Kampesteindalen

Reconstruction uncertainty 12
Projection accuracy 3
Reprojection error 0.3
Dense Cloud Confidence 3-255
Connected component size 99%

12 September 2022

Survey Data

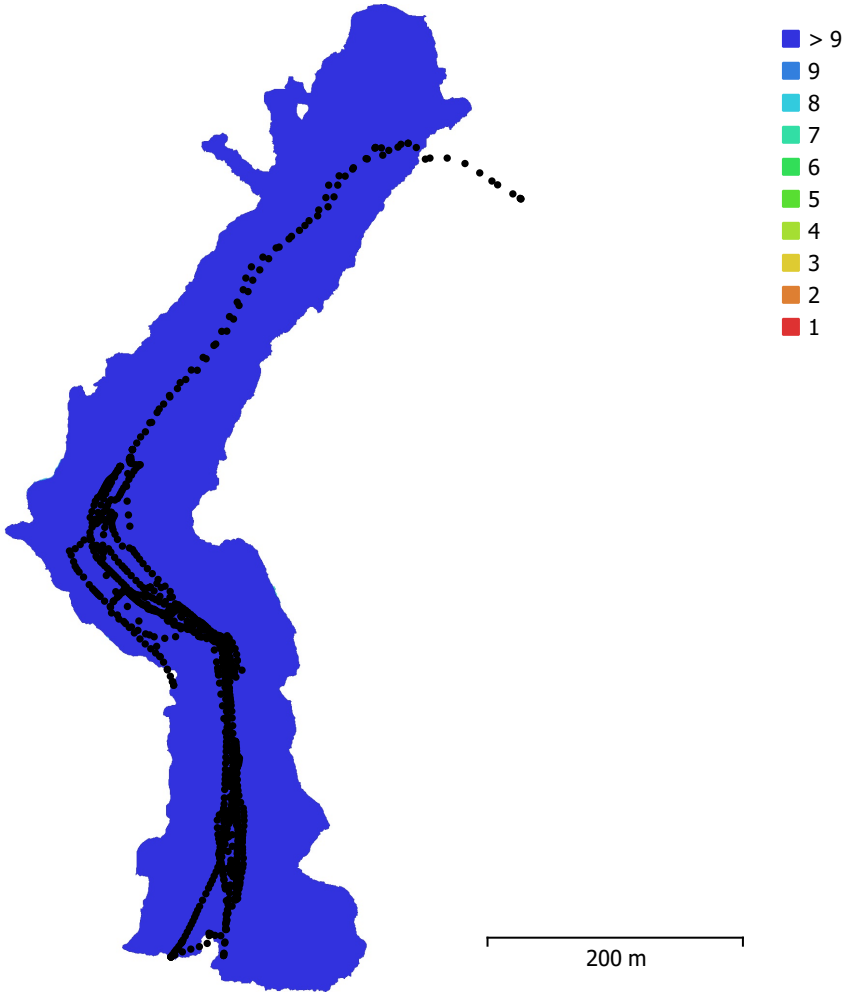

Fig. 1. Camera locations and image overlap.

Number of images:	972	Camera stations:	972
Flying altitude:	21.8 m	Tie points:	937,199
Ground resolution:	8.71 mm/pix	Projections:	3,037,203
Coverage area:	0.0954 km²	Reprojection error:	0.301 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
L2D-20c (12.29mm)	5280 x 3956	12.29 mm	3.36 x 3.36 µm	No
L2D-20c (12.29mm)	5280 x 2970	12.29 mm	3.66 x 3.66 µm	No

Table 1. Cameras.

Camera Calibration

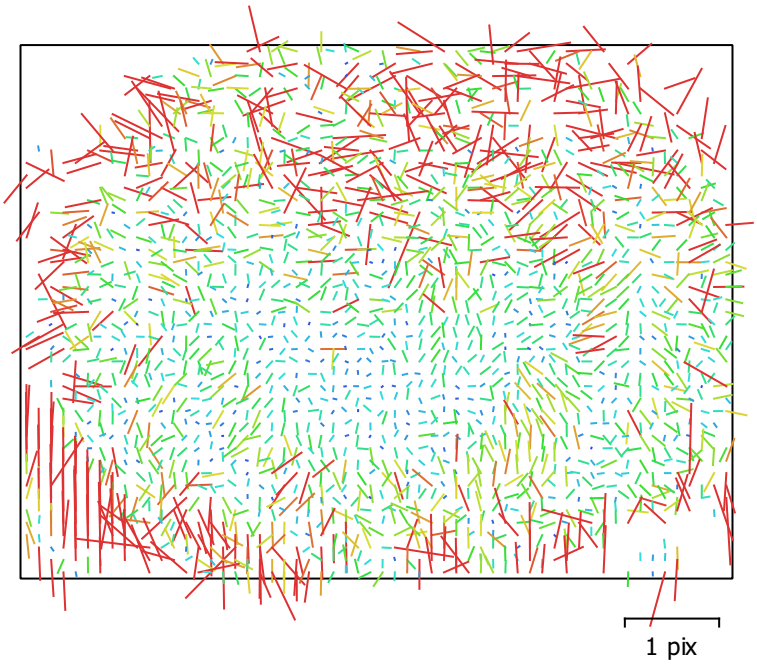

Fig. 2. Image residuals for L2D-20c (12.29mm).

