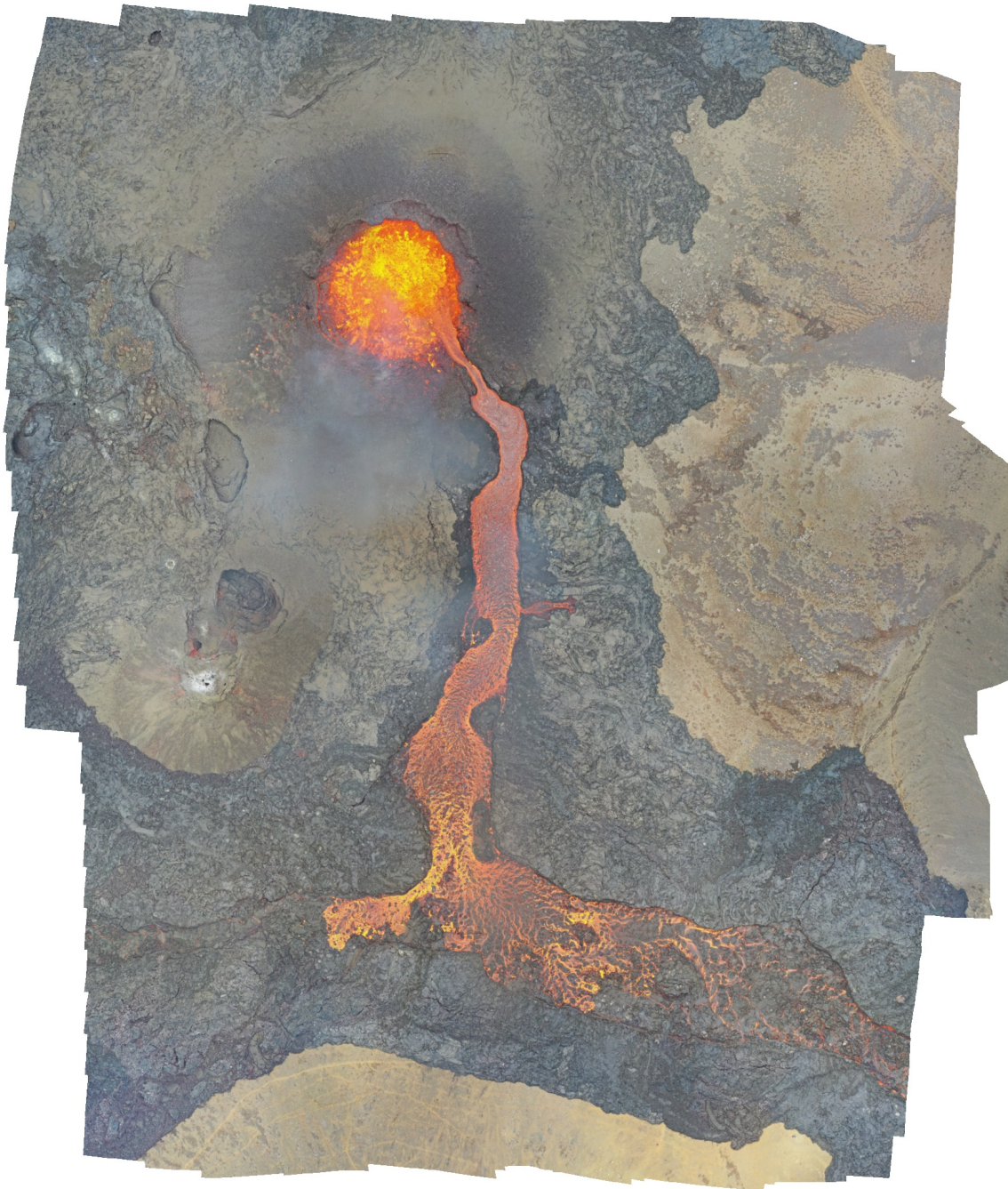


2021_04_30_Vent_2_Report

Processing Report

April 30, 2021
Fagradalsfjall Vent
03 June 2022



Survey Data

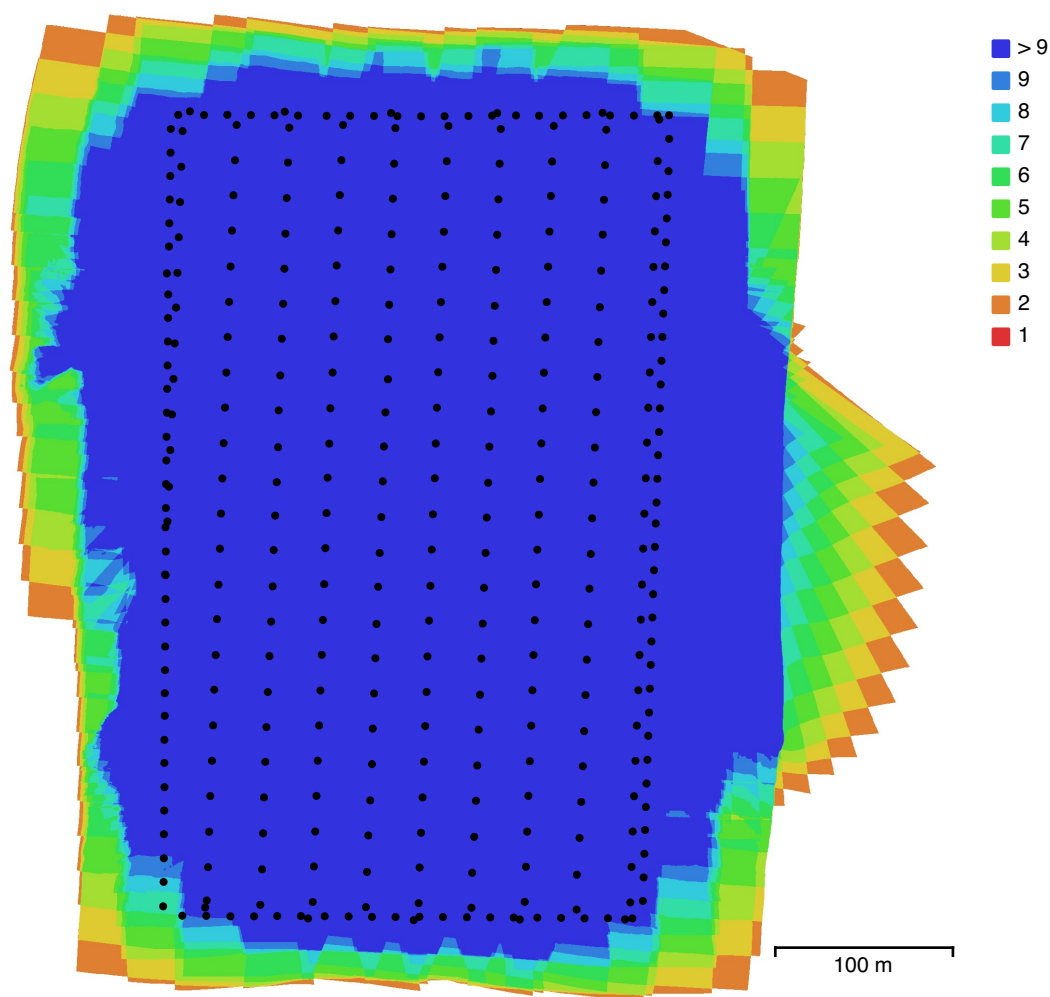


Fig. 1. Camera locations and image overlap.

Number of images:	339	Camera stations:	339
Flying altitude:	129 m	Tie points:	869,242
Ground resolution:	3.23 cm/pix	Projections:	3,262,268
Coverage area:	0.239 km ²	Reprojection error:	0.37 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

