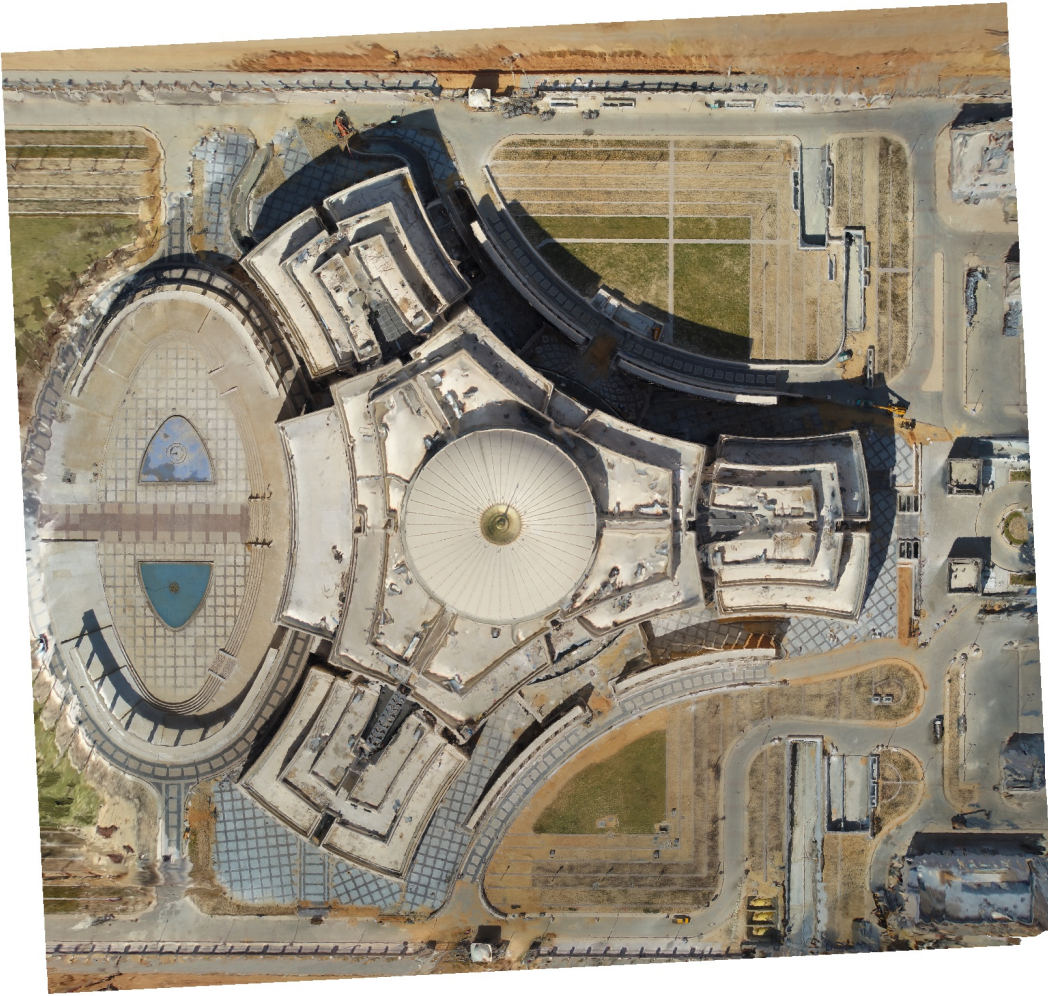


تقرير مفصل عن النموذج

المسح التصويري
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23 February 2021



