Agisoft Metashape

Processing Report
20 February 2026

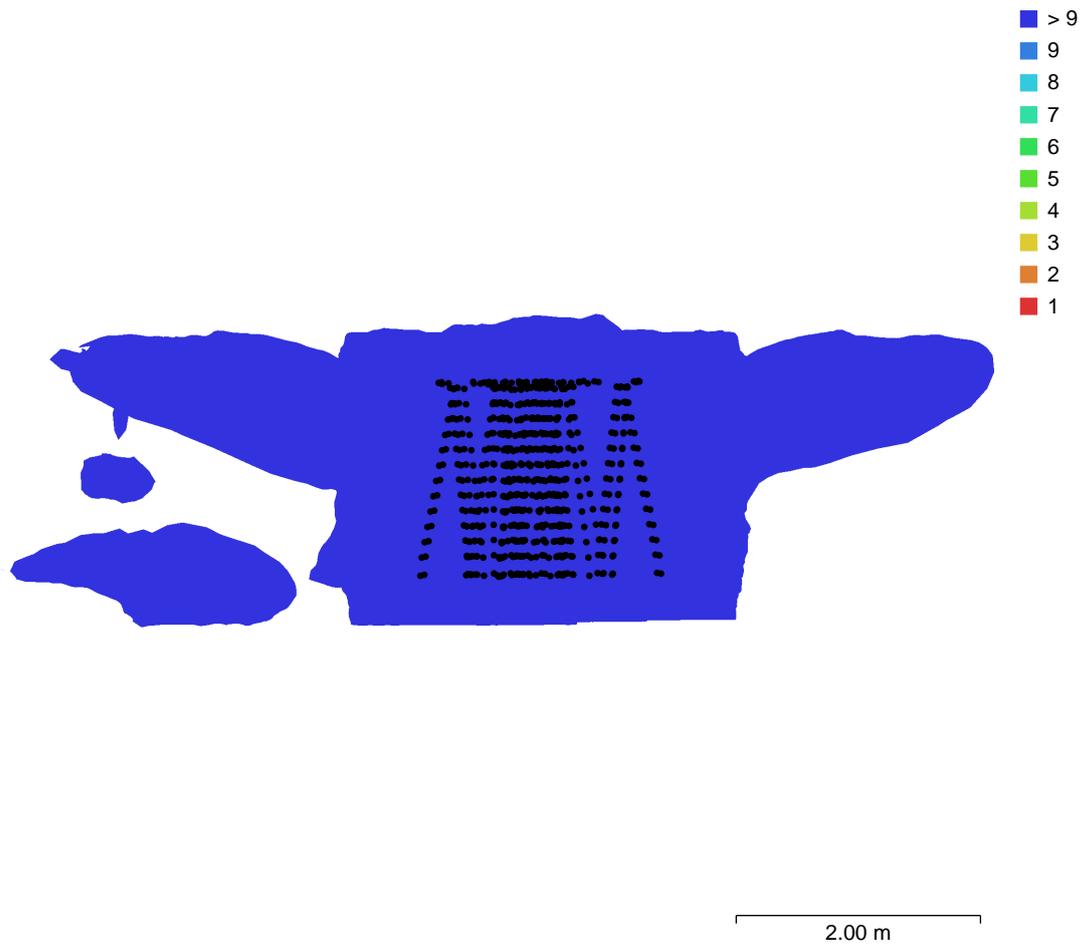# Survey Data

Fig. 1. Camera locations and image overlap.

Legend:
- > 9
- 9
- 8
- 7
- 6
- 5
- 4
- 3
- 2
- 1

2.00 m

Number of images:	672	Camera stations:	672
Flying altitude:	45.6 cm	Tie points:	204,558
Ground resolution:	0.487 mm/pix	Projections:	551,508
Coverage area:	13.4 m^2	Reprojection error:	0.307 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
40	8660 x 5784	6 mm	4.17 x 4.17 um	No
41	8660 x 5784	6 mm	4.17 x 4.17 um	No
42	8660 x 5784	6 mm	4.17 x 4.17 um	No
43	8660 x 5784	6 mm	4.17 x 4.17 um	No
44	8660 x 5784	6 mm	4.17 x 4.17 um	No

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
45	8660 x 5784	6 mm	4.17 x 4.17 um	No
46	8660 x 5784	6 mm	4.17 x 4.17 um	No
47	8660 x 5784	6 mm	4.17 x 4.17 um	No
48	8660 x 5784	6 mm	4.17 x 4.17 um	No
49	8660 x 5784	6 mm	4.17 x 4.17 um	No
50	8660 x 5784	6 mm	4.17 x 4.17 um	No
51	8660 x 5784	6 mm	4.17 x 4.17 um	No
52	8660 x 5784	6 mm	4.17 x 4.17 um	No
53	8660 x 5784	6 mm	4.17 x 4.17 um	No

Table 1. Cameras.

Camera Calibration
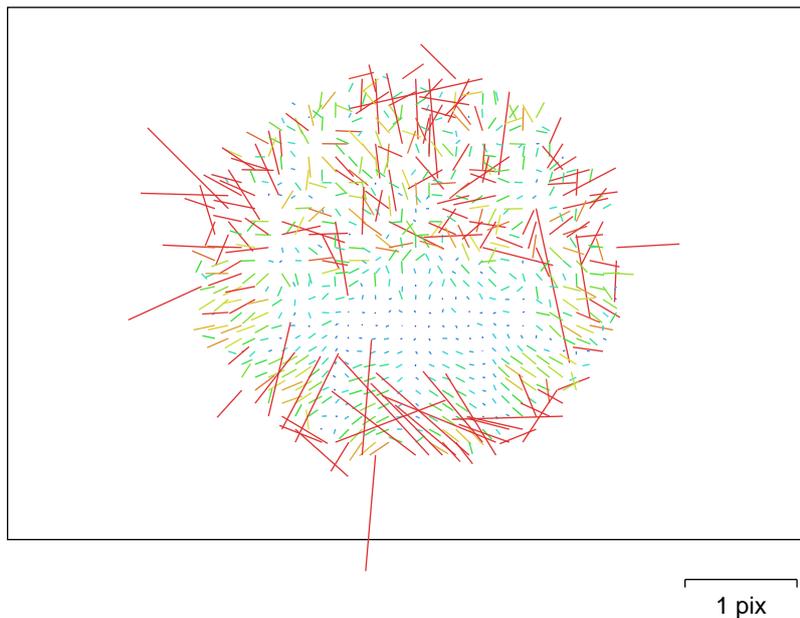
Fig. 2. Image residuals for 40.

