Schloss Solitude

Processing Report
28 December 2023

Survey Data

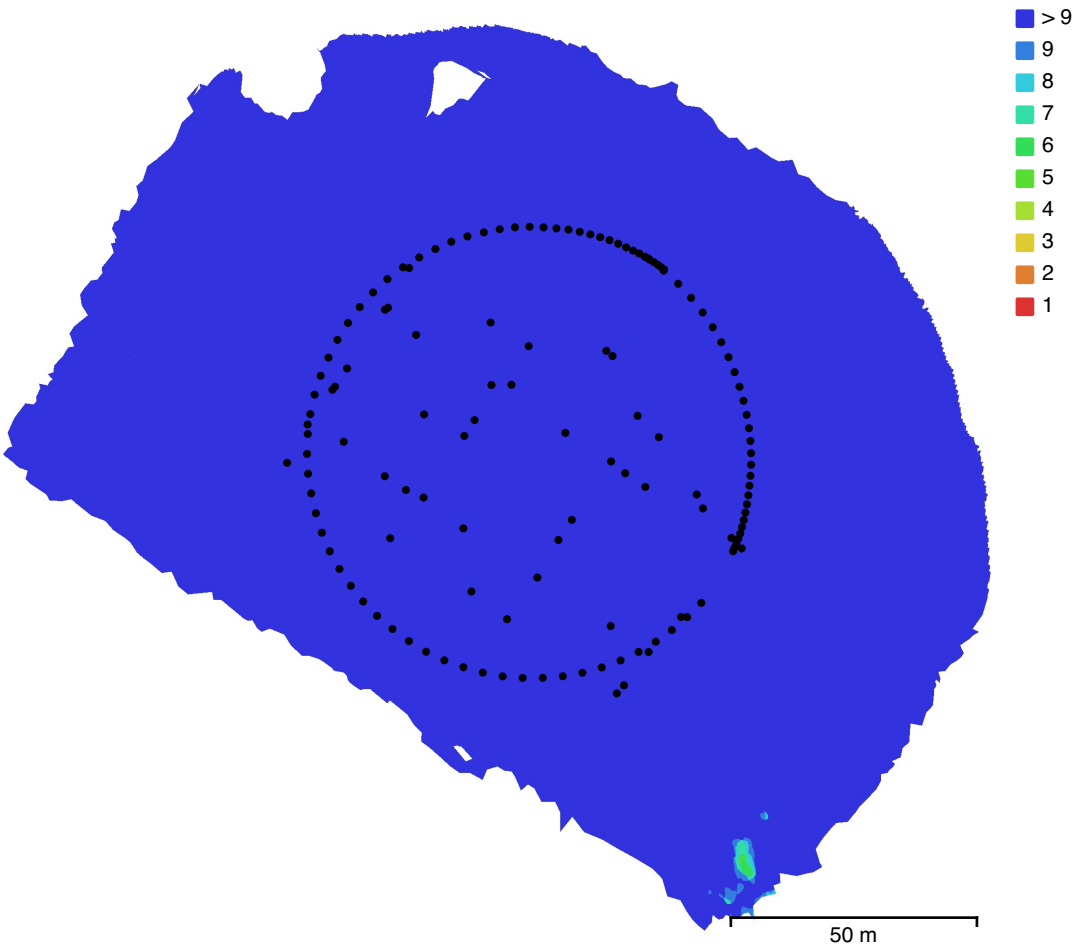

Fig. 1. Camera locations and image overlap.

Number of images:	136	Camera stations:	136
Flying altitude:	70.9 m	Tie points:	20,304
Ground resolution:	3.79 cm/pix	Projections:	101,671
Coverage area:	0.023 km²	Reprojection error:	0.505 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
Test_Pro (8.38mm)	5472 x 3648	8.38 mm	2.51 x 2.51 µm	No
unknown	1920 x 1080	unknown	unknown	No

Table 1. Cameras.

