Agisoft PhotoScan

Processing Report

10 January 2023

Survey Data

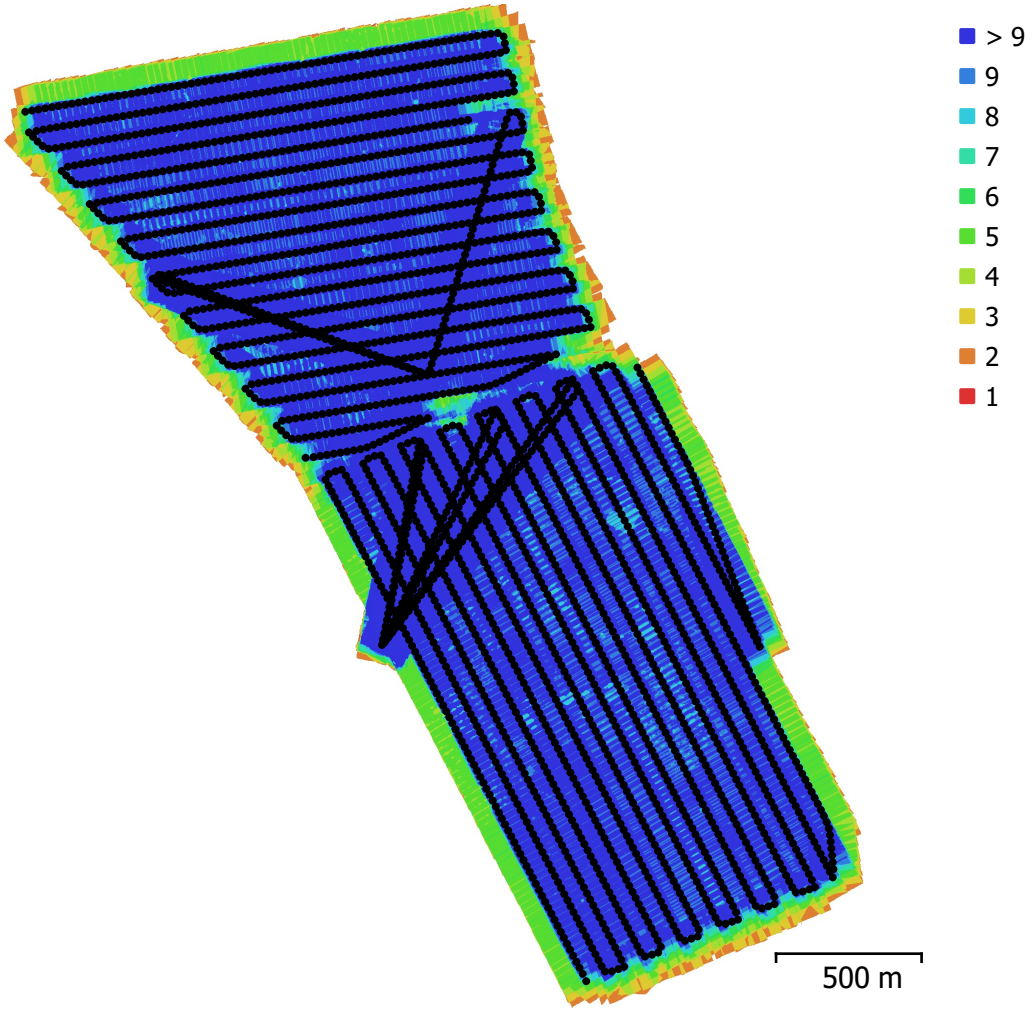

Fig. 1. Camera locations and image overlap.

Number of images:	2,908	Camera stations:	2,906
Flying altitude:	126 m	Tie points:	6,896,087
Ground resolution:	2.79 cm/pix	Projections:	24,363,038
Coverage area:	4.69 km²	Reprojection error:	1.37 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
ILCE-5100 (16mm)	6000 x 4000	16 mm	4 x 4 µm	No
ILCE-5100 (16mm)	6000 x 4000	16 mm	4 x 4 µm	No

Table 1. Cameras.

