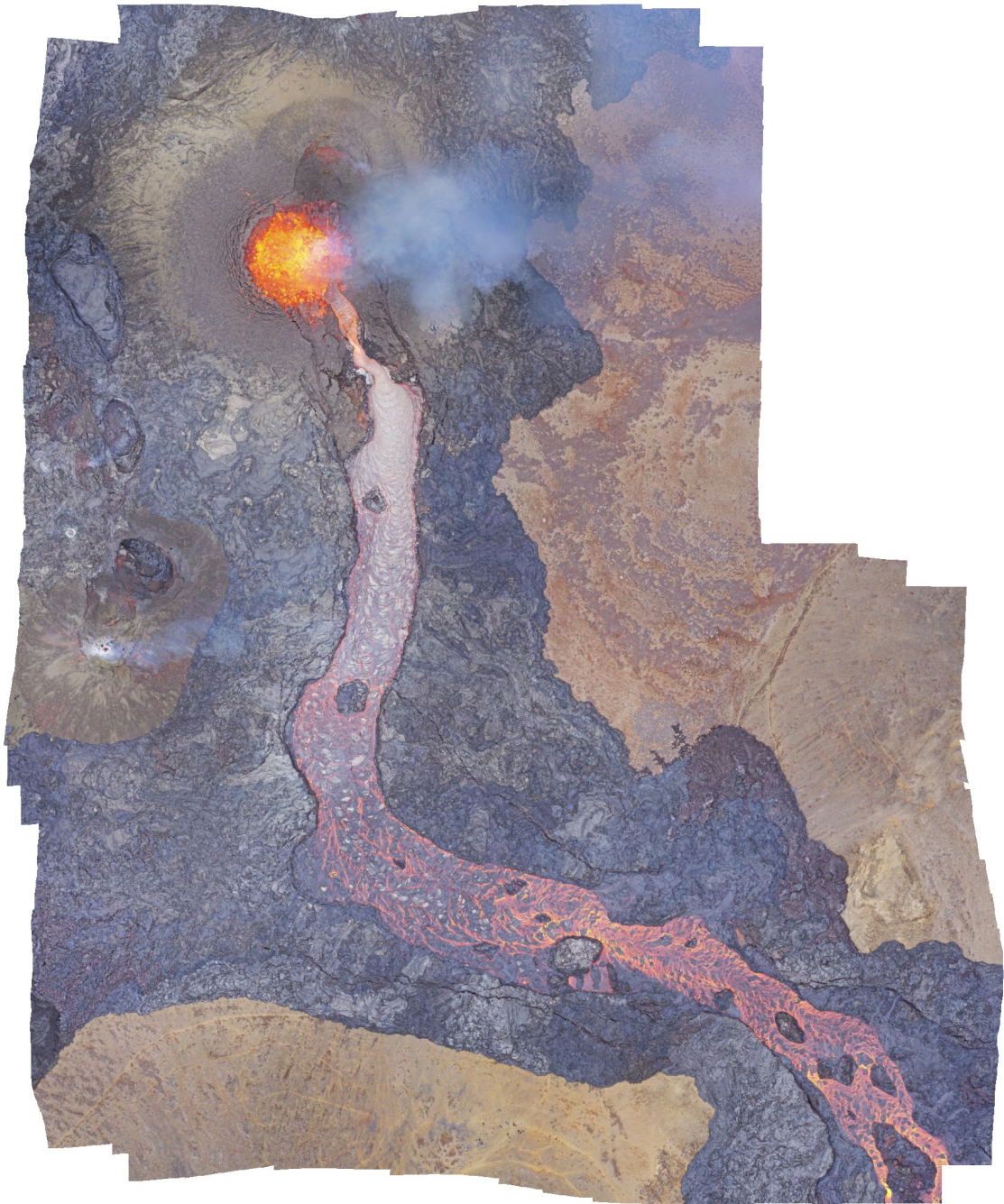


2021_04_27_Vent_Report

Processing Report

April 27, 2021
Fagradalsfjall Vent
03 June 2022



Survey Data

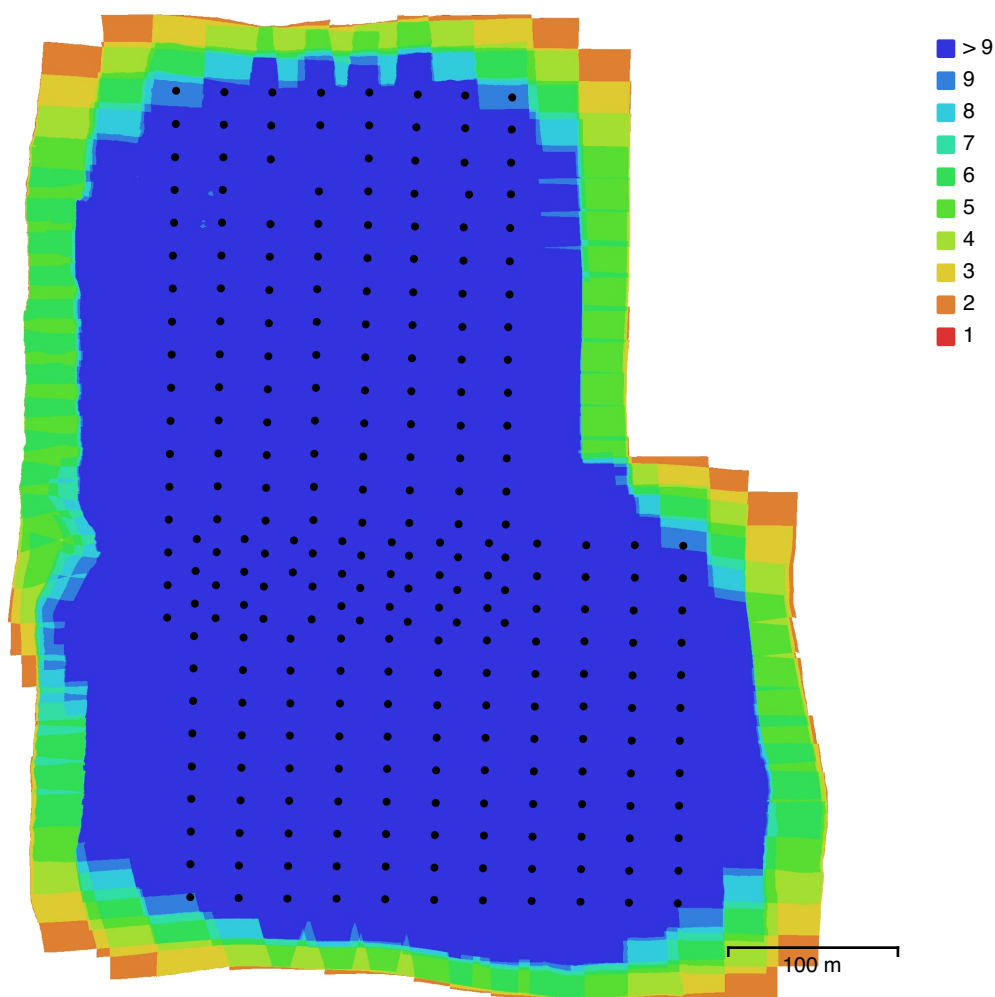


Fig. 1. Camera locations and image overlap.

Number of images:	266	Camera stations:	265
Flying altitude:	132 m	Tie points:	693,995
Ground resolution:	2.93 cm/pix	Projections:	3,182,204
Coverage area:	0.232 km ²	Reprojection error:	0.378 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
Test_Pro (10.26mm)	5472 x 3648	10.26 mm	2.41 x 2.41 μ m	No

Table 1. Cameras.