Camera Calibration

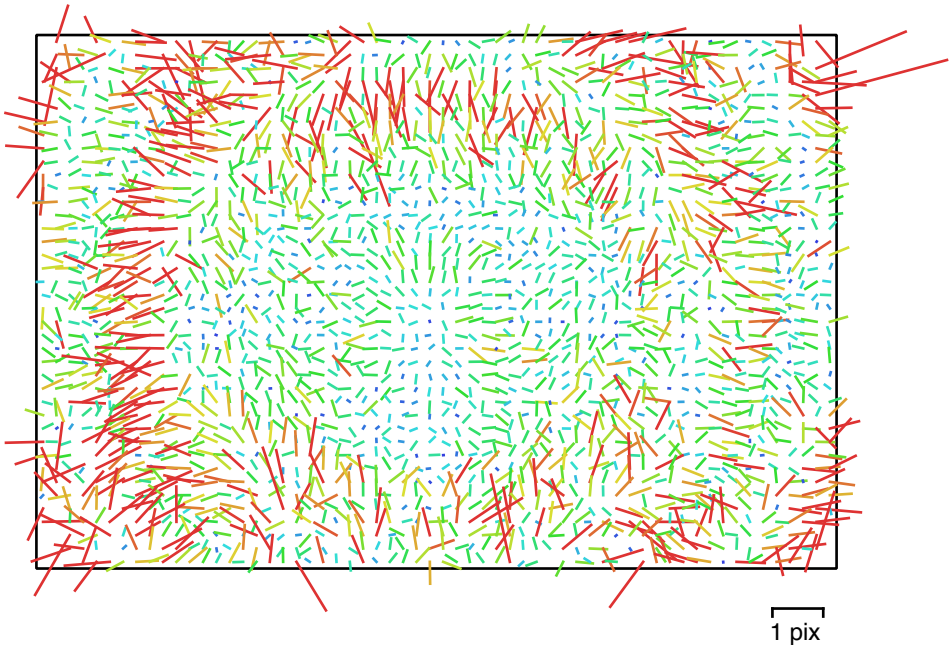

Fig. 2. Image residuals for Test_Pro (8.38mm).

Test_Pro (8.38mm)

44 images

Type	Resolution	Focal Length	Pixel Size
Frame	**5472 x 3648**	**8.38 mm**	**2.51 x 2.51 µm**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**3483.8**	0.99	1.00	0.06	0.17	0.16	0.10	0.11	0.05	0.12
Cx	**12.5163**	0.16		1.00	0.11	0.00	0.02	-0.00	0.73	0.06
Cy	**4.93377**	0.12			1.00	0.02	0.04	0.00	0.08	0.43
K1	**-0.0668606**	0.00022				1.00	-0.89	0.87	0.03	0.06
K2	**0.0287325**	0.00058					1.00	-0.96	0.01	0.00
K3	**0.034783**	0.00051						1.00	0.00	0.03
P1	**0.000219861**	1.4e-05							1.00	0.08
P2	**-0.00014896**	8.9e-06								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration