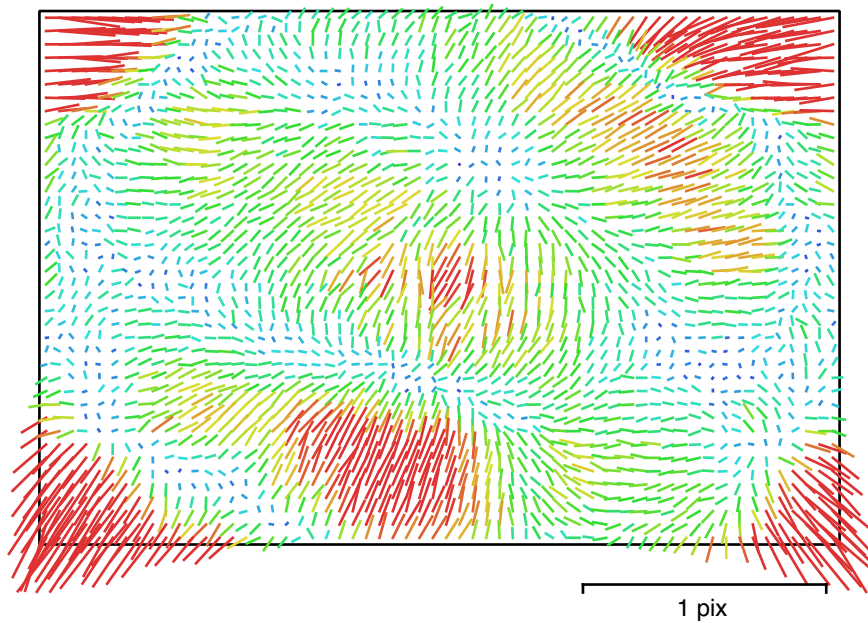


Fig. 2. Image residuals for Test_Pro (10.26mm).

Test_Pro (10.26mm)

339 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	4333.88	0.059	1.00	-0.15	-0.09	-0.68	0.04	-0.06	0.10	-0.09	0.08	0.01	-0.10
Cx	3.51574	0.015		1.00	0.02	0.18	0.12	-0.01	0.00	-0.00	0.00	0.60	-0.01
Cy	-6.47627	0.014			1.00	-0.04	0.08	-0.01	0.00	0.00	-0.00	0.03	0.55
B1	-12.7931	0.019				1.00	-0.05	-0.02	-0.01	0.01	-0.00	-0.02	0.04
B2	3.23031	0.014					1.00	-0.01	-0.00	0.00	0.00	-0.06	-0.00
K1	-0.00657686	3.2e-05						1.00	-0.97	0.92	-0.87	-0.00	-0.02
K2	0.0194342	0.00021							1.00	-0.99	0.96	0.00	0.01
K3	-0.0127056	0.00056								1.00	-0.99	-0.00	-0.01
K4	-0.016716	0.00051									1.00	0.00	0.01
P1	0.000713465	9e-07										1.00	-0.01
P2	-0.00179866	7e-07											1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points

