Intro to 3D coral reef survey

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National Sun-Yet Sen University

Agisoft

Features Support Community Downloads Buy About English

Downloads

Installer System Requirements User Manuals Geoids Sample Data

Agisoft Metashape 2.1.4

This is a previous released version.

Professional Edition

Windows
macOS
Linux

Standard Edition

Windows
macOS
Linux

Python 3 Module

Python module for the previous Metashape version.

Windows
macOS
Linux

Agisoft Viewer

A free stand-alone software to visualize 3D data.
Measure distances, areas, volumes; calculate profiles; draw polylines, polygons. Agisoft Viewer Tutorials.

Windows
macOS
Linux

https://www.agisoft.com/downloads/installer/

Downloads

RAM

In most cases the maximum project size that can be processed on a machine is limited by the amount of RAM available. Therefore, it is important to select a platform allowing to install the amount of RAM required for the projects to be processed. See Memory Requirements article for information on typical RAM consumption at common processing steps.

CPU

Complex geometry reconstruction algorithms of the photogrammetric software require a significant amount of computational resources for optimal data processing. Hence, a high speed multi core CPU (6+ cores, 3 GHz+) is recommended.

GPU

Agisoft Metashape supports GPU acceleration for most resource-intensive processing steps, thanks to this it is possible to speed up the processing using high-end OpenCL or CUDA compatible graphics cards with high number of unified shaders (CUDA cores or shader processor units).

Basic Configuration

up to 32 GB RAM (Laptop or Desktop)

CPU: 4 - 12 core Intel, AMD or Apple M1/M2 processor, 2.0+ GHz

RAM: 16 - 32 GB

GPU: NVIDIA or AMD GPU with 1024+ unified shaders
(For example: GeForce RTX 2060 or Radeon RX 5600M)

Advanced Configuration

up to 128 GB RAM (Desktop or Workstation)

CPU: 6 - 32 core Intel or AMD processor, 3.0+ GHz
(For example: Intel i7 / i9 or AMD Ryzen 7 / Ryzen 9 / Threadripper)

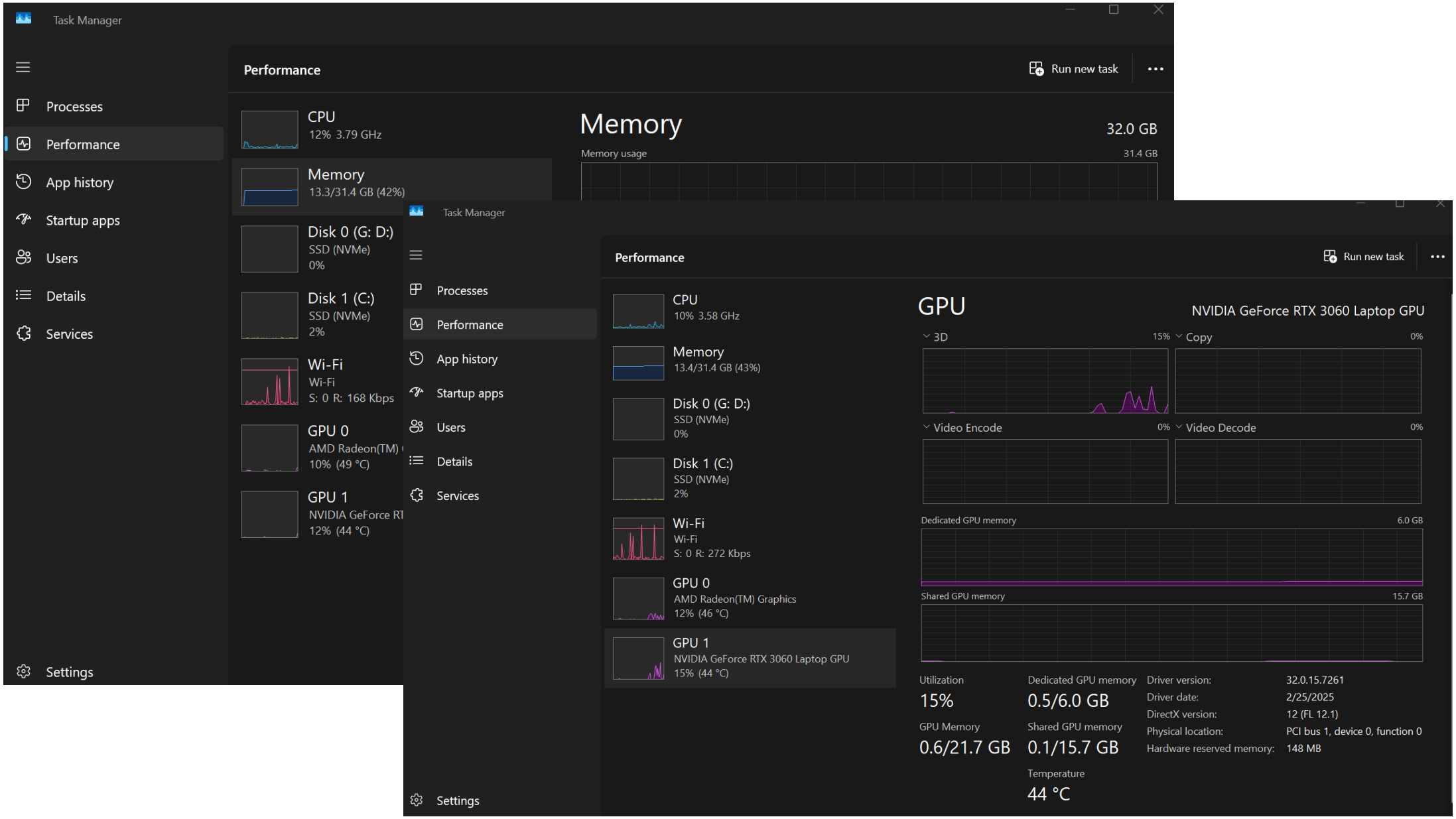
RAM: 32 - 128 GB

GPU: 1 - 2 NVIDIA or AMD GPUs with 1920+ unified shaders
(For example: GeForce RTX 3080 or Radeon RX 6800 XT)

Extreme Configuration

128+ GB RAM (Server)

For processing of extremely large data sets a dual-socket Intel Xeon or AMD EPYC based servers (3.0+ GHz) with Quadro, Tesla, Radeon Pro or Instinct GPUs can be used.


Task Manager
Processes
Performance
App history
Startup apps
Users
Details
Services
Settings
Performance
Run new task
CPU
12% 3.79 GHz
Memory
13.3/31.4 GB (42%)
Disk 0 (G: D:)
SSD (NVMe)
0%
Disk 1 (C:)
SSD (NVMe)
2%
Wi-Fi
Wi-Fi
S: 0 R: 168 Kbps
GPU 0
AMD Radeon(TM)
10% (49 °C)
GPU 1
NVIDIA GeForce RT
12% (44 °C)
Memory
32.0 GB
Memory usage
31.4 GB
Task Manager
Processes
Performance
App history
Startup apps
Users
Details
Services
Settings
Performance
Run new task
CPU
10% 3.58 GHz
Memory
13.4/31.4 GB (43%)
Disk 0 (G: D:)
SSD (NVMe)
0%
Disk 1 (C:)
SSD (NVMe)
2%
Wi-Fi
Wi-Fi
S: 0 R: 272 Kbps
GPU 0
AMD Radeon(TM) Graphics
12% (46 °C)
GPU 1
NVIDIA GeForce RTX 3060 Laptop GPU
15% (44 °C)
GPU
NVIDIA GeForce RTX 3060 Laptop GPU
3D
15%
Copy
0%
Video Encode
0%
Video Decode
0%
Dedicated GPU memory
6.0 GB
Shared GPU memory
15.7 GB
Utilization
15%
Dedicated GPU memory
0.5/6.0 GB
GPU Memory
0.6/21.7 GB
Shared GPU memory
0.1/15.7 GB
Temperature
44 °C
Driver version:
32.0.15.7261
Driver date:
2/25/2025
DirectX version:
12 (FL 12.1)
Physical location:
PCI bus 1, device 0, function 0
Hardware reserved memory:
148 MB

Untitled — Agisoft Metashape Professional

File Edit View Workflow Model Photo Ortho Tools Help

Workspace

Workspace (1 chunks, 0 cameras)

Chunk 1 (0 cameras)

工作面板

Workspace Reference

Model Ortho

Perspective 30°

Snap: Axis, 3D

視覺化面板

Traceball

Y

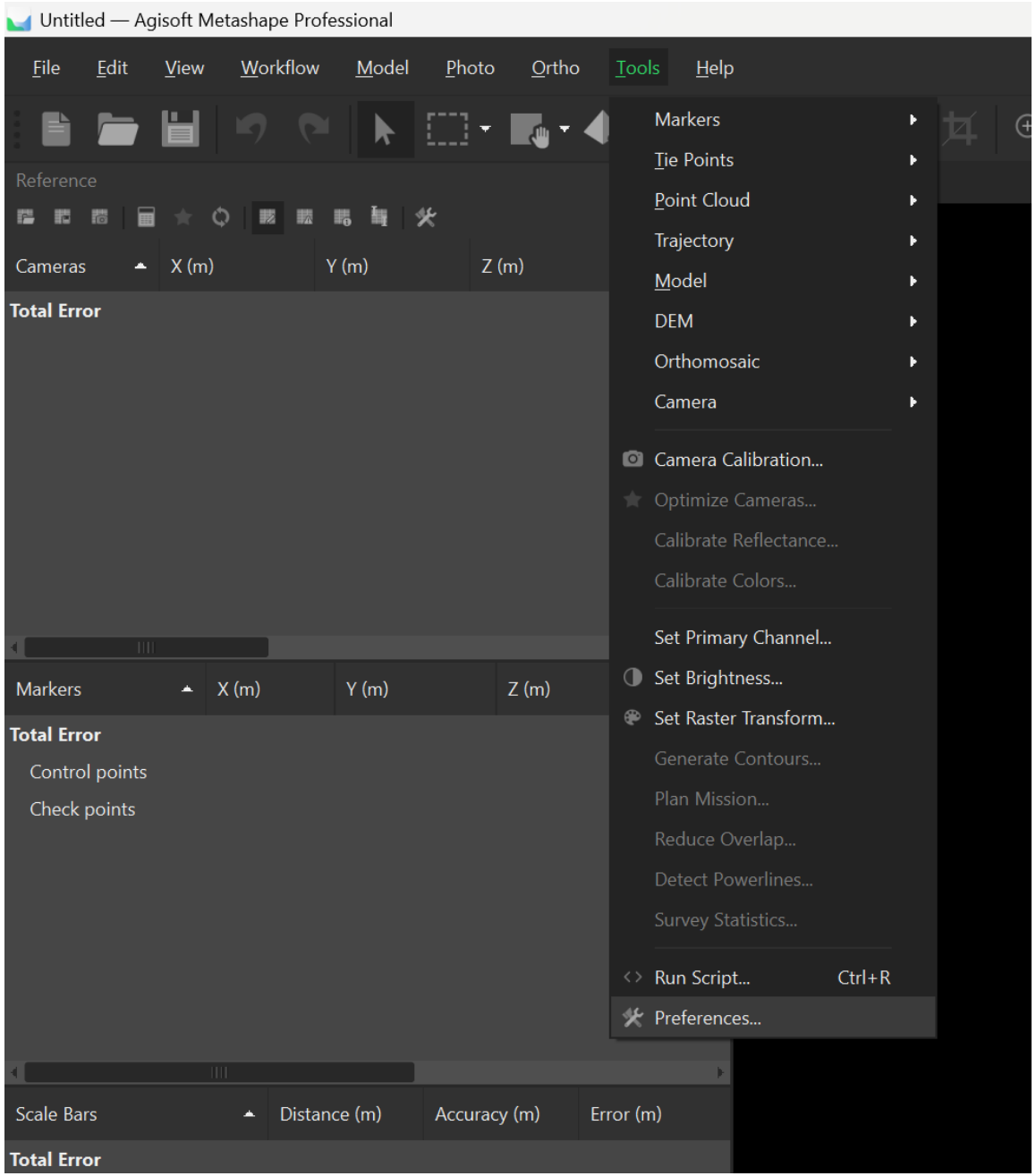
Z X

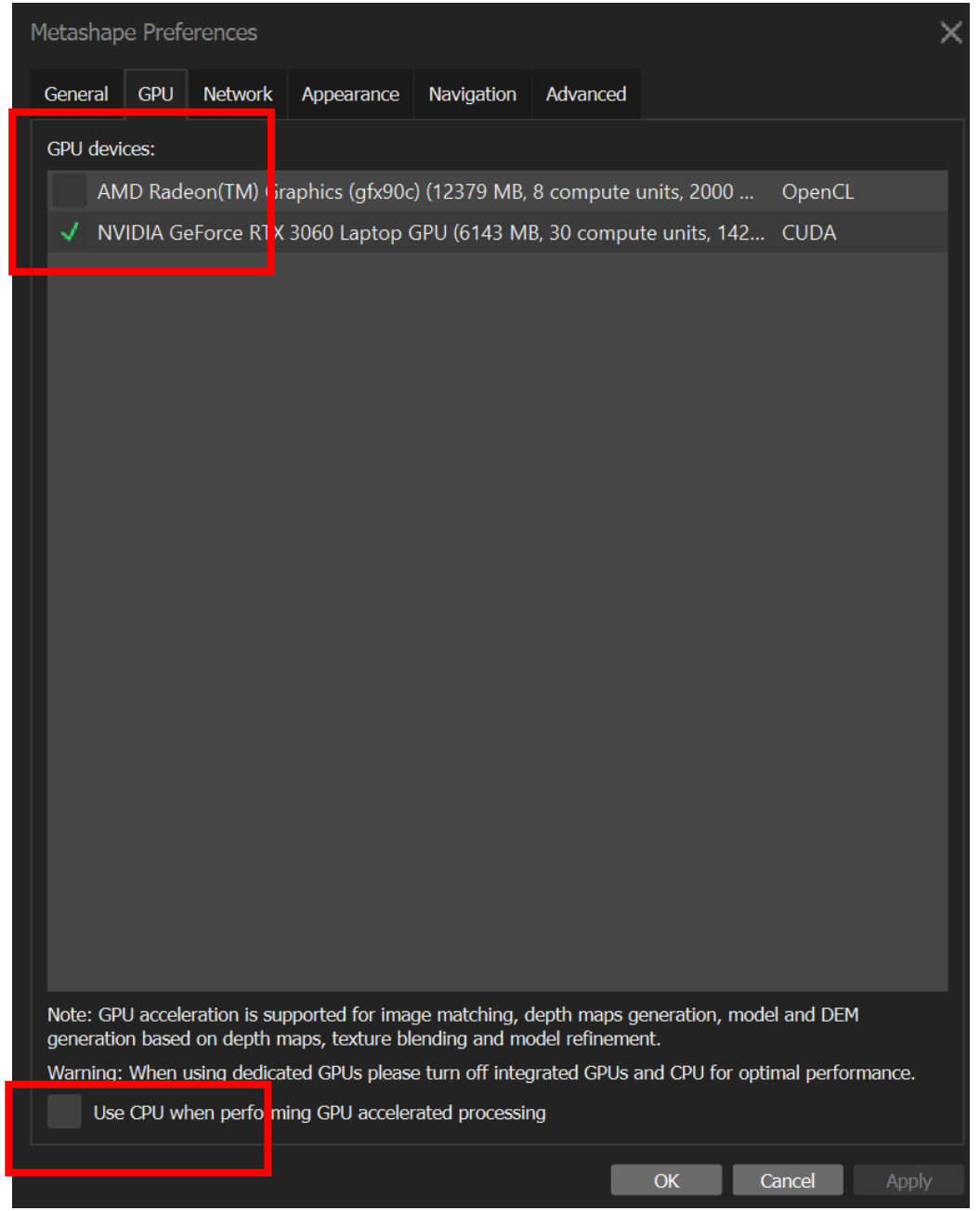
Photos

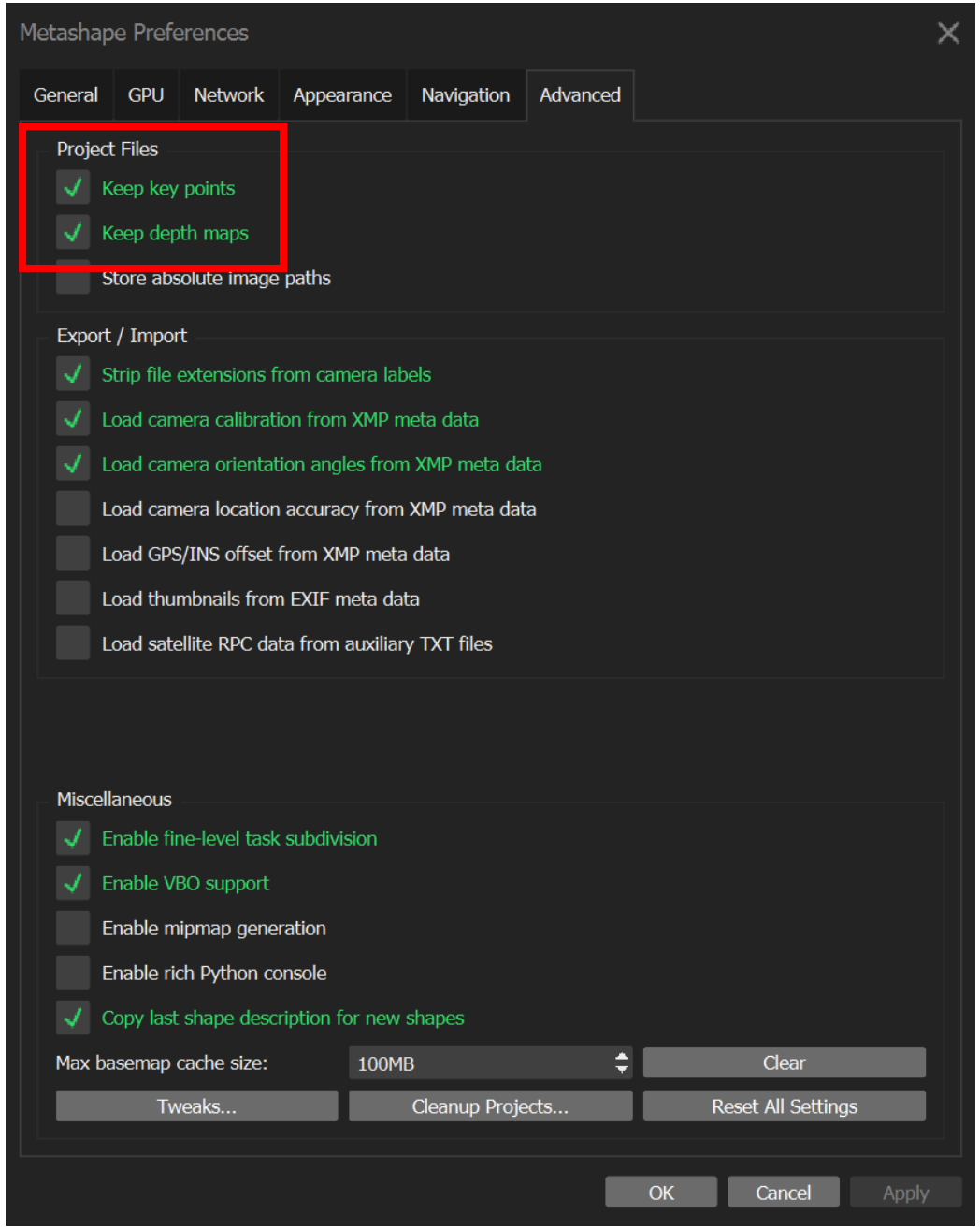
Label Size Aligned Quality Date & time Make Model Focal length Focus ISO Shutter 35mm focal Sensor X res Sensor Y res Orientation (°) Path Ena

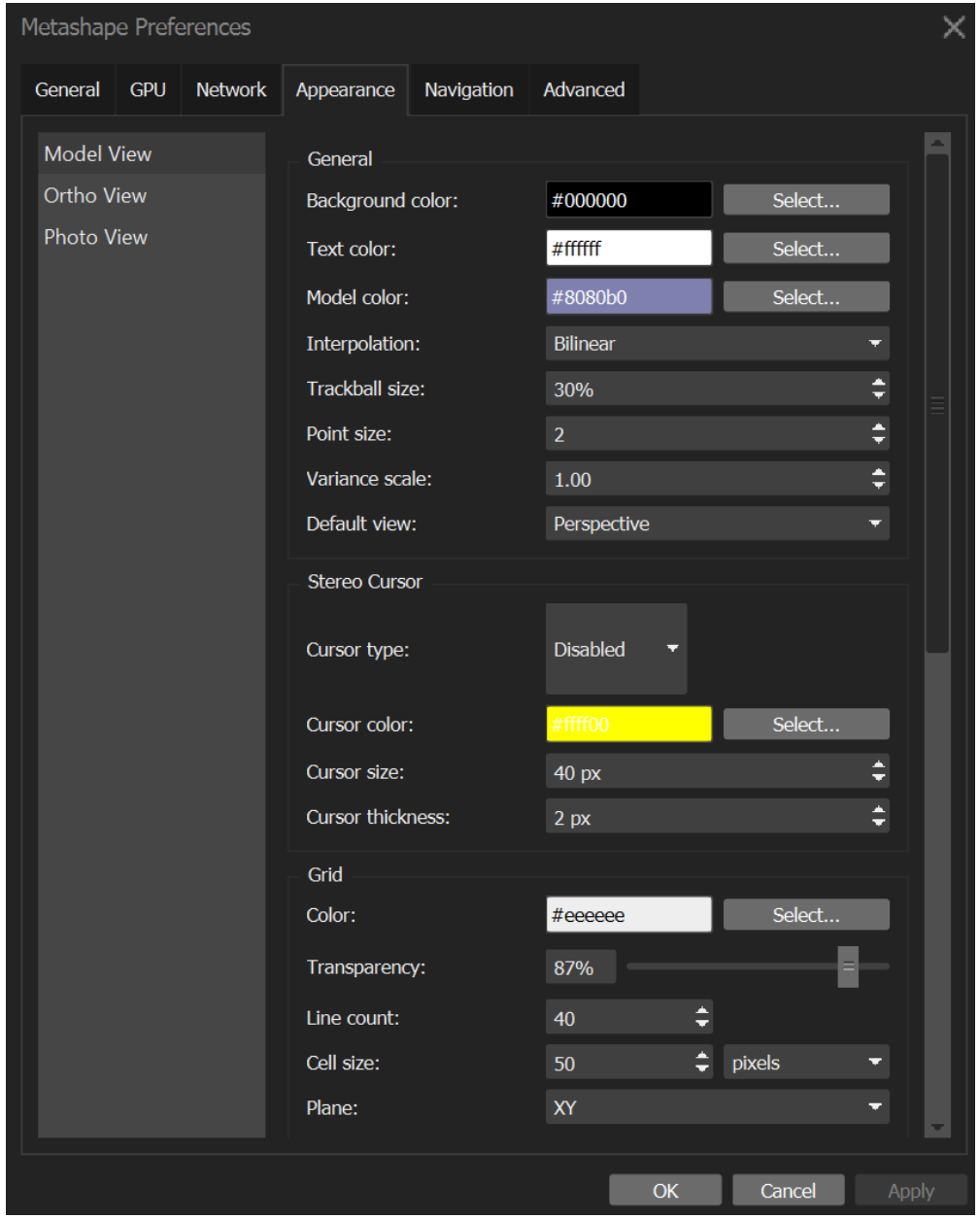
照片匯入區

Photos Console Jobs

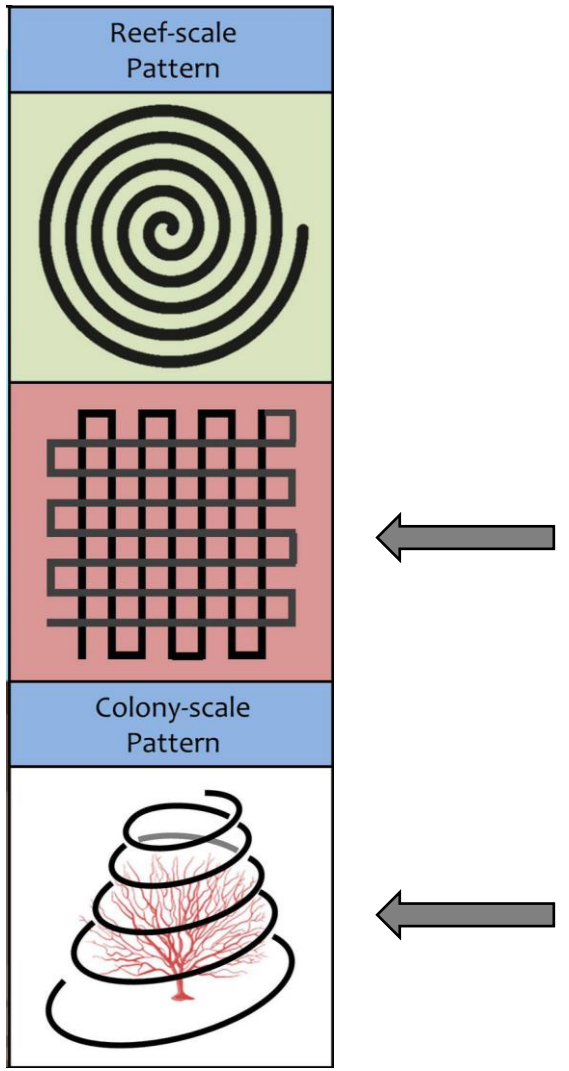

Untitled — Agisoft Metashape Professional
File
Edit
View
Workflow
Model
Photo
Ortho
Tools
Help
Reference
Cameras
X (m)
Y (m)
Z (m)
Total Error
Markers
X (m)
Y (m)
Z (m)
Total Error
Control points
Check points
Scale Bars
Distance (m)
Accuracy (m)
Error (m)
Total Error
Markers
Tie Points
Point Cloud
Trajectory
Model
DEM
Orthomosaic
Camera
Camera Calibration...
Optimize Cameras...
Calibrate Reflectance...
Calibrate Colors...
Set Primary Channel...
Set Brightness...
Set Raster Transform...
Generate Contours...
Plan Mission...
Reduce Overlap...
Detect Powerlines...
Survey Statistics...
Run Script... Ctrl+R
Preferences...