40

48 images

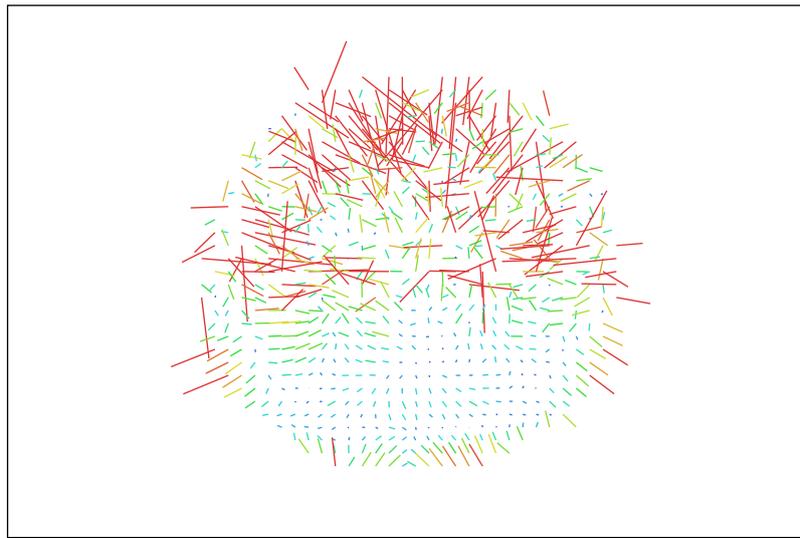| Type	Resolution	Focal Length	Pixel Size
Fisheye	**8660 x 5784**	**6 mm**	**4.17 x 4.17 um**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**1443.18**	0.026	1.00	0.01	-0.14	-0.76	0.66	-0.60	-0.02	0.27
Cx	**14.141**	0.041		1.00	-0.01	0.00	-0.01	0.01	-0.65	0.00
Cy	**-23.6356**	0.094			1.00	0.01	0.00	-0.00	0.03	-0.90
K1	**-0.0076715**	4.4e-05				1.00	-0.97	0.92	0.00	-0.03
K2	**0.00345536**	3.7e-05					1.00	-0.98	-0.00	-0.02
K3	**-0.00201916**	9.5e-06						1.00	0.00	0.03
P1	**0.000215497**	2.1e-06							1.00	-0.03
P2	**0.000753486**	6.2e-06								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix

Fig. 3. Image residuals for 41.

41

48 images

Type	Resolution	Focal Length	Pixel Size
Fisheye	**8660 x 5784**	**6 mm**	**4.17 x 4.17 um**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**1443.15**	0.03	1.00	0.01	0.17	-0.84	0.76	-0.72	-0.01	-0.03
Cx	**5.22863**	0.037		1.00	-0.01	-0.01	0.00	-0.00	-0.74	0.01
Cy	**-37.5093**	0.097			1.00	-0.00	-0.01	0.00	0.02	-0.93
K1	**-0.00790361**	4e-05				1.00	-0.98	0.94	0.01	-0.03
K2	**0.00291618**	2.8e-05					1.00	-0.99	-0.00	0.02
K3	**-0.00172435**	6e-06						1.00	0.00	-0.02
P1	**0.000182209**	1.8e-06							1.00	-0.03
P2	**0.000754226**	6e-06								1.00

Table 3. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix
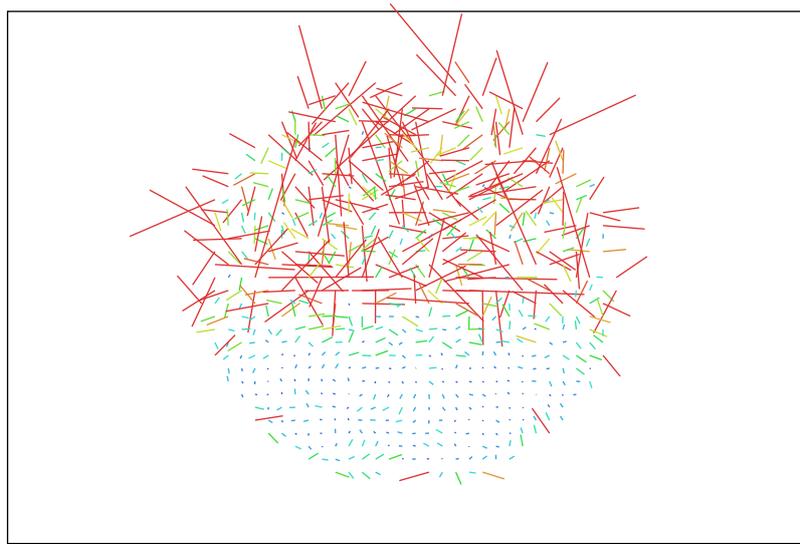
Fig. 4. Image residuals for 42.

