

# Gloss Mountain OK 2021

Processing Report  
16 December 2021



# Survey Data

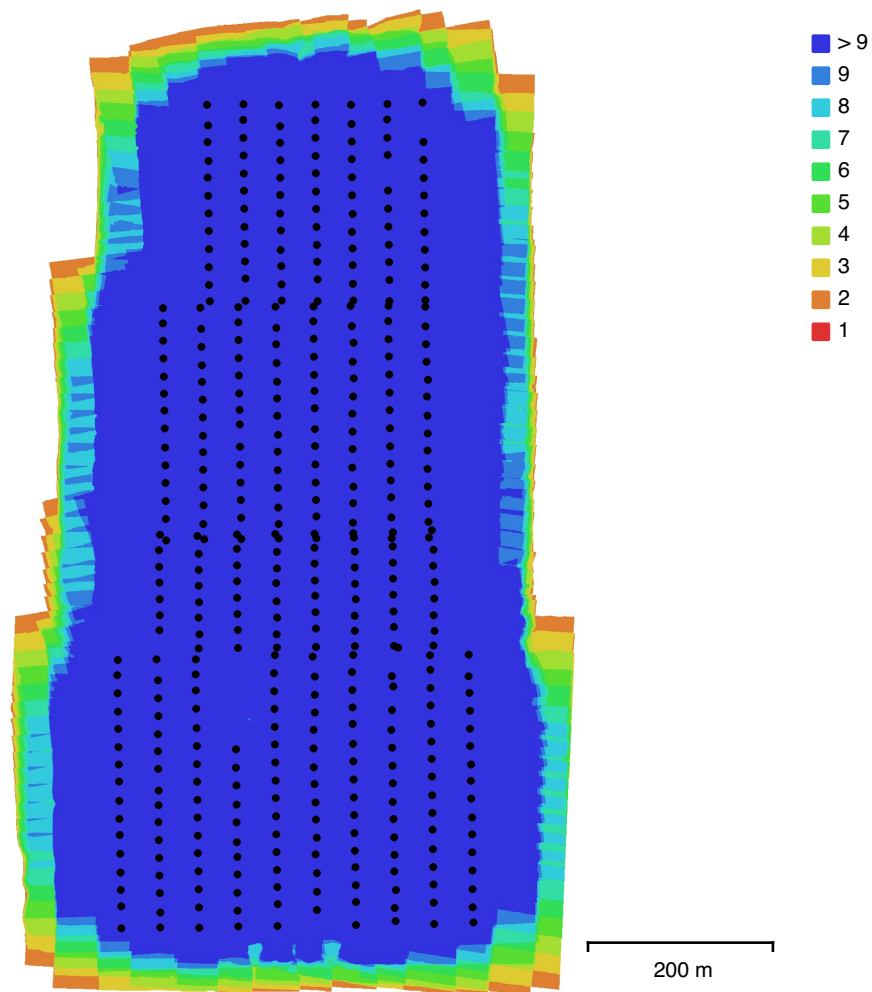


Fig. 1. Camera locations and image overlap.

Number of images:	411	Camera stations:	411
Flying altitude:	138 m	Tie points:	259,112
Ground resolution:	3.48 cm/pix	Projections:	1,633,038
Coverage area:	0.559 km <sup>2</sup>	Reprojection error:	0.562 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
FC6310 (8.8mm)	5472 x 3648	8.8 mm	2.41 x 2.41 $\mu$ m	No

Table 1. Cameras.

# Camera Calibration

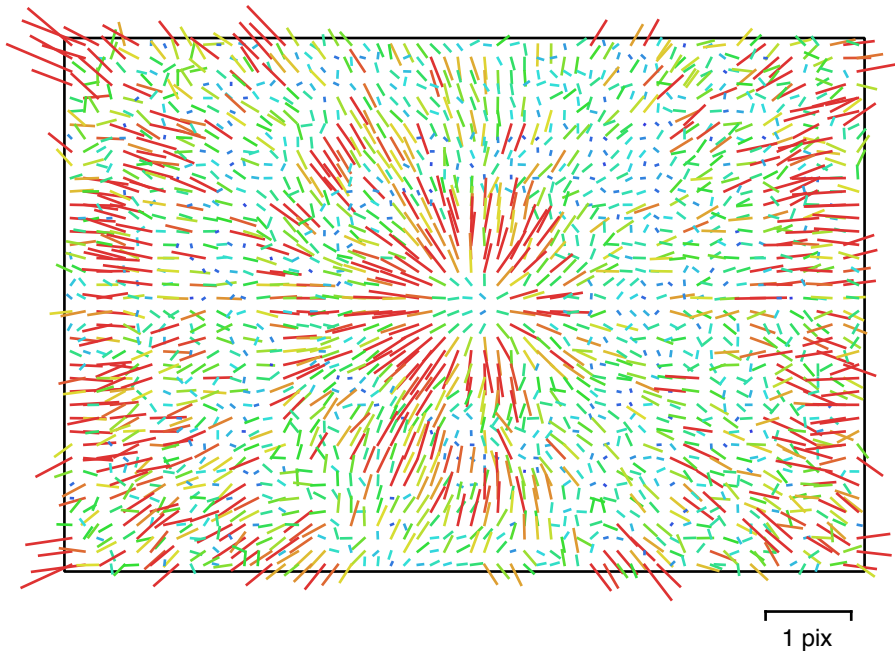


Fig. 2. Image residuals for FC6310 (8.8mm).

