

Gully Labben

Processing Report
10 March 2021



Survey Data

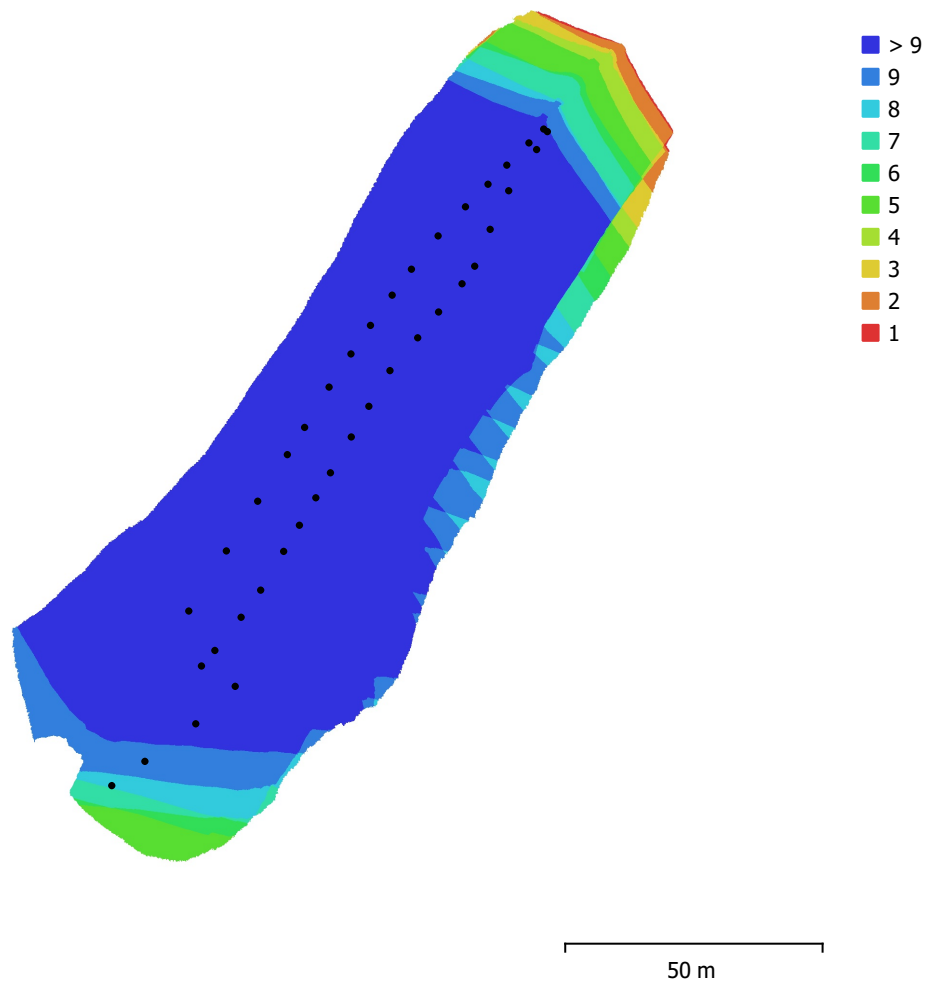


Fig. 1. Camera locations and image overlap.

Number of images:	39	Camera stations:	39
Flying altitude:	59.2 m	Tie points:	25,026
Ground resolution:	1.84 cm/pix	Projections:	162,577
Coverage area:	8.8e+03 m ²	Reprojection error:	0.635 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
FC3170 (4.5mm)	4000 x 3000	4.5 mm	1.62 x 1.62 μ m	No

Table 1. Cameras.