Camera Calibration

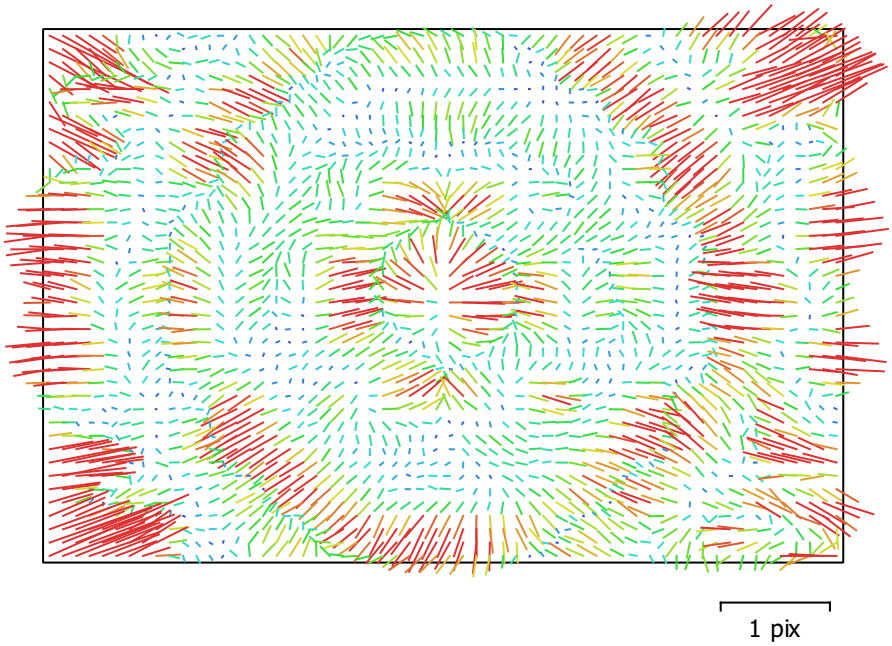

Fig. 2. Image residuals for ILCE-5100 (16mm).

ILCE-5100 (16mm)

1283 images

Type	Resolution	Focal Length	Pixel Size
Frame	**6000 x 4000**	**16 mm**	**4 x 4 µm**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**4109.38**	0.44	1.00	-0.04	0.88	0.20	-0.07	0.12	-0.29	0.18
Cx	**-37.5156**	0.036		1.00	-0.05	-0.03	0.00	-0.00	0.27	-0.06
Cy	**-17.0678**	0.072			1.00	0.23	-0.06	0.10	-0.26	0.28
K1	**-0.00127512**	2.2e-05				1.00	-0.64	0.61	-0.12	0.63
K2	**-0.00953826**	4.4e-05					1.00	-0.98	0.05	-0.02
K3	**0.00936416**	4.1e-05						1.00	-0.07	0.03
P1	**-0.00269617**	1.1e-06							1.00	-0.13
P2	**-0.000709505**	1.7e-06								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration

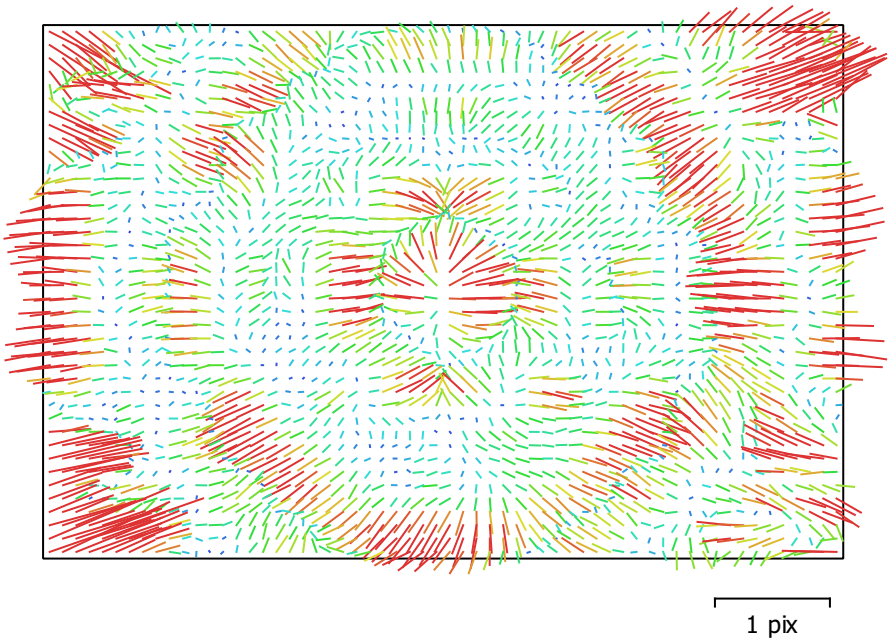

Fig. 3. Image residuals for ILCE-5100 (16mm).

ILCE-5100 (16mm)

1625 images

Type	Resolution	Focal Length	Pixel Size
Frame	**6000 x 4000**	**16 mm**	**4 x 4 µm**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**4085.71**	0.33	1.00	-0.01	0.89	0.22	-0.05	0.09	-0.24	0.22
Cx	**-39.375**	0.028		1.00	-0.03	-0.03	-0.00	0.00	0.32	-0.04
Cy	**-21.6379**	0.062			1.00	0.23	-0.05	0.08	-0.23	0.31
K1	**-0.0011918**	1.9e-05				1.00	-0.67	0.64	-0.09	0.58
K2	**-0.00890442**	4e-05					1.00	-0.98	0.04	-0.02
K3	**0.00861347**	3.7e-05						1.00	-0.06	0.02
P1	**-0.00265687**	9.7e-07							1.00	-0.10
P2	**-0.000704502**	1.6e-06								1.00

Table 3. Calibration coefficients and correlation matrix.