Camera Calibration

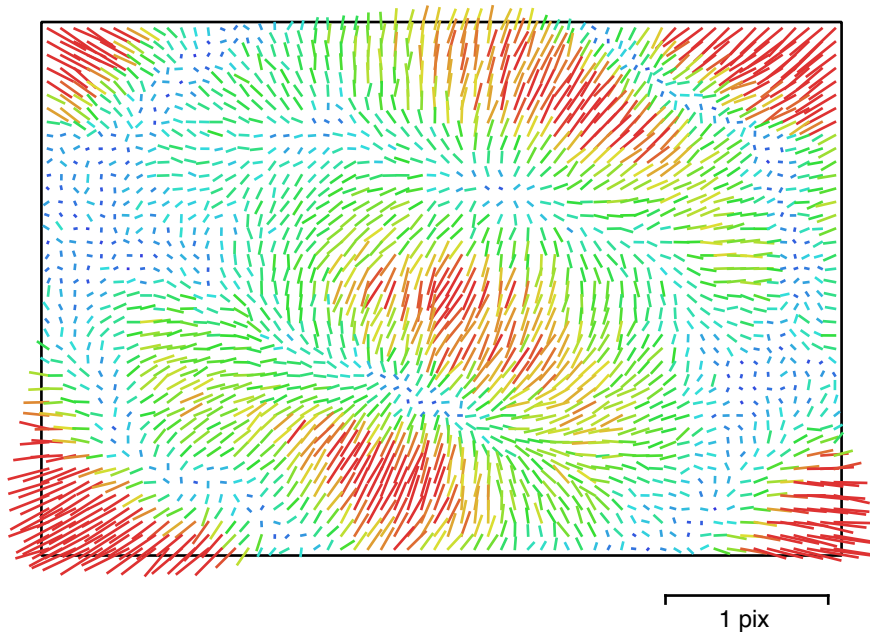


Fig. 2. Image residuals for Test_Pro (10.26mm).

Test_Pro (10.26mm)

135 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	4298.26	0.38	1.00	-0.18	0.54	0.00	-0.08	-0.02	0.05	-0.03	-0.01	0.03	-0.20
Cx	3.88065	0.018		1.00	-0.07	-0.04	-0.00	0.00	0.00	-0.01	0.01	0.58	0.03
Cy	-8.73642	0.018			1.00	0.00	-0.10	-0.00	0.02	-0.01	-0.01	0.05	0.32
B1	4.19398	0.02				1.00	-0.09	-0.01	-0.01	0.01	-0.01	0.01	-0.05
B2	1.52341	0.02					1.00	0.02	-0.00	0.00	0.00	-0.00	0.03
K1	-0.00587241	3.5e-05						1.00	-0.97	0.92	-0.87	-0.01	-0.00
K2	0.0195731	0.00023							1.00	-0.99	0.96	0.01	0.00
K3	-0.0118878	0.0006								1.00	-0.99	-0.01	-0.01
K4	-0.0179443	0.00054									1.00	0.01	0.01
P1	0.000631584	9.6e-07										1.00	-0.00
P2	-0.00181272	7.4e-07											1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration

