

Piz Minschun - Tasna Detachment System

Processing Report

Reconstruction uncertainty: 15

Projection Accuracy: 3

Reprojection Error: 0.3

Dense Cloud Confidence: 4-255

Mesh connected component size: 99%

23 December 2022



Survey Data

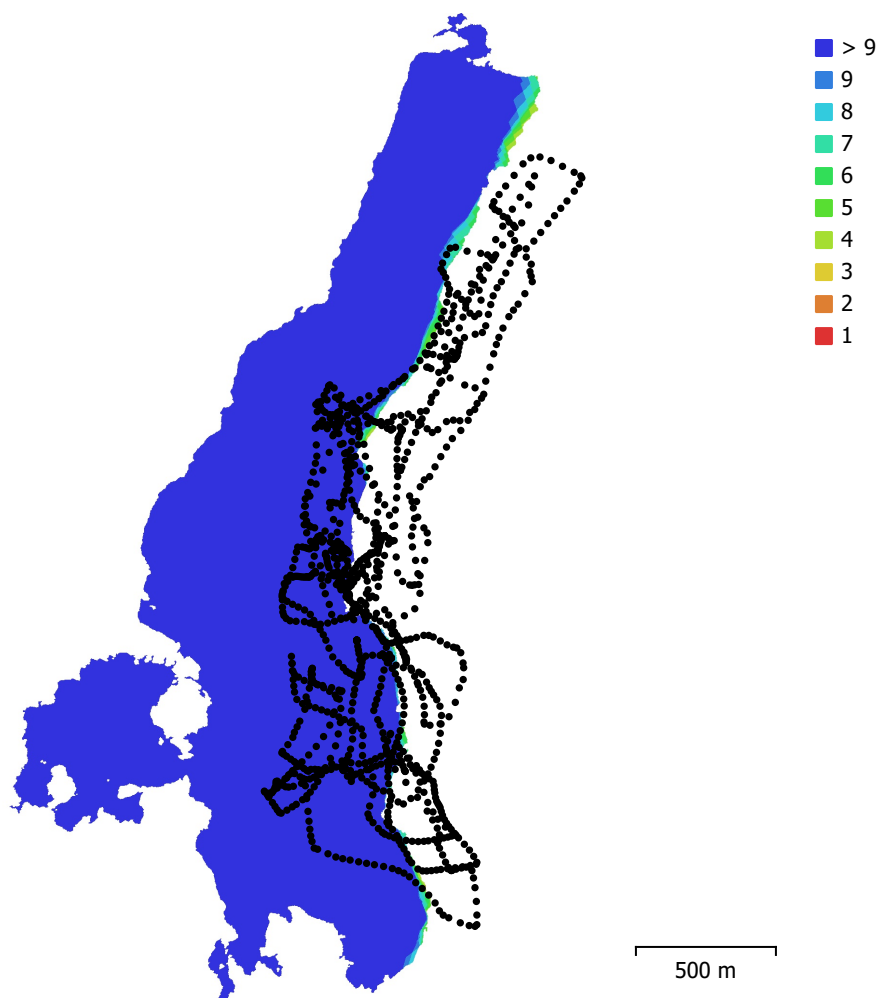


Fig. 1. Camera locations and image overlap.

Number of images:	1,220	Camera stations:	1,220
Flying altitude:	318 m	Tie points:	519,242
Ground resolution:	8.74 cm/pix	Projections:	1,594,713
Coverage area:	2.24 km ²	Reprojection error:	0.34 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
L1D-20c (10.26mm)	5472 x 3648	10.26 mm	2.41 x 2.41 μ m	No

Table 1. Cameras.

