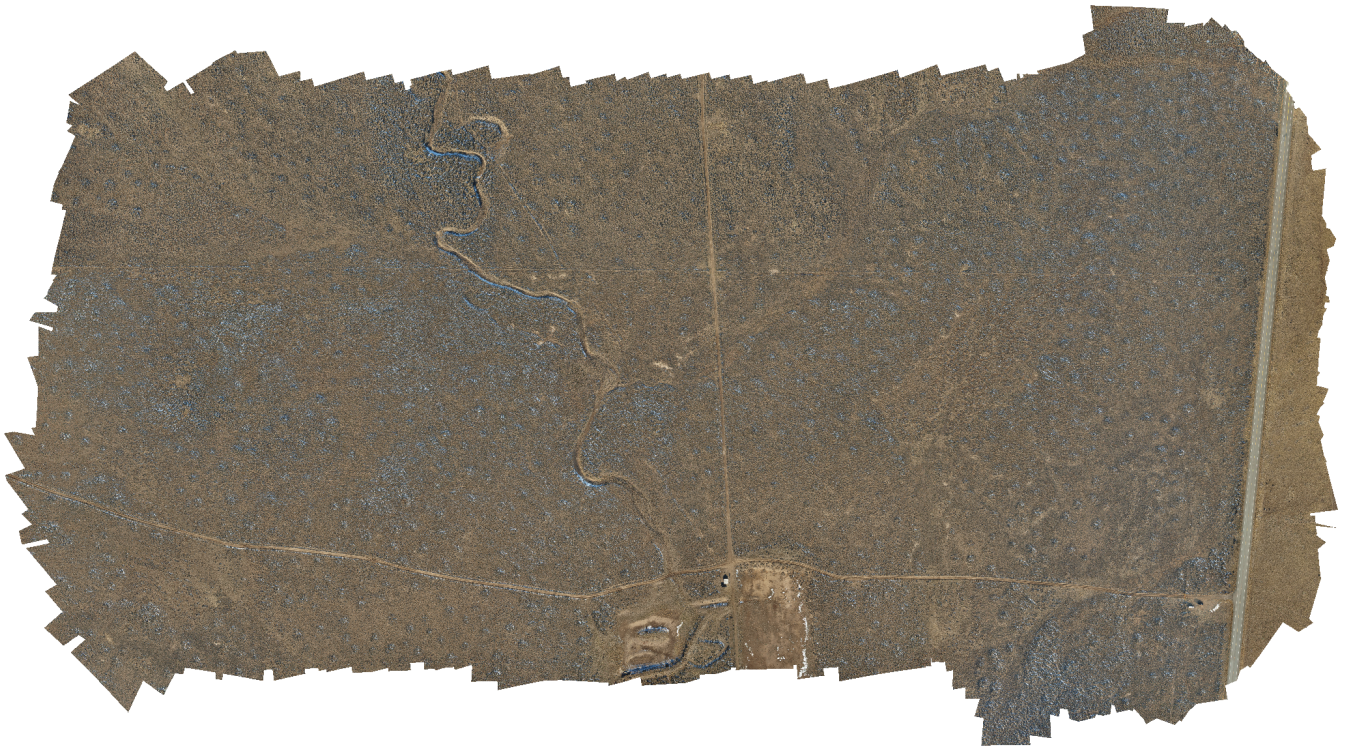


# Agisoft PhotoScan

Processing Report  
17 September 2015



# Survey Data

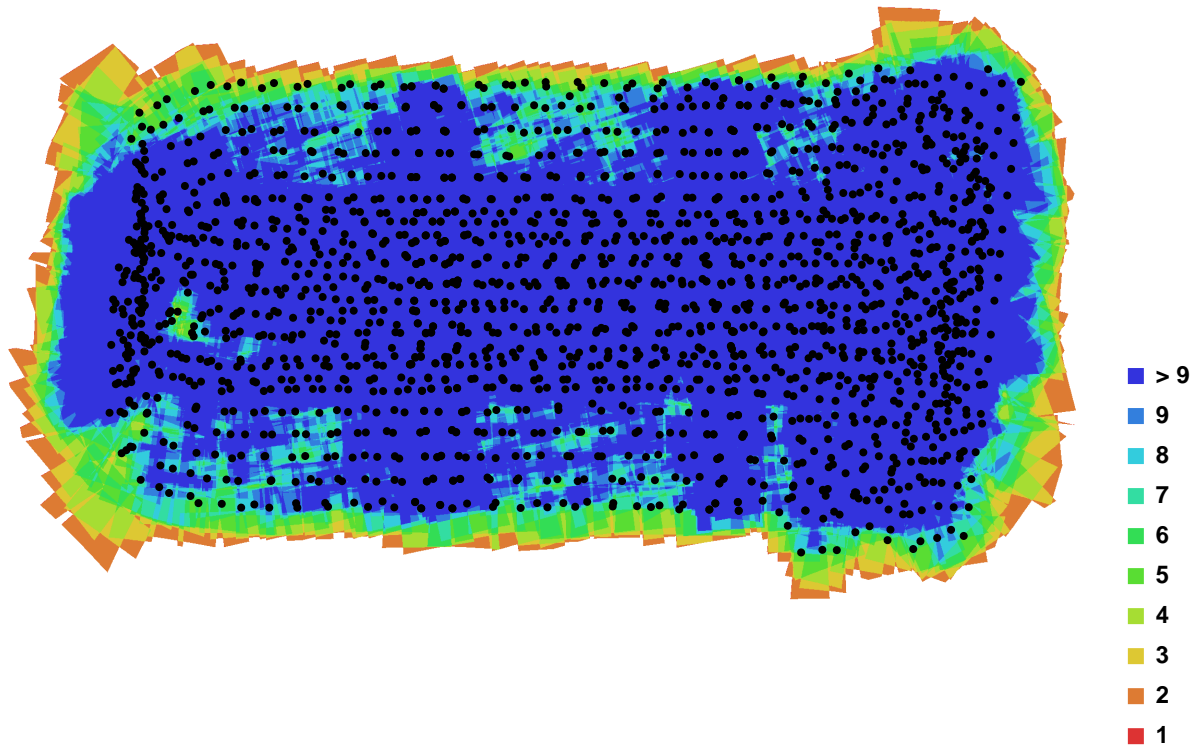


Fig. 1. Camera locations and image overlap.

Number of images:	2014	Camera stations:	2014
Flying altitude:	126.617 m	Tie-points:	9747177
Ground resolution:	0.0234543 m/pix	Projections:	32120627
Coverage area:	0.889736 sq km	Error:	0.607716 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
E-420 (25 mm)	3648 x 2736	25 mm	unknown	No
E-420 (25 mm)	3648 x 2736	25 mm	unknown	No
E-420 (25 mm)	3648 x 2736	25 mm	unknown	No

Table. 1. Cameras.