42

48 images

Type	Resolution	Focal Length	Pixel Size
Fisheye	**8660 x 5784**	**6 mm**	**4.17 x 4.17 um**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**1436.7**	0.033	1.00	0.02	0.17	-0.86	0.78	-0.74	-0.03	-0.05
Cx	**1.27513**	0.036		1.00	-0.01	-0.02	0.01	-0.01	-0.77	0.01
Cy	**-10.2069**	0.1			1.00	-0.00	-0.01	0.01	0.02	-0.94
K1	**-0.00665898**	4.3e-05				1.00	-0.98	0.95	0.02	-0.03
K2	**0.00200368**	2.9e-05					1.00	-0.99	-0.01	0.02
K3	**-0.00157477**	6.3e-06						1.00	0.01	-0.02
P1	**-0.000182942**	1.9e-06							1.00	-0.02
P2	**8.85154e-05**	6.2e-06								1.00

Table 4. Calibration coefficients and correlation matrix.

Camera Calibration
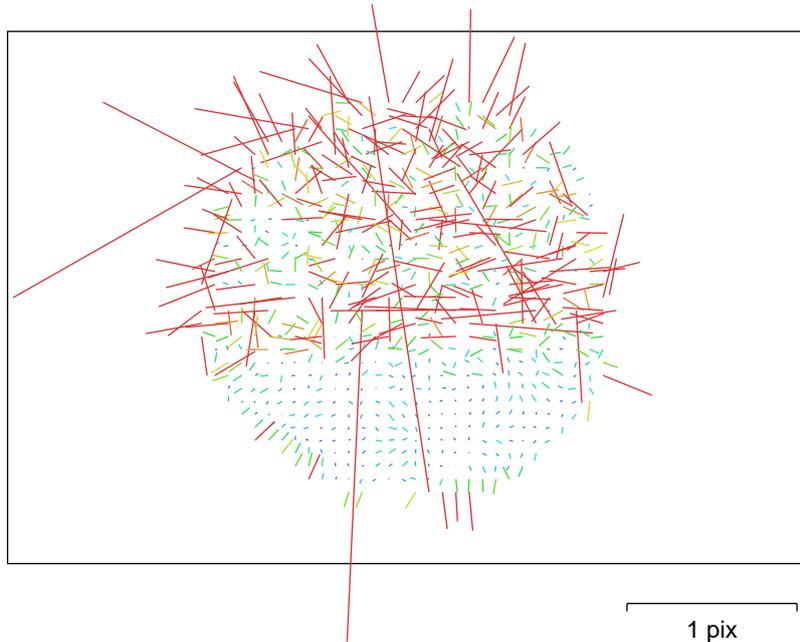
Fig. 5. Image residuals for 43.

43

48 images

Type	Resolution	Focal Length	Pixel Size
Fisheye	**8660 x 5784**	**6 mm**	**4.17 x 4.17 um**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**1449.85**	0.037	1.00	0.01	0.17	-0.86	0.79	-0.75	-0.02	-0.06
Cx	**-8.05151**	0.037		1.00	-0.02	-0.01	0.01	-0.00	-0.79	0.02
Cy	**-54.6945**	0.11			1.00	-0.00	-0.01	0.01	0.02	-0.95
K1	**-0.00621964**	4.7e-05				1.00	-0.98	0.95	0.01	-0.03
K2	**0.00146713**	3.1e-05					1.00	-0.99	-0.01	0.01
K3	**-0.00146282**	6.6e-06						1.00	0.01	-0.01
P1	**0.000201369**	1.9e-06							1.00	-0.02
P2	**-0.000134004**	6.5e-06								1.00

Table 5. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix
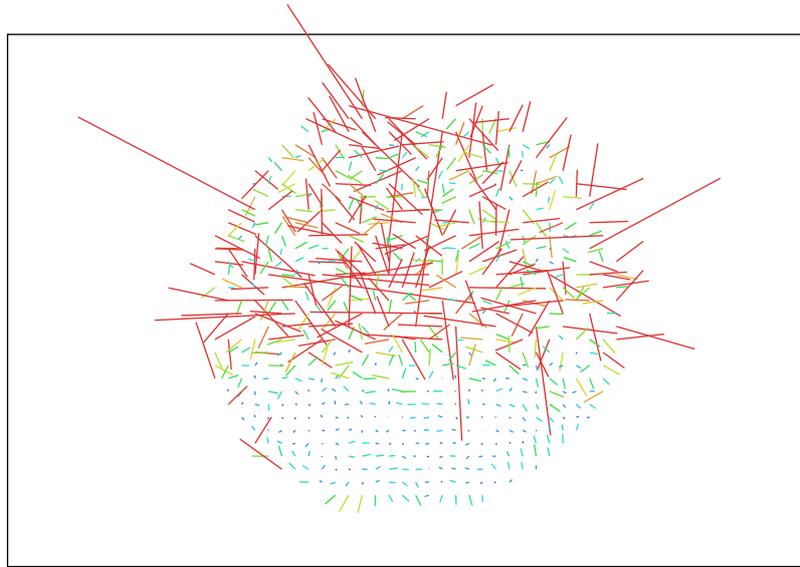
Fig. 6. Image residuals for 44.

44

48 images

Type	Resolution	Focal Length	Pixel Size
Fisheye	**8660 x 5784**	**6 mm**	**4.17 x 4.17 um**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**1444.22**	0.042	1.00	0.02	0.16	-0.87	0.81	-0.77	-0.02	-0.07
Cx	**26.9197**	0.041		1.00	-0.03	-0.01	0.01	-0.01	-0.81	0.03
Cy	**7.95255**	0.12			1.00	0.00	-0.01	0.01	0.03	-0.95
K1	**-0.00613402**	5.3e-05				1.00	-0.98	0.95	0.01	-0.01
K2	**0.0014742**	3.5e-05					1.00	-0.99	-0.01	0.00
K3	**-0.00143969**	7.3e-06						1.00	0.00	-0.00
P1	**0.000206292**	2.1e-06							1.00	-0.03
P2	**0.000607424**	6.8e-06								1.00

