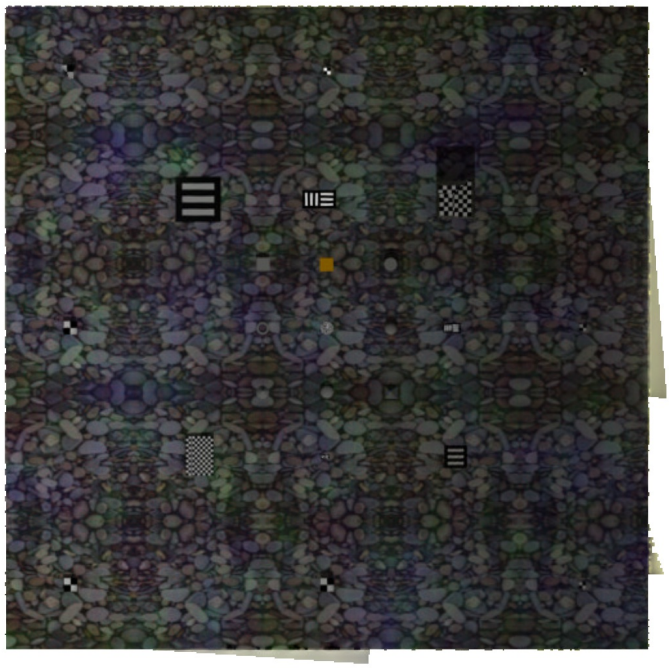
simUAS:test

Data was processed automatically using agiproc.py with:
C:\Users\slocumr\github\SimUAS\data\testagiproc\06_QUICKPROC\test.xml

