

Agisoft Metashape

Processing Report

28 August 2023



Survey Data



Fig. 1. Camera locations and image overlap.

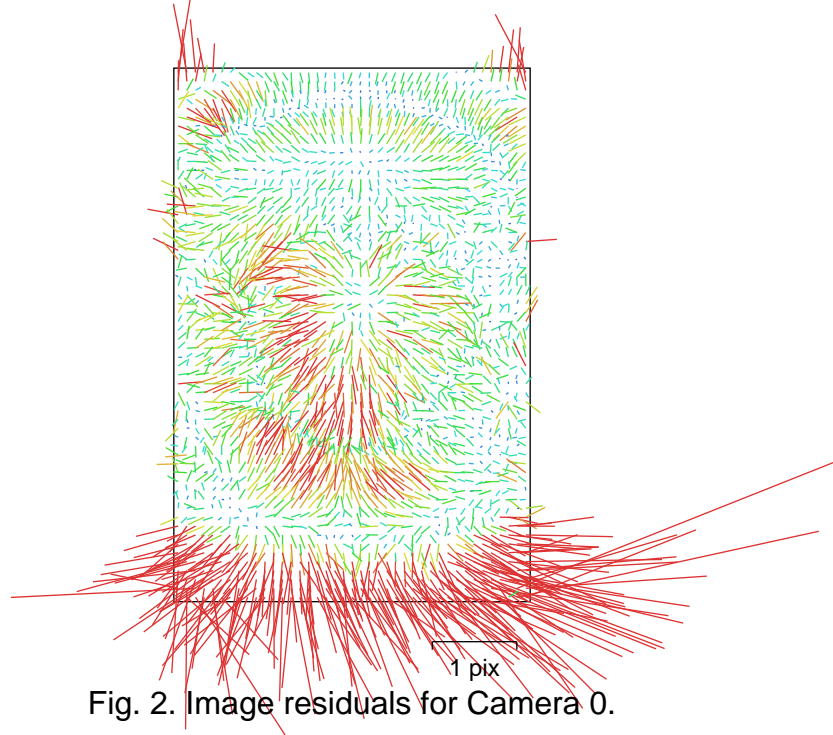
Number of images:	3,923	Camera stations:	3,804
Flying altitude:	1.29 m	Tie points:	4,343,123
Ground resolution:	0.439 mm/pix	Projections:	13,241,556
Coverage area:	21.9 m ²	Reprojection error:	0.736 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
Camera 0	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 1	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 2	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 3	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 4	5784 x 8660	12 mm	4.17 x 4.17 um	No

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
Camera 5	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 6	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 7	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 8	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 9	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 10	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 11	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 12	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 13	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 14	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 15	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 16	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 17	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 18	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 19	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 20	5784 x 8660	12 mm	4.17 x 4.17 um	No
Camera 21	5784 x 8660	12 mm	4.17 x 4.17 um	No

Table 1. Cameras.

Camera Calibration



Camera 0

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Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2960.51	0.023	1.00	0.04	-0.18	-0.73	0.74	-0.68	-0.01	0.05
Cx	-17.5605	0.02		1.00	-0.06	0.01	-0.00	0.01	0.72	-0.08
Cy	-15.5279	0.027			1.00	-0.00	-0.06	0.04	-0.03	0.72
K1	-0.0382302	1.4e-05				1.00	-0.96	0.91	0.03	-0.04
K2	0.011062	9.1e-06					1.00	-0.98	-0.03	0.08
K3	-0.000912542	1.9e-06						1.00	0.03	-0.09
P1	0.000216024	1.7e-06							1.00	-0.09
P2	-0.000497529	2.4e-06								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration

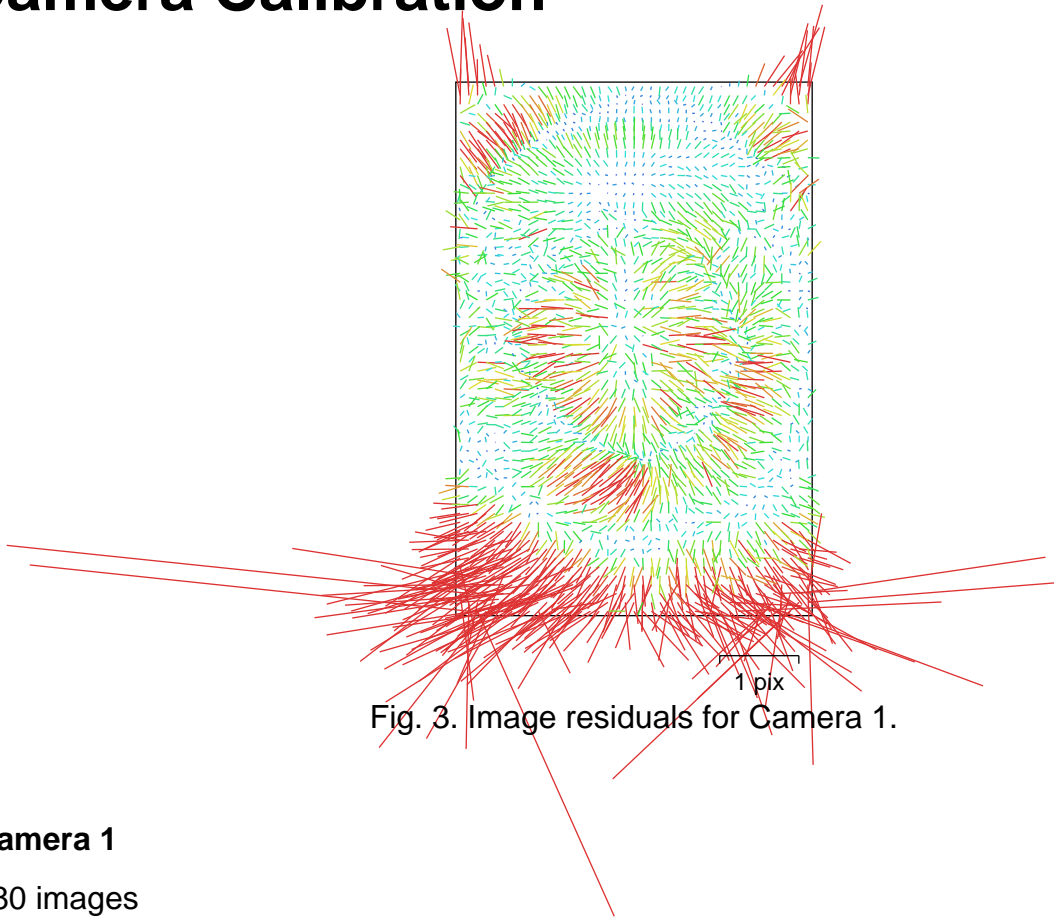


Fig. 3. Image residuals for Camera 1.

