

2021_06_09_Meradalir_Report

Processing Report

June 9, 2021

Fagradalsfjall Flow in Meradalir Valley

03 June 2022



Survey Data

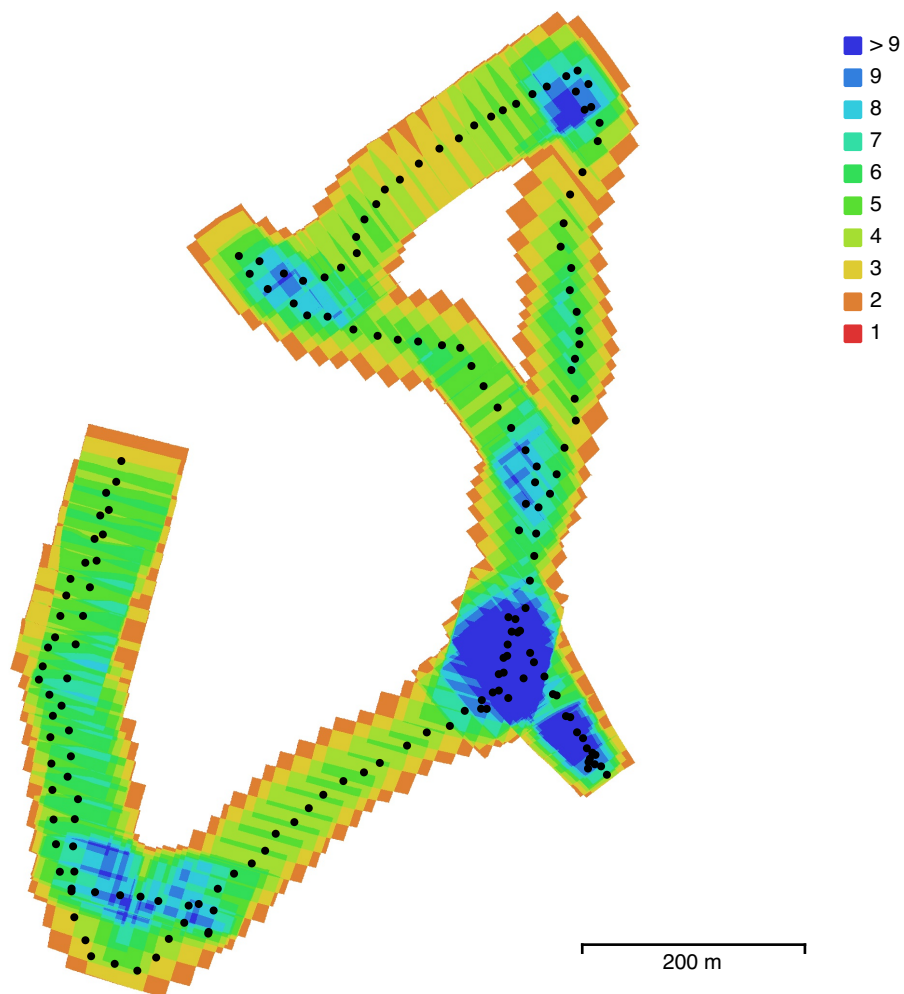


Fig. 1. Camera locations and image overlap.

Number of images:	175	Camera stations:	175
Flying altitude:	128 m	Tie points:	598,638
Ground resolution:	1.67 cm/pix	Projections:	1,774,210
Coverage area:	0.189 km ²	Reprojection error:	0.489 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