## FC6310 (8.8mm)

411 images

Type	Resolution	Focal Length	Pixel Size
Frame	<b>5472 x 3648</b>	<b>8.8 mm</b>	<b>2.41 x 2.41 <math>\mu\text{m}</math></b>

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
<b>F</b>	<b>3657.53</b>	0.34	1.00	0.51	-0.76	0.10	-0.09	0.15	-0.06	0.00
<b>Cx</b>	<b>-7.68162</b>	0.012		1.00	-0.38	0.04	-0.05	0.08	0.63	0.01
<b>Cy</b>	<b>18.06</b>	0.013			1.00	-0.08	0.08	-0.13	0.05	0.42
<b>K1</b>	<b>0.0026761</b>	1.8e-05				1.00	-0.75	0.73	0.05	-0.13
<b>K2</b>	<b>-0.0104101</b>	4e-05					1.00	-0.98	0.00	-0.01
<b>K3</b>	<b>0.00966775</b>	3.5e-05						1.00	-0.01	0.00
<b>P1</b>	<b>-0.000728837</b>	9.6e-07							1.00	-0.01
<b>P2</b>	<b>0.000226493</b>	7.5e-07								1.00

Table 2. Calibration coefficients and correlation matrix.

# Camera Locations

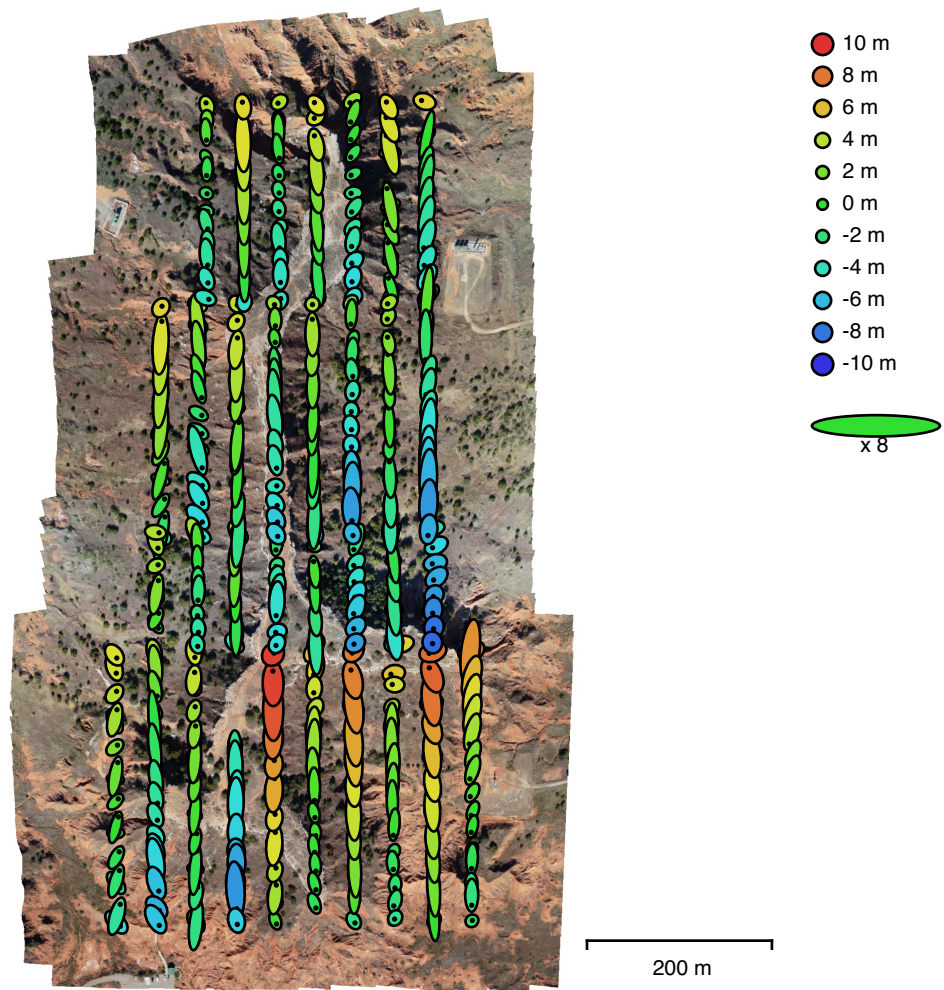


Fig. 3. Camera locations and error estimates.

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 (m)	Y error (m)	Z error (m)	XY error (m)	Total error (m)
0.508516	2.76018	3.74416	2.80663	4.6793

Table 3. Average camera location error.