Camera Calibration

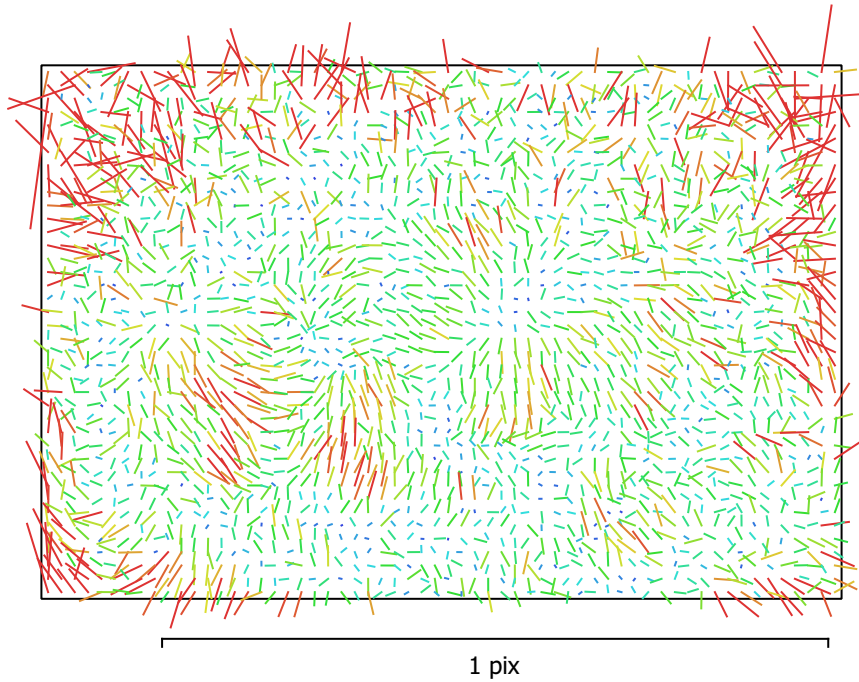


Fig. 2. Image residuals for L1D-20c (10.26mm).

L1D-20c (10.26mm)

1220 images

Type	Resolution	Focal Length	Pixel Size
Frame	5472 x 3648	10.26 mm	2.41 x 2.41 μm

	Value	Error	F	Cx	Cy	K1	K2	K3	P1	P2
F	4321.14	0.02	1.00	0.01	-0.34	-0.33	0.33	-0.30	0.01	-0.22
Cx	-21.9202	0.042		1.00	-0.03	-0.01	0.01	-0.01	0.96	-0.06
Cy	-29.1185	0.034			1.00	-0.04	0.01	-0.01	-0.04	0.77
K1	0.00397051	2.9e-05				1.00	-0.96	0.89	-0.01	-0.07
K2	0.017492	0.00012					1.00	-0.98	0.01	0.03
K3	-0.0182483	0.00015						1.00	-0.01	-0.02
P1	9.3883e-05	3.5e-06							1.00	-0.08
P2	-0.00264964	2.1e-06								1.00

Table 2. Calibration coefficients and correlation matrix.

