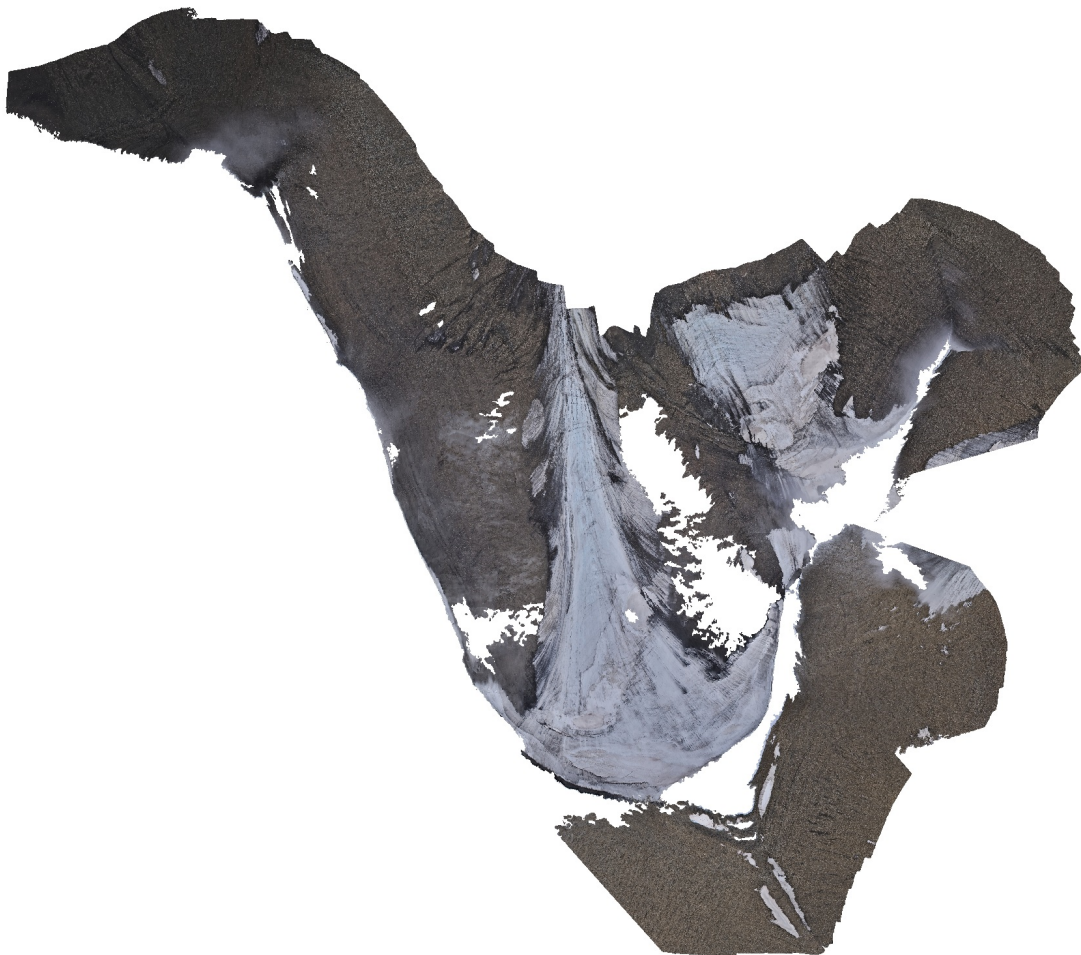


# Ringdalsfjellet

Dense Cloud Confidence 2-255

Filter component size 99%

28 February 2022



# Survey Data

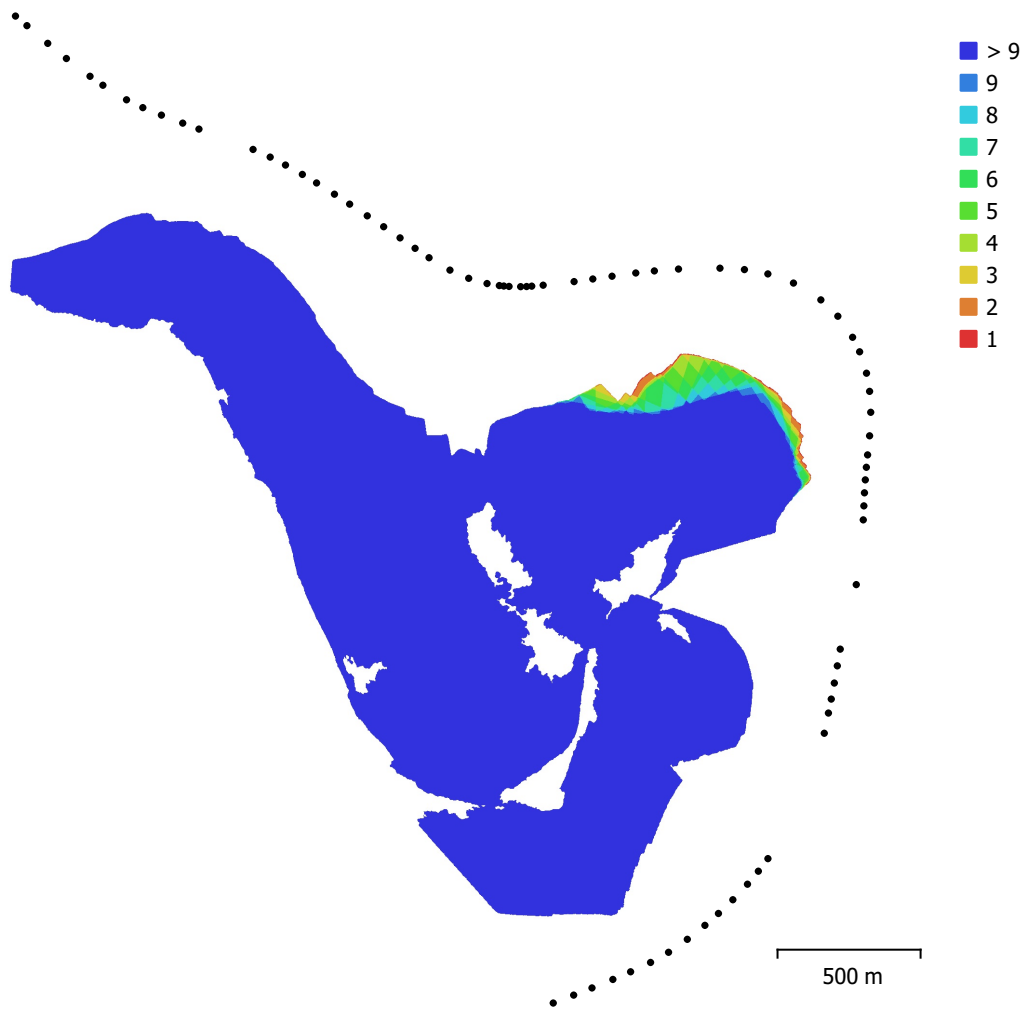


Fig. 1. Camera locations and image overlap.

Number of images:	79	Camera stations:	78
Flying altitude:	560 m	Tie points:	192,873
Ground resolution:	5.49 cm/pix	Projections:	540,522
Coverage area:	2.64 km <sup>2</sup>	Reprojection error:	10.4 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
NIKON D800 (50mm)	7374 x 4924	50 mm	4.88 x 4.88 μm	No
NIKON D800 (50mm)	7374 x 4924	50 mm	4.88 x 4.88 μm	No

Table 1. Cameras.