# Camera Calibration

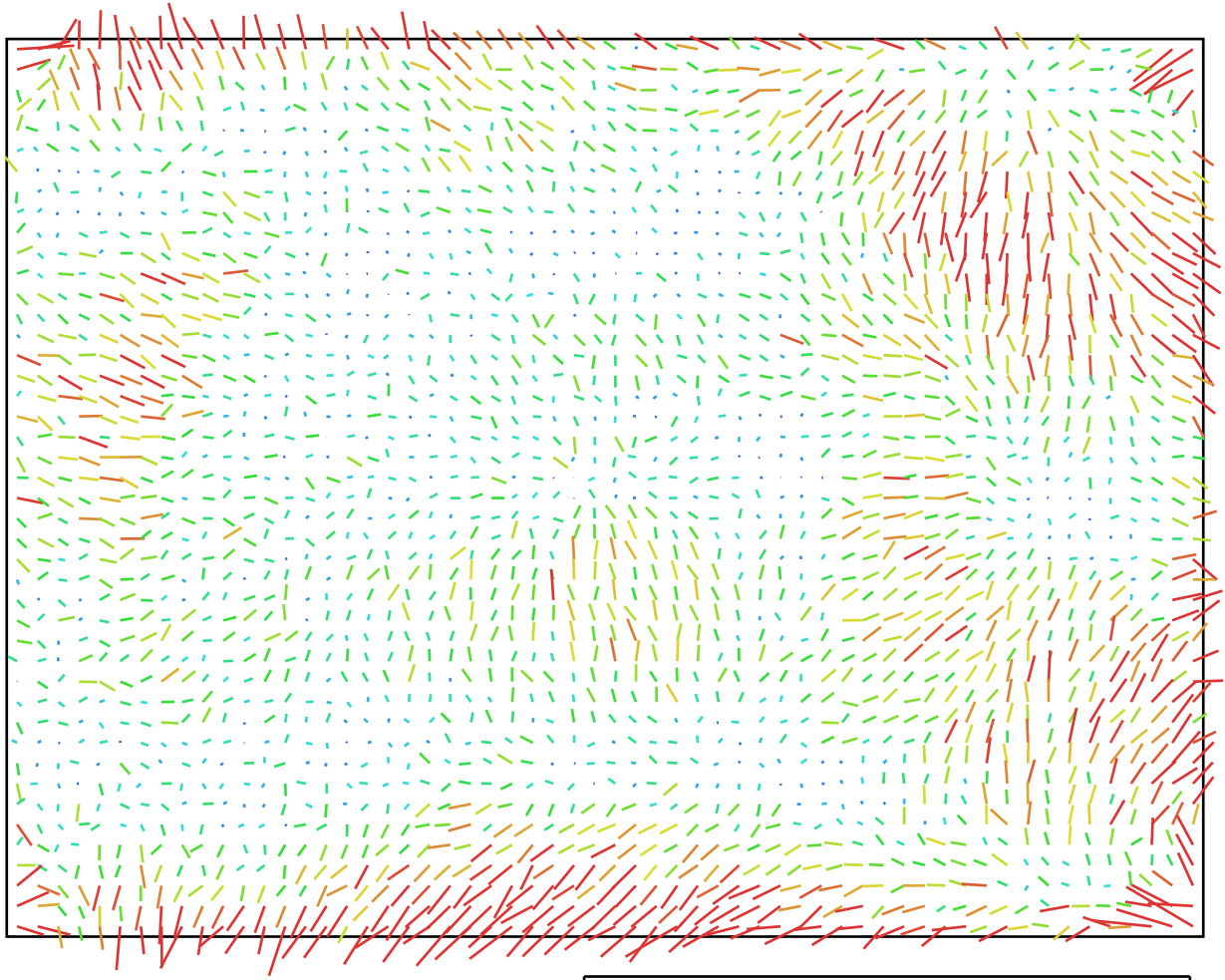


Fig. 2. Image residuals for E-420 (25 mm). 1 pix  
(25 mm).

## E-420 (25 mm)

Type:	Frame	K1:	-0.185087
Fx:	5292.09	K2:	0.261784
Fy:	5293.23	K3:	-0.522783
Cx:	1814.01	K4:	0
Cy:	1391.1	P1:	-5.817e-005
Skew:	2.72903	P2:	0.000151145