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

# Digital Elevation Model

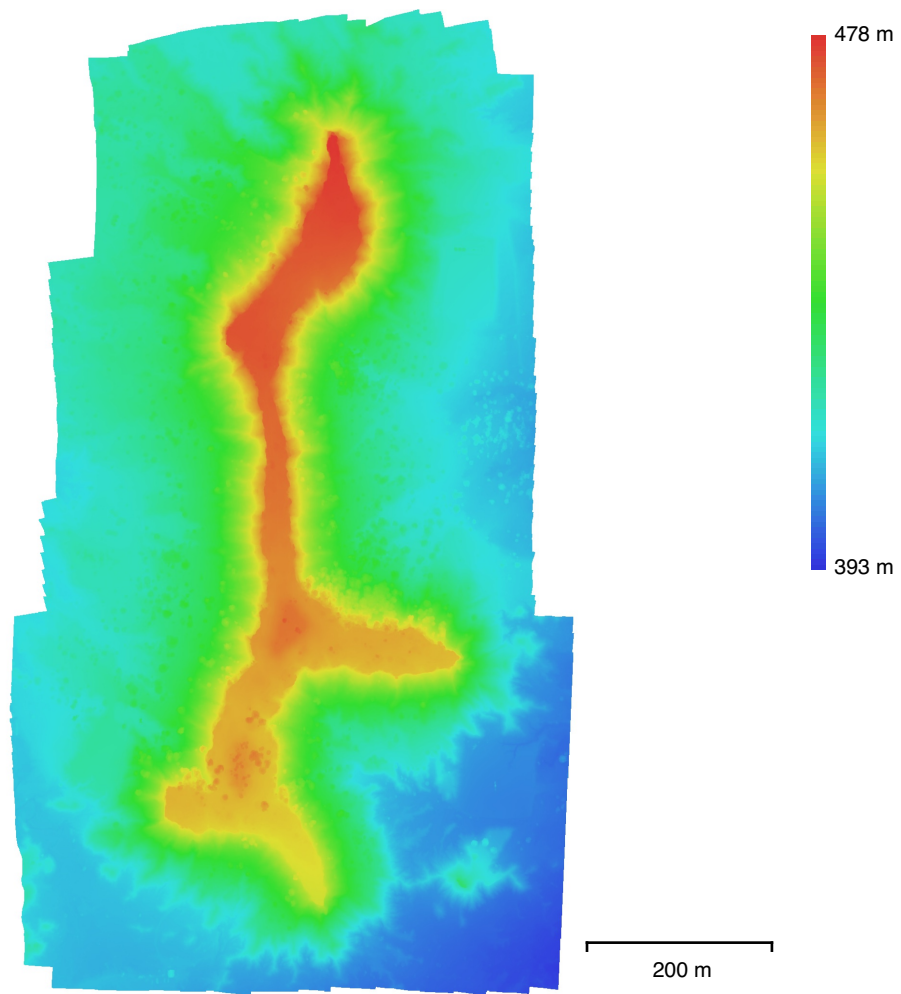


Fig. 4. Reconstructed digital elevation model.

Resolution: 6.97 cm/pix  
Point density: 206 points/m<sup>2</sup>

# Processing Parameters

## General

Cameras	411
Aligned cameras	411
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

## Point Cloud

Points	259,112 of 273,243
RMS reprojection error	0.210756 (0.561661 pix)
Max reprojection error	0.632868 (36.2485 pix)
Mean key point size	2.58924 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	6.63421

## Alignment parameters

Accuracy	High
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	15 minutes 28 seconds
Matching memory usage	2.33 GB
Alignment time	3 minutes 43 seconds
Alignment memory usage	250.78 MB
Software version	1.6.6.11715
File size	34.43 MB

## Depth Maps

Count	411
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## Depth maps generation parameters

Quality	High
Filtering mode	Mild
Processing time	17 hours 38 minutes
File size	2.93 GB

## Dense Point Cloud

Points	154,968,459
Point colors	3 bands, uint8

## Depth maps generation parameters

Quality	High
Filtering mode	Mild
Processing time	17 hours 38 minutes

## Dense cloud generation parameters

Processing time	6 hours 44 minutes
Software version	1.6.6.11715
File size	1.97 GB

## DEM

Size	9,476 x 17,953
Coordinate system	WGS 84 (EPSG::4326)

## Reconstruction parameters

Source data	Dense cloud
Interpolation	Enabled

Processing time	2 minutes 43 seconds
Memory usage	329.34 MB
Software version	1.6.6.11715
File size	448.81 MB
<b>Orthomosaic</b>	
Size	17,518 x 30,642
Coordinate system	WGS 84 (EPSG::4326)
Colors	3 bands, uint8
<b>Reconstruction parameters</b>	
Blending mode	Mosaic
Surface	DEM
Enable hole filling	Yes
Processing time	23 minutes 26 seconds
Memory usage	2.16 GB
Software version	1.6.6.11715
File size	11.29 GB
<b>System</b>	
Software name	Agisoft Metashape Professional
Software version	1.6.6 build 11715
OS	Mac OS 64 bit
RAM	32.00 GB
CPU	Intel(R) Xeon(R) CPU W3530 @ 2.80GHz
GPU(s)	ATI Radeon HD 5770 ATI Radeon HD 5770