# Camera Calibration

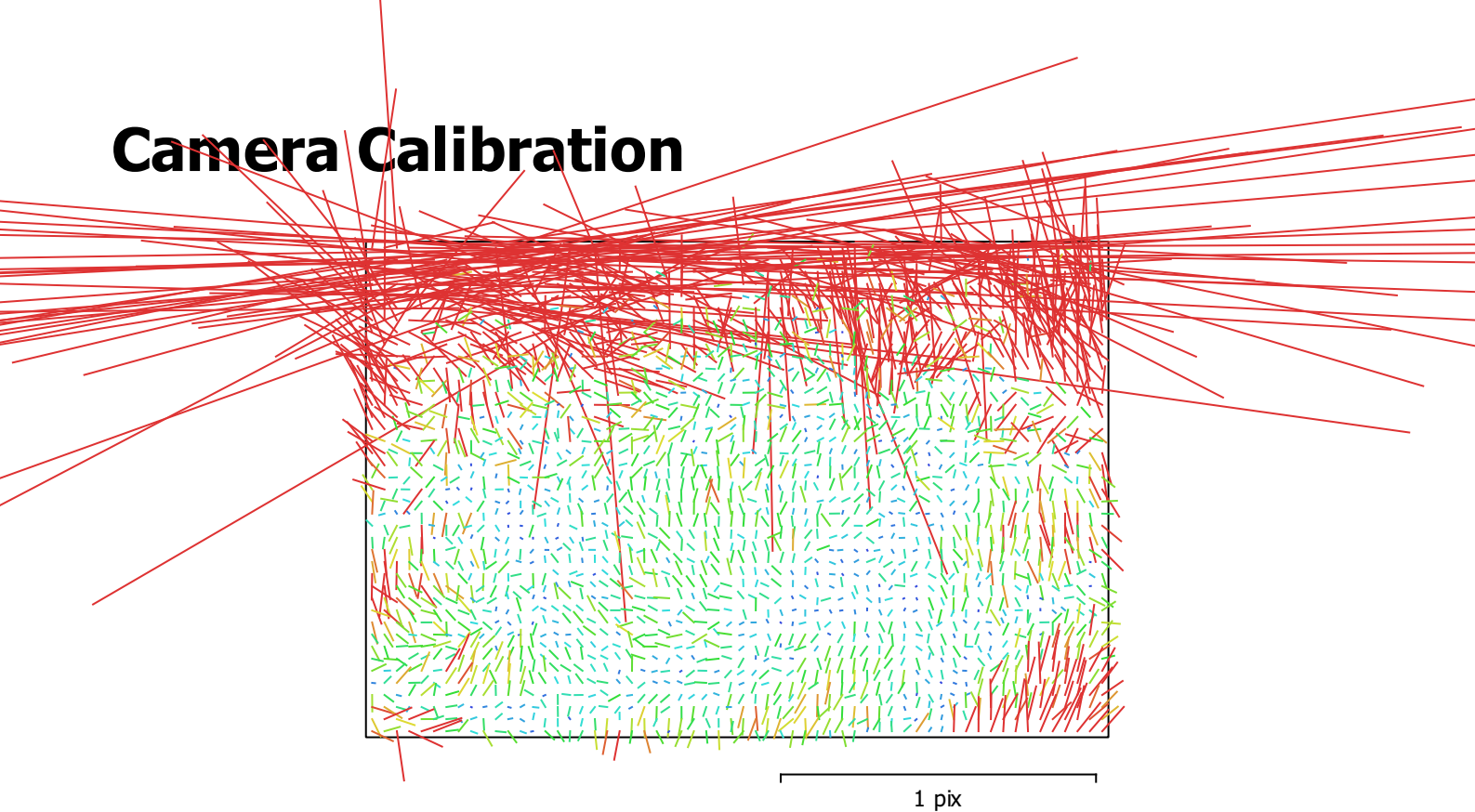


Fig. 2. Image residuals for NIKON D800 (50mm).

## NIKON D800 (50mm)

59 images

Type	Resolution	Focal Length	Pixel Size
<b>Frame</b>	<b>7374 x 4924</b>	<b>50 mm</b>	<b>4.88 x 4.88 <math>\mu\text{m}</math></b>
F:	10489		
Cx:	0	B1:	-0.722827
Cy:	0	B2:	0
K1:	-0.114383	P1:	0.000125264
K2:	0.0649279	P2:	-0.000175388
K3:	0.243991	P3:	0
K4:	0	P4:	0