Camera 1

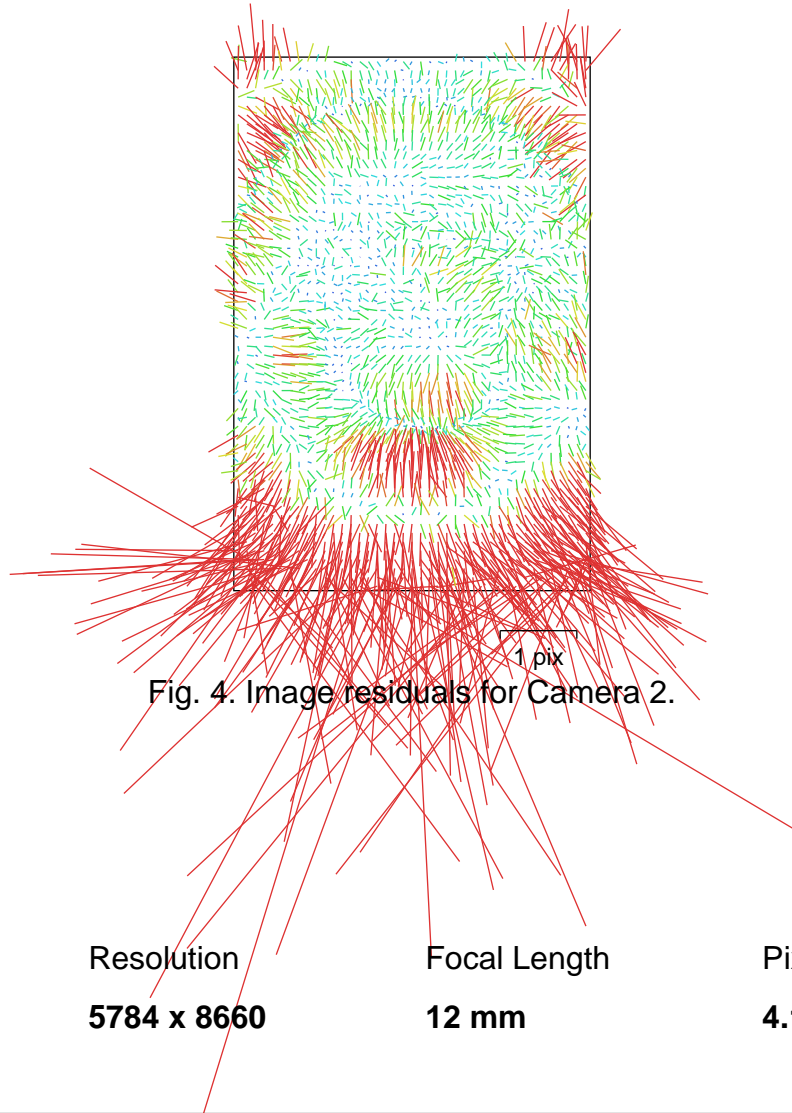
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Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2962.68	0.023	1.00	0.01	-0.23	-0.65	0.70	-0.65	0.02	0.01
Cx	10.2887	0.023		1.00	0.00	-0.02	0.02	-0.02	0.81	0.01
Cy	33.2723	0.031			1.00	-0.06	-0.04	0.03	0.01	0.74
K1	-0.0382118	1.4e-05				1.00	-0.95	0.89	-0.03	-0.05
K2	0.0112089	9.5e-06					1.00	-0.98	0.03	0.08
K3	-0.000966028	2e-06						1.00	-0.02	-0.10
P1	-0.00073015	2e-06							1.00	0.03
P2	-0.00022681	2.8e-06								1.00

Table 3. Calibration coefficients and correlation matrix.

Camera Calibration



Camera 2
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Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2964.69	0.025	1.00	0.03	-0.28	-0.61	0.61	-0.54	0.01	0.18
Cx	-1.59631	0.023		1.00	-0.05	0.01	0.01	-0.02	0.71	0.03
Cy	49.3903	0.03			1.00	-0.04	-0.03	0.01	-0.00	0.64
K1	-0.0360931	1.5e-05				1.00	-0.95	0.90	0.01	-0.19
K2	0.00909671	1.2e-05					1.00	-0.98	0.00	0.17
K3	-0.000498882	2.6e-06						1.00	-0.00	-0.16
P1	-0.000984973	2.1e-06							1.00	0.02
P2	-0.000225982	2.6e-06								1.00

Table 4. Calibration coefficients and correlation matrix.

Camera Calibration

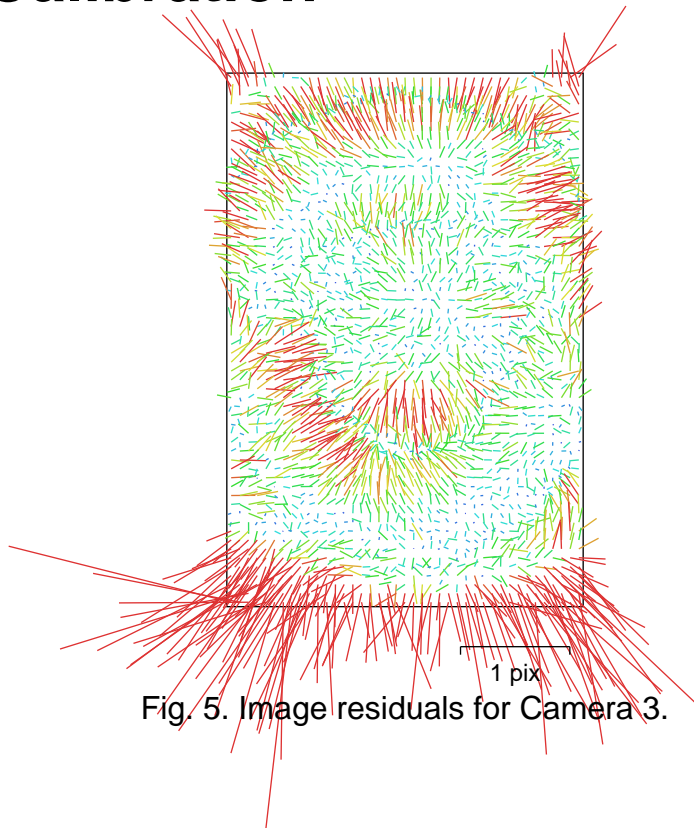


Fig. 5. Image residuals for Camera 3.

Camera 3

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Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	3147.35	0.022	1.00	-0.01	-0.22	-0.64	0.63	-0.56	-0.01	0.06
Cx	-10.9687	0.019		1.00	0.02	0.02	-0.00	-0.01	0.72	0.04
Cy	-17.4853	0.026			1.00	-0.01	-0.00	-0.03	0.02	0.76
K1	-0.0298226	1.3e-05				1.00	-0.96	0.90	0.04	-0.07
K2	0.00763904	1.1e-05					1.00	-0.98	-0.03	0.07
K3	-4.94548e-05	2.7e-06						1.00	0.02	-0.07
P1	0.000497426	1.6e-06							1.00	0.04
P2	-0.000277974	2.1e-06								1.00

Table 5. Calibration coefficients and correlation matrix.

