Quality Report

See *Quality Report Help* for detailed explanations. Generated with version 1.1.38

Summary

Project:	grass grub flight 2 (small set)
Processed:	2014-Jun-05 10:31:41
Camera name:	NEX-5N_E16mmF2.8_16.0_4912x3264
Average Ground Sampling Distance (GSD):	3.23 cm
Area covered:	0.3331 km^2 / 33.3116 ha / 0.1287 sq. mi.
Image coordinate system:	WGS84
Output coordinate system:	WGS84 / UTM zone 60S
Processing type:	full (scale 1) aerial nadir
Time for initial processing (without report):	28m:37s

Quality Check

Images:	median of 7552 keypoints per image	⚠
Dataset:	161 out of 161 images calibrated (100%), all images enabled	✓
Camera optimization quality:	1.94% relative difference between initial and final focal length	✓
Matching quality:	median of 2794.81 matches per calibrated image	✓
Georeferencing:	no GCP	⚠

Preview

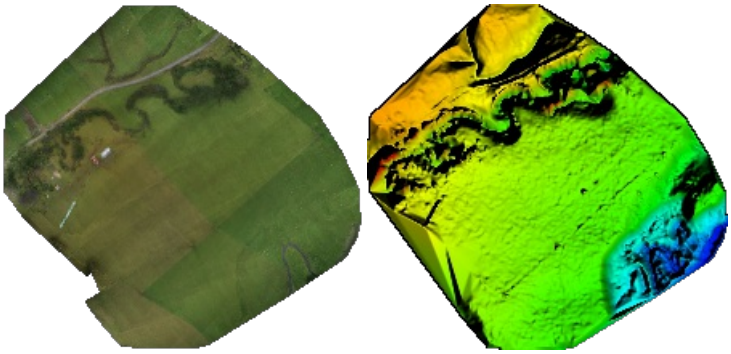
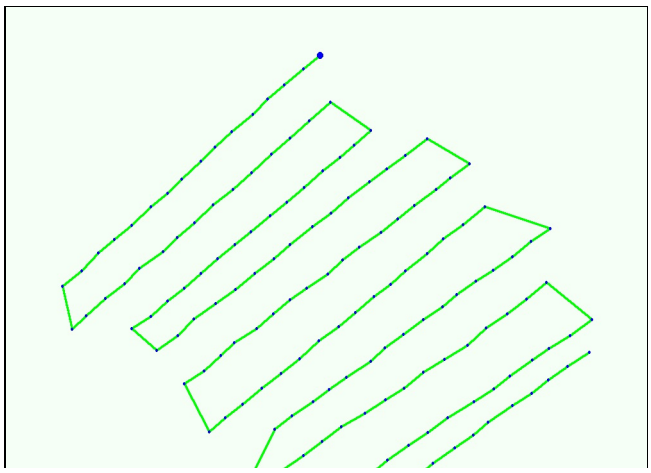


Figure 1: Orthomosaic and the corresponding sparse Digital Surface Model (DSM) before densification.

Calibration details

Number of calibrated images:	161 out of 161
Number of geotagged images:	161 out of 161

Geotag Position



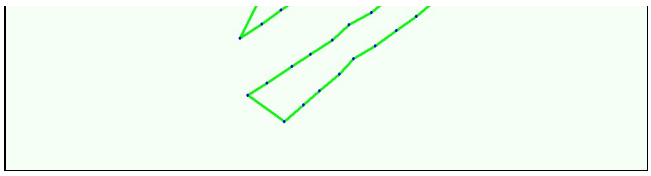


Figure 2: Top view of the geotags. The green line follows the geotags of the images in time starting from the large blue dot.

