

# Agisoft Metashape

Processing Report  
04 January 2023



# Survey Data

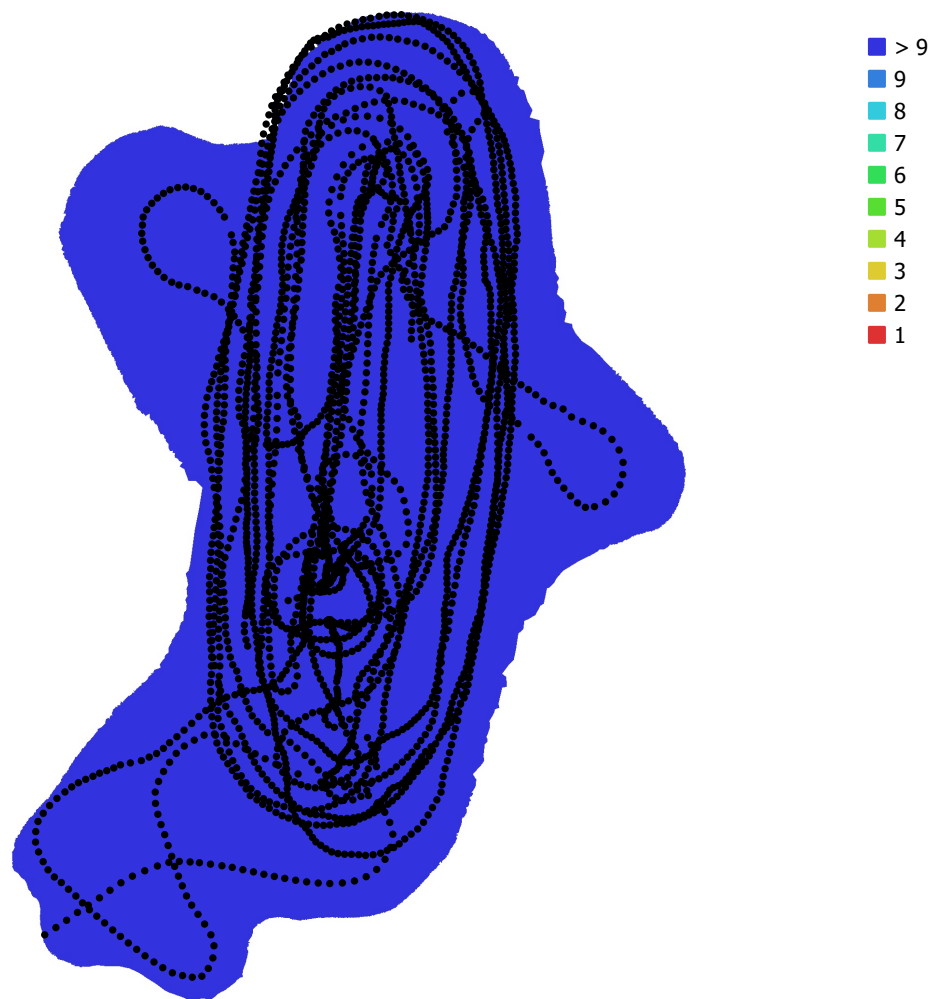


Fig. 1. Camera locations and image overlap.

Number of images: 3,171

Camera stations: 3,101

Tie points: 1,606,792

Projections: 5,445,938

Reprojection error: 1.11 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
Canon EOS 5D Mark IV, ...	6720 x 4480	15 mm	5.36 x 5.36 $\mu\text{m}$	No

Table 1. Cameras.

