

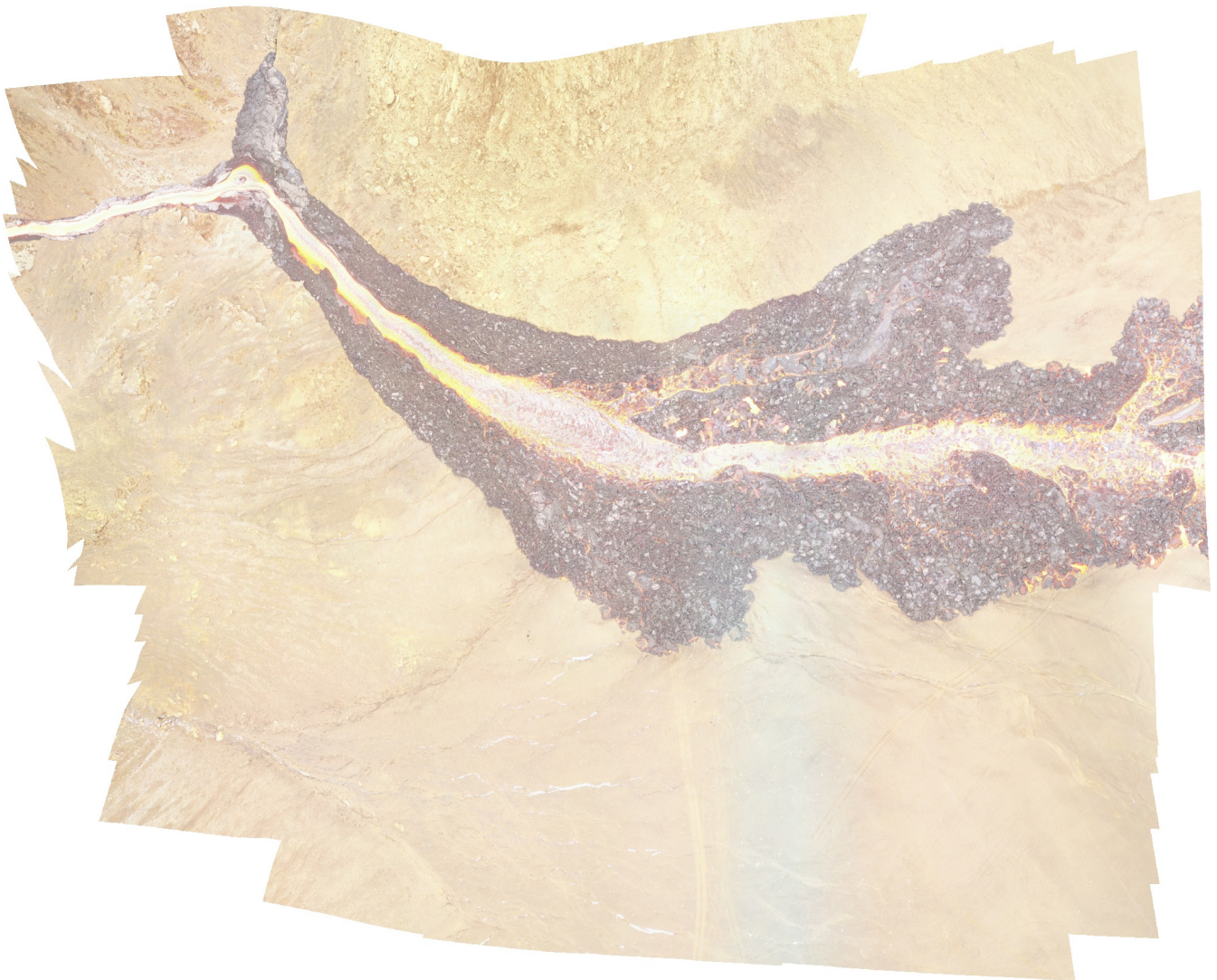
2021_04_05_Meradalir_Day_Report

Processing Report

April 30, 2021

Fagradalsfjall Flow in Meradalir Valley

03 June 2022



Survey Data

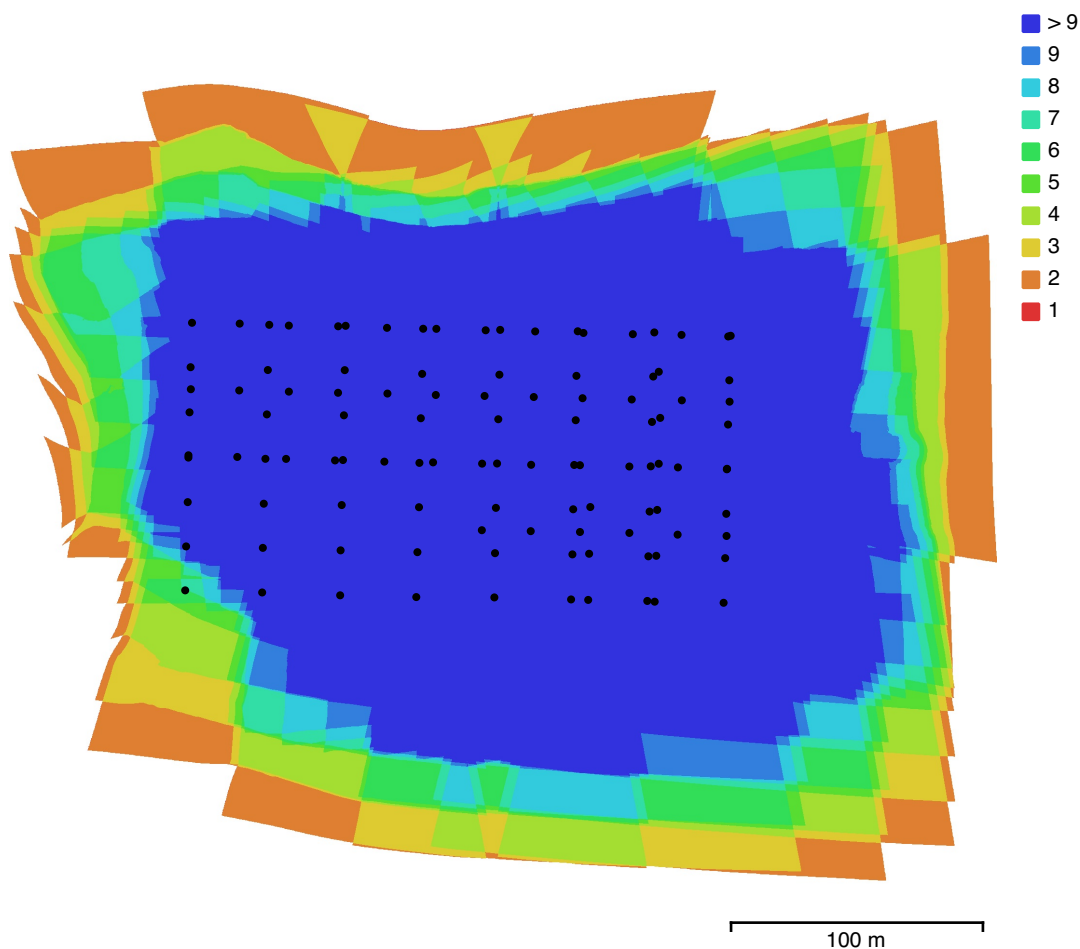


Fig. 1. Camera locations and image overlap.

Number of images:	106	Camera stations:	106
Flying altitude:	115 m	Tie points:	275,559
Ground resolution:	2.64 cm/pix	Projections:	968,181
Coverage area:	0.103 km ²	Reprojection error:	0.334 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

