Agisoft Metashape

Processing Report
27 February 2026

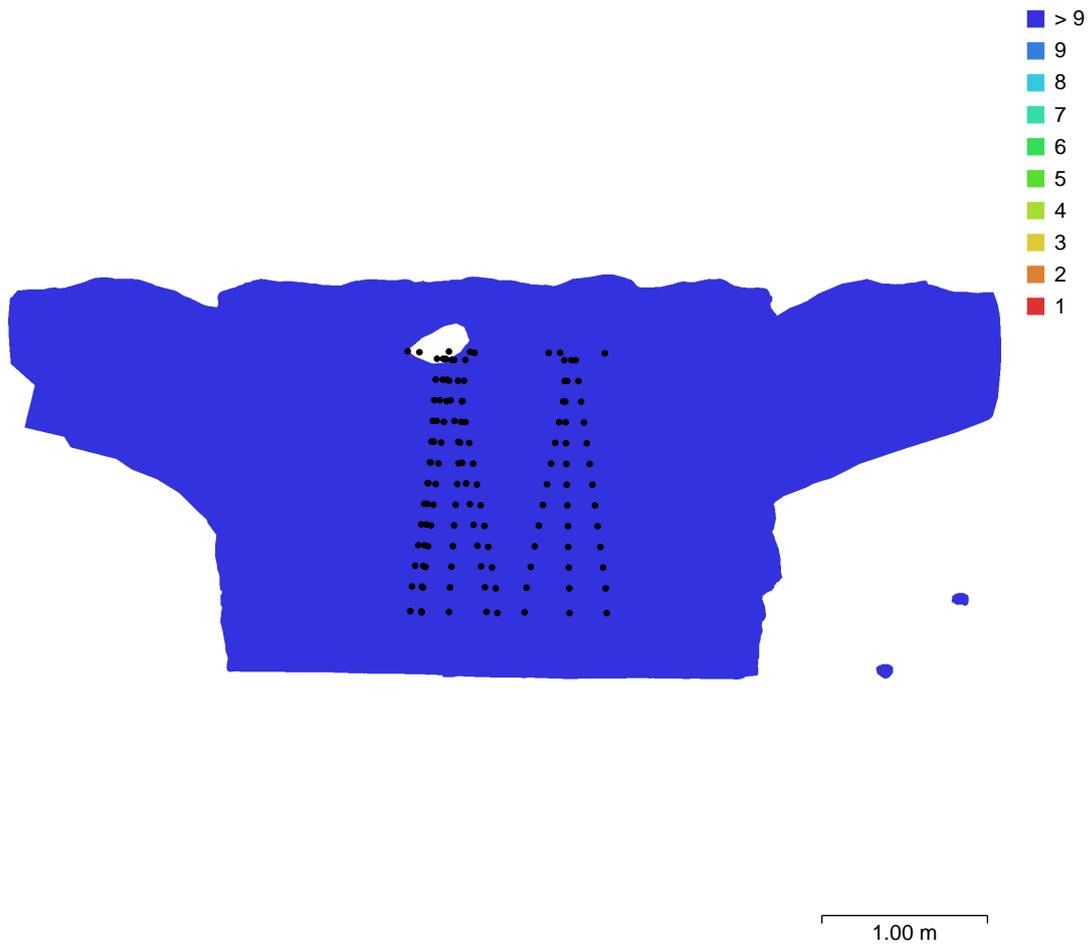# Survey Data

Fig. 1. Camera locations and image overlap.

Number of images:	126	Camera stations:	126
Flying altitude:	45.1 cm	Tie points:	41,149
Ground resolution:	0.517 mm/pix	Projections:	112,833
Coverage area:	10.6 m^2	Reprojection error:	0.273 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
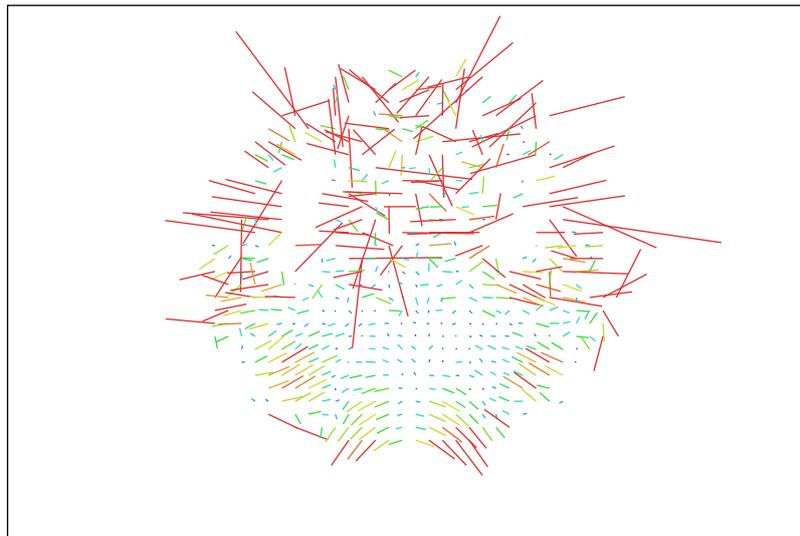
1 pix

Fig. 2. Image residuals for 40.