Camera Locations

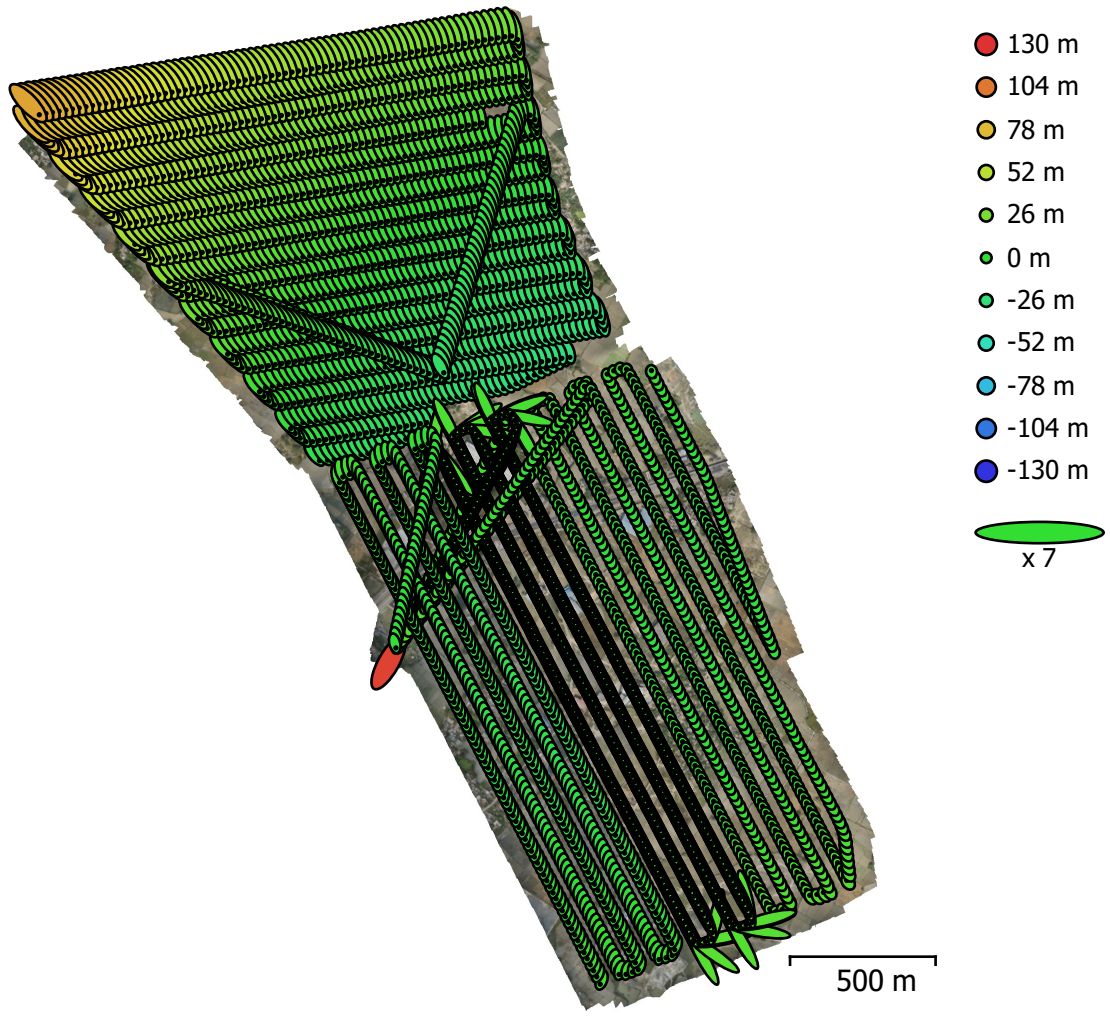

Fig. 4. Camera locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated camera locations are marked with a black dot.

X error (m)	Y error (m)	Z error (m)	XY error (m)	Total error (m)
5.42005	9.71258	18.9678	11.1226	21.9884

Table 4. Average camera location error.
X - Longitude, Y - Latitude, Z - Altitude.

