Skansen

Processing Report
28 January 2022

Survey Data

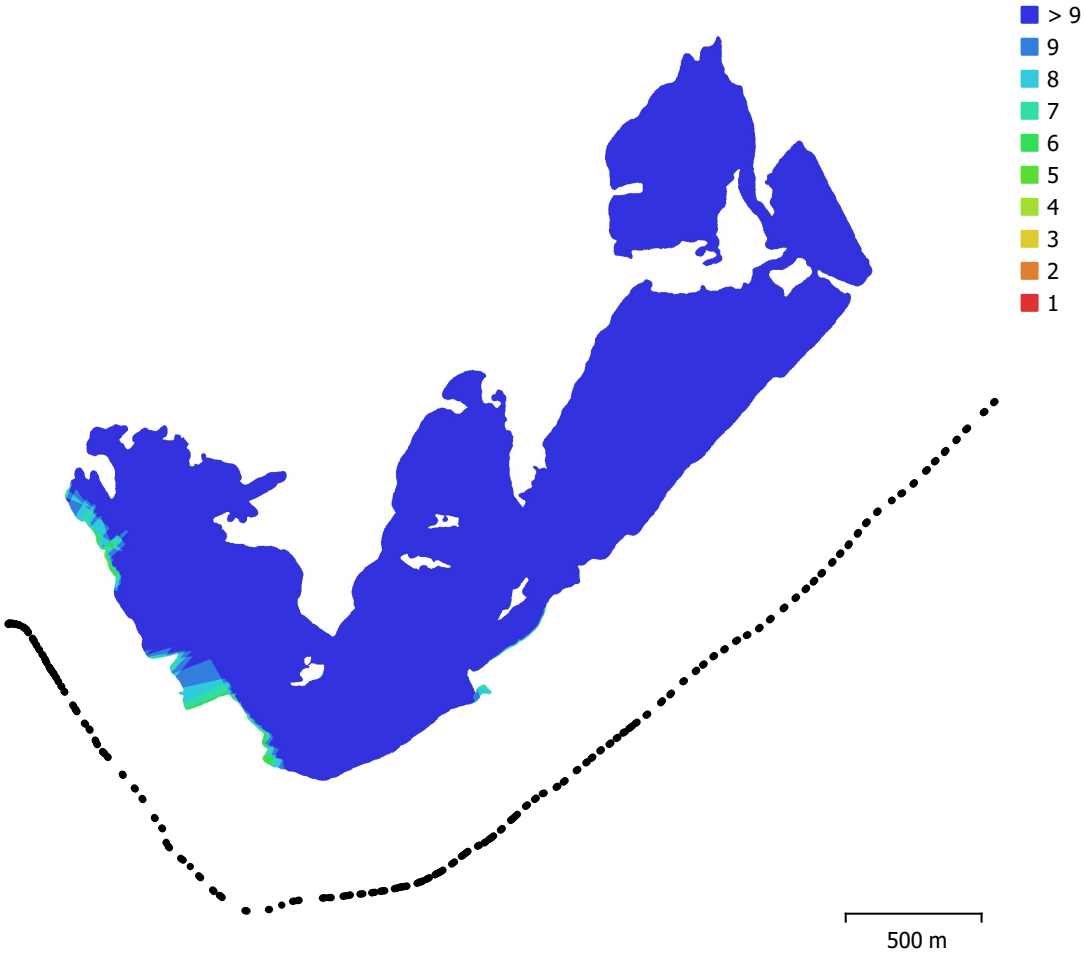

Fig. 1. Camera locations and image overlap.

Number of images:	464	Camera stations:	391
Flying altitude:	705 m	Tie points:	954,475
Ground resolution:	8.11 cm/pix	Projections:	4,699,587
Coverage area:	2.39 km²	Reprojection error:	0.169 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
NIKON D90 (50mm)	4288 x 2848	50 mm	5.6 x 5.6 µm	No

Table 1. Cameras.

