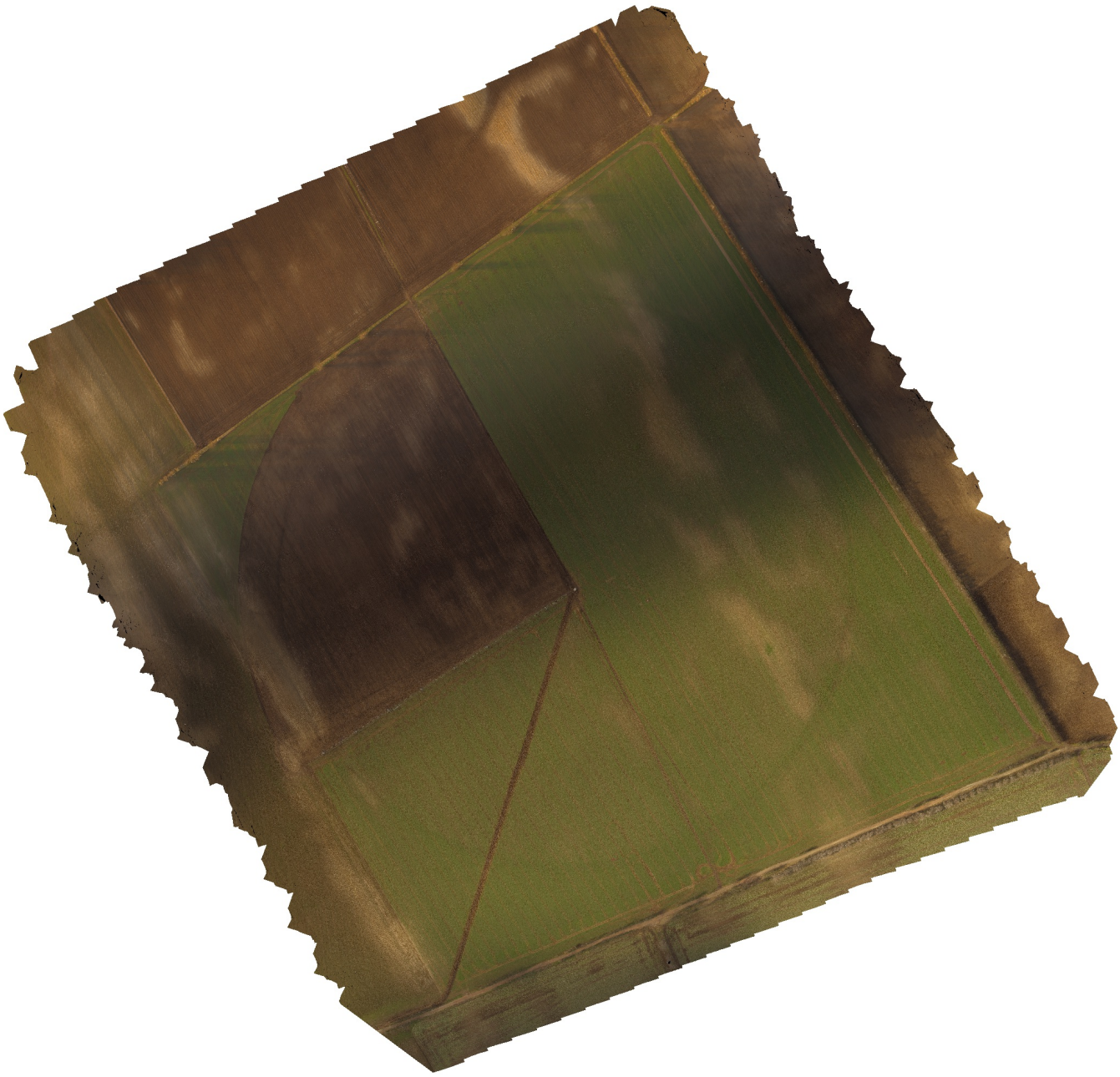
Voderady-2cast

Processing Report
date - 24.4.2018
Mapovanie 14.3.2018

24 April 2018



Survey Data

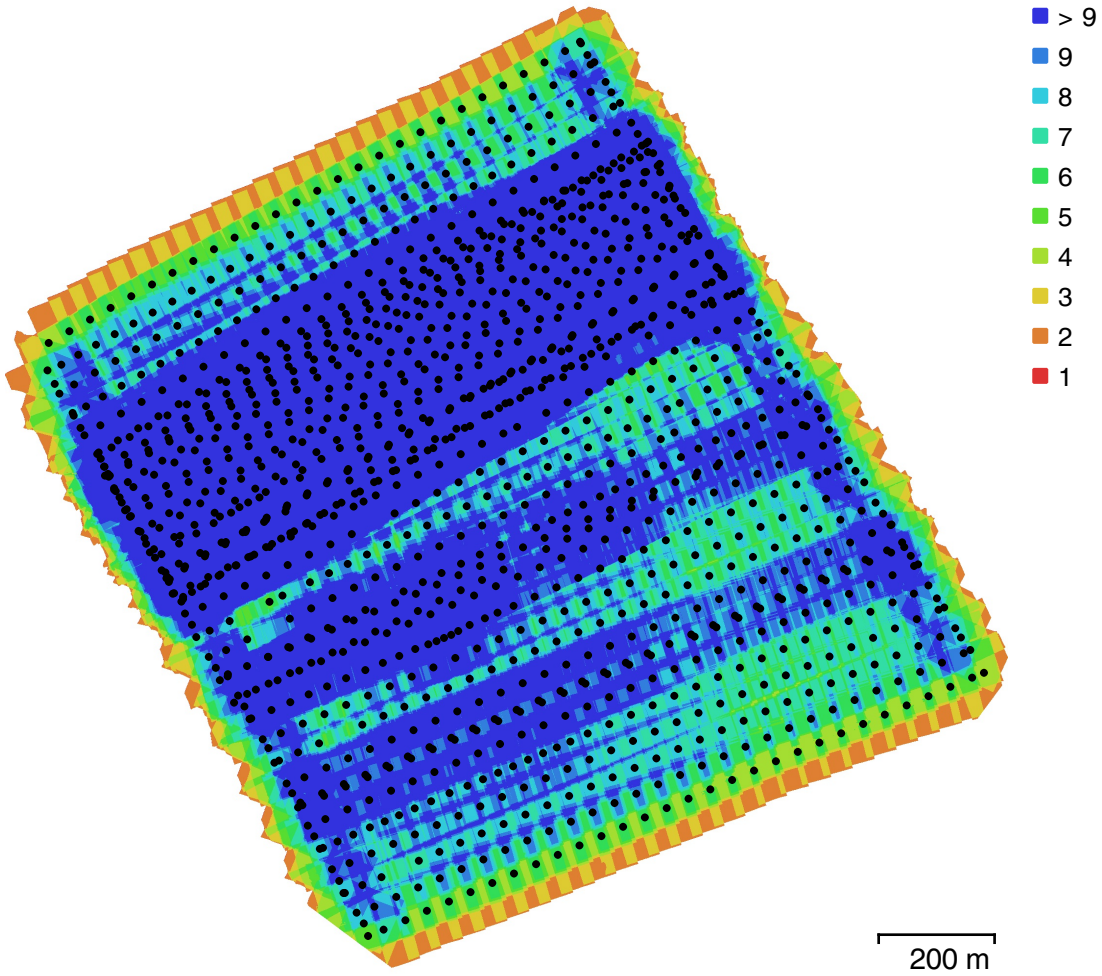


Fig. 1. Camera locations and image overlap.

Number of images:	1,338	Camera stations:	1,338
Flying altitude:	91.7 m	Tie points:	1,213,356
Ground resolution:	3.35 cm/pix	Projections:	4,360,379
Coverage area:	1.67 km²	Reprojection error:	0.869 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
FC330 (3.61mm)	4000 x 3000	3.61 mm	1.56 x 1.56 µm	No

Table 1. Cameras.

