

Reykjanes 13. Febrúar

Processing Report
15 February 2024



Survey Data

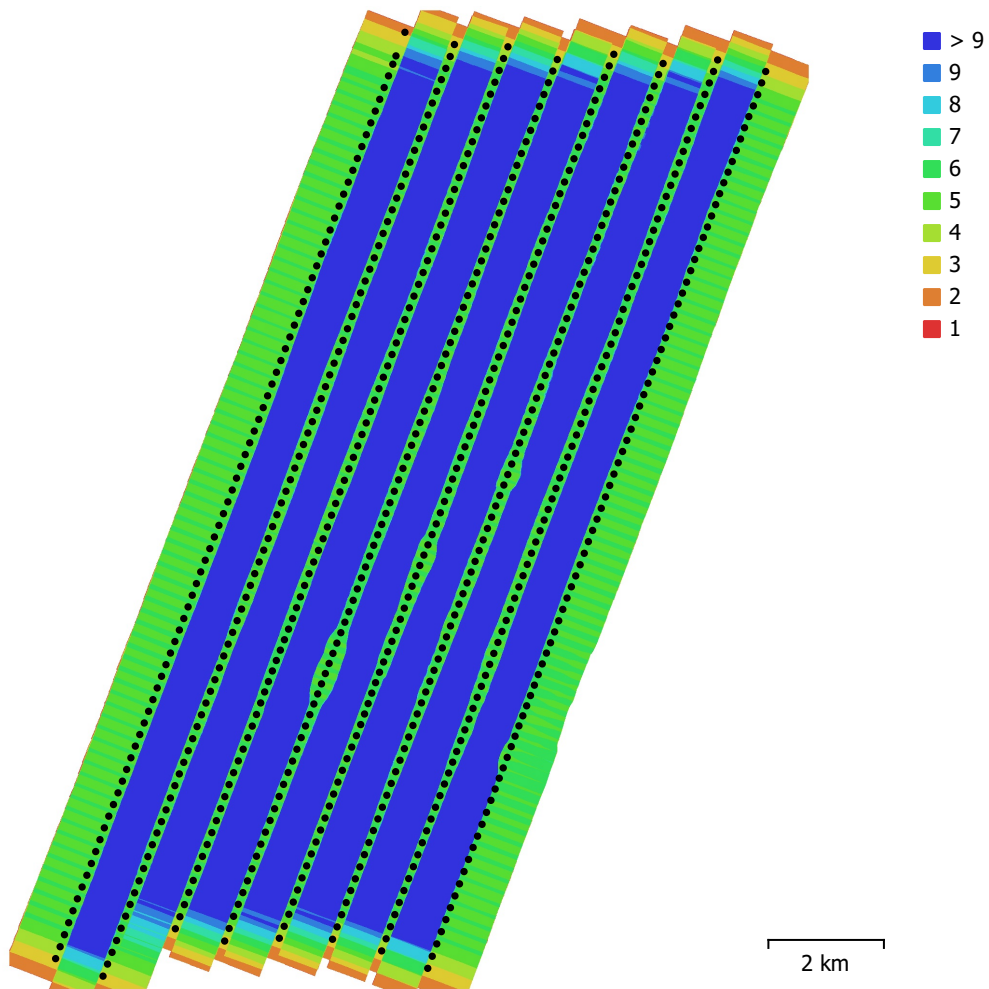


Fig. 1. Camera locations and image overlap.

Number of images:	632	Camera stations:	632
Flying altitude:	1.3 km	Tie points:	9,861,148
Ground resolution:	13.1 cm/pix	Projections:	40,942,617
Coverage area:	133 km ²	Reprojection error:	0.168 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
iXM-100, Phase One RSM...	11664 x 8750	35 mm	3.76 x 3.76 μ m	No

Table 1. Cameras.