# Camera Calibration

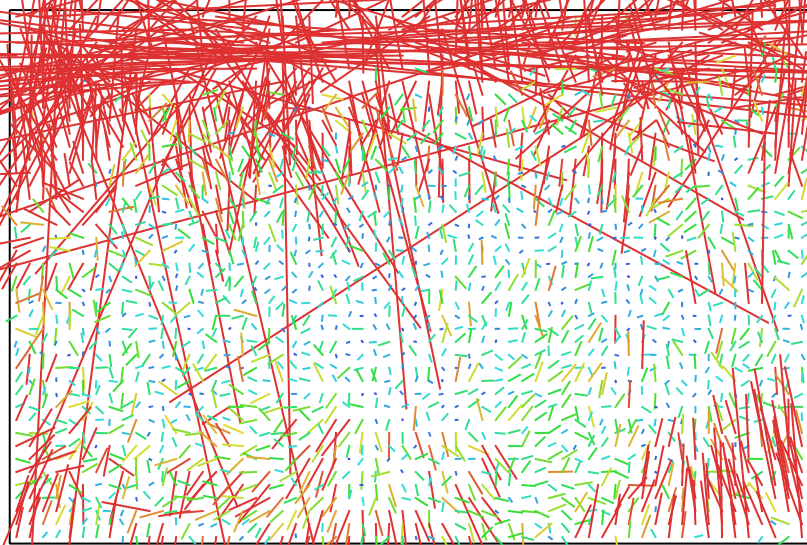


Fig. 3. Image residuals for NIKON D800 (50mm).

## NIKON D800 (50mm)

20 images

Type  
Frame

Resolution  
**7374 x 4924**

Focal Length  
**50 mm**

Pixel Size  
**4.88 x 4.88  $\mu\text{m}$**

	Value	Error	K1	K2	P1	P2
<b>F</b>	<b>10246.8</b>					
<b>K1</b>	<b>-0.114667</b>	0.0001	1.00	-0.81	0.06	-0.26
<b>K2</b>	<b>0.116425</b>	0.00043		1.00	-0.05	0.06
<b>P1</b>	<b>0.00132066</b>	3.4e-05			1.00	-0.16
<b>P2</b>	<b>0.00134917</b>	2e-05				1.00

Table 2. Calibration coefficients and correlation matrix.