Camera Calibration

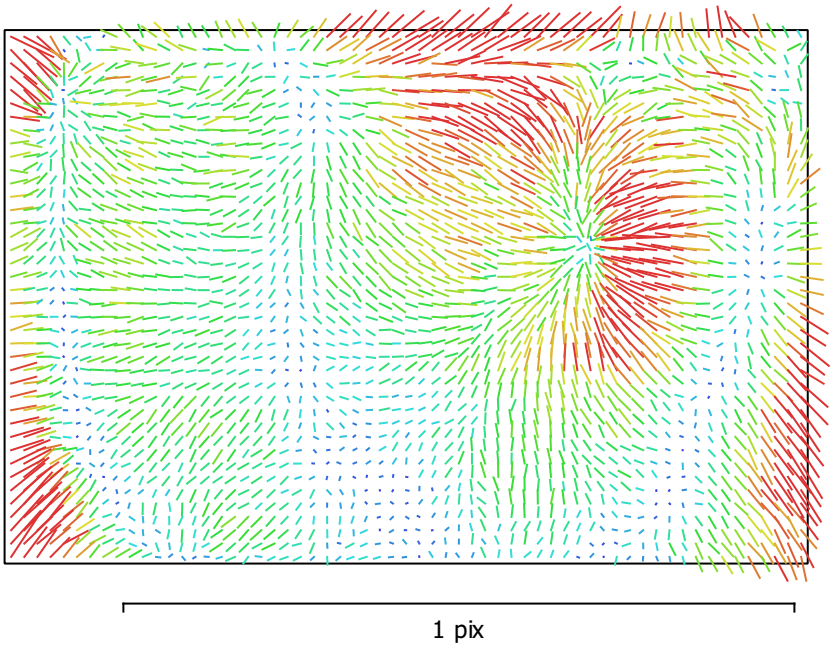

Fig. 2. Image residuals for NIKON D90 (50mm).

NIKON D90 (50mm)

464 images

Type	Resolution	Focal Length	Pixel Size
Frame	**4288 x 2848**	**50 mm**	**5.6 x 5.6 µm**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**9027.4**	0.054	1.00	0.03	-0.16	0.09	0.03	-0.03	0.02	-0.18
Cx	**-39.3627**	0.05		1.00	-0.06	-0.00	0.01	-0.01	0.95	-0.00
Cy	**-19.2511**	0.043			1.00	-0.05	0.01	-0.01	-0.05	0.91
K1	**-0.00123352**	3.2e-05				1.00	-0.96	0.91	0.00	-0.06
K2	**0.0369789**	0.00092					1.00	-0.98	0.00	0.02
K3	**0.0817932**	0.0081						1.00	-0.00	-0.01
P1	**-0.00117973**	1.9e-06							1.00	0.01
P2	**-0.000240186**	1.6e-06								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

