Automatic Reconstruction Report (version 1.11705)

pdf

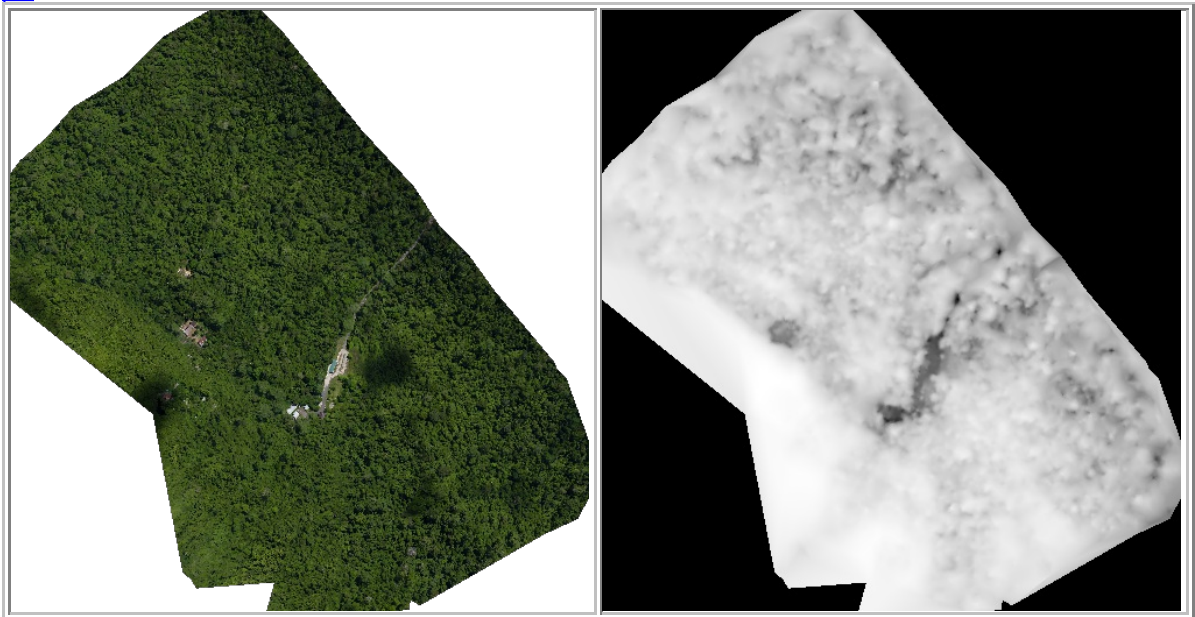**Figure 1:** Ortho mosaic (left) and (right) the corresponding digital elevation model (DEM).

Overall Quality

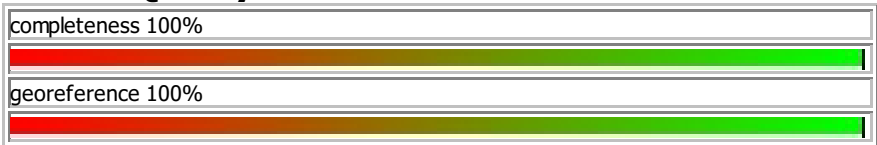completeness 100%

georeference 100%

Figure 2: Completeness refers to the percentage of original images that are included in the final ortho image.
A low value might indicate insufficient overlap between the original images. The accuracy of the geotags relates to the quality of the geotags that are associated with each original image (see Figure 6).
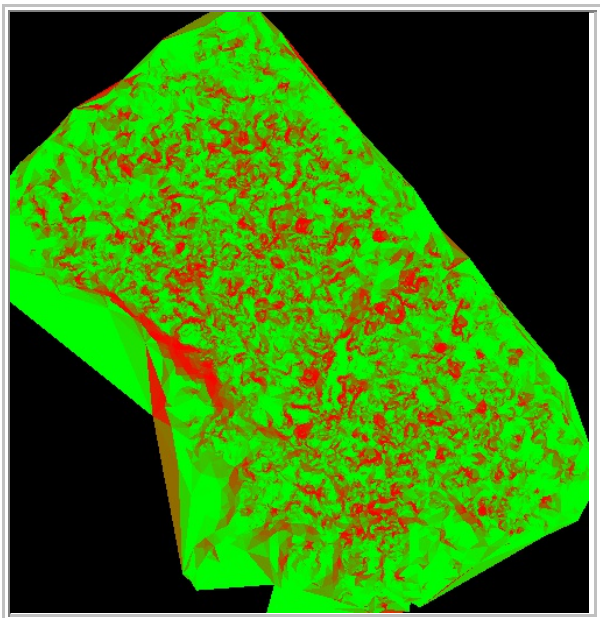

Figure 3: Quality of the ortho mosaic.
Red indicates areas where the ortho mosaic and the digital elevation model could contain artefacts, e.g. non-linear building edges.