Metashape Preferences
General
GPU
Network
Appearance
Navigation
Advanced
GPU devices:
AMD Radeon(TM) Graphics (gfx90c) (12379 MB, 8 compute units, 2000 ... OpenCL
NVIDIA GeForce RTX 3060 Laptop GPU (6143 MB, 30 compute units, 142... CUDA
Note: GPU acceleration is supported for image matching, depth maps generation, model and DEM generation based on depth maps, texture blending and model refinement.
Warning: When using dedicated GPUs please turn off integrated GPUs and CPU for optimal performance.
Use CPU when performing GPU accelerated processing
OK
Cancel
Apply

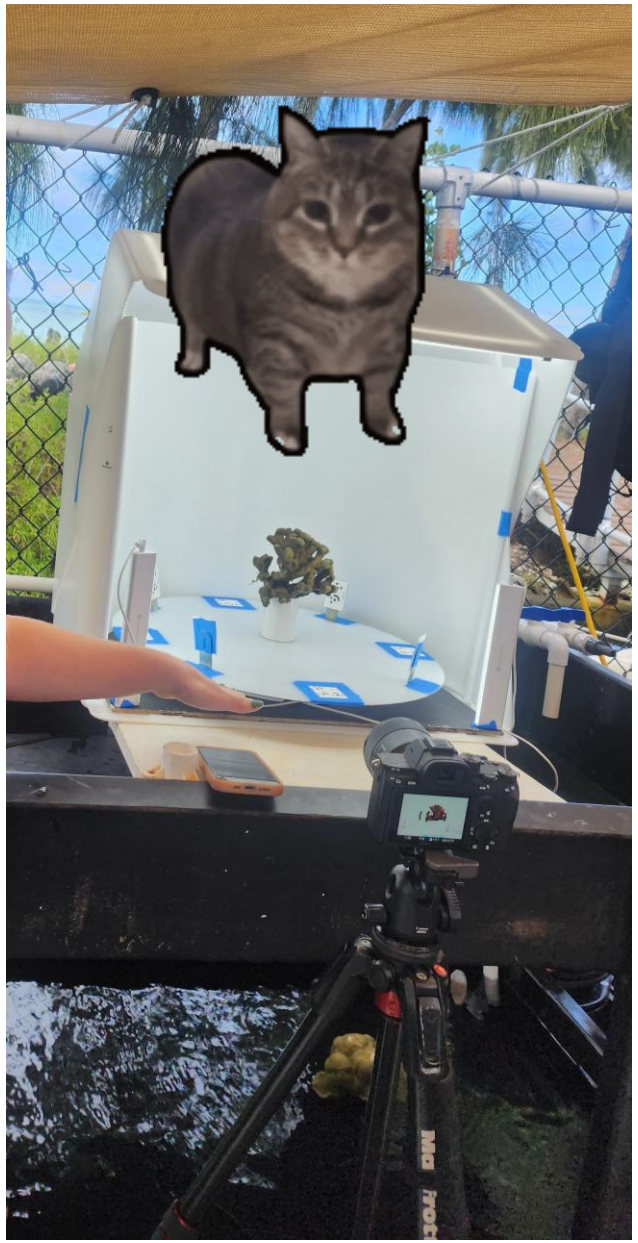

Metashape Preferences
General
GPU
Network
Appearance
Navigation
Advanced
Project Files
Keep key points
Keep depth maps
Store absolute image paths
Export / Import
Strip file extensions from camera labels
Load camera calibration from XMP meta data
Load camera orientation angles from XMP meta data
Load camera location accuracy from XMP meta data
Load GPS/INS offset from XMP meta data
Load thumbnails from EXIF meta data
Load satellite RPC data from auxiliary TXT files
Miscellaneous
Enable fine-level task subdivision
Enable VBO support
Enable mipmap generation
Enable rich Python console
Copy last shape description for new shapes
Max basemap cache size:
100MB
Clear
Tweaks...
Cleanup Projects...
Reset All Settings
OK
Cancel
Apply

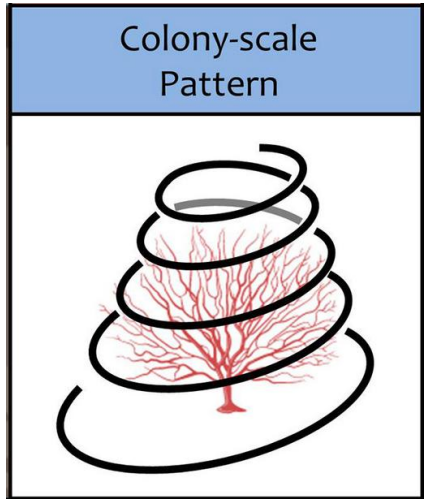

Metashape Preferences
General
GPU
Network
Appearance
Navigation
Advanced
Model View
Ortho View
Photo View
General
Background color:
#000000
Select...
Text color:
#ffffff
Select...
Model color:
#8080b0
Select...
Interpolation:
Bilinear
Trackball size:
30%
Point size:
2
Variance scale:
1.00
Default view:
Perspective
Stereo Cursor
Cursor type:
Disabled
Cursor color:
#ffff00
Select...
Cursor size:
40 px
Cursor thickness:
2 px
Grid
Color:
#eeeeee
Select...
Transparency:
87%
Line count:
40
Cell size:
50
pixels
Plane:
XY
OK
Cancel
Apply

Take pictures!
30 photos

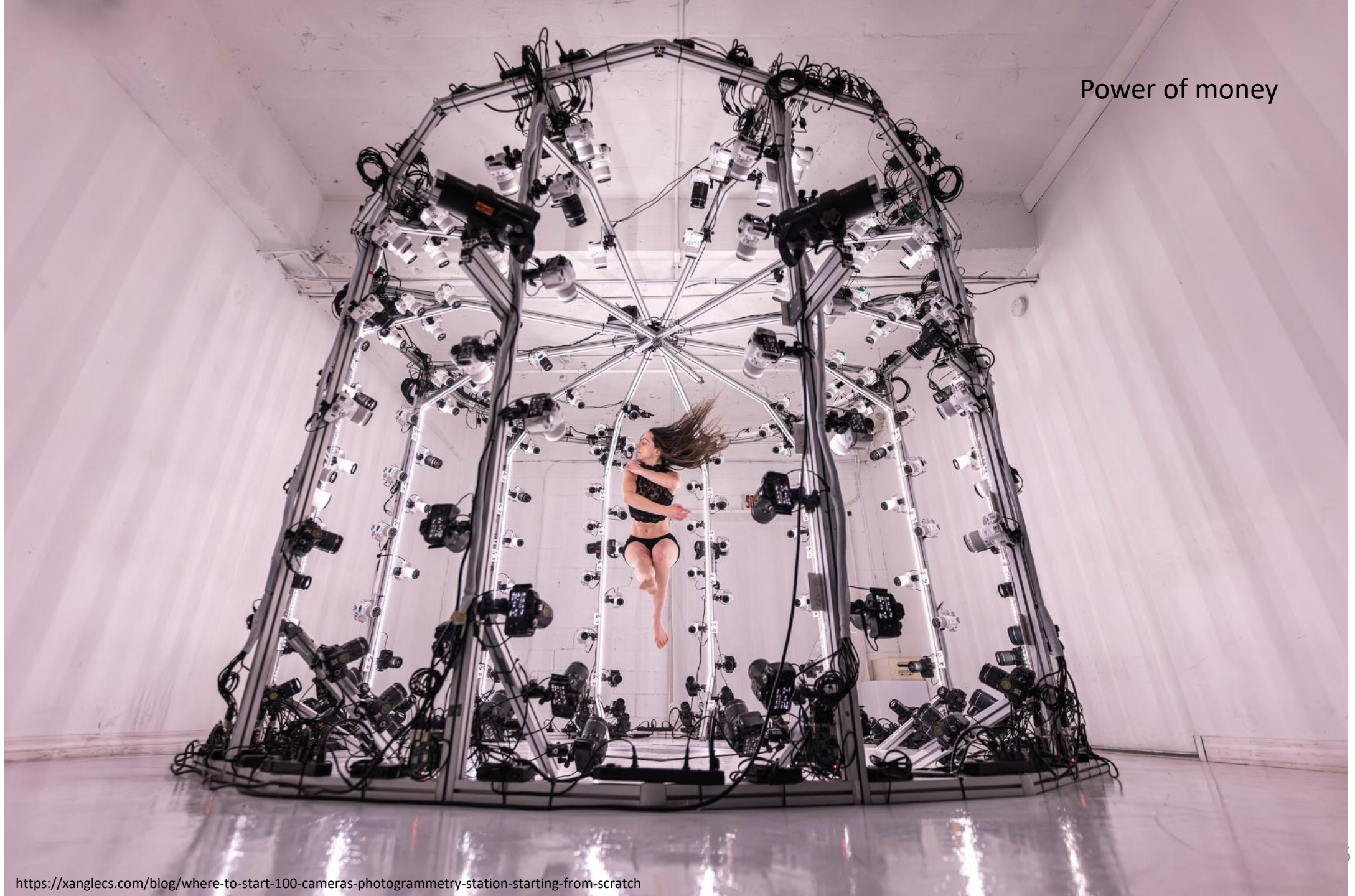


Rotating object



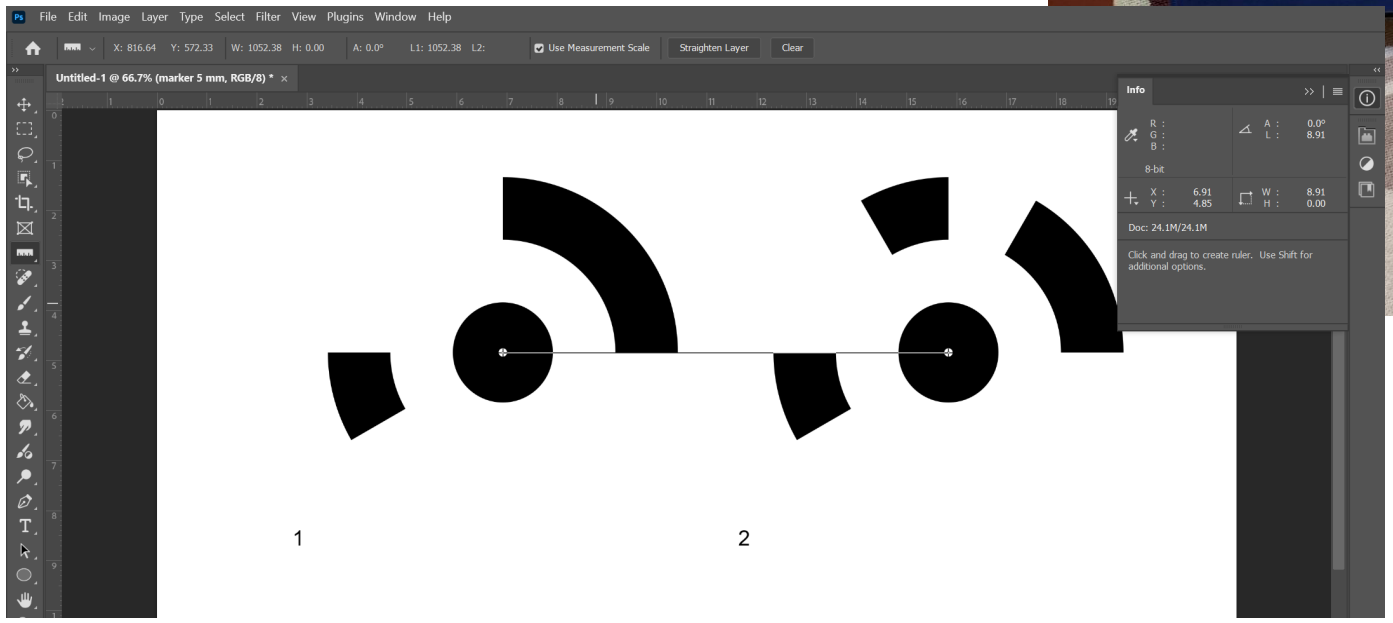


Rotating camera



https://xanglecs.com/blog/where-to-start-100-cameras-photogrammetry-station-starting-from-scratch

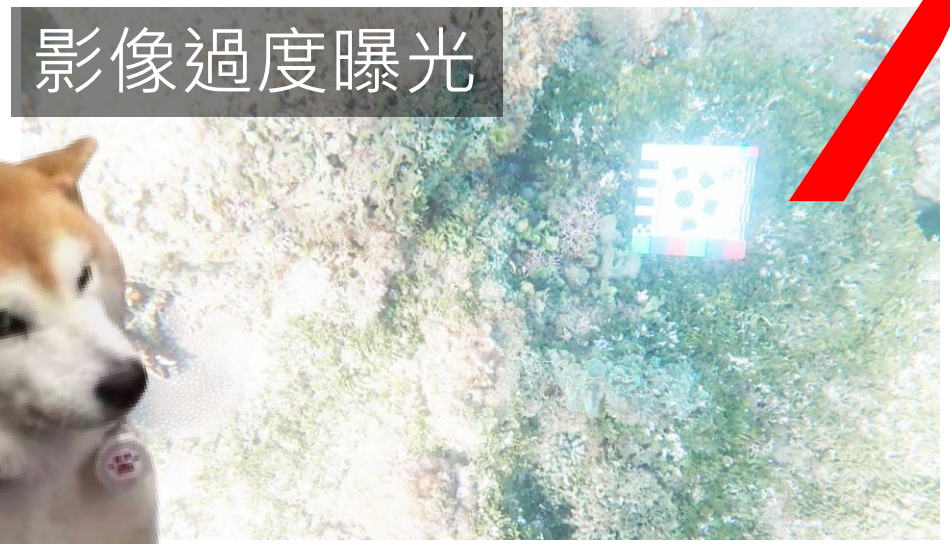

1/128in
0.05mm
BOSCH
Professional GLM 30


File Edit Image Layer Type Select Filter View Plugins Window Help
Untitled-1 @ 66.7% (marker 5 mm, RGB/8) *
Use Measurement Scale
Straighten Layer
Clear
Info
8-bit
Doc: 24.1M/24.1M
Click and drag to create ruler. Use Shift for additional options.
1
2

Camera setting

不可以的攝攝

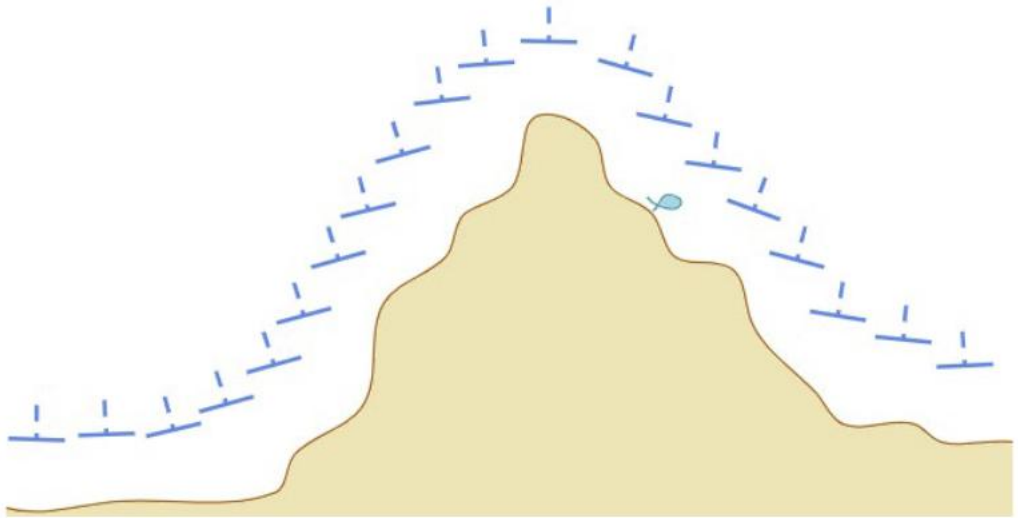
需要清晰、無干擾的影像



有風浪時拍攝
並不容易

建立高品質模型 – 維持拍攝距離

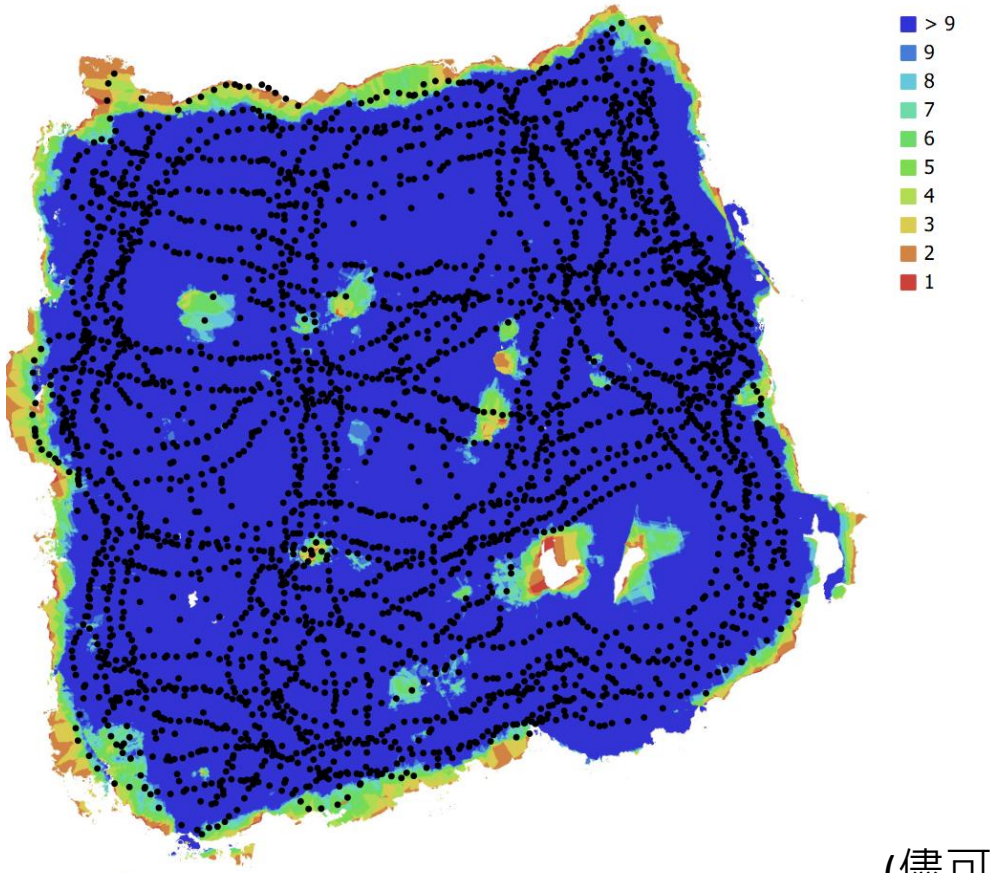
沿著拍攝主體起伏，視野不可變化過大

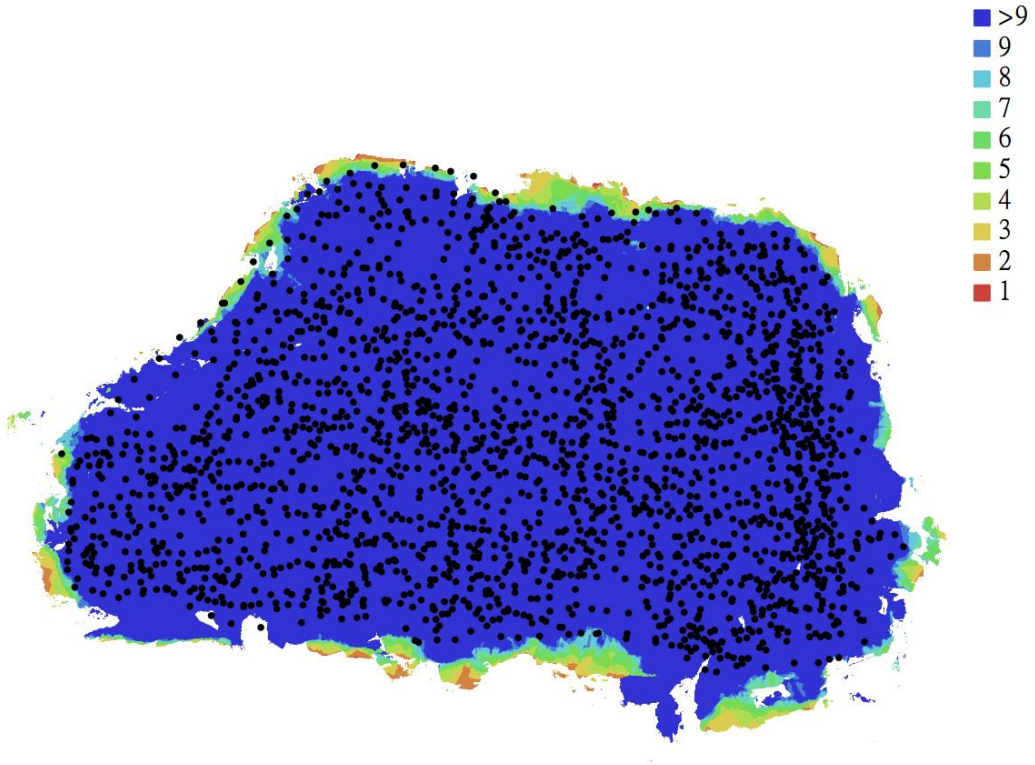


(Damaris et al., 2024)

建立高品質模型的條件

每張照片間重疊率 60~80%
覆蓋率>9再多照片結構已不會有明顯改變





(儘可能均勻的覆蓋、多捕捉不同的角度)