Camera Calibration

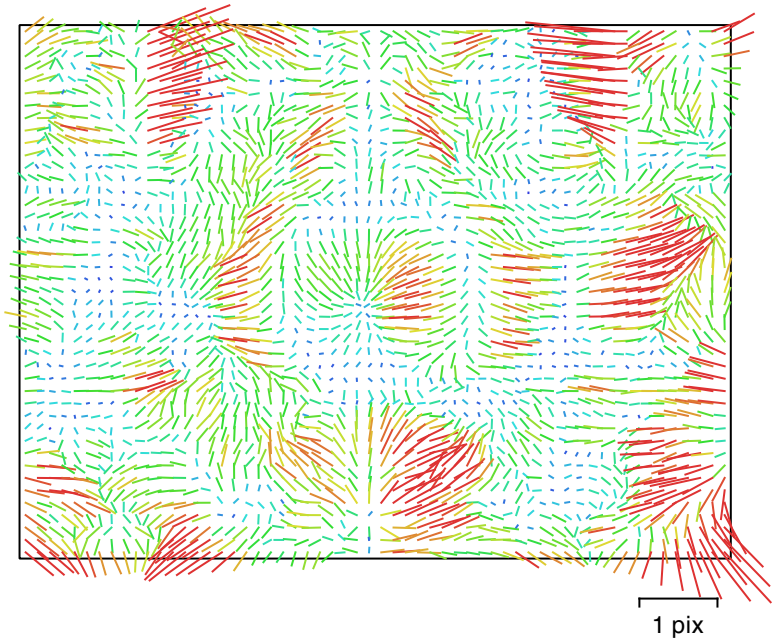


Fig. 2. Image residuals for FC330 (3.61mm).

FC330 (3.61mm)

1338 images

Type	Resolution	Focal Length	Pixel Size
Frame	**4000 x 3000**	**3.61 mm**	**1.56 x 1.56 µm**

	Value	Error	F	Cx	Cy	B1	B2	K1	K2	K3	P1	P2
F	**2381.59**	2.3	1.00	0.82	-0.92	-0.73	0.48	-0.33	-0.42	0.59	0.40	0.12
Cx	**59.7974**	0.1		1.00	-0.75	-0.66	0.54	-0.27	-0.34	0.48	0.34	0.10
Cy	**-15.3438**	0.15			1.00	0.60	-0.50	0.30	0.39	-0.55	-0.37	-0.13
B1	**-6.6889**	0.0072				1.00	-0.36	0.24	0.30	-0.42	-0.27	-0.06
B2	**0.214257**	0.0057					1.00	-0.15	-0.21	0.29	0.17	0.09
K1	**-0.00266363**	1.5e-05						1.00	-0.69	0.50	-0.10	-0.05
K2	**-0.00348738**	3.2e-05							1.00	-0.97	-0.20	-0.05
K3	**0.00230257**	2.3e-05								1.00	0.28	0.07
P1	**0.000587763**	1.1e-06									1.00	0.04
P2	**-0.000133997**	8.3e-07										1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points