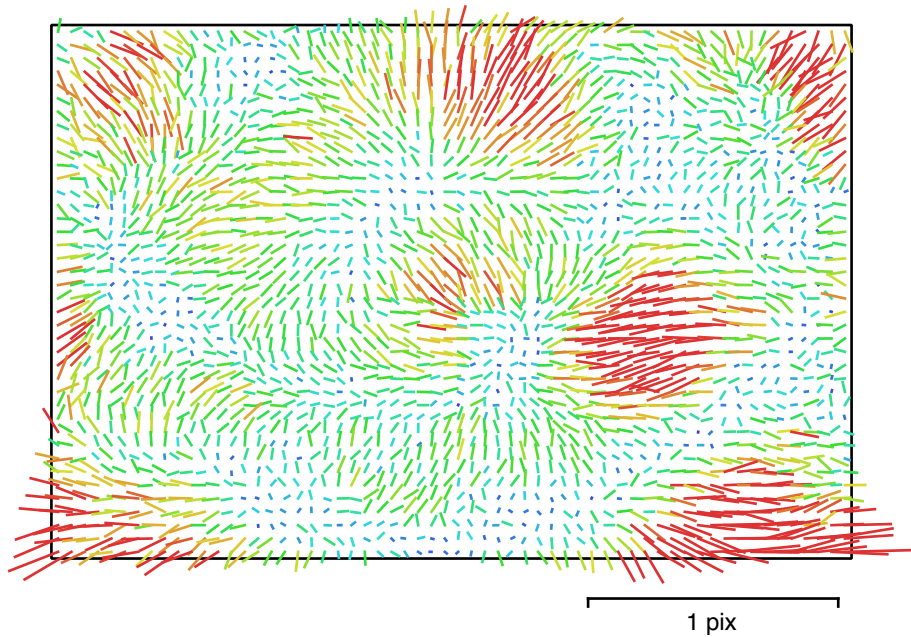


Fig. 2. Image residuals for Test_Pro (10.26mm).

Test_Pro (10.26mm)

175 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	7342.41	3.3	1.00	-0.88	0.41	-0.42	0.37	-0.08	0.28	-0.29	0.27	-0.03	0.01
Cx	-193.925	0.35		1.00	-0.42	0.49	-0.39	0.03	-0.24	0.26	-0.24	0.43	-0.07
Cy	19.0142	0.18			1.00	-0.12	0.41	0.11	0.11	-0.11	0.10	-0.25	0.80
B1	-7.26548	0.025				1.00	-0.18	0.07	-0.12	0.13	-0.12	0.05	0.10
B2	7.13402	0.027					1.00	-0.01	0.10	-0.10	0.10	-0.13	0.09
K1	-0.00960418	0.00016						1.00	-0.87	0.82	-0.78	-0.22	0.20
K2	0.481514	0.003							1.00	-0.99	0.96	-0.01	-0.00
K3	-2.47988	0.023								1.00	-0.99	0.01	0.01
K4	4.18904	0.058									1.00	-0.02	-0.01
P1	0.000795071	9.3e-06										1.00	-0.32
P2	-0.00169489	7.8e-06											1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points