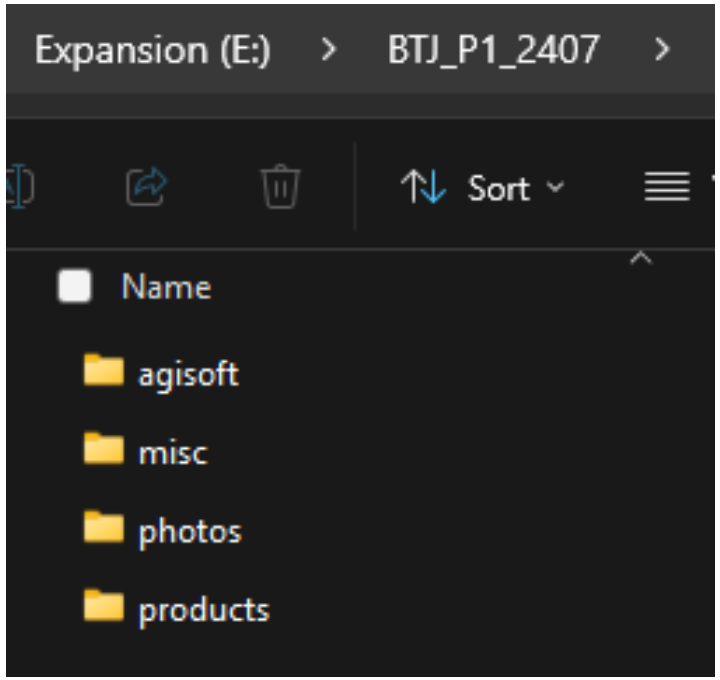
資料存放結構與命名

資料夾結構和命名規則要一致，有助於提升未來資料的分析效率

完善的資料管理

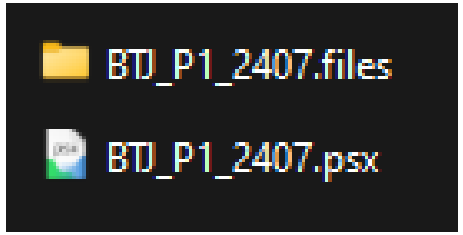
隨便的資料管理

資料夾結構:
專案名稱->地點->日期

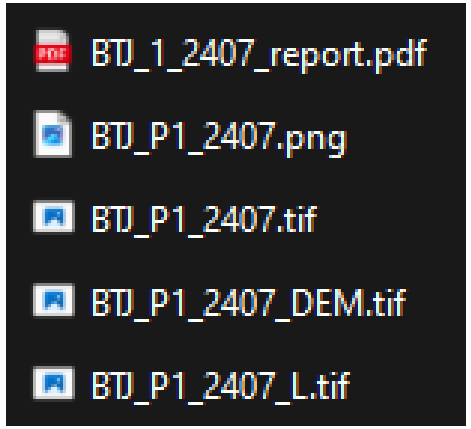


命名規則(簡短易讀且富含資訊)
File name: XXX_ID_YYMM

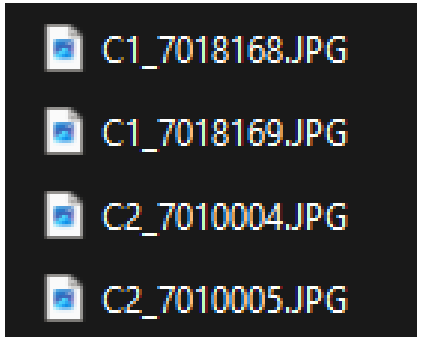
- agisoft



- products

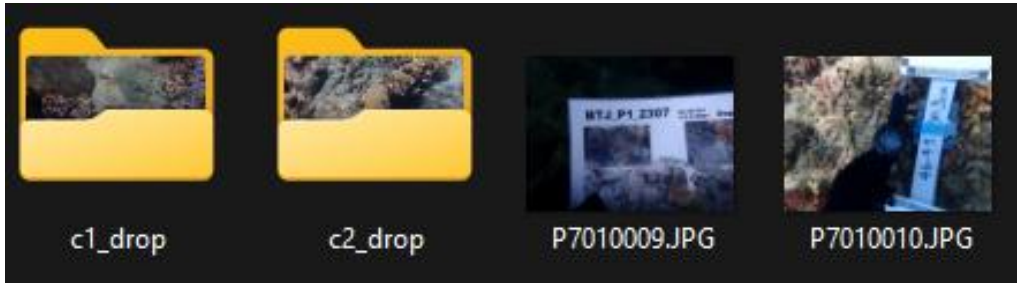


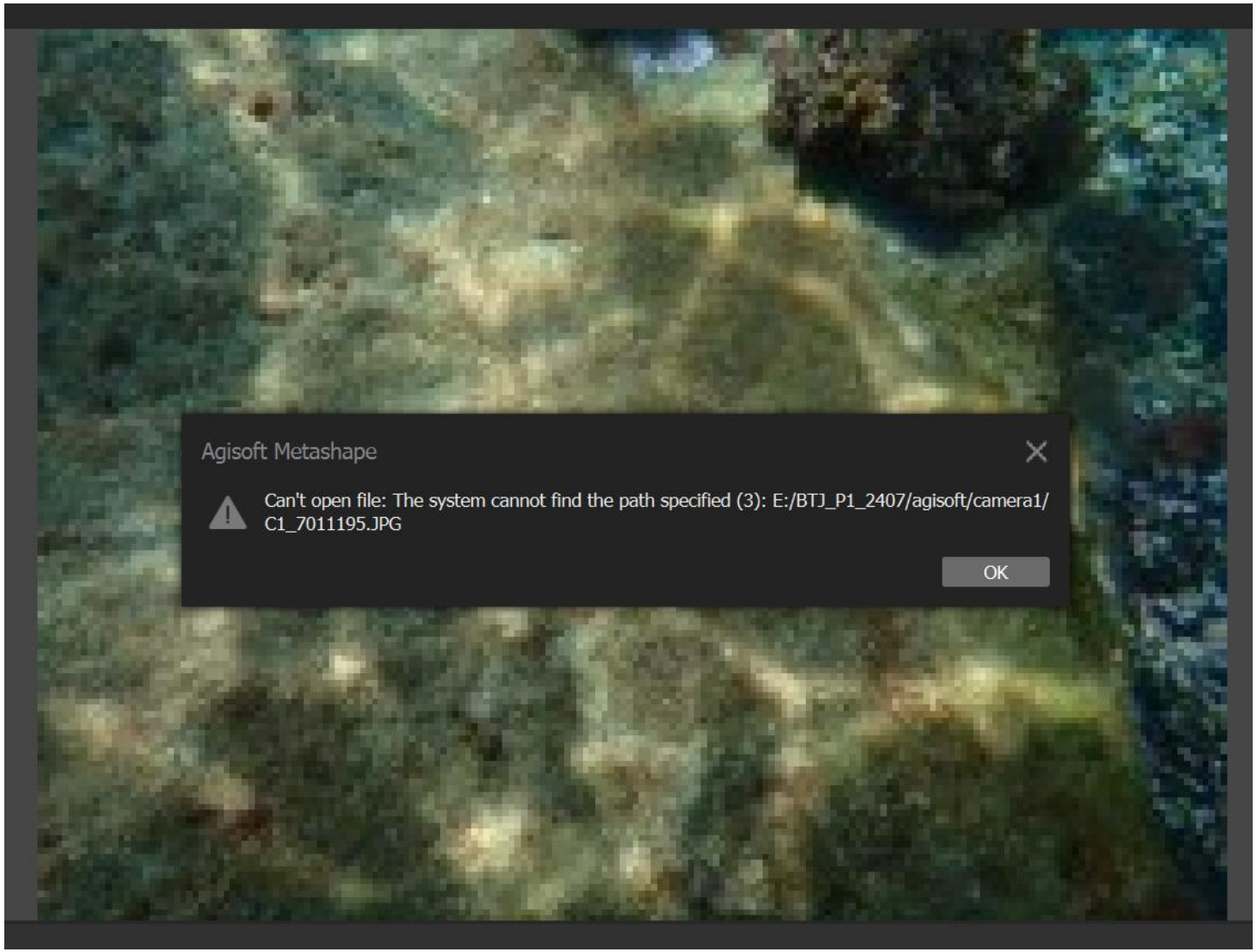
- photos



相機資料放一起
照片依相機編號
(PowerToys)

- misc





糟糕的資歷結構與命名方式容易遺失檔案無法尋回

Agisoft 操作流程 (NOAA 2024 SOP)

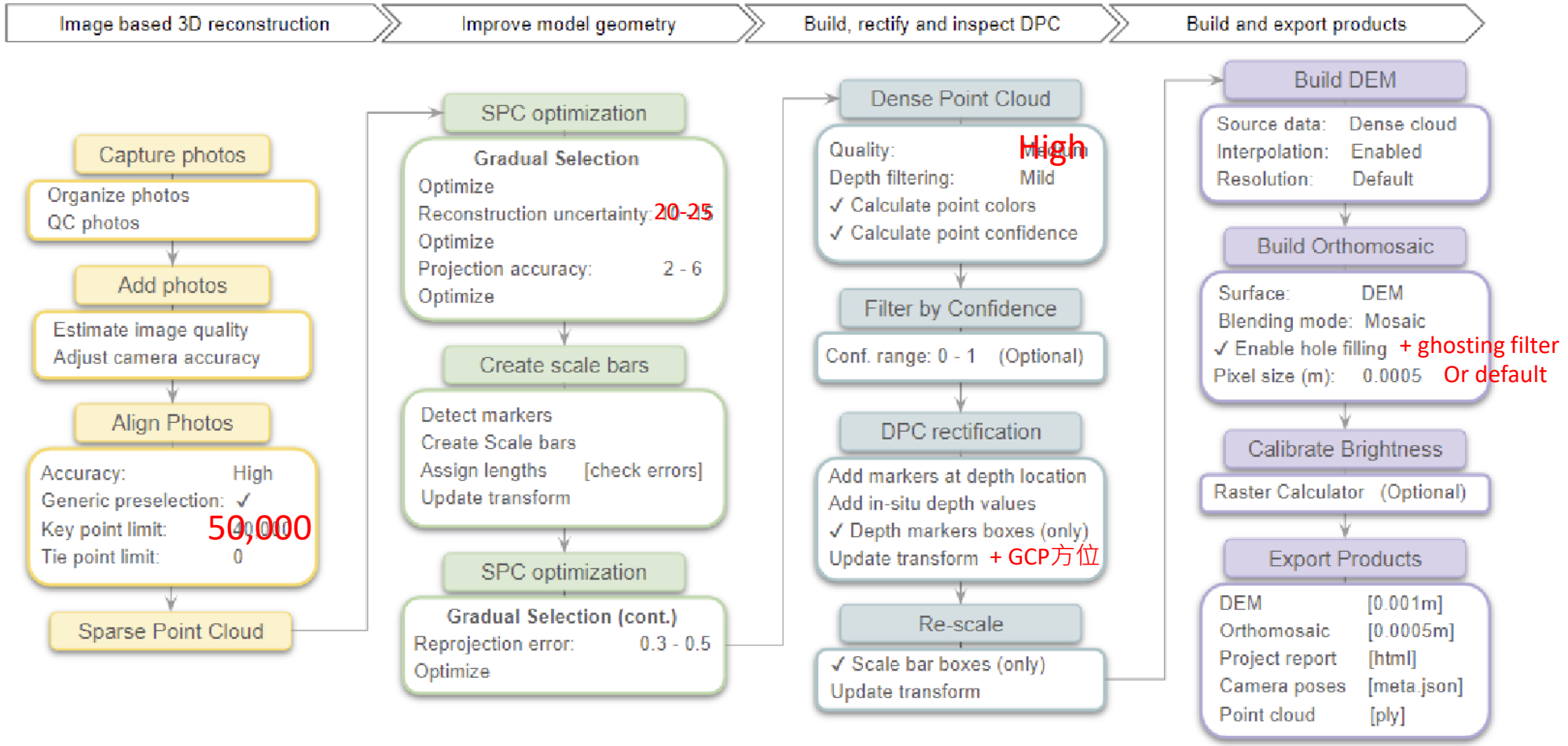
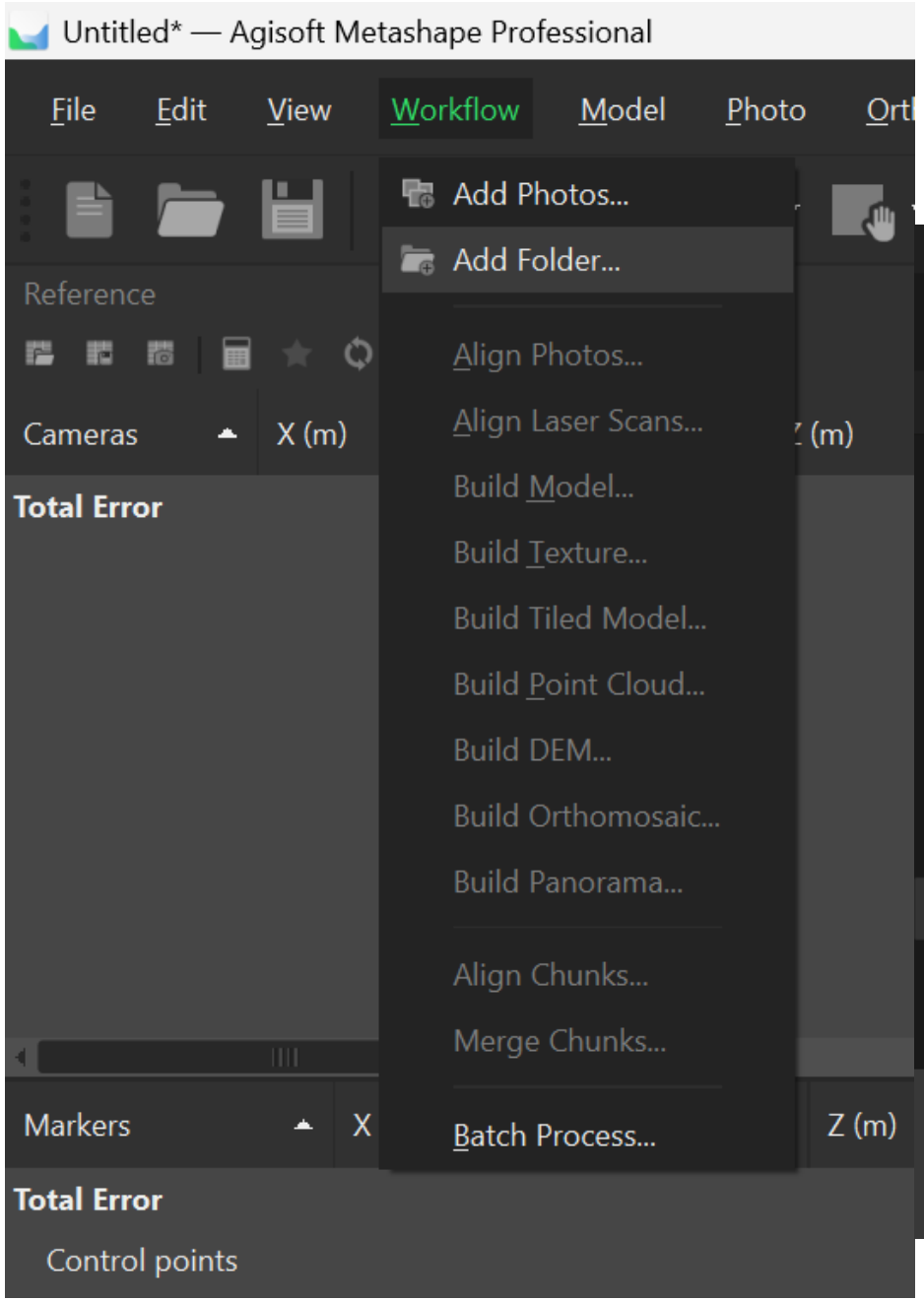
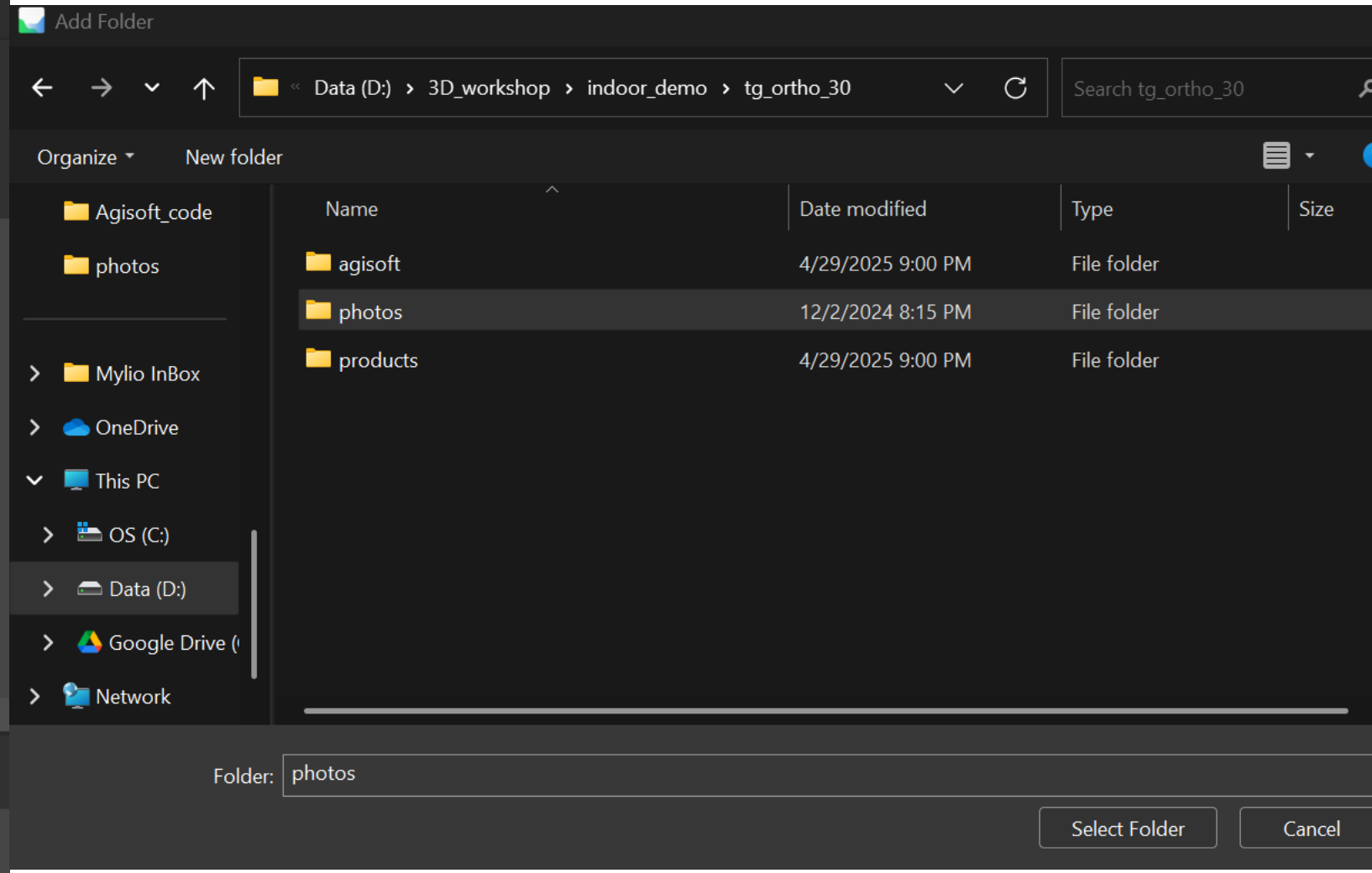
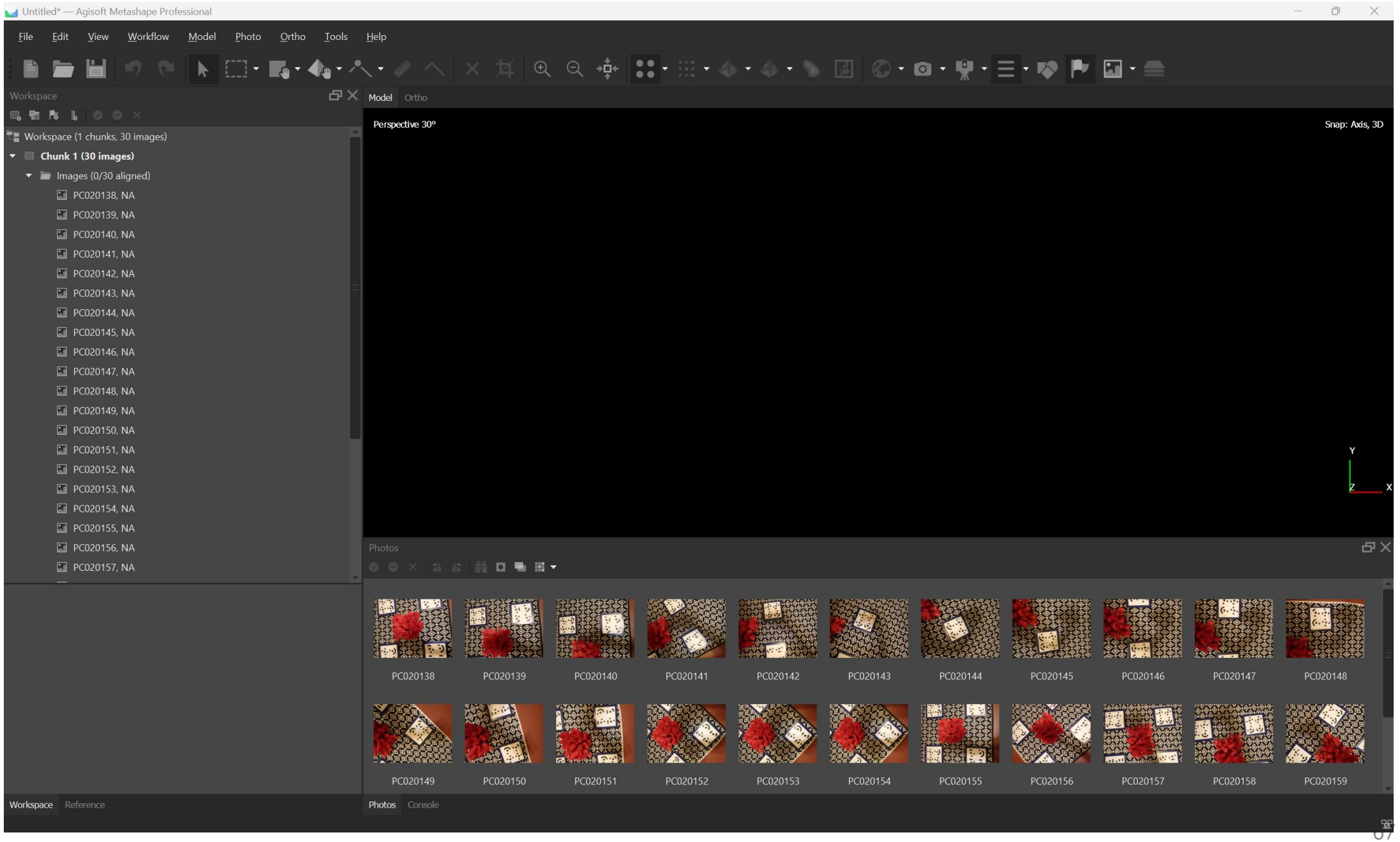


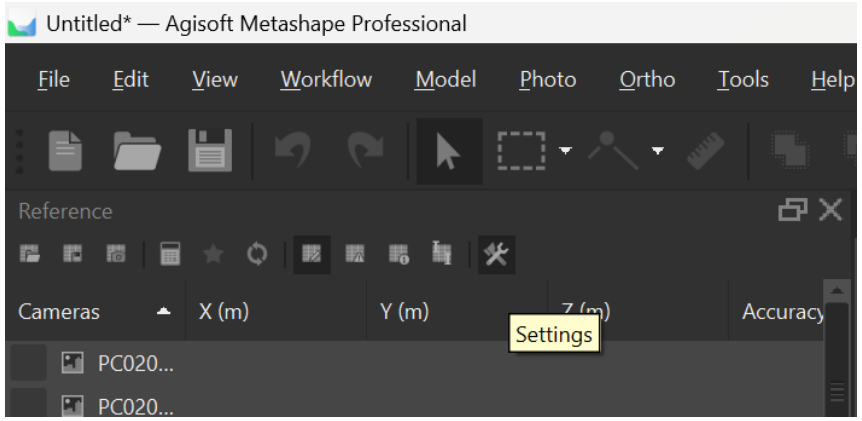
Figure 4.1 A schematic workflow of the image based 3D reconstruction and product generation of coral reef scenes through SfM photogrammetry in Agisoft Metashape.

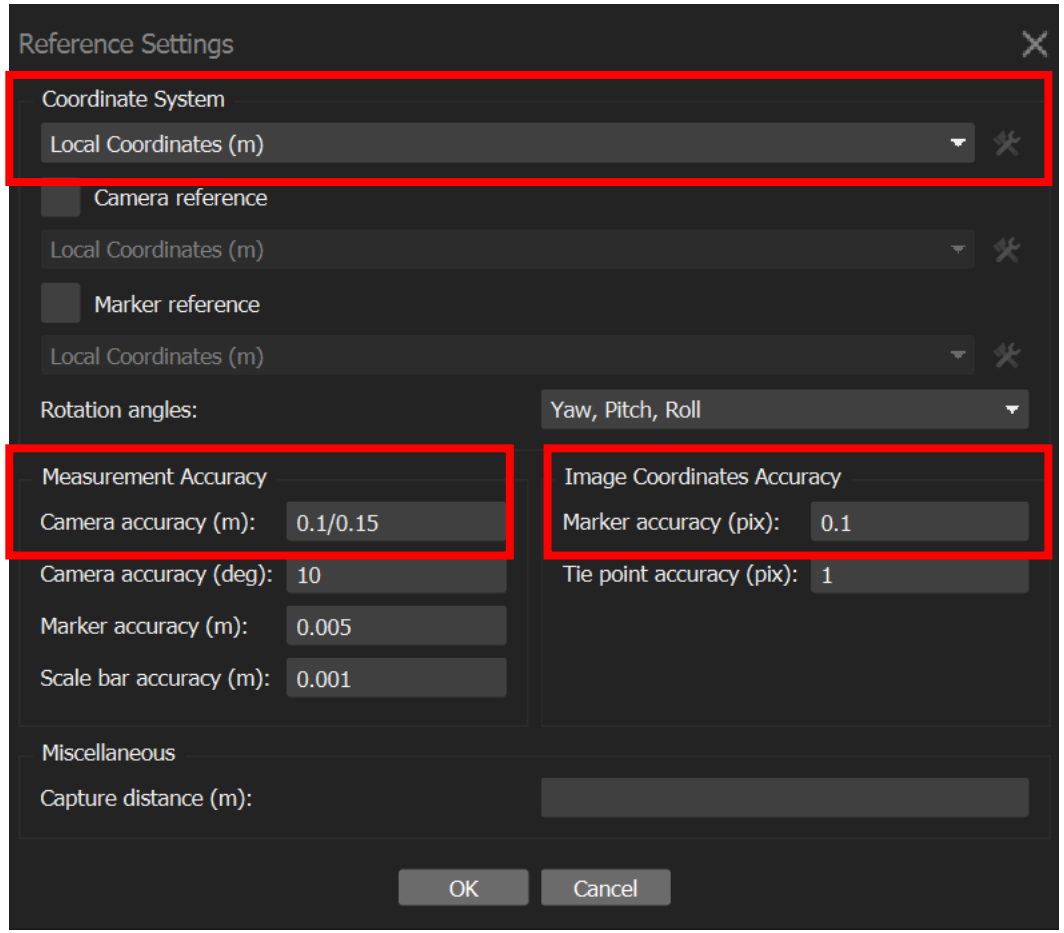
(Damaris et al., 2024)


Untitled* — Agisoft Metashape Professional
File
Edit
View
Workflow
Model
Photo
Add Photos...
Add Folder...
Align Photos...
Align Laser Scans...
Build Model...
Build Texture...
Build Tiled Model...
Build Point Cloud...
Build DEM...
Build Orthomosaic...
Build Panorama...
Align Chunks...
Merge Chunks...
Batch Process...
Reference
Cameras
X (m)
Total Error
Markers
Z (m)
Total Error
Control points

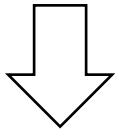

Add Folder
Data (D:) › 3D_workshop › indoor_demo › tg_ortho_30
Search tg_ortho_30
Organize
New folder
Agisoft_code
photos
Mylio InBox
OneDrive
This PC
OS (C:)
Data (D:)
Google Drive
Network
Name
Date modified
Type
Size
agisoft
4/29/2025 9:00 PM
File folder
photos
12/2/2024 8:15 PM
File folder
products
4/29/2025 9:00 PM
File folder
Folder:
photos
Select Folder
Cancel


Untitled* — Agisoft Metashape Professional
File Edit View Workflow Model Photo Ortho Tools Help
Workspace
Workspace (1 chunks, 30 images)
Chunk 1 (30 images)
Images (0/30 aligned)
PC020138, NA
PC020139, NA
PC020140, NA
PC020141, NA
PC020142, NA
PC020143, NA
PC020144, NA
PC020145, NA
PC020146, NA
PC020147, NA
PC020148, NA
PC020149, NA
PC020150, NA
PC020151, NA
PC020152, NA
PC020153, NA
PC020154, NA
PC020155, NA
PC020156, NA
PC020157, NA
Model Ortho
Perspective 30°
Snap: Axis, 3D
Y
Z
X
Photos
PC020138 PC020139 PC020140 PC020141 PC020142 PC020143 PC020144 PC020145 PC020146 PC020147 PC020148
PC020149 PC020150 PC020151 PC020152 PC020153 PC020154 PC020155 PC020156 PC020157 PC020158 PC020159
Workspace Reference
Photos Console