Table 6. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix
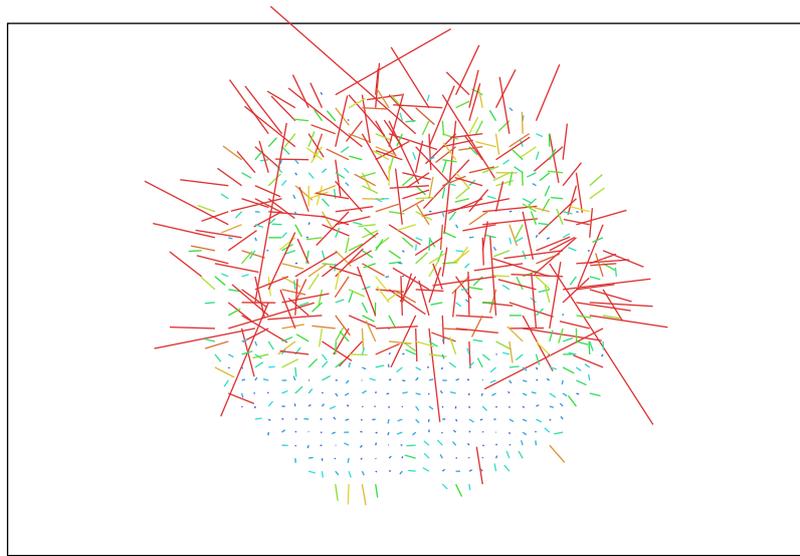
Fig. 7. Image residuals for 45.

45

48 images

Type	Resolution	Focal Length	Pixel Size
Fisheye	**8660 x 5784**	**6 mm**	**4.17 x 4.17 um**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**1449.81**	0.045	1.00	-0.00	0.15	-0.87	0.81	-0.77	-0.01	-0.08
Cx	**1.04092**	0.046		1.00	-0.01	0.00	-0.00	0.00	-0.84	0.01
Cy	**-34.2769**	0.13			1.00	0.01	-0.02	0.01	0.01	-0.96
K1	**-0.0057259**	5.6e-05				1.00	-0.98	0.95	0.01	-0.01
K2	**0.00103651**	3.7e-05					1.00	-0.99	-0.00	0.00
K3	**-0.00136433**	7.8e-06						1.00	0.00	0.00
P1	**-0.000136496**	2.3e-06							1.00	-0.01
P2	**-1.31258e-05**	7.2e-06								1.00

Table 7. Calibration coefficients and correlation matrix.

Camera Calibration
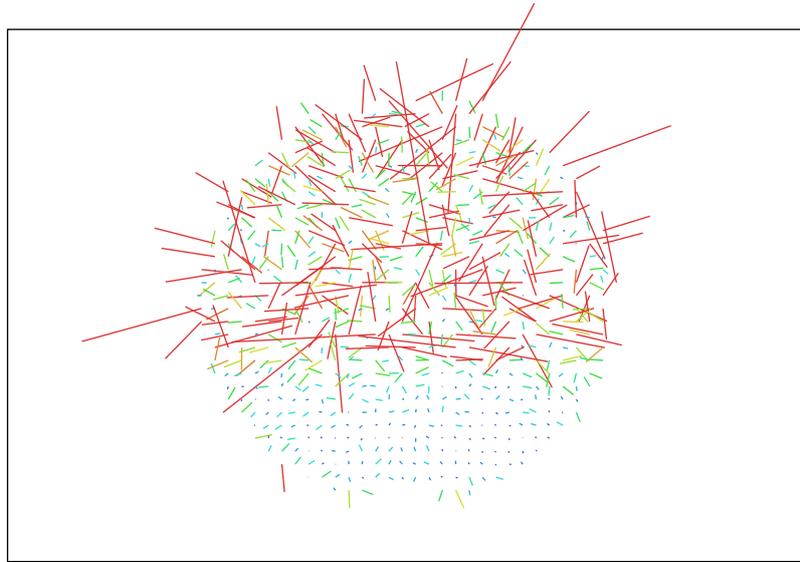
Fig. 8. Image residuals for 46.

46

48 images

Type	Resolution	Focal Length	Pixel Size
Fisheye	**8660 x 5784**	**6 mm**	**4.17 x 4.17 um**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**1437.8**	0.051	1.00	-0.01	0.13	-0.88	0.82	-0.78	-0.00	-0.08
Cx	**-12.5985**	0.053		1.00	-0.02	0.01	-0.01	0.01	-0.86	0.02
Cy	**-12.7911**	0.13			1.00	0.01	-0.02	0.02	0.02	-0.96
K1	**-0.00596262**	6.4e-05				1.00	-0.98	0.95	0.01	-0.01
K2	**0.00106998**	4.2e-05					1.00	-0.99	-0.01	0.00
K3	**-0.00136871**	8.9e-06						1.00	0.01	0.00
P1	**-0.000175502**	2.6e-06							1.00	-0.02
P2	**0.000134569**	7.7e-06								1.00

Table 8. Calibration coefficients and correlation matrix.

Camera Calibration
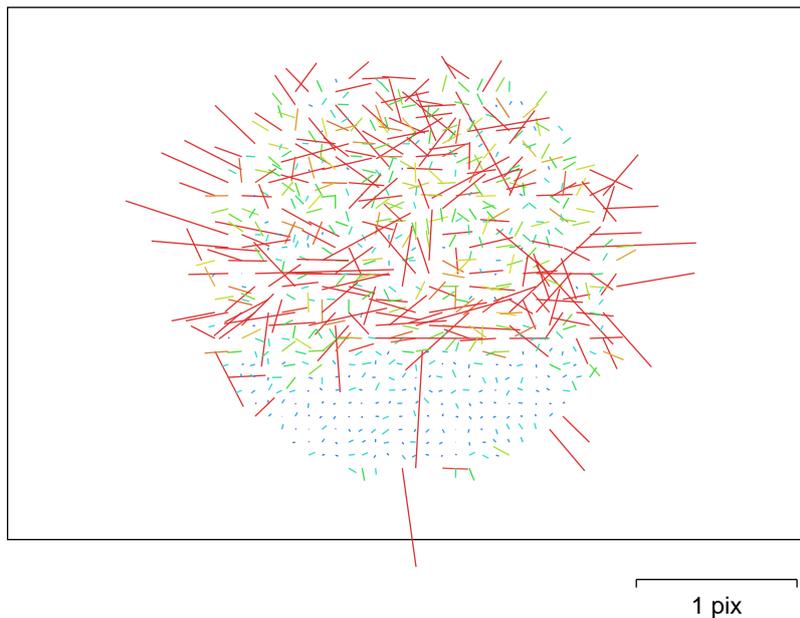
Fig. 9. Image residuals for 47.