L2D-20c (12.29mm)

6 images

Type	Resolution	Focal Length	Pixel Size
Frame	**5280 x 3956**	**12.29 mm**	**3.36 x 3.36 µm**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**3705.47**	0.15	1.00	-0.14	-0.87	-0.37	0.31	-0.26	-0.03	-0.09
Cx	**-25.4343**	0.084		1.00	0.16	0.01	-0.01	0.00	0.95	-0.02
Cy	**3.21237**	0.12			1.00	0.14	-0.12	0.09	0.03	0.38
K1	**0.0182231**	0.0001				1.00	-0.97	0.91	-0.01	-0.01
K2	**-0.0535608**	0.00035					1.00	-0.98	0.01	0.01
K3	**0.076651**	0.00036						1.00	-0.01	-0.02
P1	**0.000300565**	9.1e-06							1.00	-0.05
P2	**-0.000237427**	4.9e-06								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Calibration

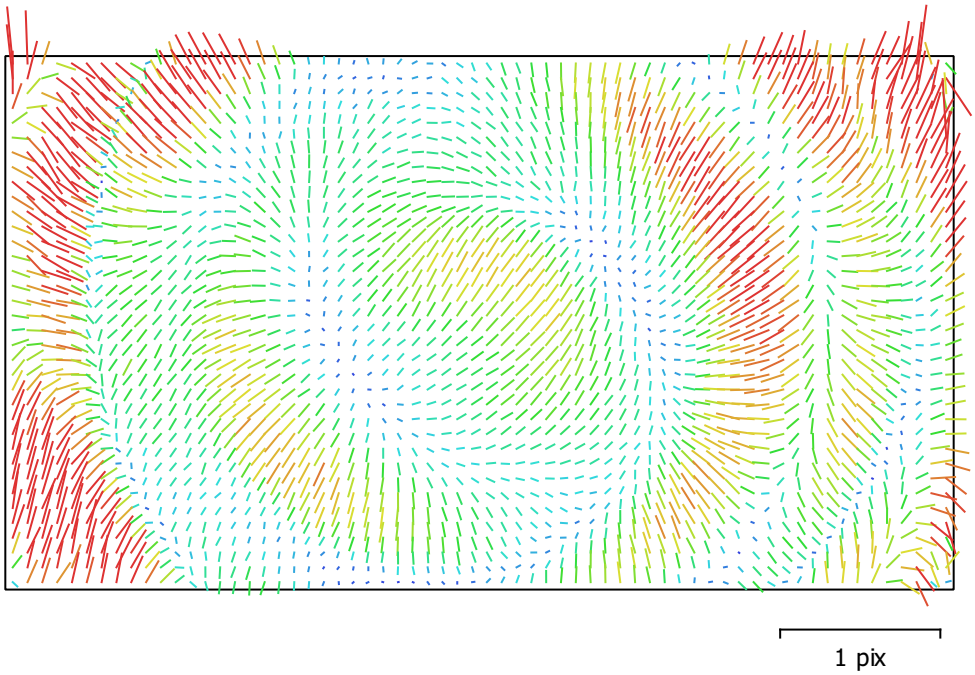

Fig. 3. Image residuals for L2D-20c (12.29mm).

L2D-20c (12.29mm)

966 images

Type	Resolution	Focal Length	Pixel Size
Frame	**5280 x 2970**	**12.29 mm**	**3.66 x 3.66 µm**

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	**3706.36**	0.0098	1.00	0.02	-0.59	-0.11	0.14	-0.10	0.04	-0.20
Cx	**-26.2456**	0.015		1.00	0.06	-0.02	0.02	-0.02	0.93	0.06
Cy	**4.7796**	0.014			1.00	-0.08	0.04	-0.05	0.04	0.72
K1	**0.0223739**	7.9e-06				1.00	-0.97	0.91	-0.01	-0.08
K2	**-0.0740341**	3e-05					1.00	-0.98	0.02	0.04
K3	**0.102765**	3.3e-05						1.00	-0.02	-0.05
P1	**0.000136643**	1.2e-06							1.00	0.07
P2	**-0.000244866**	7.3e-07								1.00

Table 3. Calibration coefficients and correlation matrix.