Camera Locations

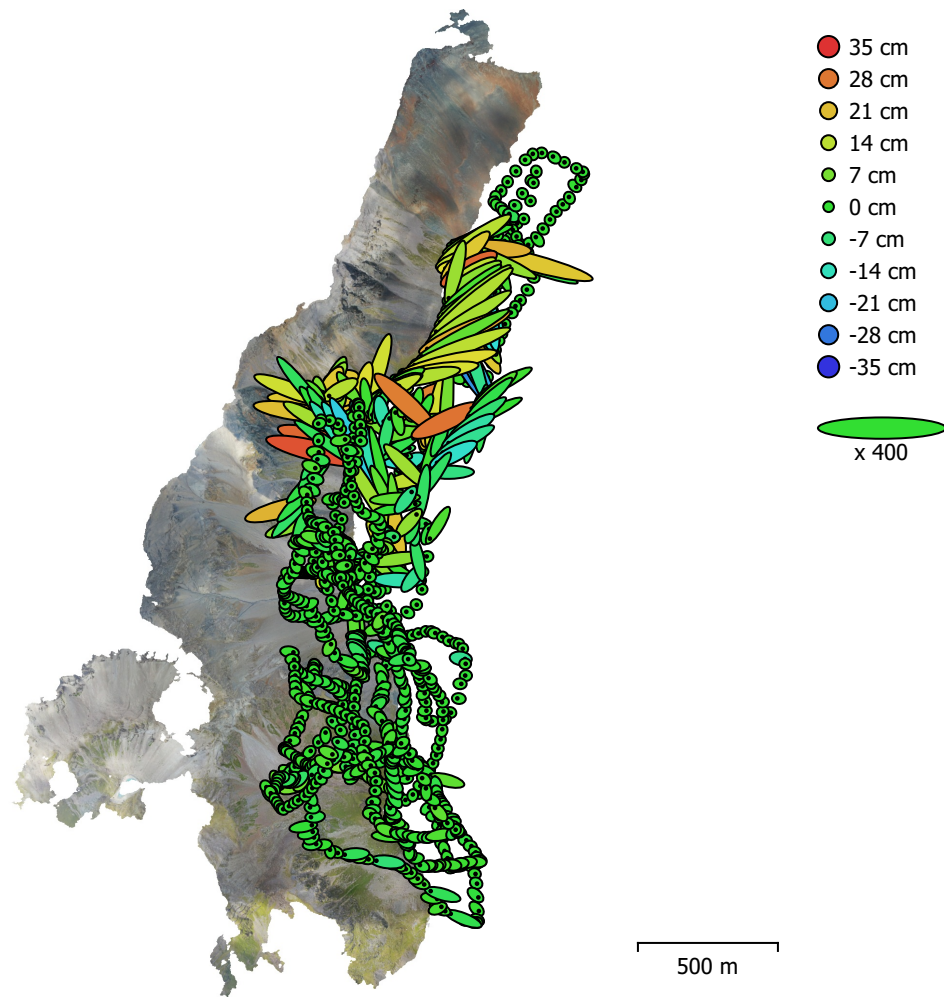


Fig. 3. Camera locations and error estimates.

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 (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total error (cm)
12.6774	12.0197	4.84858	17.4696	18.13

Table 3. Average camera location error.

X - Easting, Y - Northing, Z - Altitude.