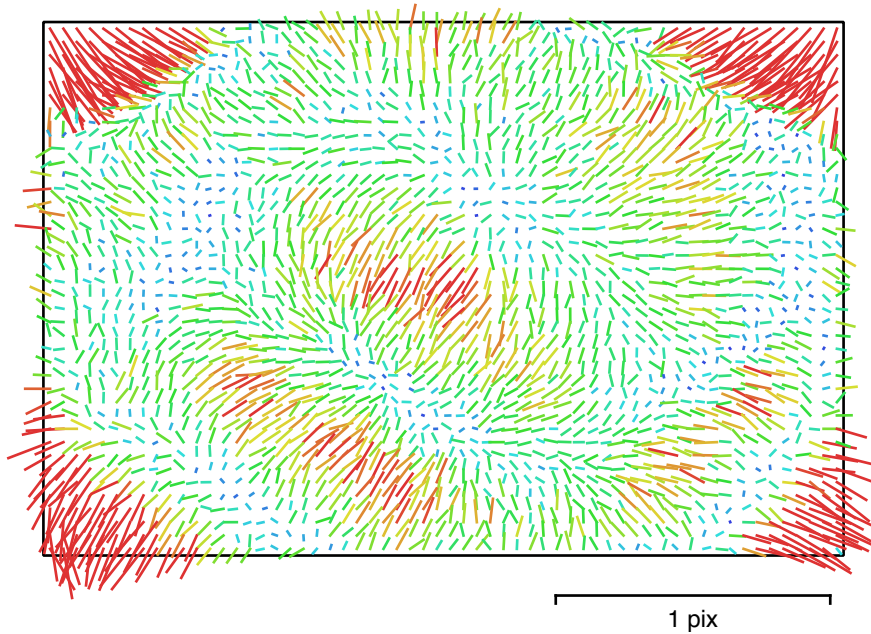


Fig. 2. Image residuals for Test_Pro (10.26mm).

Test_Pro (10.26mm)

106 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	4313.15	0.33	1.00	-0.14	-0.99	0.91	-0.48	0.04	0.04	-0.02	-0.00	0.04	-0.27
Cx	4.31289	0.025		1.00	0.15	-0.13	0.50	-0.01	-0.00	0.00	-0.00	0.76	0.06
Cy	5.09539	0.25			1.00	-0.93	0.49	-0.05	-0.01	-0.00	0.02	-0.05	0.23
B1	0.553467	0.043				1.00	-0.48	-0.05	0.01	0.01	-0.03	0.07	0.12
B2	0.373001	0.0065					1.00	-0.01	-0.00	-0.00	0.01	-0.00	0.06
K1	-0.00186082	5e-05						1.00	-0.93	0.89	-0.84	-0.00	-0.28
K2	0.00180409	0.00033							1.00	-0.99	0.96	-0.01	-0.00
K3	0.0306905	0.00088								1.00	-0.99	0.01	0.01
K4	-0.0546618	0.00081									1.00	-0.01	-0.00
P1	0.00082234	1.6e-06										1.00	0.04
P2	-0.00127163	5e-06											1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points