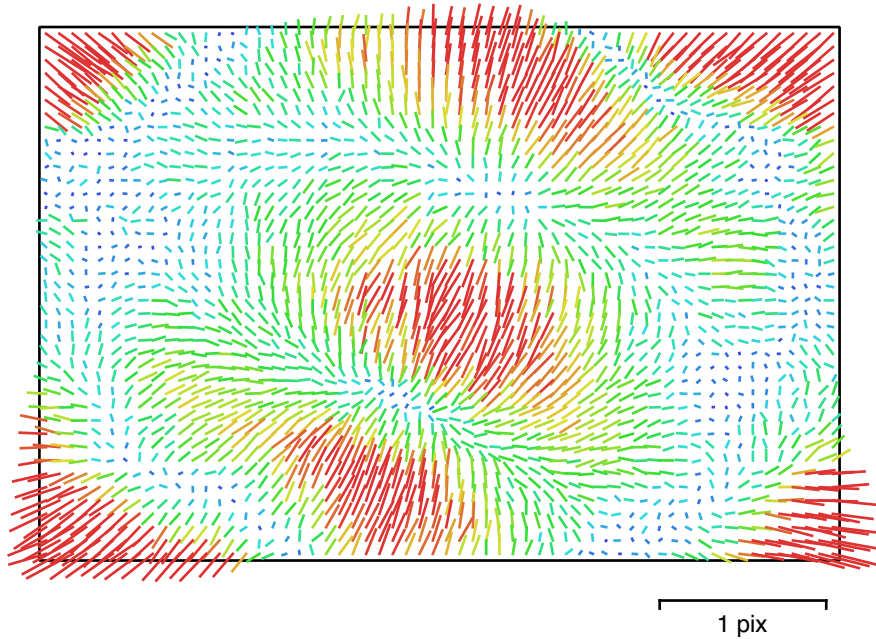


Fig. 3. Image residuals for Test_Pro (10.26mm).

Test_Pro (10.26mm)

131 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	4300.57	0.37	1.00	0.07	0.56	0.00	-0.09	-0.02	0.06	-0.04	-0.00	0.10	-0.23
Cx	5.23108	0.016		1.00	0.10	-0.10	-0.05	-0.00	0.01	-0.00	0.00	0.68	-0.01
Cy	-9.86592	0.015			1.00	0.06	-0.17	-0.01	0.03	-0.02	-0.00	0.11	0.33
B1	3.91681	0.02				1.00	-0.09	-0.01	-0.01	0.01	-0.01	-0.01	-0.03
B2	1.1326	0.02					1.00	0.02	-0.00	0.00	0.00	-0.01	0.02
K1	-0.00564636	3.4e-05						1.00	-0.96	0.92	-0.87	-0.01	0.00
K2	0.0191371	0.00022							1.00	-0.99	0.96	0.01	0.00
K3	-0.0127076	0.00057								1.00	-0.99	-0.01	-0.00
K4	-0.0165143	0.00051									1.00	0.00	0.01
P1	0.000660449	9.1e-07										1.00	-0.03
P2	-0.00184373	6.6e-07											1.00

Table 3. Calibration coefficients and correlation matrix.