Camera Calibration

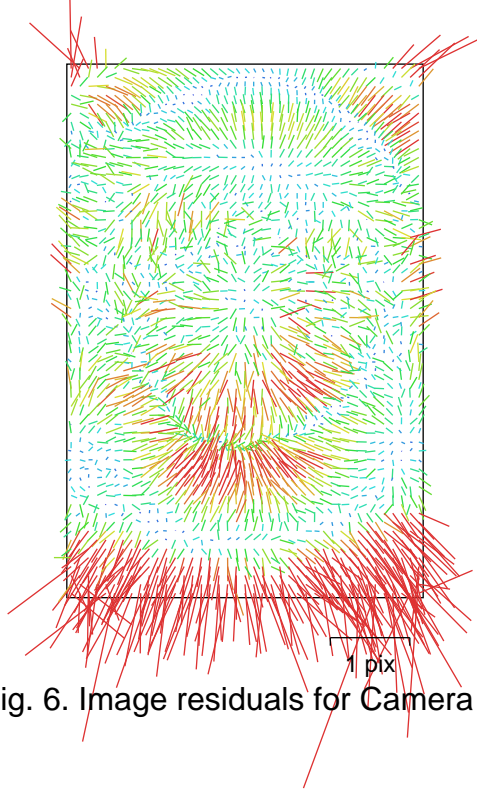


Fig. 6. Image residuals for Camera 4.

Camera 4

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Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2981.16	0.02	1.00	-0.03	-0.21	-0.75	0.76	-0.70	-0.05	0.05
Cx	-9.37599	0.017		1.00	-0.03	0.06	-0.04	0.04	0.75	-0.06
Cy	-3.95293	0.024			1.00	0.01	-0.07	0.04	-0.05	0.77
K1	-0.0366953	1.2e-05				1.00	-0.96	0.92	0.04	-0.12
K2	0.0110597	7.9e-06					1.00	-0.99	-0.04	0.12
K3	-0.000915625	1.6e-06						1.00	0.03	-0.13
P1	0.000732226	1.5e-06							1.00	-0.10
P2	-0.000440241	2.1e-06								1.00

Table 6. Calibration coefficients and correlation matrix.

Camera Calibration

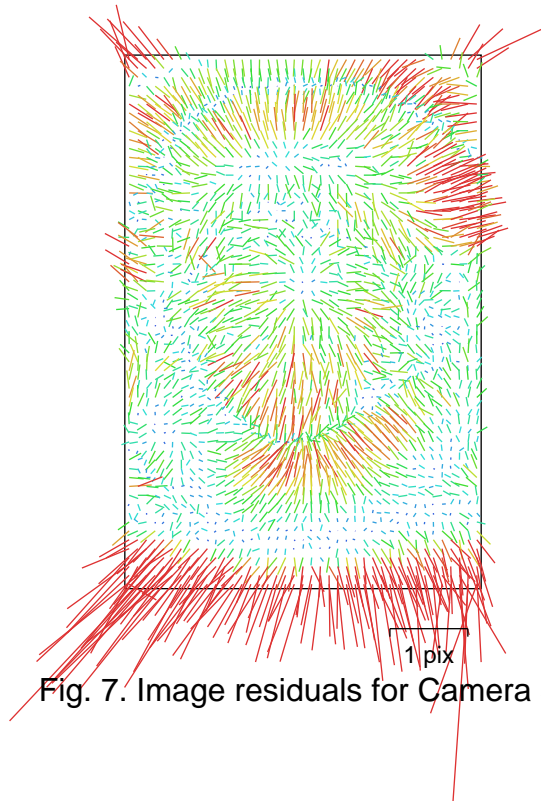


Fig. 7. Image residuals for Camera 5.

Camera 5

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Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2964.91	0.02	1.00	0.05	-0.19	-0.71	0.71	-0.64	0.06	0.06
Cx	30.7568	0.017		1.00	0.00	-0.04	0.04	-0.04	0.69	0.07
Cy	53.8505	0.024			1.00	-0.02	-0.02	-0.01	0.01	0.79
K1	-0.0363457	1.1e-05				1.00	-0.96	0.91	-0.06	-0.10
K2	0.0101464	7.7e-06					1.00	-0.98	0.05	0.09
K3	-0.000771123	1.6e-06						1.00	-0.04	-0.09
P1	-0.000749805	1.4e-06							1.00	0.07
P2	-1.72923e-05	2.1e-06								1.00

Table 7. Calibration coefficients and correlation matrix.

Camera Calibration

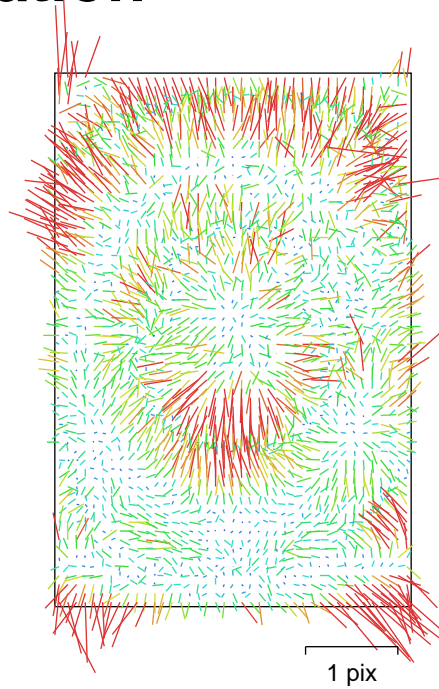


Fig. 8. Image residuals for Camera 6.

Camera 6

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Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2960.69	0.023	1.00	0.03	-0.20	-0.67	0.65	-0.57	-0.03	0.04
Cx	-24.3266	0.019		1.00	-0.04	0.00	0.00	-0.00	0.68	-0.05
Cy	-16.7488	0.028			1.00	-0.05	0.02	-0.03	-0.03	0.80
K1	-0.0360685	1.3e-05				1.00	-0.96	0.90	0.03	-0.07
K2	0.00948051	9.6e-06					1.00	-0.98	-0.02	0.03
K3	-0.000660391	2.1e-06						1.00	0.01	-0.01
P1	0.000327269	1.7e-06							1.00	-0.06
P2	0.000193284	2.4e-06								1.00

Table 8. Calibration coefficients and correlation matrix.

Camera Calibration

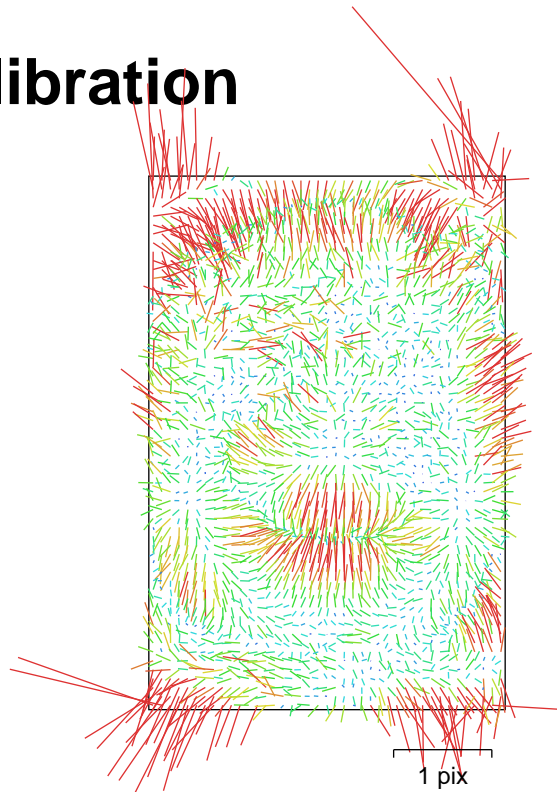


Fig. 9. Image residuals for Camera 7.