# Camera Calibration

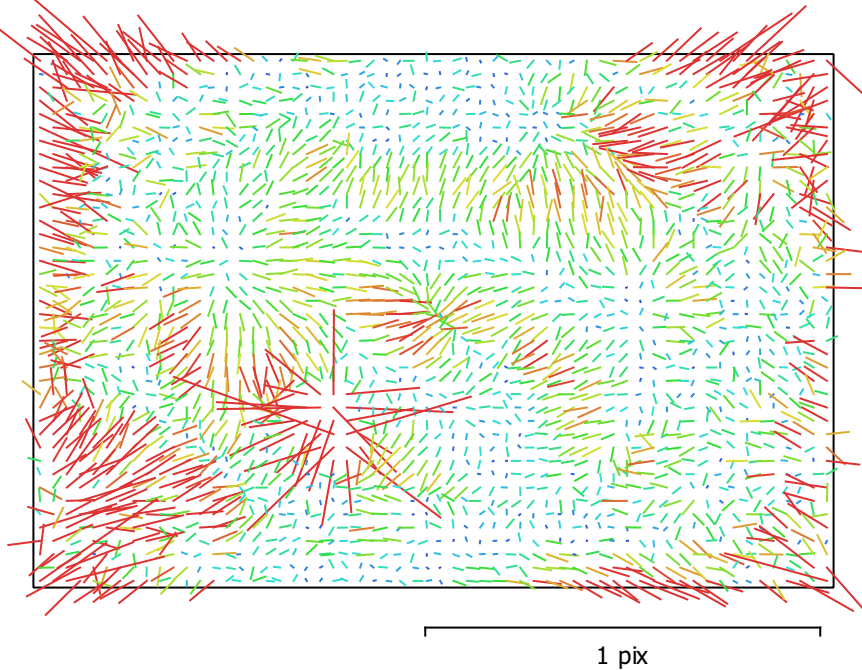


Fig. 2. Image residuals for Canon EOS 5D Mark IV, EF8-15mm f/4L FISHEYE USM (15mm).

## Canon EOS 5D Mark IV, EF8-15mm f/4L FISHEYE USM (15mm)

3171 images

Type	Resolution	Focal Length	Pixel Size
<b>Fisheye</b>	<b>6720 x 4480</b>	<b>15 mm</b>	<b>5.36 x 5.36 <math>\mu</math>m</b>

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
<b>F</b>	<b>3088.61</b>	0.015	1.00	-0.16	0.01	-0.59	0.36	-0.27	0.14	-0.03
<b>Cx</b>	<b>-5.26239</b>	0.012		1.00	-0.06	0.04	-0.01	0.00	-0.68	0.03
<b>Cy</b>	<b>-25.7232</b>	0.014			1.00	-0.00	0.01	-0.01	0.02	-0.66
<b>K1</b>	<b>-0.0460261</b>	7.4e-06				1.00	-0.92	0.83	-0.06	0.02
<b>K2</b>	<b>0.00532094</b>	1e-05					1.00	-0.97	0.00	-0.02
<b>K3</b>	<b>-0.00123516</b>	4.2e-06						1.00	0.01	0.02
<b>P1</b>	<b>-0.000305794</b>	5.9e-07							1.00	-0.01
<b>P2</b>	<b>-9.98834e-05</b>	5.7e-07								1.00

Table 2. Calibration coefficients and correlation matrix.