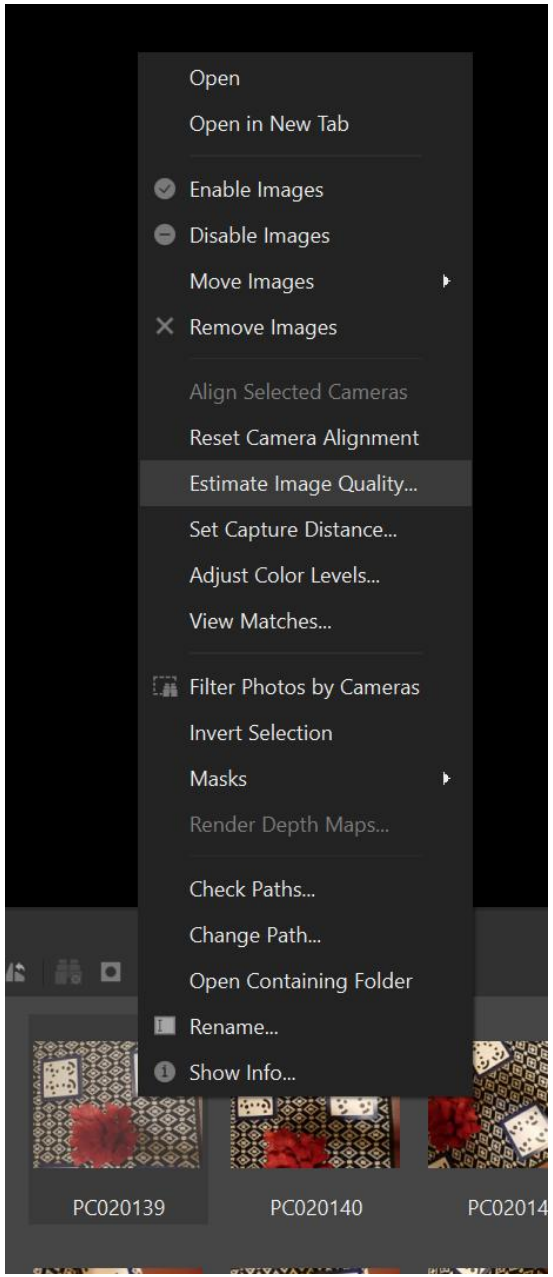


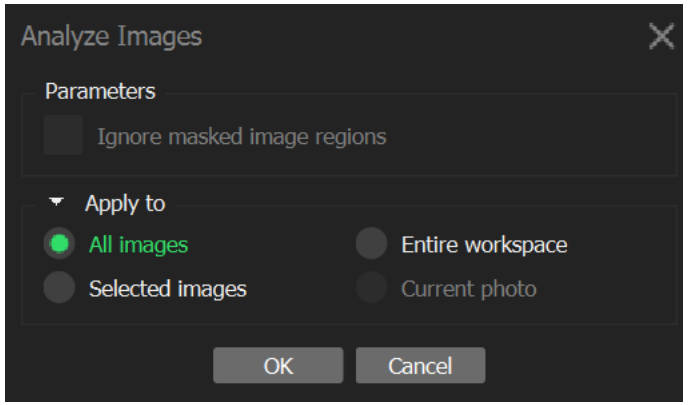


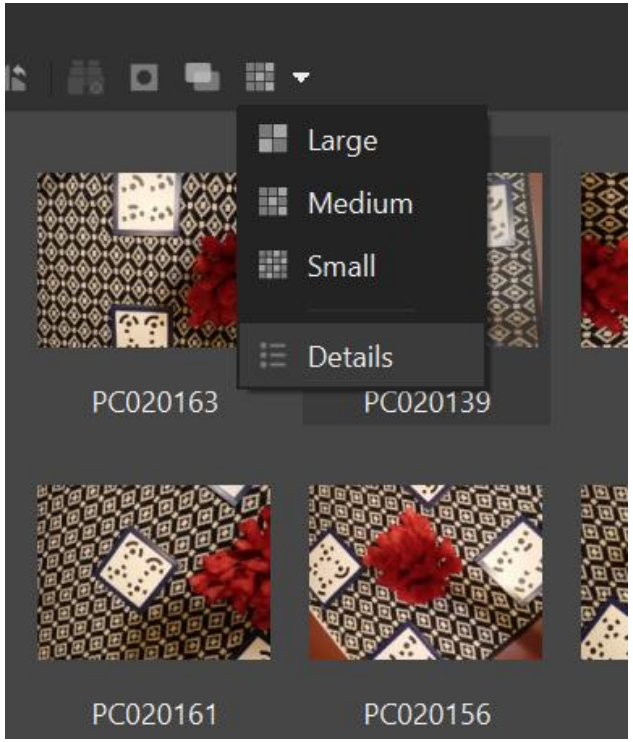
Markers	Longitude	Latitude	Altitude (m)	Accuracy (m)
Total Error				
Control points				
Check points				

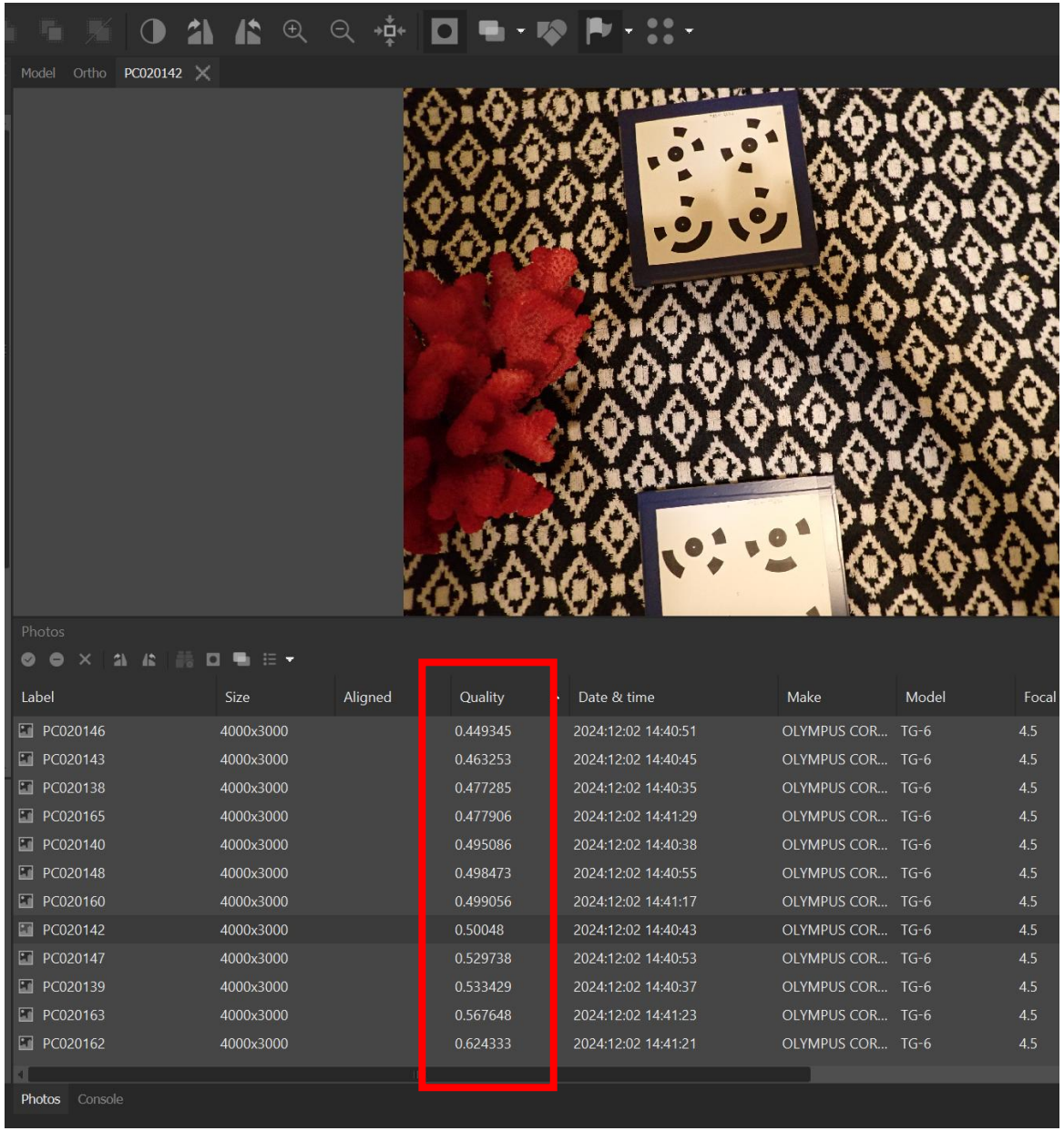


Markers	X (m)	Y (m)	Z (m)	Accuracy (m)
Total Error				
Control points				
Check points				

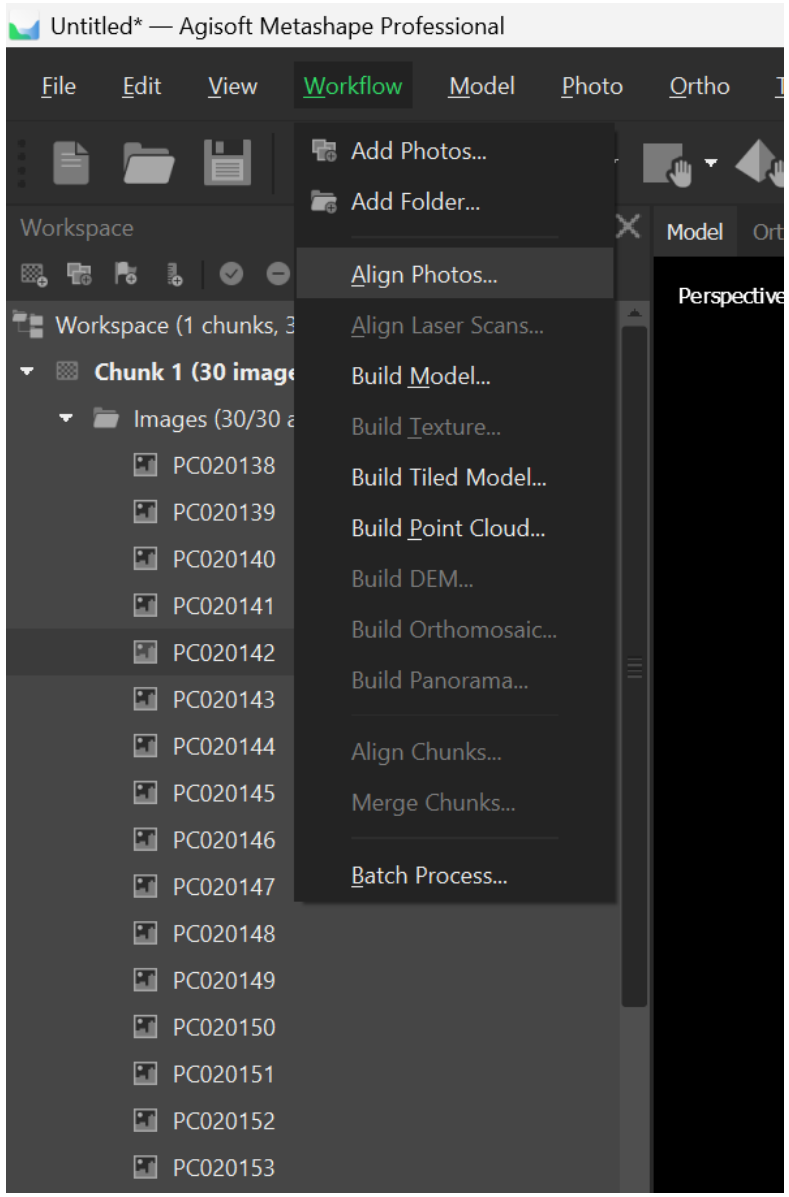


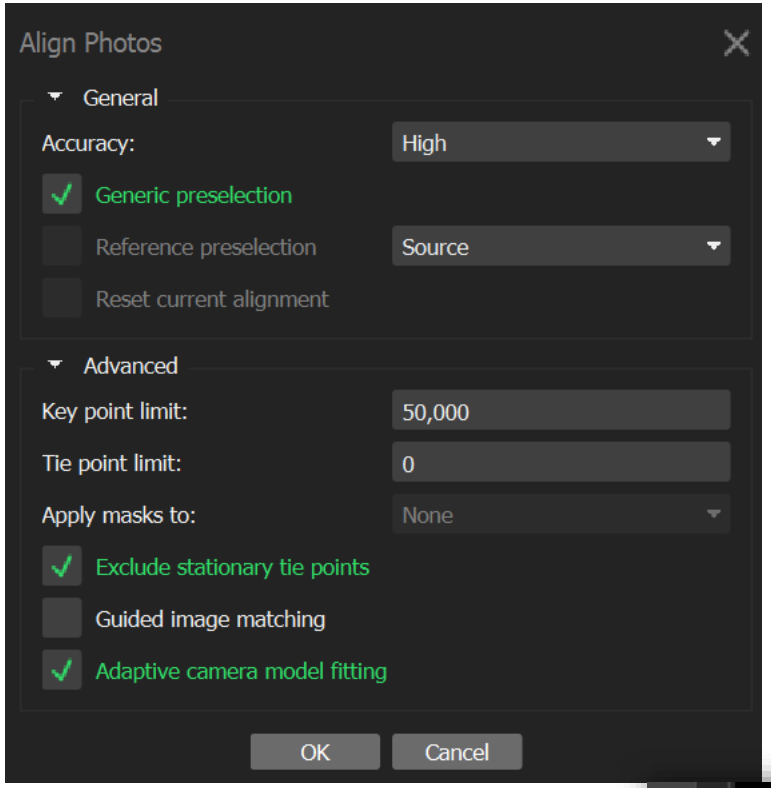


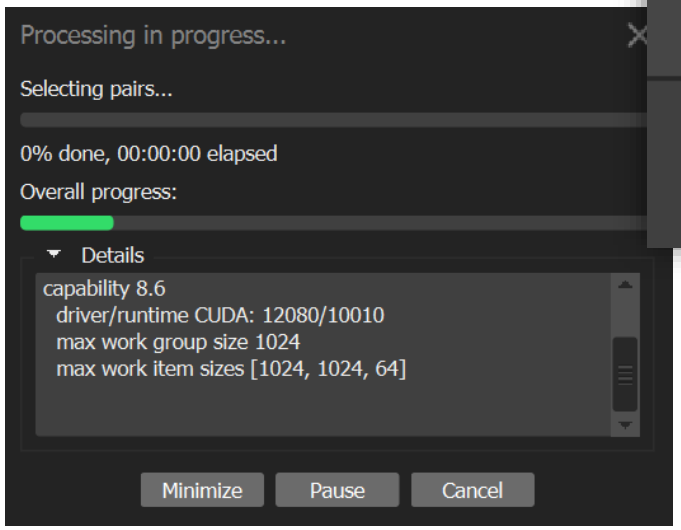


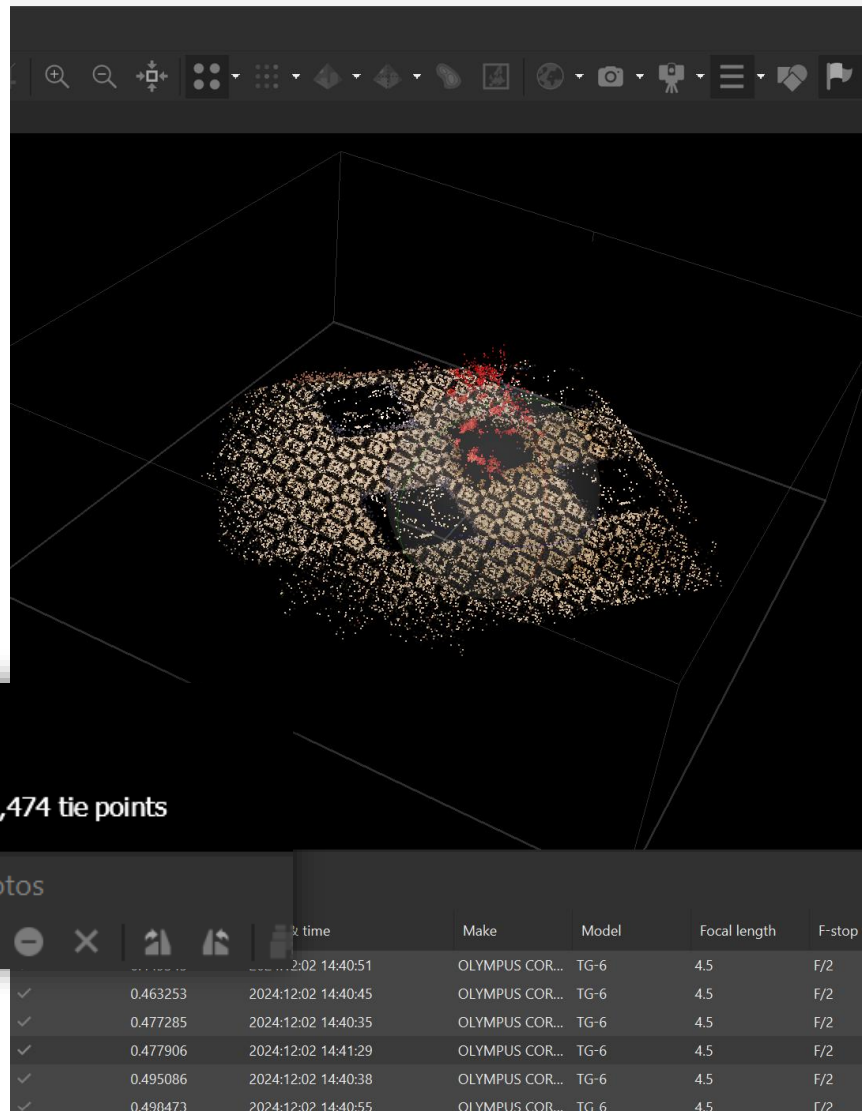


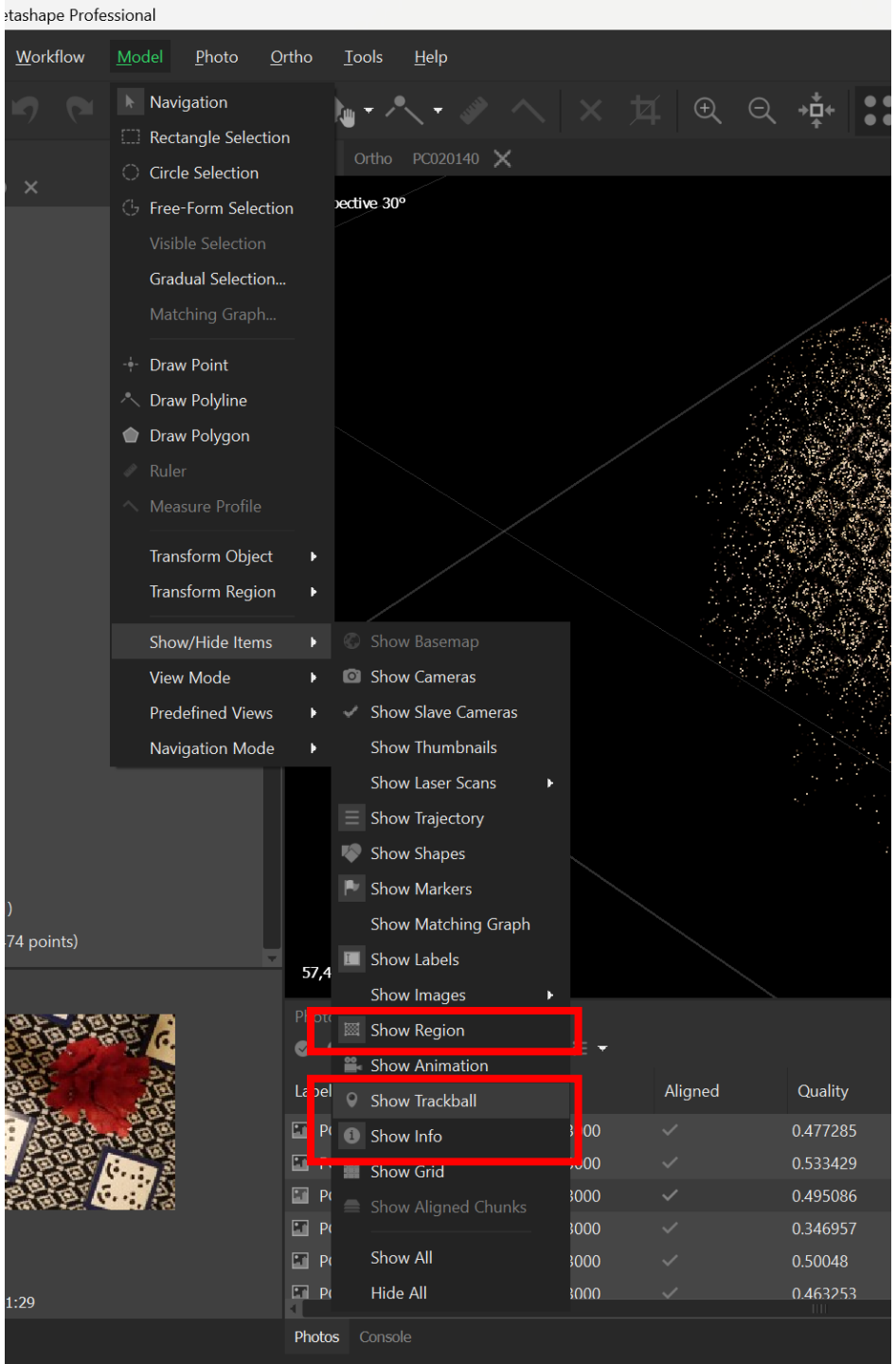
Quality最低門檻視環境而定


Untitled* — Agisoft Metashape Professional
File
Edit
View
Workflow
Model
Photo
Ortho
Add Photos...
Add Folder...
Workspace
Align Photos...
Align Laser Scans...
Build Model...
Build Texture...
Build Tiled Model...
Build Point Cloud...
Build DEM...
Build Orthomosaic...
Build Panorama...
Align Chunks...
Merge Chunks...
Batch Process...
Model
Perspective
Workspace (1 chunks, 3
Chunk 1 (30 image
Images (30/30 a
PC020138
PC020139
PC020140
PC020141
PC020142
PC020143
PC020144
PC020145
PC020146
PC020147
PC020148
PC020149
PC020150
PC020151
PC020152
PC020153


Align Photos
General
Accuracy:
High
Generic preselection
Reference preselection
Source
Reset current alignment
Advanced
Key point limit:
50,000
Tie point limit:
0
Apply masks to:
None
Exclude stationary tie points
Guided image matching
Adaptive camera model fitting
OK
Cancel


Processing in progress...
Selecting pairs...
0% done, 00:00:00 elapsed
Overall progress:
Details
capability 8.6
driver/runtime CUDA: 12080/10010
max work group size 1024
max work item sizes [1024, 1024, 64]
Minimize
Pause
Cancel


57,474 tie points
Photos
Make
Model
Focal length
F-stop
OLYMPUS COR...
TG-6
4.5
F/2


Workflow
Model
Photo
Ortho
Tools
Help
Navigation
Rectangle Selection
Circle Selection
Free-Form Selection
Visible Selection
Gradual Selection...
Matching Graph...
Draw Point
Draw Polyline
Draw Polygon
Ruler
Measure Profile
Transform Object
Transform Region
Show/Hide Items
View Mode
Predefined Views
Navigation Mode
Show Basemap
Show Cameras
Show Slave Cameras
Show Thumbnails
Show Laser Scans
Show Trajectory
Show Shapes
Show Markers
Show Matching Graph
Show Labels
Show Images
Show Region
Show Animation
Show Trackball
Show Info
Show Grid
Show Aligned Chunks
Show All
Hide All
Ortho
PC020140
Aligned
Quality
0.477285
0.533429
0.495086
0.346957
0.50048
0.463253
Photos
Console