Camera 7

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Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2969.28	0.021	1.00	-0.02	-0.22	-0.51	0.51	-0.45	-0.01	0.07
Cx	20.4294	0.02		1.00	0.04	-0.04	0.03	-0.03	0.75	0.02
Cy	26.4439	0.028			1.00	-0.12	0.06	-0.06	0.01	0.82
K1	-0.0324161	1.3e-05				1.00	-0.95	0.89	-0.02	-0.15
K2	0.00721179	1e-05					1.00	-0.98	0.01	0.08
K3	-0.000129132	2.4e-06						1.00	-0.01	-0.05
P1	-0.000279246	1.8e-06							1.00	0.01
P2	0.000113701	2.4e-06								1.00

Table 9. Calibration coefficients and correlation matrix.

Camera Calibration

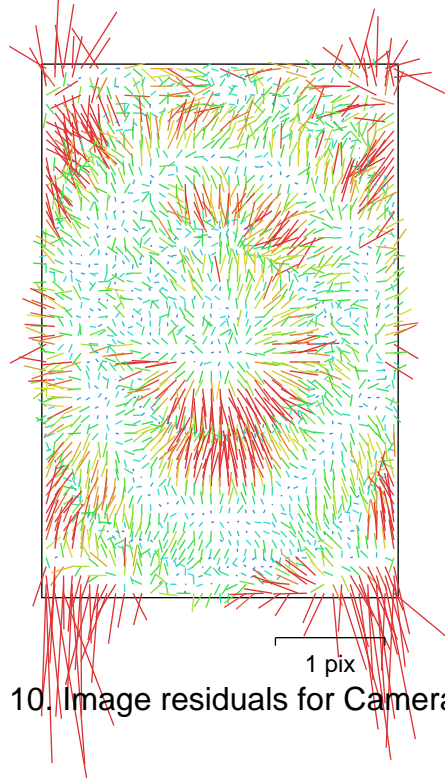


Fig. 10. Image residuals for Camera 8.

Camera 8

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Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2965.28	0.02	1.00	0.04	-0.26	-0.52	0.53	-0.47	0.01	0.01
Cx	24.6747	0.019		1.00	-0.04	0.01	-0.00	0.00	0.70	-0.02
Cy	20.8134	0.025			1.00	-0.05	0.00	-0.01	-0.02	0.77
K1	-0.0348049	1.1e-05				1.00	-0.96	0.89	0.01	-0.06
K2	0.00878965	8.9e-06					1.00	-0.98	0.00	0.02
K3	-0.000492363	2.1e-06						1.00	-0.00	-0.01
P1	-0.000732388	1.5e-06							1.00	-0.01
P2	-0.000188908	2e-06								1.00

Table 10. Calibration coefficients and correlation matrix.

Camera Calibration

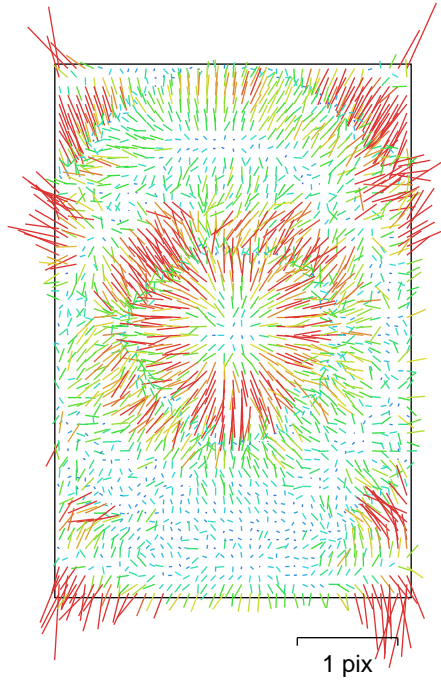


Fig. 11. Image residuals for Camera 9.

Camera 9

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Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2956.29	0.019	1.00	0.01	-0.13	-0.72	0.70	-0.64	-0.00	0.03
Cx	-19.8234	0.015		1.00	-0.01	0.01	-0.01	0.01	0.68	0.01
Cy	-11.2334	0.021			1.00	0.04	-0.06	0.05	-0.01	0.79
K1	-0.0384571	9.4e-06				1.00	-0.96	0.91	0.02	-0.05
K2	0.0112675	6.1e-06					1.00	-0.98	-0.01	0.03
K3	-0.00100281	1.2e-06						1.00	0.01	-0.02
P1	0.000340065	1.2e-06							1.00	0.00
P2	-0.000277424	1.7e-06								1.00

Table 11. Calibration coefficients and correlation matrix.

Camera Calibration

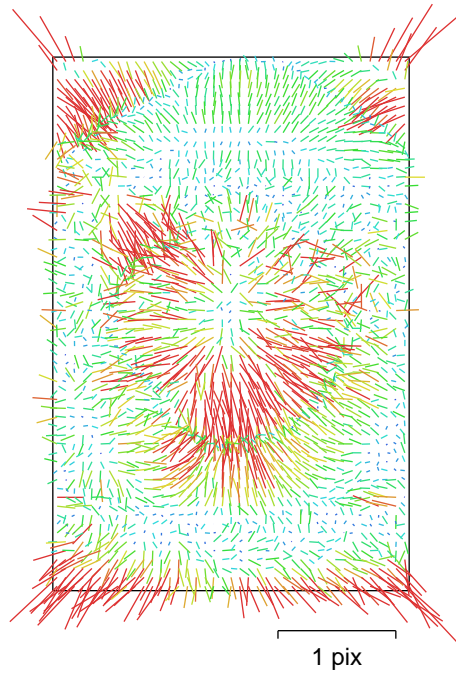


Fig. 12. Image residuals for Camera 10.

Camera 10

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Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2988.7	0.017	1.00	-0.04	-0.11	-0.76	0.78	-0.72	-0.04	0.04
Cx	-13.1158	0.015		1.00	-0.03	0.06	-0.04	0.03	0.77	-0.05
Cy	-12.3325	0.022			1.00	-0.01	-0.04	0.03	-0.04	0.85
K1	-0.0370338	9.7e-06				1.00	-0.97	0.92	0.04	-0.10
K2	0.0115542	6.2e-06					1.00	-0.99	-0.04	0.08
K3	-0.00105633	1.2e-06						1.00	0.03	-0.08
P1	-5.09873e-05	1.3e-06							1.00	-0.07
P2	-0.000617189	1.8e-06								1.00

Table 12. Calibration coefficients and correlation matrix.