Digital Elevation Model

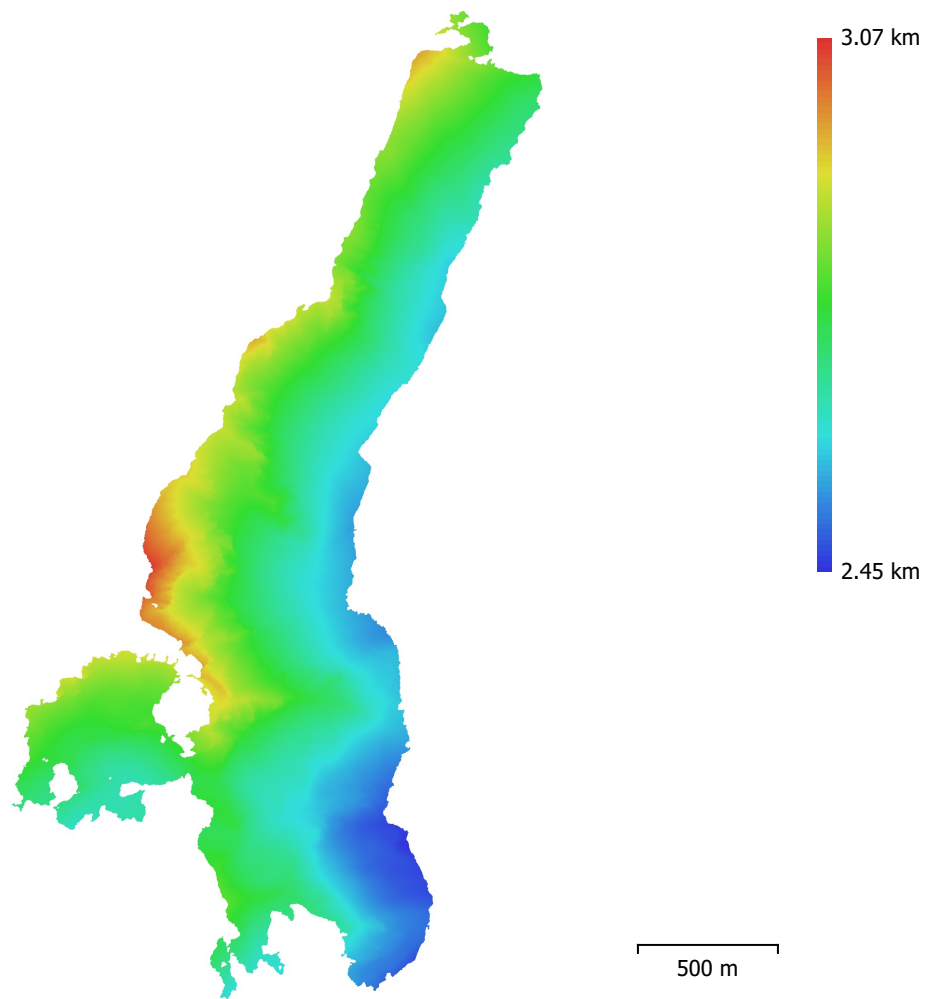


Fig. 4. Reconstructed digital elevation model.

Resolution: 17.5 cm/pix
Point density: 32.7 points/m²

Processing Parameters

General

Cameras	1220
Aligned cameras	1220
Coordinate system	CH1903+ / LV95 (EPSG::2056)
Rotation angles	Yaw, Pitch, Roll

Point Cloud

Points	519,242 of 7,226,325
RMS reprojection error	0.226013 (0.339915 pix)
Max reprojection error	8.22048 (12.9951 pix)
Mean key point size	1.46743 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	4.77882

Alignment parameters

Accuracy	Highest
Generic preselection	Yes
Reference preselection	Source
Key point limit	60,000
Key point limit per Mpx	1,000
Tie point limit	0
Filter points by mask	Yes
Mask tie points	No
Exclude stationary tie points	Yes
Guided image matching	No
Adaptive camera model fitting	No
Matching time	1 hours 27 minutes
Matching memory usage	2.60 GB
Alignment time	1 hours 10 minutes
Alignment memory usage	3.34 GB

Optimization parameters

Parameters	f, cx, cy, k1-k3, p1, p2
Adaptive camera model fitting	No
Optimization time	35 seconds
Date created	2022:09:28 12:35:51
Software version	1.8.4.14856
File size	559.66 MB

Depth Maps

Count	1218
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Depth maps generation parameters

Quality	High
Filtering mode	Mild
Max neighbors	16
Processing time	2 hours 50 minutes
Memory usage	5.61 GB
Date created	2022:09:28 16:28:17
Software version	1.8.4.14856
File size	9.00 GB

Model

Faces	17,122,113
Vertices	8,571,291

Vertex colors	3 bands, uint8
Texture	4,096 x 4,096 x 40, 4 bands, uint8
Depth maps generation parameters	
Quality	High
Filtering mode	Mild
Max neighbors	16
Processing time	2 hours 50 minutes
Memory usage	5.61 GB
Reconstruction parameters	
Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Disabled
Strict volumetric masks	No
Processing time	1 hours 8 minutes
Memory usage	10.78 GB
Texturing parameters	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	4,096
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	2 minutes 52 seconds
UV mapping memory usage	4.54 GB
Blending time	3 hours 1 minutes
Blending memory usage	45.10 GB
Date created	2022:09:29 08:57:20
Software version	1.8.4.14856
File size	1.39 GB
Tiled Model	
Texture	3 bands, uint8
Reconstruction parameters	
Source data	Mesh
Tile size	256
Face count	High
Enable ghosting filter	No
Processing time	4 hours 55 minutes
Memory usage	7.92 GB
Date created	2022:09:29 14:03:05
Software version	1.8.4.14856
File size	1000.25 MB
Orthomosaic	
Size	21,667 x 40,339
Coordinate system	CH1903+ / LV95 (EPSG::2056)
Colors	3 bands, uint8
Reconstruction parameters	
Blending mode	Mosaic
Surface	Mesh
Enable hole filling	Yes
Enable ghosting filter	Yes
Processing time	3 hours 45 minutes
Memory usage	86.76 GB
Date created	2022:11:18 16:09:24
Software version	1.8.4.14856
File size	29.43 GB
System	
Software name	Agisoft Metashape Professional

Software version	1.8.4 build 14856
OS	Windows 64 bit
RAM	127.71 GB
CPU	Intel(R) Xeon(R) Gold 5122 CPU @ 3.60GHz
GPU(s)	Quadro P5000