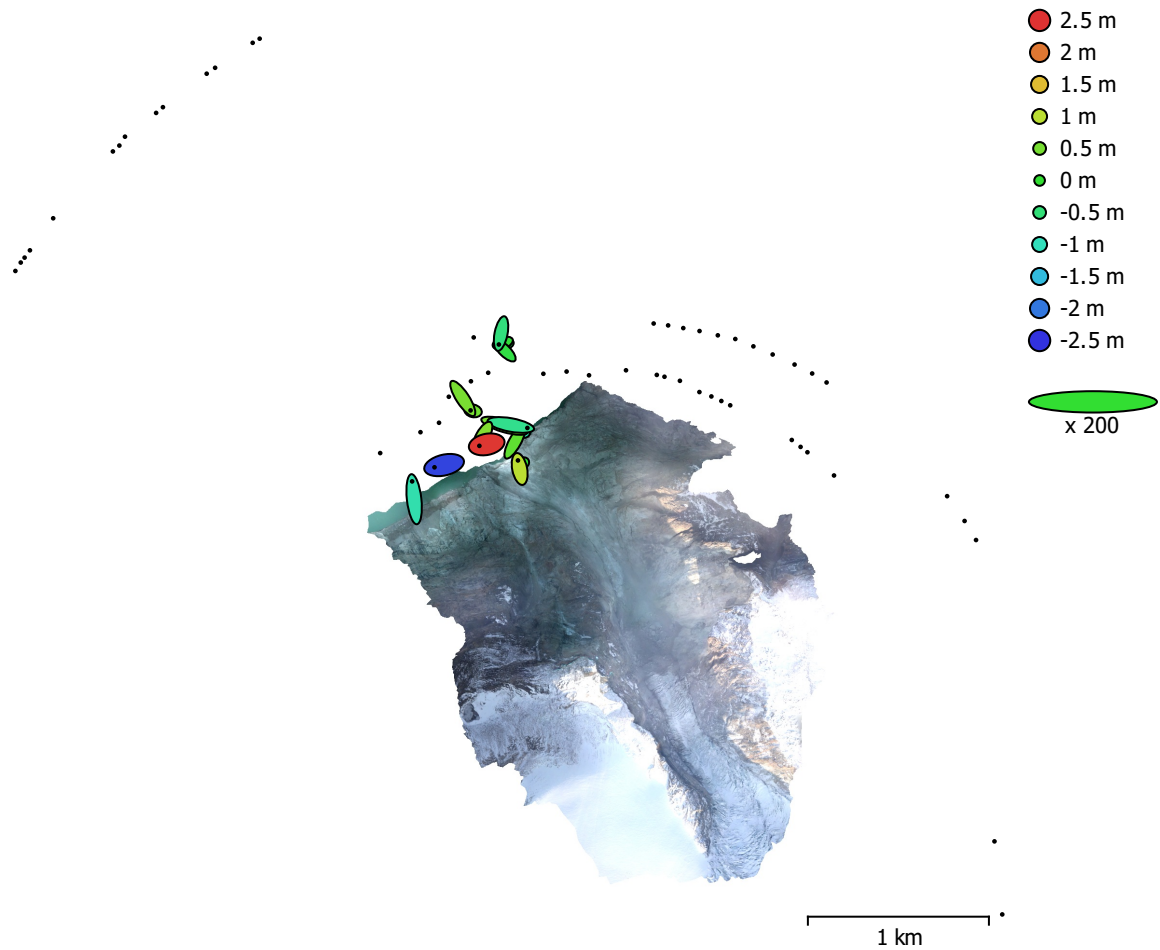


Fig. 15. Camera locations and error estimates.

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)
0.421344	0.422315	1.00842	0.596557	1.17166

Table 15. Average camera location error.

X - Easting, Y - Northing, Z - Altitude.