Camera Locations

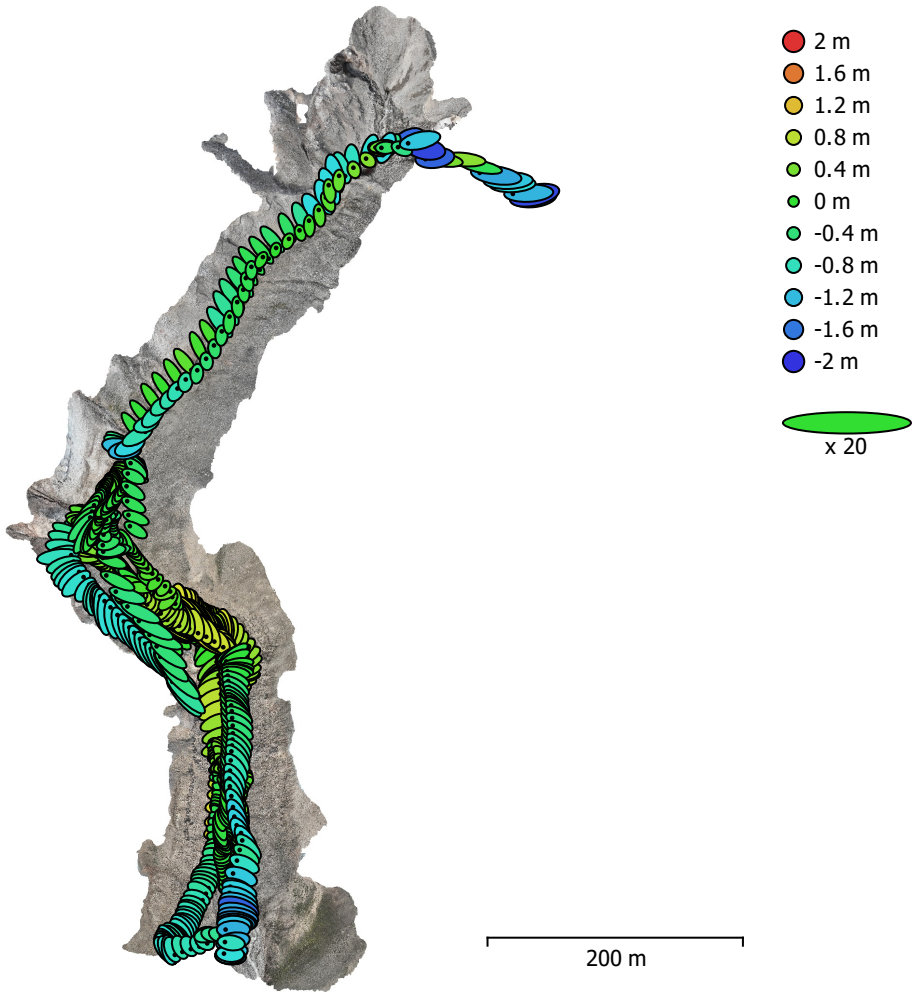

Fig. 4. Camera locations and error estimates.
Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.
Estimated camera locations are marked with a black dot.

X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total error (cm)
54.4548	43.0657	53.2598	69.4261	87.5019

Table 4. Average camera location error.
X - Longitude, Y - Latitude, Z - Altitude.

