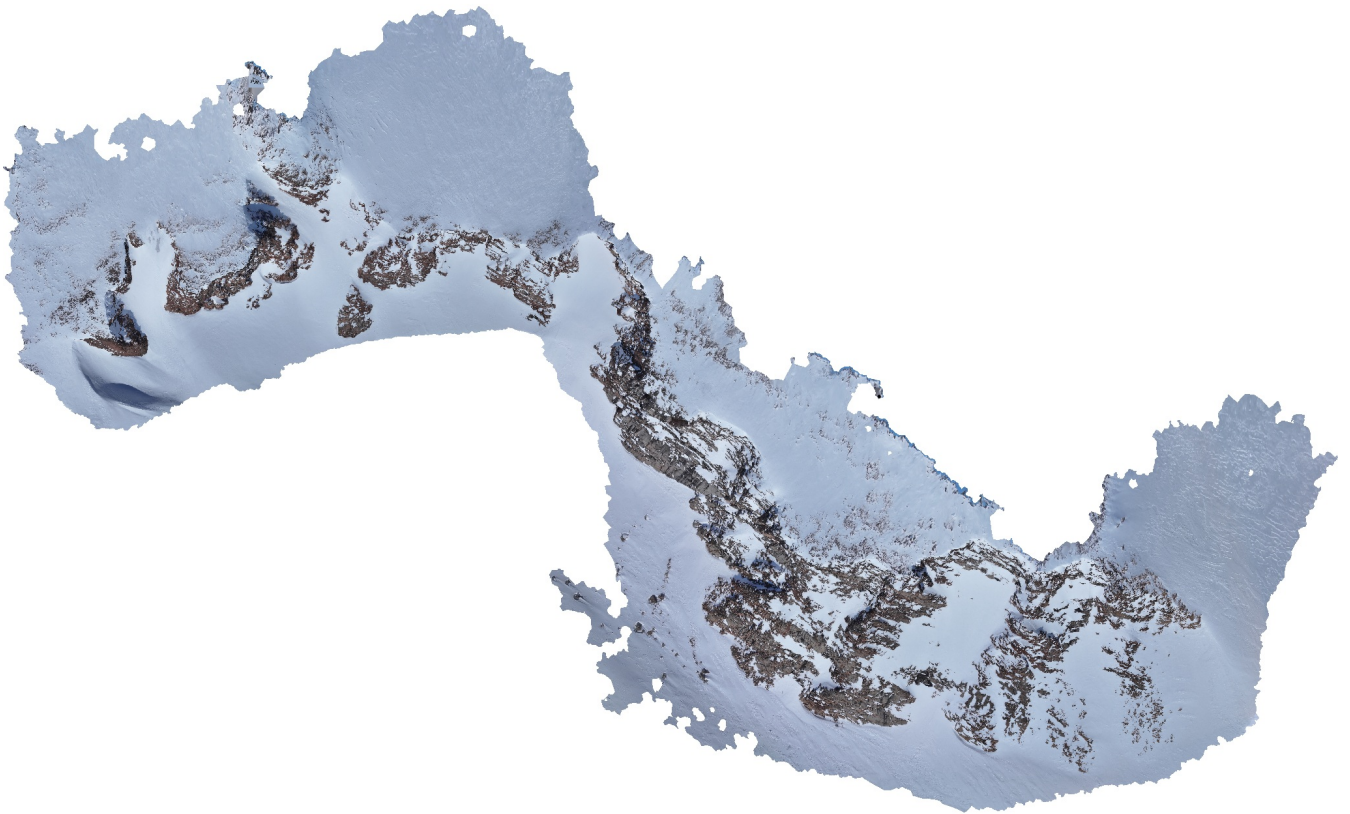


Processing Report

Documenting processing parameters and user settings.

