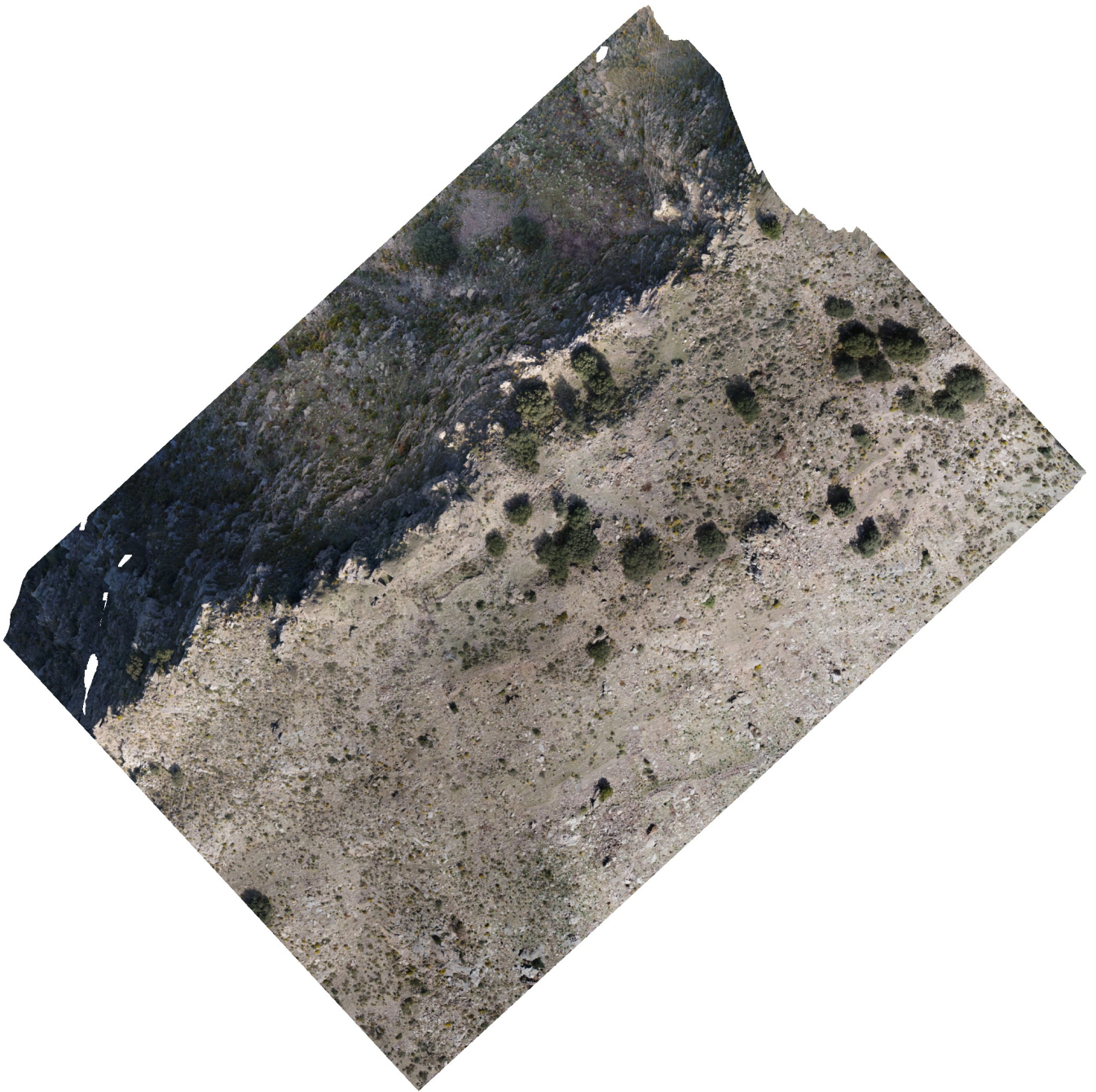


# Castillo de Poqueira

## Report

25 March 2020



# Survey Data

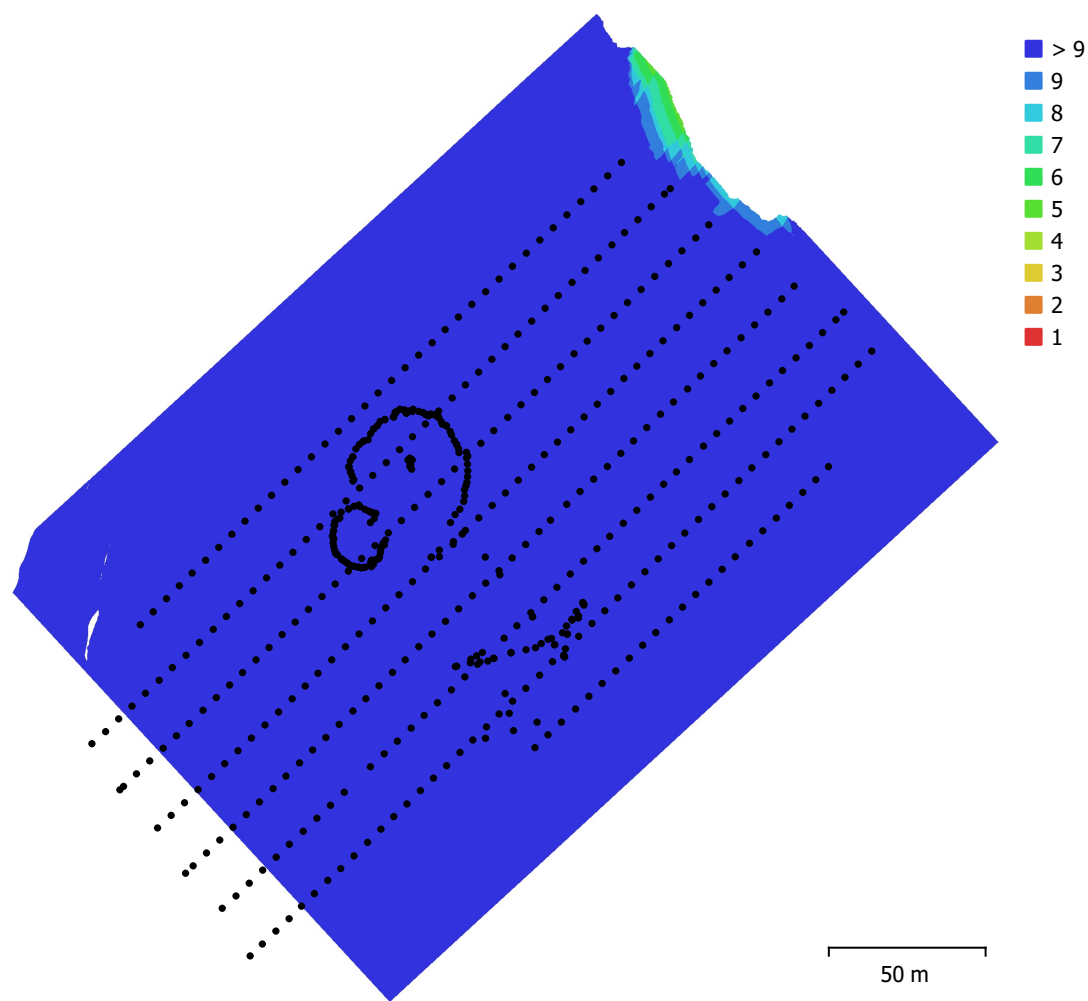


Fig. 1. Camera locations and image overlap.

Number of images:	546	Camera stations:	546
Flying altitude:	61.2 m	Tie points:	24,107
Ground resolution:	1.27 cm/pix	Projections:	307,220
Coverage area:	0.0488 km <sup>2</sup>	Reprojection error:	1.04 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
FC6310 (8.8 mm)	5472 x 3648	8.8 mm	2.41 x 2.41 μm	No

Table 1. Cameras.

