

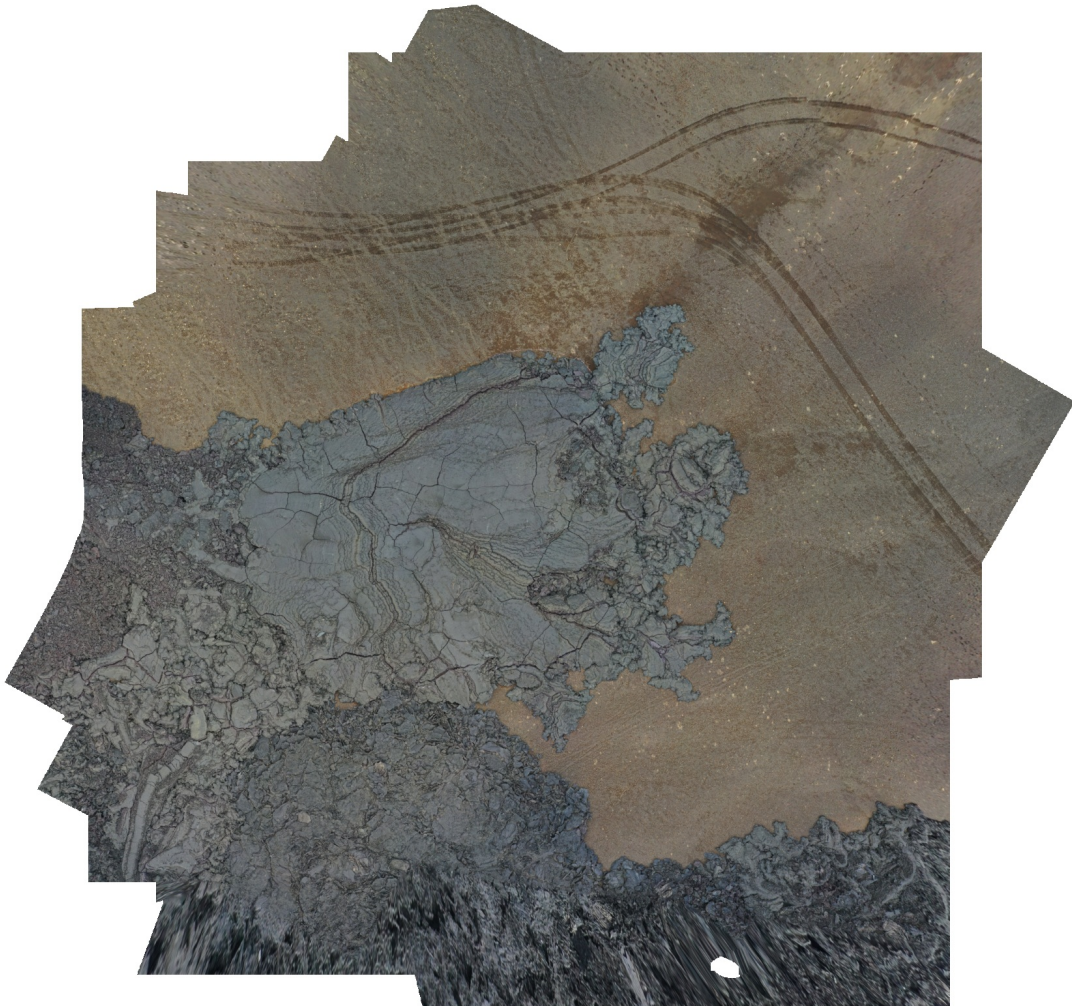
2021_04_21_Meradalir_Report

Processing Report

April 21, 2021

Fagradalsfjall Flow in Meradalir Valley

03 June 2022



Survey Data

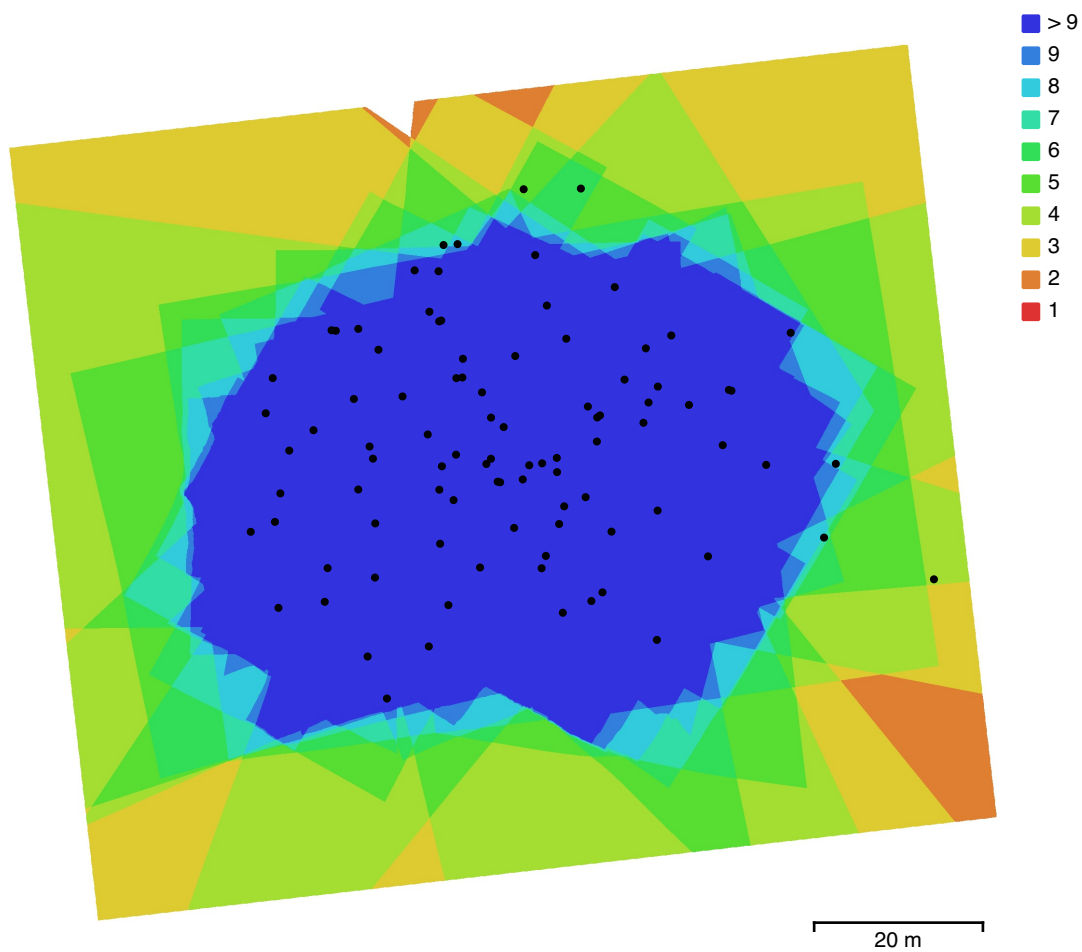


Fig. 1. Camera locations and image overlap.

Number of images:	97	Camera stations:	93
Flying altitude:	17.4 m	Tie points:	194,724
Ground resolution:	5.48 mm/pix	Projections:	498,913
Coverage area:	9.85e+03 m ²	Reprojection error:	0.355 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
Test_Pro (10.26mm)	5472 x 3648	10.26 mm	2.41 x 2.41 μ m	No

Table 1. Cameras.