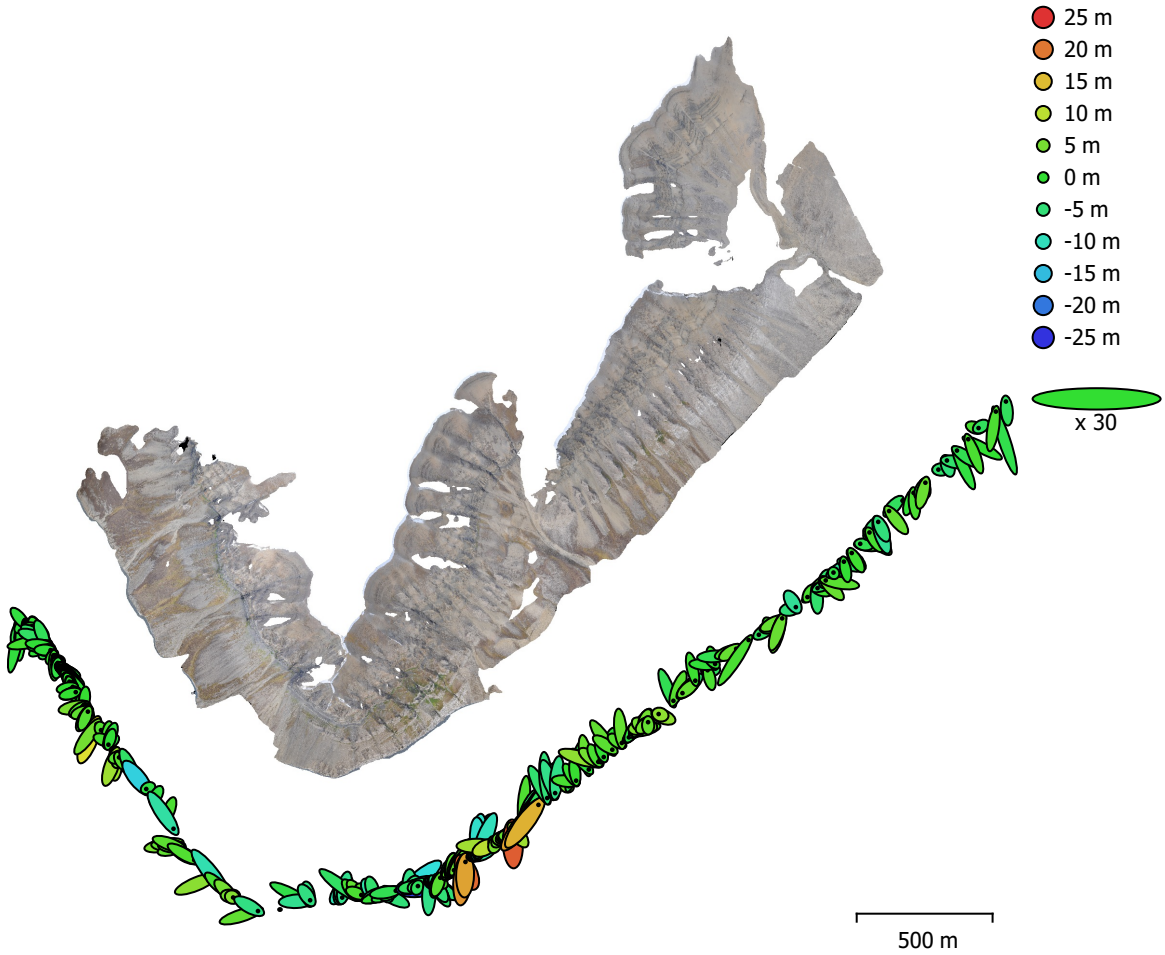

Fig. 3. Camera locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated camera locations are marked with a black dot.

X error (m)	Y error (m)	Z error (m)	XY error (m)	Total error (m)
1.46789	1.86561	4.89725	2.37386	5.44227

