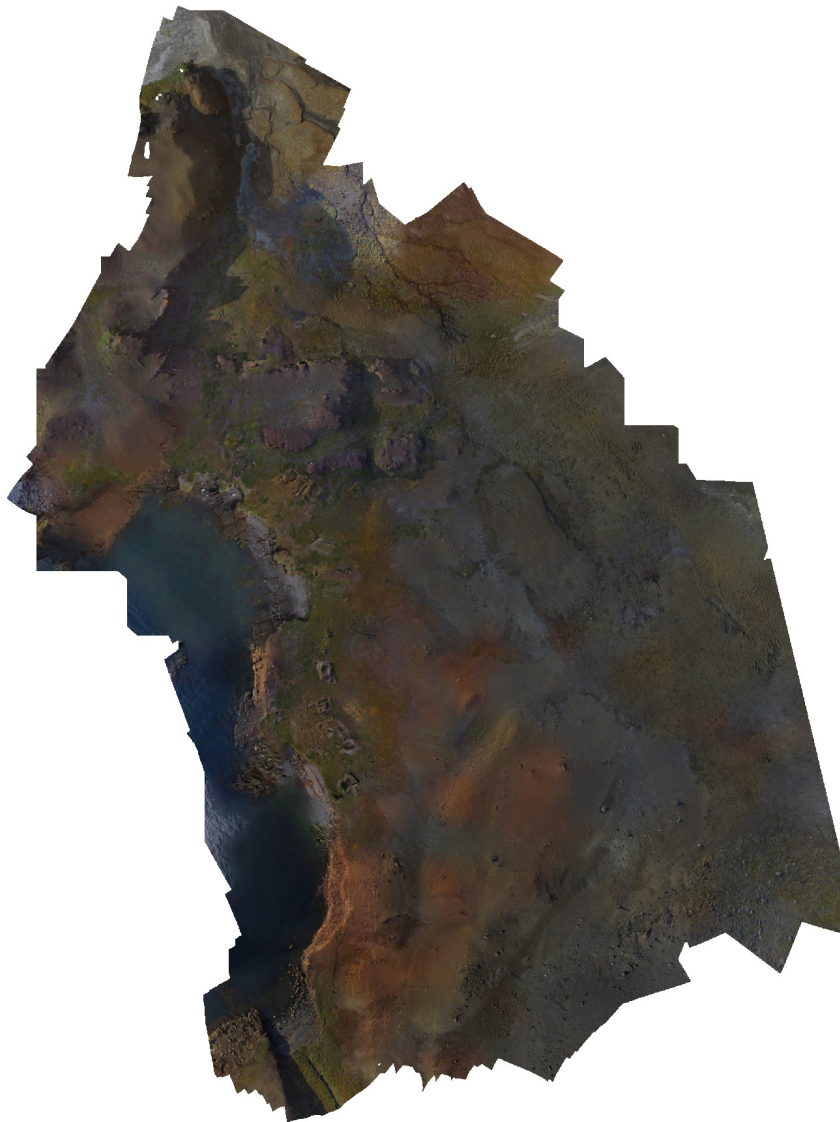


Nuusaq

Processing Report

22 Mai 2023



Survey Data