40

9 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	**1445.34**	0.064	1.00	-0.01	-0.13	-0.70	0.57	-0.51	-0.01	0.14
Cx	**14.6363**	0.069		1.00	-0.03	0.03	-0.02	0.01	-0.61	0.02
Cy	**-21.0481**	0.3			1.00	-0.00	-0.00	0.00	0.01	-0.95
K1	**-0.00708325**	0.0001				1.00	-0.97	0.91	-0.03	0.02
K2	**0.00221268**	8.8e-05					1.00	-0.98	0.02	-0.03
K3	**-0.00169273**	2.3e-05						1.00	-0.02	0.05
P1	**0.000227668**	4.6e-06							1.00	0.01
P2	**0.000408998**	1.8e-05								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix
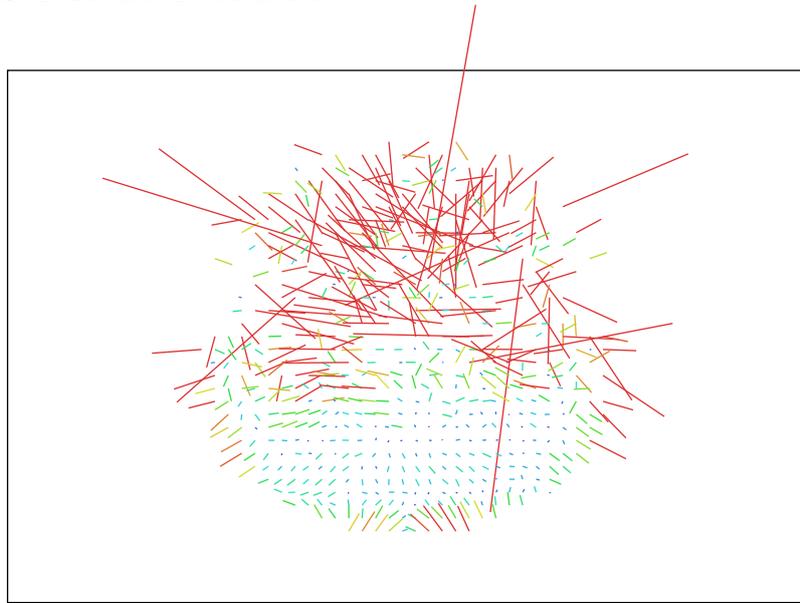
Fig. 3. Image residuals for 41.

41

9 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	**1444.95**	0.068	1.00	-0.03	0.25	-0.74	0.61	-0.55	-0.00	-0.18
Cx	**4.48309**	0.064		1.00	-0.03	0.02	-0.01	0.00	-0.65	0.03
Cy	**-36.889**	0.31			1.00	-0.00	-0.03	0.03	0.01	-0.96
K1	**-0.00716978**	8.1e-05				1.00	-0.97	0.91	-0.02	-0.01
K2	**0.00208442**	5.7e-05					1.00	-0.98	0.02	0.03
K3	**-0.00157279**	1.2e-05						1.00	-0.02	-0.04
P1	**0.000195259**	3.9e-06							1.00	-0.01
P2	**0.000540586**	1.7e-05								1.00

Table 3. Calibration coefficients and correlation matrix.

Camera Calibration
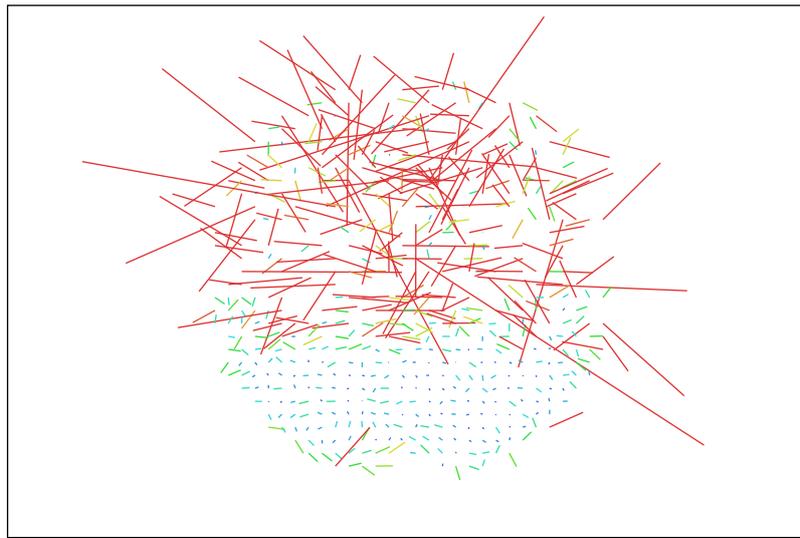
1 pix

Fig. 4. Image residuals for 42.

42

9 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	**1438.27**	0.072	1.00	-0.02	0.25	-0.75	0.63	-0.58	-0.01	-0.18
Cx	**2.64037**	0.064		1.00	-0.02	0.00	0.00	-0.00	-0.68	0.02
Cy	**-10.0383**	0.31			1.00	0.01	-0.04	0.04	0.00	-0.97
K1	**-0.00590539**	8.6e-05				1.00	-0.97	0.92	-0.02	-0.03
K2	**0.00127329**	5.9e-05					1.00	-0.98	0.02	0.05
K3	**-0.00145903**	1.3e-05						1.00	-0.01	-0.05
P1	**-0.000164192**	3.9e-06							1.00	0.00
P2	**-7.96887e-05**	1.7e-05								1.00

Table 4. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix

Fig. 5. Image residuals for 43.