47

48 images

Type	Resolution	Focal Length	Pixel Size
Fisheye	**8660 x 5784**	**6 mm**	**4.17 x 4.17 um**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**1449.7**	0.054	1.00	-0.01	0.14	-0.87	0.81	-0.77	-0.00	-0.11
Cx	**17.4857**	0.062		1.00	0.01	0.01	-0.01	0.01	-0.88	-0.00
Cy	**-40.6308**	0.14			1.00	0.01	-0.02	0.01	-0.01	-0.96
K1	**-0.0047539**	6.8e-05				1.00	-0.98	0.95	0.00	0.01
K2	**0.000453431**	4.5e-05					1.00	-0.99	-0.00	-0.02
K3	**-0.00126081**	9.5e-06						1.00	0.00	0.02
P1	**-0.00016945**	3e-06							1.00	0.00
P2	**0.00022601**	8.1e-06								1.00

Table 9. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix
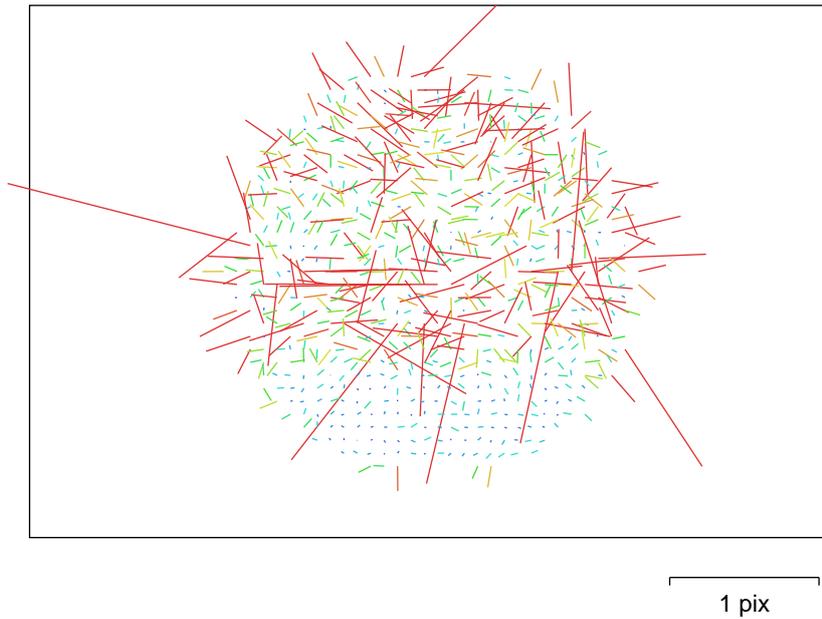
Fig. 10. Image residuals for 48.

48

48 images

Type	Resolution	Focal Length	Pixel Size
Fisheye	**8660 x 5784**	**6 mm**	**4.17 x 4.17 um**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**1437.63**	0.063	1.00	0.01	0.13	-0.88	0.82	-0.77	-0.02	-0.12
Cx	**10.0755**	0.067		1.00	0.01	-0.00	0.00	-0.00	-0.87	-0.01
Cy	**-36.6974**	0.15			1.00	-0.00	-0.00	-0.00	-0.01	-0.96
K1	**-0.00482167**	8.1e-05				1.00	-0.98	0.95	0.01	0.03
K2	**0.000605821**	5.4e-05					1.00	-0.99	-0.01	-0.04
K3	**-0.00127211**	1.1e-05						1.00	0.02	0.04
P1	**0.000354232**	3.3e-06							1.00	0.01
P2	**-5.64356e-05**	8.4e-06								1.00

Table 10. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix
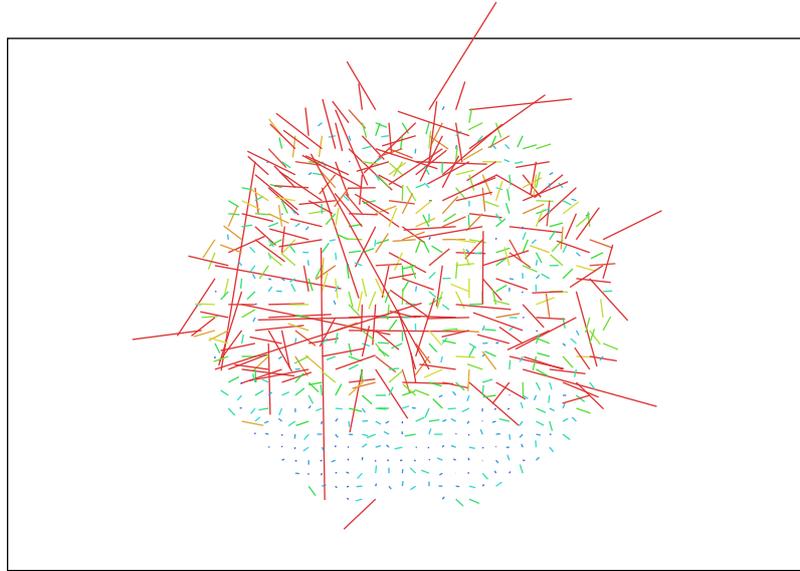
Fig. 11. Image residuals for 49.