Ground Control Points

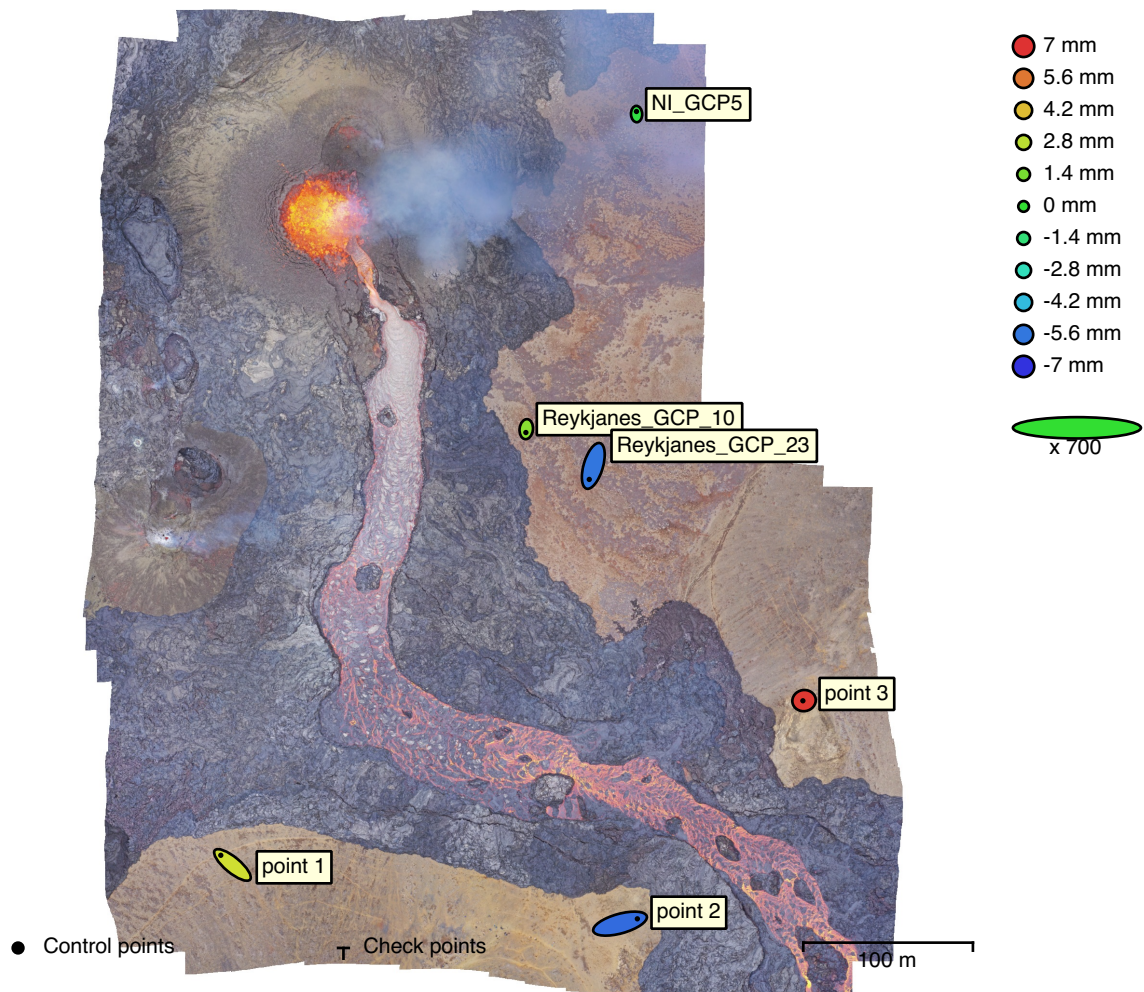


Fig. 4. GCP locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated GCP locations are marked with a dot or crossing.

Count	X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
6	1.46444	1.22514	0.45927	1.90933	1.96379

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

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
NI_GCP5	-0.0196129	0.436702	-0.0362974	0.438647	0.483 (7)
Reykjanes_GCP_10	-0.0639303	-0.563623	0.177008	0.594214	0.614 (24)
Reykjanes_GCP_23	-0.677582	-2.27847	-0.562526	2.44274	0.619 (25)
point 1	-1.96391	1.62765	0.319358	2.57064	0.761 (13)
point 2	2.91721	0.80974	-0.584873	3.08348	0.842 (18)
point 3	-0.192167	-0.0319884	0.687331	0.714406	0.993 (10)
Total	1.46444	1.22514	0.45927	1.96379	0.721