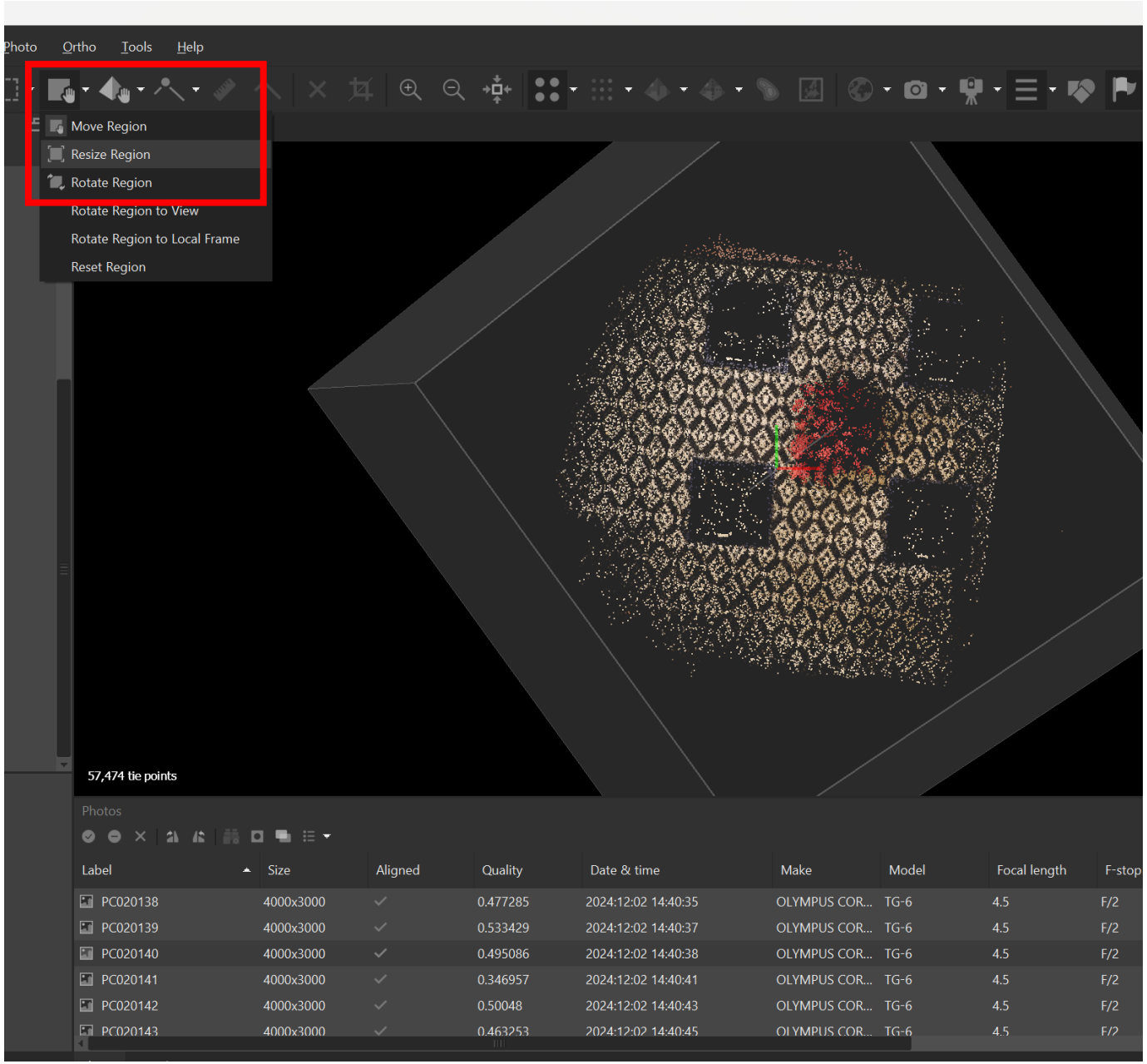
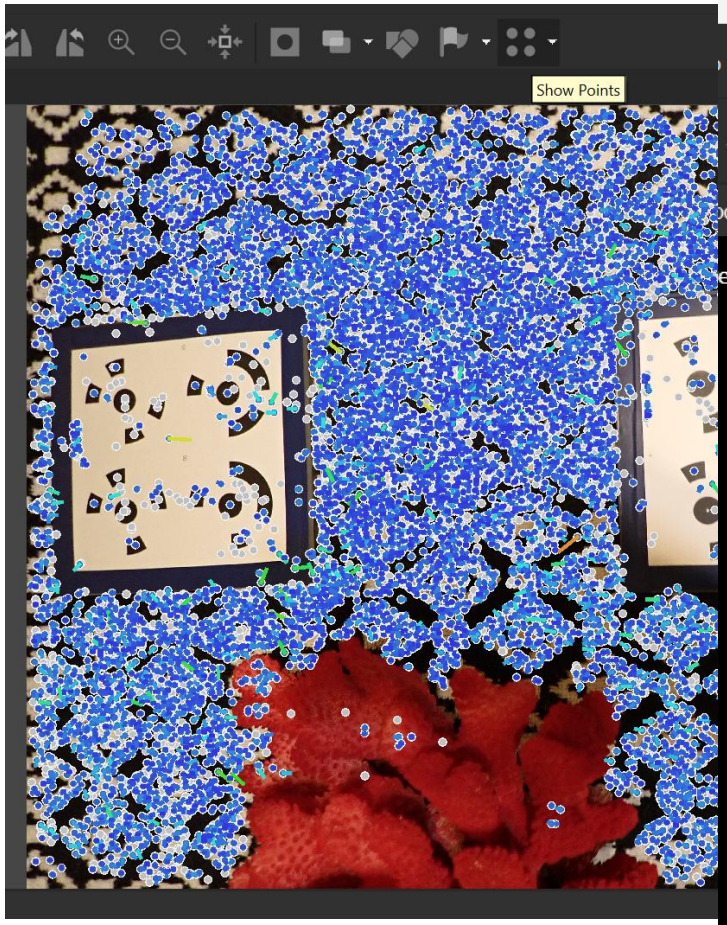


Photo
Ortho
Tools
Help
Move Region
Resize Region
Rotate Region
Rotate Region to View
Rotate Region to Local Frame
Reset Region
57,474 tie points
Photos
Label
Size
Aligned
Quality
Date & time
Make
Model
Focal length
F-stop
PC020138 4000x3000 0.477285 2024:12:02 14:40:35 OLYMPUS COR... TG-6 4.5 F/2
PC020139 4000x3000 0.533429 2024:12:02 14:40:37 OLYMPUS COR... TG-6 4.5 F/2
PC020140 4000x3000 0.495086 2024:12:02 14:40:38 OLYMPUS COR... TG-6 4.5 F/2
PC020141 4000x3000 0.346957 2024:12:02 14:40:41 OLYMPUS COR... TG-6 4.5 F/2
PC020142 4000x3000 0.50048 2024:12:02 14:40:43 OLYMPUS COR... TG-6 4.5 F/2
PC020143 4000x3000 0.463253 2024:12:02 14:40:45 OLYMPUS COR... TG-6 4.5 F/2



Tools Help

- Markers
- Tie Points
- Point Cloud
- Trajectory
- Model
- DEM
- Orthomosaic
- Camera
- Camera Calibration...
- Optimize Cameras...
- Calibrate Reflectance...
- Calibrate Colors...
- Set Primary Channel...
- Set Brightness...
- Set Raster Transform...
- Generate Contours...
- Plan Mission...
- Reduce Overlap...
- Detect Powerlines...
- Survey Statistics...
- Run Script... Ctrl+R
- Preferences...

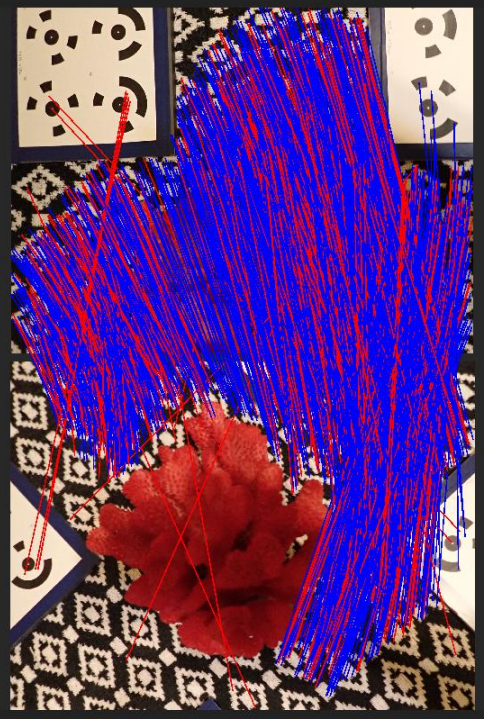
Tie Points:

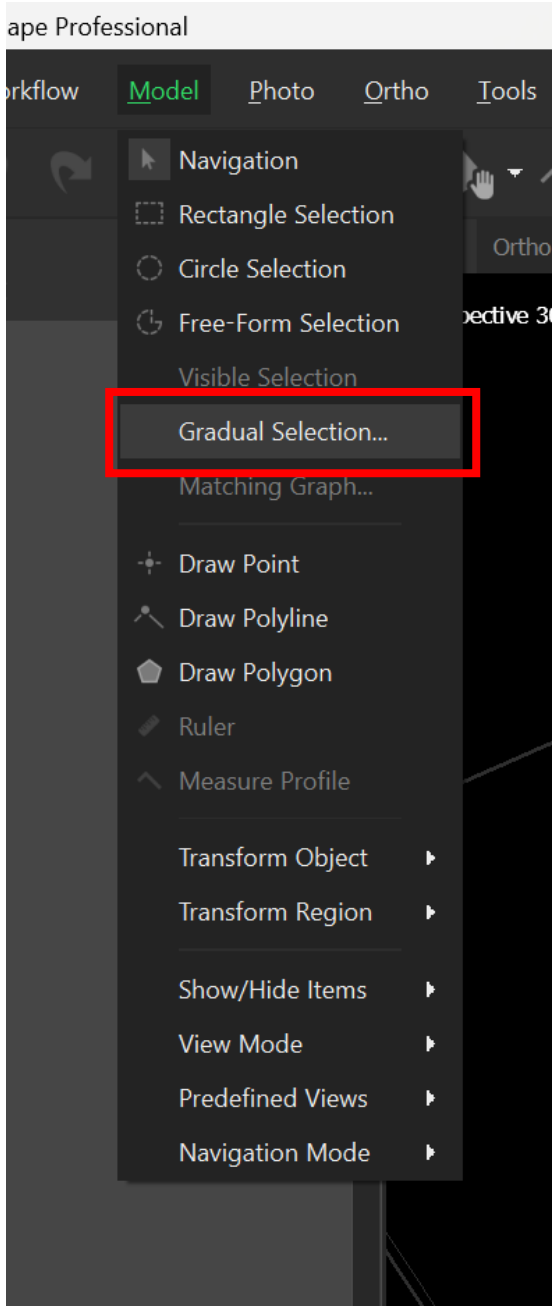
- Build Tie Points...
- Thin Tie Points...
- View Matches...

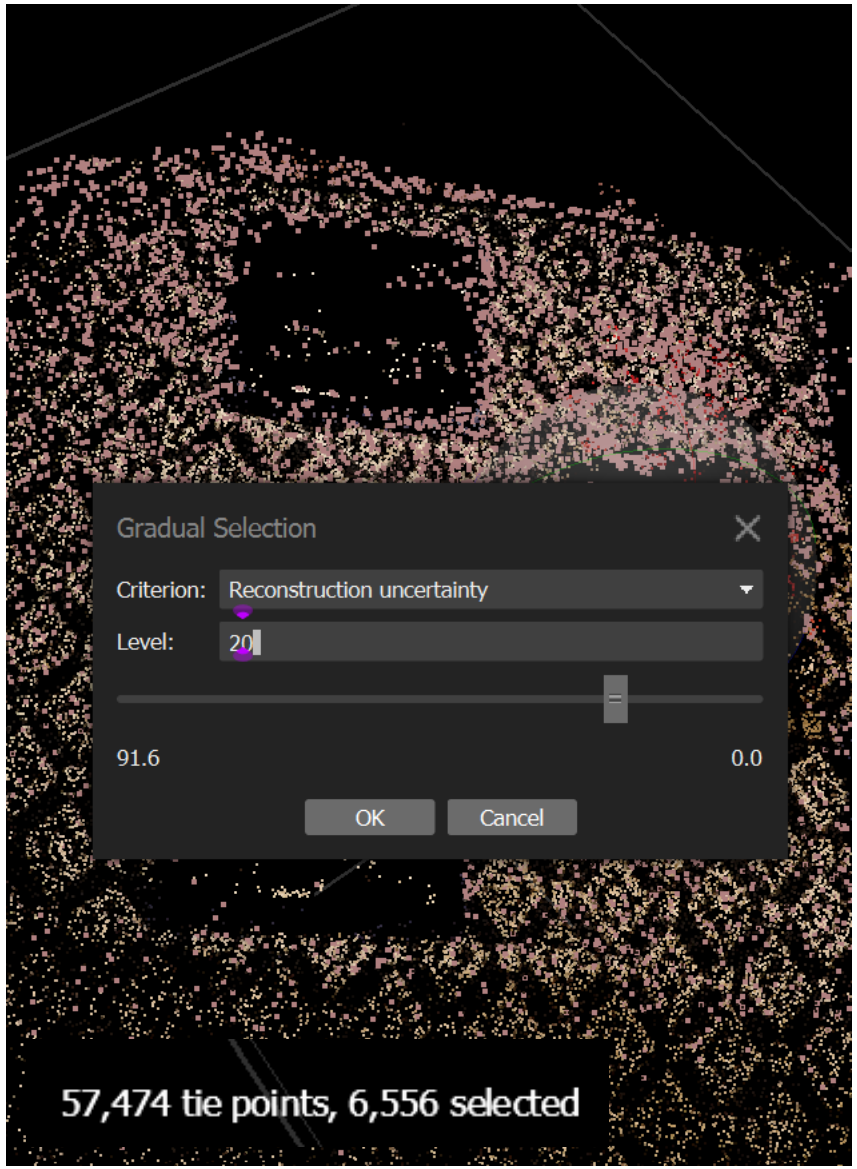
Matches

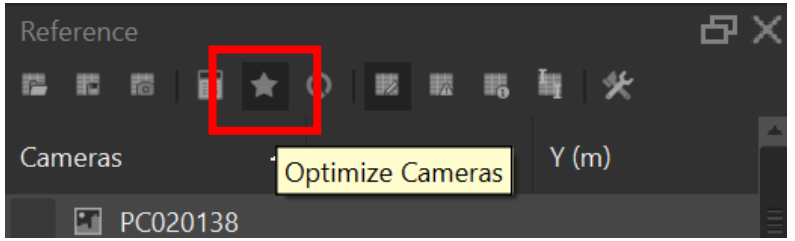
PC020140

Image	Total	Valid	Invalid
PC020163	6592	5247	1345
PC020142	5807	4502	1305
PC020139	5726	4278	1448
PC020165	5455	4105	1350
PC020162	4133	3058	1075
PC020164	3736	2824	912
PC020160	3588	2485	1103
PC020143	2954	2137	817
PC020156	2568	1743	825
PC020161	2278	1508	770
PC020138	2266	1488	778
PC020159	2138	1345	793
PC020141	1923	1514	409
PC020146	1534	919	615
PC020155	1527	977	550
PC020145	1298	812	486
PC020144	1191	784	407
PC020157	931	592	339
PC020147	898	525	373

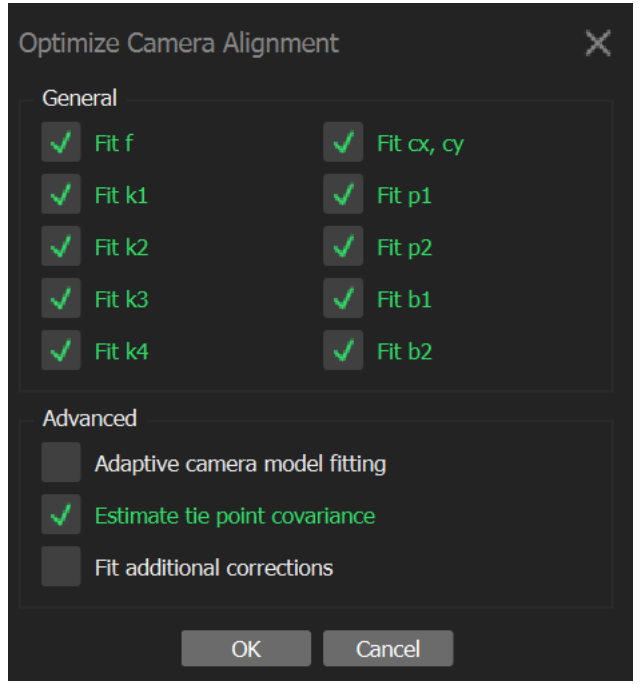



ape Professional
rkflow
Model
Photo
Ortho
Tools
Navigation
Rectangle Selection
Circle Selection
Free-Form Selection
Visible Selection
Gradual Selection...
Matching Graph...
Draw Point
Draw Polyline
Draw Polygon
Ruler
Measure Profile
Transform Object
Transform Region
Show/Hide Items
View Mode
Predefined Views
Navigation Mode

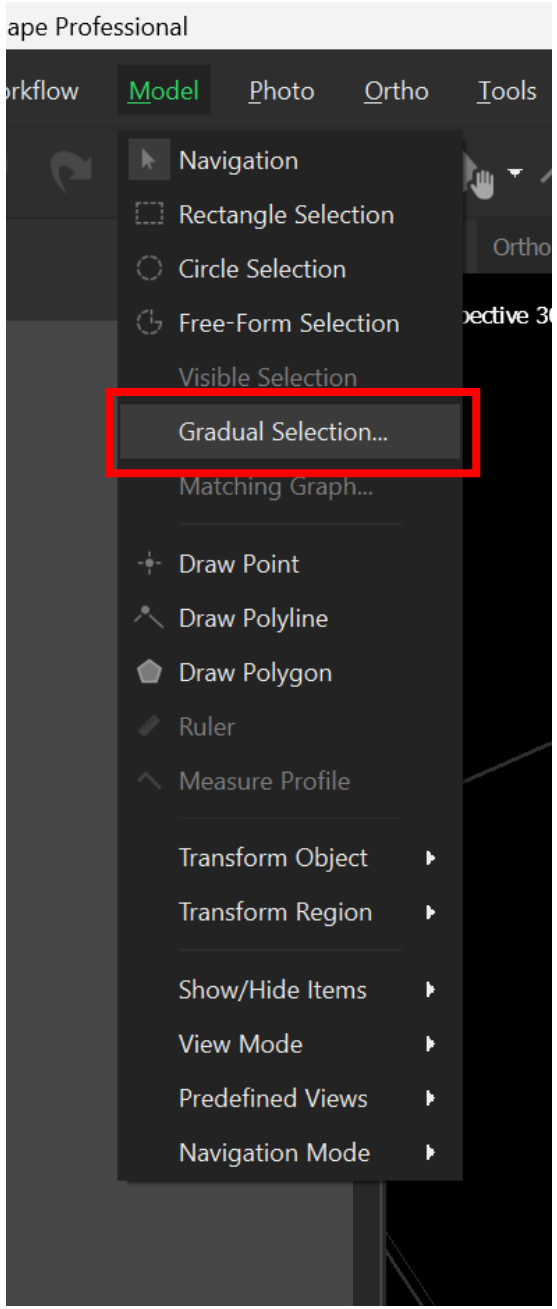

Gradual Selection
Criterion:
Reconstruction uncertainty
Level:
20
91.6
0.0
OK
Cancel
57,474 tie points, 6,556 selected

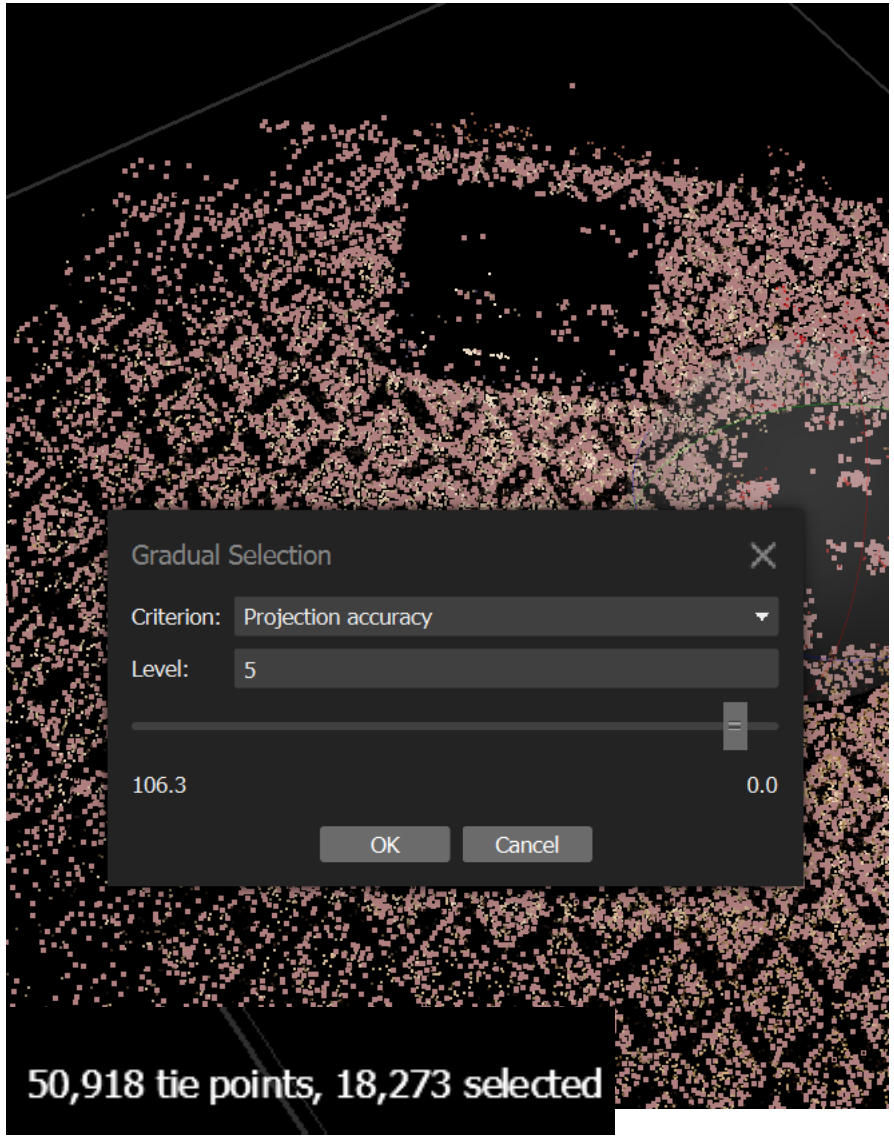

Reference
Cameras
Optimize Cameras
Y (m)
PC020138


Delete

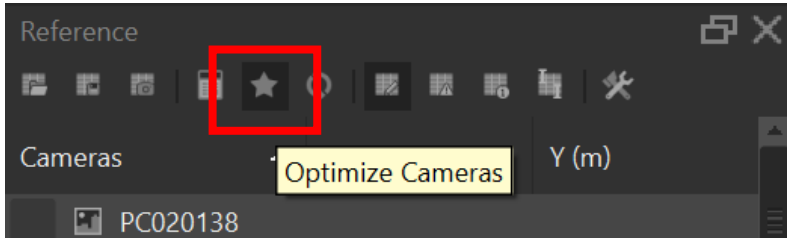

Optimize Camera Alignment
General
Fit f
Fit cx, cy
Fit k1
Fit p1
Fit k2
Fit p2
Fit k3
Fit b1
Fit k4
Fit b2
Advanced
Adaptive camera model fitting
Estimate tie point covariance
Fit additional corrections
OK
Cancel

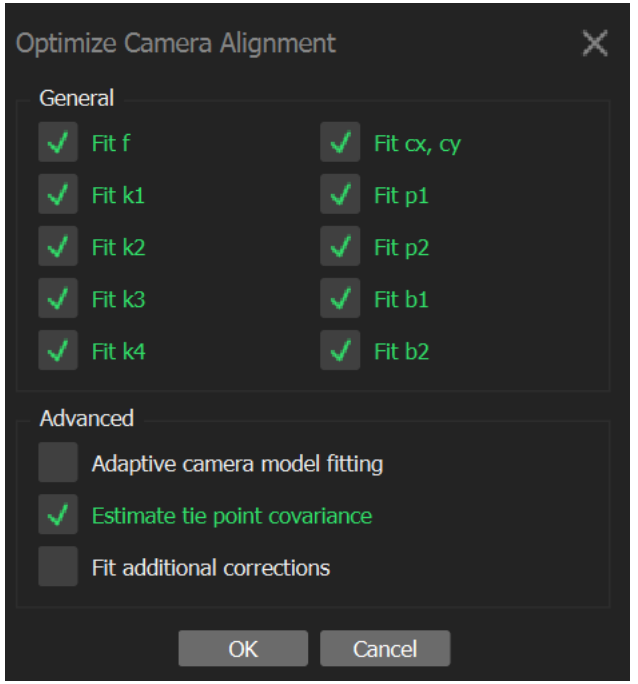
參數	含義
Pixel size (mm)	感測器每個像素的物理尺寸（長 × 高），用來把焦距從「像素」轉成「毫米」。
Focal length (mm)	鏡頭標稱的焦距；在下方 f 參數校正後以像素為單位重新估算。
f	校正後的「有效焦距」，以像素(px)為單位。＝(Focal length ÷ Pixel size)＋校正偏移
cx, cy	主點（Principal Point）在影像座標中的位置，單位為像素(px)。通常偏離影像中心即代表光心與感測器中心輕微不對齊。
k1, k2, k3, k4	**徑向畸變係數**（Radial Distortion） - k1：一階（主要）桶／枕形畸變 - k2：二階次補償 - k3、k4：更高階調整
p1, p2	**切向畸變係數**（Tangential Distortion） 用來校正鏡頭不完美裝配或感測器傾斜造成的非對稱變形。
b1, b2	**仿射／傾斜參數**（Affinity/Skew） 校正像素非完美正交或成像面輕微切變（例如非正方形像素）。


ape Professional
rkflow
Model
Photo
Ortho
Tools
Navigation
Rectangle Selection
Circle Selection
Free-Form Selection
Visible Selection
Gradual Selection...
Matching Graph...
Draw Point
Draw Polyline
Draw Polygon
Ruler
Measure Profile
Transform Object
Transform Region
Show/Hide Items
View Mode
Predefined Views
Navigation Mode


Gradual Selection
Criterion:
Projection accuracy
Level:
5
106.3
0.0
OK
Cancel
50,918 tie points, 18,273 selected

