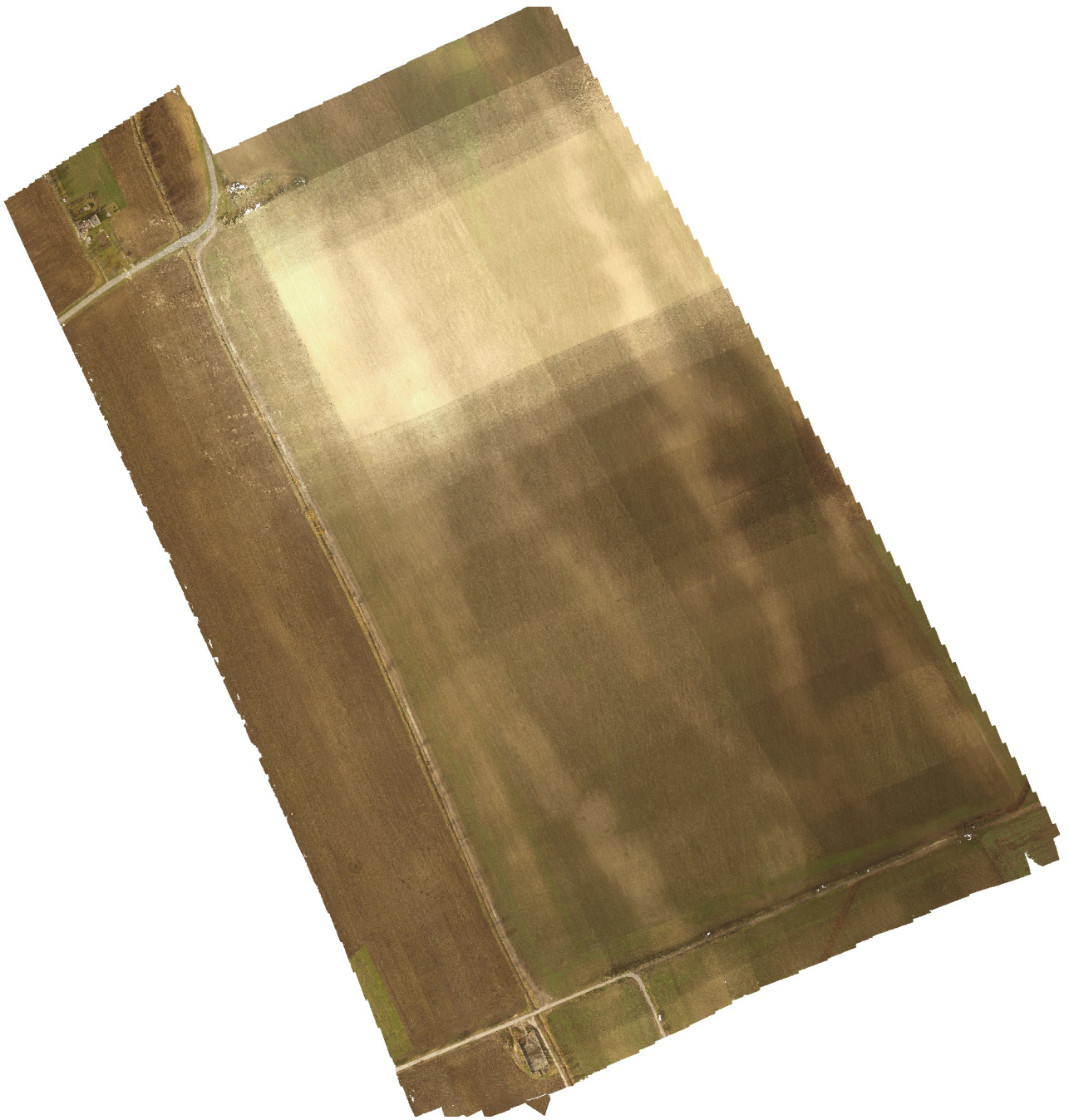


Voderady

Processing Report
date - 24.4.2018
Mapovanie 14.3.2018
24 April 2018



Survey Data

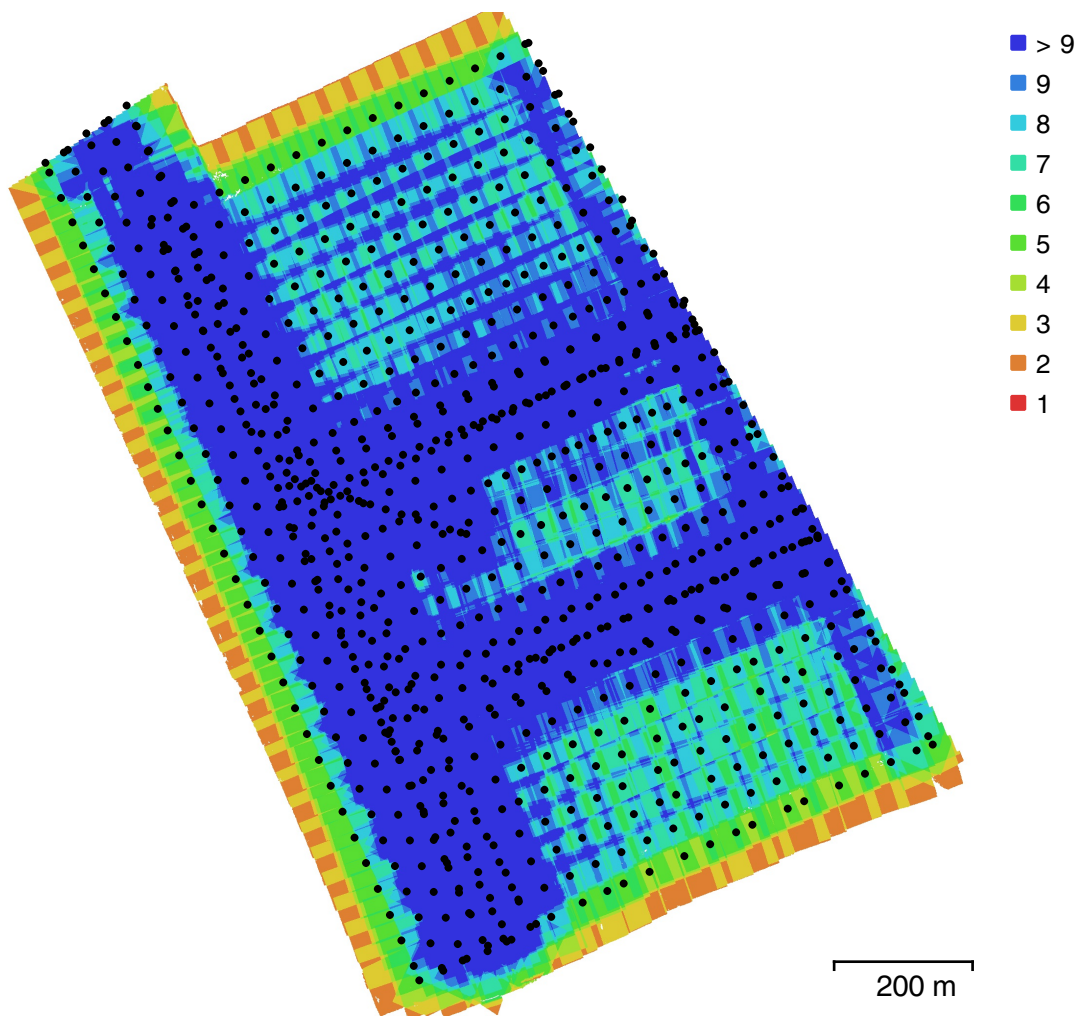


Fig. 1. Camera locations and image overlap.

Number of images:	906	Camera stations:	906
Flying altitude:	88.4 m	Tie points:	615,361
Ground resolution:	3.4 cm/pix	Projections:	2,727,124
Coverage area:	1.1 km ²	Reprojection error:	0.834 pix

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

Table 1. Cameras.