# Digital Elevation Model

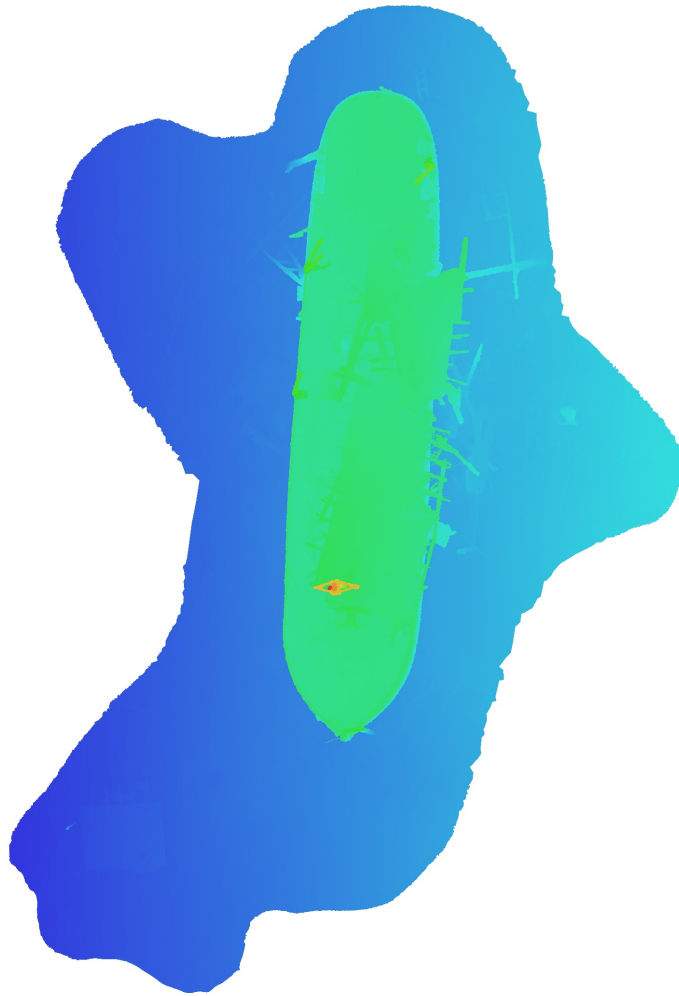


Fig. 3. Reconstructed digital elevation model.

# Processing Parameters

## General

Cameras	3171
Aligned cameras	3101
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll

## Point Cloud

Points	1,606,792 of 1,858,832
RMS reprojection error	0.166674 (1.1086 pix)
Max reprojection error	0.891297 (63.4285 pix)
Mean key point size	4.91815 pix
Point colors	3 bands, uint8
Key points	7.76 GB
Average tie point multiplicity	3.8804

## Alignment parameters

Accuracy	High
Generic preselection	Yes
Reference preselection	No
Key point limit	30,000
Key point limit per Mpx	1,000
Tie point limit	2,500
Exclude stationary tie points	Yes
Guided image matching	No
Adaptive camera model fitting	No
Matching time	15 seconds
Matching memory usage	132.74 MB
Alignment time	36 minutes 45 seconds
Alignment memory usage	2.94 GB

## Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	49 seconds
Date created	2022:09:25 05:12:16
Software version	1.8.0.13794
File size	180.24 MB

## Depth Maps

Count	3091
<b>Depth maps generation parameters</b>	
Quality	Medium
Filtering mode	Moderate
Max neighbors	16
Processing time	1 hours 19 minutes
Memory usage	2.32 GB
Date created	2022:09:25 07:10:14
Software version	1.8.0.13794
File size	6.41 GB

## Dense Point Cloud

Points	242,391,738
Point colors	3 bands, uint8
<b>Depth maps generation parameters</b>	
Quality	Medium

Filtering mode	Moderate
Max neighbors	16
Processing time	1 hours 19 minutes
Memory usage	2.32 GB
<b>Dense cloud generation parameters</b>	
Processing time	14 hours 10 minutes
Memory usage	29.13 GB
Date created	2022:10:04 19:01:35
Software version	1.8.0.13794
File size	3.29 GB
<b>Model</b>	
Faces	8,000,000
Vertices	4,001,045
Vertex colors	3 bands, uint8
Texture	8,192 x 8,192, 4 bands, uint8
<b>Depth maps generation parameters</b>	
Quality	Medium
Filtering mode	Moderate
Max neighbors	16
Processing time	1 hours 19 minutes
Memory usage	2.32 GB
<b>Reconstruction parameters</b>	
Surface type	Arbitrary
Source data	Depth maps
Interpolation	Enabled
Strict volumetric masks	No
Processing time	31 minutes 26 seconds
Memory usage	10.90 GB
<b>Texturing parameters</b>	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	8,192
Enable hole filling	Yes
Enable ghosting filter	No
UV mapping time	2 minutes 42 seconds
UV mapping memory usage	2.62 GB
Blending time	11 minutes 48 seconds
Blending memory usage	5.08 GB
Blending GPU memory usage	2.43 GB
Date created	2022:09:25 07:40:36
Software version	1.8.0.13794
File size	450.13 MB
<b>System</b>	
Software name	Agisoft Metashape Professional
Software version	1.8.0 build 13794
OS	Windows 64 bit
RAM	63.92 GB
CPU	Intel(R) Core(TM) i9-9900K CPU @ 3.60GHz
GPU(s)	NVIDIA GeForce RTX 2060 SUPER