Camera Calibration

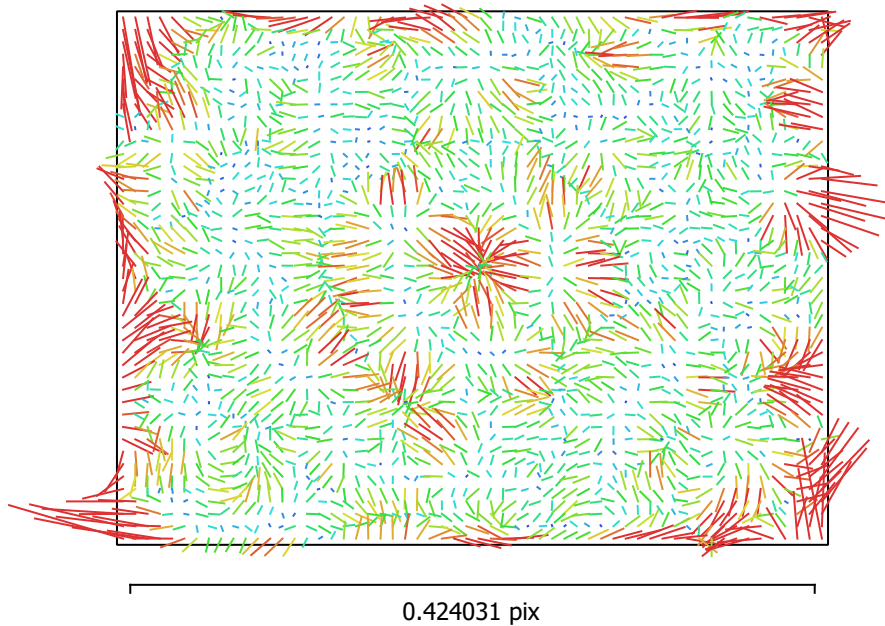


Fig. 2. Image residuals for iXM-100, Phase One RSM 35mm f/5.6 (35mm).

iXM-100, Phase One RSM 35mm f/5.6 (35mm)

632 images, additional corrections

Type	Resolution	Focal Length	Pixel Size
Frame	11664 x 8750	35 mm	3.76 x 3.76 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	9524.38	0.071	1.00	-0.03	-0.06	-0.10	0.02	-0.07	0.01	0.02
Cx	7.75767	0.0092		1.00	-0.00	-0.02	0.03	-0.02	0.97	-0.01
Cy	3.45858	0.008			1.00	-0.01	0.01	-0.01	-0.01	0.98
K1	0.0172931	7.7e-06				1.00	-0.99	0.97	-0.01	-0.00
K2	-0.0717497	2e-05					1.00	-0.99	0.01	0.00
K3	0.0192933	1.6e-05						1.00	-0.01	-0.00
P1	-4.51624e-06	4.4e-07							1.00	-0.01
P2	-8.26431e-05	4e-07								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