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

Digital Elevation Model

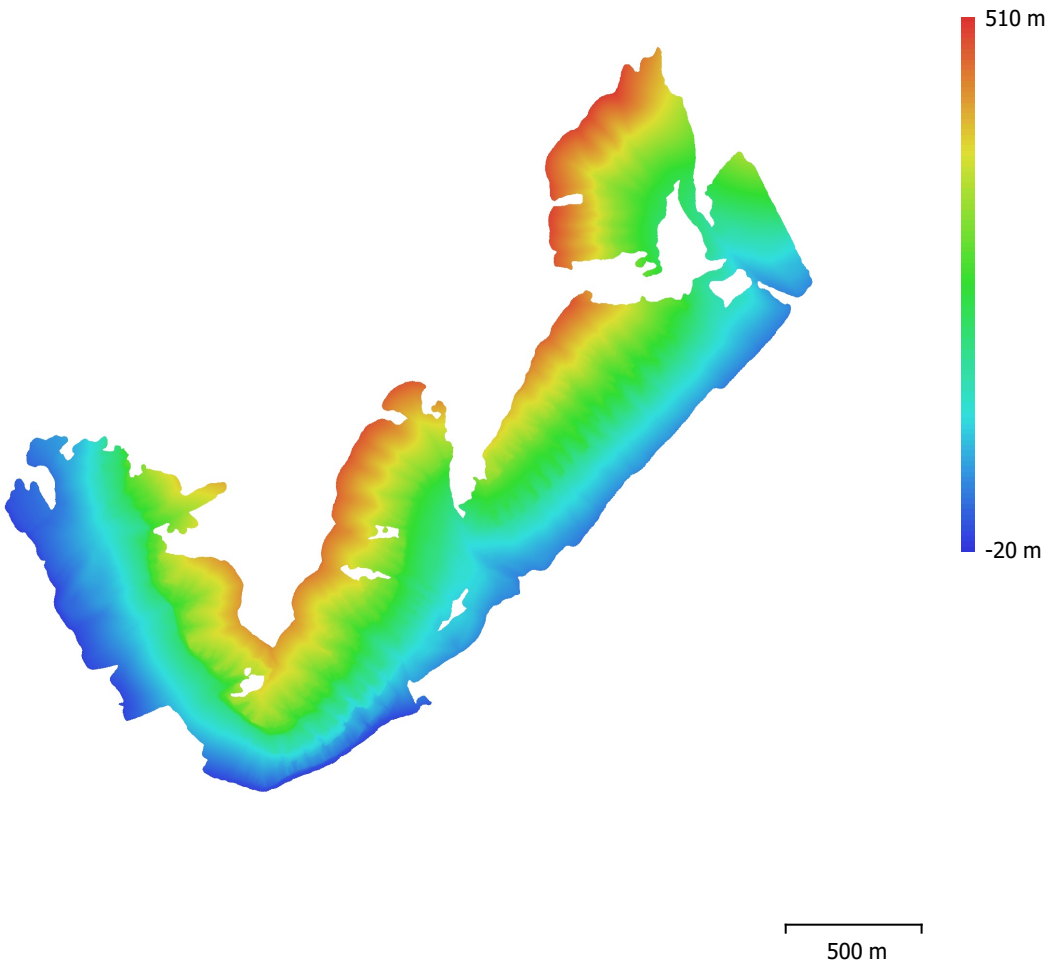

Fig. 4. Reconstructed digital elevation model.

Resolution:	32.5 cm/pix
Point density:	9.49 points/m²

Processing Parameters

General	
Cameras	464
Aligned cameras	391
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll
Point Cloud	
Points	954,475 of 1,898,975
RMS reprojection error	0.120739 (0.169025 pix)
Max reprojection error	0.3 (1.1949 pix)
Mean key point size	1.4233 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	5.39656
Alignment parameters	
Accuracy	Highest
Generic preselection	Yes
Reference preselection	No
Key point limit	60,000
Tie point limit	0
Exclude stationary tie points	Yes
Guided image matching	No
Adaptive camera model fitting	No
Matching time	30 minutes 2 seconds
Matching memory usage	879.07 MB
Alignment time	14 minutes 7 seconds
Alignment memory usage	735.30 MB
Optimization parameters	
Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	34 seconds
Software version	1.7.2.12040
File size	279.27 MB
Depth Maps	
Count	384
Depth maps generation parameters	
Quality	Medium
Filtering mode	Mild
Processing time	12 minutes 23 seconds
Memory usage	761.80 MB
Software version	1.7.2.12040
File size	357.90 MB
Dense Point Cloud	
Points	29,475,556
Point colors	3 bands, uint8
Depth maps generation parameters	
Quality	Medium
Filtering mode	Mild
Processing time	12 minutes 23 seconds
Memory usage	761.80 MB
Dense cloud generation parameters	

Processing time	21 minutes 35 seconds
Memory usage	5.12 GB
Software version	1.7.2.12040
File size	549.93 MB
Model	
Faces	1,883,628
Vertices	951,099
Vertex colors	3 bands, uint8
Texture	4,096 x 4,096 x 10, 4 bands, uint8
Depth maps generation parameters	
Quality	Medium
Filtering mode	Mild
Processing time	12 minutes 23 seconds
Memory usage	761.80 MB
Reconstruction parameters	
Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Enabled
Strict volumetric masks	No
Processing time	12 minutes 30 seconds
Memory usage	15.21 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 10 seconds
UV mapping memory usage	3.15 GB
Blending time	20 minutes 29 seconds
Blending memory usage	4.82 GB
Software version	1.7.2.12040
File size	283.16 MB
Tiled Model	
Texture	3 bands, uint8
Depth maps generation parameters	
Quality	Medium
Filtering mode	Mild
Processing time	12 minutes 23 seconds
Memory usage	761.80 MB
Reconstruction parameters	
Source data	Dense cloud
Tile size	256
Face count	Medium
Enable ghosting filter	No
Processing time	2 hours 50 minutes
Memory usage	3.27 GB
Software version	1.7.2.12040
File size	658.91 MB
System	
Software name	Agisoft Metashape Professional
Software version	1.7.2 build 12040
OS	Windows 64 bit
RAM	127.78 GB
CPU	Intel(R) Core(TM) i9-9900K CPU @ 3.60GHz
GPU(s)	GeForce RTX 2080