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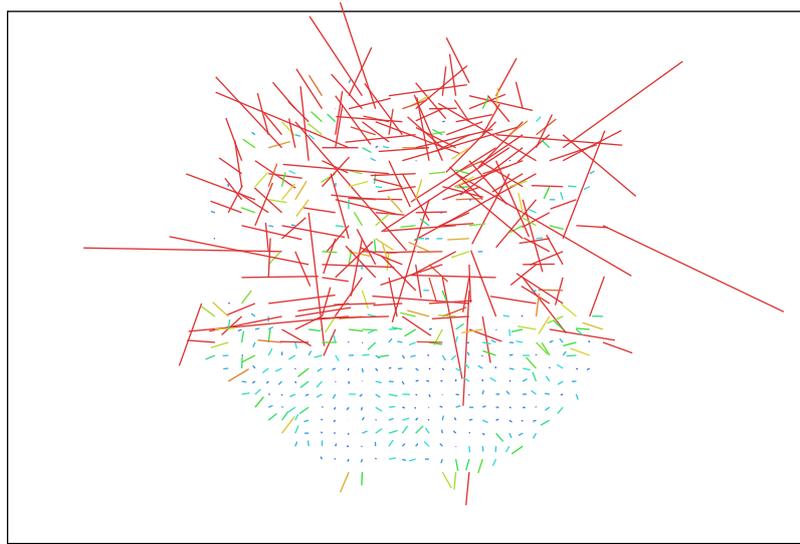9 images

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	**1451.52**	0.078	1.00	-0.03	0.25	-0.77	0.66	-0.61	0.01	-0.19
Cx	**-6.22176**	0.069		1.00	-0.03	0.01	-0.00	-0.00	-0.72	0.02
Cy	**-53.9158**	0.31			1.00	0.01	-0.05	0.04	0.01	-0.97
K1	**-0.00571992**	9.2e-05				1.00	-0.97	0.92	-0.02	-0.03
K2	**0.000982739**	6.3e-05					1.00	-0.99	0.02	0.05
K3	**-0.00140774**	1.3e-05						1.00	-0.01	-0.05
P1	**0.000220153**	4.1e-06							1.00	0.00
P2	**-0.000289412**	1.7e-05								1.00

Table 5. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix
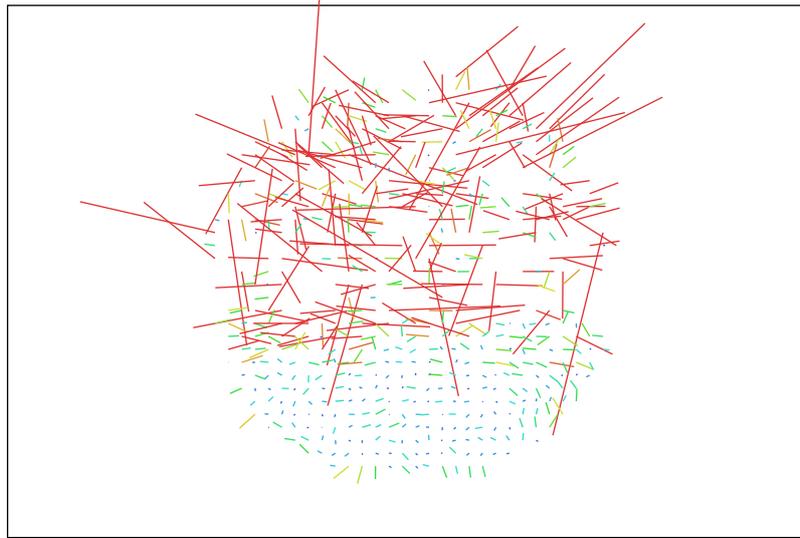
Fig. 6. Image residuals for 44.

44

9 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	1445.71	0.084	1.00	-0.04	0.24	-0.79	0.69	-0.65	0.01	-0.19
Cx	27.2105	0.074		1.00	-0.03	0.02	-0.01	0.01	-0.74	0.03
Cy	7.98714	0.32			1.00	0.01	-0.04	0.04	0.02	-0.97
K1	-0.00553689	9.9e-05				1.00	-0.97	0.93	-0.02	-0.03
K2	0.00101246	6.7e-05					1.00	-0.99	0.02	0.05
K3	-0.00139622	1.4e-05						1.00	-0.02	-0.04
P1	0.000222216	4.2e-06							1.00	-0.01
P2	0.000438247	1.7e-05								1.00