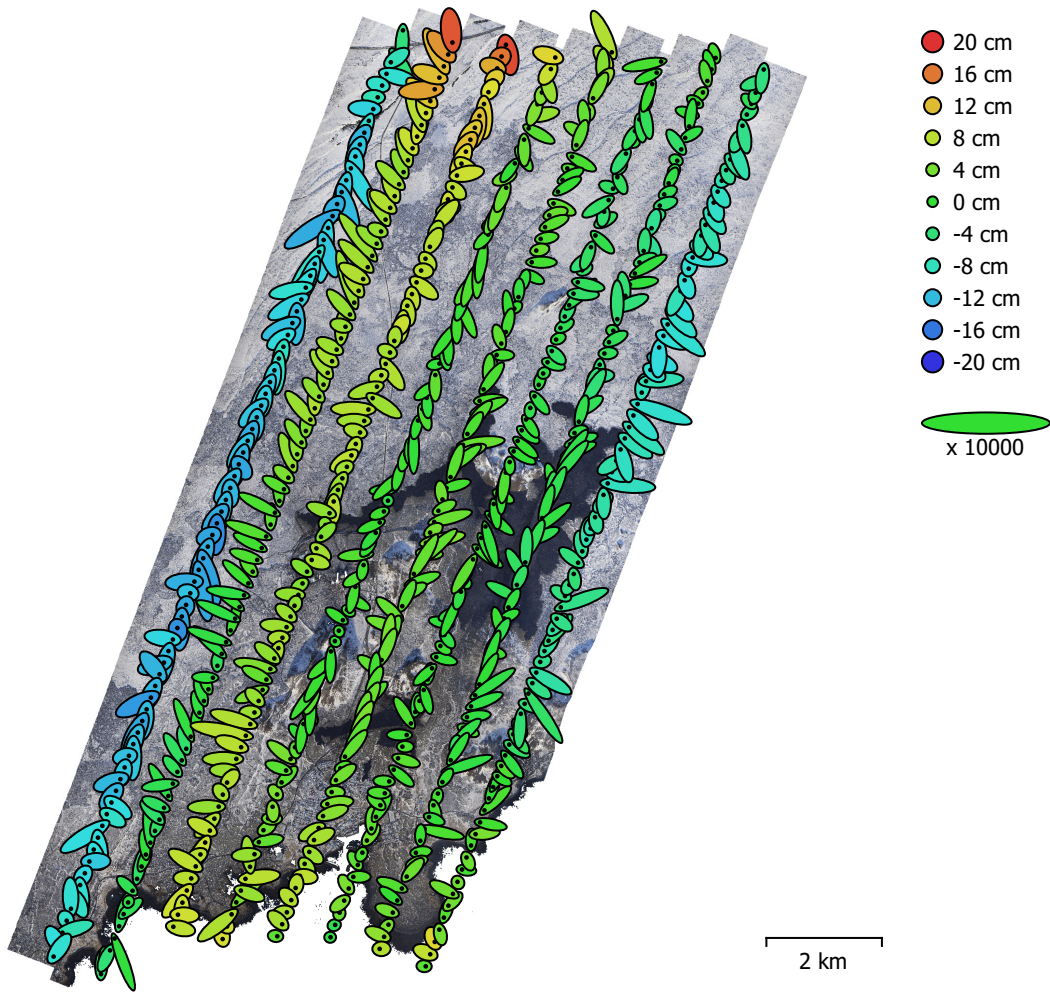


Fig. 3. Camera locations and error estimates.

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)
2.37468	2.71834	6.09912	3.6095	7.08715

Table 3. Average camera location error.