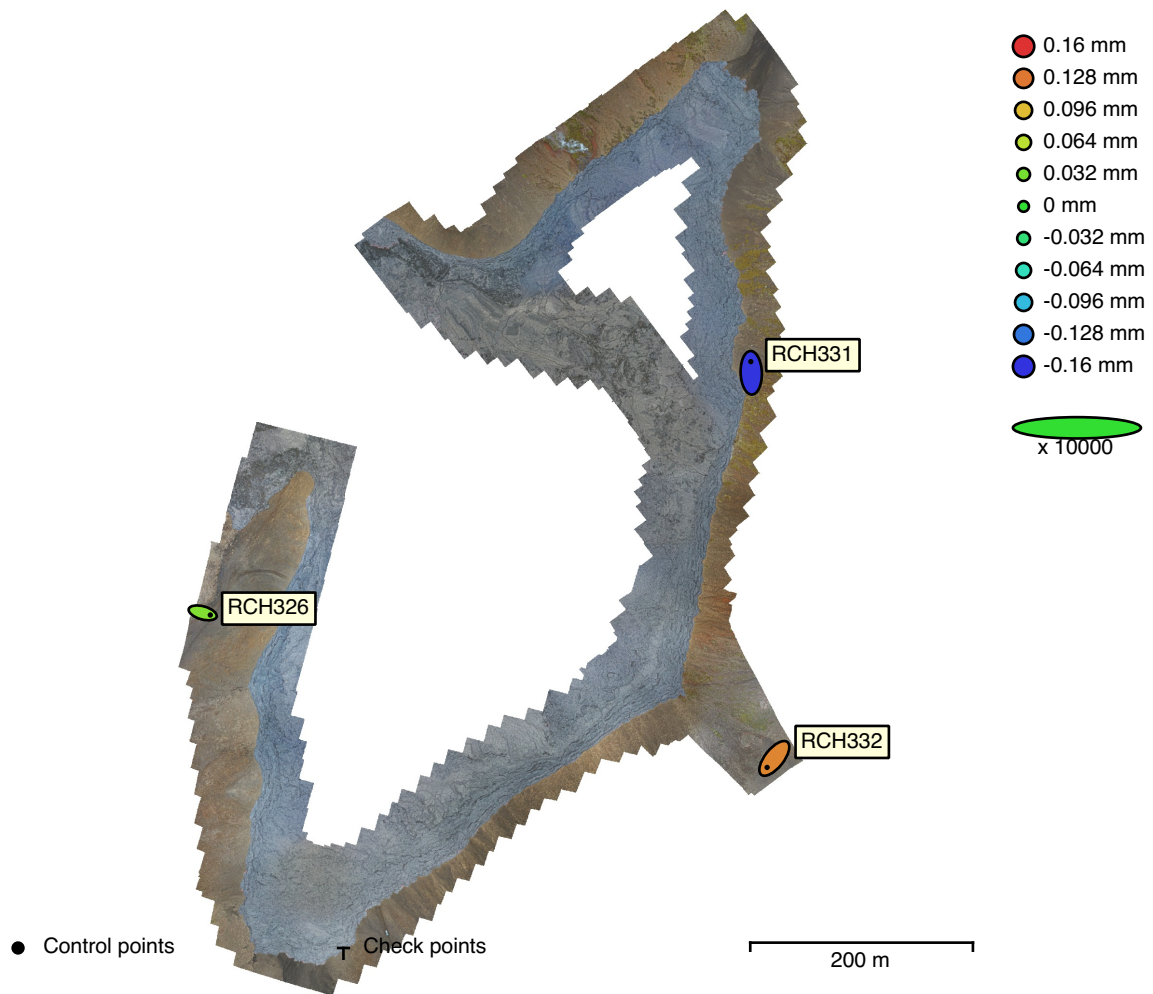


Fig. 3. GCP locations and error estimates.

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 (mm)	Y error (mm)	Z error (mm)	XY error (mm)	Total (mm)
3	1.088	1.50489	0.117329	1.857	1.8607

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

Label	X error (mm)	Y error (mm)	Z error (mm)	Total (mm)	Image (pix)
RCH326	1.3661	-0.381546	0.0370744	1.41887	0.404 (3)
RCH331	-0.0699024	2.00403	-0.158604	2.01151	1.732 (4)
RCH332	-1.2962	-1.62247	0.121527	2.08022	0.511 (7)
Total	1.088	1.50489	0.117329	1.8607	1.011