15 May 2024



Survey Data

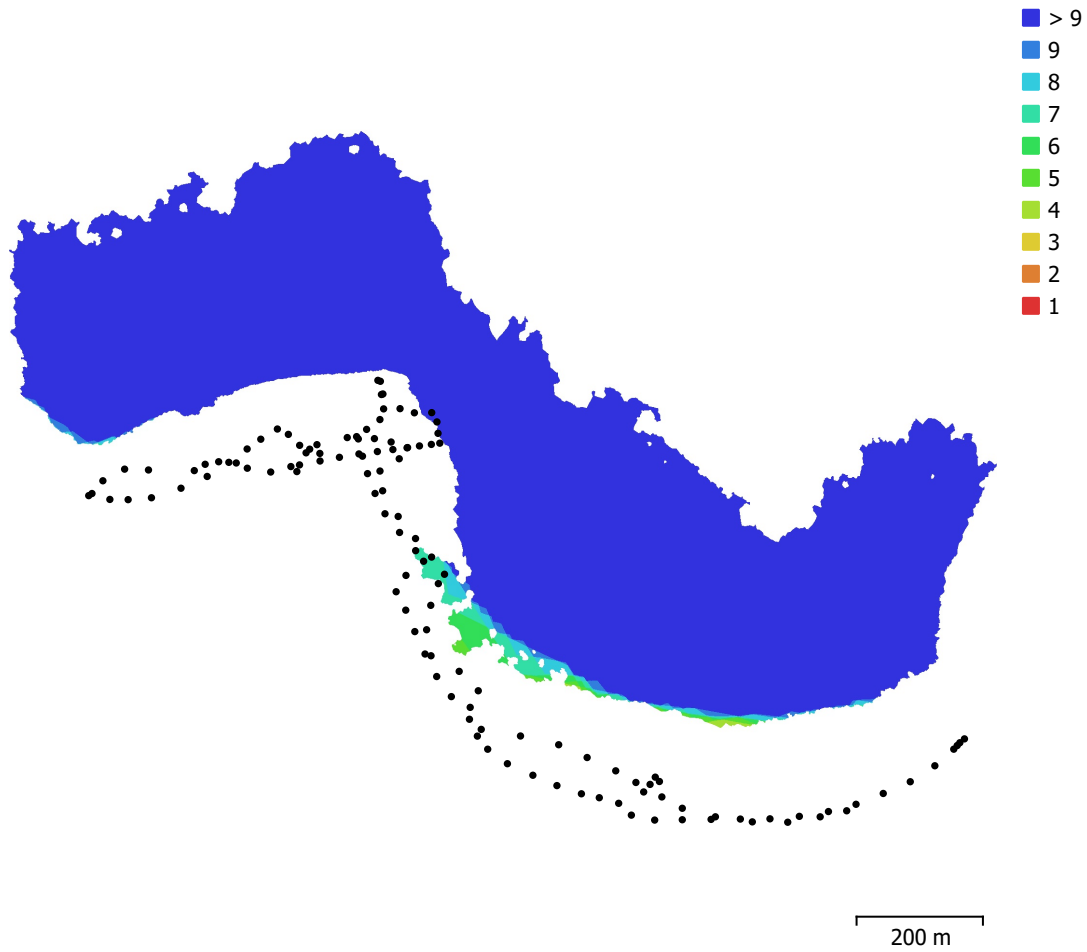


Fig. 1. Camera locations and image overlap.

Number of images:	126	Camera stations:	126
Flying altitude:	235 m	Tie points:	89,347
Ground resolution:	0.0722 m/pix	Projections:	325,895
Coverage area:	5.65e+05 m ²	Reprojection error:	0.316 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
L2D-20c (12.29mm)	5280 x 3956	12.29 mm	3.36 x 3.36 μm	No

Table 1. Cameras.