# Camera Locations

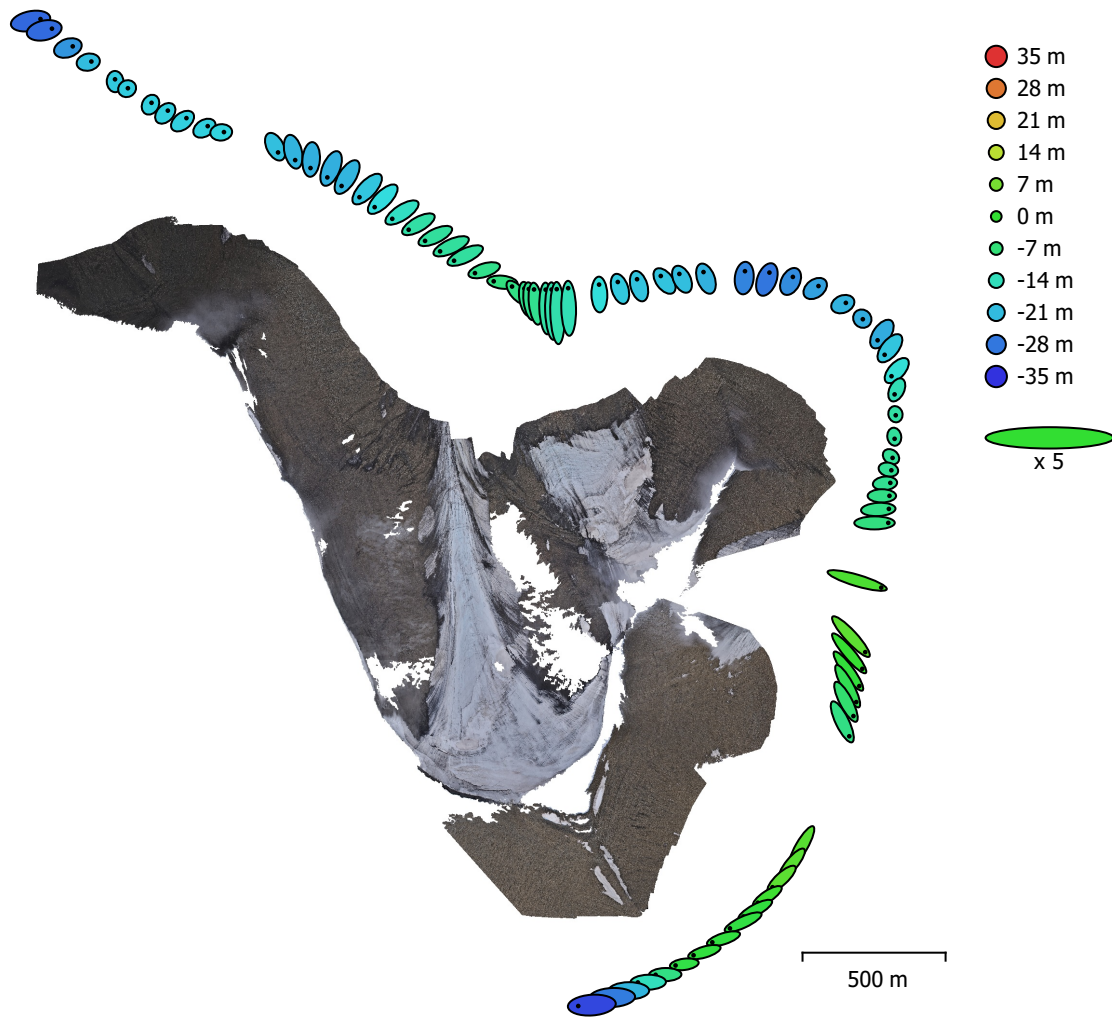


Fig. 4. Camera locations and error estimates.

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 (m)	Y error (m)	Z error (m)	XY error (m)	Total error (m)
10.7463	11.7025	16.4947	15.8881	22.9021

Table 3. Average camera location error.  
 X - Easting, Y - Northing, Z - Altitude.