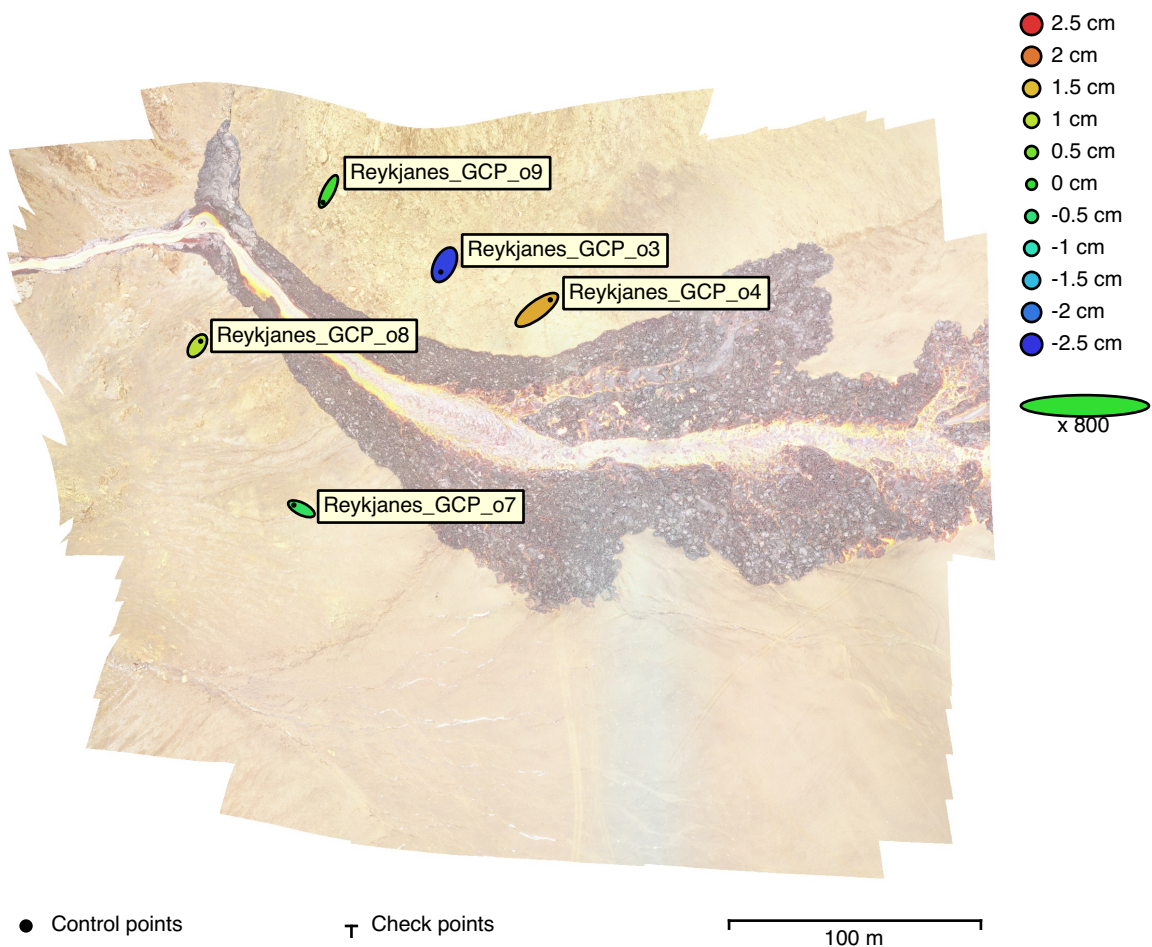


Fig. 3. GCP locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated GCP locations are marked with a dot or crossing.

Count	X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
5	0.760077	0.779191	1.37267	1.08851	1.75188

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)
Reykjanes_GCP_o3	-0.36866	-0.722591	-2.3879	2.52192	0.925 (18)
Reykjanes_GCP_o4	1.33638	0.99522	1.63141	2.33192	0.693 (24)
Reykjanes_GCP_o7	-0.746384	0.370233	-0.32779	0.895325	0.595 (25)
Reykjanes_GCP_o8	0.32818	0.446484	0.967725	1.11514	0.841 (16)
Reykjanes_GCP_o9	-0.549517	-1.08935	0.116557	1.22565	0.955 (8)
Total	0.760077	0.779191	1.37267	1.75188	0.773