# Camera Calibration

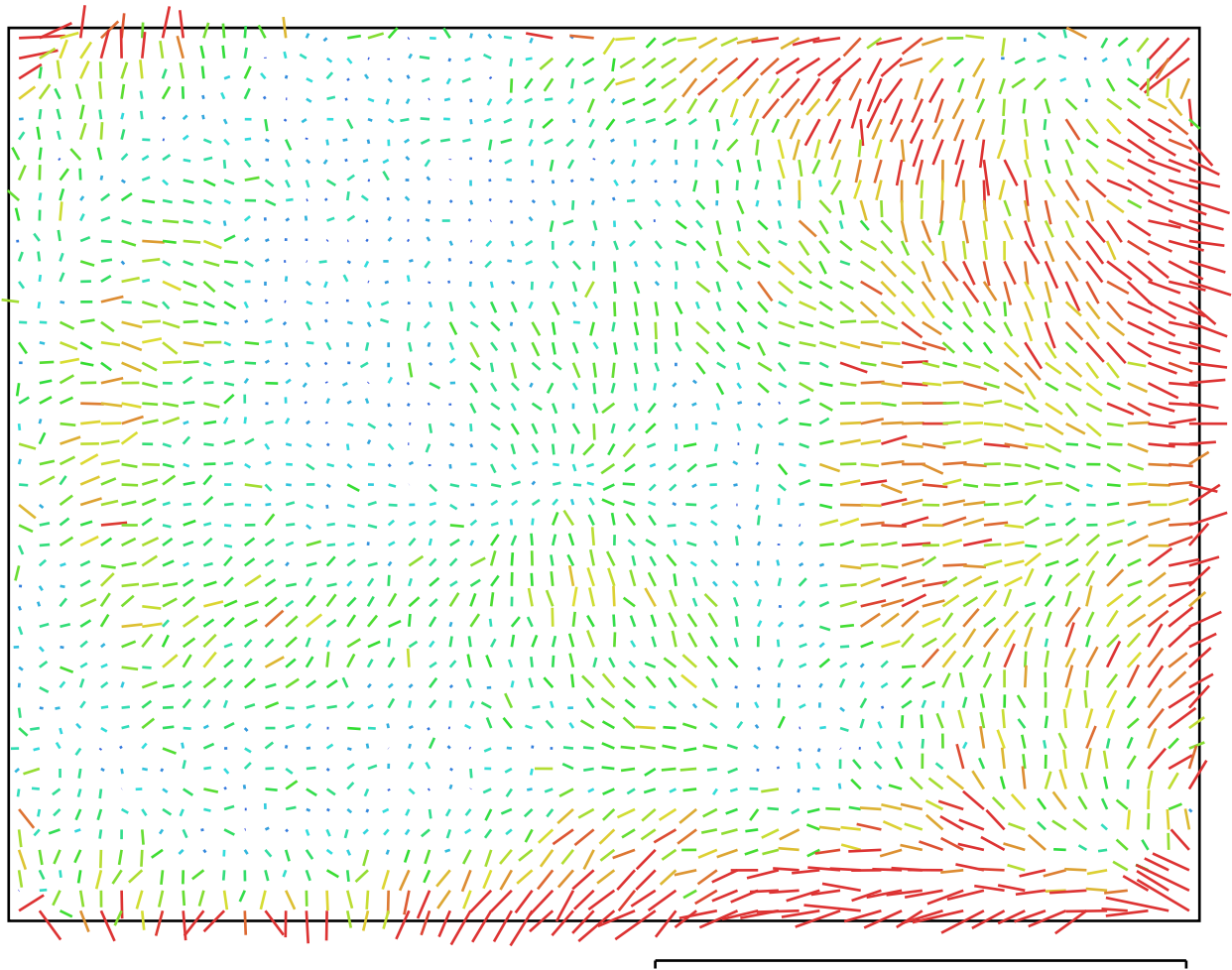


Fig. 3. Image residuals for E-420 (25 mm). 1 pix (25 mm).

## E-420 (25 mm)

Type:	Frame	K1:	-0.184337
Fx:	5300.55	K2:	0.2572
Fy:	5302.54	K3:	-0.503198
Cx:	1817.57	K4:	0
Cy:	1386.1	P1:	2.06492e-005
Skew:	2.84733	P2:	2.46194e-005