Survey Data

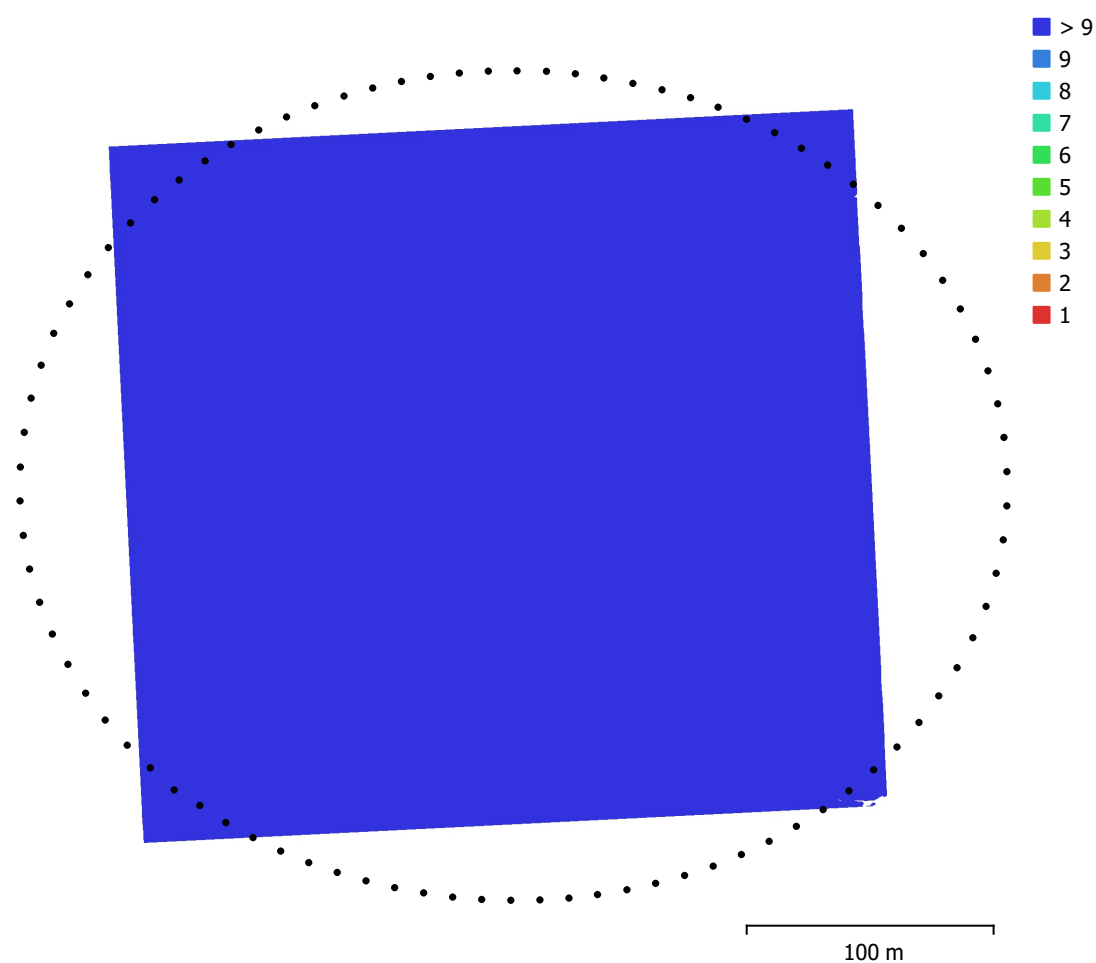


Fig. 1. Camera locations and image overlap.

Number of images:	90	Camera stations:	90
Flying altitude:	158 m	Tie points:	93,816
Ground resolution:	3.66 cm/pix	Projections:	345,672
Coverage area:	0.0851 km ²	Reprojection error:	0.677 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
FC6310 (8.8mm)	5472 x 3648	8.8 mm	2.41 x 2.41 μm	No

Table 1. Cameras.