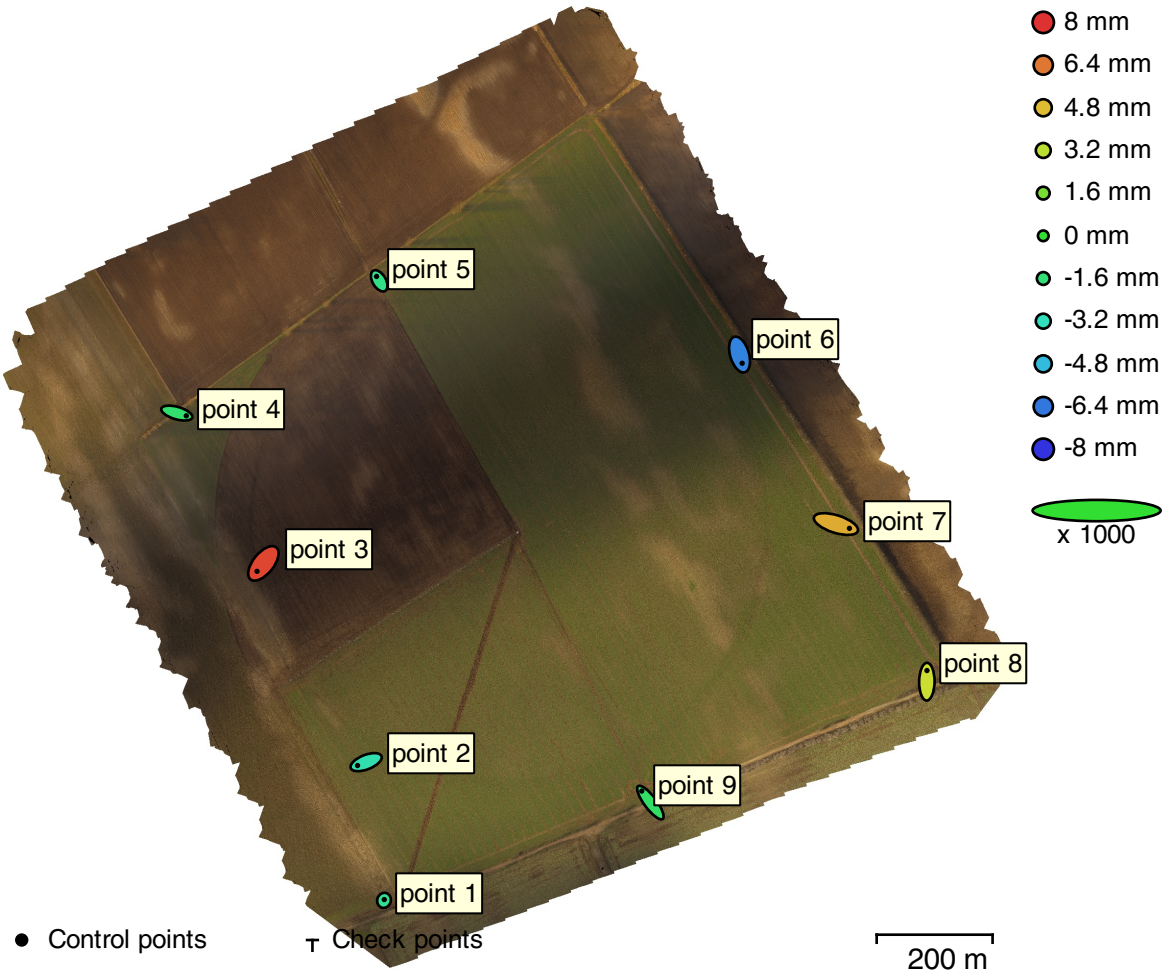


Fig. 3. GCP locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated GCP locations are marked with a dot or crossing.

Count	X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
9	2.50863	2.44685	0.414626	3.50432	3.52877

Table 3. Control points RMSE.

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
point 1	0.0862438	0.275183	-0.220584	0.363072	0.435 (8)
point 2	-2.97507	-1.16597	-0.289206	3.20845	0.250 (12)
point 3	-2.19523	-2.72772	0.75523	3.58188	0.177 (12)
point 4	3.26886	-0.946172	-0.13792	3.40584	0.252 (8)
point 5	-0.900487	1.51217	-0.200303	1.77135	4.829 (8)
point 6	0.903218	-3.00894	-0.611172	3.20047	0.254 (11)
point 7	4.67042	-1.47813	0.519177	4.92618	0.405 (13)
point 8	0.0425586	3.85168	0.357244	3.86845	0.302 (7)
point 9	-2.97232	3.96886	-0.121334	4.95997	0.262 (8)
Total	**2.50863**	**2.44685**	**0.414626**	**3.52877**	**1.492**

Table 4. Control points.