# Camera Calibration

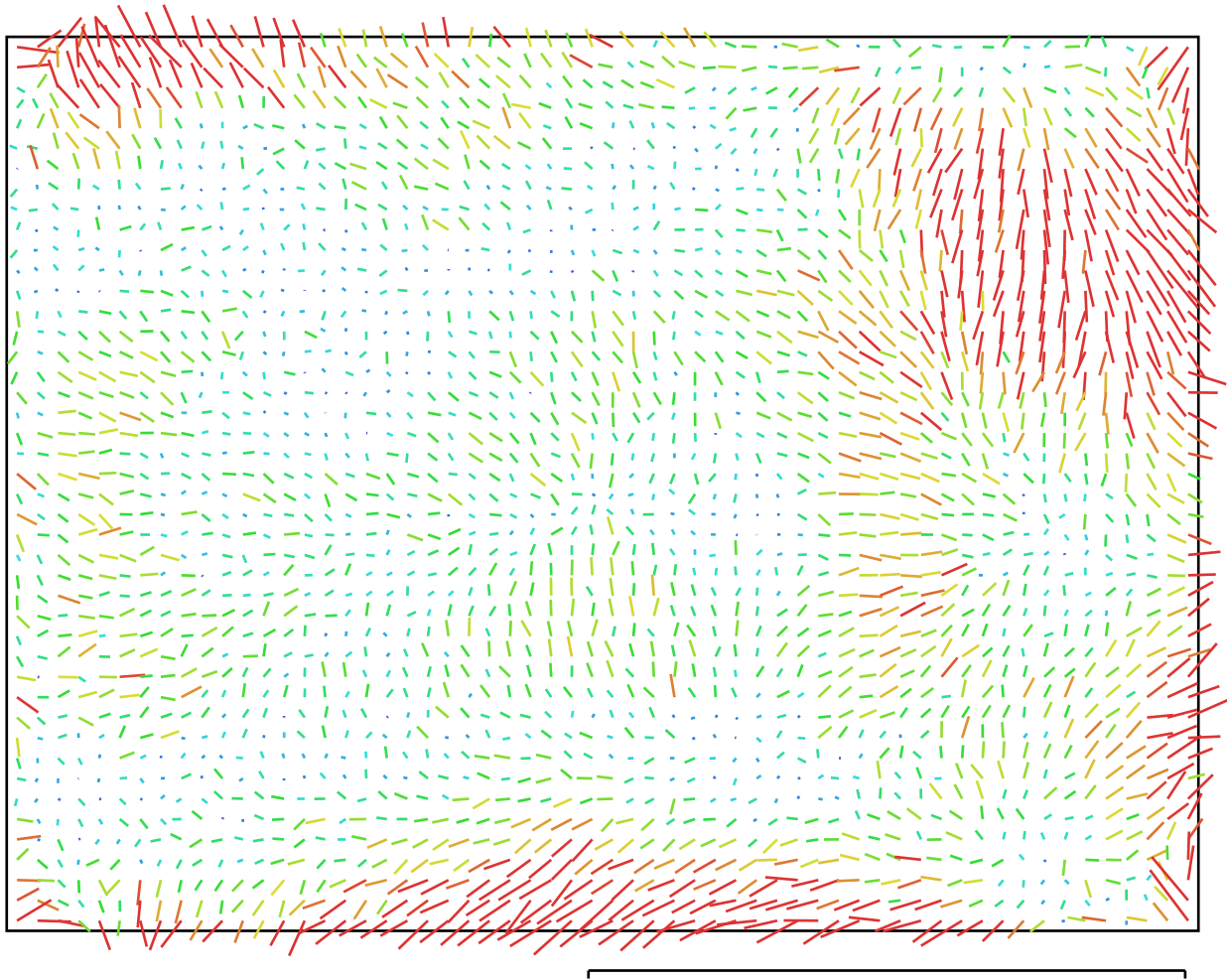


Fig. 4. Image residuals for E-420 (25 mm). 1 pix  
(25 mm).

## E-420 (25 mm)

Type:	Frame	K1:	-0.185082
Fx:	5292.67	K2:	0.262376
Fy:	5293.31	K3:	-0.52015
Cx:	1811.03	K4:	0
Cy:	1385.79	P1:	-5.54505e-005
Skew:	2.59163	P2:	0.000122398

# Ground Control Points

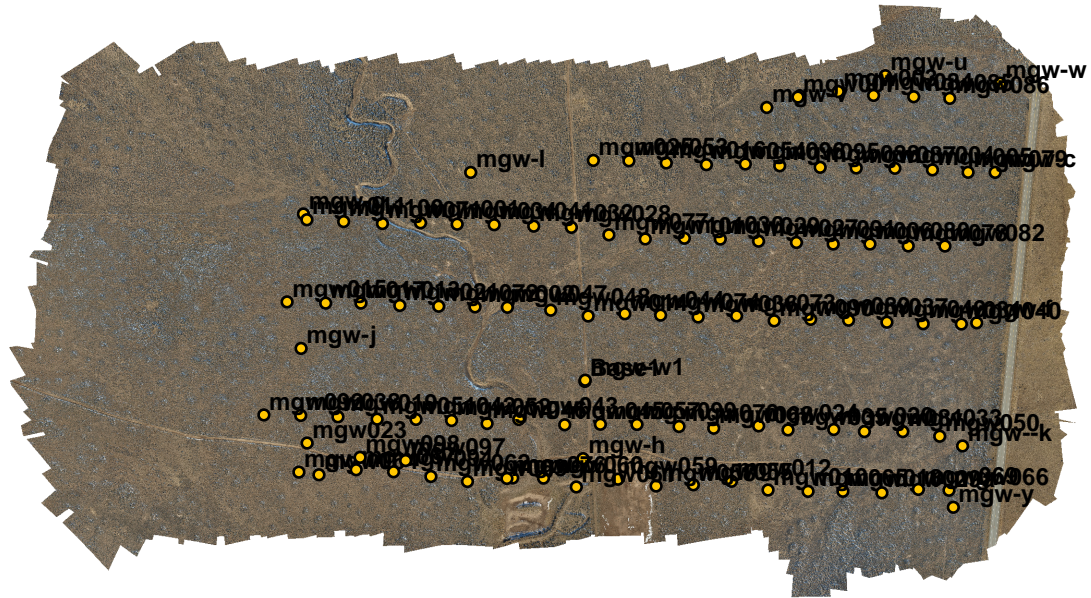


Fig. 5. GCP locations.