Camera Calibration

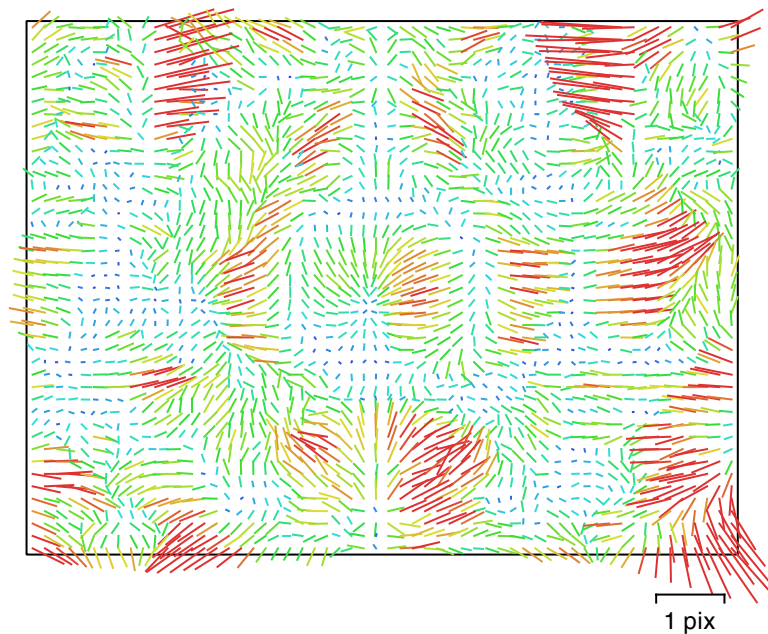


Fig. 2. Image residuals for FC330 (3.61mm).

FC330 (3.61mm)

906 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	2214.58	1.8	1.00	0.80	-0.90	-0.81	0.26	-0.37	-0.26	0.43	0.36	0.02
Cx	54.8751	0.065		1.00	-0.72	-0.68	0.33	-0.29	-0.21	0.34	0.35	0.01
Cy	-6.99914	0.088			1.00	0.68	-0.28	0.33	0.24	-0.39	-0.33	0.02
B1	-6.29658	0.0058				1.00	-0.22	0.30	0.20	-0.33	-0.28	-0.01
B2	0.181734	0.0034					1.00	-0.09	-0.07	0.12	0.09	0.03
K1	-0.00257008	1.3e-05						1.00	-0.77	0.61	-0.11	-0.01
K2	-0.00227482	2.3e-05							1.00	-0.97	-0.12	-0.00
K3	0.0013552	1.3e-05								1.00	0.19	0.01
P1	0.000565296	1.1e-06									1.00	-0.01
P2	-0.000139639	8.1e-07										1.00

Table 2. Calibration coefficients and correlation matrix.