# Camera Calibration

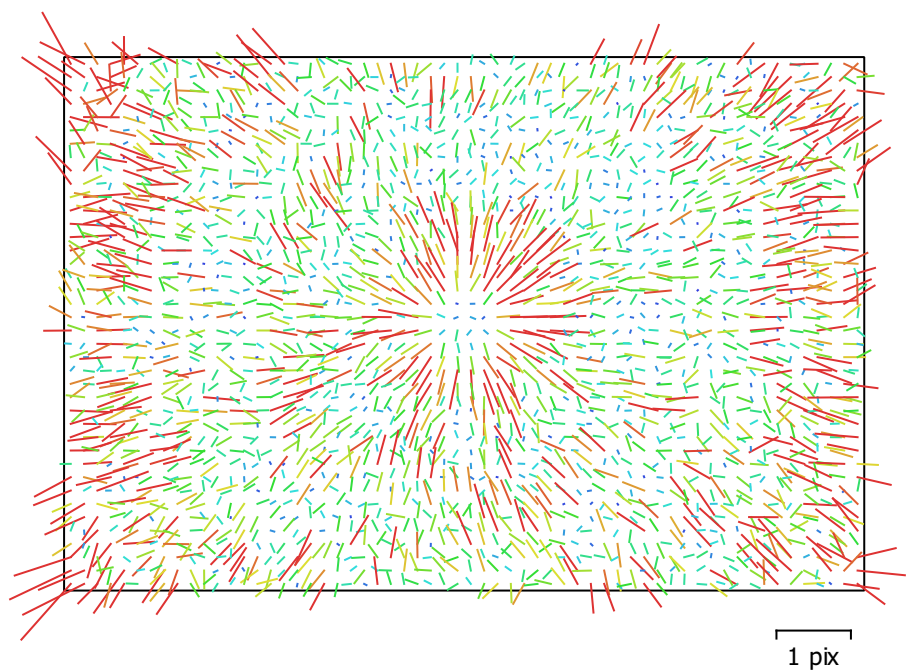


Fig. 2. Image residuals for FC6310 (8.8 mm).

## FC6310 (8.8 mm)

546 images

Type	Resolution	Focal Length	Pixel Size
Frame	5472 x 3648	8.8 mm	2.41 x 2.41 μm
F:	3670.47		
Cx:	25.8235	B1:	0
Cy:	-15.6482	B2:	0
K1:	0.00433051	P1:	0.00222062
K2:	-0.00796052	P2:	-0.00215563
K3:	0.00808846	P3:	0
K4:	0	P4:	0