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

Digital Elevation Model

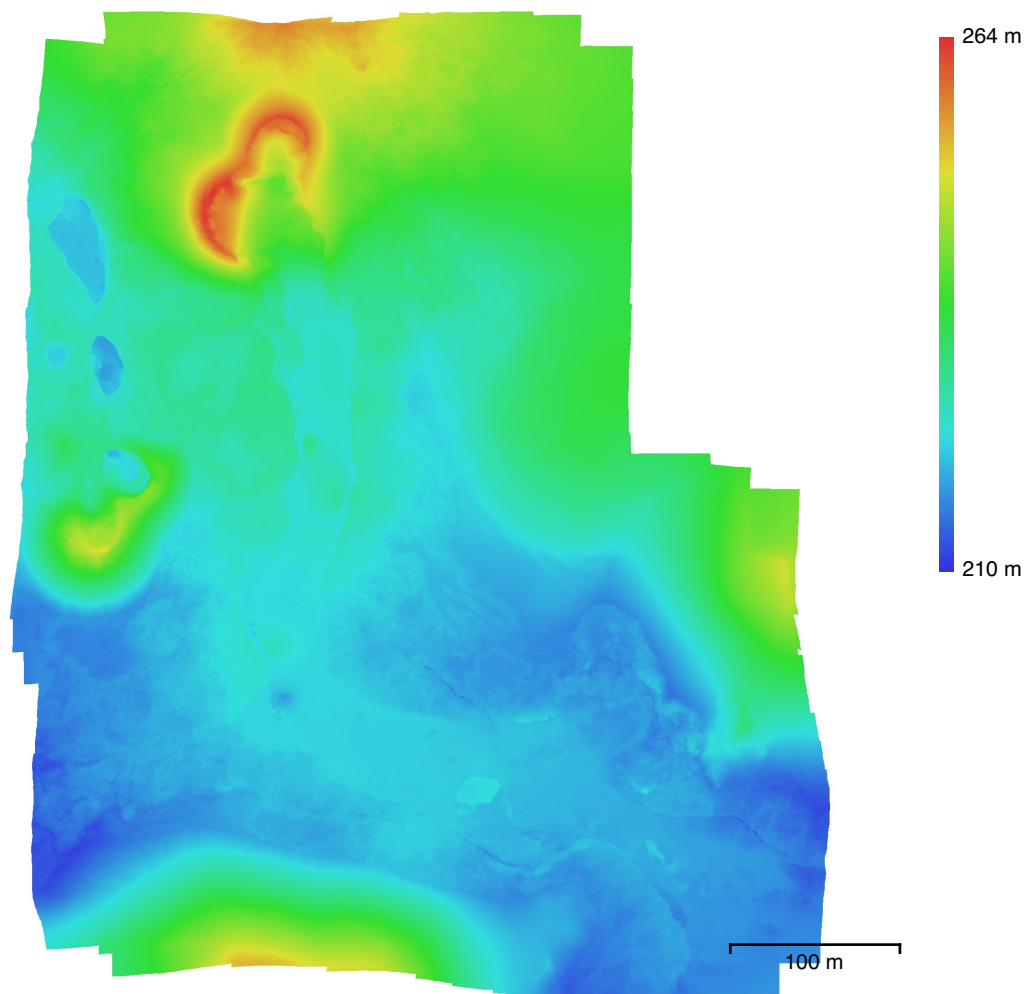


Fig. 5. Reconstructed digital elevation model.

Resolution: 5.86 cm/pix
Point density: 291 points/m²

Processing Parameters

General

Cameras	266
Aligned cameras	265
Markers	111
Coordinate system	WGS 84 / UTM zone 27N (EPSG::32627)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	693,995 of 1,680,001
RMS reprojection error	0.160538 (0.377721 pix)
Max reprojection error	0.581592 (2.07902 pix)
Mean key point size	2.35369 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	4.43939

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	15 minutes 29 seconds
Matching memory usage	743.55 MB
Alignment time	21 minutes 32 seconds
Alignment memory usage	1.61 GB

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k4, p1, p2
Adaptive camera model fitting	No
Optimization time	19 seconds
Date created	2022:03:12 03:38:37
Software version	1.8.1.13915
File size	134.53 MB

Depth Maps

Count	263
Depth maps generation parameters	
Quality	High
Filtering mode	Moderate
Max neighbors	16
Processing time	56 minutes 3 seconds
Memory usage	6.20 GB
Date created	2022:05:27 21:07:17
Software version	1.8.2.0
File size	1.72 GB

Dense Point Cloud

Points	70,404,137
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	High
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Filtering mode	Moderate
Max neighbors	16
Processing time	56 minutes 3 seconds
Memory usage	6.20 GB
Dense cloud generation parameters	
Processing time	1 hours 10 minutes
Memory usage	10.90 GB
Date created	2022:05:27 22:18:01
Software version	1.8.2.0
File size	1.20 GB
DEM	
Size	16,635 x 18,719
Coordinate system	WGS 84 / UTM zone 27N (EPSG::32627)
Reconstruction parameters	
Source data	Dense cloud
Interpolation	Enabled
Processing time	1 minutes 50 seconds
Memory usage	313.28 MB
Date created	2022:05:27 23:52:35
Software version	1.8.2.0
File size	268.39 MB
Orthomosaic	
Size	16,487 x 19,855
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	8 minutes 34 seconds
Memory usage	911.59 MB
Date created	2022:05:28 00:01:50
Software version	1.8.2.0
File size	6.48 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