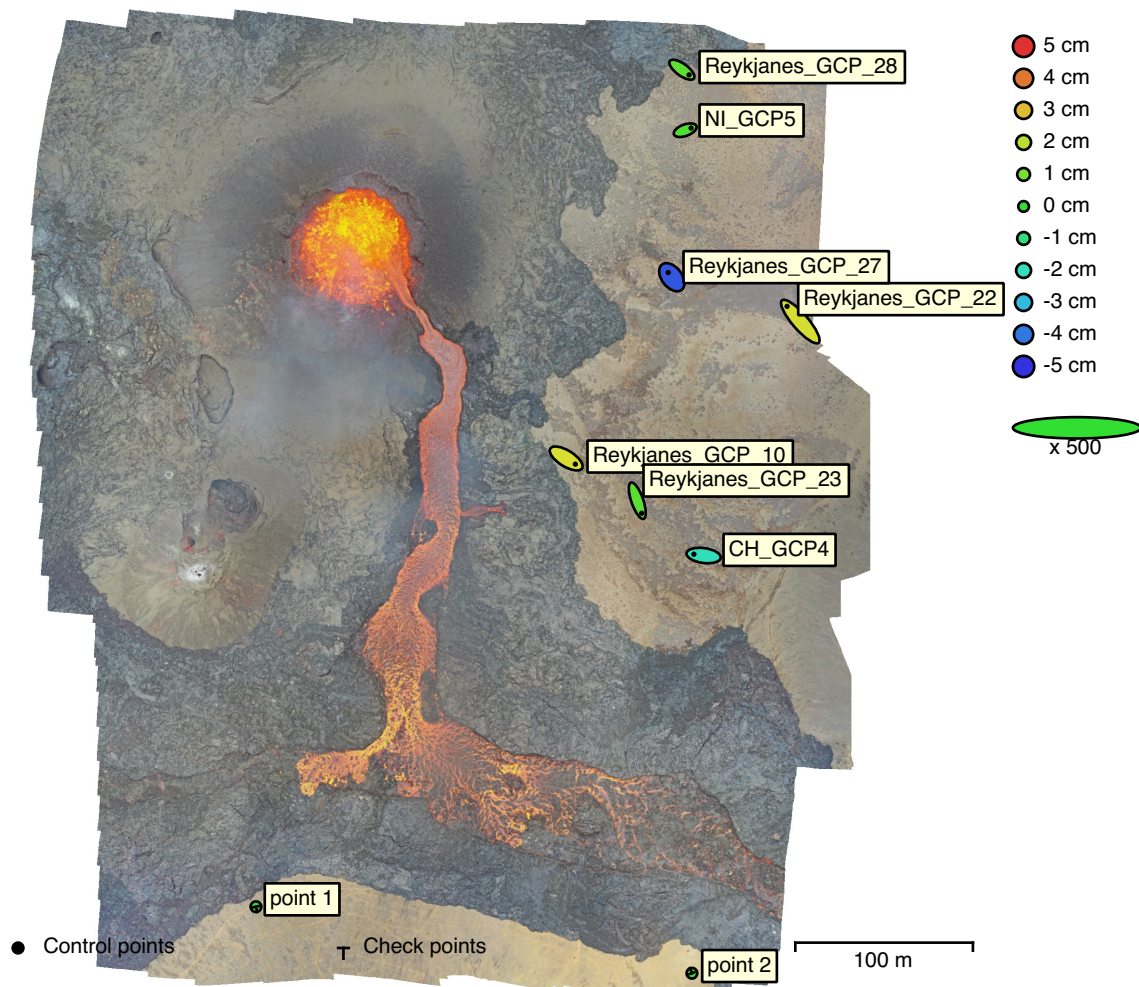


Fig. 3. GCP locations and error estimates.

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)
7	1.84752	1.85747	2.28257	2.61984	3.47472

Table 3. Control points RMSE.

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

Count	X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
2	7.62071e-05	0.000206255	0.000717064	0.000219883	0.00075002

Table 4. Check points RMSE.

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

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
CH_GCP4	-2.18901	0.294979	-1.98277	2.96819	0.913 (35)
NI_GCP5	1.32545	0.490601	0.381558	1.46393	0.524 (10)
Reykjanes_GCP_10	2.05961	-1.27945	2.45931	3.45358	1.156 (117)
Reykjanes_GCP_22	-2.97629	3.43393	2.36592	5.12326	14.374 (7)
Reykjanes_GCP_23	0.984456	-2.81511	0.599754	3.04199	0.805 (84)
Reykjanes_GCP_27	-0.818402	1.04706	-4.469	4.66241	6.870 (41)
Reykjanes_GCP_28	1.61418	-1.17201	0.645233	2.09655	3.196 (6)
Total	1.84752	1.85747	2.28257	3.47472	3.505

Table 5. Control points.
X - Easting, Y - Northing, Z - Altitude.

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
point 1	-7.51789e-06	3.08611e-05	3.4423e-05	4.68388e-05	0.000 (13)
point 2	0.000107511	-0.000290051	-0.0010135	0.00105965	0.000 (3)
Total	7.62071e-05	0.000206255	0.000717064	0.00075002	0.000