Camera Calibration

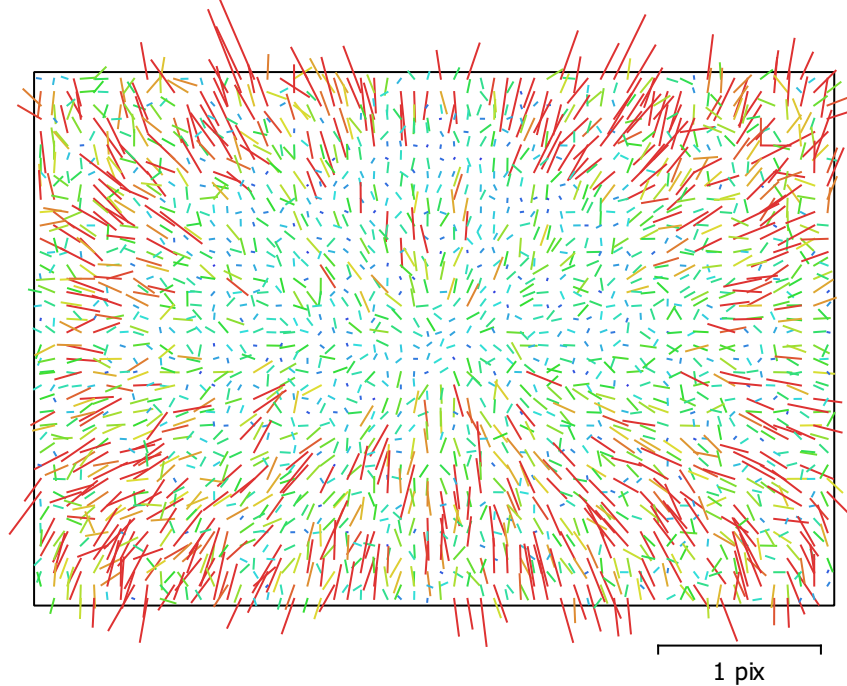


Fig. 2. Image residuals for FC6310 (8.8mm).

FC6310 (8.8mm)

90 images

Type
Frame

Resolution
5472 x 3648

Focal Length
8.8 mm

Pixel Size
2.41 x 2.41 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	3666.46	0.37	1.00	0.07	-0.97	-0.16	0.14	-0.12	0.02	-0.36
Cx	-12.7159	0.12		1.00	-0.06	-0.03	0.03	-0.02	0.95	-0.05
Cy	3.12747	0.68			1.00	0.02	-0.02	0.01	-0.01	0.24
K1	-0.000630923	8.6e-05				1.00	-0.97	0.92	-0.03	0.05
K2	0.00277985	0.00021					1.00	-0.99	0.03	-0.01
K3	0.000133677	0.00016						1.00	-0.02	-0.01
P1	-0.000885982	1.3e-05							1.00	-0.06
P2	-5.68656e-05	6.1e-06								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