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

Digital Elevation Model

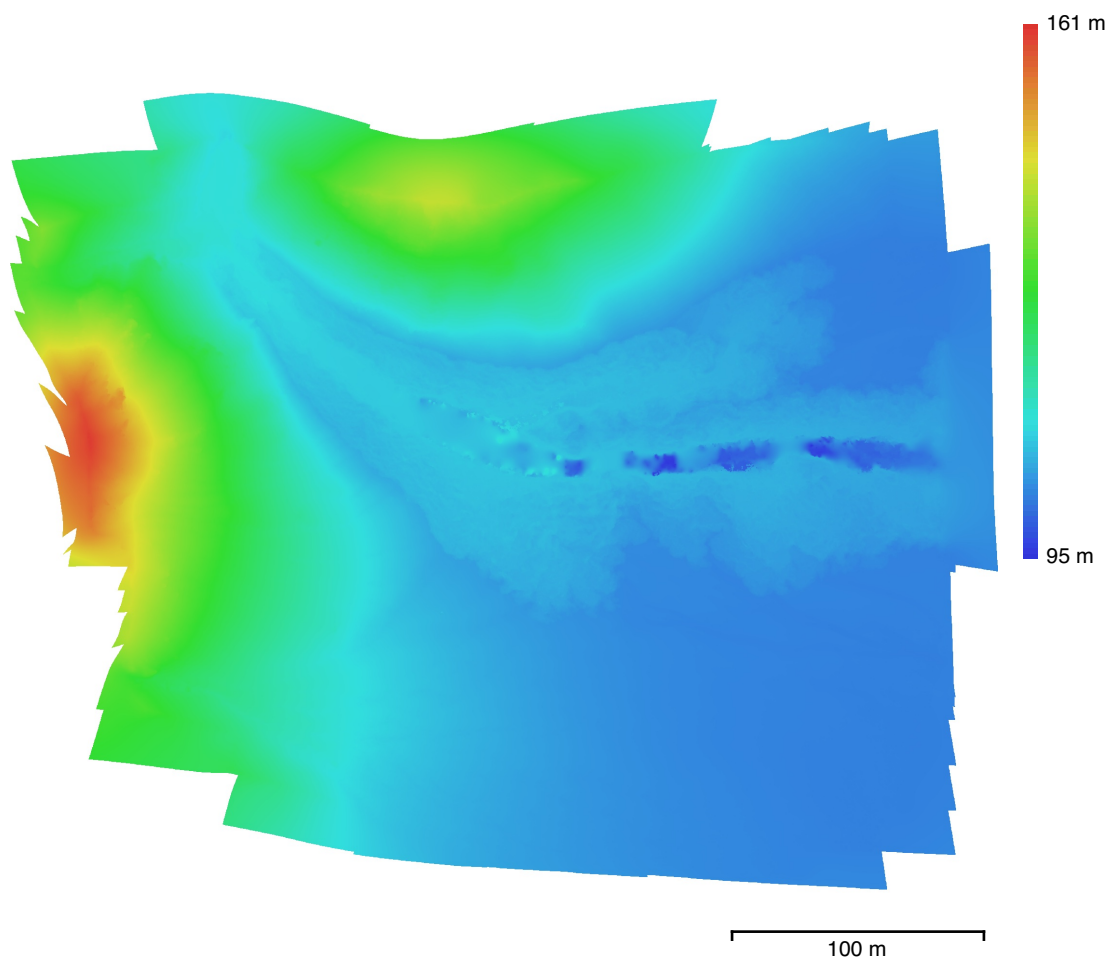


Fig. 4. Reconstructed digital elevation model.

Resolution: 5.29 cm/pix
Point density: 358 points/m²

Processing Parameters

General

Cameras	106
Aligned cameras	106
Markers	5
Coordinate system	WGS 84 / UTM zone 27N (EPSG::32627)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	275,559 of 699,491
RMS reprojection error	0.138471 (0.333753 pix)
Max reprojection error	0.369371 (1.62269 pix)
Mean key point size	2.37361 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.61425

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	7 minutes 21 seconds
Matching memory usage	744.39 MB
Alignment time	2 minutes 38 seconds
Alignment memory usage	202.66 MB

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k4, p1, p2
Adaptive camera model fitting	No
Optimization time	7 seconds
Date created	2022:03:04 20:49:26
Software version	1.8.1.13915
File size	46.90 MB

Depth Maps

Count	106
Depth maps generation parameters	
Quality	High
Filtering mode	Moderate
Max neighbors	16
Processing time	8 hours 43 minutes
Memory usage	1.42 GB
Date created	2022:05:17 12:32:58
Software version	1.8.1.13915
File size	768.35 MB

Dense Point Cloud

Points	32,804,411
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	High
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Filtering mode	Moderate
Max neighbors	16
Processing time	8 hours 43 minutes
Memory usage	1.42 GB
Dense cloud generation parameters	
Processing time	30 minutes 2 seconds
Memory usage	6.05 GB
Date created	2022:05:17 13:03:00
Software version	1.8.1.13915
File size	594.76 MB
DEM	
Size	10,835 x 9,282
Coordinate system	WGS 84 / UTM zone 27N (EPSG::32627)
Reconstruction parameters	
Source data	Dense cloud
Interpolation	Enabled
Processing time	52 seconds
Memory usage	7.74 MB
Date created	2022:05:18 18:01:08
Software version	1.8.1.13915
File size	153.81 MB
Orthomosaic	
Size	14,825 x 11,971
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	3 minutes 35 seconds
Memory usage	277.57 MB
Date created	2022:05:18 18:04:54
Software version	1.8.1.13915
File size	2.08 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