Label	X error (m)	Y error (m)	Z error (m)	Error (m)	Projections	Error (pix)
Base1	-0.051115	0.022143	0.463602	0.466937	17	0.775236
mgw--k	-0.019241	-0.061052	-0.025615	0.068947	18	0.437349
mgw-b	-0.020478	0.016725	-0.025207	0.036531	11	0.411653
mgw-c	-0.009666	0.009356	0.005301	0.014459	14	0.589529
mgw-f	-0.024296	-0.000113	-0.013650	0.027868	21	0.485757
mgw-g	0.057084	-0.055467	-0.017637	0.081524	17	0.565597
mgw-h	0.035802	-0.059995	-0.013651	0.071187	10	0.260196
mgw-j	-0.084292	-0.049452	-0.003147	0.097778	15	0.482657
mgw-l	-0.048397	-0.046933	-0.019946	0.070305	13	0.324369
mgw-m	0.003428	-0.091125	-0.008444	0.091580	9	0.381707

<b>Label</b>	<b>X error (m)</b>	<b>Y error (m)</b>	<b>Z error (m)</b>	<b>Error (m)</b>	<b>Projections</b>	<b>Error (pix)</b>
mgw-u	-0.021406	0.045562	-0.013179	0.052036	8	0.233614
mgw-v	0.066166	-0.034088	-0.018942	0.076803	12	0.212556
mgw-w	-0.022213	0.019134	-0.019475	0.035197	14	0.308679
mgw-y	0.053622	-0.050158	-0.000842	0.073429	9	0.252316
mgw001	0.840431	0.494803	0.050390	0.976572	28	0.490758
mgw002	-0.045615	0.025550	-0.004021	0.052437	27	0.450830
mgw003	0.135625	0.013160	0.013297	0.136909	10	0.538860
mgw004	0.004390	0.005620	0.018731	0.020043	14	0.426840
mgw005	-0.079011	0.012839	-0.041189	0.090022	12	0.488188
mgw006	0.002292	-0.009150	0.030942	0.032348	19	0.680521
mgw007	-0.039297	-0.011238	0.010599	0.042224	11	0.199228
mgw010	-0.024411	-0.040460	-0.031411	0.056741	8	0.226785
mgw011	-0.044500	-0.137414	0.015848	0.145307	17	0.578552
mgw012	-0.015678	-0.077965	-0.033794	0.086408	15	0.380503
mgw013	-0.064896	-0.013205	0.044788	0.079949	18	0.606791
mgw014	0.120992	-0.079542	-0.073221	0.162257	17	0.574074
mgw015	-0.022019	-0.060231	0.007721	0.064592	16	0.396265
mgw016	-0.053864	0.012684	-0.012689	0.056773	11	0.367843
mgw017	0.063365	-0.077254	-0.022243	0.102362	13	0.373296
mgw018	0.007619	0.050612	-0.024198	0.056614	18	0.313060
mgw019	0.001682	-0.017528	-0.007462	0.019124	9	0.429215
mgw020	-0.016464	-0.005170	-0.002980	0.017512	11	0.712300
mgw021	-0.063801	-0.095166	-0.031841	0.118916	25	0.837740
mgw023	0.038498	-0.002986	-0.038559	0.054569	8	0.378925
mgw024	0.065858	0.031357	0.036064	0.081371	15	0.368926
mgw025	0.031255	-0.010257	-0.001355	0.032923	11	0.291617
mgw027	-0.000674	0.030619	0.014635	0.033944	28	1.056323
mgw028	0.008811	0.010744	0.000696	0.013912	21	0.502375
mgw029	0.029100	0.015874	0.014344	0.036118	37	1.160745
mgw029a	0.030559	0.046774	-0.000844	0.055878	23	0.490469
mgw030	0.092108	-0.043627	-0.002137	0.101939	26	0.500578
mgw031	-0.083681	-0.106024	0.003416	0.135113	30	1.223541
mgw032	-0.118420	0.059986	0.022591	0.134655	20	0.503249