# Digital Elevation Model

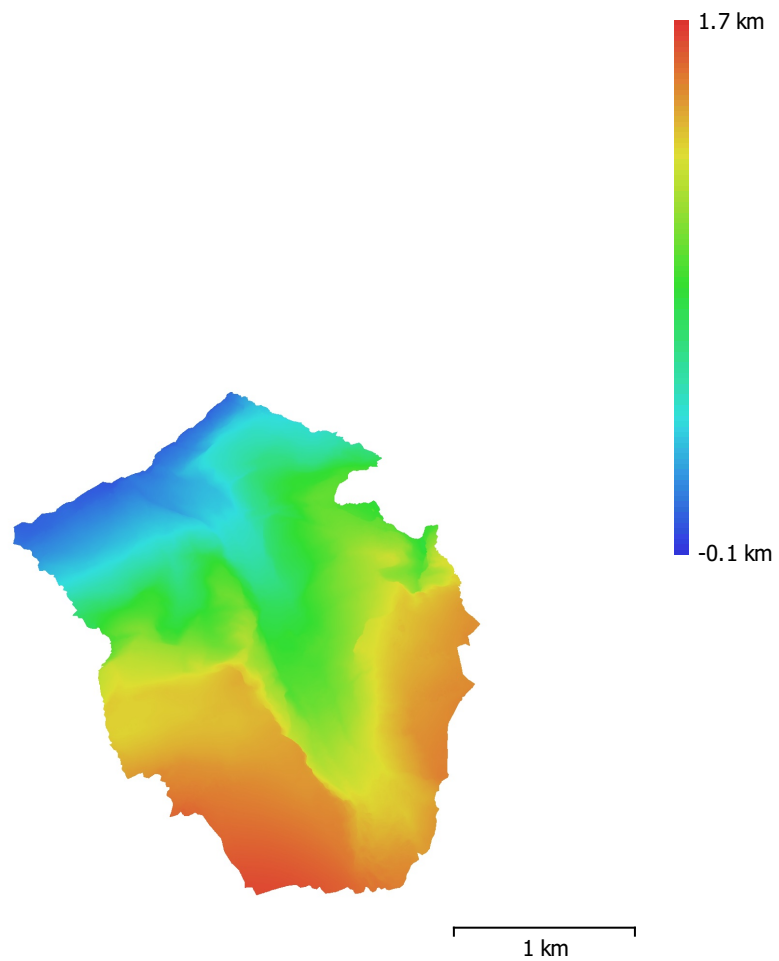


Fig. 16. Reconstructed digital elevation model.

Resolution: 75 cm/pix  
Point density: 1.78 points/m<sup>2</sup>

# Processing Parameters

## General

Cameras	70
Aligned cameras	68
Coordinate system	WGS 84 / NSIDC Sea Ice Polar Stereographic North (EPSG::3413)
Rotation angles	Yaw, Pitch, Roll

## Tie Points

Points	20,956 of 52,722
RMS reprojection error	0.212784 (1.46094 pix)
Max reprojection error	0.853006 (37.4757 pix)
Mean key point size	6.49433 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	5.65434

## Alignment parameters

Accuracy	High
Generic preselection	Yes
Reference preselection	Source
Key point limit	40,000
Key point limit per Mpx	1,000
Tie point limit	4,000
Exclude stationary tie points	No
Guided image matching	Yes
Adaptive camera model fitting	Yes
Matching time	40 seconds
Matching memory usage	567.95 MB
Alignment time	33 seconds
Alignment memory usage	396.56 MB

## Optimization parameters

Parameters	f, cx, cy, k1, k2, p1, p2
Adaptive camera model fitting	Yes
Optimization time	1 seconds
Date created	2023:09:27 16:32:05
Software version	2.0.1.15986
File size	5.19 MB

## Depth Maps

Count	68
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## Depth maps generation parameters

Quality	Medium
Filtering mode	Mild
Max neighbors	16
Processing time	1 minutes 0 seconds
Memory usage	1.18 GB
Date created	2023:09:27 16:37:43
Software version	2.0.1.15986
File size	144.21 MB

## Point Cloud

Points	11,439,699
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## Point attributes

Position	
Color	3 bands, uint8

Normal	
<b>Point classes</b>	
Created (never classified)	11,439,699
<b>Depth maps generation parameters</b>	
Quality	Medium
Filtering mode	Mild
Max neighbors	16
Processing time	1 minutes 0 seconds
Memory usage	1.18 GB
<b>Point cloud generation parameters</b>	
Processing time	1 minutes 51 seconds
Memory usage	6.31 GB
Date created	2023:09:27 16:39:34
Software version	2.0.1.15986
File size	159.94 MB
<b>Model</b>	
Faces	4,802,416
Vertices	2,404,629
Vertex colors	3 bands, uint8
<b>Depth maps generation parameters</b>	
Quality	Medium
Filtering mode	Mild
Max neighbors	16
Processing time	1 minutes 0 seconds
Memory usage	1.18 GB
<b>Point cloud generation parameters</b>	
Processing time	1 minutes 51 seconds
Memory usage	6.31 GB
<b>Reconstruction parameters</b>	
Surface type	Arbitrary
Source data	Point cloud
Interpolation	Enabled
Strict volumetric masks	No
Processing time	1 minutes 56 seconds
Memory usage	5.43 GB
Date created	2023:09:27 16:58:47
Software version	2.0.1.15986
File size	109.97 MB
<b>DEM</b>	
Size	3,435 x 3,703
Coordinate system	WGS 84 / NSIDC Sea Ice Polar Stereographic North (EPSG::3413)
<b>Reconstruction parameters</b>	
Source data	Mesh
Interpolation	Disabled
Processing time	5 seconds
Memory usage	202.16 MB
Date created	2023:09:27 17:01:43
Software version	2.0.1.15986
File size	38.82 MB
<b>Orthomosaic</b>	
Size	12,778 x 13,775
Coordinate system	WGS 84 / NSIDC Sea Ice Polar Stereographic North (EPSG::3413)
Colors	3 bands, uint8
<b>Reconstruction parameters</b>	
Blending mode	Mosaic
Surface	DEM

Enable hole filling	Yes
Enable ghosting filter	No
Processing time	1 minutes 36 seconds
Memory usage	2.42 GB
Date created	2023:09:27 17:10:17
Software version	2.0.1.15986
File size	1.15 GB
<b>System</b>	
Software name	Agisoft Metashape Professional
Software version	2.0.1 build 15986
OS	Windows 64 bit
RAM	63.70 GB
CPU	12th Gen Intel(R) Core(TM) i9-12900K
GPU(s)	NVIDIA GeForce RTX 3080