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

Ground Control Points

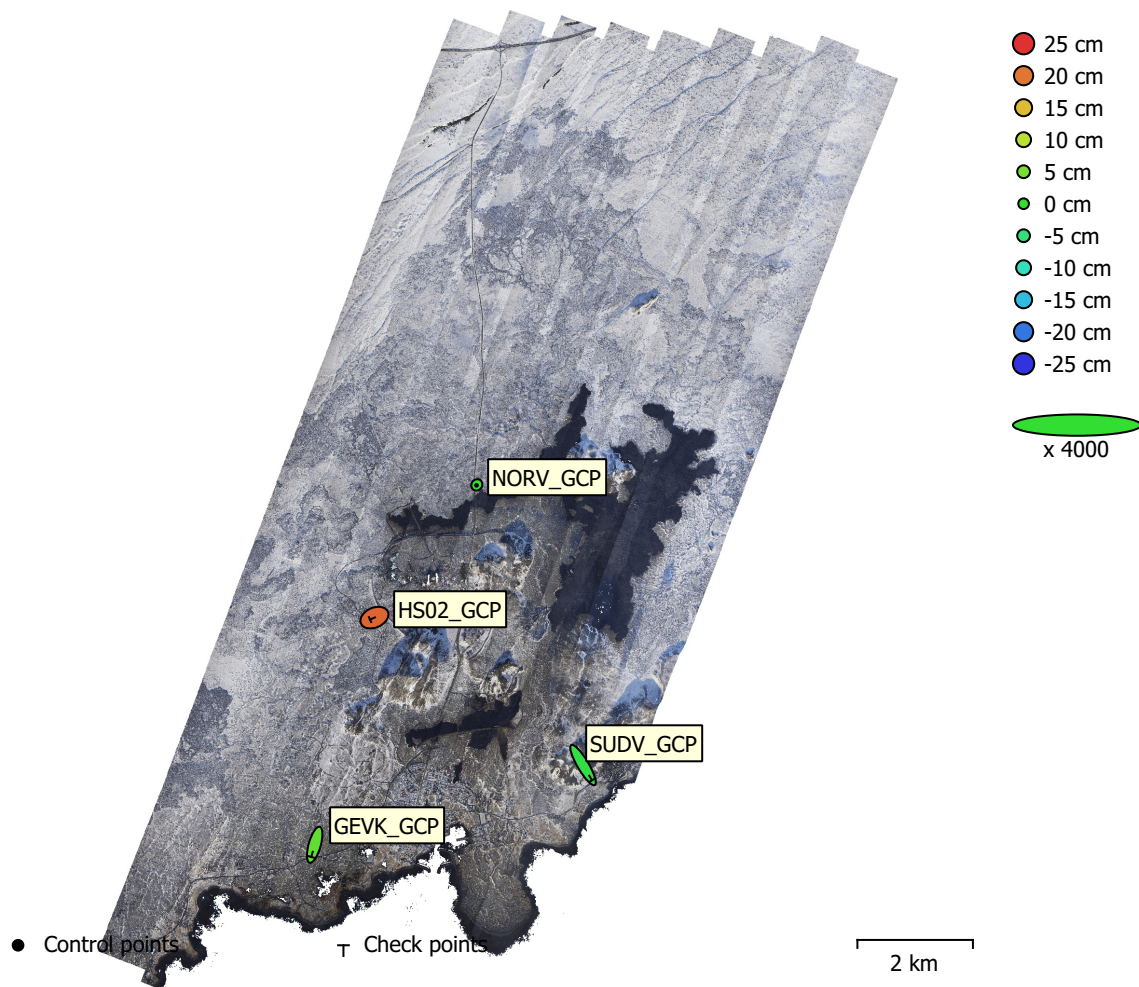


Fig. 4. GCP locations and error estimates.

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 (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
1	0.275476	0.386486	0.0926678	0.474614	0.483576

Table 4. Control points RMSE.

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

Count	X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
3	5.27631	9.79382	12.454	11.1247	16.6991

Table 5. Check points RMSE.

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

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
NORV_GCP	-0.275476	-0.386486	0.0926678	0.483576	0.757 (10)
Total	0.275476	0.386486	0.0926678	0.483576	0.757

Table 6. Control points.
X - Easting, Y - Northing, Z - Altitude.

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
GEVK_GCP	-2.9669	-10.5386	3.33379	11.4446	0.199 (11)
HS02_GCP	-3.7947	-1.69842	21.2749	21.6773	0.485 (11)
SUDV_GCP	7.76634	-13.1837	-1.25394	15.3524	0.240 (5)
Total	5.27631	9.79382	12.454	16.6991	0.351

Table 7. Check points.
X - Easting, Y - Northing, Z - Altitude.