Camera Calibration

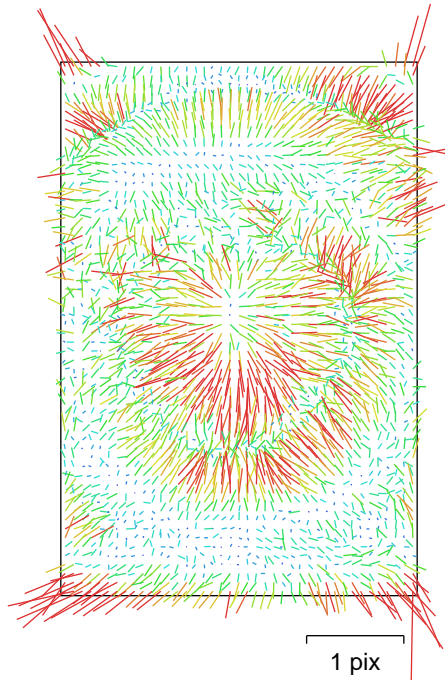


Fig. 13. Image residuals for Camera 11.

Camera 11

180 images

Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2965.23	0.02	1.00	0.05	-0.11	-0.76	0.74	-0.67	0.07	0.03
Cx	20.8625	0.016		1.00	0.01	-0.03	0.02	-0.01	0.67	0.04
Cy	28.2352	0.024			1.00	-0.00	-0.03	0.02	0.02	0.84
K1	-0.0380369	1.1e-05				1.00	-0.97	0.92	-0.05	-0.08
K2	0.0110872	7e-06					1.00	-0.98	0.04	0.06
K3	-0.000956275	1.4e-06						1.00	-0.03	-0.05
P1	-0.000474339	1.3e-06							1.00	0.05
P2	-0.000419933	2e-06								1.00

Table 13. Calibration coefficients and correlation matrix.

Camera Calibration

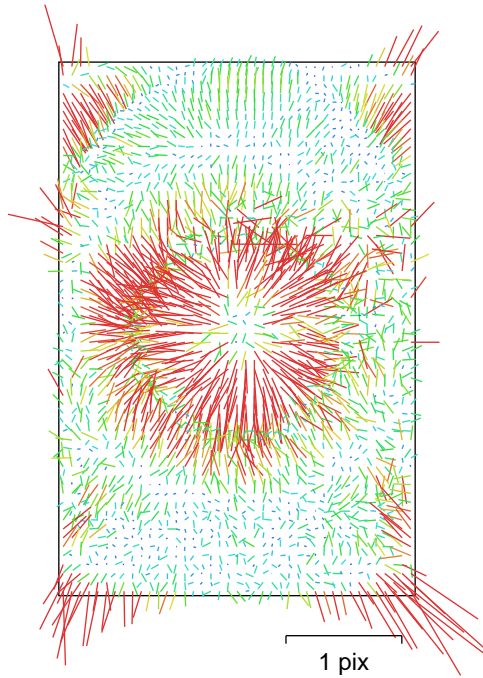


Fig. 14. Image residuals for Camera 12.

Camera 12

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Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2964.96	0.019	1.00	-0.00	-0.08	-0.77	0.76	-0.70	-0.05	0.06
Cx	-21.5755	0.016		1.00	-0.03	0.02	-0.02	0.01	0.72	-0.06
Cy	-15.4367	0.022			1.00	0.02	-0.05	0.04	-0.02	0.84
K1	-0.0380254	1e-05				1.00	-0.97	0.92	0.04	-0.09
K2	0.0114379	6.7e-06					1.00	-0.99	-0.03	0.07
K3	-0.00105101	1.3e-06						1.00	0.03	-0.07
P1	0.000223832	1.3e-06							1.00	-0.06
P2	-0.000323019	1.9e-06								1.00

Table 14. Calibration coefficients and correlation matrix.

Camera Calibration

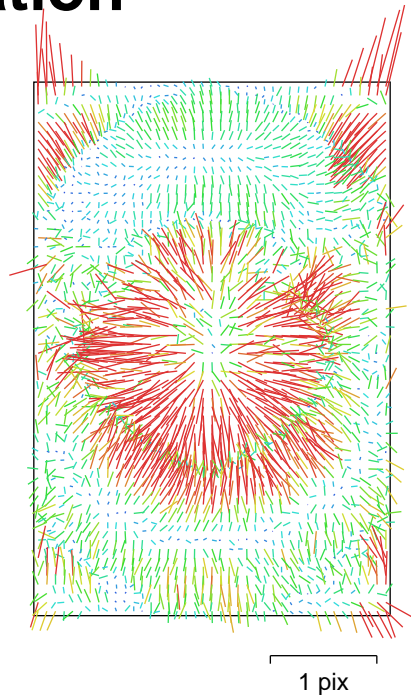


Fig. 15. Image residuals for Camera 13.

Camera 13

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Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2960.38	0.015	1.00	0.00	-0.00	-0.71	0.75	-0.70	0.02	0.03
Cx	11.8968	0.015		1.00	0.01	-0.07	0.03	-0.03	0.82	0.01
Cy	21.1531	0.022			1.00	-0.01	-0.03	0.03	0.02	0.89
K1	-0.0384641	8.7e-06				1.00	-0.96	0.91	-0.07	-0.05
K2	0.0116128	5.5e-06					1.00	-0.99	0.04	0.04
K3	-0.00108494	1.1e-06						1.00	-0.03	-0.04
P1	-0.000169635	1.3e-06							1.00	0.01
P2	-0.000220836	1.9e-06								1.00

Table 15. Calibration coefficients and correlation matrix.

Camera Calibration

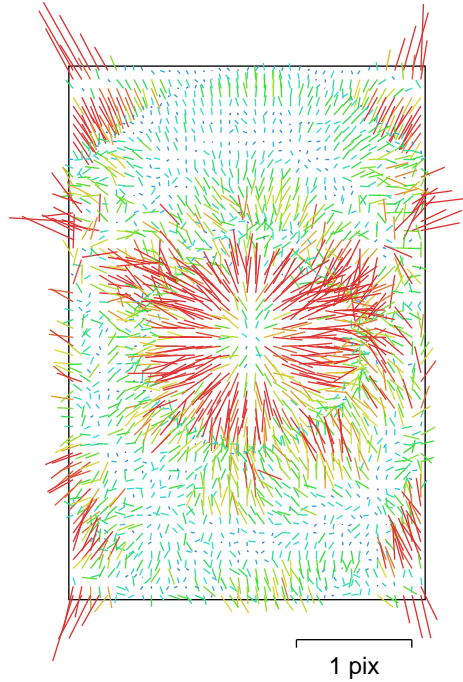


Fig. 16. Image residuals for Camera 14.

Camera 14

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Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2974.38	0.018	1.00	0.01	-0.04	-0.75	0.75	-0.69	0.00	0.05
Cx	17.9408	0.015		1.00	-0.02	0.00	0.01	-0.01	0.72	-0.00
Cy	42.0468	0.02			1.00	0.06	-0.07	0.06	-0.01	0.81
K1	-0.0383574	8.9e-06				1.00	-0.97	0.92	0.01	-0.05
K2	0.0118183	5.6e-06					1.00	-0.99	0.00	0.04
K3	-0.00110296	1.1e-06						1.00	-0.00	-0.03
P1	-0.00031913	1.1e-06							1.00	0.01
P2	2.87226e-07	1.6e-06								1.00

Table 16. Calibration coefficients and correlation matrix.