Camera Calibration

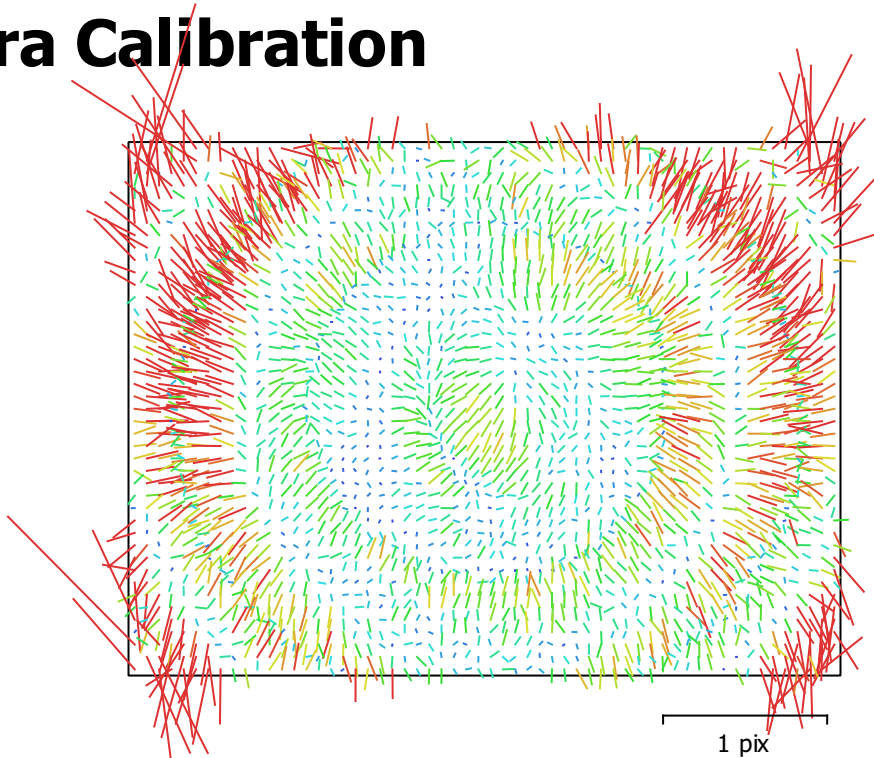


Fig. 2. Image residuals for L2D-20c (12.29mm).

L2D-20c (12.29mm)

126 images

Type	Resolution	Focal Length	Pixel Size
Frame	5280 x 3956	12.29 mm	3.36 x 3.36 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	3713.01	0.085	1.00	0.04	-0.47	0.10	0.07	-0.03	0.05	-0.40
Cx	10.3229	0.14		1.00	-0.02	0.01	-0.01	0.02	0.97	-0.02
Cy	-18.7972	0.15			1.00	-0.11	0.03	-0.04	-0.03	0.96
K1	0.0254957	4.8e-05				1.00	-0.94	0.88	0.01	-0.10
K2	-0.0799623	0.00018					1.00	-0.98	-0.01	0.02
K3	0.10488	0.0002						1.00	0.02	-0.03
P1	0.000314314	1e-05							1.00	-0.02
P2	-0.00113734	9.8e-06								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