Optimized Camera Position

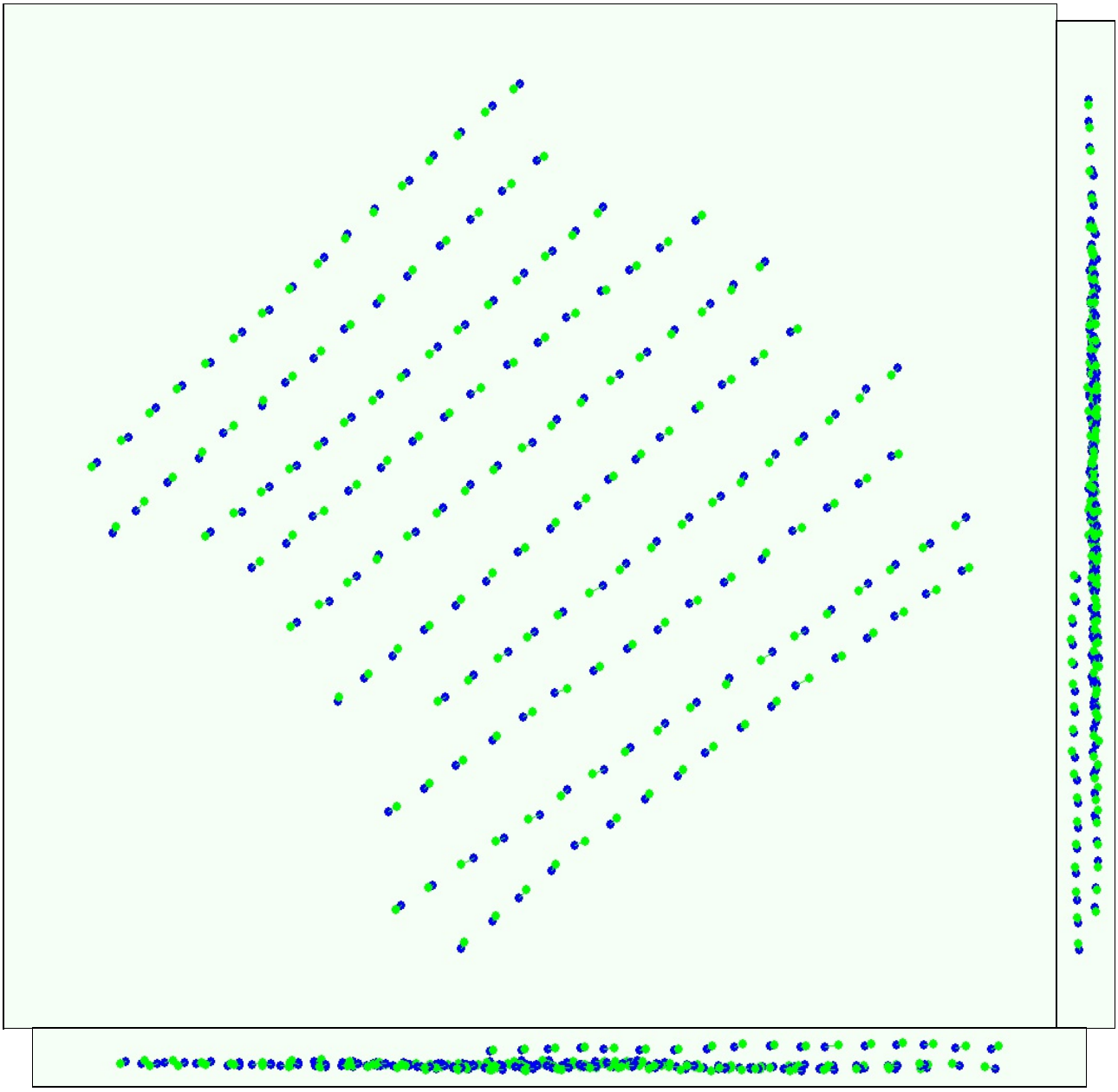
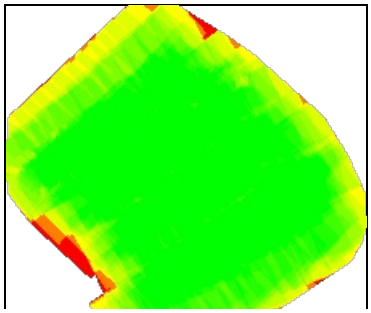


Figure 3: Offset between image geotags (blue dots) and optimized positions (green dots) as well as the offset between the GCPs positions (blue crosses) and their optimized positions (green crosses) in the top-view (XY plane), front-view (XZ plane) and side-view (YZ plane).

Overlap



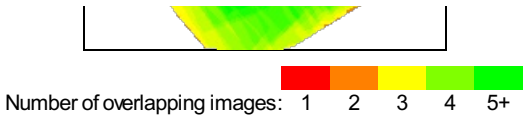


Figure 4: Number of overlapping images computed for each pixel of the orthomosaic.
Red and yellow areas indicate low overlap for which poor results may be generated. Green areas indicate an overlap over 5 images for every pixel. Good quality results will be generated as long as the number of keypoint matches is also sufficient for these areas (see Figure 5 for keypoint matches).

Bundle Block Adjustment details

Number of 2D keypoint observations for Bundle Block Adjustment	570945
Number of 3D points for Bundle Block Adjustment	227130
Mean reprojection error	0.217587 [pixels]

Internal Camera Parameters NEX-5N_E16mmF2.8_16.0_4912x3264. Sensor dimensions: 23.5 [mm] x 15.6 [mm]

EXIF ID: NEX-5N_E16mmF2.8_16.0_4912x3264

	Focal length	Principal point x	Principal point y	R1	R2	R3	T1	T2
Initial values	3374.859 [pix] 16.146 [mm]	2443.669 [pix] 11.691 [mm]	1588.980 [pix] 7.602 [mm]	0.001	-0.008	0.011	-0.002	0.001
Optimized values	3309.372 [pix] 15.833 [mm]	2410.740 [pix] 11.533 [mm]	1606.089 [pix] 7.684 [mm]	-0.070	0.102	-0.005	-0.000	-0.002