Table 6. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix
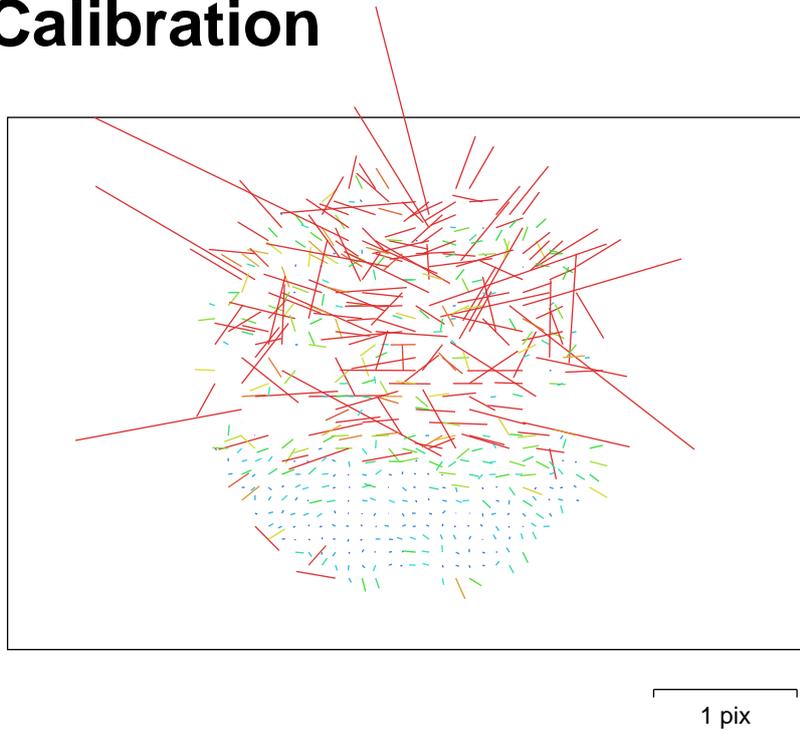
Fig. 7. Image residuals for 45.

45

9 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	**1451.11**	0.088	1.00	-0.02	0.24	-0.79	0.70	-0.65	-0.00	-0.20
Cx	**1.17179**	0.081		1.00	0.00	0.01	-0.00	-0.00	-0.77	-0.01
Cy	**-33.2777**	0.32			1.00	0.01	-0.04	0.04	-0.02	-0.97
K1	**-0.00512877**	0.0001				1.00	-0.98	0.93	-0.01	-0.03
K2	**0.000626029**	6.9e-05					1.00	-0.99	0.00	0.05
K3	**-0.00133587**	1.5e-05						1.00	0.00	-0.04
P1	**-0.000131729**	4.5e-06							1.00	0.02
P2	**-0.000179276**	1.8e-05								1.00

Table 7. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix
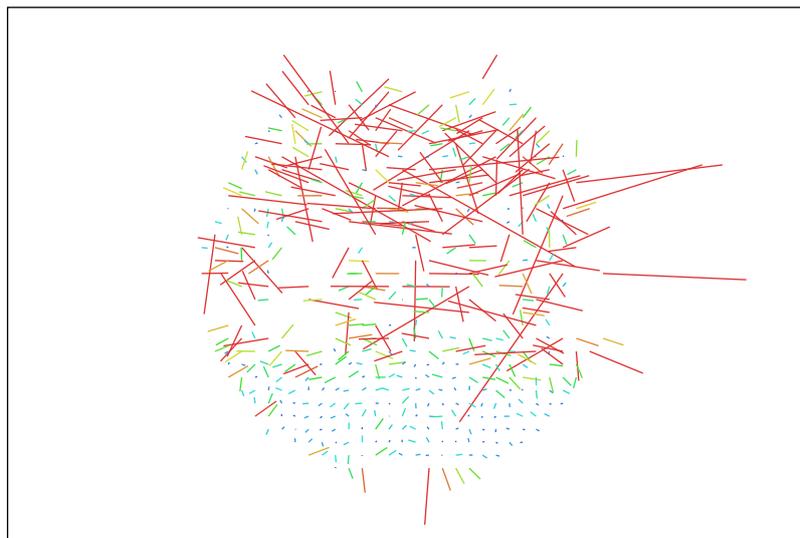
Fig. 8. Image residuals for 46.

46

9 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	**1439.17**	0.094	1.00	-0.03	0.23	-0.81	0.72	-0.68	0.02	-0.20
Cx	**-18.8834**	0.089		1.00	-0.02	0.01	-0.01	0.00	-0.80	0.02
Cy	**-7.68523**	0.32			1.00	0.01	-0.04	0.03	0.00	-0.97
K1	**-0.00557949**	0.00011				1.00	-0.98	0.94	-0.02	-0.03
K2	**0.00085455**	7.7e-05					1.00	-0.99	0.01	0.04
K3	**-0.00138712**	1.7e-05						1.00	-0.01	-0.03
P1	**-0.00016612**	4.9e-06							1.00	0.00
P2	**-3.00762e-05**	1.8e-05								1.00

Table 8. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix
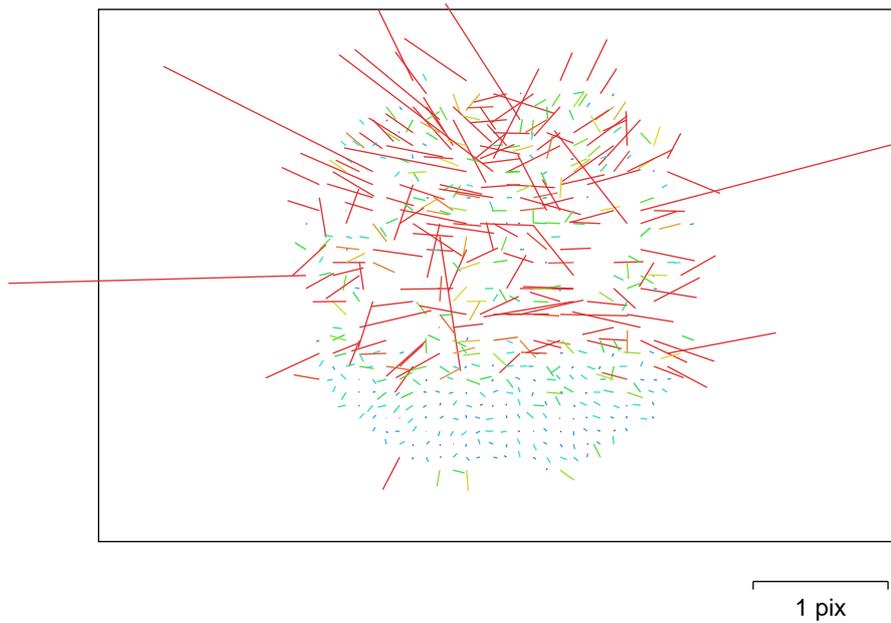
Fig. 9. Image residuals for 47.