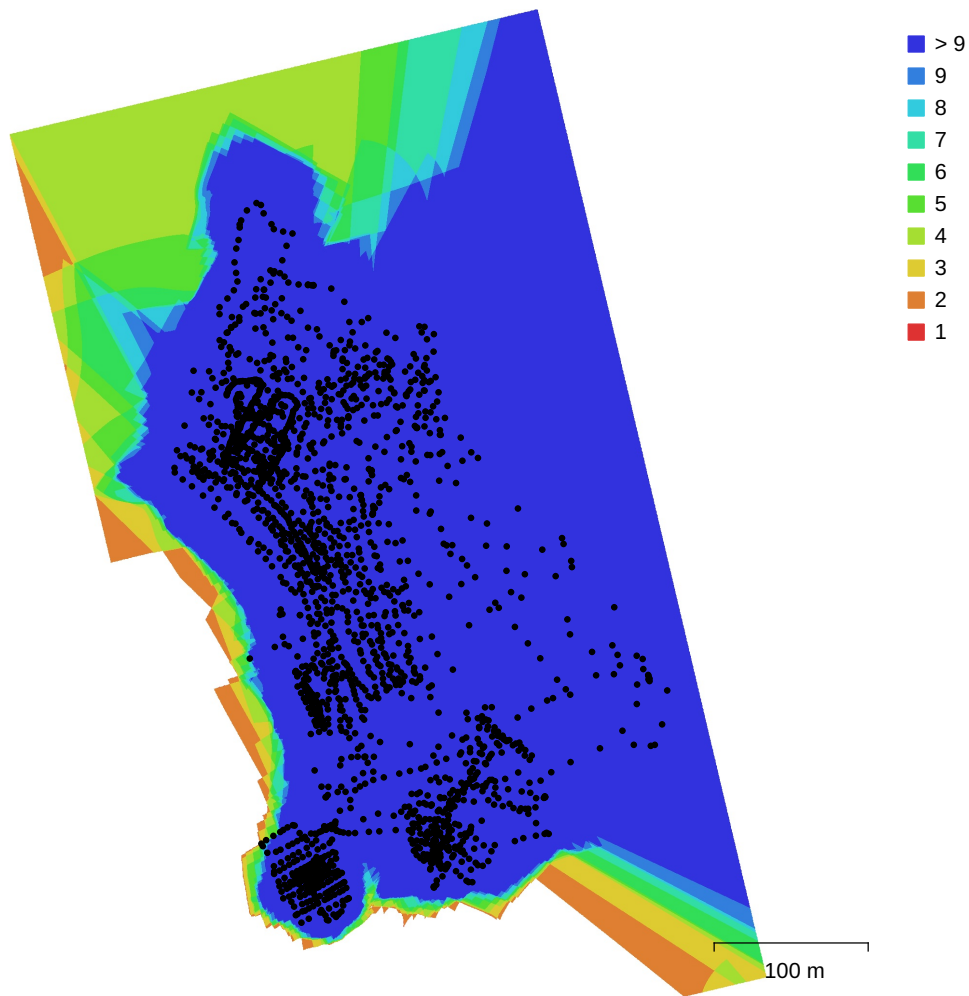


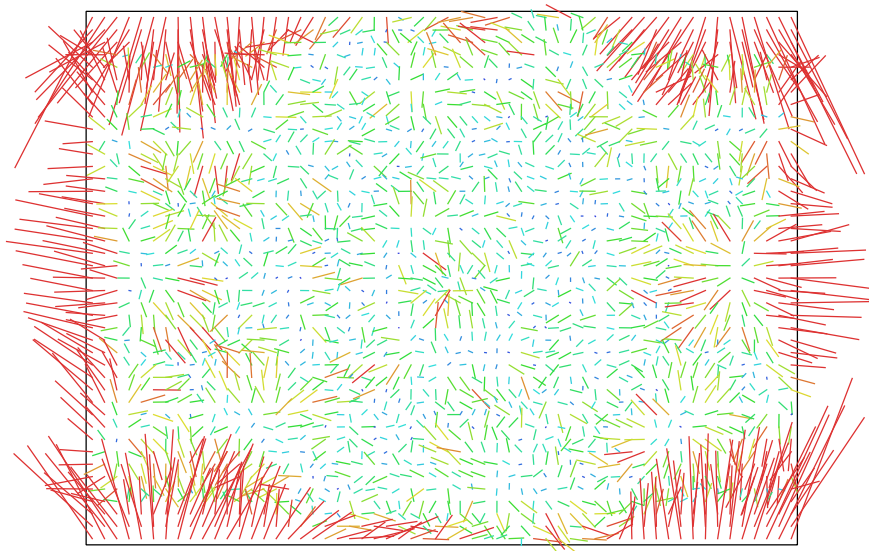
Fig. 1. Camera locations and image overlap.