Ground Control Points

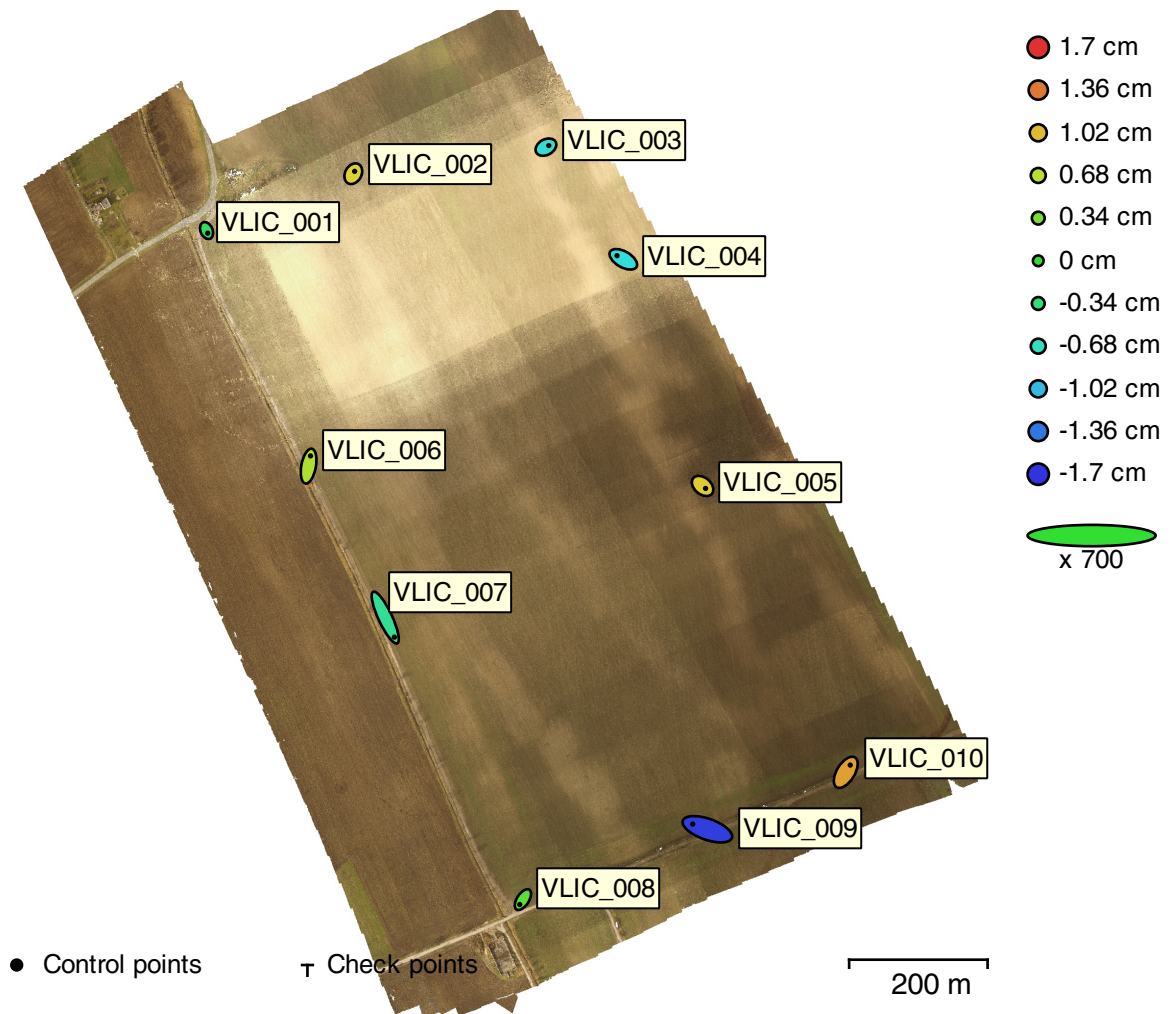


Fig. 3. GCP locations and error estimates.

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)
10	2.58672	3.26012	0.881704	4.16167	4.25405

Table 3. Control points RMSE.

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
VLIC_001	0.485551	-1.08806	-0.212156	1.21023	0.439 (18)
VLIC_002	0.552396	0.991041	0.908159	1.45329	0.477 (10)
VLIC_003	1.17987	0.648215	-0.779538	1.55562	0.259 (7)
VLIC_004	-2.60267	1.50213	-0.833657	3.11854	0.286 (9)
VLIC_005	1.23125	-1.03299	0.945335	1.86459	0.280 (8)
VLIC_010	1.84878	2.98445	1.15468	3.69571	0.239 (7)
VLIC_009	-6.05759	2.1314	-1.64782	6.62967	0.250 (7)
VLIC_008	-1.31668	-2.00836	0.205513	2.41027	0.379 (22)
VLIC_007	3.77158	-8.06435	-0.482812	8.91581	0.335 (22)
VLIC_006	0.785742	4.22578	0.61968	4.34265	0.381 (33)
Total	2.58672	3.26012	0.881704	4.25405	0.363

Table 4. Control points.