# Camera Locations

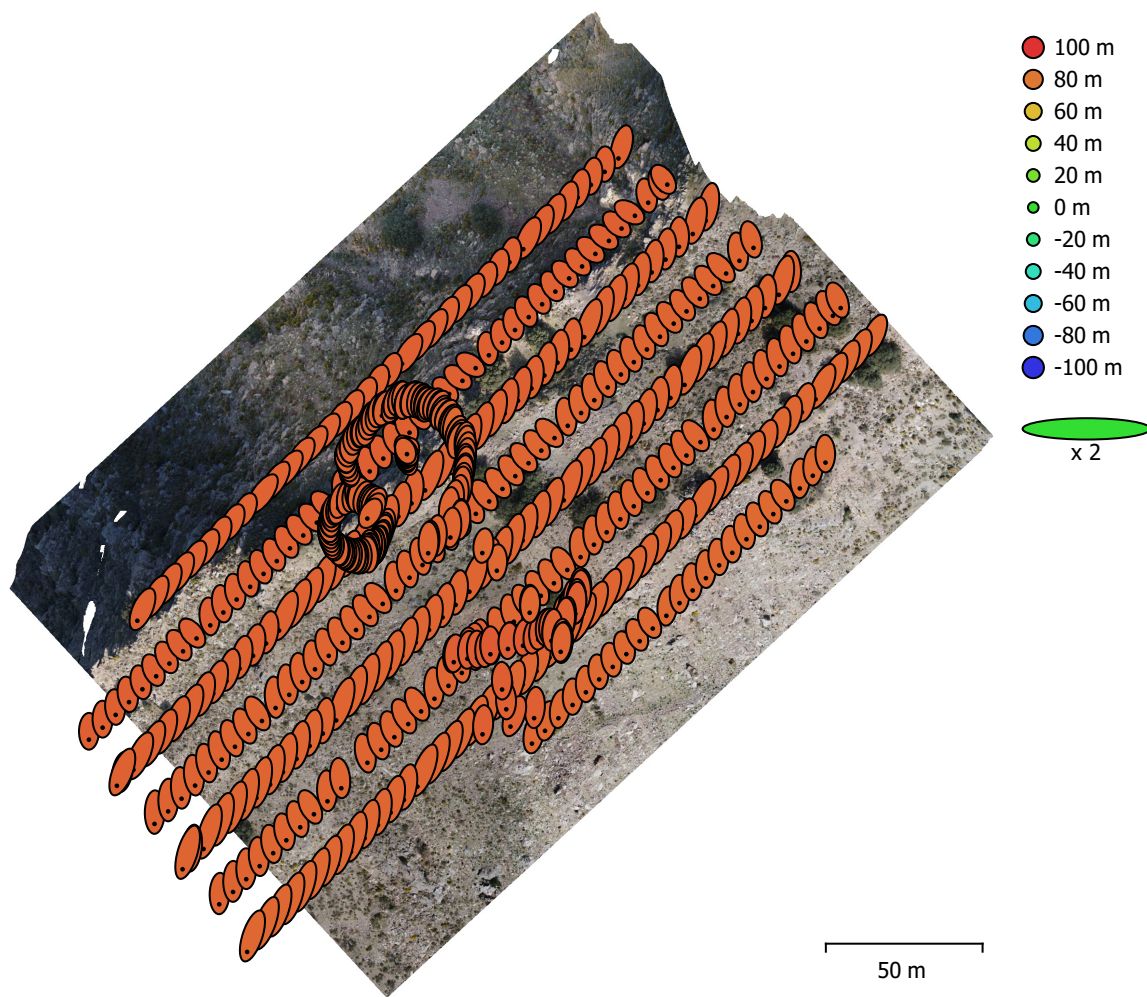


Fig. 3. Camera locations and error estimates.

Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.

Estimated camera locations are marked with a black dot.

X error (m)	Y error (m)	Z error (m)	XY error (m)	Total error (m)
0.96371	3.12616	85.6231	3.27133	85.6856

Table 2. Average camera location error.