49

48 images

Type	Resolution	Focal Length	Pixel Size
Fisheye	**8660 x 5784**	**6 mm**	**4.17 x 4.17 um**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**1435.41**	0.066	1.00	0.02	0.14	-0.88	0.82	-0.77	-0.01	-0.16
Cx	**-11.0752**	0.059		1.00	0.01	-0.02	0.02	-0.02	-0.83	-0.00
Cy	**-19.8612**	0.15			1.00	-0.00	-0.00	-0.00	-0.01	-0.96
K1	**-0.00468337**	8.6e-05				1.00	-0.98	0.95	0.02	0.03
K2	**0.000411799**	5.8e-05					1.00	-0.99	-0.02	-0.04
K3	**-0.00123618**	1.2e-05						1.00	0.02	0.04
P1	**-0.000127402**	3.1e-06							1.00	-0.00
P2	**0.000178892**	8.6e-06								1.00

Table 11. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix
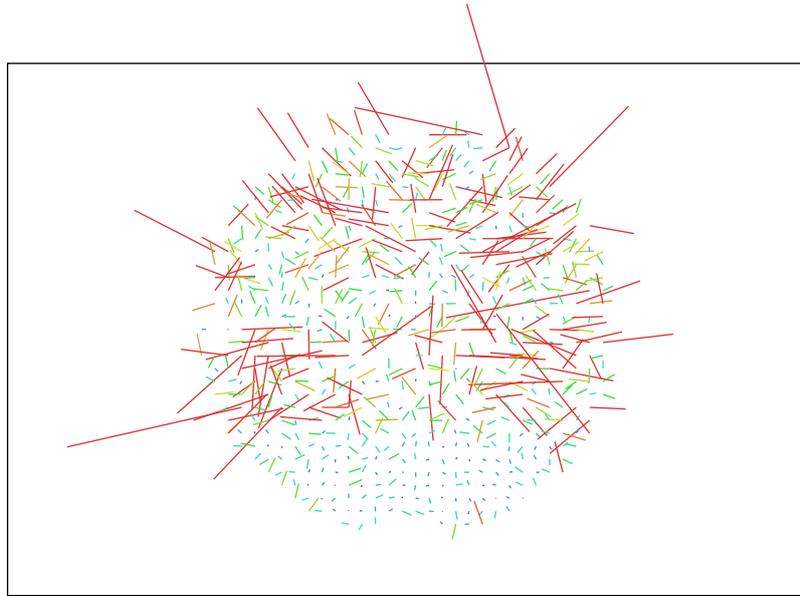
Fig. 12. Image residuals for 50.

50

48 images
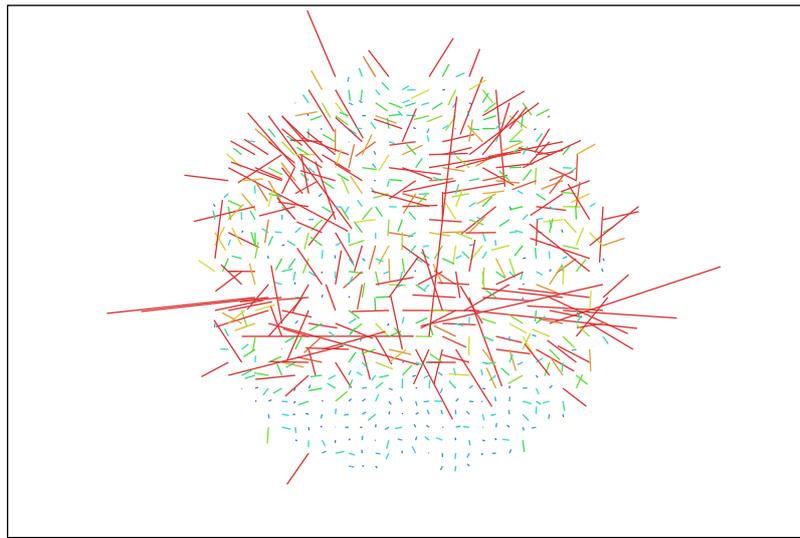
Type	Resolution	Focal Length	Pixel Size
Fisheye	**8660 x 5784**	**6 mm**	**4.17 x 4.17 um**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**1443.8**	0.075	1.00	0.01	0.14	-0.88	0.81	-0.76	-0.02	-0.17
Cx	**11.3237**	0.058		1.00	0.00	-0.01	0.01	-0.01	-0.77	-0.00
Cy	**-24.5701**	0.14			1.00	-0.01	0.01	-0.01	0.00	-0.94
K1	**-0.00542759**	0.0001				1.00	-0.98	0.95	0.02	0.04
K2	**0.000670748**	7e-05					1.00	-0.99	-0.02	-0.06
K3	**-0.00129642**	1.5e-05						1.00	0.02	0.06
P1	**0.000247081**	3.3e-06							1.00	-0.00
P2	**0.000218498**	8.8e-06								1.00

Table 12. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix

Fig. 13. Image residuals for 51.