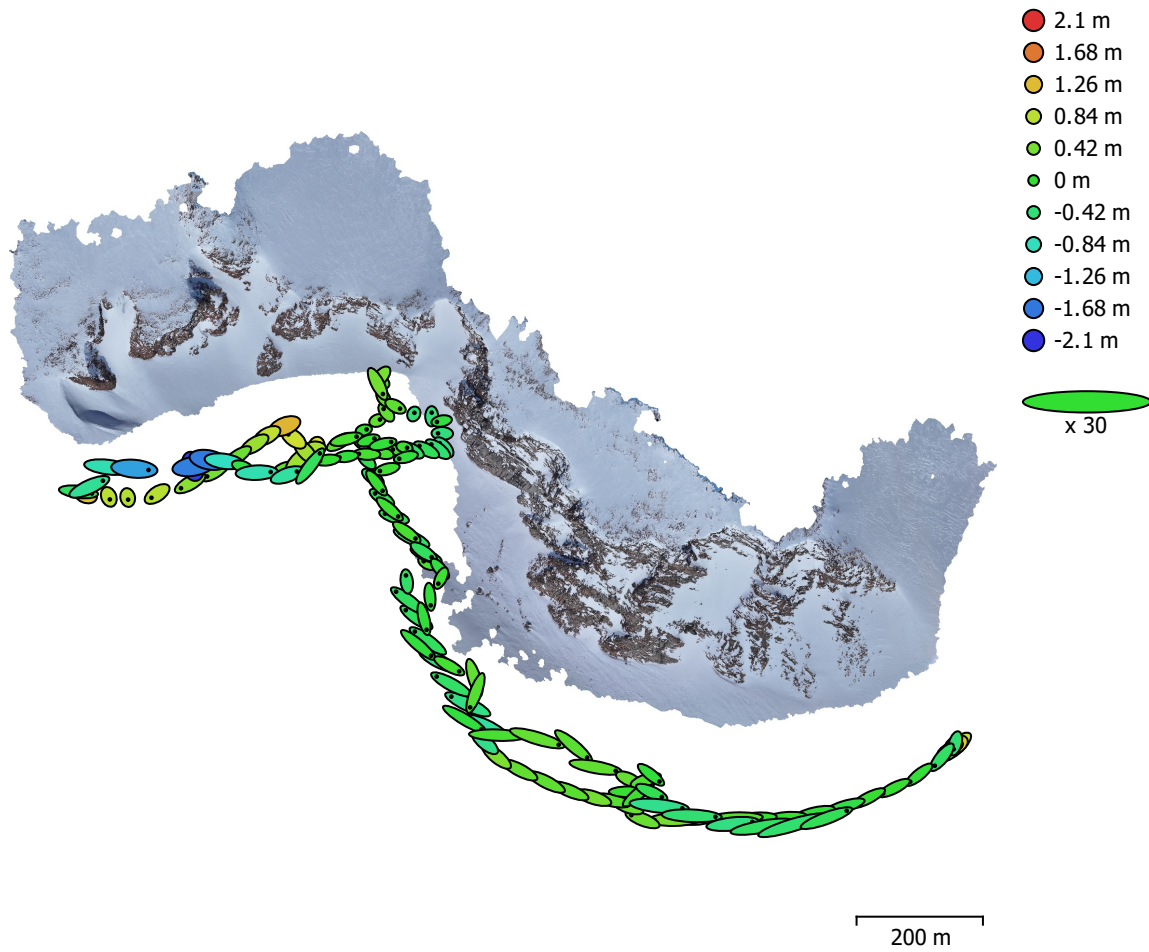


Fig. 3. Camera locations and error estimates.

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)
1.15404	0.558648	0.520936	1.28215	1.38393