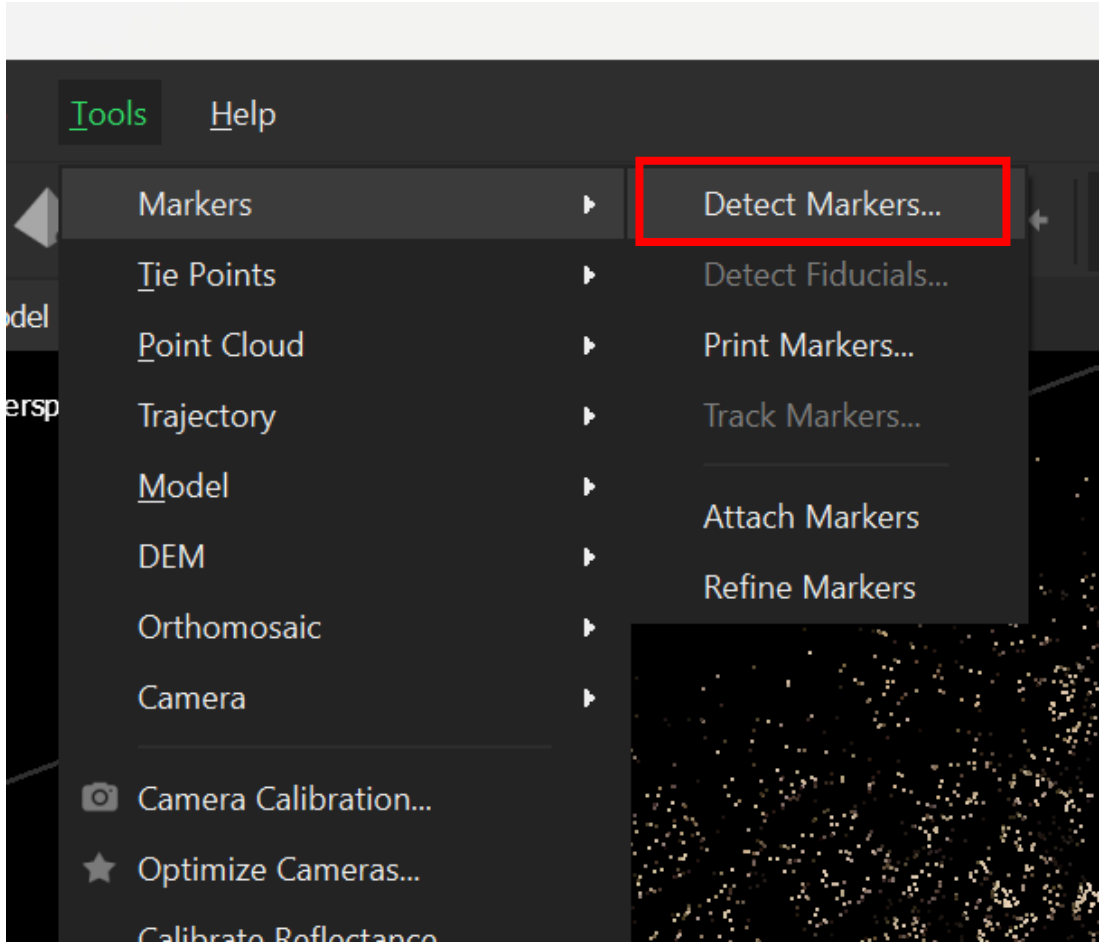

Delete

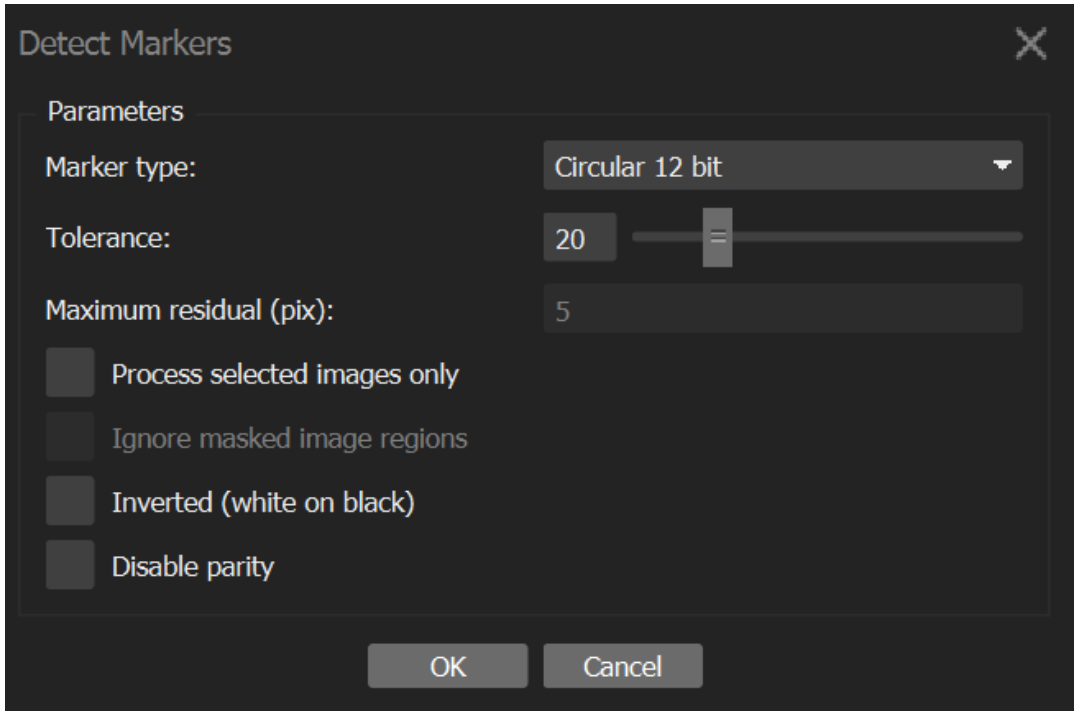

Reference
Cameras
Optimize Cameras
Y (m)
PC020138

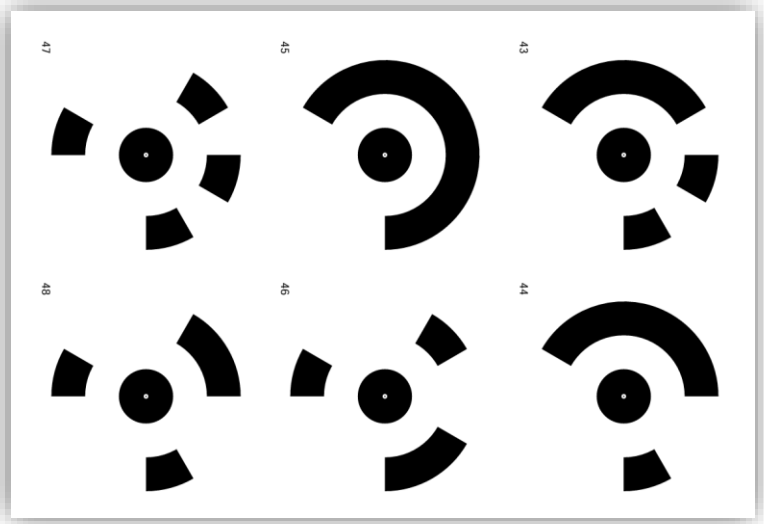

Optimize Camera Alignment
General
Fit f
Fit cx, cy
Fit k1
Fit p1
Fit k2
Fit p2
Fit k3
Fit b1
Fit k4
Fit b2
Advanced
Adaptive camera model fitting
Estimate tie point covariance
Fit additional corrections
OK
Cancel

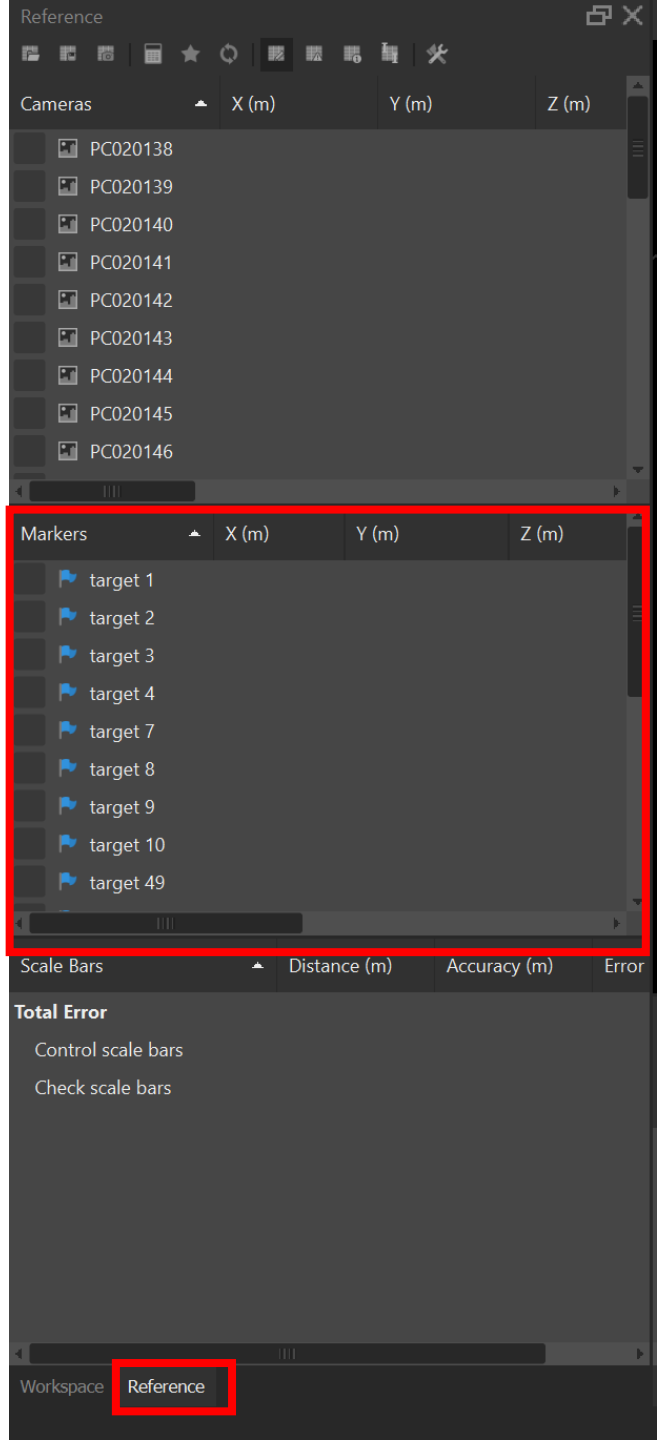
在 Metashape 的 **Model → Gradual Selection…** 對話框中，你可以依據以下幾項準則逐步篩除品質較差的稀疏點（tie points）：

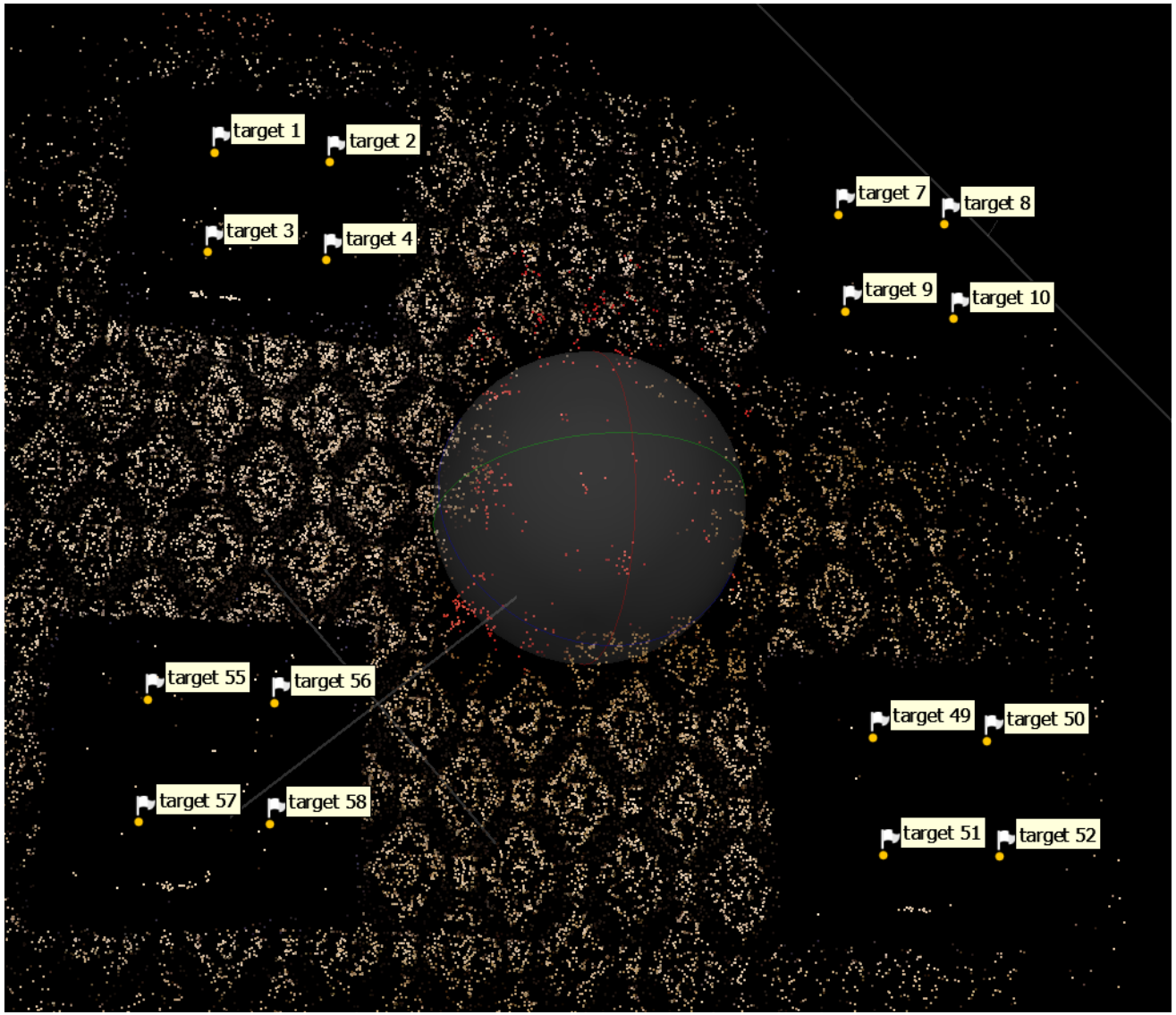
選項	含義
Reconstruction uncertainty （重建不確定度）	• 衡量某個 3D 點由多張影像光線交匯所造成的位置不確定性，與相機基線長度與角度有關。 • 值越大，代表該點在三維空間的定位越不可靠，常見於僅從「相鄰且靠得很近」的相片重建出來的點。
Projection accuracy （投影精度）	• 衡量該點在單張影像中與其周圍鄰點共同擬合後的位置穩定度，凡局部紋理或對比度不足的區域此值會偏高。 • 大值往往意味著此點的匹配在影像平面上不夠準確。
Reprojection error （重投影誤差）	• 將重建出的 3D 點重新投影回原始影像，與最初偵測到的 key-point 位置之間的像素距離。 • 值越大通常代表「假匹配」或「定位不準」，是最常用的野點剔除依據。
Image count （圖像數量）	• 該 3D 點被成功匹配到的影像張數（至少要 ≥2 張才能重建）。 • 張數越少（2–3 張）代表不夠冗餘，定位精度較差；通常會先剔除出現在極少張影像中的點。

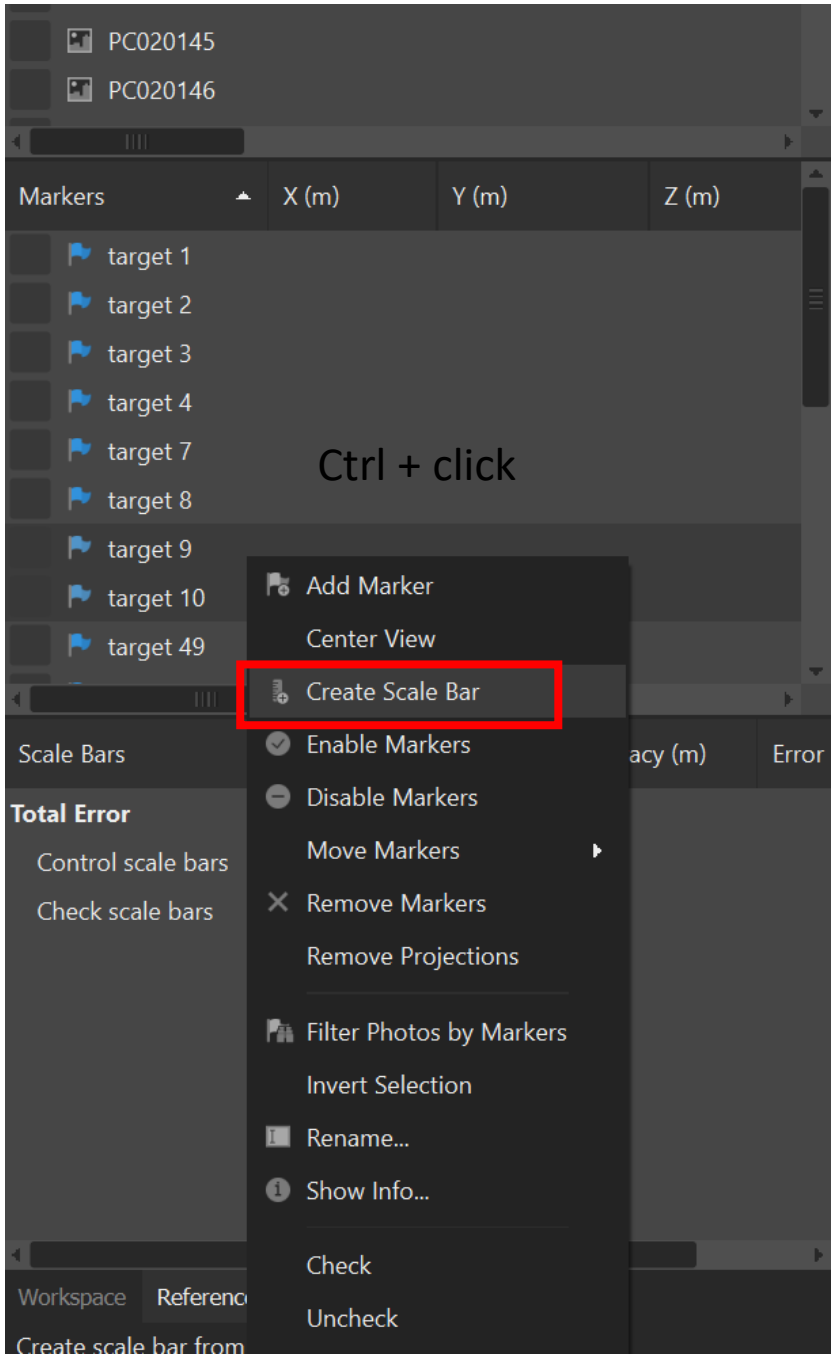

Tools
Help
Markers
Tie Points
Point Cloud
Trajectory
Model
DEM
Orthomosaic
Camera
Camera Calibration...
Optimize Cameras...
Detect Markers...
Detect Fiducials...
Print Markers...
Track Markers...
Attach Markers
Refine Markers

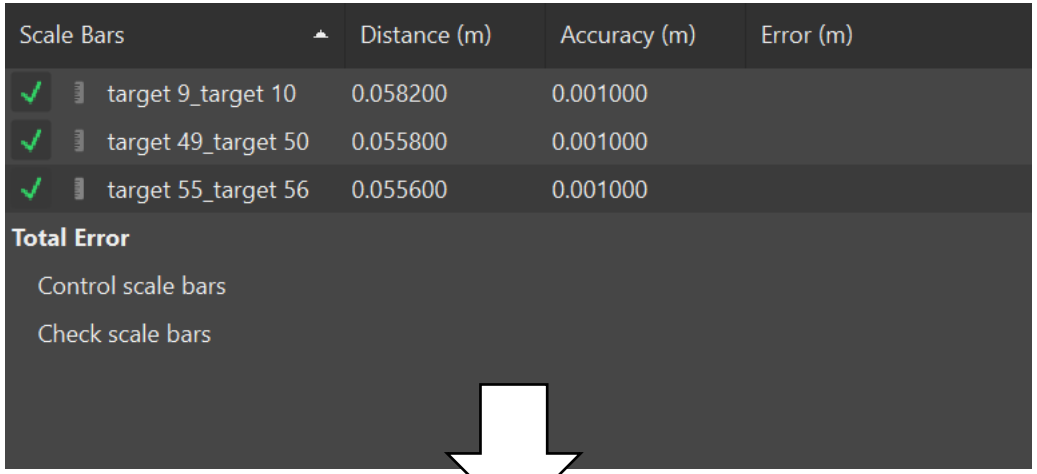

Detect Markers
Parameters
Marker type:
Circular 12 bit
Tolerance:
20
Maximum residual (pix):
5
Process selected images only
Ignore masked image regions
Inverted (white on black)
Disable parity
OK
Cancel

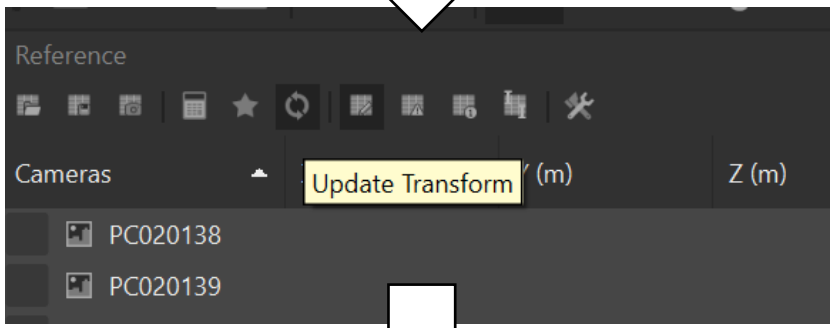


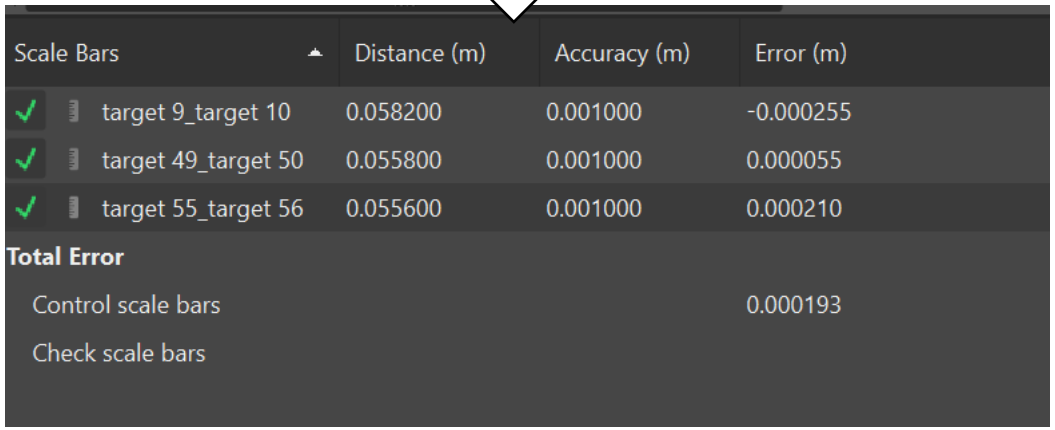

Reference
Cameras
X (m)
Y (m)
Z (m)
PC020138
PC020139
PC020140
PC020141
PC020142
PC020143
PC020144
PC020145
PC020146
Markers
X (m)
Y (m)
Z (m)
target 1
target 2
target 3
target 4
target 7
target 8
target 9
target 10
target 49
Scale Bars
Distance (m)
Accuracy (m)
Error
Total Error
Control scale bars
Check scale bars
Workspace
Reference

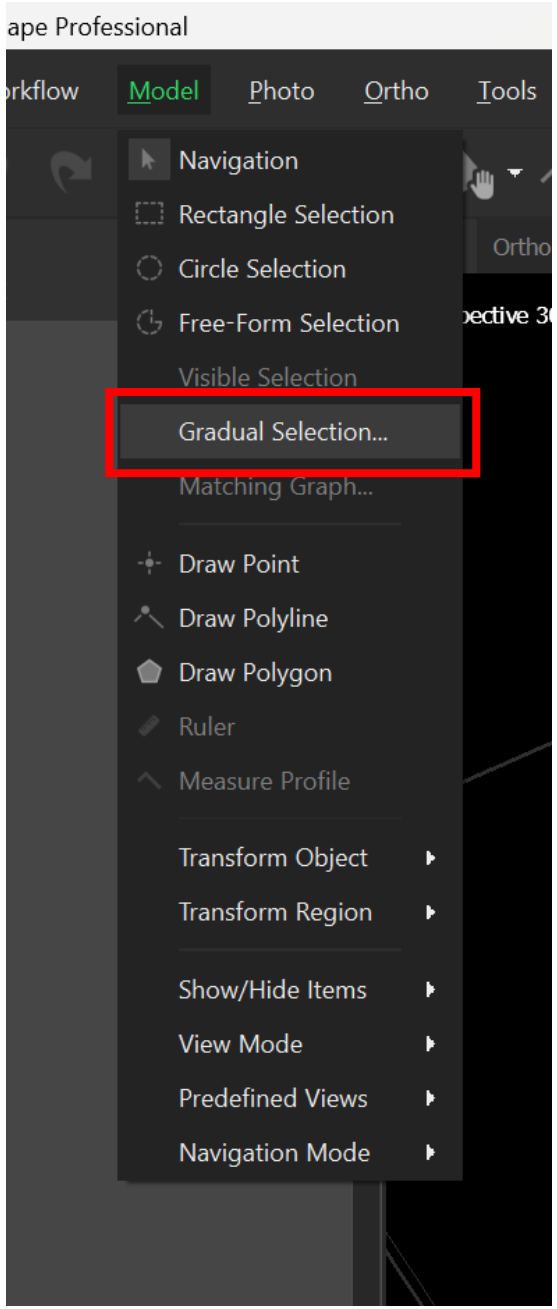

target 1
target 2
target 3
target 4
target 7
target 8
target 9
target 10
target 55
target 56
target 49
target 50
target 57
target 58
target 51
target 52