51

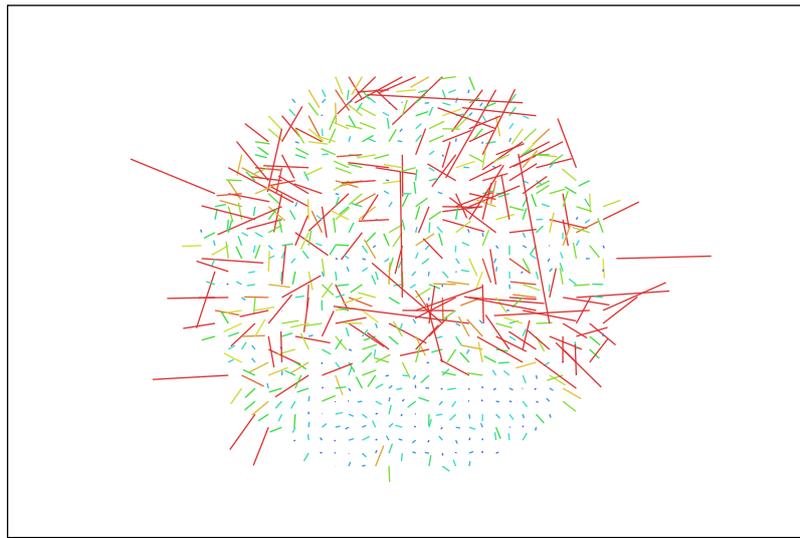48 images

Type	Resolution	Focal Length	Pixel Size
Fisheye	**8660 x 5784**	**6 mm**	**4.17 x 4.17 um**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**1440.26**	0.074	1.00	0.03	0.15	-0.90	0.83	-0.78	-0.03	-0.17
Cx	**-0.945663**	0.045		1.00	0.00	-0.02	0.02	-0.02	-0.67	0.00
Cy	**-4.31622**	0.14			1.00	-0.01	0.01	-0.01	0.00	-0.93
K1	**-0.00424257**	0.0001				1.00	-0.98	0.95	0.03	0.03
K2	**0.000170343**	7.1e-05					1.00	-0.99	-0.03	-0.05
K3	**-0.00121417**	1.5e-05						1.00	0.03	0.06
P1	**-0.000111191**	2.9e-06							1.00	-0.01
P2	**-0.000333709**	8.6e-06								1.00

Table 13. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix

Fig. 14. Image residuals for 52.

52

48 images

Type	Resolution	Focal Length	Pixel Size
Fisheye	**8660 x 5784**	**6 mm**	**4.17 x 4.17 um**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**1441.76**	0.078	1.00	0.02	0.12	-0.90	0.83	-0.77	-0.04	-0.14
Cx	**-13.6628**	0.046		1.00	0.02	-0.01	0.01	-0.01	-0.62	-0.01
Cy	**-8.5929**	0.13			1.00	0.01	-0.01	0.00	-0.00	-0.90
K1	**-0.0048121**	0.00011				1.00	-0.98	0.94	0.05	0.02
K2	**0.000527183**	7.8e-05					1.00	-0.99	-0.04	-0.05
K3	**-0.00126366**	1.7e-05						1.00	0.05	0.05
P1	**-8.14569e-06**	3e-06							1.00	-0.02
P2	**-0.0002796**	8.7e-06								1.00

Table 14. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix
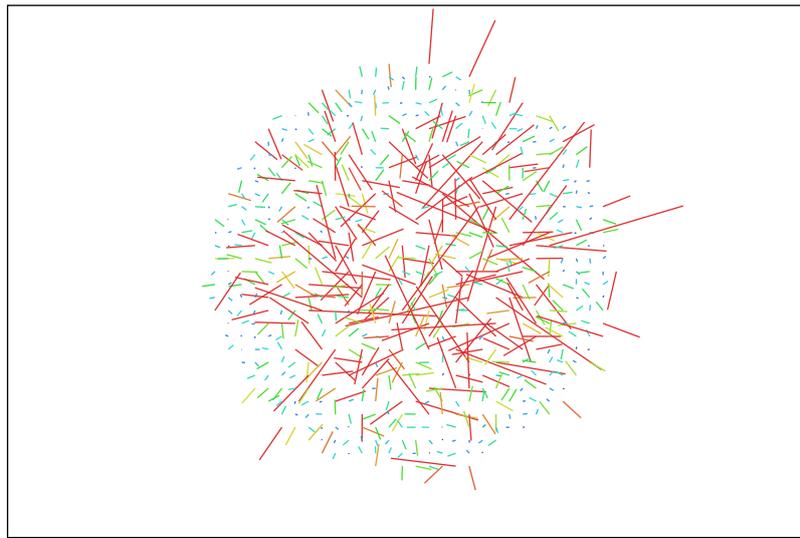
Fig. 15. Image residuals for 53.

53

48 images

Type	Resolution	Focal Length	Pixel Size
Fisheye	**8660 x 5784**	**6 mm**	**4.17 x 4.17 um**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**1409.85**	0.34	1.00	-0.12	-0.07	-0.79	0.56	-0.45	0.13	0.09
Cx	**26.268**	0.05		1.00	0.02	0.06	-0.03	0.02	-0.88	-0.02
Cy	**-50.9513**	0.058			1.00	0.16	-0.21	0.24	-0.02	-0.90
K1	**0.0196241**	0.00037				1.00	-0.94	0.87	-0.07	-0.20
K2	**-0.00933948**	0.00026					1.00	-0.98	0.04	0.27
K3	**1.47766e-05**	5.9e-05						1.00	-0.02	-0.31
P1	**-0.00017799**	7.5e-06							1.00	0.03
P2	**-0.000273245**	9.1e-06								1.00

Table 15. Calibration coefficients and correlation matrix.

Scale Bars

Label	Distance (m)	Error (m)
002a. 4-5	0.25	-4.3765e-07
002b. 5-6	0.250352	0.000452325
005a. 12-13	0.249982	2.46266e-06
005b. 13-14	0.249801	-8.89683e-05
008a. 20-21	0.249743	-0.00028725
008b. 21-22	0.249772	-0.00010831
Total		**0.000226113**