Camera Calibration

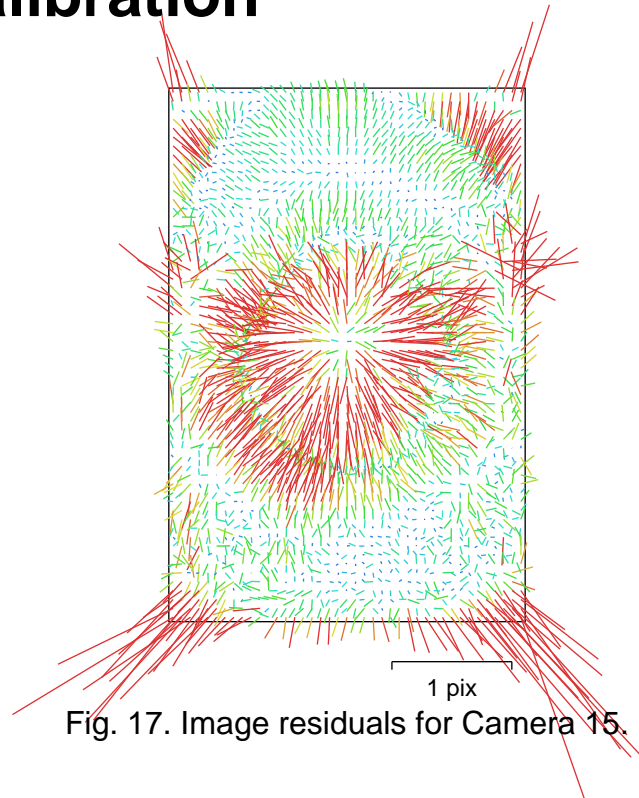


Fig. 17. Image residuals for Camera 15.

Camera 15

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Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2994.38	0.017	1.00	0.02	0.08	-0.74	0.75	-0.70	0.01	0.08
Cx	-8.14354	0.016		1.00	0.01	0.01	0.00	-0.00	0.80	0.04
Cy	-26.4079	0.021			1.00	0.03	-0.03	0.03	0.01	0.85
K1	-0.0367261	9.3e-06				1.00	-0.97	0.92	0.02	-0.03
K2	0.0114779	6.3e-06					1.00	-0.99	-0.00	0.04
K3	-0.000999242	1.3e-06						1.00	-0.00	-0.04
P1	0.000593344	1.3e-06							1.00	0.03
P2	-0.000529728	1.7e-06								1.00

Table 17. Calibration coefficients and correlation matrix.

Camera Calibration

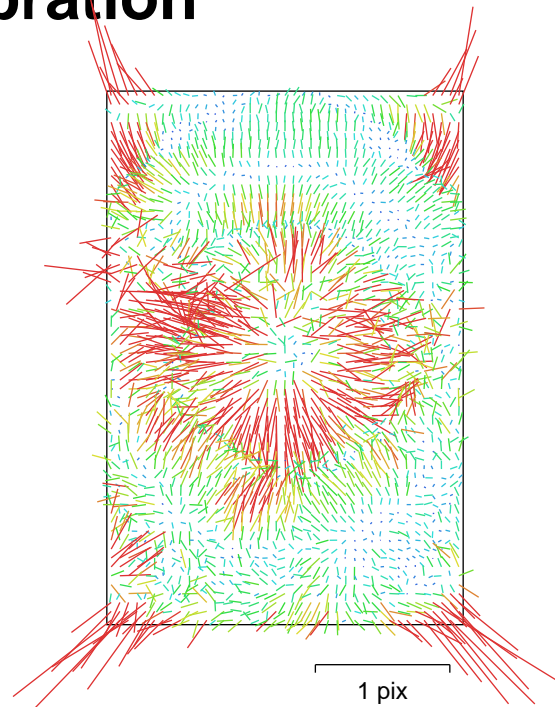


Fig. 18. Image residuals for Camera 16.

Camera 16

180 images

Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2983.6	0.015	1.00	-0.02	0.05	-0.72	0.76	-0.70	-0.03	0.03
Cx	-8.72658	0.016		1.00	-0.02	0.06	-0.04	0.04	0.83	-0.02
Cy	-16.8624	0.023			1.00	-0.02	0.00	-0.00	-0.03	0.89
K1	-0.0370938	9e-06				1.00	-0.96	0.92	0.04	-0.04
K2	0.0110928	5.9e-06					1.00	-0.99	-0.04	0.04
K3	-0.000955025	1.2e-06						1.00	0.04	-0.04
P1	0.000302216	1.4e-06							1.00	-0.04
P2	-0.000469951	2e-06								1.00

Table 18. Calibration coefficients and correlation matrix.

Camera Calibration

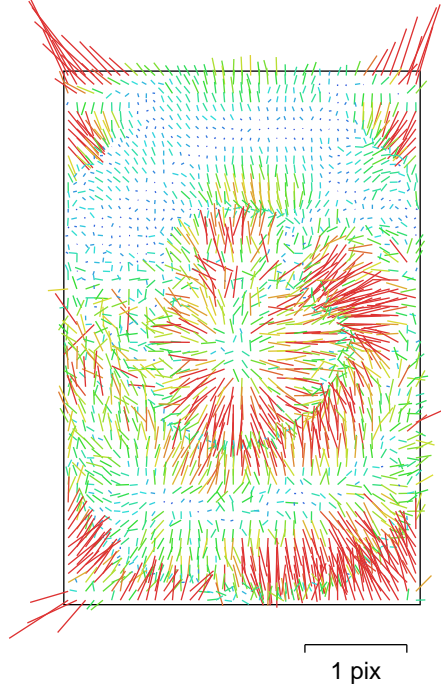


Fig. 19. Image residuals for Camera 17.

Camera 17

180 images

Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2990.56	0.018	1.00	0.05	0.08	-0.72	0.74	-0.68	0.05	0.05
Cx	19.4454	0.018		1.00	0.00	-0.06	0.04	-0.03	0.80	0.00
Cy	39.1001	0.024			1.00	-0.04	0.02	-0.01	-0.00	0.88
K1	-0.0356402	1e-05				1.00	-0.97	0.92	-0.05	-0.08
K2	0.0107785	6.9e-06					1.00	-0.99	0.04	0.07
K3	-0.000919476	1.4e-06						1.00	-0.04	-0.07
P1	-0.000130012	1.5e-06							1.00	0.01
P2	5.21391e-05	2.1e-06								1.00

Table 19. Calibration coefficients and correlation matrix.