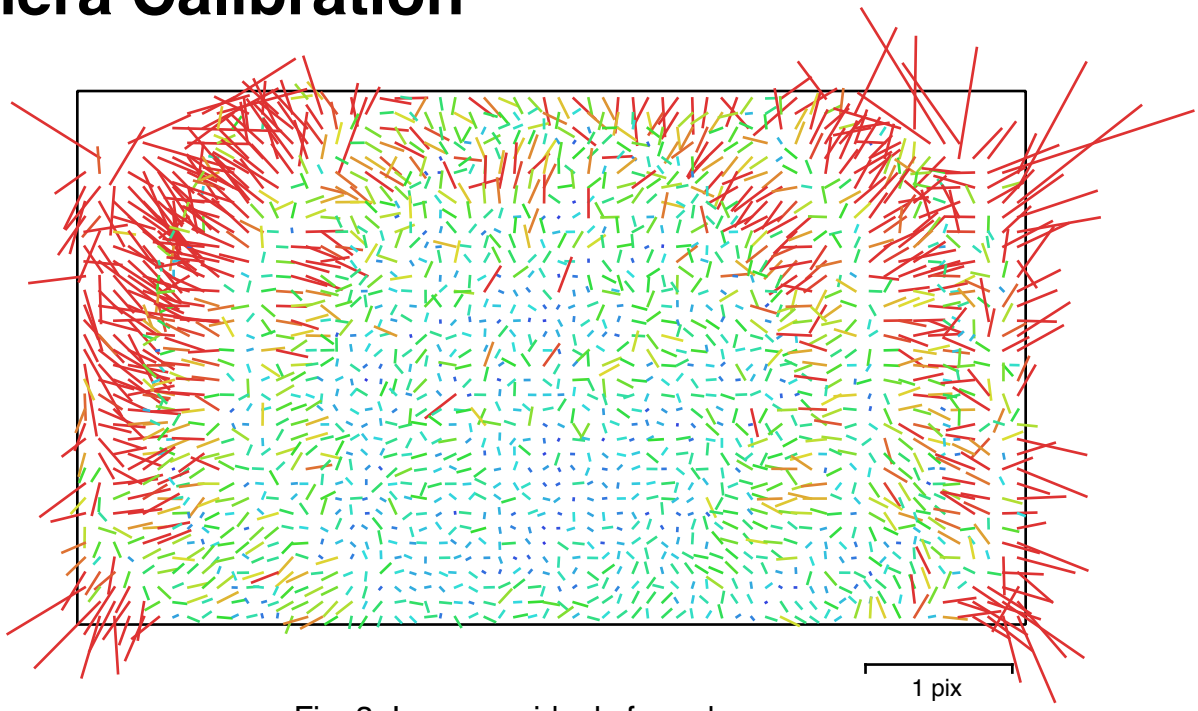

Fig. 3. Image residuals for unknown.

unknown

92 images

Type	Resolution	Focal Length	Pixel Size
Frame	**1920 x 1080**	**unknown**	**unknown**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**1226.94**	0.23	1.00	0.02	-0.91	-0.15	0.23	-0.15	0.04	-0.66
Cx	**-1.61115**	0.079		1.00	-0.01	0.00	-0.00	0.01	0.92	0.00
Cy	**7.68443**	0.3			1.00	-0.01	-0.09	0.04	-0.05	0.87
K1	**-0.0754676**	0.00028				1.00	-0.96	0.91	0.01	-0.12
K2	**0.0512322**	0.00079					1.00	-0.98	-0.01	0.00
K3	**0.0227957**	0.00069						1.00	0.02	-0.01
P1	**-0.00176377**	2e-05							1.00	-0.03
P2	**0.00122579**	4.3e-05								1.00

Table 3. Calibration coefficients and correlation matrix.