47

9 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	**1451.17**	0.1	1.00	-0.01	0.24	-0.82	0.74	-0.69	-0.01	-0.22
Cx	**16.2584**	0.1		1.00	0.01	-0.01	0.01	-0.01	-0.83	-0.01
Cy	**-38.7394**	0.33			1.00	0.00	-0.03	0.02	-0.03	-0.97
K1	**-0.00449199**	0.00012				1.00	-0.98	0.94	0.01	-0.00
K2	**0.000323621**	8.3e-05					1.00	-0.99	-0.01	0.02
K3	**-0.0012953**	1.8e-05						1.00	0.01	-0.01
P1	**-0.000164466**	5.4e-06							1.00	0.03
P2	**5.9583e-05**	1.8e-05								1.00

Table 9. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix
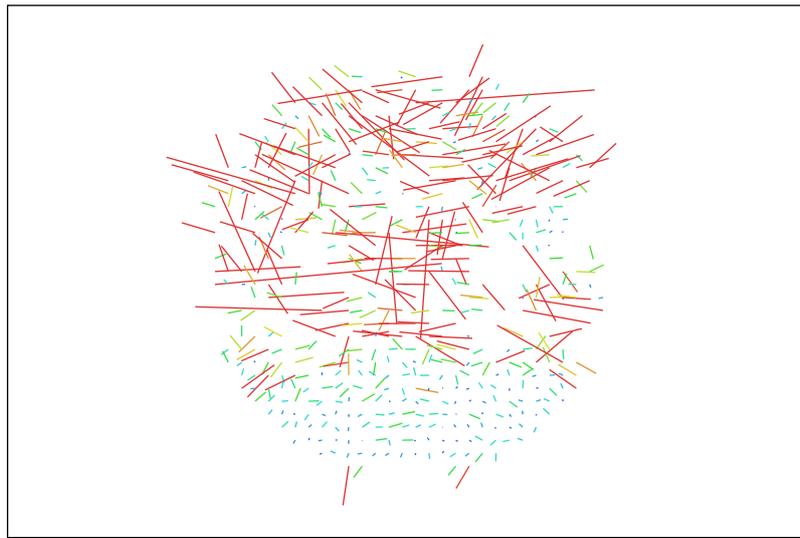
Fig. 10. Image residuals for 48.

48

9 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	**1439.3**	0.11	1.00	-0.02	0.20	-0.82	0.74	-0.70	0.01	-0.18
Cx	**10.3748**	0.11		1.00	0.02	-0.00	0.01	-0.01	-0.83	-0.02
Cy	**-39.9379**	0.33			1.00	0.02	-0.04	0.03	-0.02	-0.96
K1	**-0.00458552**	0.00014				1.00	-0.98	0.94	0.00	-0.02
K2	**0.000493983**	9.4e-05					1.00	-0.99	-0.01	0.03
K3	**-0.00130648**	2e-05						1.00	0.01	-0.02
P1	**0.000342905**	5.7e-06							1.00	0.02
P2	**-0.000222129**	1.8e-05								1.00

Table 10. Calibration coefficients and correlation matrix.

Camera Calibration
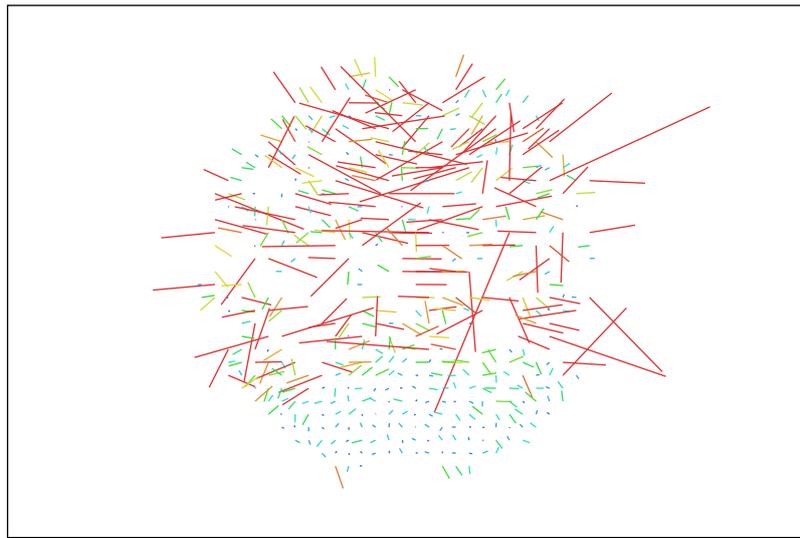
1 pix

Fig. 11. Image residuals for 49.