Camera Calibration

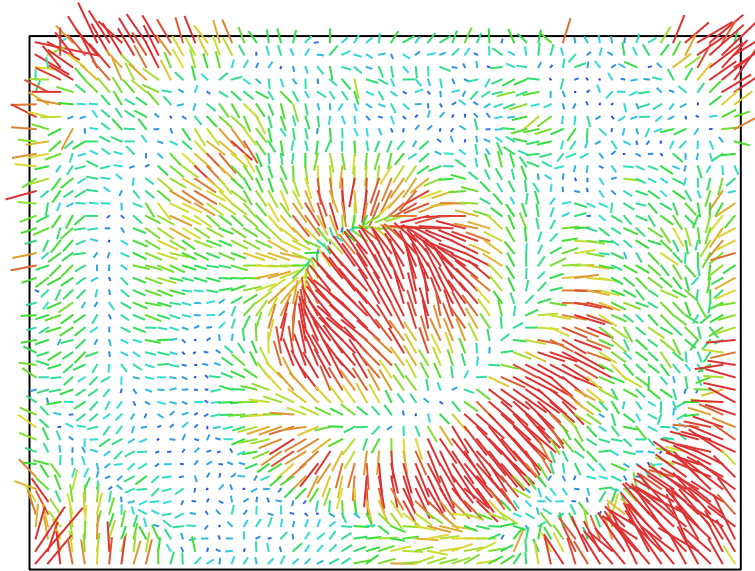


Fig. 2. Image residuals for FC3170 (4.5mm). 1 pix

FC3170 (4.5mm)

39 images

Type
Frame

Resolution
4000 x 3000

Focal Length
4.5 mm

Pixel Size
1.62 x 1.62 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2935.12	0.3	1.00	-0.15	-0.33	-0.02	0.33	-0.45	-0.07	-0.09
Cx	23.9701	0.05		1.00	0.09	-0.12	-0.08	0.13	0.91	0.08
Cy	18.5792	0.053			1.00	-0.03	-0.11	0.15	0.02	0.89
K1	-0.0308125	9.2e-05				1.00	-0.84	0.73	-0.02	-0.04
K2	0.163548	0.0003					1.00	-0.97	-0.05	-0.05
K3	-0.172331	0.00032						1.00	0.07	0.06
P1	0.000780724	5.9e-06							1.00	0.03
P2	-0.000240972	6e-06								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