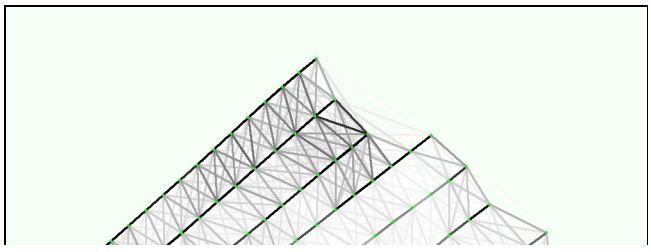
2D Keypoint Table

	Number of 2D keypoints per image	Number of matched 2D keypoints per image
Median	7552	2795
Min	3094	747
Max	34638	8377
Mean	11359	3546

3D Points from 2D Keypoint Matches

	Number of 3D points observed
In 2 images	164652
In 3 images	37002
In 4 images	12922
In 5 images	5481
In 6 images	2920
In 7 images	1843
In 8 images	1025
In 9 images	588
In 10 images	352
In 11 images	169
In 12 images	92
In 13 images	50
In 14 images	21
In 15 images	8
In 16 images	3
In 17 images	2

2D Keypoint Graph



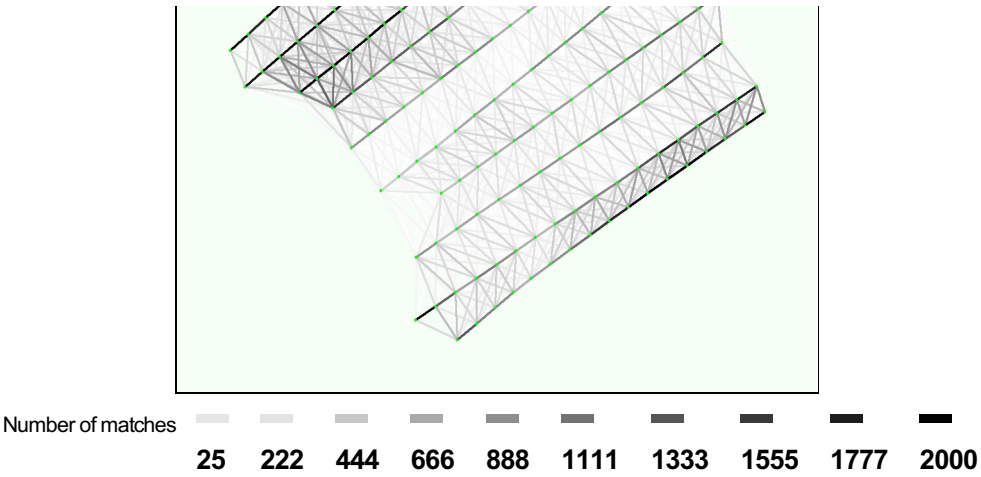


Figure 5: Top view of the geotags with a link between matching images. The darkness of the links indicates the number of matched 2D keypoints between the images. Bright links indicate weak links and require manual tie points or more images.

Most visible 2D keypoints

Figure 6: Cropped area of 2 3D points arising from 17 2D keypoints. Each cropped area should represent the same 3D object.

Absolute Geotag Variance

0 out of 161 geotagged and calibrated images have been labeled as inaccurate.

Min error [m]	Max error [m]	Geotag error X [%]	Geotag error Y [%]	Geotag error Z [%]
-	-15.00	0.00	0.00	0.00
-15.00	-12.00	0.00	0.00	0.00
-12.00	-9.00	0.00	0.00	0.00
-9.00	-6.00	9.32	0.62	0.00
-6.00	-3.00	34.78	35.40	0.00
-3.00	0.00	4.97	13.04	49.07
0.00	3.00	9.32	19.88	50.93
3.00	6.00	34.16	30.43	0.00
6.00	9.00	6.83	0.62	0.00
9.00	12.00	0.62	0.00	0.00
12.00	15.00	0.00	0.00	0.00
15.00	-	0.00	0.00	0.00
Mean		0.000012	0.000023	-0.000195
Sigma		4.777800	3.666838	1.016825
RMS error		4.777800	3.666838	1.016825

Min error and Max error represent geotag error intervals between -1.5 and 1.5 times maximum tolerance of all the images. Columns X, Y, Z show the percentage of images with geotag errors within the predefined error intervals. The geotag error is the difference between the image geotags and the optimized camera positions. Note that the image geotag errors do not correspond to the accuracy on the observed 3D points.

Relative Geotag Variance

Tolerance [%]	Images X [%]	Images Y [%]	Images Z [%]
10.00	0.62	0.00	63.35
20.00	1.24	0.62	98.14
30.00	3.73	3.11	100.00
40.00	4.97	8.07	100.00
50.00	9.94	15.53	100.00
60.00	14.29	32.92	100.00
70.00	27.95	49.07	100.00
80.00	37.89	67.08	100.00

90.00	53.42	80.12	100.00
100.00	65.22	93.17	100.00
110.00	75.16	97.52	100.00
120.00	83.23	98.76	100.00
130.00	88.20	100.00	100.00
140.00	92.55	100.00	100.00
150.00	95.65	100.00	100.00
Mean tolerance	5.000000	5.000000	10.000000
Sigma tolerance	0.000000	0.000000	0.000000

Images X, Y, Z represent the percentage of images with a geotag error in X, Y, Z smaller than the given percentage of their corresponding tolerance.