Camera Calibration

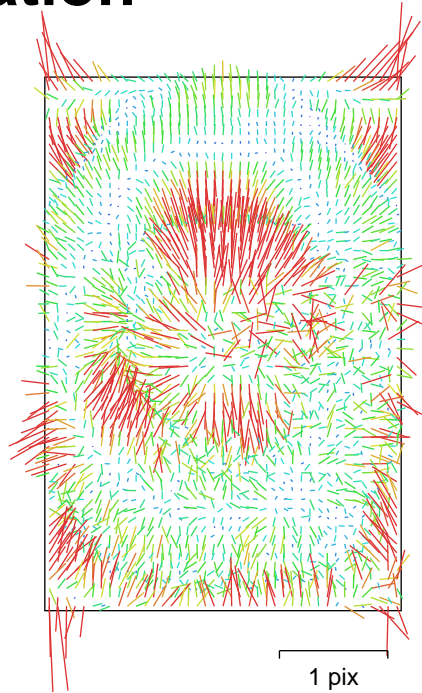


Fig. 20. Image residuals for Camera 18.

Camera 18

180 images

Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2960.38	0.017	1.00	-0.03	0.23	-0.67	0.69	-0.63	-0.04	0.02
Cx	-19.7279	0.018		1.00	0.02	0.05	-0.03	0.03	0.83	0.04
Cy	-34.0246	0.023			1.00	0.02	0.01	-0.02	0.03	0.85
K1	-0.0371977	9.2e-06				1.00	-0.96	0.91	0.06	0.09
K2	0.0103461	6e-06					1.00	-0.98	-0.05	-0.01
K3	-0.000852408	1.2e-06						1.00	0.04	-0.01
P1	0.000133592	1.5e-06							1.00	0.05
P2	-0.000243007	1.9e-06								1.00

Table 20. Calibration coefficients and correlation matrix.

Camera Calibration

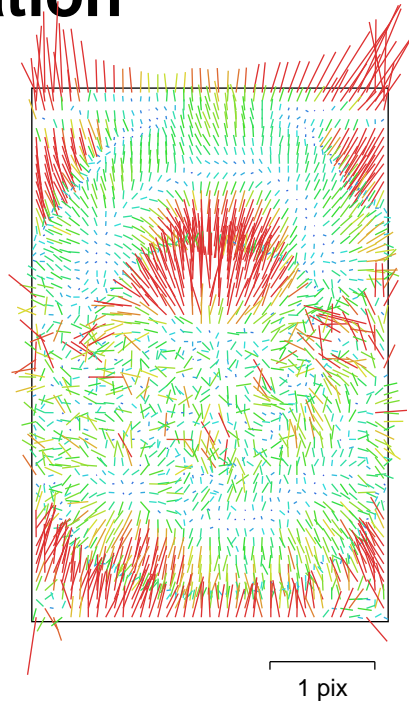


Fig. 21. Image residuals for Camera 19.

Camera 19

180 images

Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2967.53	0.013	1.00	-0.01	0.21	-0.57	0.64	-0.59	-0.01	-0.02
Cx	23.5436	0.016		1.00	-0.03	-0.03	0.02	-0.02	0.86	-0.02
Cy	32.395	0.023			1.00	0.13	-0.03	0.01	-0.01	0.90
K1	-0.0349595	7.8e-06				1.00	-0.95	0.89	-0.01	0.22
K2	0.00948617	5.1e-06					1.00	-0.98	0.00	-0.10
K3	-0.000680719	1.1e-06						1.00	-0.01	0.06
P1	-0.000262529	1.3e-06							1.00	0.00
P2	1.51565e-05	2e-06								1.00

Table 21. Calibration coefficients and correlation matrix.

Camera Calibration

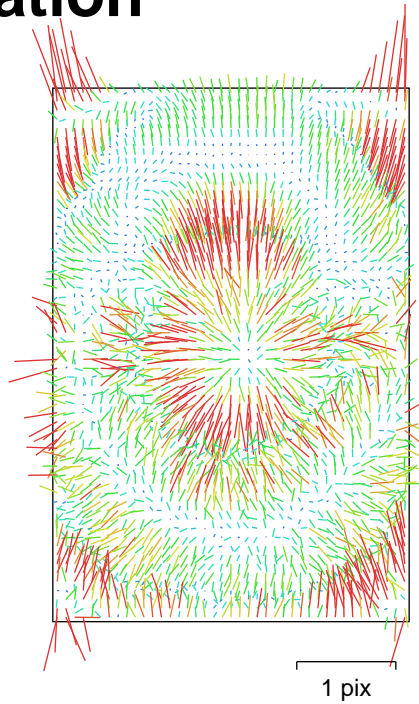


Fig. 22. Image residuals for Camera 20.

Camera 20

173 images

Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2965.93	0.015	1.00	0.02	0.33	-0.60	0.65	-0.61	0.02	0.11
Cx	22.4395	0.016		1.00	0.04	0.01	-0.00	-0.00	0.82	0.05
Cy	24.9099	0.021			1.00	0.04	0.02	-0.03	0.03	0.84
K1	-0.0366582	7.2e-06				1.00	-0.96	0.90	0.01	0.12
K2	0.0104463	4.7e-06					1.00	-0.98	-0.00	-0.03
K3	-0.000874778	9.6e-07						1.00	-0.00	0.00
P1	0.000204301	1.2e-06							1.00	0.04
P2	0.000373444	1.6e-06								1.00

Table 22. Calibration coefficients and correlation matrix.

Camera Calibration

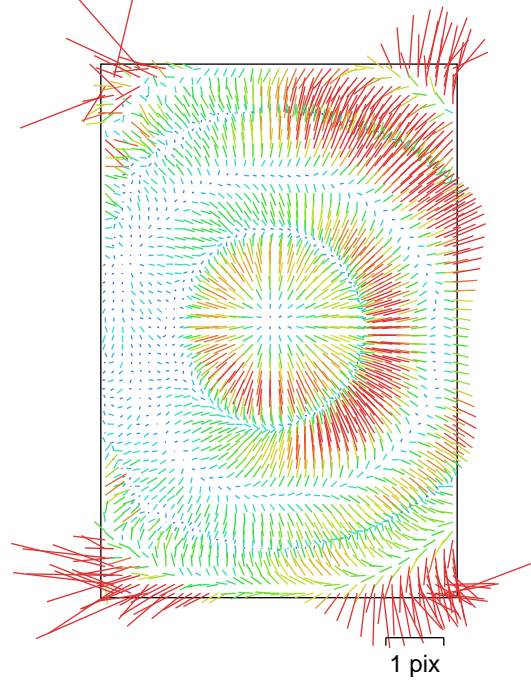


Fig. 23. Image residuals for Camera 21.

Camera 21

180 images

Type	Resolution	Focal Length	Pixel Size
Frame	5784 x 8660	12 mm	4.17 x 4.17 um

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	2831.05	0.22	1.00	-0.99	0.19	-0.85	0.62	-0.13	0.70	-0.03
Cx	40.5966	0.091		1.00	-0.19	0.83	-0.60	0.12	-0.68	0.03
Cy	-27.8509	0.014			1.00	-0.17	0.13	-0.04	0.15	0.33
K1	-0.031648	5.9e-06				1.00	-0.91	0.56	-0.70	0.02
K2	0.00682604	2.9e-06					1.00	-0.84	0.46	-0.01
K3	-0.000189106	5.3e-07						1.00	-0.11	-0.01
P1	6.77262e-05	8.4e-07							1.00	-0.06
P2	-5.34943e-05	6.6e-07								1.00

Table 23. Calibration coefficients and correlation matrix.