29 October 2018



Survey Data

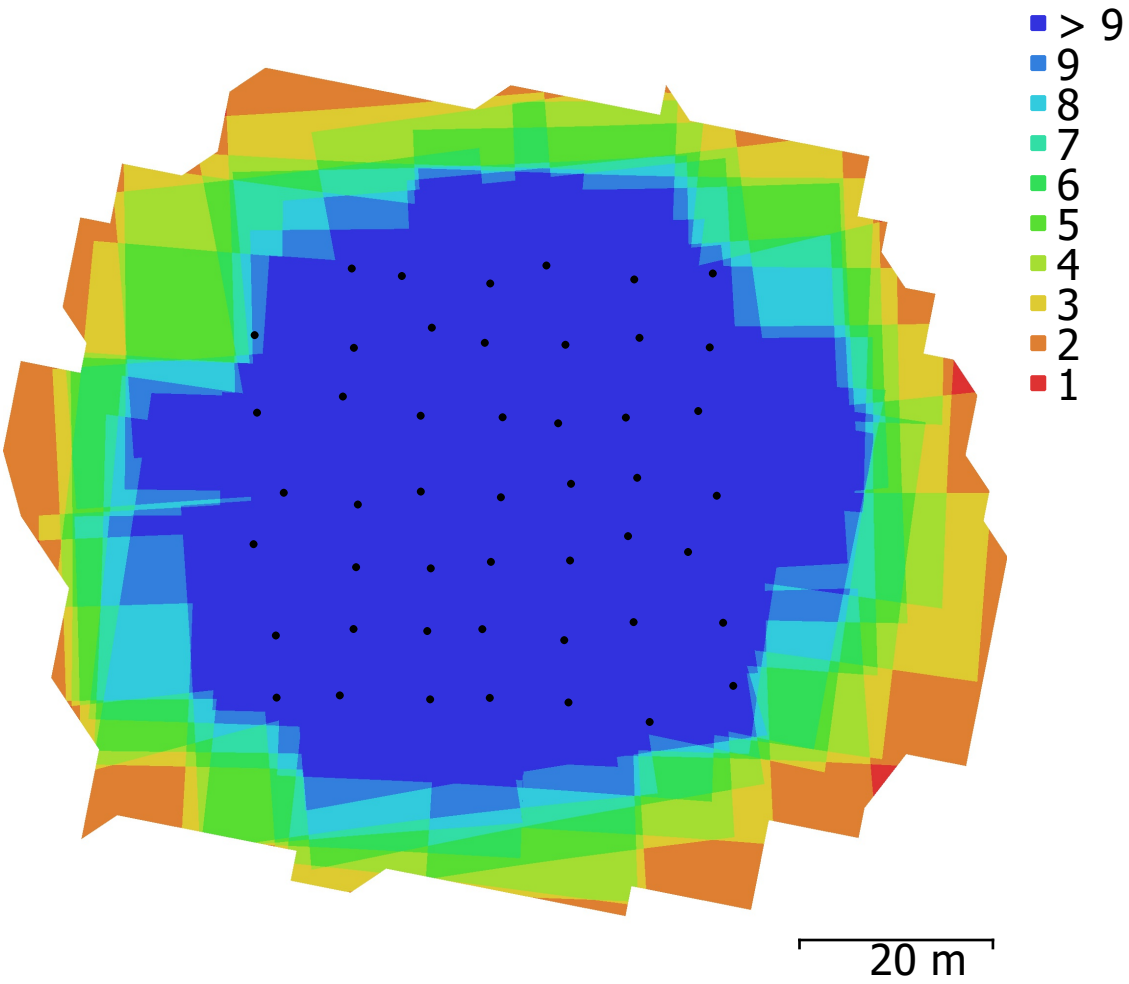


Fig. 1. Camera locations and image overlap.

Number of images:	49	Camera stations:	48
Flying altitude:	32.5 m	Tie points:	227
Ground resolution:	6.87 cm/pix	Projections:	1,015
Coverage area:	7e+03 m^2	Reprojection error:	0.43 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
unknown	640 x 480	unknown	unknown	No

Table 1. Cameras.

Camera Calibration

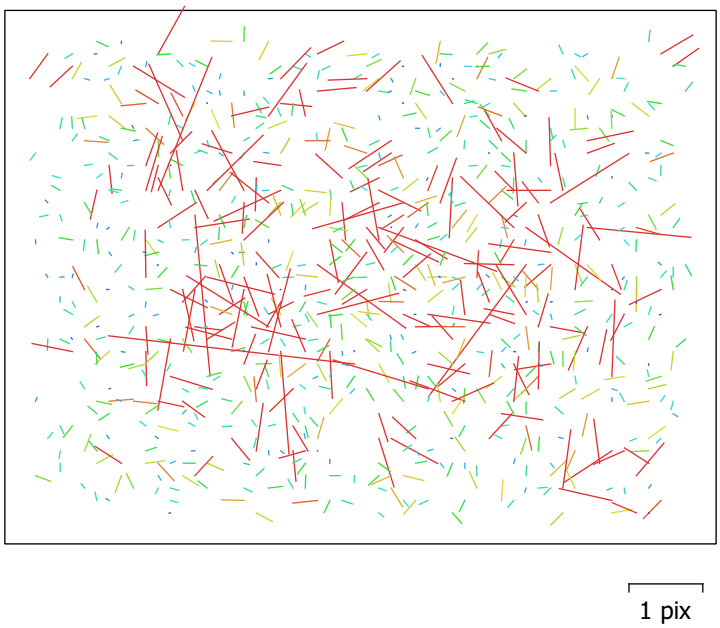


Fig. 2. Image residuals for unknown.

unknown
49 images

Type	Resolution	Focal Length	Pixel Size
Frame	**640 x 480**	**unknown**	**unknown**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**435.751**	0.057	1.00	-0.08	0.13	-0.20	0.20	-0.16	-0.14	-0.05
Cx	**0.000223424**	0.013		1.00	0.06	0.01	-0.07	0.09	0.46	0.02
Cy	**-0.00184277**	0.012			1.00	0.11	-0.13	0.14	-0.04	0.38
K1	**-0.0600412**	0.0001				1.00	-0.94	0.84	-0.06	0.03
K2	**0.0301062**	0.00028					1.00	-0.97	0.02	-0.09
K3	**-0.00207783**	0.00024						1.00	0.00	0.14
P1	**-0.00100025**	5e-06							1.00	0.00
P2	**-0.000999483**	4.2e-06								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