# Ground Control Points

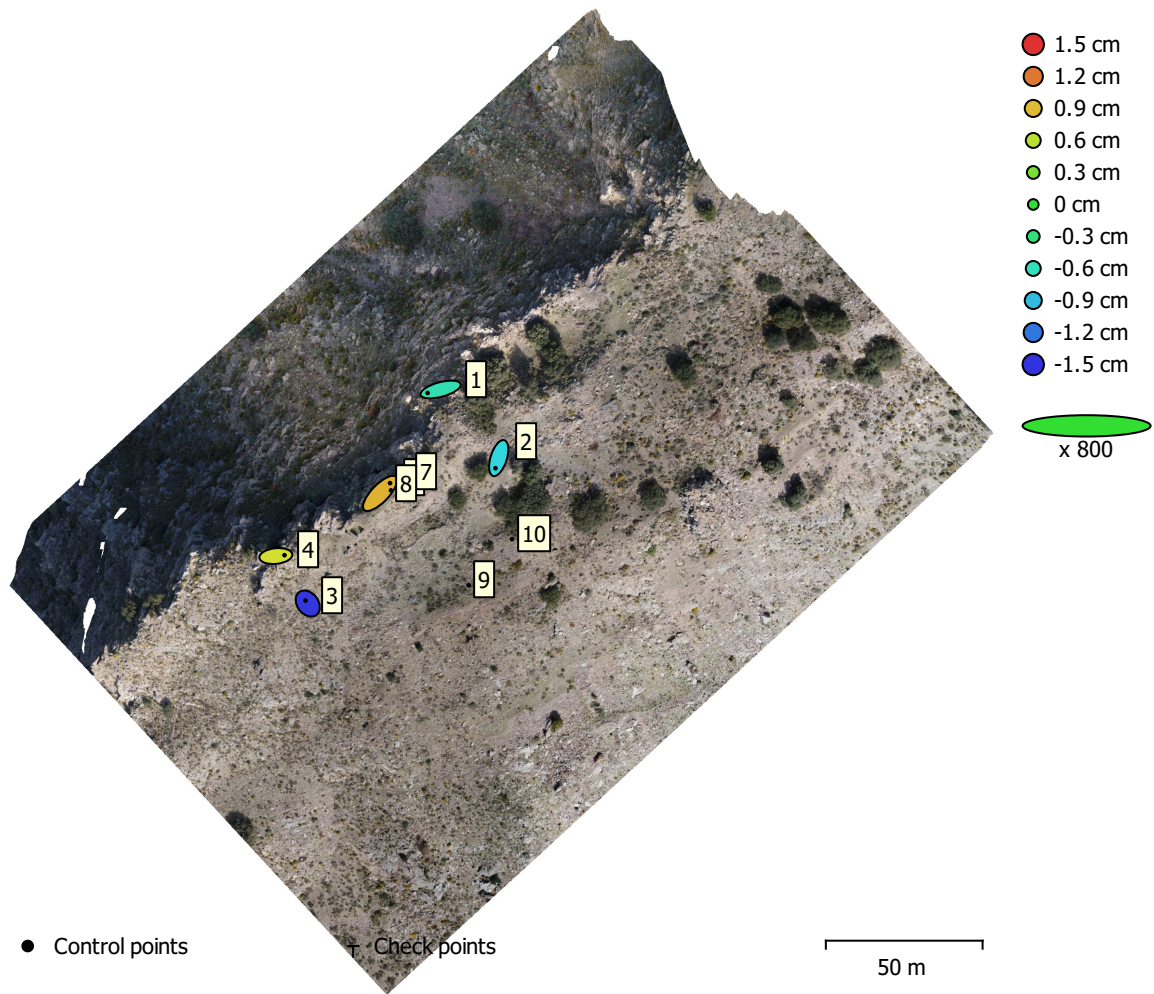


Fig. 4. GCP locations and error estimates.

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)
5	0.674338	0.540397	0.948226	0.864153	1.28292

Table 3. Control points RMSE.

<b>Label</b>	<b>X error (cm)</b>	<b>Y error (cm)</b>	<b>Z error (cm)</b>	<b>Total (cm)</b>	<b>Image (pix)</b>
3	-0.17974	0.233962	-1.47817	1.50732	0.449 (27)
4	0.690606	0.0716258	0.701189	0.986779	0.448 (14)
2	-0.25697	-0.806978	-0.787113	1.1562	0.404 (12)
1	-1.03791	-0.277832	-0.551076	1.20754	0.374 (9)
5	0.788108	0.819679	0.946461	1.47945	0.294 (6)
10					
7					
8					
9					
<b>Total</b>	<b>0.674338</b>	<b>0.540397</b>	<b>0.948226</b>	<b>1.28292</b>	<b>0.420</b>

Table 4. Control points.