Digital Elevation Model

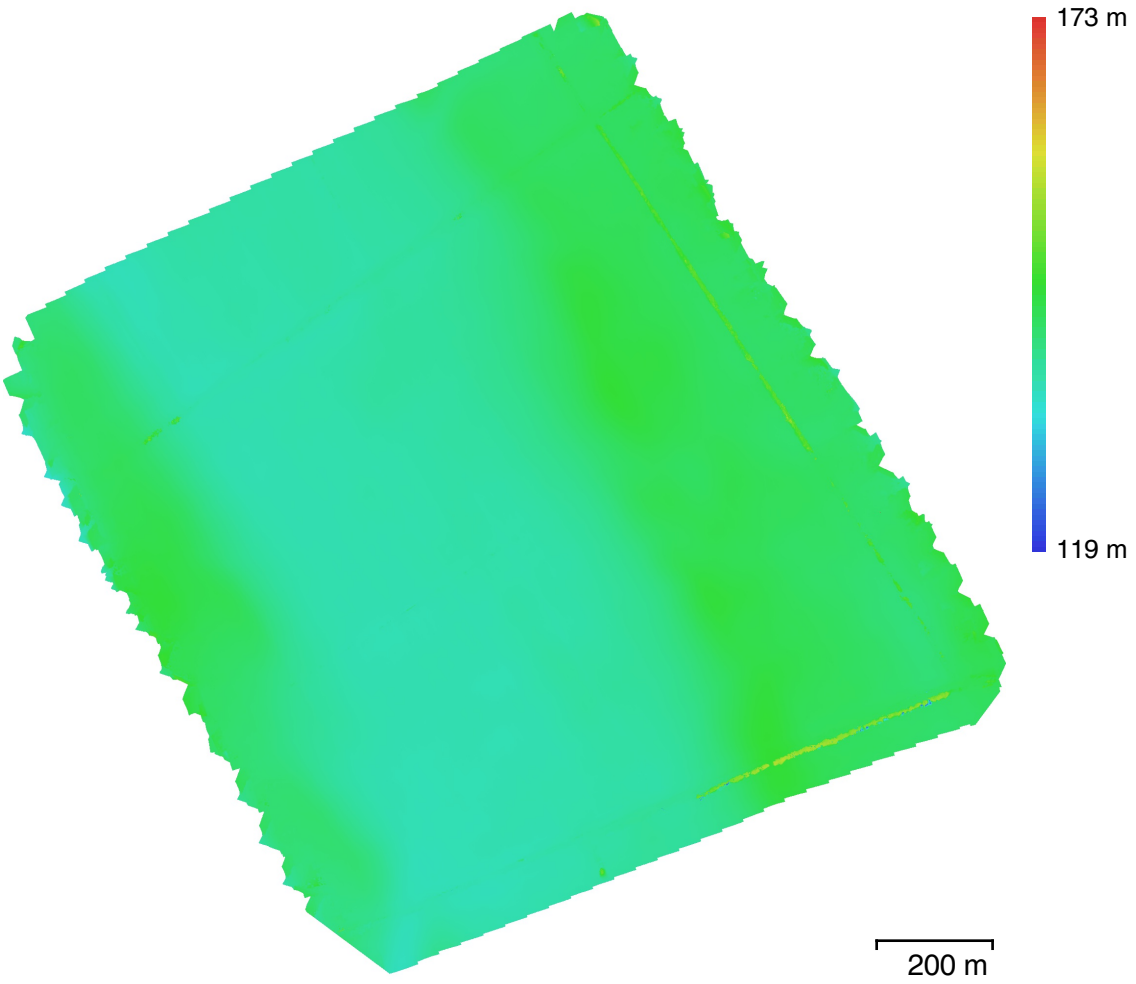


Fig. 4. Reconstructed digital elevation model.

Resolution:	13.4 cm/pix
Point density:	55.8 points/m²

Processing Parameters

General	
Cameras	1338
Aligned cameras	1338
Markers	9
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll
Point Cloud	
Points	1,213,356 of 1,406,183
Point colors	3 bands, uint8
RMS reprojection error	0.244982 (0.868595 pix)
Max reprojection error	10.0983 (43.9147 pix)
Mean key point size	3.33328 pix
Effective overlap	3.81669
Alignment parameters	
Accuracy	High
Generic preselection	Yes
Reference preselection	Yes
Key point limit	40,000
Tie point limit	4,000
Adaptive camera model fitting	Yes
Matching time	1 hours 58 minutes
Alignment time	40 minutes 23 seconds
Optimization parameters	
Parameters	f, b1, b2, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	2 minutes 16 seconds
Dense Point Cloud	
Points	92,329,570
Point colors	3 bands, uint8
Reconstruction parameters	
Quality	Medium
Depth filtering	Aggressive
Depth maps generation time	8 hours 16 minutes
Dense cloud generation time	35 minutes 6 seconds
Model	
Faces	20,196,788
Vertices	10,107,309
Vertex colors	3 bands, uint8
Texture	4,096 x 4,096, 4 bands, uint8
Reconstruction parameters	
Surface type	Height field
Source data	Dense
Interpolation	Enabled
Quality	Medium
Depth filtering	Aggressive
Face count	20,324,419
Processing time	18 minutes 53 seconds
Texturing parameters	
Mapping mode	Adaptive orthophoto
Blending mode	Mosaic
Texture size	4,096 x 4,096
Enable color correction	Yes
Enable hole filling	Yes
UV mapping time	9 minutes 54 seconds
Blending time	1 hours 18 minutes

Software

Version	1.4.1 build 5925
Platform	Windows 64