Digital Elevation Model

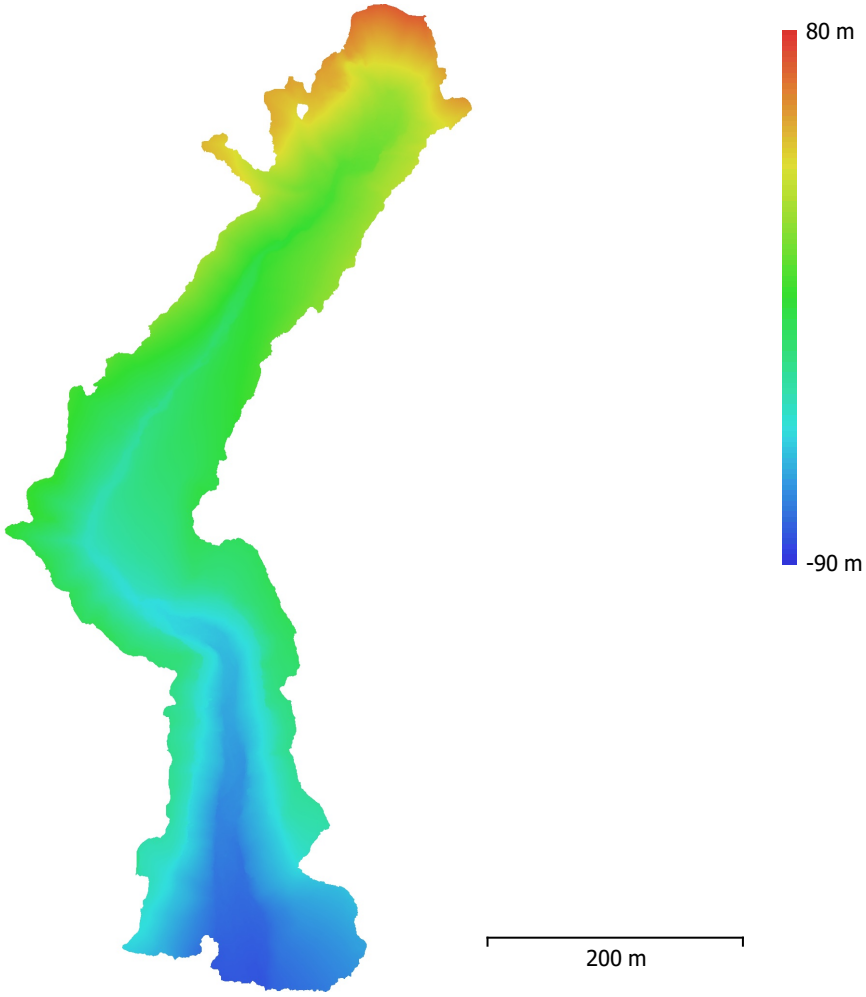

Fig. 5. Reconstructed digital elevation model.

Resolution:	3.48 cm/pix
Point density:	824 points/m²

Processing Parameters

General	
Cameras	972
Aligned cameras	972
Coordinate system	WGS 84 (EPSG::4326)
Rotation angles	Yaw, Pitch, Roll
Point Cloud	
Points	937,199 of 6,892,351
RMS reprojection error	0.1461 (0.301193 pix)
Max reprojection error	0.3 (2.22685 pix)
Mean key point size	2.0099 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	3.64585
Alignment parameters	
Accuracy	Highest
Generic preselection	Yes
Reference preselection	No
Key point limit	60,000
Tie point limit	0
Exclude stationary tie points	Yes
Guided image matching	No
Adaptive camera model fitting	No
Matching time	22 minutes 13 seconds
Matching memory usage	2.01 GB
Alignment time	1 hours 5 minutes
Alignment memory usage	2.45 GB
Optimization parameters	
Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	2 minutes 11 seconds
Date created	2022:08:28 14:44:37
Software version	1.7.2.12040
File size	424.73 MB
Depth Maps	
Count	966
Depth maps generation parameters	
Quality	Medium
Filtering mode	Mild
Processing time	11 minutes 57 seconds
Memory usage	1.09 GB
Date created	2022:08:29 08:02:42
Software version	1.7.2.12040
File size	1.50 GB
Dense Point Cloud	
Points	78,709,229
Point colors	3 bands, uint8
Depth maps generation parameters	
Quality	Medium
Filtering mode	Mild
Processing time	11 minutes 57 seconds

Memory usage	1.09 GB
Dense cloud generation parameters	
Processing time	55 minutes 4 seconds
Memory usage	7.45 GB
Date created	2022:08:29 08:57:46
Software version	1.7.2.12040
File size	1.96 GB
Model	
Faces	5,993,224
Vertices	2,997,758
Vertex colors	3 bands, uint8
Texture	4,096 x 4,096 x 10, 4 bands, uint8
Depth maps generation parameters	
Quality	Medium
Filtering mode	Mild
Processing time	11 minutes 57 seconds
Memory usage	1.09 GB
Reconstruction parameters	
Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Enabled
Strict volumetric masks	No
Processing time	33 minutes 55 seconds
Memory usage	10.86 GB
Texturing parameters	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	4,096
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	1 minutes 22 seconds
UV mapping memory usage	3.17 GB
Blending time	11 minutes 2 seconds
Blending memory usage	6.08 GB
Blending GPU memory usage	4.70 GB
Date created	2022:09:06 16:45:59
Software version	1.8.4.14856
File size	492.53 MB
Tiled Model	
Texture	3 bands, uint8
Depth maps generation parameters	
Quality	Medium
Filtering mode	Mild
Processing time	11 minutes 57 seconds
Memory usage	1.09 GB
Reconstruction parameters	
Source data	Dense cloud
Tile size	256
Face count	Medium
Enable ghosting filter	No
Processing time	15 hours 51 minutes
Memory usage	8.09 GB
Date created	2022:09:12 02:23:08
Software version	1.8.4.14856
File size	1.33 GB
System	

Software name	Agisoft Metashape Professional
Software version	1.8.4 build 14856
OS	Windows 64 bit
RAM	127.78 GB
CPU	Intel(R) Core(TM) i9-9900K CPU @ 3.60GHz
GPU(s)	GeForce RTX 2080