Camera Calibration

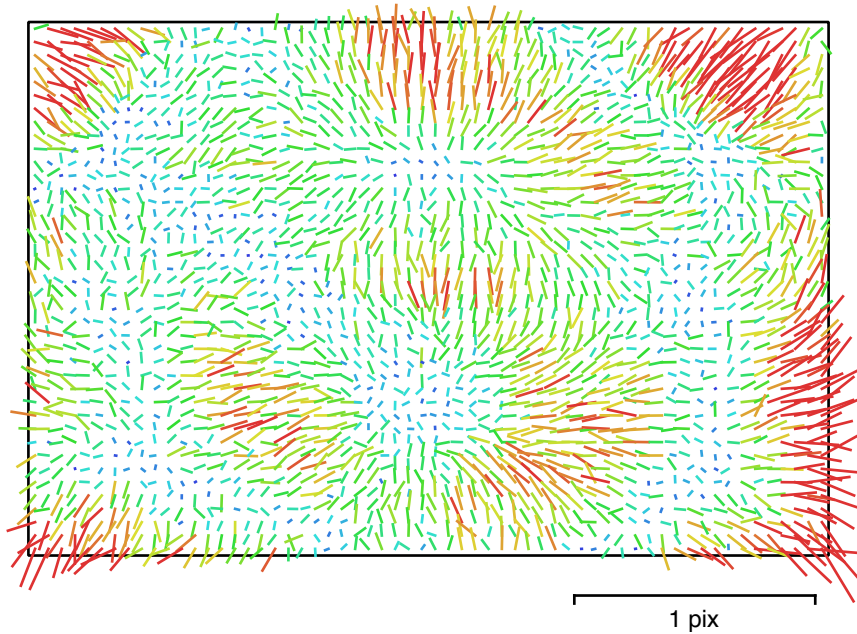


Fig. 2. Image residuals for Test_Pro (10.26mm).

Test_Pro (10.26mm)

97 images

Type	Resolution	Focal Length	Pixel Size
Frame	5472 x 3648	10.26 mm	2.41 x 2.41 μm

	Value	Error	F	Cx	Cy	B1	B2	K1	K2	K3	K4	P1	P2
F	4327.3	0.1	1.00	-0.12	-0.61	-0.12	-0.22	-0.18	0.19	-0.17	0.16	0.01	-0.01
Cx	29.1129	0.069		1.00	0.06	0.18	0.12	0.01	-0.01	0.01	-0.01	0.65	0.02
Cy	-20.3509	0.097			1.00	-0.07	0.34	0.01	-0.01	0.01	-0.01	-0.04	0.20
B1	-0.0824319	0.011				1.00	-0.03	0.03	-0.03	0.02	-0.02	0.06	0.03
B2	0.652951	0.011					1.00	-0.00	0.00	0.00	-0.00	-0.04	-0.00
K1	-0.00792422	0.00011						1.00	-0.97	0.92	-0.87	0.00	-0.00
K2	0.066081	0.00076							1.00	-0.99	0.96	-0.01	-0.00
K3	-0.108252	0.0021								1.00	-0.99	0.01	0.00
K4	0.0572627	0.0019									1.00	-0.01	-0.00
P1	0.00138786	3.8e-06										1.00	0.03
P2	-0.00172972	2.7e-06											1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points