Number of images:	2,146	Camera stations:	2,143
Flying altitude:	36 m	Tie points:	4,157,258
Ground resolution:	1.21 cm/pix	Projections:	10,082,308
Coverage area:	0.19 km ²	Reprojection error:	0.322 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
FC300C (3.61mm)	4000 x 3000	3.61 mm	1.56 x 1.56 μ m	No

Table 1. Cameras.

Camera Calibration



0.442733 pix

Fig. 2. Image residuals for FC300C (3.61mm).

FC300C (3.61mm)

2146 images

Type	Resolution	Focal Length	Pixel Size
Frame	4000 x 3000	3.61 mm	1.56 x 1.56 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	K4	P1	P2
F	2707.11	0.13	1.00	-0.04	-0.17	-0.96	0.95	-0.93	0.91	-0.04	0.02
Cx	20.1672	0.024		1.00	0.00	0.04	-0.04	0.05	-0.05	0.94	-0.02
Cy	13.7724	0.023			1.00	0.06	-0.07	0.07	-0.07	0.01	0.74
K1	-0.121527	0.00031				1.00	-1.00	0.98	-0.97	0.04	0.01
K2	0.0910921	0.00079					1.00	-1.00	0.98	-0.05	-0.01
K3	-0.00258443	0.00088						1.00	-1.00	0.05	0.01
K4	-0.00150293	0.00036							1.00	-0.05	-0.02
P1	4.81168e-06	5.1e-06								1.00	-0.01
P2	0.000248422	4.1e-06									1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points