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

Digital Elevation Model

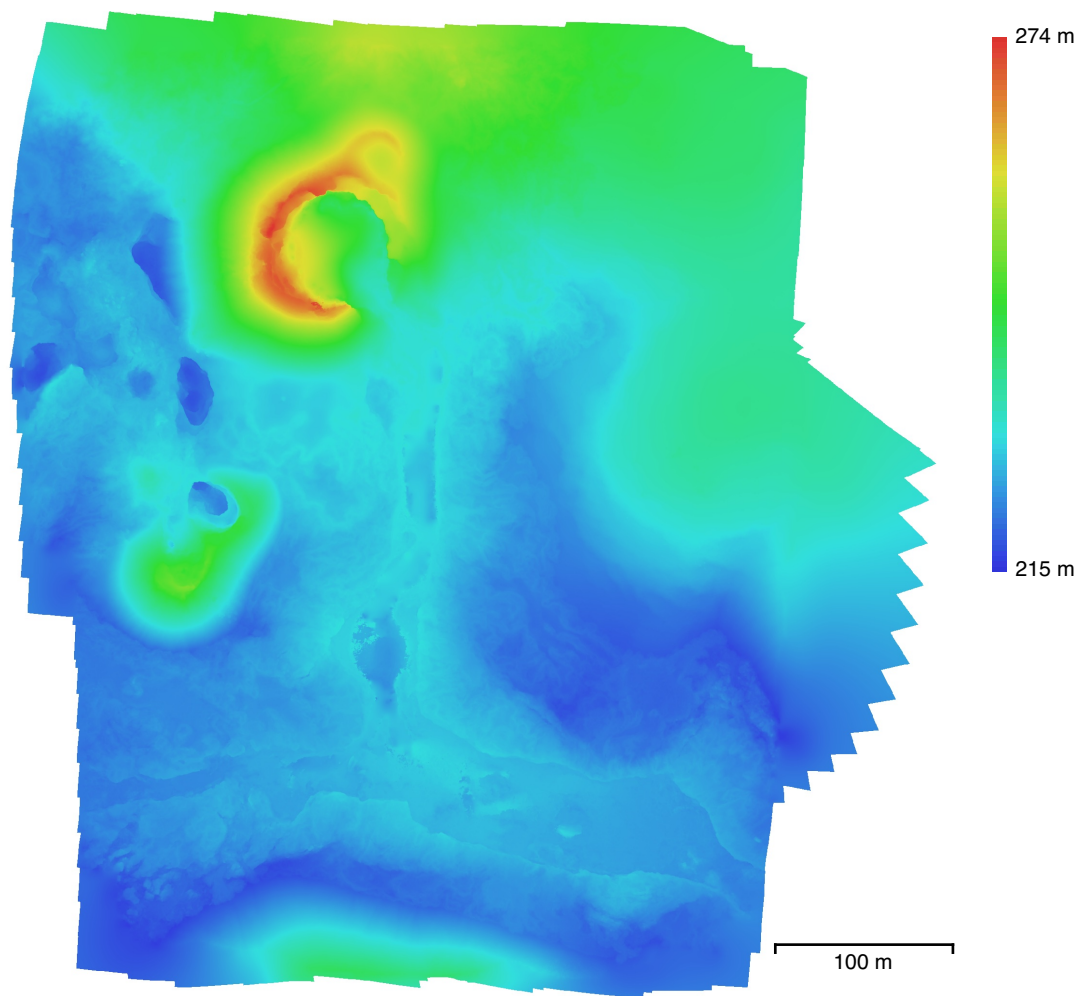


Fig. 4. Reconstructed digital elevation model.

Resolution: 6.47 cm/pix
Point density: 239 points/m²

Processing Parameters

General

Cameras	339
Aligned cameras	339
Markers	110
Coordinate system	WGS 84 / UTM zone 27N (EPSG::32627)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	869,242 of 2,260,607
RMS reprojection error	0.157187 (0.369767 pix)
Max reprojection error	5.00924 (15.0239 pix)
Mean key point size	2.32543 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	4.07821

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	23 minutes 6 seconds
Matching memory usage	794.20 MB
Alignment time	25 minutes 59 seconds
Alignment memory usage	338.33 MB

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k4, p1, p2
Adaptive camera model fitting	No
Optimization time	22 seconds
Date created	2022:03:15 05:05:52
Software version	1.8.1.13915
File size	167.08 MB

Depth Maps

Count	336
Depth maps generation parameters	
Quality	High
Filtering mode	Moderate
Max neighbors	16
Processing time	1 days 22 hours
Memory usage	3.86 GB
Date created	2022:05:20 22:22:30
Software version	1.8.1.13915
File size	2.39 GB

Dense Point Cloud

Points	59,002,703
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	High
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Filtering mode	Moderate
Max neighbors	16
Processing time	1 days 22 hours
Memory usage	3.86 GB
Dense cloud generation parameters	
Processing time	3 hours 1 minutes
Memory usage	12.47 GB
Date created	2022:05:21 01:24:13
Software version	1.8.1.13915
File size	1.17 GB
DEM	
Size	10,351 x 12,021
Coordinate system	WGS 84 / UTM zone 27N (EPSG::32627)
Reconstruction parameters	
Source data	Dense cloud
Interpolation	Enabled
Processing time	1 minutes 51 seconds
Memory usage	310.38 MB
Date created	2022:05:24 20:42:09
Software version	1.8.1.13915
File size	228.68 MB
Orthomosaic	
Size	16,133 x 17,183
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	18 minutes 10 seconds
Memory usage	2.61 GB
Date created	2022:05:24 20:59:44
Software version	1.8.1.13915
File size	9.01 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