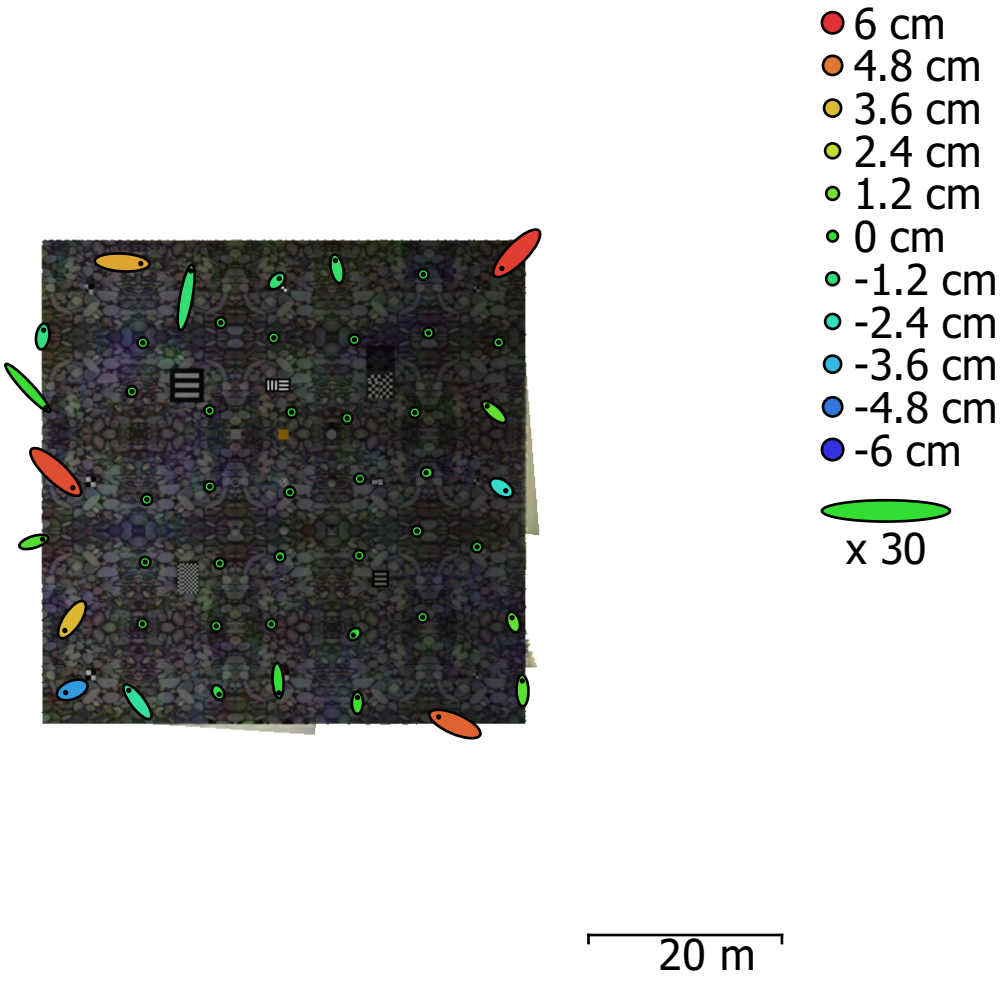


Fig. 3. Camera locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated camera locations are marked with a black dot.

X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total error (cm)
4.22031	4.80802	1.80374	6.39751	6.64692

Table 3. Average camera location error.