Digital Elevation Model

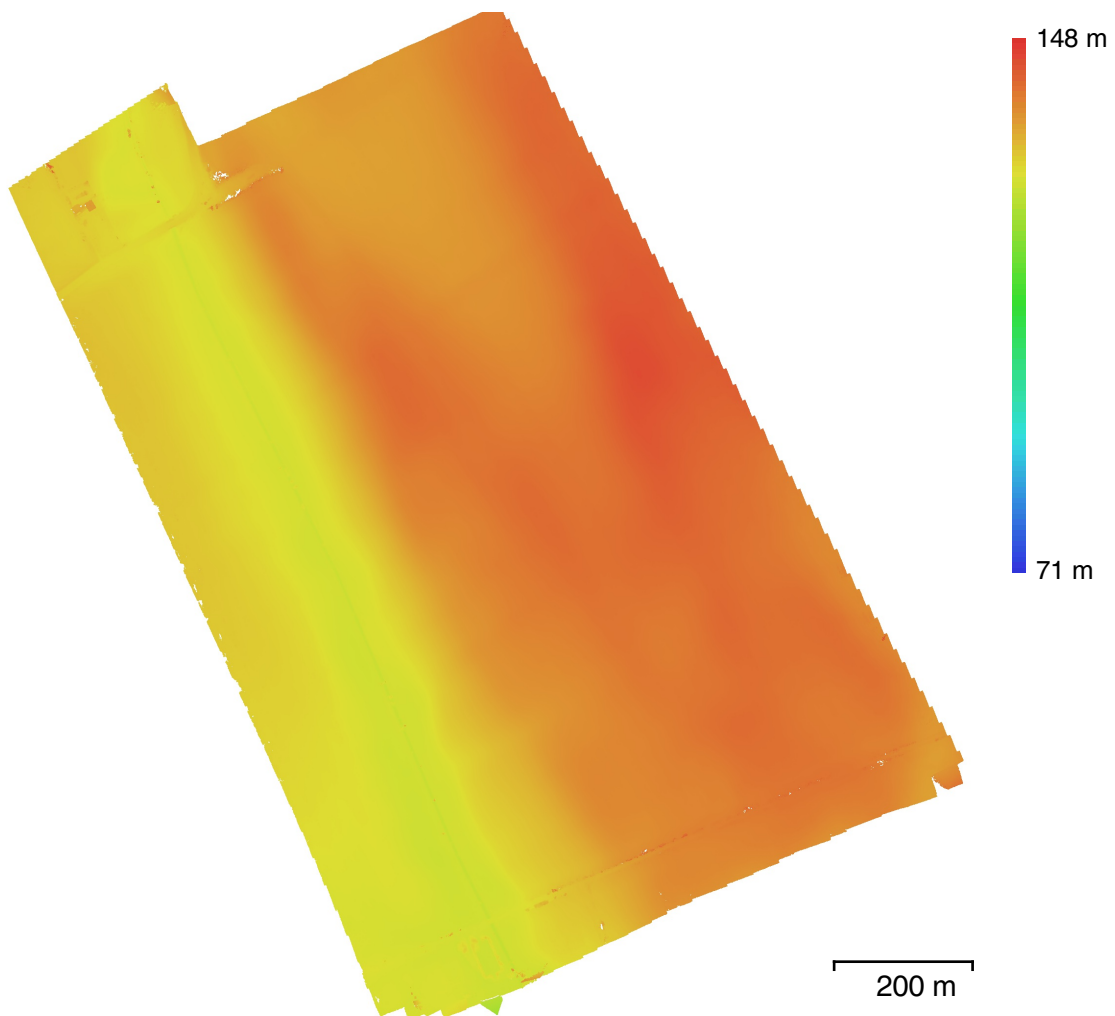


Fig. 4. Reconstructed digital elevation model.

Resolution: unknown
Point density: unknown

Processing Parameters

General

Cameras	906
Aligned cameras	906
Markers	10
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	615,361 of 769,910
Point colors	3 bands, uint8
RMS reprojection error	0.259793 (0.834043 pix)
Max reprojection error	5.71018 (42.0331 pix)
Mean key point size	3.07621 pix
Effective overlap	5.06278

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 40 minutes
Alignment time	26 minutes 55 seconds

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	22 seconds

Dense Point Cloud

Points	65,099,801
Point colors	3 bands, uint8

Reconstruction parameters

Quality	Medium
Depth filtering	Aggressive
Depth maps generation time	7 hours 36 minutes
Dense cloud generation time	21 minutes 35 seconds

Software

Version	1.4.1 build 5925
Platform	Windows 64