Digital Elevation Model

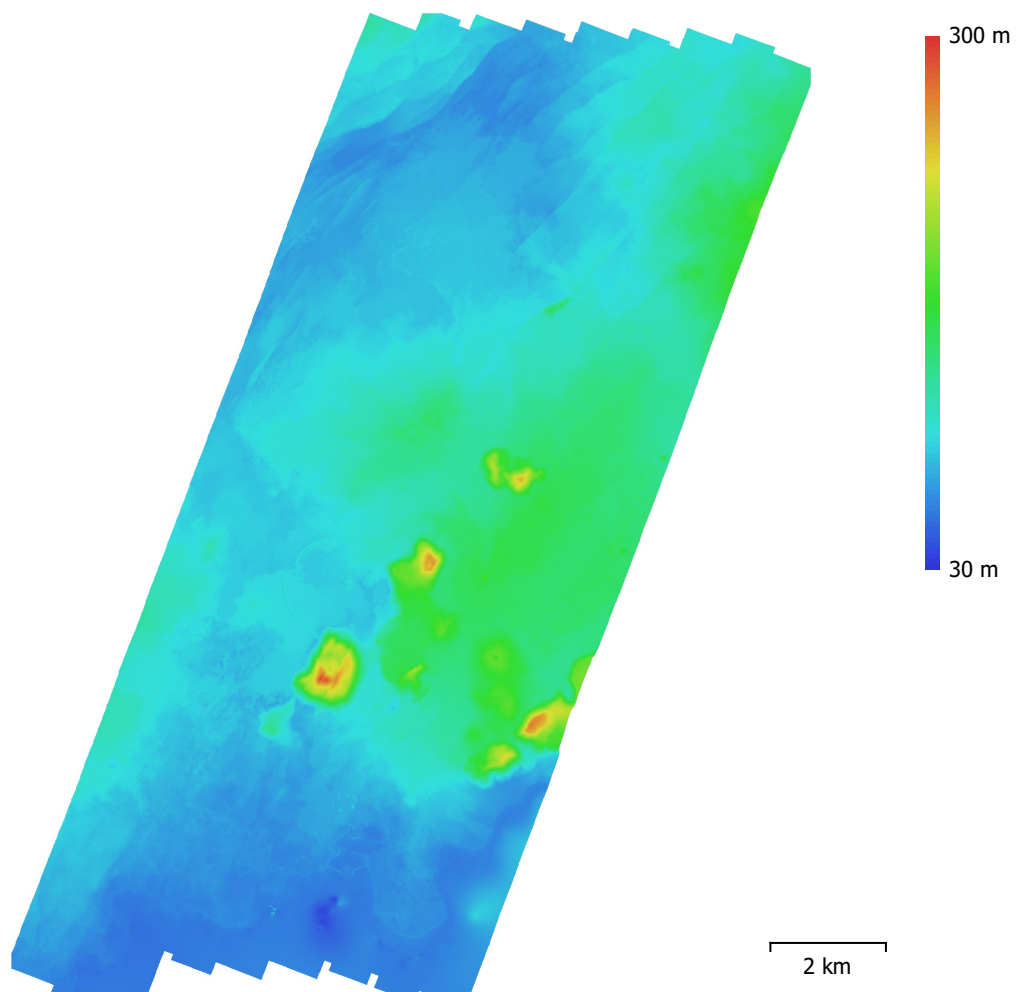


Fig. 5. Reconstructed digital elevation model.

Resolution: 26.2 cm/pix
Point density: 14.6 points/m²

Processing Parameters

General

Cameras	632
Aligned cameras	632
Markers	4
Coordinate system	ISN2016 / Lambert 2016 (EPSG::8088)
Rotation angles	Yaw, Pitch, Roll

Tie Points

Points	9,861,148 of 64,560,758
RMS reprojection error	0.0826857 (0.168361 pix)
Max reprojection error	0.290247 (0.653297 pix)
Mean key point size	2.02566 pix
Point colors	3 bands, uint8
Key points	32.25 GB
Average tie point multiplicity	4.42563

Alignment parameters

Accuracy	High
Generic preselection	Yes
Reference preselection	Source
Key point limit	100,000
Key point limit per Mpx	60,000
Tie point limit	0
Exclude stationary tie points	No
Guided image matching	Yes
Adaptive camera model fitting	No
Matching time	2 hours 31 minutes
Matching memory usage	20.05 GB
Alignment time	3 hours 9 minutes
Alignment memory usage	100.25 GB

Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Fit additional corrections	Yes
Adaptive camera model fitting	No
Optimization time	6 minutes 15 seconds
Date created	2024:02:14 18:26:32
Software version	2.1.0.17530
File size	13.17 GB

Depth Maps

Count	632
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Depth maps generation parameters

Quality	High
Filtering mode	Moderate
Max neighbors	16
Processing time	4 hours 24 minutes
Memory usage	22.59 GB
Date created	2024:02:15 03:15:40
Software version	2.1.0.17530
File size	19.00 GB

Point Cloud

Points	1,830,325,670
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Point attributes

Color	3 bands, uint8
Normal	
Confidence	1 - 13
Point classes	
Created (never classified)	1,830,325,670
Depth maps generation parameters	
Quality	High
Filtering mode	Moderate
Max neighbors	16
Processing time	4 hours 24 minutes
Memory usage	22.59 GB
Point cloud generation parameters	
Processing time	3 hours 55 minutes
Memory usage	23.52 GB
Date created	2024:02:15 07:11:03
Software version	2.1.0.17530
File size	26.55 GB
DEM	
Size	52,828 x 64,679
Coordinate system	ISN2016 / Lambert 2016 (EPSG::8088)
Reconstruction parameters	
Source data	Point cloud
Interpolation	Enabled
Processing time	19 minutes 40 seconds
Memory usage	16.00 KB
Date created	2024:02:15 09:24:32
Software version	2.1.0.17530
File size	7.75 GB
System	
Software name	Agisoft Metashape Professional
Software version	2.1.0 build 17530
OS	Windows 64 bit
RAM	127.89 GB
CPU	AMD Ryzen Threadripper PRO 5955WX 16-Cores
GPU(s)	NVIDIA RTX A5500