Ground Control Points

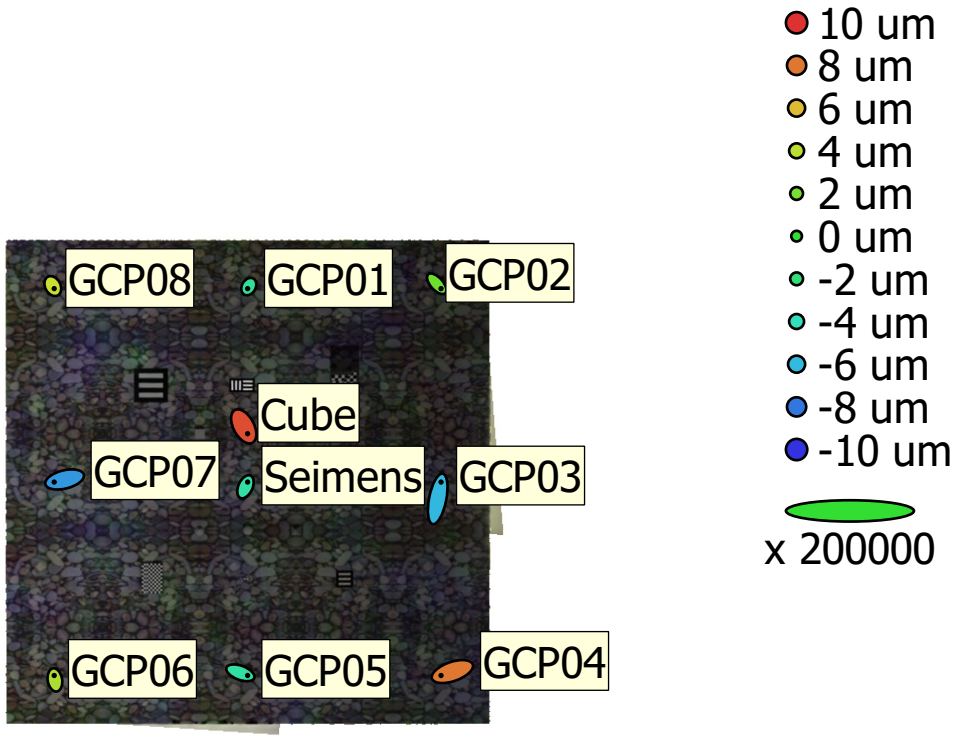


Fig. 4. GCP locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated GCP locations are marked with a dot or crossing.

Count	X error (mm)	Y error (mm)	Z error (mm)	XY error (mm)	Total (mm)
10	0.00606931	0.0068764	0.00548133	0.00917177	0.0106849

Table 4. Control points RMSE.

Label	X error (mm)	Y error (mm)	Z error (mm)	Total (mm)	Image (pix)
GCP01	-0.00121294	-0.00211676	-0.00289462	0.00378559	0.000 (16)
GCP02	0.00448968	-0.00502965	0.00169134	0.00695092	0.000 (12)
GCP03	0.0034539	0.0174008	-0.00610335	0.0187608	0.000 (18)
GCP04	-0.0117503	-0.00407887	0.00795564	0.0147648	0.000 (12)
GCP05	0.0075065	-0.00278676	-0.00325399	0.00864303	0.000 (17)
GCP06	-0.000756715	0.00459516	0.0035395	0.00584946	0.000 (13)
GCP07	-0.0107894	-0.0026855	-0.00705329	0.0131671	0.000 (15)
GCP08	0.00143493	-0.00262342	0.00437763	0.00530141	0.000 (11)
Seimens	0.00221497	0.00487268	-0.00332892	0.00630324	0.000 (25)
Cube	0.00405452	-0.007545	0.0092497	0.0126065	0.000 (24)
Total	**0.00606931**	**0.0068764**	**0.00548133**	**0.0106849**	**0.000**

Table 5. Control points.