Camera Locations

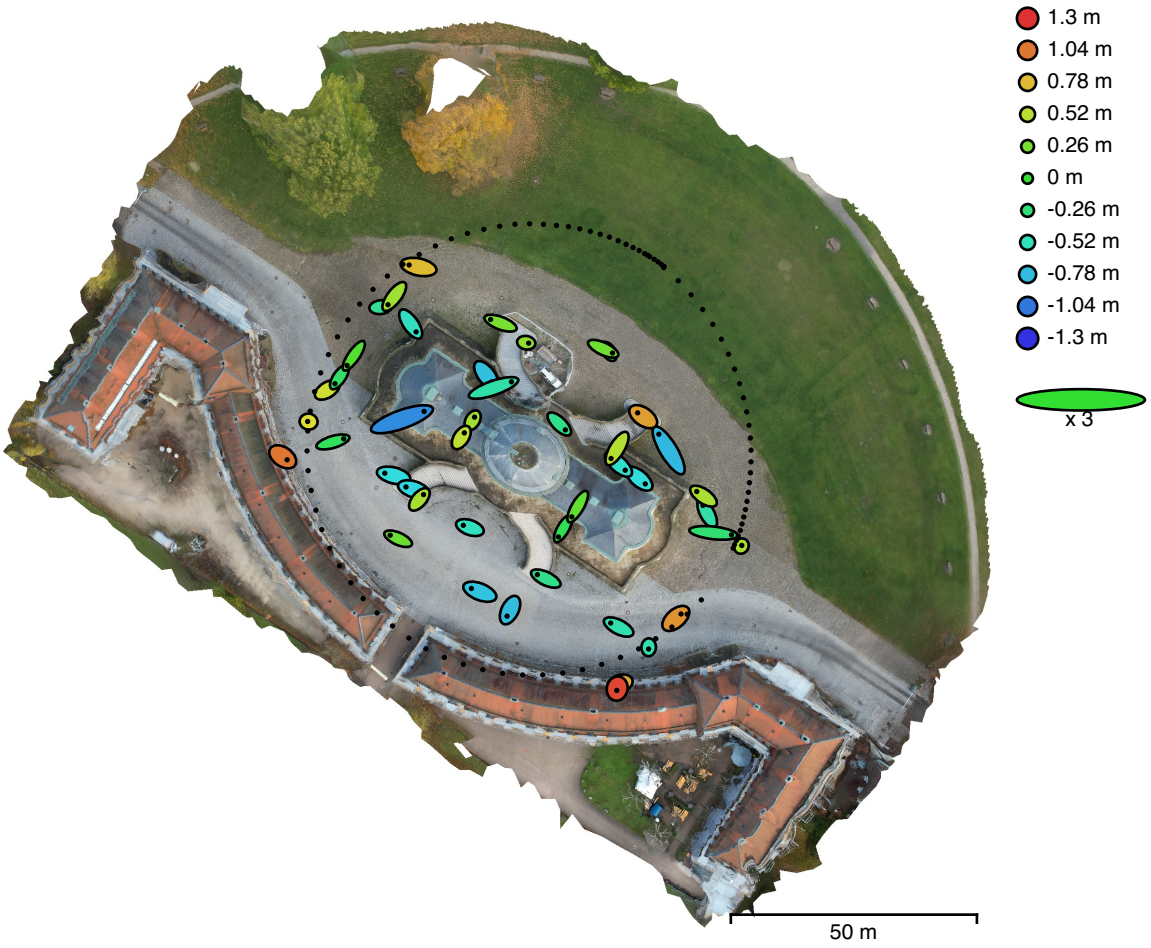

Fig. 4. Camera locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated camera locations are marked with a black dot.

X error (m)	Y error (m)	Z error (m)	XY error (m)	Total error (m)
1.05959	0.766912	0.586139	1.308	1.43333