49

9 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	1436.65	0.12	1.00	-0.04	0.18	-0.84	0.77	-0.72	0.03	-0.17
Cx	-11.0277	0.1		1.00	0.00	0.02	-0.01	0.00	-0.82	0.01
Cy	-18.4084	0.33			1.00	0.05	-0.06	0.05	-0.01	-0.96
K1	-0.00448459	0.00015				1.00	-0.98	0.94	-0.01	-0.06
K2	0.000375155	9.9e-05					1.00	-0.99	0.01	0.06
K3	-0.00128736	2.1e-05						1.00	0.00	-0.05
P1	-0.000108014	5.7e-06							1.00	0.00
P2	-7.68469e-06	1.9e-05								1.00

Table 11. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix
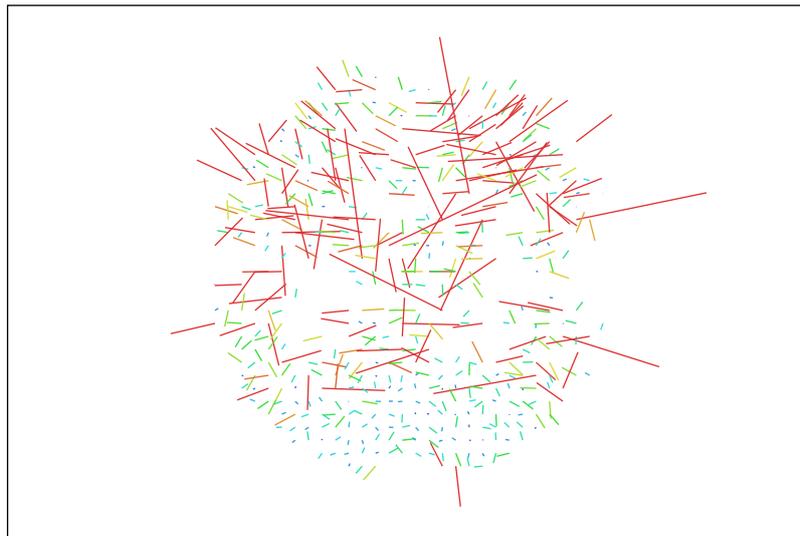
Fig. 12. Image residuals for 50.

50

9 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	**1445.12**	0.13	1.00	-0.02	0.14	-0.85	0.77	-0.72	0.00	-0.14
Cx	**11.2976**	0.12		1.00	-0.02	-0.02	0.03	-0.03	-0.81	0.03
Cy	**-22.9819**	0.34			1.00	0.07	-0.07	0.06	0.01	-0.95
K1	**-0.00532621**	0.00018				1.00	-0.98	0.94	0.04	-0.07
K2	**0.000718009**	0.00012					1.00	-0.99	-0.04	0.06
K3	**-0.00136371**	2.6e-05						1.00	0.05	-0.05
P1	**0.000237036**	6.5e-06							1.00	-0.03
P2	**1.23104e-05**	2e-05								1.00

Table 12. Calibration coefficients and correlation matrix.

Camera Calibration
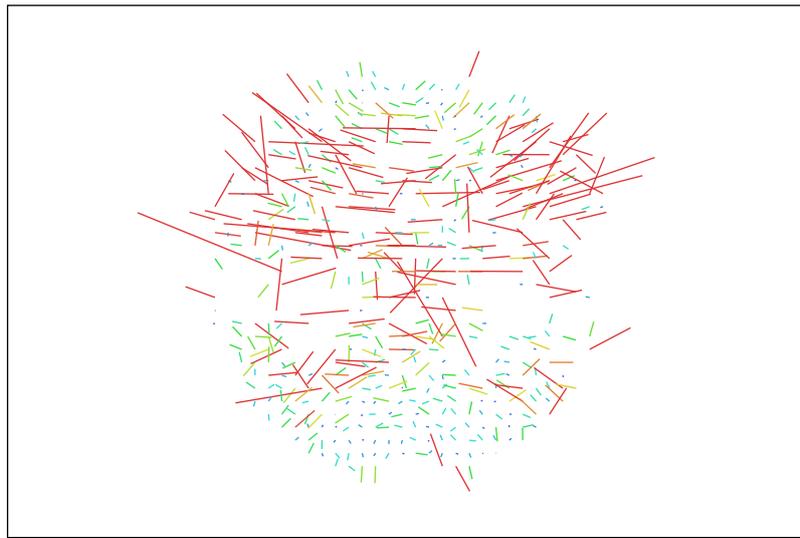
1 pix

Fig. 13. Image residuals for 51.

51

9 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	**1441.05**	0.12	1.00	-0.01	0.12	-0.85	0.77	-0.72	-0.00	-0.10
Cx	**-0.891007**	0.11		1.00	0.04	-0.01	0.02	-0.02	-0.78	-0.03
Cy	**-2.33953**	0.34			1.00	0.10	-0.10	0.08	-0.03	-0.95
K1	**-0.00364287**	0.00017				1.00	-0.98	0.94	0.02	-0.12
K2	**-1.34294e-06**	0.00012					1.00	-0.99	-0.02	0.09
K3	**-0.00124625**	2.5e-05						1.00	0.03	-0.07
P1	**-0.000102996**	6.1e-06							1.00	0.01
P2	**-0.000573755**	2e-05								1.00

Table 13. Calibration coefficients and correlation matrix.