Label	X error (m)	Y error (m)	Z error (m)	Error (m)	Projections	Error (pix)
mgw033	0.005579	0.031260	-0.007056	0.032529	23	0.699991
mgw034	-0.061192	0.019715	0.001933	0.064319	34	0.679525
mgw035	0.033256	0.010138	-0.010245	0.036245	15	0.540820
mgw036	0.051317	-0.065665	-0.032615	0.089493	22	0.485482
mgw037	0.006038	-0.052634	0.029187	0.060487	24	0.862962
mgw038	-0.041597	0.162413	0.024893	0.169493	9	0.311745
mgw040	-0.010463	-0.014265	-0.009495	0.020078	30	0.693395
mgw041	0.008848	0.014372	0.013509	0.021618	27	0.396349
mgw042	0.045854	0.046357	-0.012997	0.066487	20	0.383018
mgw043	0.060439	-0.053768	-0.073873	0.109549	9	0.341595
mgw044	0.112200	-0.058076	0.000294	0.126340	20	0.780162
mgw045	0.011771	0.015497	-0.118862	0.120444	10	0.357556
mgw046	-0.057202	0.089270	-0.011422	0.106638	11	0.319731
mgw047	0.025744	0.023364	-0.020579	0.040400	17	0.342047
mgw048	-0.037631	-0.067659	-0.081747	0.112589	18	0.515392
mgw049	-0.014649	0.032994	0.010904	0.037710	19	0.728841
mgw050	-0.049232	0.036805	0.006113	0.061772	23	0.486698
mgw051	-0.022432	0.066207	-0.006420	0.070198	13	0.688390
mgw052	-0.083863	0.065373	0.026207	0.109514	17	0.390896
mgw053	-0.113861	-0.026509	0.004470	0.116992	11	0.236266
mgw054	-0.007032	-0.069423	0.012936	0.070967	22	0.446625
mgw055	-0.018050	0.044096	0.046601	0.066648	11	0.622799
mgw057	-0.036871	0.057596	-0.140017	0.155825	9	0.476861
mgw058	-0.175522	-0.049875	0.018202	0.183376	9	0.538424
mgw059	0.005849	0.020266	0.008996	0.022932	8	0.253233
mgw060	-0.044246	-0.110776	0.019328	0.120841	9	0.578213
mgw061	0.068030	-0.076197	0.013972	0.103098	12	0.260419
mgw062	0.042509	-0.051728	0.025826	0.071762	17	0.184237
mgw063	-0.011080	0.007049	-0.032090	0.034673	14	0.443596
mgw064	-0.016663	0.018033	0.017983	0.030434	10	0.285165
mgw065	-0.091952	0.041954	0.056799	0.115937	14	0.566166
mgw066	-0.042084	0.035943	0.036231	0.066148	10	0.224435
mgw067	-0.018571	-0.092966	0.037560	0.101972	11	0.393669



Label	X error (m)	Y error (m)	Z error (m)	Error (m)	Projections	Error (pix)
mgw068	0.049743	-0.025491	-0.024497	0.061027	16	0.550237
mgw069	0.044882	0.017379	-0.005554	0.048449	17	0.417111
mgw070	-0.253872	0.153577	-0.029732	0.298196	13	0.632159
mgw071	-0.174319	-0.010608	-0.005516	0.174728	26	0.850457
mgw072	-0.065005	-0.038801	-0.006100	0.075950	33	0.293419
mgw073	-0.028122	0.055837	-0.061700	0.087837	33	0.570447
mgw074	-0.041239	0.071764	-0.028538	0.087551	16	0.486851
mgw076	0.029499	-0.042458	0.063579	0.081946	11	0.432817
mgw077	-0.127763	0.051664	0.018885	0.139101	17	0.600591
mgw078	-0.000202	0.076542	0.008618	0.077026	19	0.691669
mgw079	0.026424	-0.042748	-0.005062	0.050510	13	0.990078
mgw080	0.059065	0.051523	-0.055147	0.095836	17	0.442061
mgw081	0.040196	-0.011282	-0.009260	0.042763	16	0.388467
mgw082	0.096338	0.021450	0.045526	0.108691	24	1.047731
mgw084	-0.026194	-0.006071	-0.015873	0.031224	14	0.484944
mgw085	0.000771	0.034917	0.025198	0.043067	12	0.902182
mgw086	0.012031	-0.004452	0.032881	0.035294	16	1.025603
mgw087	-0.070227	-0.068603	-0.024717	0.101238	13	0.746987
mgw088	0.052039	-0.005489	0.014618	0.054331	10	0.463335
mgw089	0.084149	0.020943	-0.000429	0.086717	21	0.514875
mgw090	0.081448	-0.038085	0.027126	0.093915	22	1.736423
mgw091	0.045133	0.005374	-0.017614	0.048746	20	0.475942
mgw092	0.025618	0.036268	0.013082	0.046291	11	0.291461
mgw094	0.035211	0.020737	0.009693	0.041997	15	0.533158
mgw095	0.006875	-0.042406	-0.006493	0.043448	11	0.221980
mgw096	-0.099620	-0.007254	-0.002705	0.099921	12	0.388652
mgw097	-0.021867	0.017646	-0.026930	0.038921	17	0.377966
mgw098	0.020337	-0.086885	-0.023090	0.092172	11	0.256746
mgw099	0.040794	0.039293	-0.051043	0.076246	11	0.534392
mgw100	-0.021287	-0.039100	-0.029051	0.053160	19	0.403323
mgw101	-0.068279	0.054176	0.010009	0.087734	19	0.468671
<b>Total</b>	<b>0.102447</b>	<b>0.071201</b>	<b>0.055253</b>	<b>0.136447</b>	<b>1759</b>	<b>0.620161</b>

Table. 2. Control points.