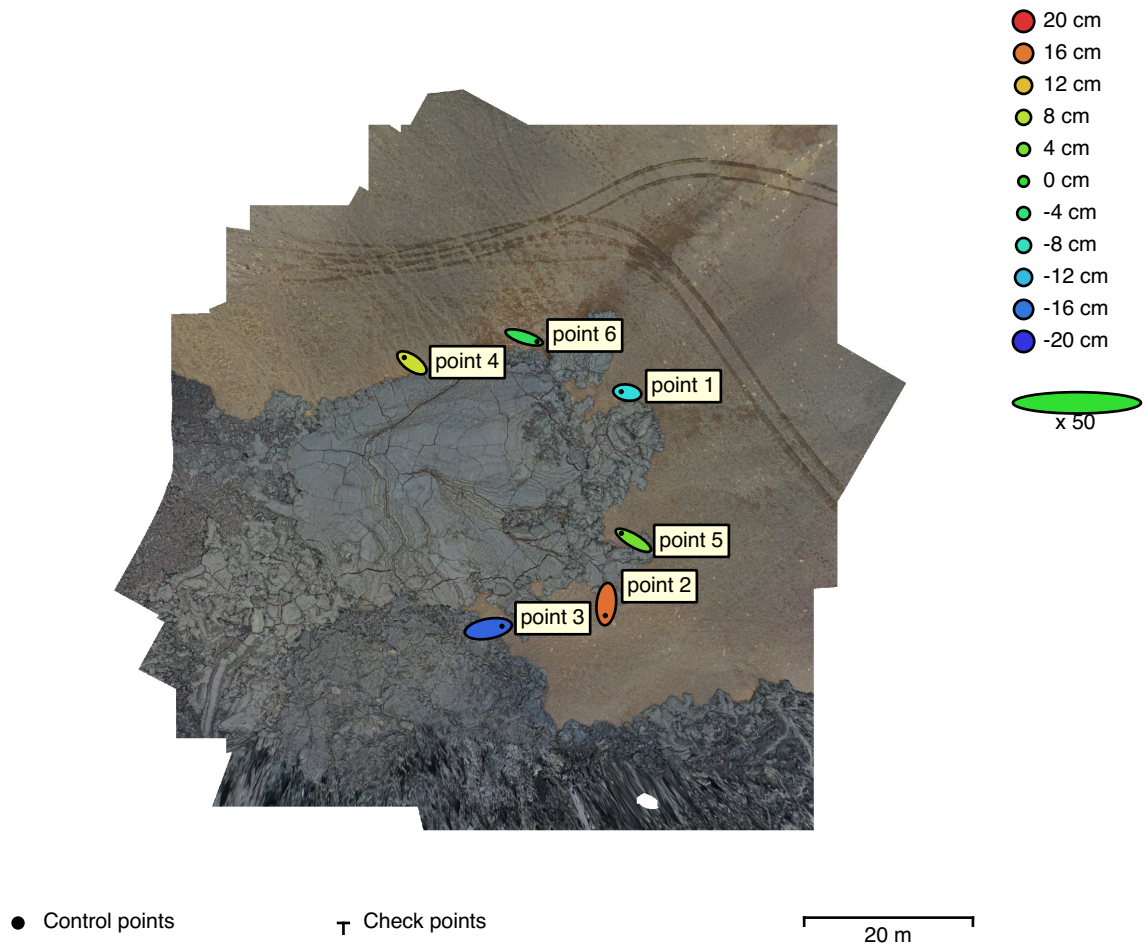


Fig. 3. GCP locations and error estimates.
 Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
 Estimated GCP locations are marked with a dot or crossing.

Count	X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
6	4.69615	2.95423	11.3092	5.54809	12.5968

Table 3. Control points RMSE.
 X - Easting, Y - Northing, Z - Altitude.

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
point 1	-2.87259	0.426758	-10.08	10.49	0.816 (38)
point 2	-0.478919	-5.43356	16.5006	17.3788	0.820 (25)
point 3	6.45517	1.17483	-17.1616	18.3731	0.861 (26)
point 4	-3.6001	2.49316	8.98614	9.99636	0.515 (34)
point 5	-5.62923	3.33087	3.76738	7.54825	0.358 (33)
point 6	6.12567	-1.99206	-2.01254	6.74851	0.339 (35)
Total	4.69615	2.95423	11.3092	12.5968	0.642

Table 4. Control points.
X - Easting, Y - Northing, Z - Altitude.