Digital Elevation Model

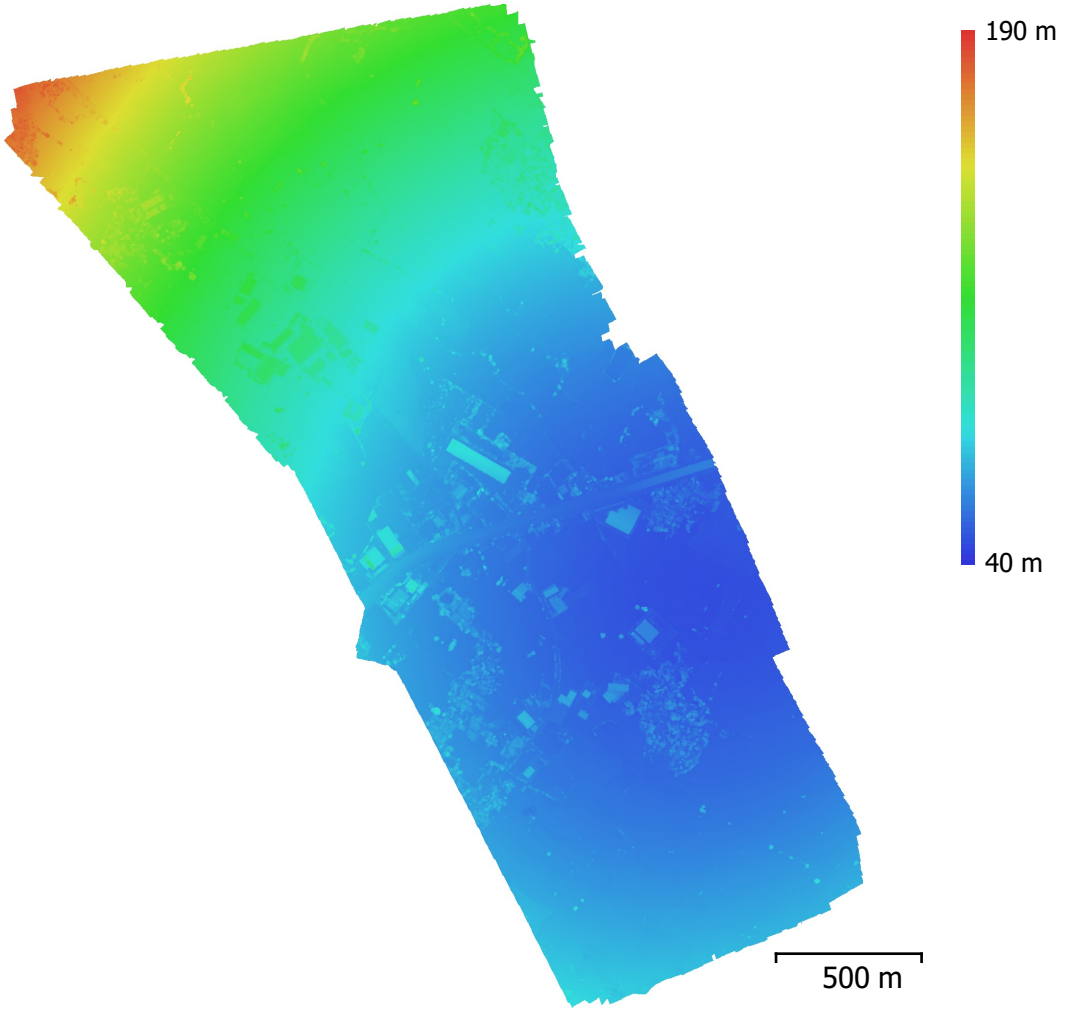

Fig. 5. Reconstructed digital elevation model.

Resolution:	11.2 cm/pix
Point density:	80.2 points/m²

Processing Parameters

General	
Cameras	2908
Aligned cameras	2906
Shapes	
Polylines	974
Polygons	557285
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll
Point Cloud	
Points	6,896,087 of 7,370,080
RMS reprojection error	0.278724 (1.36547 pix)
Max reprojection error	0.867516 (76.3133 pix)
Mean key point size	5.22689 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.71576
Dense Point Cloud	
Points	467,665,478
Point colors	3 bands, uint8
Reconstruction parameters	
Quality	Medium
Depth filtering	Aggressive
Model	
Faces	31,001,698
Vertices	15,520,147
Vertex colors	3 bands, uint8
Reconstruction parameters	
Surface type	Height field
Source data	Dense
Interpolation	Enabled
Quality	Medium
Depth filtering	Aggressive
DEM	
Size	38,716 x 46,198
Coordinate system	WGS 84 (EPSG::4326)
Reconstruction parameters	
Source data	Mesh
Interpolation	Enabled
Processing time	4 minutes 15 seconds
Orthomosaic	
Size	105,795 x 123,387
Coordinate system	WGS 84 (EPSG::4326)
Colors	3 bands, uint8
Reconstruction parameters	
Blending mode	Mosaic
Surface	Mesh
Enable hole filling	Yes
Processing time	7 hours 52 minutes
Software	
Version	1.4.3 build 6488
Platform	Windows 64