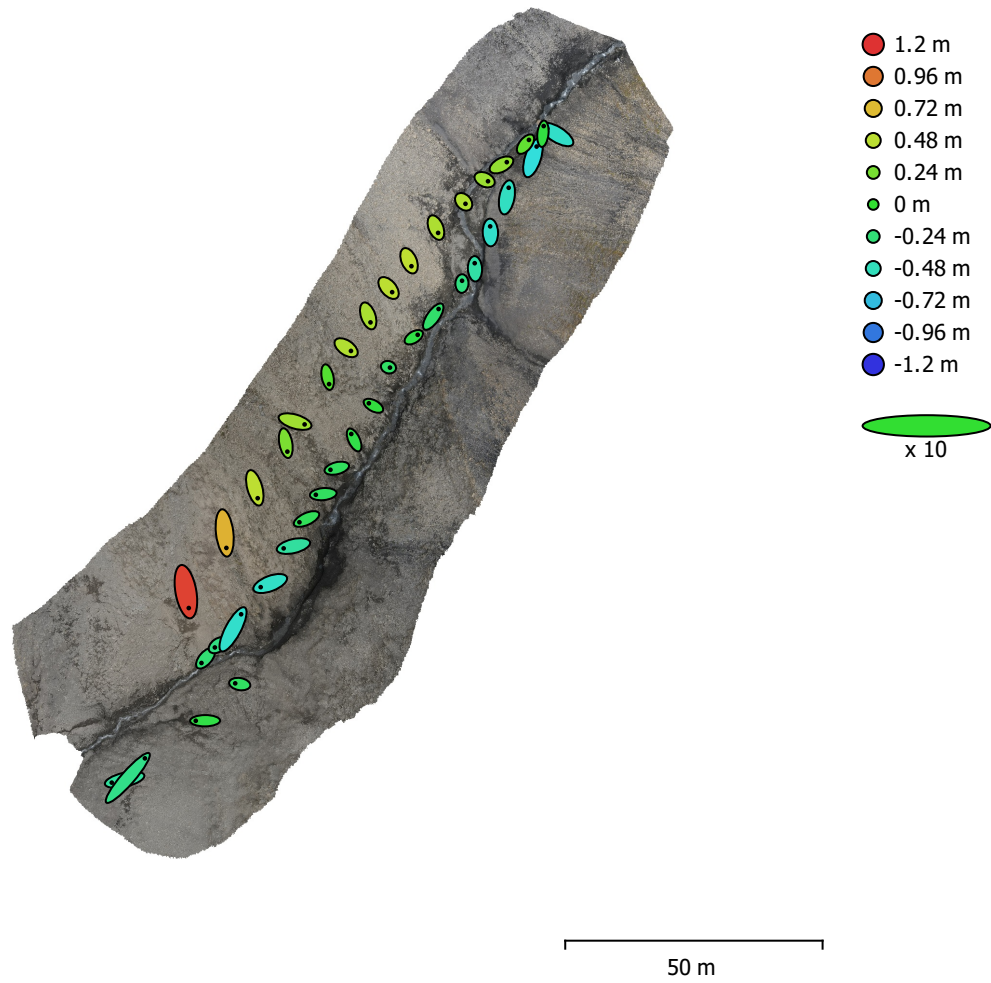


Fig. 3. Camera locations and error estimates.

Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.

Estimated camera locations are marked with a black dot.

X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total error (cm)
23.2557	28.2803	40.7552	36.6142	54.7868

Table 3. Average camera location error.

X - Longitude, Y - Latitude, Z - Altitude.