Original Image Dataset
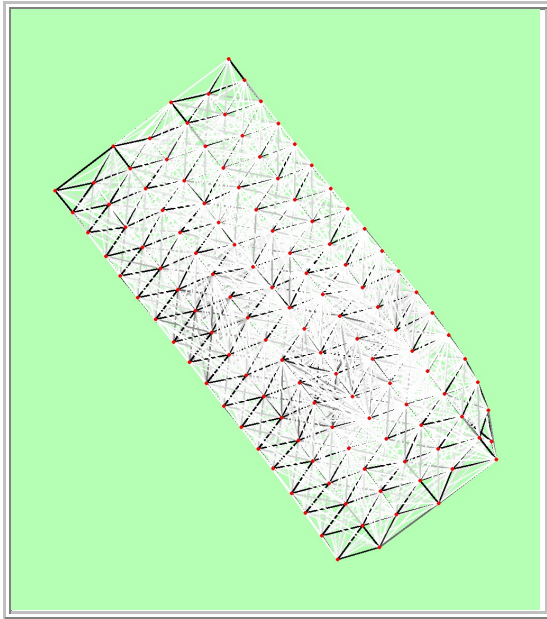
The dataset contains 126 original images.

Figure 4: This connectivity graph displays the number of potential keypoint matches (color coded in gray values) between the original images. A high quality result can be obtained if each orginal image is connected with sufficient matches to the neighbouring images along all directions. The large red dot corresponds to the starting original image. The green line follows the original image geotags over time. Keypoint matches consist of distinct images keypoints that are visible in two images and for which a correspondence could be established.

Result

The ortho mosaic is composed from 126 out of 126 original images.
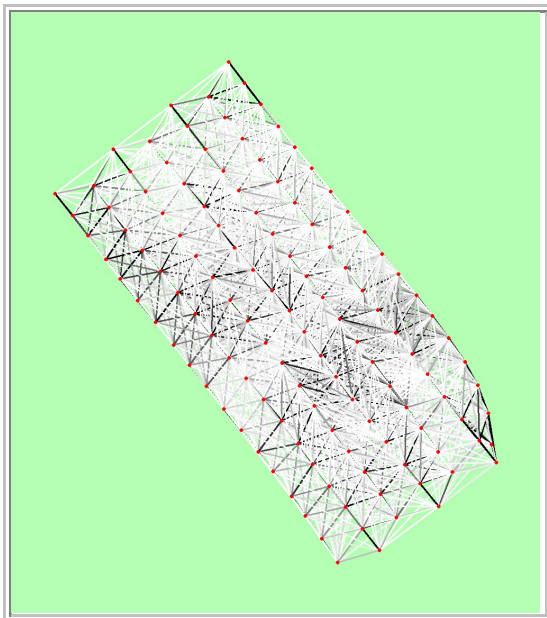The ortho mosaic covers an area of 1.34 sq. km / 133.98ha / 0.52 sq. mi.

Figure 5: The final connectivity graph displays verified keypoint matches between the original images after bundle block adjustment, which is a global optimisation of the position and orientation of the original images and the digital elevation model.

	number of keypoint observartions per original image
median	2838
min	1006
max	8426
mean	3993.48

	number of 3D points observed
in 2 - 2 images	159695
in 3 - 5 images	40811
in 6 - 8 images	4045
in 9 - 11 images	1017
in 12 - 14 images	305
in 15 - 17 images	103
in 18 - 20 images	62
in 21 - 23 images	38
in 24 - 26 images	25
in 27 - 28 images	5

Matching statistics for the bundle block adjustment.

number total keypoint observations for bundle block adjustment	503178
number total 3D points for bundle block adjustment	206106
mean reprojection error	1.21696 [pixels]

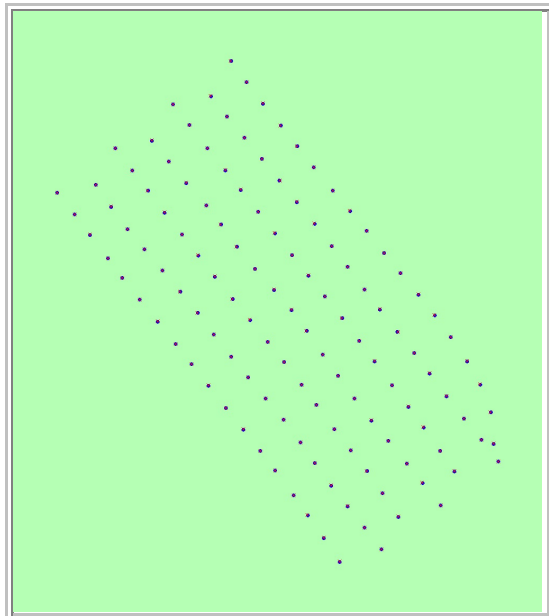Characteristics of bundle block adjustment.

Georeference

Figure 6: Offset between image GPS tags (red crosses) and estimated positions of the original images (large blue dots) in the horizontal plane.

geotag localisation variance	sigma [m]
longitude direction (x)	0.205296
latitude direction (y)	0.225474
altitude direction (z)	0.555946

Localisation accuracy of the geotags in metres. 2 out of 126 original image geotags have been labeled as inaccurate (see Figure 6).