Camera Calibration

1 pix
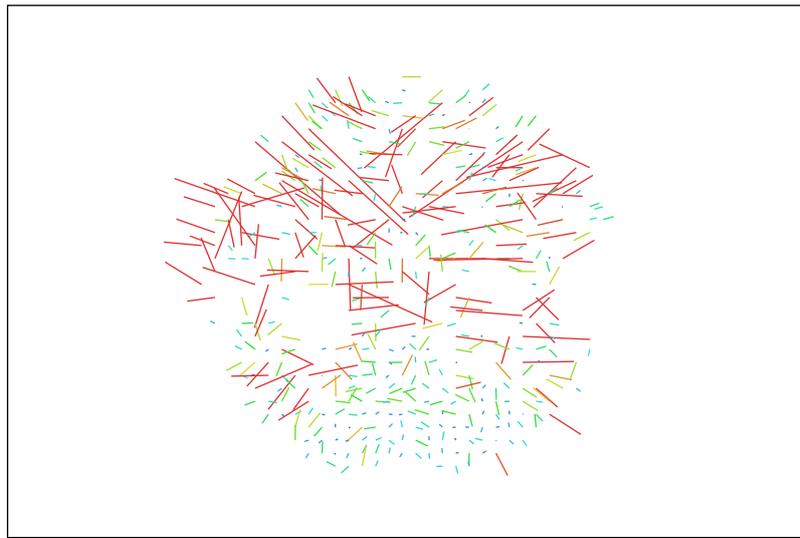
Fig. 14. Image residuals for 52.

52

9 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	**1442.7**	0.13	1.00	0.02	0.09	-0.87	0.79	-0.73	-0.01	-0.05
Cx	**-15.6972**	0.1		1.00	0.04	-0.01	0.01	-0.02	-0.72	-0.01
Cy	**-15.3267**	0.34			1.00	0.11	-0.09	0.07	-0.02	-0.93
K1	**-0.00413844**	0.00019				1.00	-0.98	0.94	0.01	-0.13
K2	**0.000251668**	0.00013					1.00	-0.99	-0.01	0.09
K3	**-0.0012706**	2.9e-05						1.00	0.01	-0.07
P1	**0.00020106**	6.2e-06							1.00	-0.02
P2	**-0.000183279**	2.1e-05								1.00

Table 14. Calibration coefficients and correlation matrix.

Camera Calibration
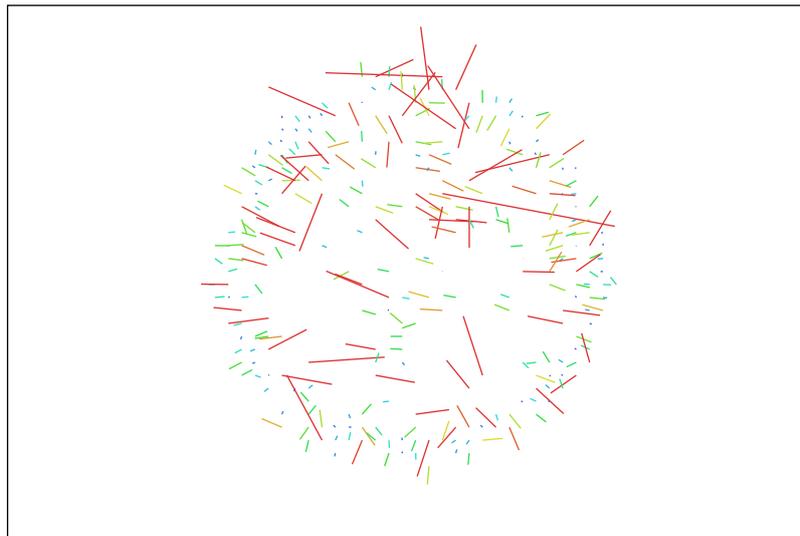
1 pix

Fig. 15. Image residuals for 53.

53

9 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	**1416.49**	1.4	1.00	-0.02	0.04	-0.85	0.42	-0.18	0.04	-0.04
Cx	**27.429**	0.13		1.00	-0.07	0.00	0.02	-0.02	-0.83	0.07
Cy	**-52.868**	0.22			1.00	0.13	-0.28	0.31	0.13	-0.87
K1	**0.0144476**	0.00089				1.00	-0.82	0.65	-0.01	-0.16
K2	**-0.00658862**	0.00048					1.00	-0.96	-0.03	0.36
K3	**-0.000530717**	0.00011						1.00	0.04	-0.43
P1	**-0.00028058**	2e-05							1.00	-0.14
P2	**-0.000257292**	3.2e-05								1.00

Table 15. Calibration coefficients and correlation matrix.

Scale Bars

Label	Distance (m)	Error (m)
002a. 4-5	0.250015	1.50759e-05
002b. 5-6	0.250365	0.000465034
005a. 12-13	0.24975	-0.000229572
005b. 13-14	0.249787	-0.000103071
008a. 20-21	0.250163	0.000132838
008b. 21-22	0.249605	-0.000274631
Total		**0.000249292**

Table 16. Control scale bars.