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

Digital Elevation Model

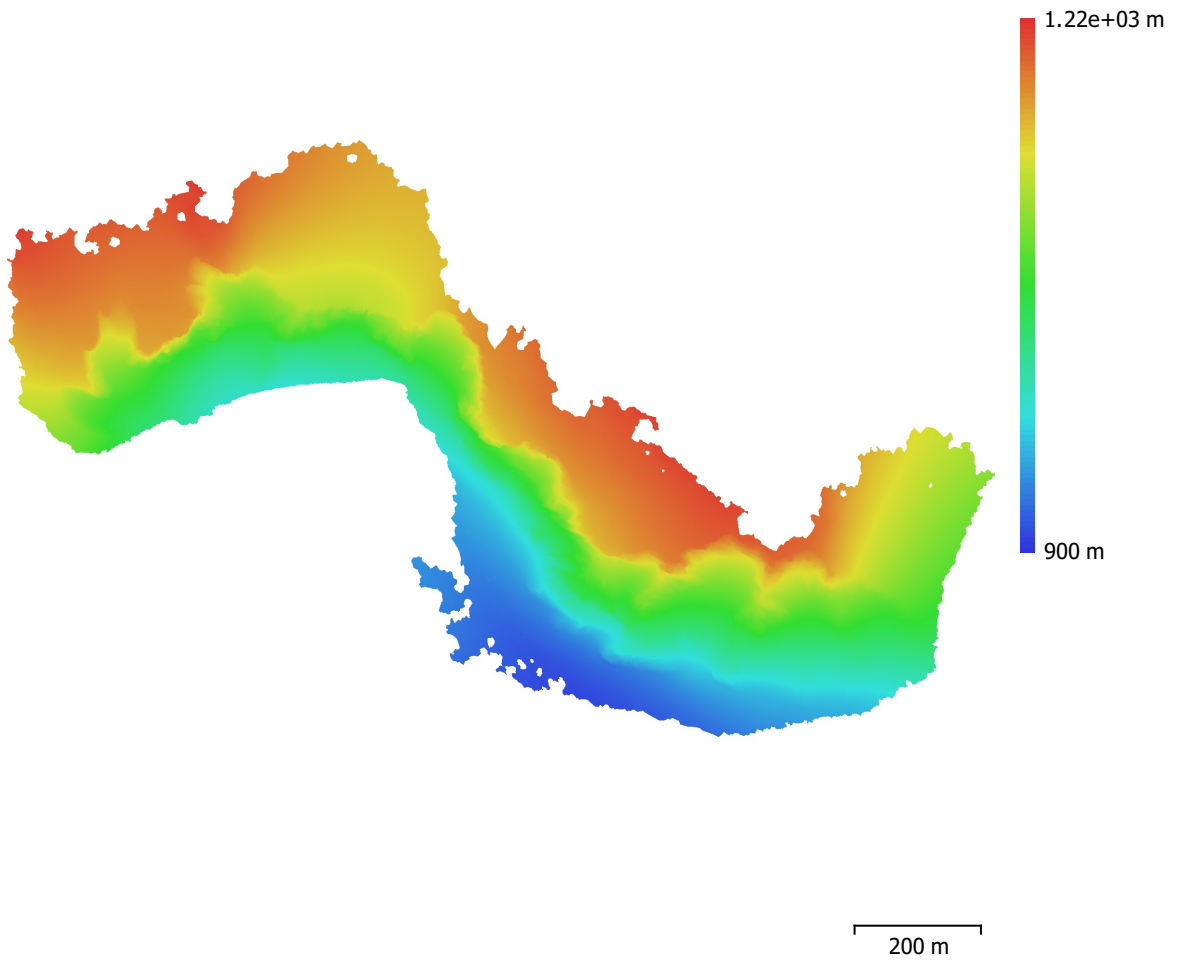


Fig. 4. Reconstructed digital elevation model.

Resolution: 0.144 m/pix
Point density: 47.9 points/m²

Processing Parameters

General

Cameras	126
Aligned cameras	126
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

Tie Points

Points	89,347 of 649,188
RMS reprojection error	0.140472 (0.31555 pix)
Max reprojection error	0.575282 (2.24634 pix)
Mean key point size	2.20913 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	4.64833

Alignment parameters

Accuracy	High
Generic preselection	Yes
Reference preselection	Source
Key point limit	60,000
Key point limit per Mpx	1,000
Tie point limit	0
Exclude stationary tie points	Yes
Guided image matching	No
Adaptive camera model fitting	No
Matching time	11 seconds
Matching memory usage	1020.58 MB
Alignment time	21 seconds
Alignment memory usage	428.01 MB

Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	4 seconds
Date created	2024:05:07 12:38:27
Software version	2.1.0.17532
File size	49.96 MB

Depth Maps

Count	126
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Max neighbors	16
Processing time	0 seconds
Memory usage	3.99 GB
Date created	2024:05:07 14:16:29
Software version	2.1.0.17532
File size	908.26 MB

Point Cloud

Points	44,131,235
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Point attributes

Color	3 bands, uint8
Normal	

Confidence	1 - 54
Point classes	
Created (never classified)	35,688,879
Low Point (noise)	8,442,356
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Max neighbors	16
Processing time	0 seconds
Memory usage	3.99 GB
Point cloud generation parameters	
Processing time	37 seconds
Memory usage	8.26 GB
Date created	2024:05:07 14:32:10
Software version	2.1.0.17532
File size	631.74 MB
Model	
Faces	7,398,399
Vertices	3,701,288
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	16
Processing time	0 seconds
Memory usage	3.99 GB
Point cloud generation parameters	
Processing time	37 seconds
Memory usage	8.26 GB
Reconstruction parameters	
Surface type	Arbitrary
Source data	Point cloud
Interpolation	Disabled
Strict volumetric masks	No
Processing time	20 seconds
Memory usage	10.60 GB
Texturing parameters	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	4,096
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	1 minutes 5 seconds
UV mapping memory usage	3.42 GB
Blending time	2 minutes 52 seconds
Blending memory usage	5.98 GB
Blending GPU memory usage	4.63 GB
Date created	2024:05:13 11:27:15
Software version	2.1.0.17532
File size	543.86 MB
Tiled Model	
Texture	3 bands, uint8
Reconstruction parameters	
Source data	Model
Tile size	256

Face count	Medium
Enable ghosting filter	No
Processing time	15 seconds
Memory usage	3.24 GB
Date created	2024:05:13 18:03:18
Software version	2.1.0.17532
File size	197.17 MB

Additional Parameters

Sparse cloud reconstruction uncertainty	13.7
Sparse cloud projection accuracy	2.7
Sparse cloud reprojection error	0.3
Point cloud confidence (minimum threshold)	4-255
Mesh connected components	99

System

Software name	Agisoft Metashape Professional
Software version	2.1.0 build 17532
OS	Windows 64 bit
RAM	127.71 GB
CPU	Intel(R) Xeon(R) Gold 5122 CPU @ 3.60GHz
GPU(s)	Quadro P5000