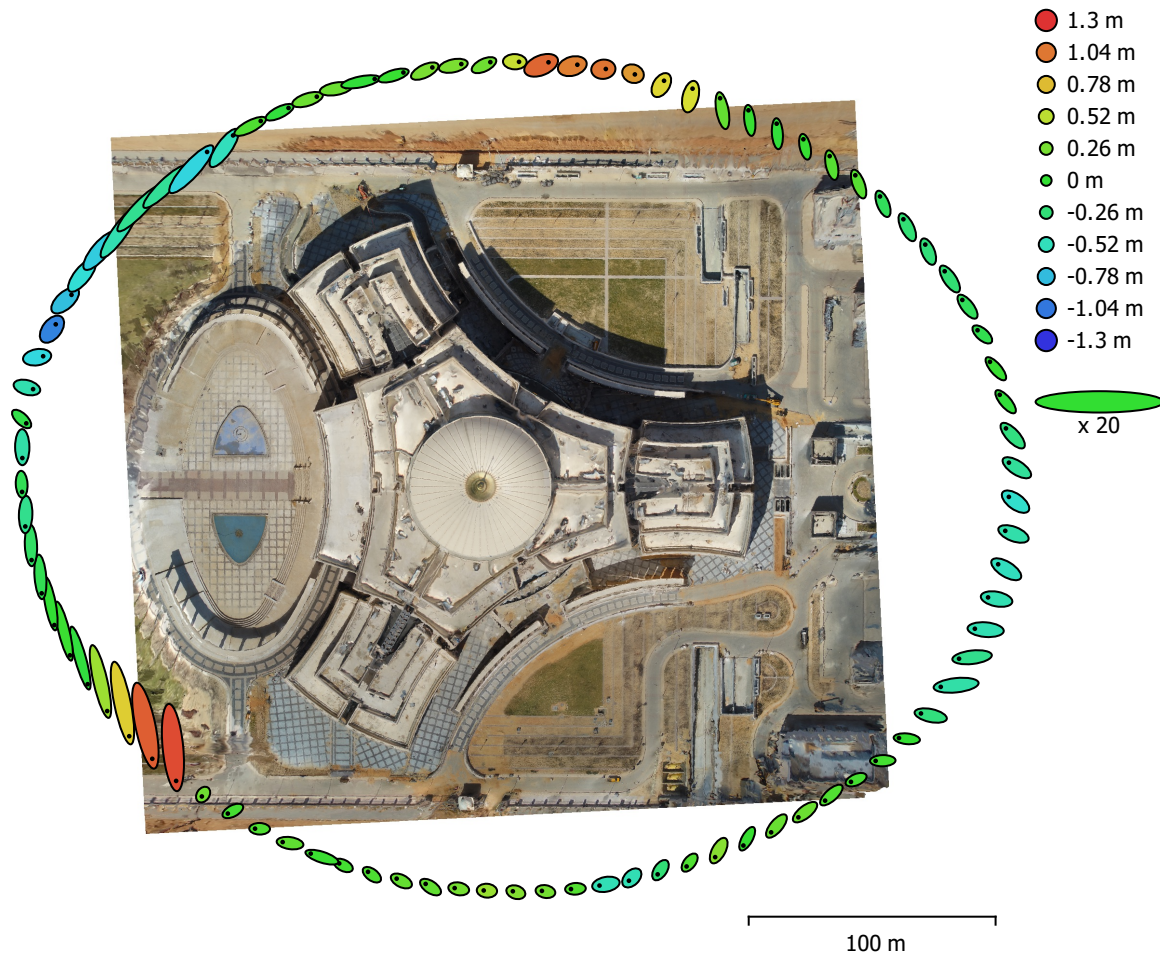


Fig. 3. Camera locations and error estimates.

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 (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total error (cm)
28.56	42.6617	44.0182	51.339	67.6261

Table 3. Average camera location error.

X - Longitude, Y - Latitude, Z - Altitude.