Scale Bars

Label	Distance (m)	Error (m)
003. 7-8	0.250009	-5.09096e-05
006. 15-16	0.250754	0.000723654
009. 23-24	0.250256	0.000135896
002a. 4-5	0.249743	-0.000256823
002b. 5-6	0.250058	0.000157628
005a. 12-13	0.249995	1.54333e-05
005b. 13-14	0.249779	-0.000111415
008a. 20-21	0.249918	-0.000111774
008b. 21-22	0.249644	-0.000235691
Total		0.000282102

Table 24. Control scale bars.

Digital Elevation Model

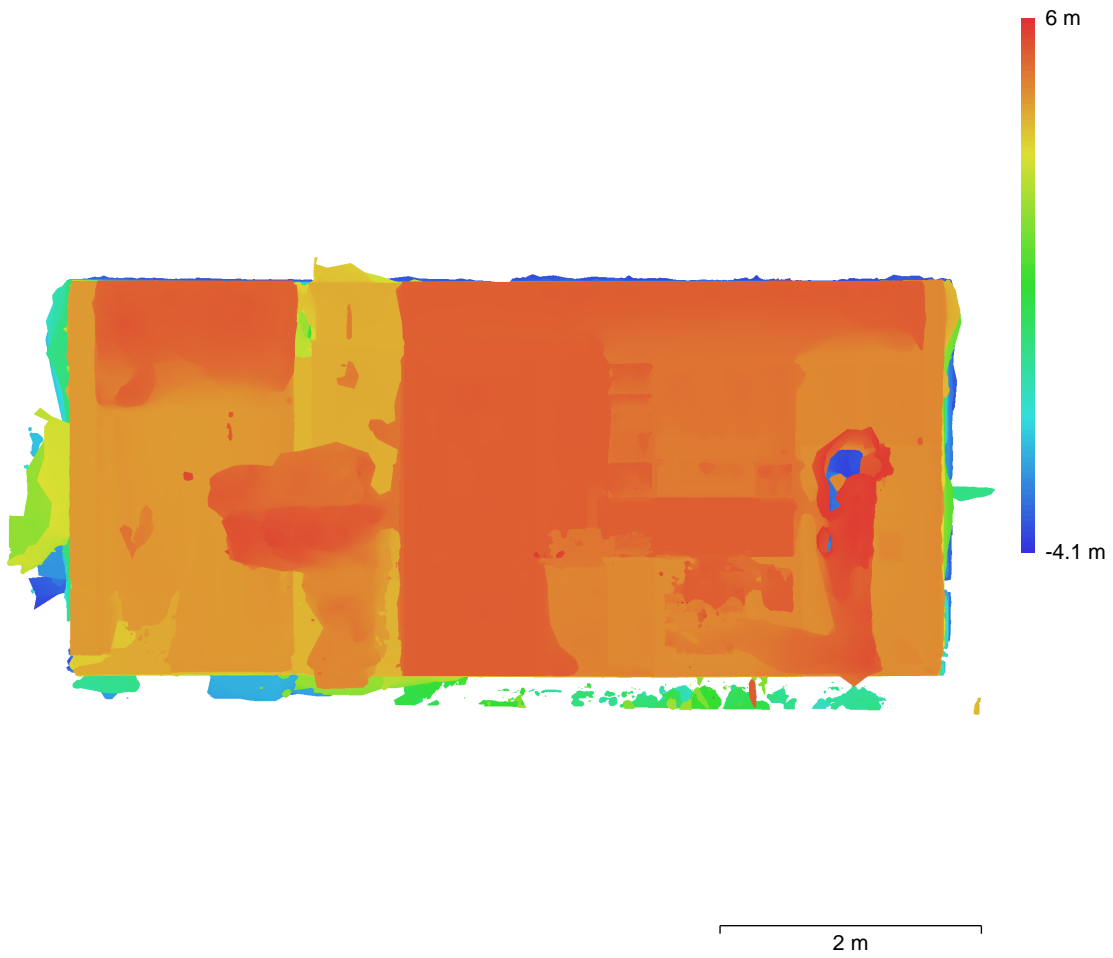


Fig. 24. Reconstructed digital elevation model.

Resolution: 5.76 mm/pix
Point density: 3.01 points/cm²

Processing Parameters

General

Cameras	3923
Aligned cameras	3804
Markers	15
Scale bars	9
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll

Tie Points

Points	4,343,123 of 7,394,783
RMS reprojection error	0.328313 (0.735624 pix)
Max reprojection error	2.44127 (20.4858 pix)
Mean key point size	2.13363 pix
Point colors	3 bands, uint8
Key points	18.59 GB
Average tie point multiplicity	3.98234

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	1 hours 34 minutes
Matching memory usage	5.09 GB
Alignment time	2 hours 8 minutes
Alignment memory usage	15.92 GB

Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	8 minutes 18 seconds
Date created	2023:08:25 04:59:08
Software version	2.0.2.16404
File size	682.84 MB

Depth Maps

Count	3742
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Depth maps generation parameters

Quality	Medium
Filtering mode	Mild
Max neighbors	16
Processing time	1 hours 13 minutes
Memory usage	6.61 GB
Date created	2023:08:28 02:05:33
Software version	2.0.2.16404
File size	10.83 GB

Point Cloud

Points	160,818,474
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Point attributes

Color	3 bands, uint8
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Normal

Point classes

Created (never classified) 160,818,474

Depth maps generation parameters

Quality Medium
Filtering mode Mild
Max neighbors 16
Processing time 1 hours 13 minutes
Memory usage 6.61 GB

Point cloud generation parameters

Processing time 5 hours 38 minutes
Memory usage 138.33 GB
Date created 2023:08:28 07:45:39
Software version 2.0.2.16404
File size 2.10 GB

Model

Faces 1,755,017
Vertices 882,015
Vertex colors 3 bands, uint8
Texture 16,384 x 16,384, 4 bands, uint8

Depth maps generation parameters

Quality Medium
Filtering mode Mild
Max neighbors 16
Processing time 1 hours 13 minutes
Memory usage 6.61 GB

Reconstruction parameters

Surface type Arbitrary
Source data Depth maps
Interpolation Enabled
Strict volumetric masks No
Processing time 29 minutes 29 seconds
Memory usage 13.86 GB

Texturing parameters

Mapping mode Generic
Blending mode Mosaic
Texture size 16,384
Enable hole filling Yes
Enable ghosting filter Yes
UV mapping time 4 minutes 9 seconds
UV mapping memory usage 1.56 GB
Blending time 26 minutes 58 seconds
Blending memory usage 11.00 GB
Blending GPU memory usage 7.55 GB
Date created 2023:08:28 08:16:45
Software version 2.0.2.16404
File size 304.69 MB

System

Software name Agisoft Metashape Professional
Software version 2.0.2 build 16404
OS Windows 64 bit
RAM 255.87 GB
CPU AMD Ryzen Threadripper 3970X 32-Core Processor
GPU(s) NVIDIA GeForce RTX 3090
NVIDIA GeForce RTX 3090
NVIDIA GeForce RTX 3090