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

Digital Elevation Model

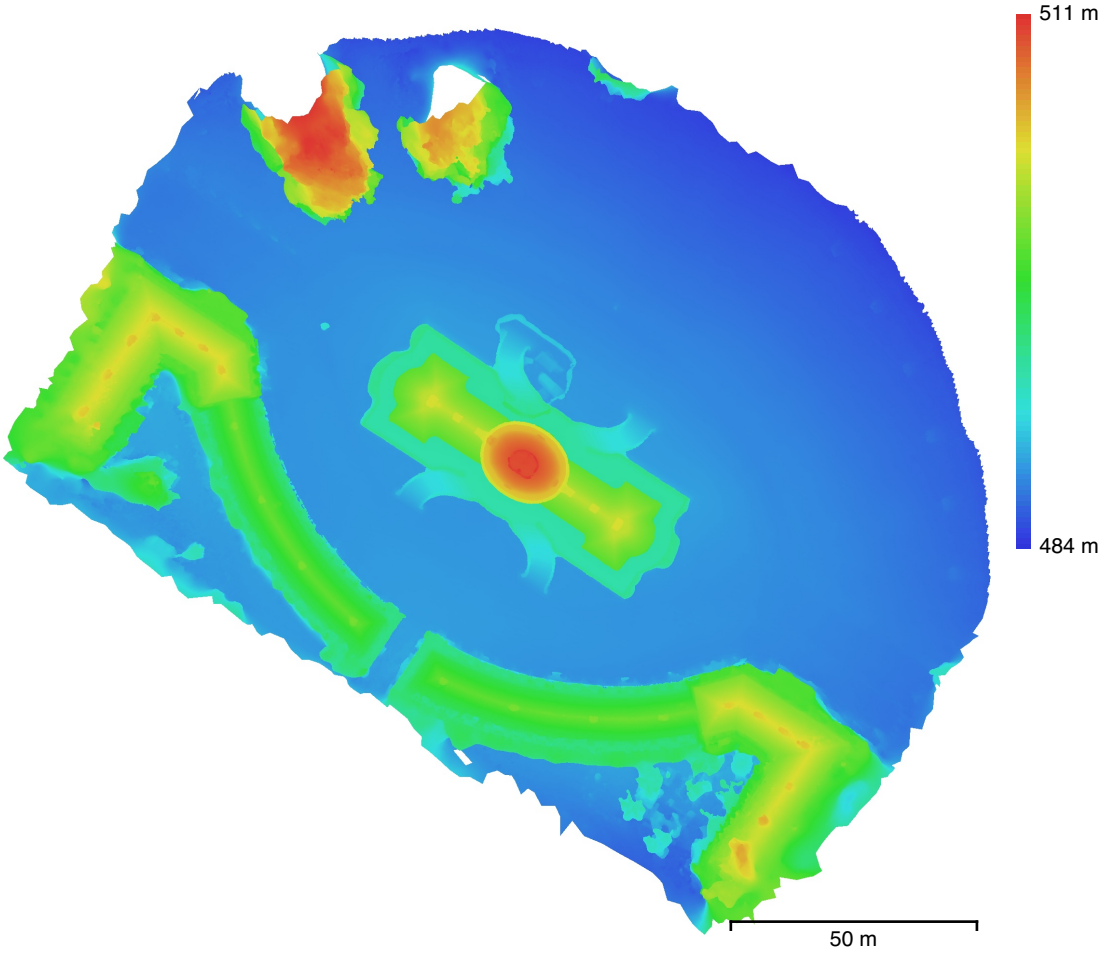

Fig. 5. Reconstructed digital elevation model.

Resolution:	7.58 cm/pix
Point density:	174 points/m²

Processing Parameters

General	
Cameras	136
Aligned cameras	136
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll
Tie Points	
Points	20,304 of 93,224
RMS reprojection error	0.222075 (0.505118 pix)
Max reprojection error	0.656844 (5.72082 pix)
Mean key point size	2.10058 pix
Point colors	3 bands, uint8
Key points	424.21 MB
Average tie point multiplicity	6.65005
Alignment parameters	
Accuracy	High
Generic preselection	Yes
Reference preselection	No
Key point limit	40,000
Key point limit per Mpx	1,000
Tie point limit	4,000
Exclude stationary tie points	Yes
Guided image matching	No
Adaptive camera model fitting	No
Matching time	1 minutes 31 seconds
Matching memory usage	661.88 MB
Alignment time	13 seconds
Alignment memory usage	10.52 MB
Optimization parameters	
Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	0 seconds
Date created	2023:12:21 19:06:10
Software version	2.0.4.17434
File size	12.58 MB
Depth Maps	
Count	132
Depth maps generation parameters	
Quality	High
Filtering mode	Moderate
Max neighbors	16
Processing time	4 minutes 2 seconds
File size	295.59 MB
Point Cloud	
Points	5,769,539
Coordinate precision	1.89 cm
Point attributes	
Color	3 bands, uint8
Normal	
Confidence	1 - 111
Point classes	
Created (never classified)	5,769,539

Depth maps generation parameters	
Quality	High
Filtering mode	Moderate
Max neighbors	16
Processing time	4 minutes 2 seconds
Point cloud generation parameters	
Processing time	3 hours 23 minutes
Date created	2023:12:27 21:21:25
Software version	2.0.4.17434
File size	137.46 MB
Model	
Faces	1,000,000
Vertices	500,372
Vertex colors	3 bands, uint8
Texture	8,192 x 8,192, 4 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Moderate
Max neighbors	16
Processing time	4 minutes 2 seconds
Point cloud generation parameters	
Processing time	3 hours 23 minutes
Reconstruction parameters	
Surface type	Arbitrary
Source data	Point cloud
Interpolation	Enabled
Strict volumetric masks	No
Processing time	1 minutes 15 seconds
Memory usage	2.97 GB
Texturing parameters	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	8,192
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	1 minutes 31 seconds
UV mapping memory usage	865.16 MB
Blending time	2 minutes 10 seconds
Blending memory usage	10.15 GB
Date created	2023:12:28 02:35:07
Software version	2.0.4.17434
File size	139.19 MB
System	
Software name	Agisoft Metashape Professional
Software version	2.0.4 build 17434
OS	Mac OS 64 bit
RAM	32.00 GB
CPU	
GPU(s)	Apple M1 Pro