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

Digital Elevation Model

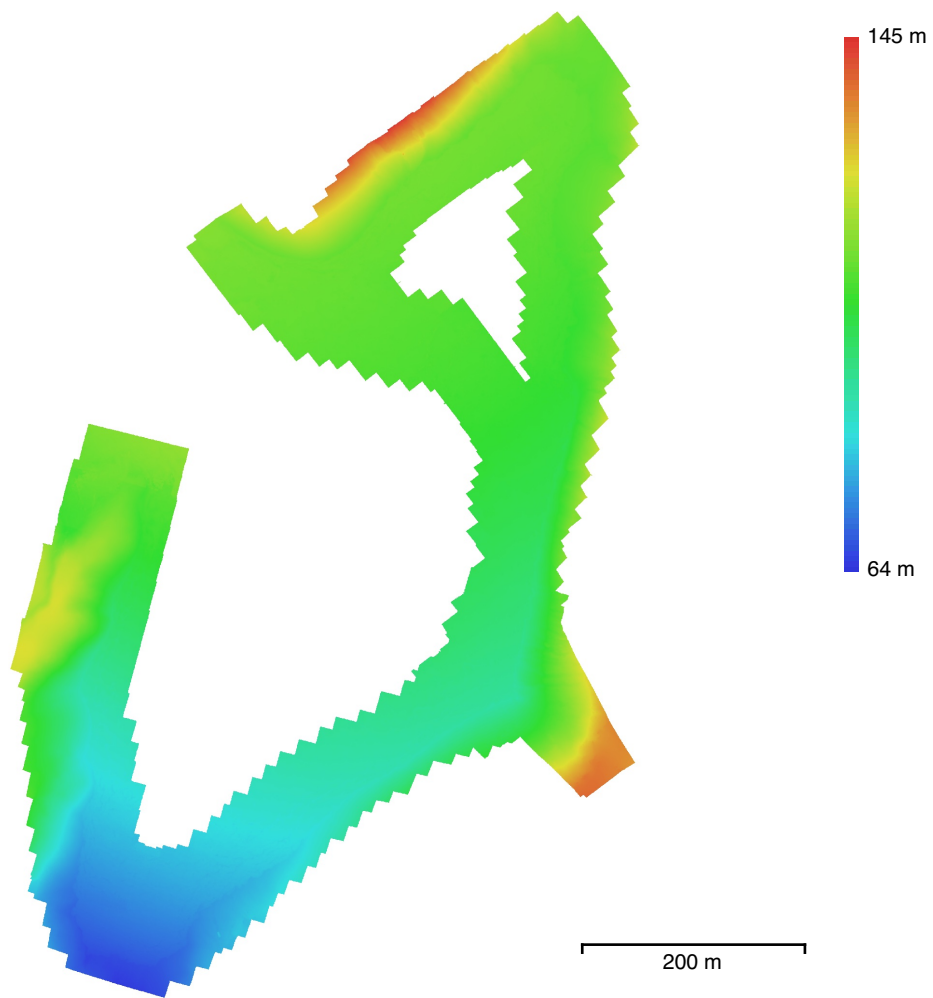


Fig. 4. Reconstructed digital elevation model.

Resolution: 3.35 cm/pix
Point density: 893 points/m²

Processing Parameters

General

Cameras	175
Aligned cameras	175
Markers	108
Coordinate system	WGS 84 / UTM zone 27N (EPSG::32627)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	598,638 of 1,445,001
RMS reprojection error	0.203675 (0.488884 pix)
Max reprojection error	0.720056 (3.41295 pix)
Mean key point size	2.37876 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.05716

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	9 minutes 48 seconds
Matching memory usage	918.93 MB
Alignment time	21 minutes 14 seconds
Alignment memory usage	959.66 MB

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k4, p1, p2
Adaptive camera model fitting	No
Optimization time	38 seconds
Date created	2022:03:15 16:54:42
Software version	1.8.1.13915
File size	85.27 MB

Depth Maps

Count	175
Depth maps generation parameters	
Quality	High
Filtering mode	Moderate
Max neighbors	16
Processing time	9 hours 46 minutes
Memory usage	1.02 GB
Date created	2022:05:21 07:10:23
Software version	1.8.1.13915
File size	1.23 GB

Dense Point Cloud

Points	204,146,279
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	High
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Filtering mode	Moderate
Max neighbors	16
Processing time	9 hours 46 minutes
Memory usage	1.02 GB
Dense cloud generation parameters	
Processing time	15 minutes 46 seconds
Memory usage	4.01 GB
Date created	2022:05:21 07:26:09
Software version	1.8.1.13915
File size	3.57 GB
DEM	
Size	42,829 x 49,356
Coordinate system	WGS 84 / UTM zone 27N (EPSG::32627)
Reconstruction parameters	
Source data	Dense cloud
Interpolation	Enabled
Processing time	4 minutes 5 seconds
Memory usage	632.61 MB
Date created	2022:05:23 18:53:51
Software version	1.8.1.13915
File size	679.02 MB
Orthomosaic	
Size	33,769 x 52,969
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	9 minutes 34 seconds
Memory usage	3.44 GB
Date created	2022:05:23 18:58:57
Software version	1.8.1.13915
File size	5.20 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