Digital Elevation Model

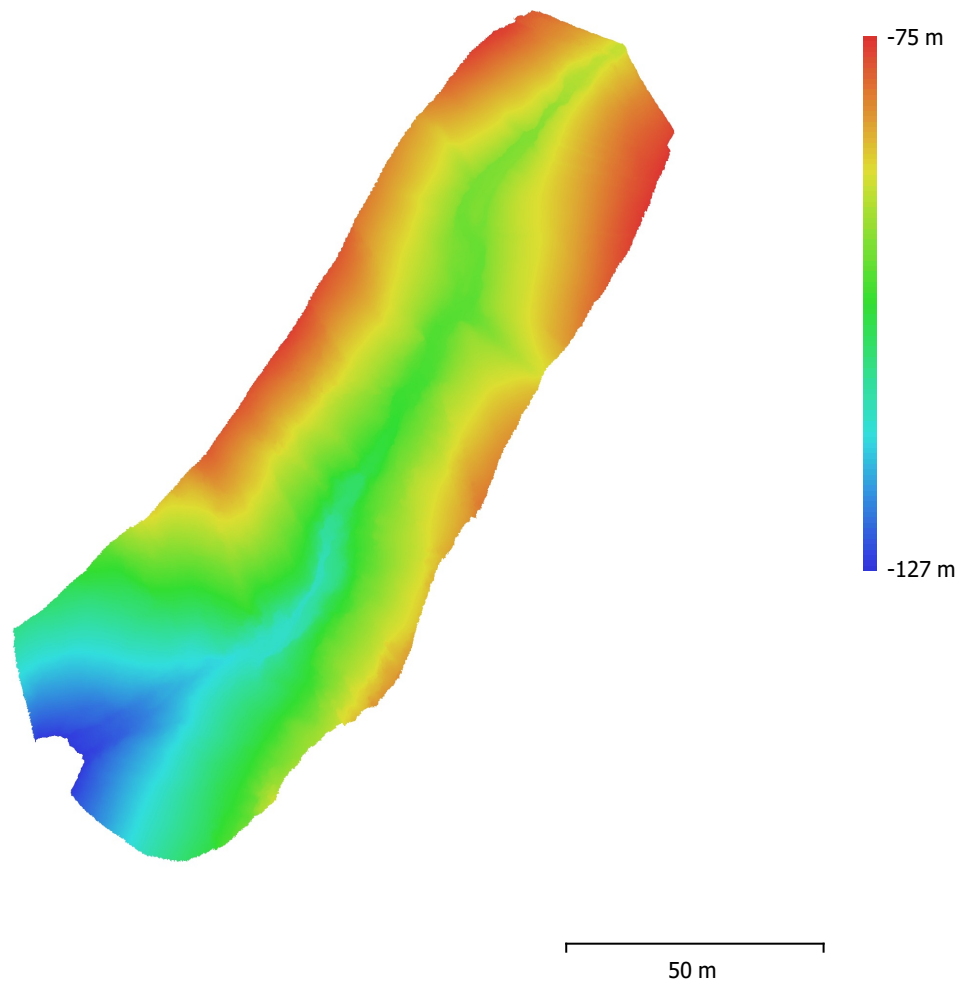


Fig. 4. Reconstructed digital elevation model.

Resolution: 1.84 cm/pix
Point density: 0.296 points/cm²

Processing Parameters

General

Cameras	39
Aligned cameras	39
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	25,026 of 25,968
RMS reprojection error	0.402267 (0.635185 pix)
Max reprojection error	1.20711 (5.38433 pix)
Mean key point size	1.61961 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	6.53035

Alignment parameters

Accuracy	Highest
Generic preselection	Yes
Reference preselection	Source
Key point limit	40,000
Tie point limit	4,000
Guided image matching	No
Adaptive camera model fitting	No
Matching time	18 seconds
Matching memory usage	186.90 MB
Alignment time	9 seconds
Alignment memory usage	44.38 MB
Software version	1.6.3.10732
File size	3.24 MB

Depth Maps

Count	39
Depth maps generation parameters	
Quality	Ultra High
Filtering mode	Mild
Processing time	11 minutes 35 seconds
Memory usage	3.90 GB
Software version	1.6.3.10732
File size	511.86 MB

Dense Point Cloud

Points	79,601,613
Point colors	3 bands, uint8
Depth maps generation parameters	
Quality	Ultra High
Filtering mode	Mild
Processing time	11 minutes 35 seconds
Memory usage	3.90 GB
Dense cloud generation parameters	
Processing time	9 minutes 25 seconds
Memory usage	9.12 GB
Software version	1.6.3.10732
File size	1019.61 MB

Model

Faces	1,148,101
Vertices	576,729
Vertex colors	3 bands, uint8
Texture	8,192 x 8,192, 4 bands, uint8
Depth maps generation parameters	
Quality	Ultra High
Filtering mode	Mild
Processing time	11 minutes 35 seconds
Memory usage	3.90 GB
Reconstruction parameters	
Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Enabled
Strict volumetric masks	No
Processing time	35 minutes 38 seconds
Memory usage	38.00 GB
Texturing parameters	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	8,192
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	8 minutes 52 seconds
Blending time	38 seconds
Software version	1.6.3.10732
File size	143.84 MB
Tiled Model	
Texture	3 bands, uint8
Depth maps generation parameters	
Quality	Ultra High
Filtering mode	Mild
Processing time	11 minutes 35 seconds
Memory usage	3.90 GB
Reconstruction parameters	
Source data	Dense cloud
Tile size	256
Face count	Medium
Enable ghosting filter	No
Processing time	40 minutes 31 seconds
Memory usage	13.71 GB
Software version	1.7.1.11797
File size	100.92 MB
System	
Software name	Agisoft Metashape Professional
Software version	1.7.1 build 11797
OS	Windows 64 bit
RAM	127.78 GB
CPU	Intel(R) Core(TM) i9-9900K CPU @ 3.60GHz
GPU(s)	GeForce RTX 2080