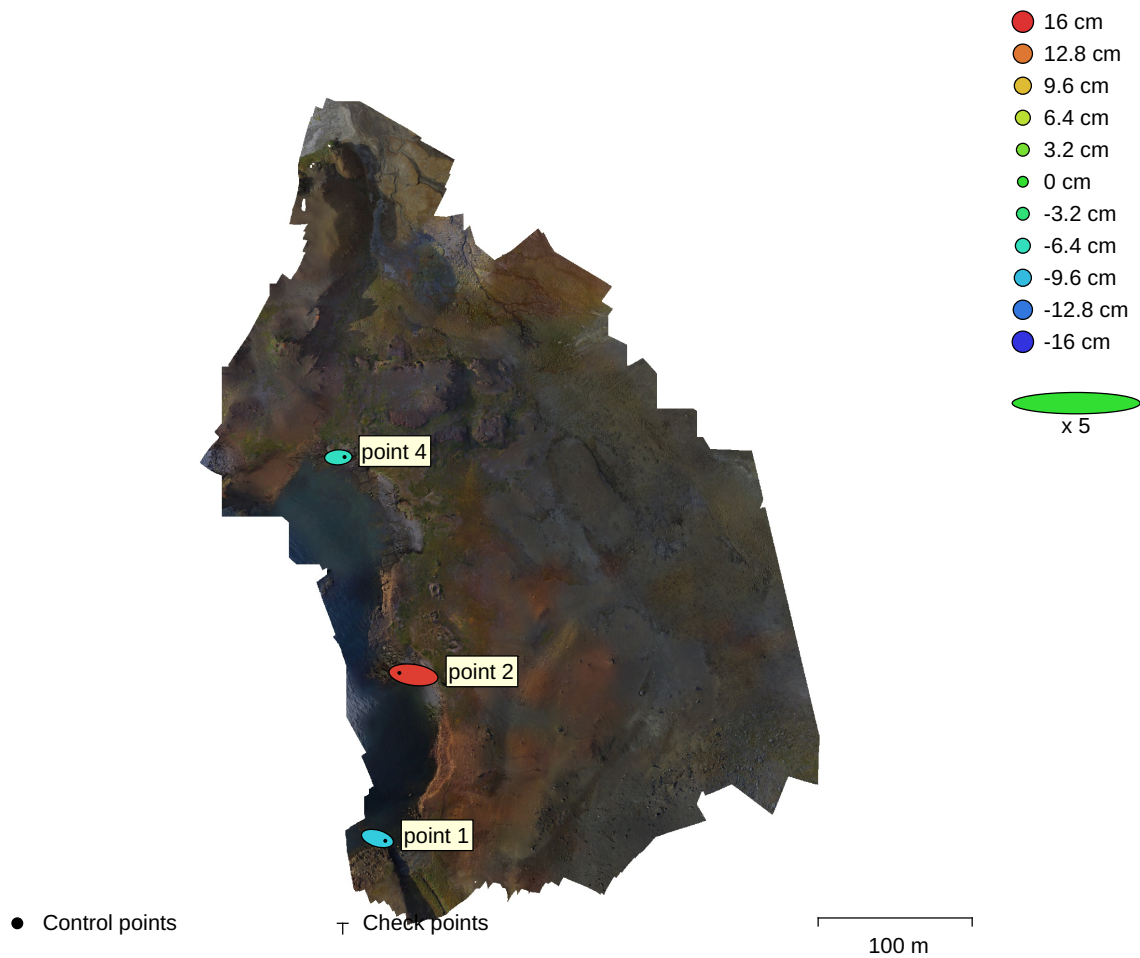


Fig. 3. GCP locations and error estimates.

Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
 Estimated GCP locations are marked with a dot or crossing.

Count	X error (m)	Y error (m)	Z error (m)	XY error (m)	Total (m)
3	2.58808	0.45996	0.109565	2.62863	2.63091

Table 3. Control points RMSE.

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

Label	X error (m)	Y error (m)	Z error (m)	Total (m)	Image (pix)
point 1	2.043	-0.598139	-0.0881519	2.13058	0.027 (26)
point 2	-3.65148	0.520461	0.154433	3.69162	0.056 (48)
point 4	1.60849	0.0777116	-0.0662812	1.61173	0.101 (168)
Total	2.58808	0.45996	0.109565	2.63091	0.088

Table 4. Control points.
X - Longitude, Y - Latitude, Z - Altitude.