# Digital Elevation Model

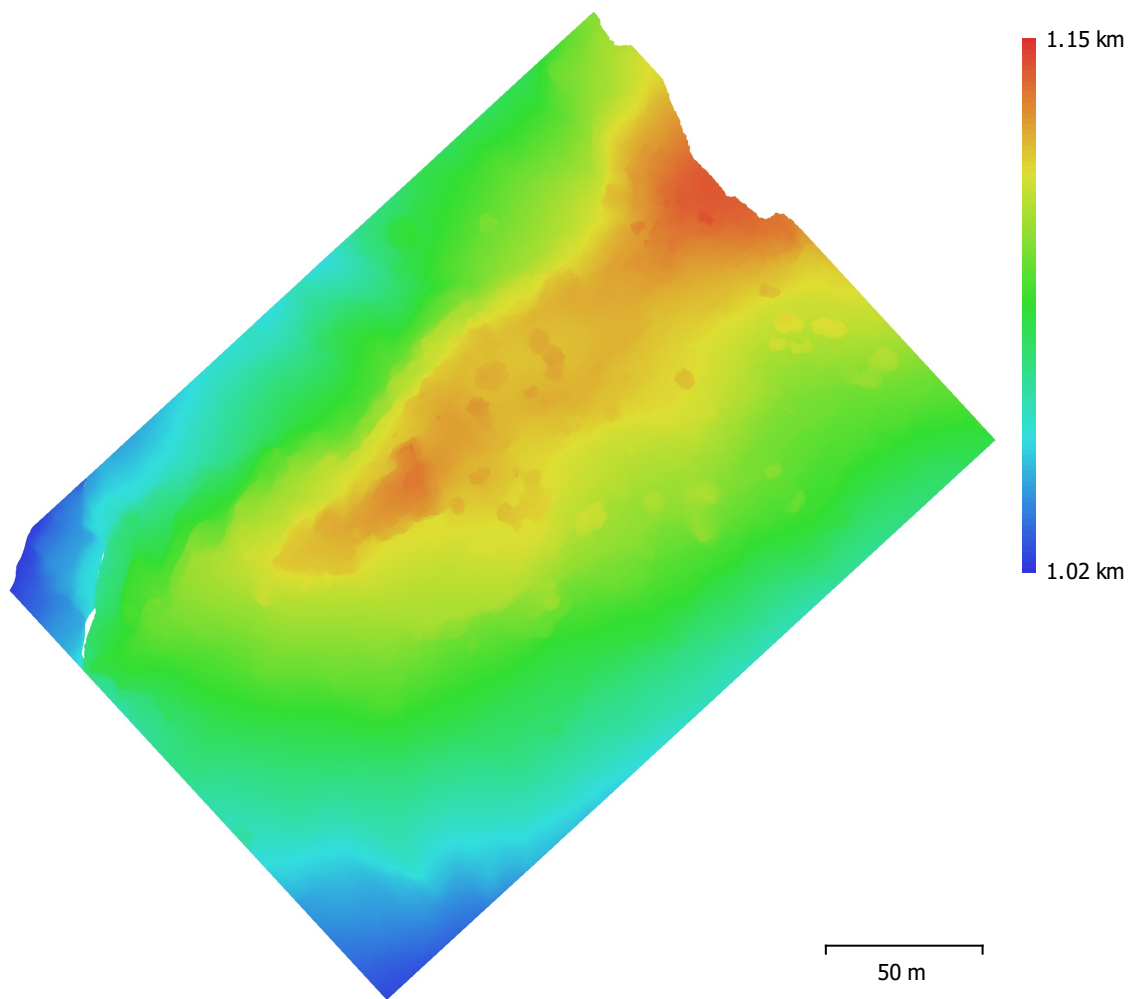


Fig. 5. Reconstructed digital elevation model.

Resolution: 10.2 cm/pix  
Point density: 96.6 points/m<sup>2</sup>

# Processing Parameters

## General

Cameras	546
Aligned cameras	546
Markers	9
<b>Shapes</b>	
Polylines	1364
Polygons	1380
Coordinate system	ETRS89 / UTM zone 30N (EPSG::25830)
Coordinate system	Local Coordinates (m)
Rotation angles	Yaw, Pitch, Roll

## Point Cloud

Points	24,107 of 40,998
RMS reprojection error	0.166227 (1.042 pix)
Max reprojection error	0.503171 (26.2049 pix)
Mean key point size	5.50208 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	19.5489

### Alignment parameters

Accuracy	Medium
Generic preselection	No
Reference preselection	No
Key point limit	40,000
Tie point limit	1,000
Filter points by mask	No
Matching time	6 hours 7 minutes
Alignment time	2 minutes 46 seconds

## Dense Point Cloud

Points	8,234,514
Point colors	3 bands, uint8

### Depth maps generation parameters

Quality	Low
Filtering mode	Aggressive

### Dense cloud generation parameters

Processing time	38 minutes 49 seconds
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## Model

Faces	542,537
Vertices	273,551
Vertex colors	3 bands, uint8
Texture	12,000 x 12,000 x 10, 4 bands, uint8

### Depth maps generation parameters

Quality	Low
Filtering mode	Aggressive

### Reconstruction parameters

Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Enabled
Processing time	5 minutes 20 seconds

### Texturing parameters

Blending mode	Mosaic
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Texture size	12,000
UV mapping time	46 seconds
Blending time	2 hours 52 minutes
<b>DEM</b>	
Size	3,162 x 3,120
Coordinate system	ETRS89 / UTM zone 30N (EPSG::25830)
<b>Reconstruction parameters</b>	
Source data	Dense cloud
Interpolation	Enabled
<b>Orthomosaic</b>	
Size	24,734 x 24,762
Coordinate system	Local Coordinates (m)
Colors	3 bands, uint8
<b>Reconstruction parameters</b>	
Blending mode	Mosaic
Surface	Mesh
Enable hole filling	Yes
Processing time	26 minutes 37 seconds
Software version	1.6.2.10247
<b>System</b>	
Software name	Agisoft Metashape Professional
Software version	1.6.2 build 10247
OS	Windows 64 bit
RAM	31.95 GB
CPU	Intel(R) Core(TM) i7-4790 CPU @ 3.60GHz
GPU(s)	None