Digital Elevation Model

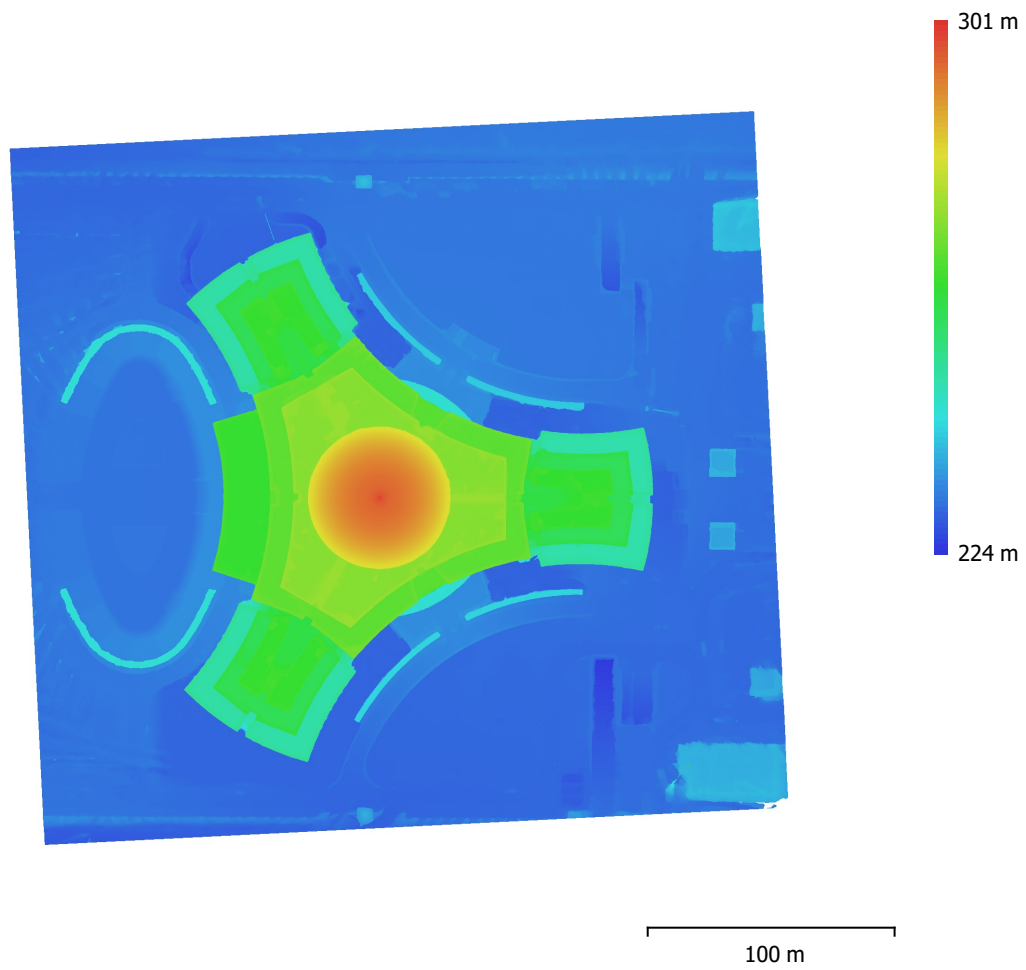


Fig. 4. Reconstructed digital elevation model.

Resolution: 7.31 cm/pix
Point density: 187 points/m²

Processing Parameters

General

Cameras	90
Aligned cameras	90
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	93,816 of 101,689
RMS reprojection error	0.140509 (0.677369 pix)
Max reprojection error	0.423682 (33.6067 pix)
Mean key point size	3.8354 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.83689

Alignment parameters

Accuracy	High
Generic preselection	Yes
Reference preselection	Source
Key point limit	40,000
Tie point limit	4,000
Guided image matching	No
Adaptive camera model fitting	No
Matching time	1 minutes 25 seconds
Matching memory usage	547.23 MB
Alignment time	36 seconds
Alignment memory usage	72.82 MB
Software version	1.6.4.10928
File size	8.40 MB

Depth Maps

Count	90
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Processing time	21 minutes 23 seconds
File size	628.79 MB

Dense Point Cloud

Points	27,939,920
Point colors	3 bands, uint8

Depth maps generation parameters

Quality	High
Filtering mode	Mild
Processing time	21 minutes 23 seconds

Dense cloud generation parameters

Processing time	50 minutes 22 seconds
Software version	1.6.4.10928
File size	371.66 MB

Model

Faces	5,587,909
Vertices	2,799,517
Vertex colors	3 bands, uint8
Texture	4,096 x 4,096, 4 bands, uint8

Depth maps generation parameters

Quality	High
Filtering mode	Mild
Processing time	21 minutes 23 seconds

Reconstruction parameters

Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Enabled
Strict volumetric masks	No
Processing time	16 minutes 8 seconds
Memory usage	12.26 GB

Texturing parameters

Mapping mode	Generic
Blending mode	Mosaic
Texture size	4,096
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	7 minutes 4 seconds
UV mapping memory usage	2.71 GB
Blending time	1 minutes 52 seconds
Blending memory usage	2.37 GB
Software version	1.6.4.10928
File size	264.27 MB

System

Software name	Agisoft Metashape Professional
Software version	1.6.4 build 10928
OS	Windows 64 bit
RAM	15.89 GB
CPU	Intel(R) Core(TM) i7-7700 CPU @ 3.60GHz
GPU(s)	GeForce GTX 1060 3GB