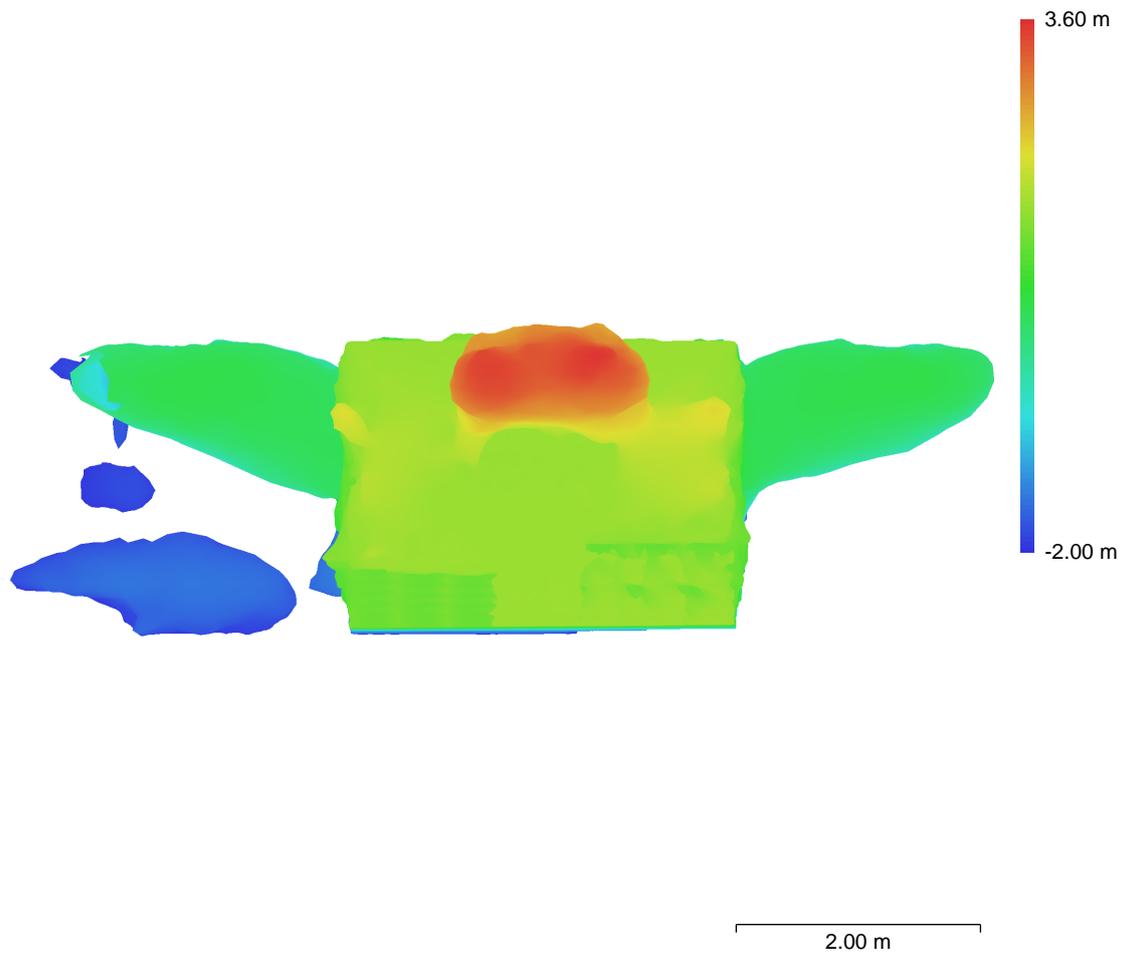Table 16. Control scale bars.

Digital Elevation Model

Fig. 16. Reconstructed digital elevation model.

Resolution: 3.96 mm/pix
Point density: 6.37 points/cm^2

Processing Parameters

General

Images	672
Aligned images	672
Markers	10
Scale bars	6
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll

Tie Points

Points	204,558 of 637,912
RMS reprojection error	0.202132 (0.306756 pix)
Max reprojection error	0.808985 (4.54056 pix)
Mean key point size	1.40182 pix
Point colors	3 bands, uint8
Key points	3.18 GB
Average tie point multiplicity	2.78279

Alignment parameters

Accuracy	Highest
Generic preselection	Yes
Reference preselection	Estimated
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	4 minutes 21 seconds
Matching memory usage	8.51 GB
Alignment time	33 seconds
Alignment memory usage	3.57 GB

Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Exclude corners	No
Optimization time	0 seconds
Date created	2026:01:28 12:11:50
Software version	2.2.2.21287
File size	3.22 GB

Depth Maps

Count	621

Depth maps generation parameters

Quality	Medium
Filtering mode	Mild
Max neighbors	16
Processing time	4 minutes 53 seconds
Memory usage	3.22 GB
Date created	2026:02:20 19:52:40
Software version	2.2.2.21287
File size	511.74 MB

Point Cloud

Points	26,971,685
Coordinate precision	0.487 mm

Point attributes
Color	3 bands, uint8
Normal	

Point classes
Created (never classified)	26,971,685

Depth maps generation parameters
Quality	Medium
Filtering mode	Mild
Max neighbors	16
Processing time	4 minutes 53 seconds
Memory usage	3.22 GB

Point cloud generation parameters
Source data	Depth maps
Processing time	22 minutes 31 seconds
Memory usage	21.10 GB
Date created	2026:02:20 20:15:12
Software version	2.2.2.21287
File size	359.98 MB

Model
Faces	1,790,884
Vertices	895,595
Vertex colors	3 bands, uint8
Texture	16,384 x 16,384, 3 bands, uint8

Depth maps generation parameters
Quality	Medium
Filtering mode	Mild
Max neighbors	16
Processing time	4 minutes 53 seconds
Memory usage	3.22 GB

Reconstruction parameters
Surface type	Arbitrary
Source data	Depth maps
Interpolation	Enabled
Strict volumetric masks	No
Processing time	1 minutes 21 seconds
Memory usage	6.89 GB

Texturing parameters
Mapping mode	Generic
Blending mode	Mosaic
Texture size	16,384
Page count	1
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	1 minutes 46 seconds
UV mapping memory usage	1.18 GB
Blending time	2 minutes 21 seconds
Blending memory usage	11.63 GB
Blending GPU memory usage	7.59 GB
Date created	2026:02:20 20:16:32
Software version	2.2.2.21287
File size	245.51 MB

System
Software name	Agisoft Metashape Professional
Software version	2.2.2 build 21287
OS	Windows 64 bit
RAM	255.52 GB

CPU   AMD Ryzen Threadripper PRO 7975WX 32-Cores
GPU(s)   NVIDIA GeForce RTX 5090
                                            NVIDIA GeForce RTX 5090