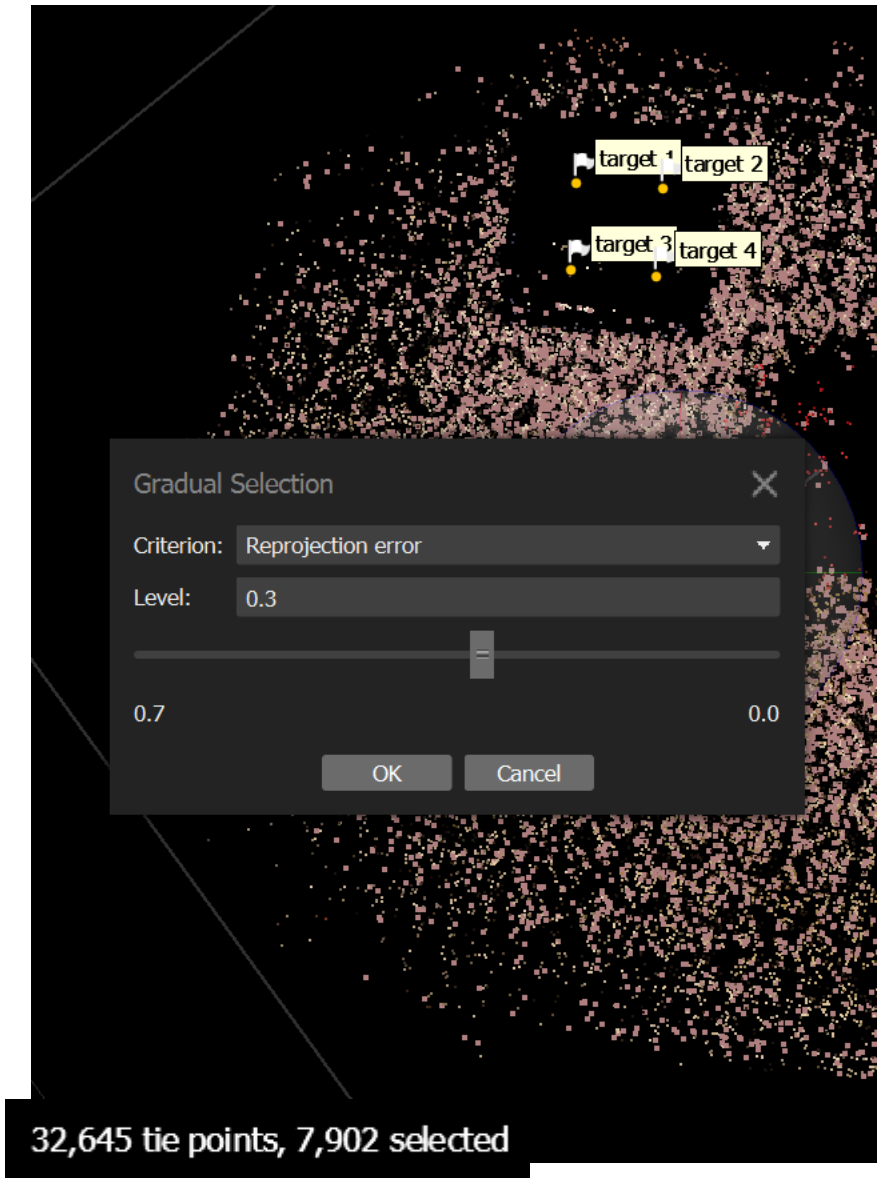

PC020145
PC020146
Markers
X (m)
Y (m)
Z (m)
target 1
target 2
target 3
target 4
target 7
target 8
target 9
target 10
target 49
Ctrl + click
Add Marker
Center View
Create Scale Bar
Enable Markers
Disable Markers
Move Markers
Remove Markers
Remove Projections
Filter Photos by Markers
Invert Selection
Rename...
Show Info...
Check
Uncheck
Scale Bars
Error
Total Error
Control scale bars
Check scale bars
Workspace
Create scale bar from

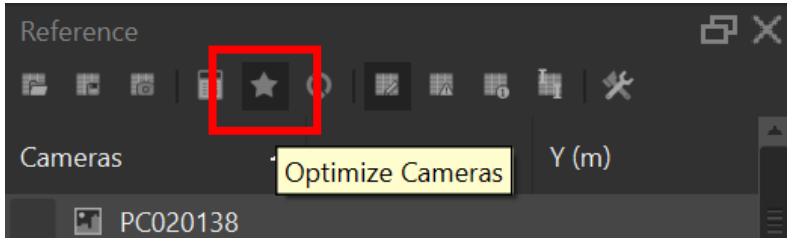

Scale Bars
Distance (m)
Accuracy (m)
Error (m)
target 9_target 10
0.058200
0.001000
target 49_target 50
0.055800
0.001000
target 55_target 56
0.055600
0.001000
Total Error
Control scale bars
Check scale bars


Reference
Cameras
Update Transform
Z (m)
PC020138
PC020139

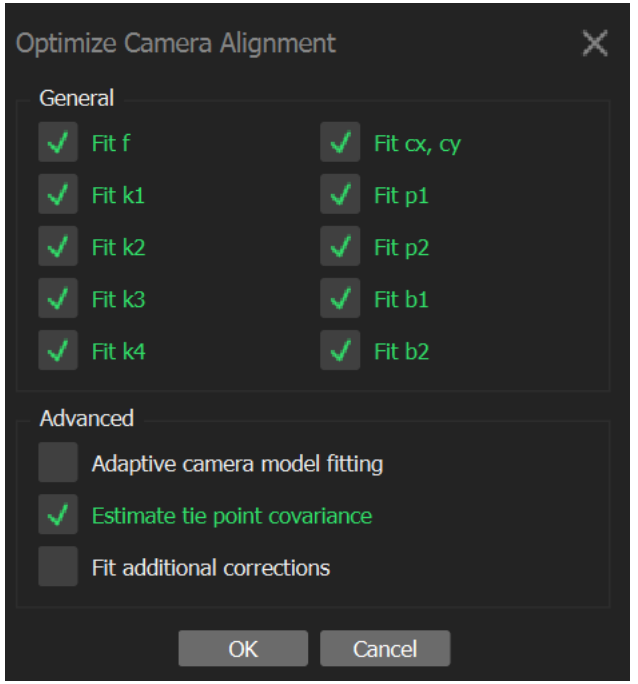

Scale Bars
Distance (m)
Accuracy (m)
Error (m)
target 9_target 10
0.058200
0.001000
-0.000255
target 49_target 50
0.055800
0.001000
0.000055
target 55_target 56
0.055600
0.001000
0.000210
Total Error
Control scale bars
0.000193
Check scale bars

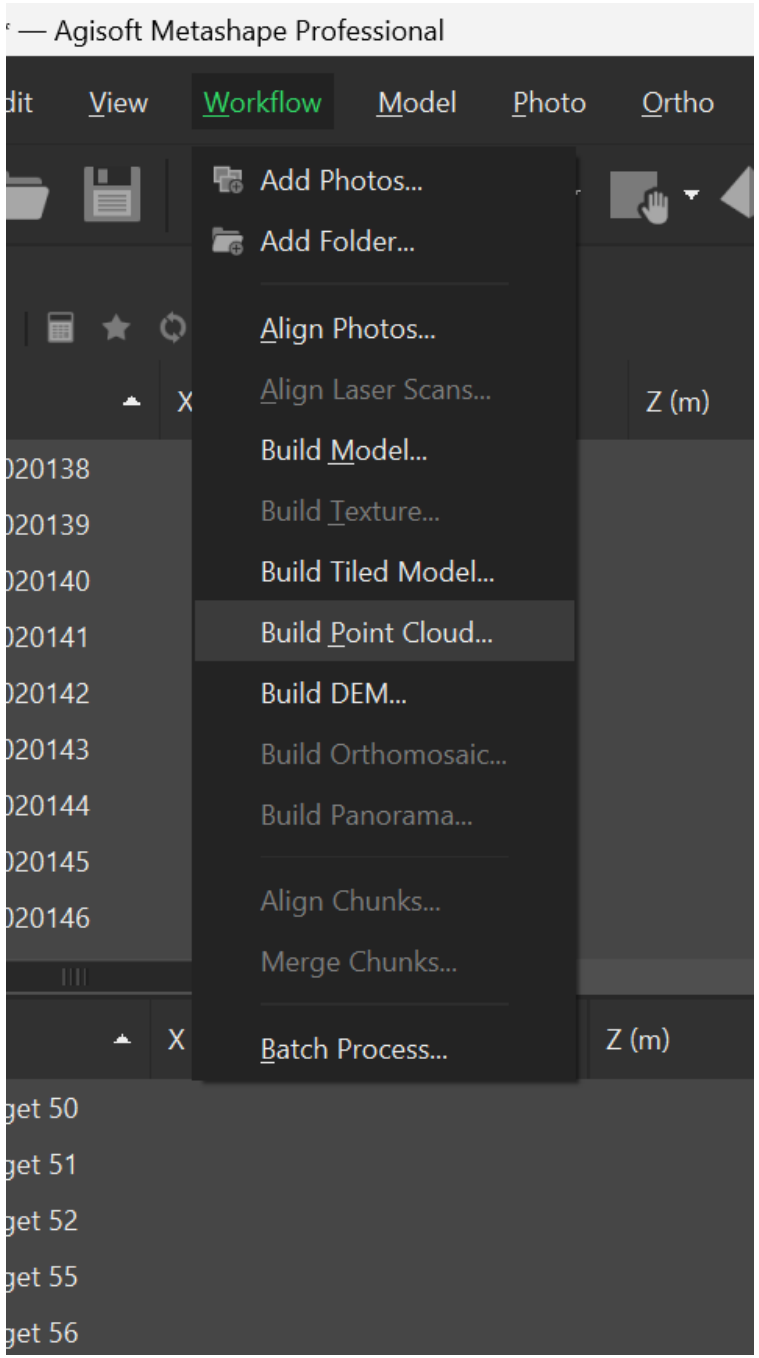

ape Professional
rkflow
Model
Photo
Ortho
Tools
Navigation
Rectangle Selection
Circle Selection
Free-Form Selection
Visible Selection
Gradual Selection...
Matching Graph...
Draw Point
Draw Polyline
Draw Polygon
Ruler
Measure Profile
Transform Object
Transform Region
Show/Hide Items
View Mode
Predefined Views
Navigation Mode

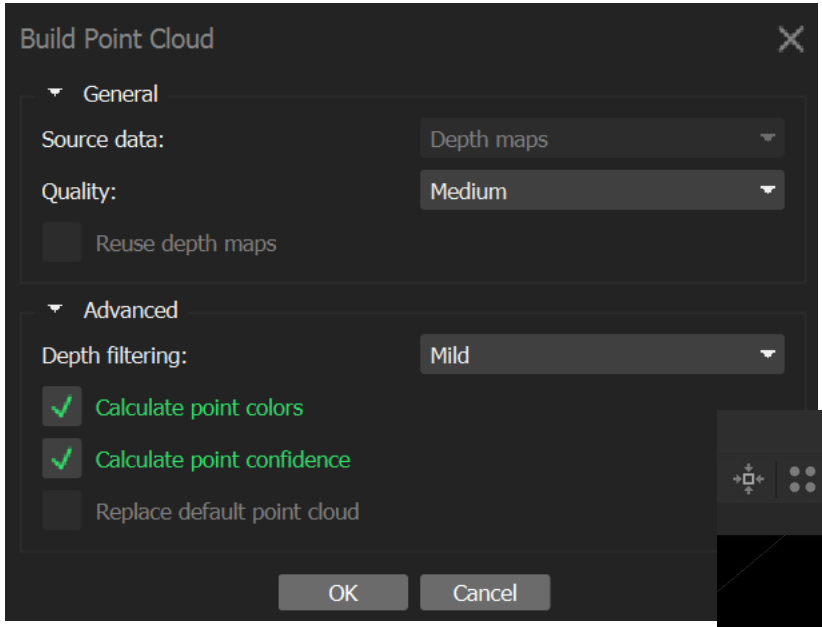

target 1
target 2
target 3
target 4
Gradual Selection
Criterion:
Reprojection error
Level:
0.3
0.7
0.0
OK
Cancel
32,645 tie points, 7,902 selected

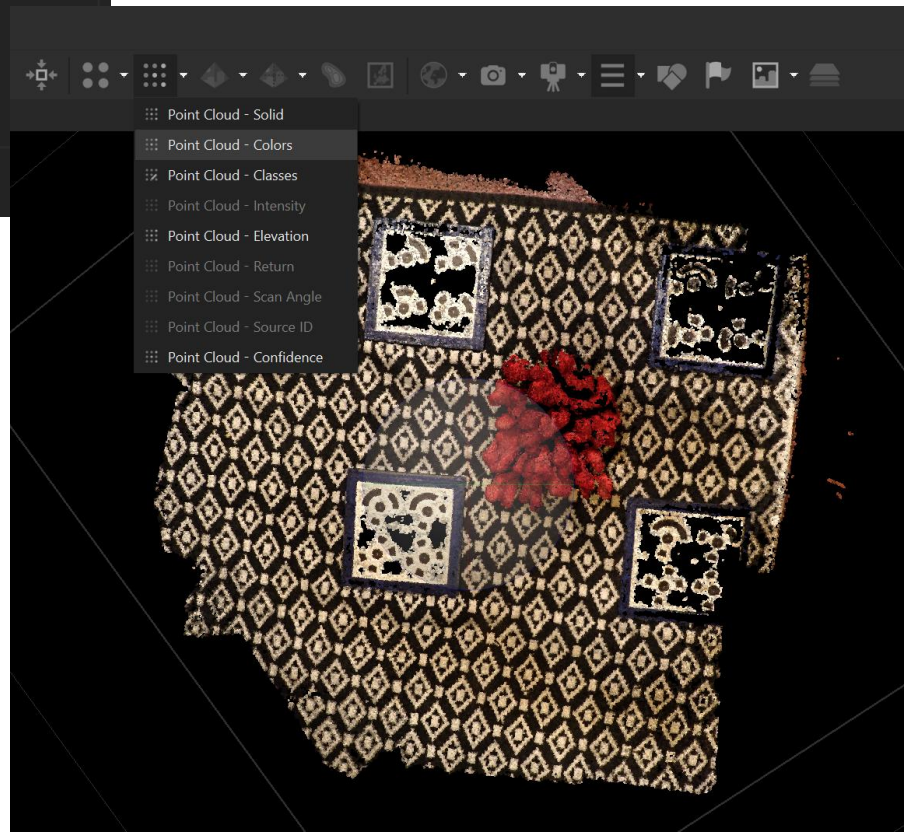

Reference
Cameras
Optimize Cameras
Y (m)
PC020138

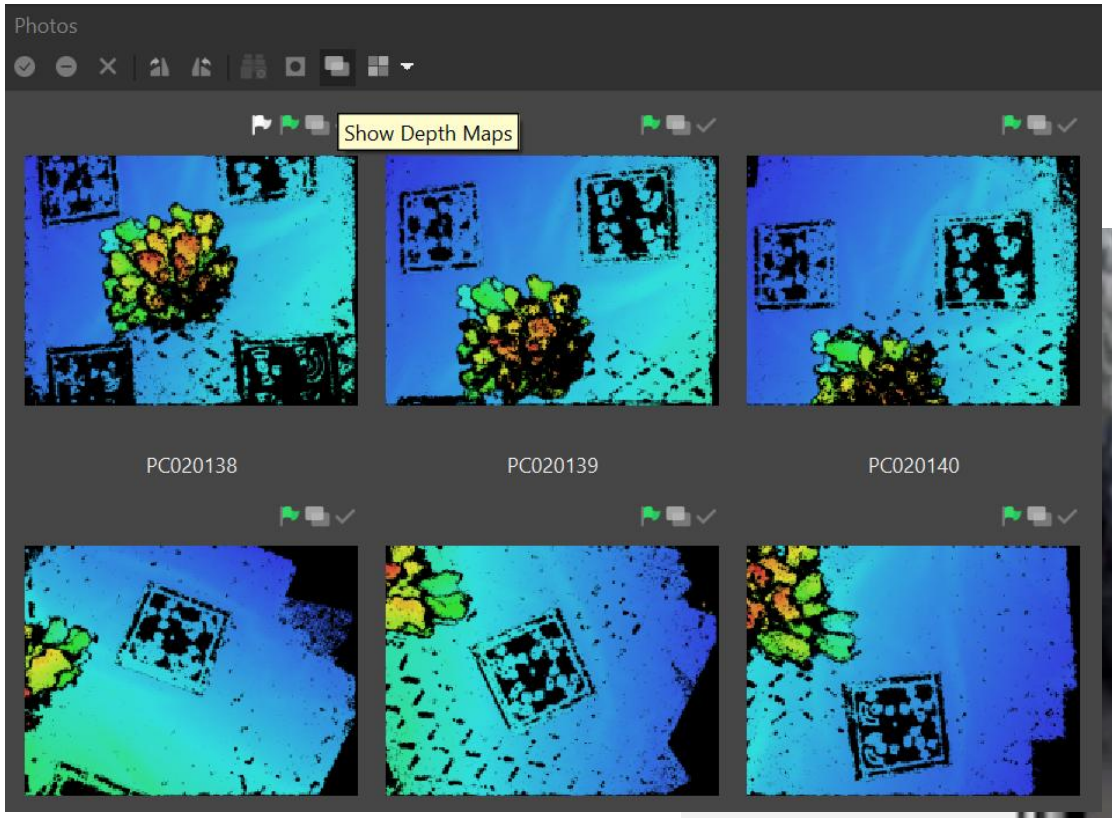

Delete

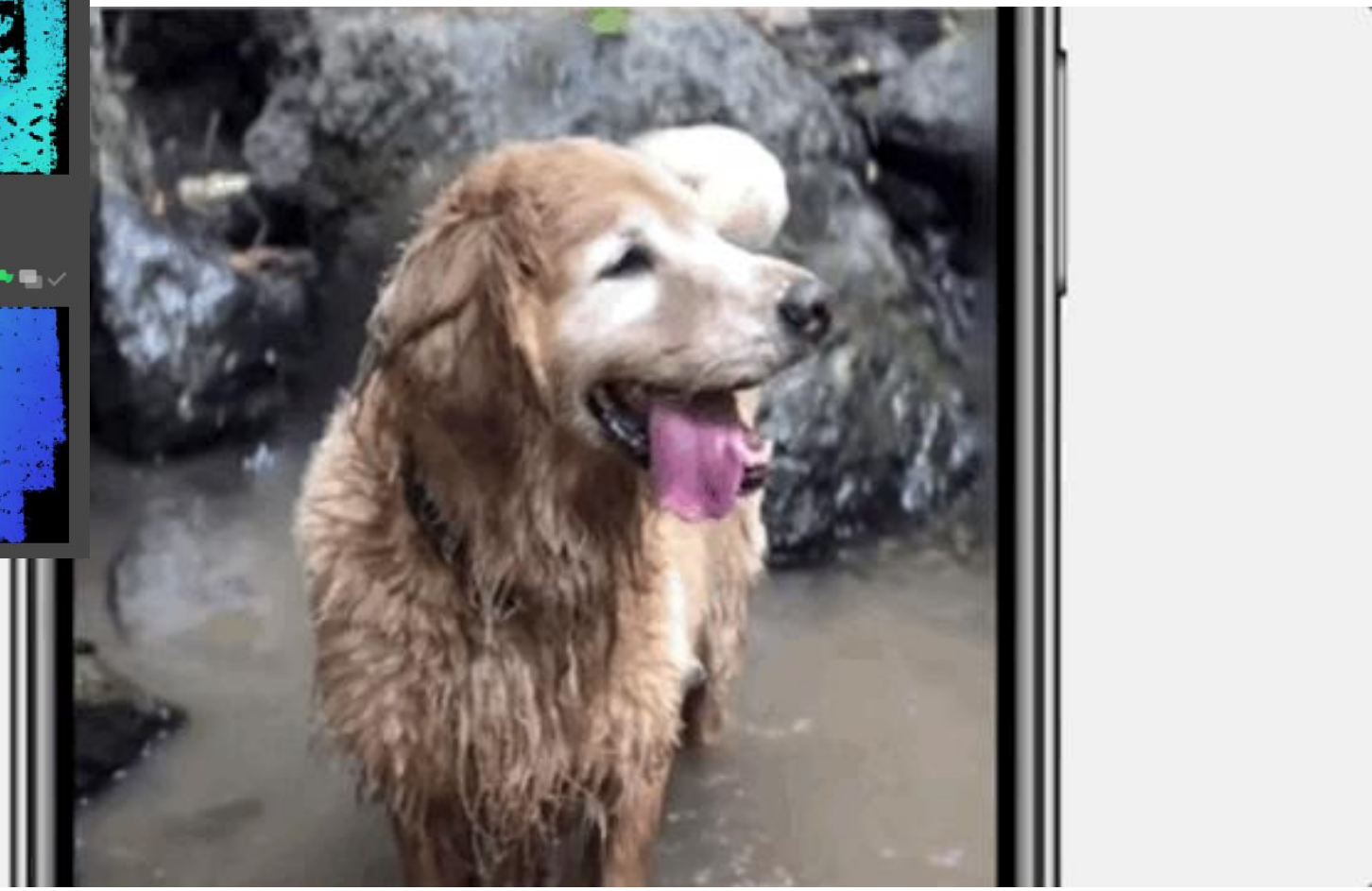

Optimize Camera Alignment
General
Fit f
Fit cx, cy
Fit k1
Fit p1
Fit k2
Fit p2
Fit k3
Fit b1
Fit k4
Fit b2
Advanced
Adaptive camera model fitting
Estimate tie point covariance
Fit additional corrections
OK
Cancel


— Agisoft Metashape Professional
dit
View
Workflow
Model
Photo
Ortho
Add Photos...
Add Folder...
Align Photos...
Align Laser Scans...
Build Model...
Build Texture...
Build Tiled Model...
Build Point Cloud...
Build DEM...
Build Orthomosaic...
Build Panorama...
Align Chunks...
Merge Chunks...
Batch Process...
Z (m)
020138
020139
020140
020141
020142
020143
020144
020145
020146
get 50
get 51
get 52
get 55
get 56

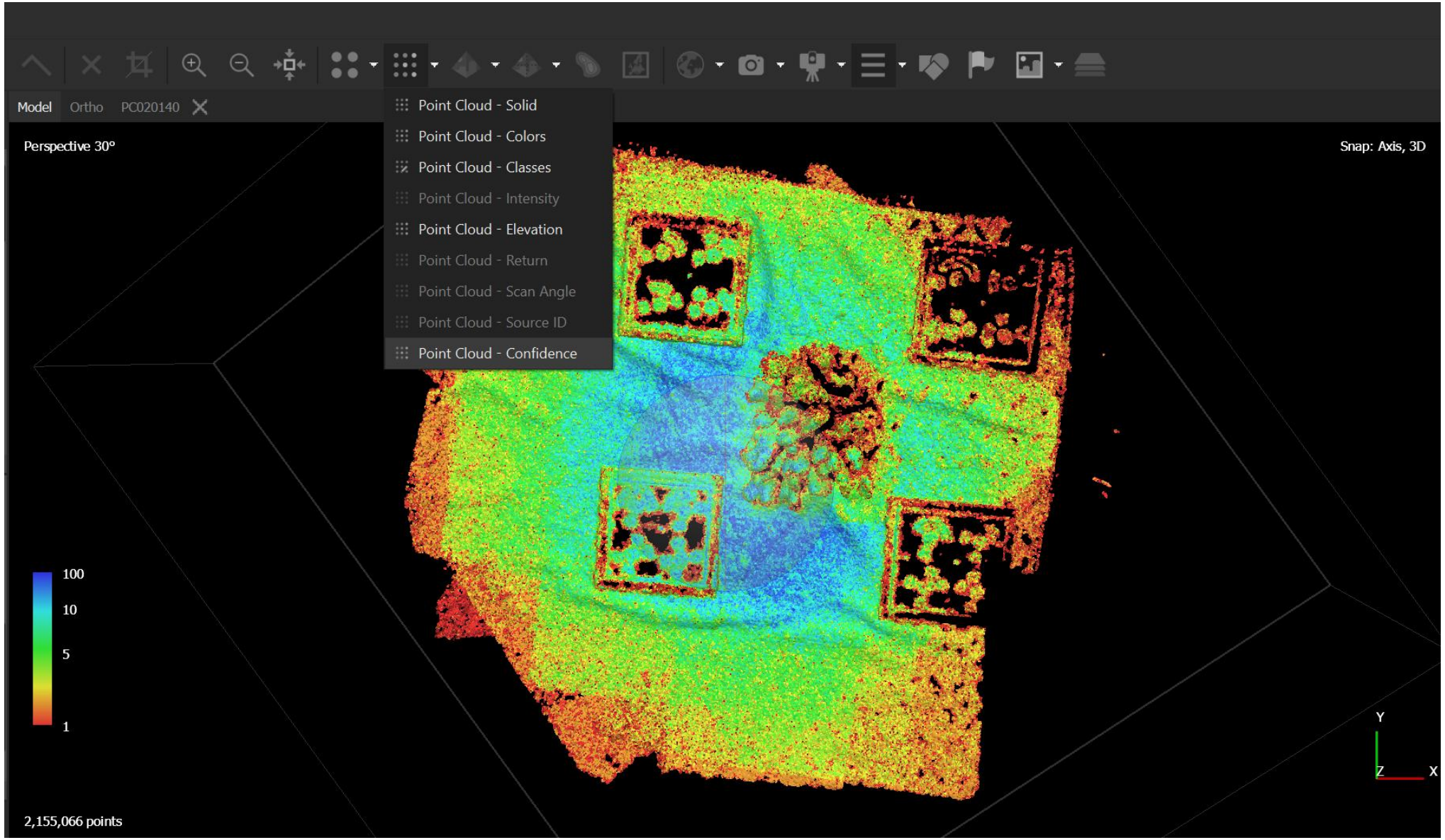

Build Point Cloud
General
Source data:
Depth maps
Quality:
Medium
Reuse depth maps
Advanced
Depth filtering:
Mild
Calculate point colors
Calculate point confidence
Replace default point cloud
OK
Cancel