# Digital Elevation Model

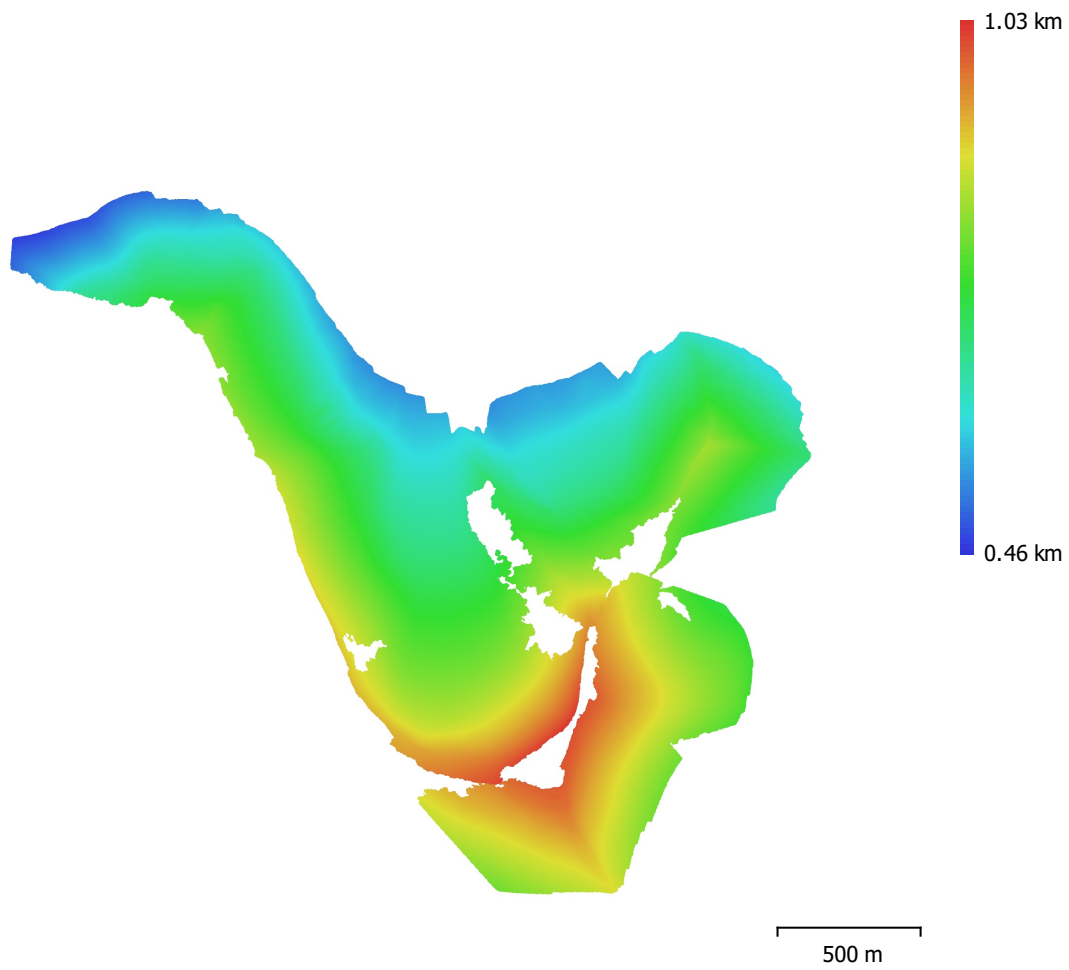


Fig. 5. Reconstructed digital elevation model.

Resolution: 13.1 cm/pix  
Point density: 58.6 points/m<sup>2</sup>

# Processing Parameters

## General

Cameras	79
Aligned cameras	78
Coordinate system	WGS 84 / UTM zone 33N (EPSG::32633)
Rotation angles	Yaw, Pitch, Roll

## Point Cloud

Points	192,873 of 210,804
RMS reprojection error	1.80319 (10.4417 pix)
Max reprojection error	919.586 (5456.71 pix)
Mean key point size	2.53573 pix
Point colors	3 bands, uint8
Key points	No
Average tie point multiplicity	2.81866
File size	14.09 MB

## Depth Maps

Count	77
<b>Depth maps generation parameters</b>	
Quality	Ultra High
Filtering mode	Aggressive
Processing time	25 minutes 17 seconds
Memory usage	13.48 GB
Software version	1.6.4.10928
File size	1.95 GB

## Dense Point Cloud

Points	764,217,498
Point colors	3 bands, uint8
<b>Depth maps generation parameters</b>	
Quality	Ultra High
Filtering mode	Aggressive
Processing time	25 minutes 17 seconds
Memory usage	13.48 GB
<b>Dense cloud generation parameters</b>	
Processing time	46 minutes 36 seconds
Memory usage	27.08 GB
Software version	1.6.4.10928
File size	14.26 GB

## Model

Faces	4,985,486
Vertices	2,511,476
Vertex colors	3 bands, uint8
Texture	4,096 x 4,096 x 10, 4 bands, uint8
<b>Depth maps generation parameters</b>	
Quality	Ultra High
Filtering mode	Aggressive
Processing time	25 minutes 17 seconds
Memory usage	13.48 GB
<b>Reconstruction parameters</b>	
Surface type	Arbitrary
Source data	Dense cloud
Interpolation	Enabled



Strict volumetric masks	No
Processing time	2 hours 42 minutes
Memory usage	107.38 GB
<b>Texturing parameters</b>	
Mapping mode	Generic
Blending mode	Mosaic
Texture size	4,096
Enable hole filling	Yes
Enable ghosting filter	Yes
UV mapping time	13 minutes 48 seconds
UV mapping memory usage	3.20 GB
Blending time	3 minutes 19 seconds
Blending memory usage	6.77 GB
Software version	1.7.2.12040
File size	456.51 MB
<b>Tiled Model</b>	
Texture	3 bands, uint8
<b>Depth maps generation parameters</b>	
Quality	Ultra High
Filtering mode	Aggressive
Processing time	25 minutes 17 seconds
Memory usage	13.48 GB
<b>Reconstruction parameters</b>	
Source data	Dense cloud
Tile size	256
Face count	Medium
Enable ghosting filter	No
Processing time	13 hours 45 minutes
Memory usage	9.60 GB
Software version	1.7.2.12040
File size	1.50 GB
<b>System</b>	
Software name	Agisoft Metashape Professional
Software version	1.7.2 build 12040
OS	Windows 64 bit
RAM	127.78 GB
CPU	Intel(R) Core(TM) i9-9900K CPU @ 3.60GHz
GPU(s)	GeForce RTX 2080