Digital Elevation Model

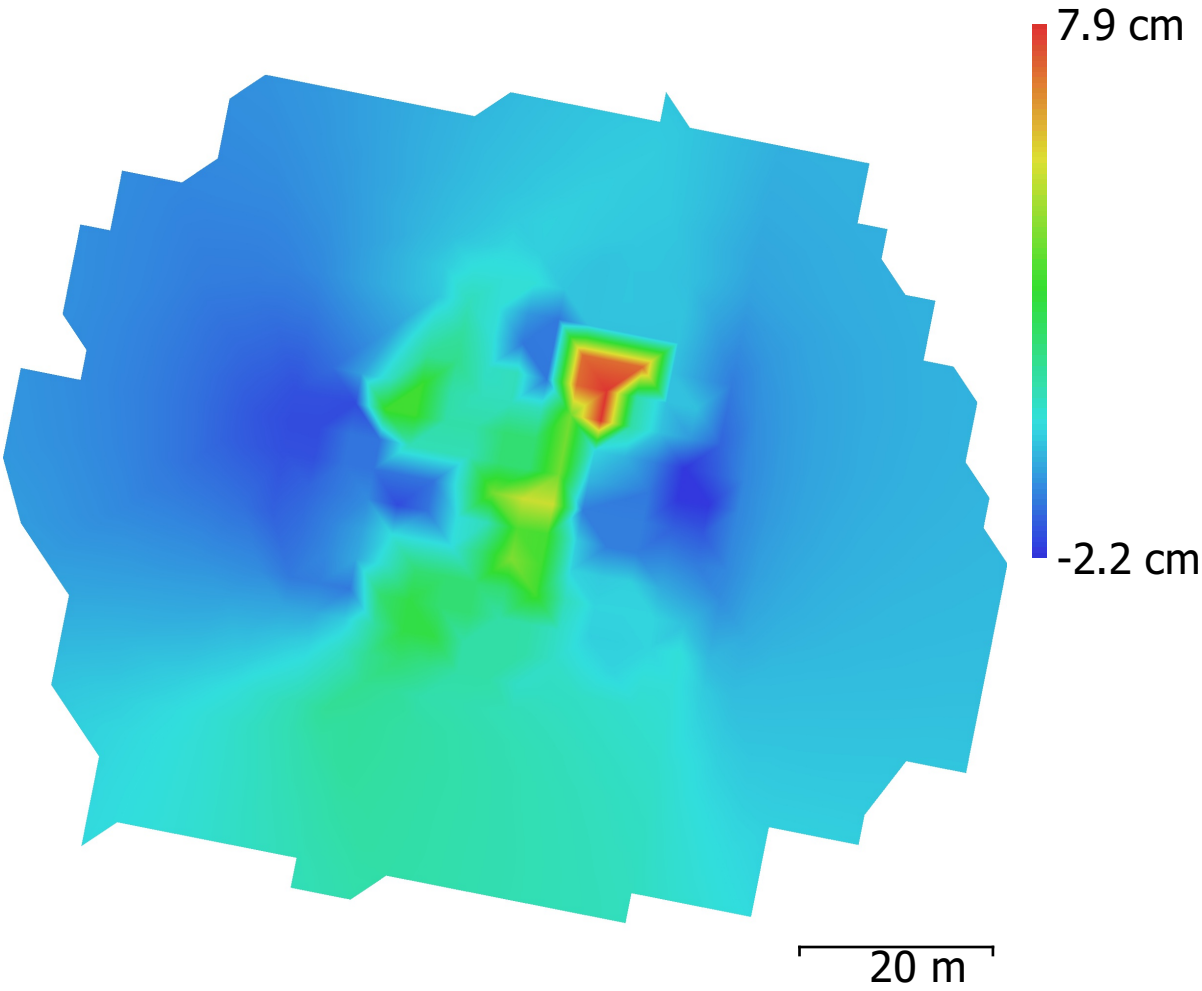


Fig. 5. Reconstructed digital elevation model.

Resolution:	3.15 m/pix
Point density:	0.101 points/m^2

Processing Parameters

General	
Cameras	49
Aligned cameras	48
Markers	10
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll
Point Cloud	
Points	227 of 435
RMS reprojection error	0.0580979 (0.430227 pix)
Max reprojection error	0.192739 (3.35247 pix)
Mean key point size	6.46678 pix
Point colors	3 bands, uint8
Key points	Yes
Average tie point multiplicity	6.97241
Alignment parameters	
Accuracy	Medium
Generic preselection	Yes
Reference preselection	Yes
Key point limit	40,000
Tie point limit	4,000
Filter points by mask	No
Mask tie points	No
Adaptive camera model fitting	Yes
Matching time	2 seconds
Alignment time	0 seconds
Optimization parameters	
Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	0 seconds
Dense Point Cloud	
Points	35,170
Point colors	3 bands, uint8
Reconstruction parameters	
Quality	Medium
Depth filtering	Aggressive
Depth maps generation time	9 seconds
Dense cloud generation time	3 seconds
Model	
Faces	876
Vertices	480
Vertex colors	3 bands, uint8
Reconstruction parameters	
Surface type	Height field
Source data	Sparse
Interpolation	Enabled
Face count	30,000
Processing time	5 seconds
Orthomosaic	
Size	1,037 x 876
Coordinate system	Local Coordinates (m)
Colors	3 bands, uint8
Reconstruction parameters	
Blending mode	Mosaic
Surface	Mesh
Enable hole filling	Yes

Processing time	1 seconds
Software	
Version	1.4.3 build 6488
Platform	Windows 64