Digital Elevation Model

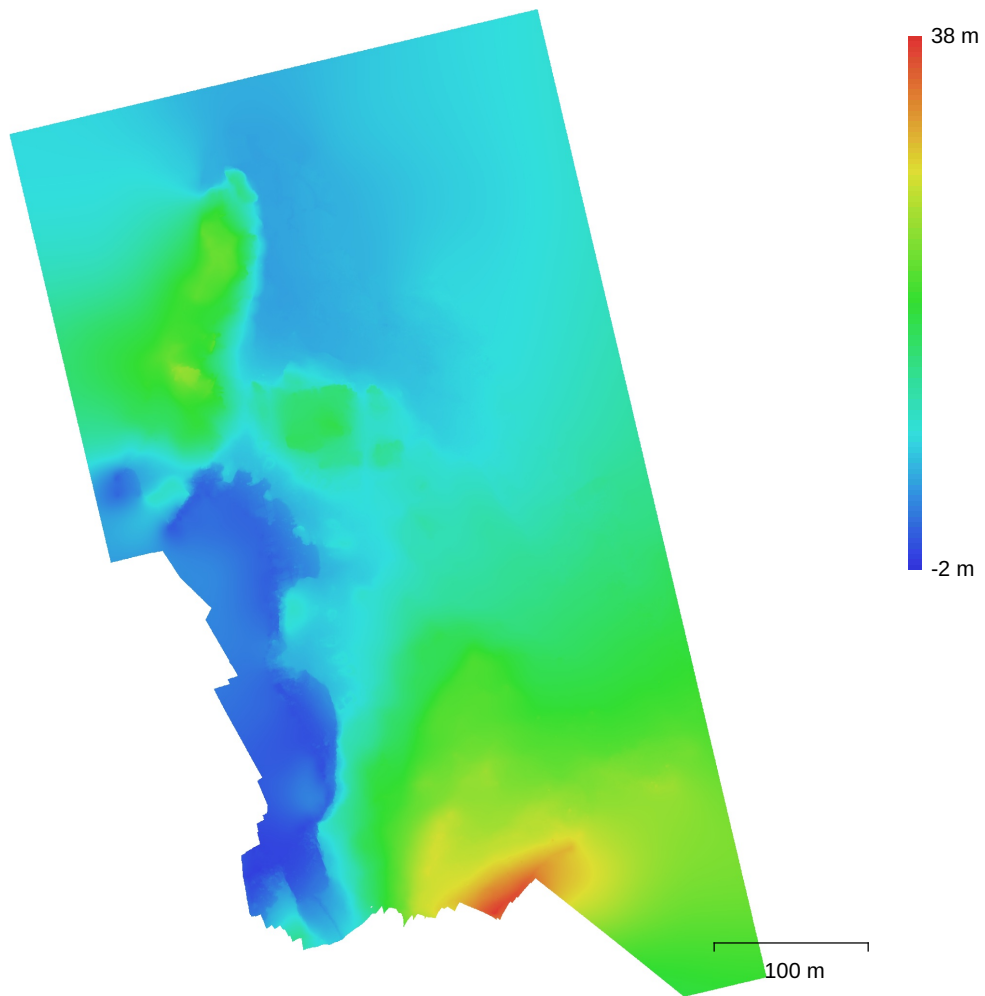


Fig. 4. Reconstructed digital elevation model.

Resolution: 2.43 cm/pix
Point density: 0.169 points/cm²

Processing Parameters

General

Cameras	2146
Aligned cameras	2143
Markers	3
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	4,157,258 of 10,988,153
RMS reprojection error	0.117947 (0.32209 pix)
Max reprojection error	0.863823 (6.5434 pix)
Mean key point size	2.64326 pix
Point colors	3 bands, uint8
Key points	9.75 GB
Average tie point multiplicity	4.9623

Alignment parameters

Accuracy	High
Generic preselection	No
Reference preselection	No
Key point limit	60,000
Tie point limit	0
Adaptive camera model fitting	No
Matching time	5 days 0 hours
Alignment time	3 hours 2 minutes

Optimization parameters

Parameters	f, cx, cy, k1-k4, p1, p2
Fit additional corrections	Yes
Adaptive camera model fitting	No
Optimization time	5 minutes 51 seconds
File size	1.14 GB

Depth Maps

Count	2139
-------	------

Depth maps generation parameters

Quality	High
Filtering mode	Mild
Processing time	4 hours 27 minutes
Memory usage	7.90 GB
Software version	1.7.1.11797
File size	9.69 GB

Dense Point Cloud

Points	175,376,265
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	High
Filtering mode	Mild
Processing time	4 hours 27 minutes
Memory usage	7.90 GB

Dense cloud generation parameters

Processing time	7 hours 25 minutes
Memory usage	25.93 GB
Software version	1.7.1.11797
File size	2.60 GB

DEM

Size 20,246 x 29,256
Coordinate system WGS 84 (EPSG::4326)

Reconstruction parameters

Source data Dense cloud
Interpolation Enabled
Processing time 25 minutes 42 seconds
Memory usage 0 B
Software version 1.7.1.11797
File size 1.40 GB

Orthomosaic

Size 40,443 x 52,744
Coordinate system WGS 84 (EPSG::4326)
Colors 3 bands, uint8

Reconstruction parameters

Blending mode Mosaic
Surface DEM
Enable hole filling Yes
Enable ghosting filter No
Processing time 26 minutes 7 seconds
Memory usage 5.95 GB
Software version 1.7.1.11797
File size 29.86 GB

System

Software name Agisoft Metashape Professional
Software version 1.7.1 build 11797
OS Linux 64 bit
RAM 125.62 GB
CPU Intel(R) Core(TM) i7-9800X CPU @ 3.80GHz
GPU(s) Quadro P1000