Digital Elevation Model
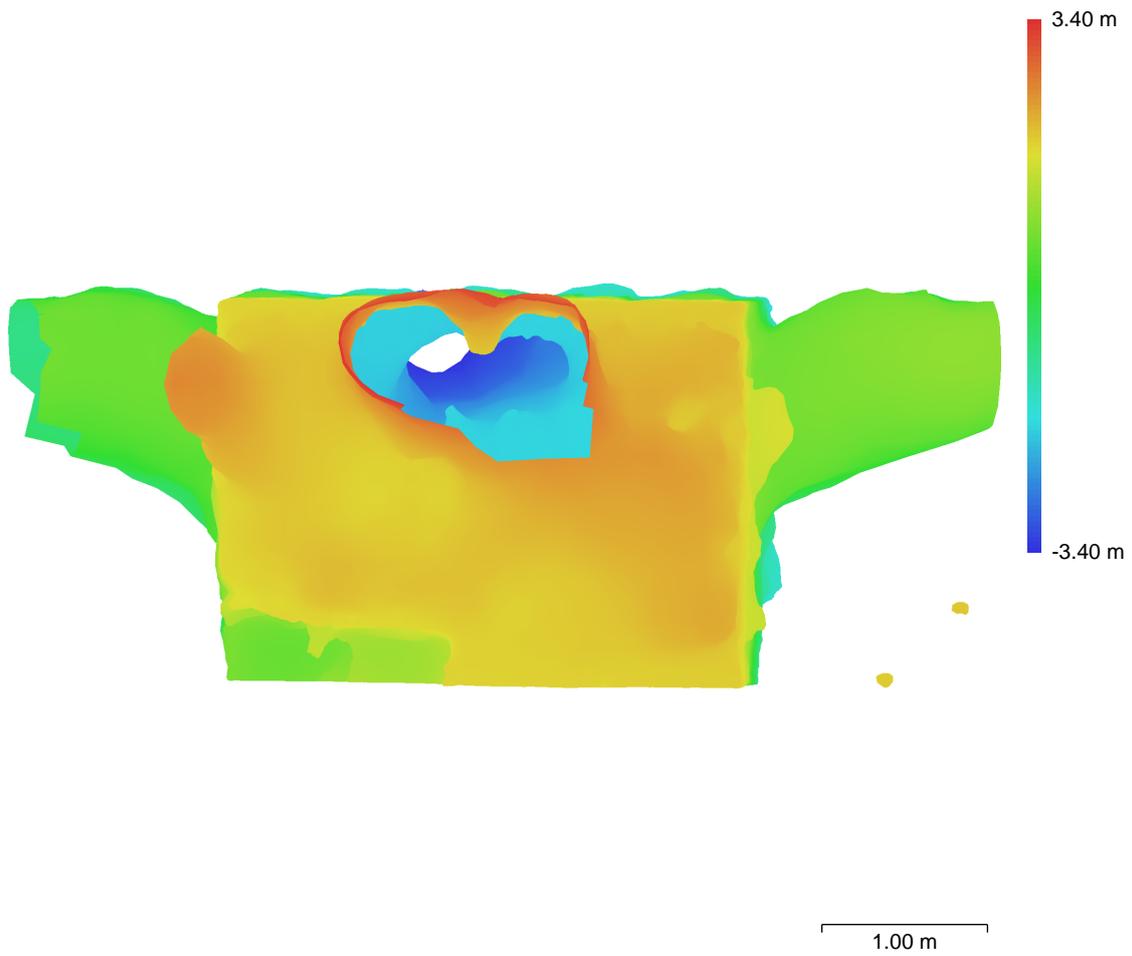

Fig. 16. Reconstructed digital elevation model.

Resolution: 4.70 mm/pix

Point density: 4.53 points/cm^2

Processing Parameters

General

Images	126
Aligned images	126
Markers	9
Scale bars	6
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll

Tie Points

Points	41,149 of 115,539
RMS reprojection error	0.170613 (0.27286 pix)
Max reprojection error	0.711721 (3.48165 pix)
Mean key point size	1.46333 pix
Point colors	3 bands, uint8
Key points	611.39 MB
Average tie point multiplicity	2.88296

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	39 seconds
Matching memory usage	1.93 GB
Alignment time	5 seconds
Alignment memory usage	129.79 MB

Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Exclude corners	No
Optimization time	0 seconds
Date created	2026:02:27 11:58:37
Software version	2.2.2.21287
File size	619.04 MB

Depth Maps

Count	119

Depth maps generation parameters

Quality	Medium
Filtering mode	Mild
Max neighbors	16
Processing time	52 seconds
Memory usage	2.33 GB
Date created	2026:02:27 12:55:45
Software version	2.2.2.21287
File size	99.74 MB

Point Cloud

Points	10,716,681
Coordinate precision	0.517 mm

Point attributes
   Color   3 bands, uint8
   Normal

Point classes
   Created (never classified)   10,716,681

Depth maps generation parameters
   Quality   Medium
   Filtering mode   Mild
   Max neighbors   16
   Processing time   52 seconds
   Memory usage   2.33 GB

Point cloud generation parameters
   Source data   Depth maps
   Processing time   3 minutes 54 seconds
   Memory usage   5.14 GB
  Date created   2026:02:27 12:59:40
  Software version   2.2.2.21287
  File size   143.09 MB

Model
  Faces   843,112
  Vertices   421,719
  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   52 seconds
   Memory usage   2.33 GB

Reconstruction parameters
   Surface type   Arbitrary
   Source data   Depth maps
   Interpolation   Enabled
   Strict volumetric masks   No
   Processing time   20 seconds
   Memory usage   6.80 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 20 seconds
   UV mapping memory usage   611.73 MB
   Blending time   46 seconds
   Blending memory usage   11.11 GB
   Blending GPU memory usage   7.54 GB
  Date created   2026:02:27 13:00:00
  Software version   2.2.2.21287
  File size   198.79 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