<b>Label</b>	<b>X error (m)</b>	<b>Y error (m)</b>	<b>Z error (m)</b>	<b>Error (m)</b>	<b>Projections</b>	<b>Error (pix)</b>
mgw-w1	0.171580	-0.457030	0.713212	0.864284	17	0.713597
<b>Total</b>	<b>0.171580</b>	<b>0.457030</b>	<b>0.713212</b>	<b>0.864284</b>	<b>17</b>	<b>0.713597</b>

Table. 3. Check points.

# Digital Elevation Model

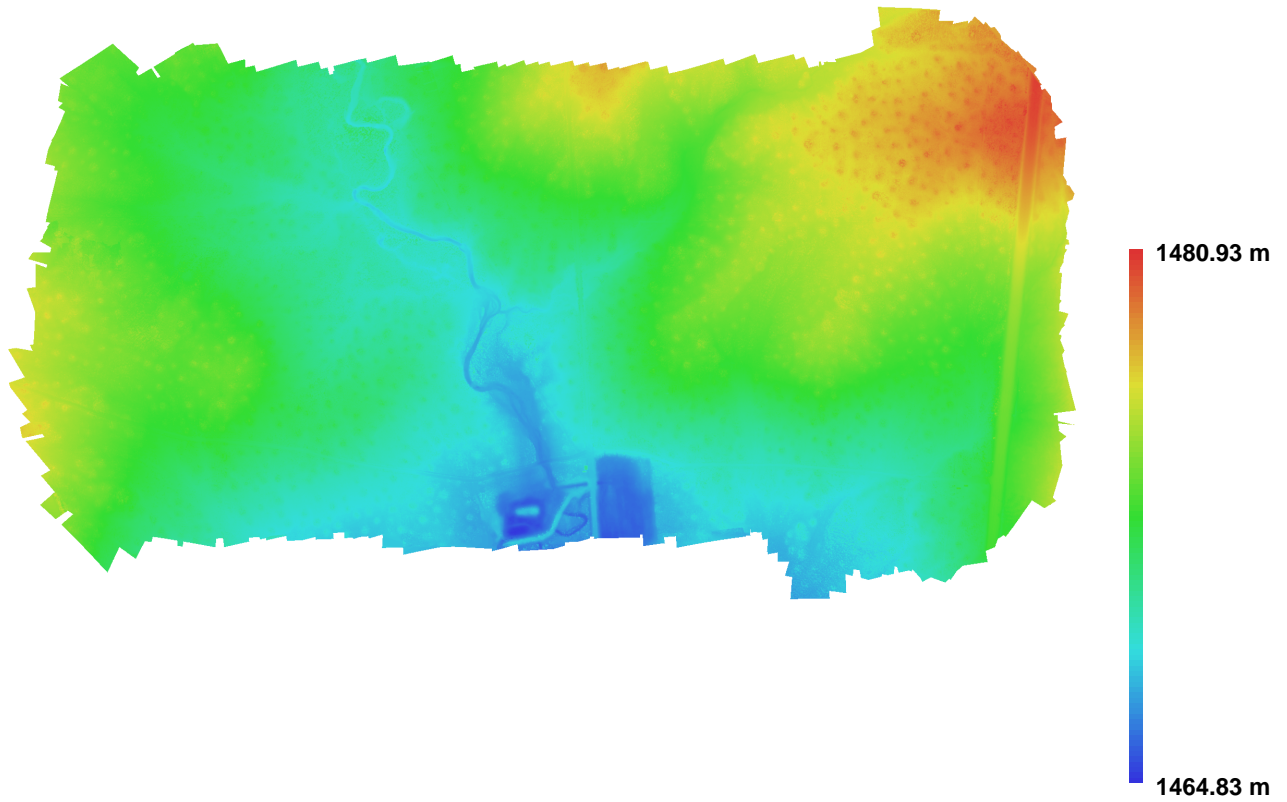


Fig. 6. Reconstructed digital elevation model.

Resolution: 0.0938171 m/pix  
Point density: 113.615 points per sq m