Digital Elevation Model

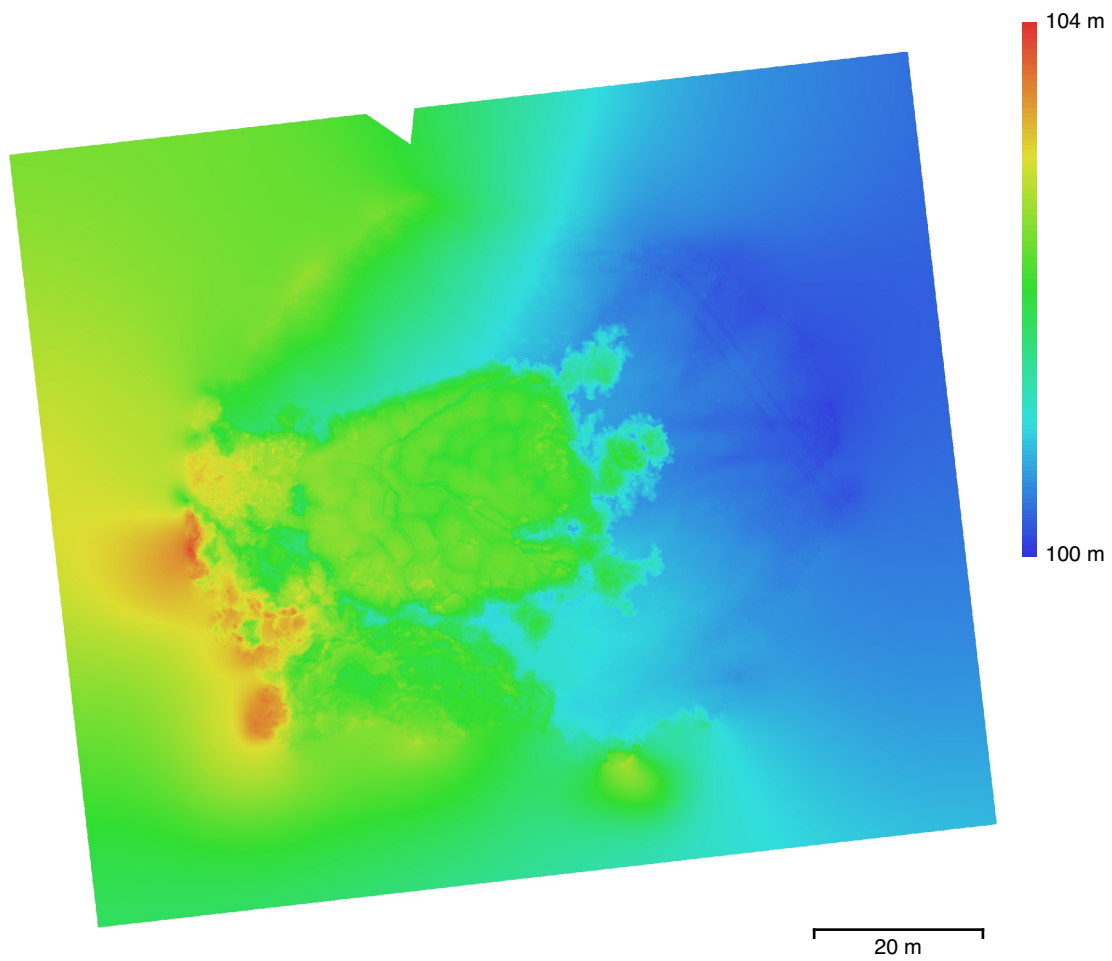


Fig. 4. Reconstructed digital elevation model.

Resolution: 1.1 cm/pix
Point density: 0.831 points/cm²

Processing Parameters

General

Cameras	97
Aligned cameras	93
Markers	6
Coordinate system	WGS 84 / UTM zone 27N (EPSG::32627)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	194,724 of 474,037
RMS reprojection error	0.139635 (0.355234 pix)
Max reprojection error	0.412106 (2.90201 pix)
Mean key point size	2.43586 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	2.81412

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
Filter points by mask	Yes
Mask tie points	No
Exclude stationary tie points	Yes
Guided image matching	No
Adaptive camera model fitting	No
Matching time	6 minutes 34 seconds
Matching memory usage	734.05 MB
Alignment time	1 minutes 49 seconds
Alignment memory usage	129.26 MB

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k4, p1, p2
Adaptive camera model fitting	No
Optimization time	2 seconds
Date created	2022:03:10 02:08:43
Software version	1.8.1.13915
File size	26.18 MB

Depth Maps

Count	93
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Depth maps generation parameters

Quality	High
Filtering mode	Moderate
Max neighbors	16
Processing time	4 hours 47 minutes
Memory usage	1.03 GB
Date created	2022:05:20 05:19:24
Software version	1.8.1.13915
File size	672.40 MB

Dense Point Cloud

Points	28,559,604
Point colors	3 bands, uint8

Depth maps generation parameters	
Quality	High
Filtering mode	Moderate
Max neighbors	16
Processing time	4 hours 47 minutes
Memory usage	1.03 GB
Dense cloud generation parameters	
Processing time	25 minutes 8 seconds
Memory usage	5.15 GB
Date created	2022:05:20 05:44:33
Software version	1.8.1.13915
File size	739.49 MB
DEM	
Size	10,684 x 9,470
Coordinate system	WGS 84 / UTM zone 27N (EPSG::32627)
Reconstruction parameters	
Source data	Dense cloud
Interpolation	Enabled
Processing time	49 seconds
Memory usage	325.06 MB
Date created	2022:05:20 16:19:37
Software version	1.8.1.13915
File size	278.25 MB
Orthomosaic	
Size	21,324 x 18,934
Coordinate system	WGS 84 / UTM zone 27N (EPSG::32627)
Colors	3 bands, uint8
Reconstruction parameters	
Blending mode	Mosaic
Surface	DEM
Enable hole filling	Yes
Enable ghosting filter	No
Processing time	5 minutes 21 seconds
Memory usage	3.11 GB
Date created	2022:05:20 16:24:36
Software version	1.8.1.13915
File size	2.95 GB
System	
Software name	Agisoft Metashape Professional
Software version	1.8.1 build 13915
OS	Mac OS 64 bit
RAM	64.00 GB
CPU	
GPU(s)	None