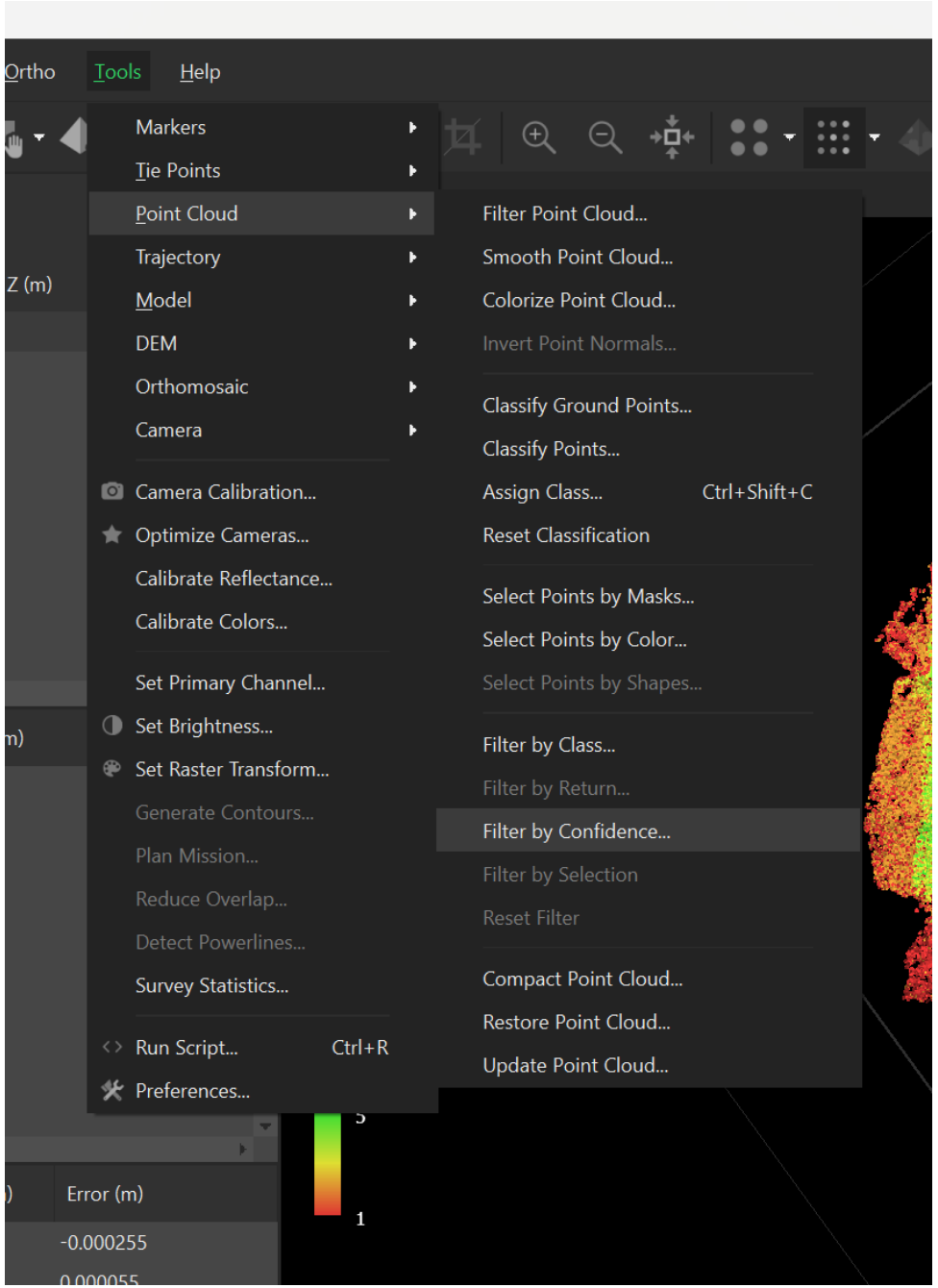

Point Cloud - Solid
Point Cloud - Colors
Point Cloud - Classes
Point Cloud - Intensity
Point Cloud - Elevation
Point Cloud - Return
Point Cloud - Scan Angle
Point Cloud - Source ID
Point Cloud - Confidence

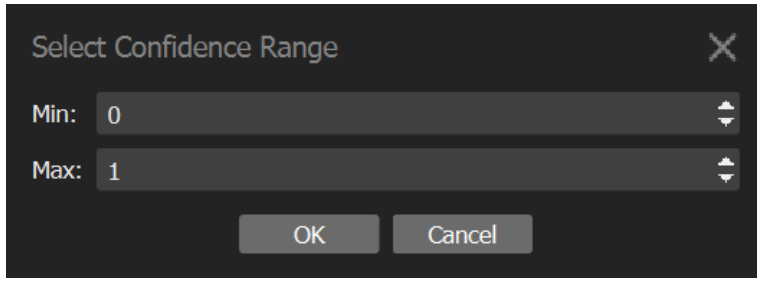


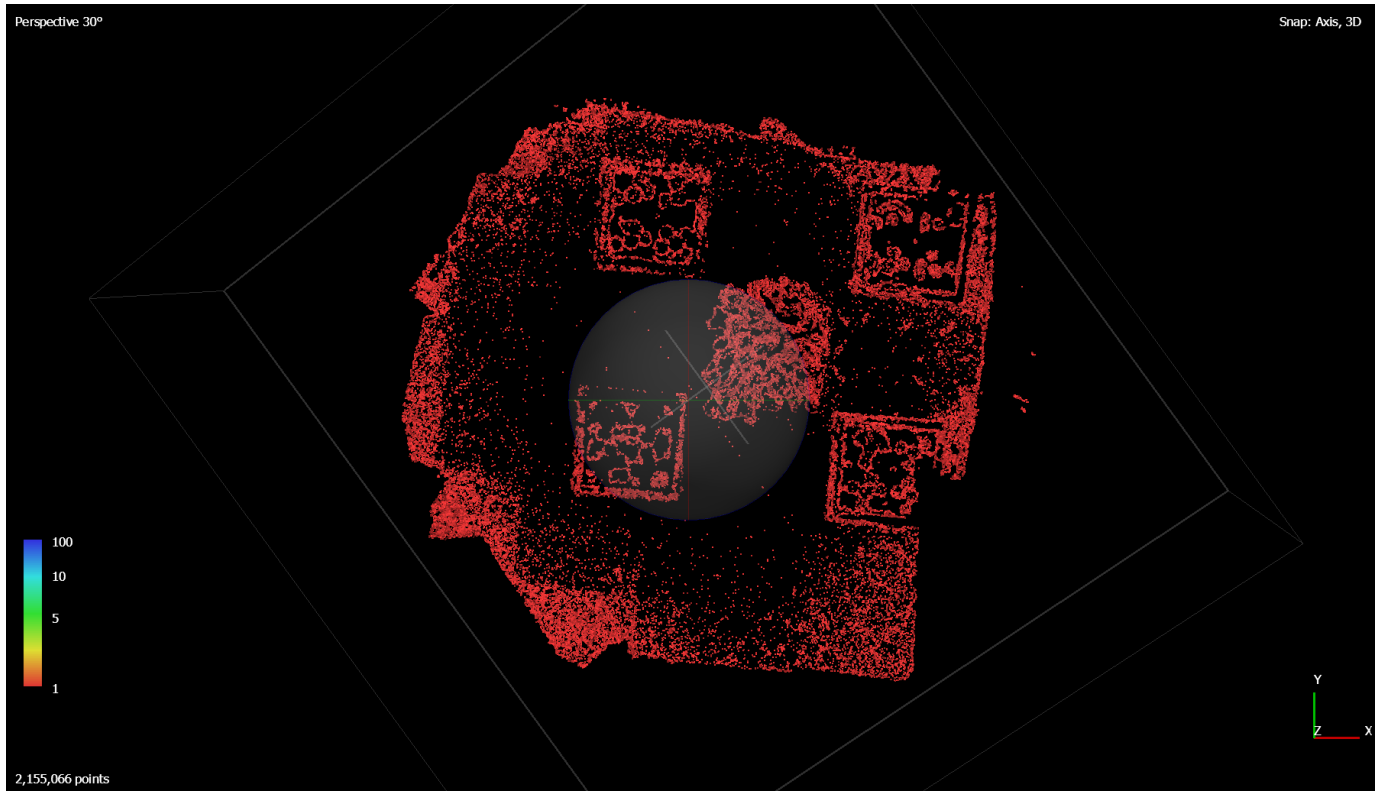


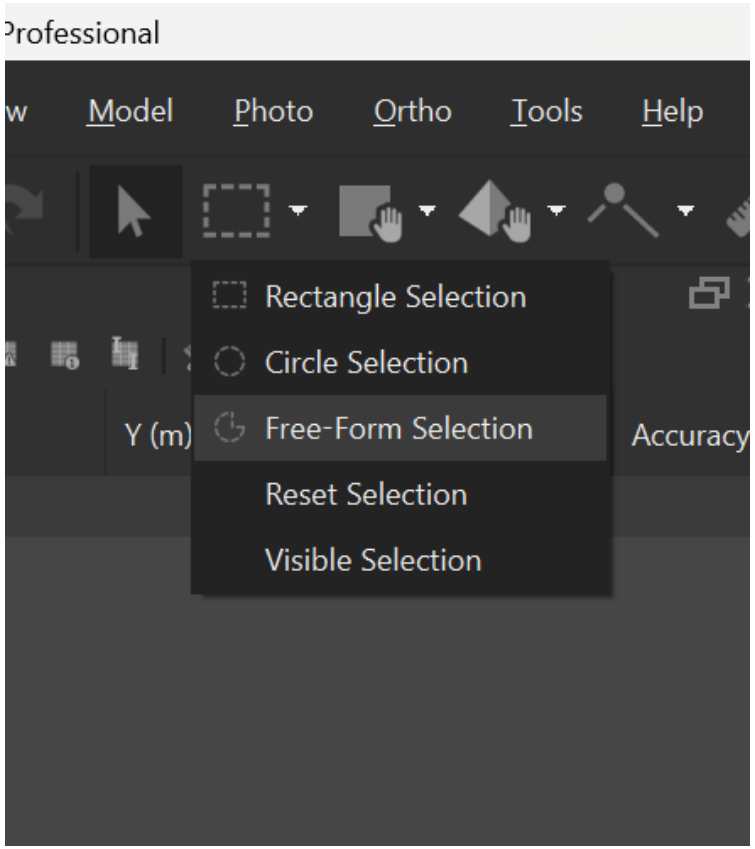
After Build Mesh can export depth map

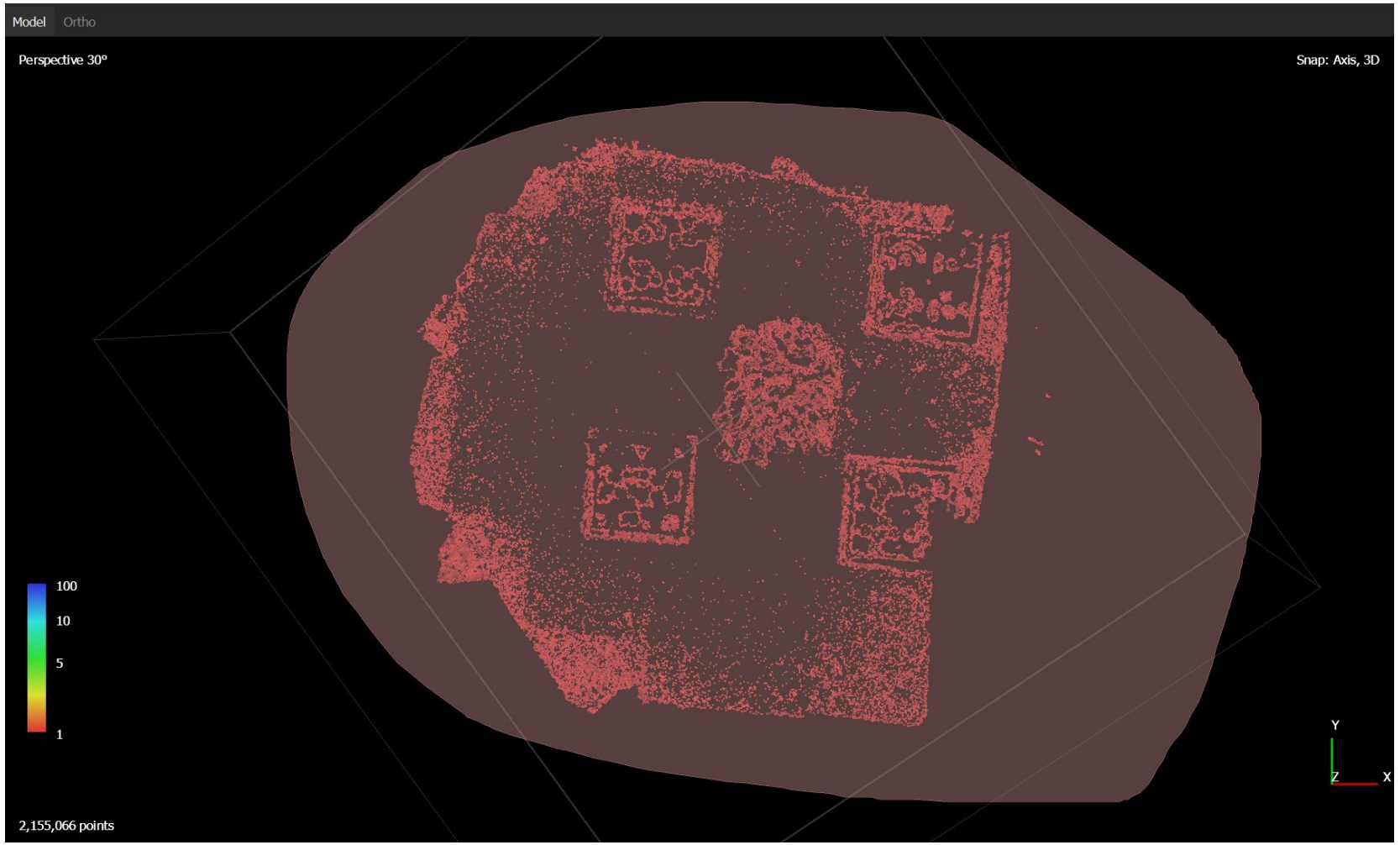

Model
Ortho
PC020140
Point Cloud - Solid
Point Cloud - Colors
Point Cloud - Classes
Point Cloud - Intensity
Point Cloud - Elevation
Point Cloud - Return
Point Cloud - Scan Angle
Point Cloud - Source ID
Point Cloud - Confidence
Perspective 30°
Snap: Axis, 3D
100
10
5
1
Y
Z
X
2,155,066 points


Ortho
Tools
Help
Markers
Tie Points
Point Cloud
Trajectory
Model
DEM
Orthomosaic
Camera
Camera Calibration...
Optimize Cameras...
Calibrate Reflectance...
Calibrate Colors...
Set Primary Channel...
Set Brightness...
Set Raster Transform...
Generate Contours...
Plan Mission...
Reduce Overlap...
Detect Powerlines...
Survey Statistics...
Run Script... Ctrl+R
Preferences...
Filter Point Cloud...
Smooth Point Cloud...
Colorize Point Cloud...
Invert Point Normals...
Classify Ground Points...
Classify Points...
Assign Class... Ctrl+Shift+C
Reset Classification
Select Points by Masks...
Select Points by Color...
Select Points by Shapes...
Filter by Class...
Filter by Return...
Filter by Confidence...
Filter by Selection
Reset Filter
Compact Point Cloud...
Restore Point Cloud...
Update Point Cloud...
Z (m)
Error (m)
-0.000255
5
1

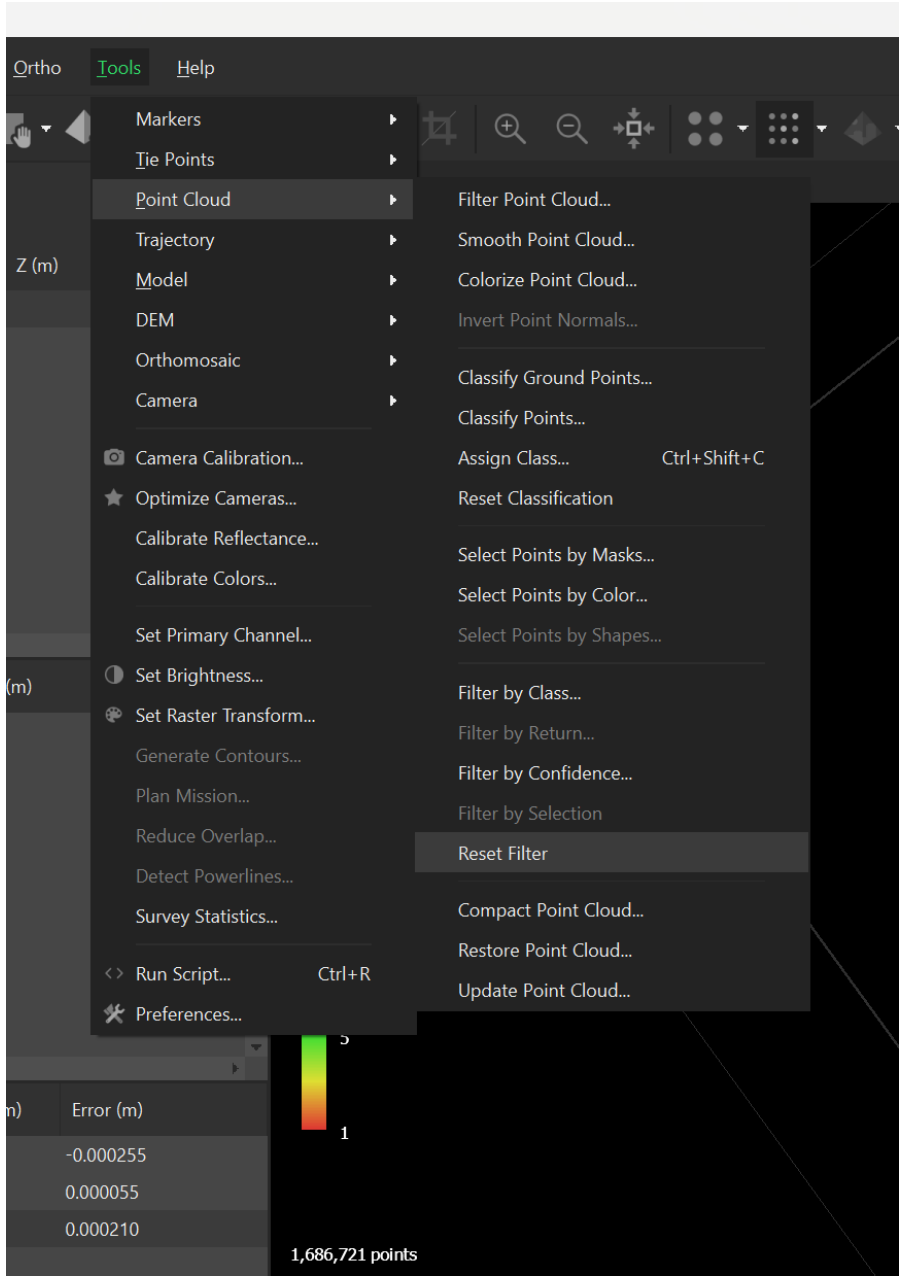

Select Confidence Range
Min: 0
Max: 1
OK
Cancel

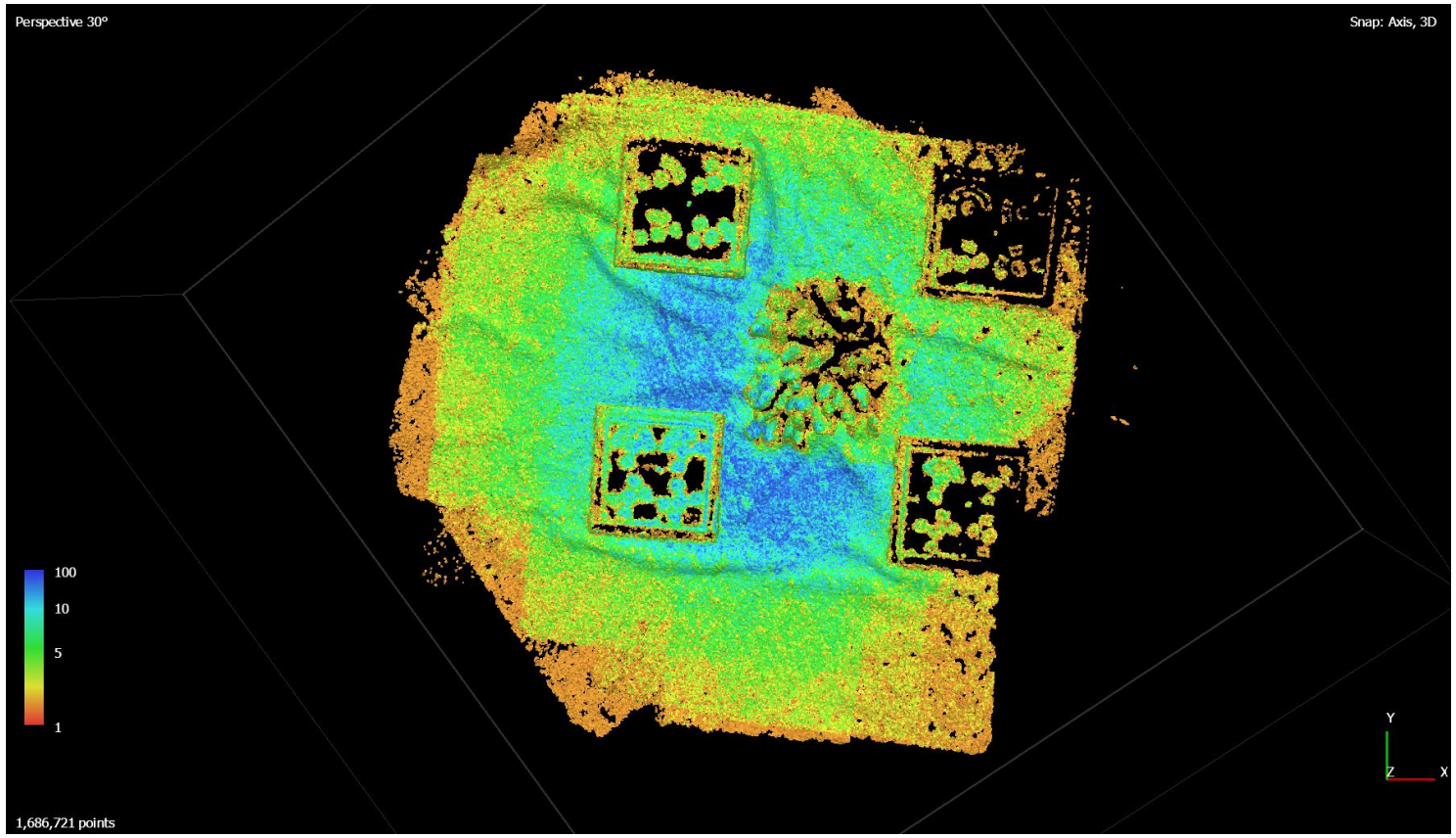

Perspective 30°
Snap: Axis, 3D
100
10
5
1
2,155,066 points
Y
Z
X



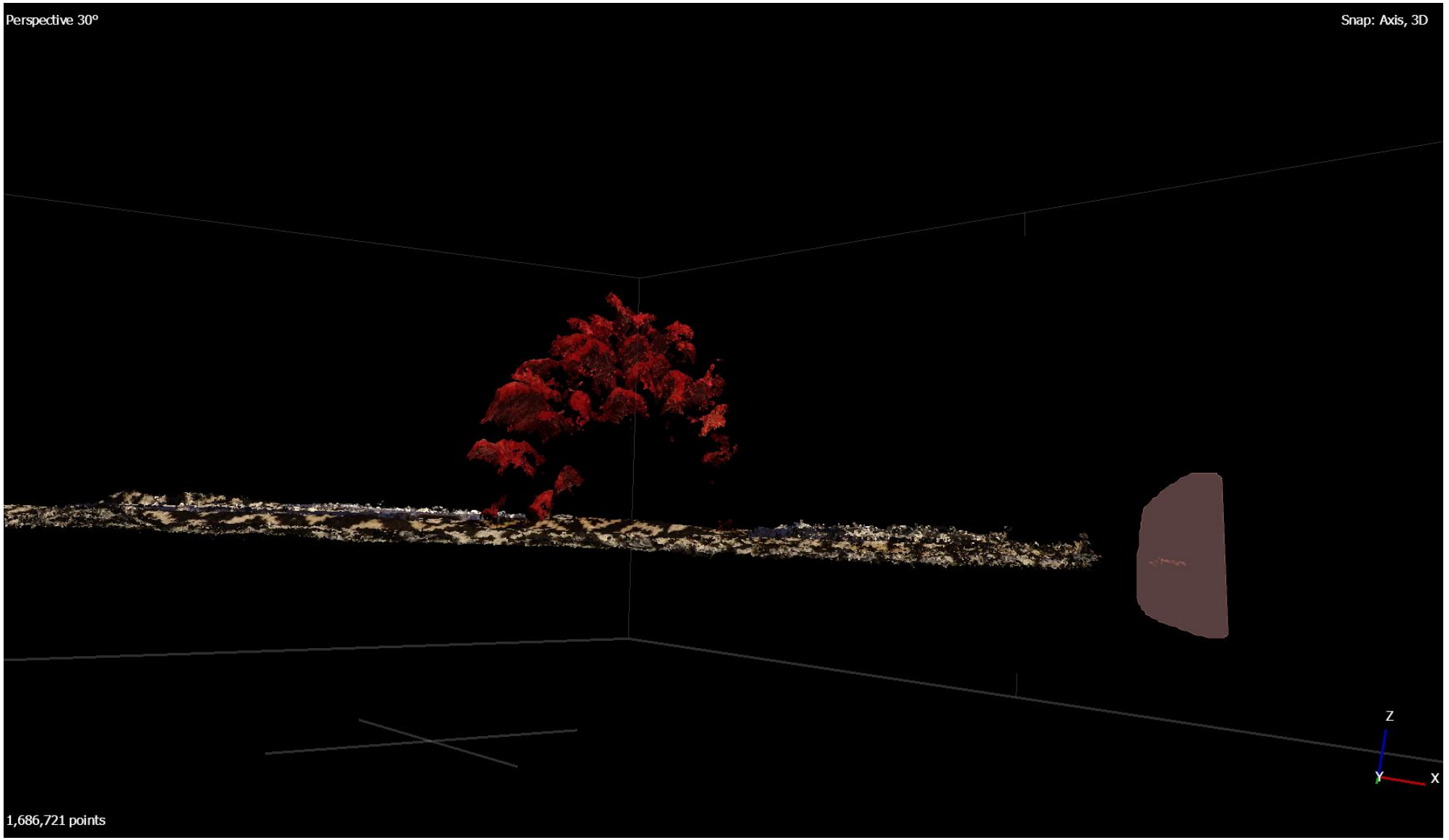


Do not select markers! Hide the markers before selection

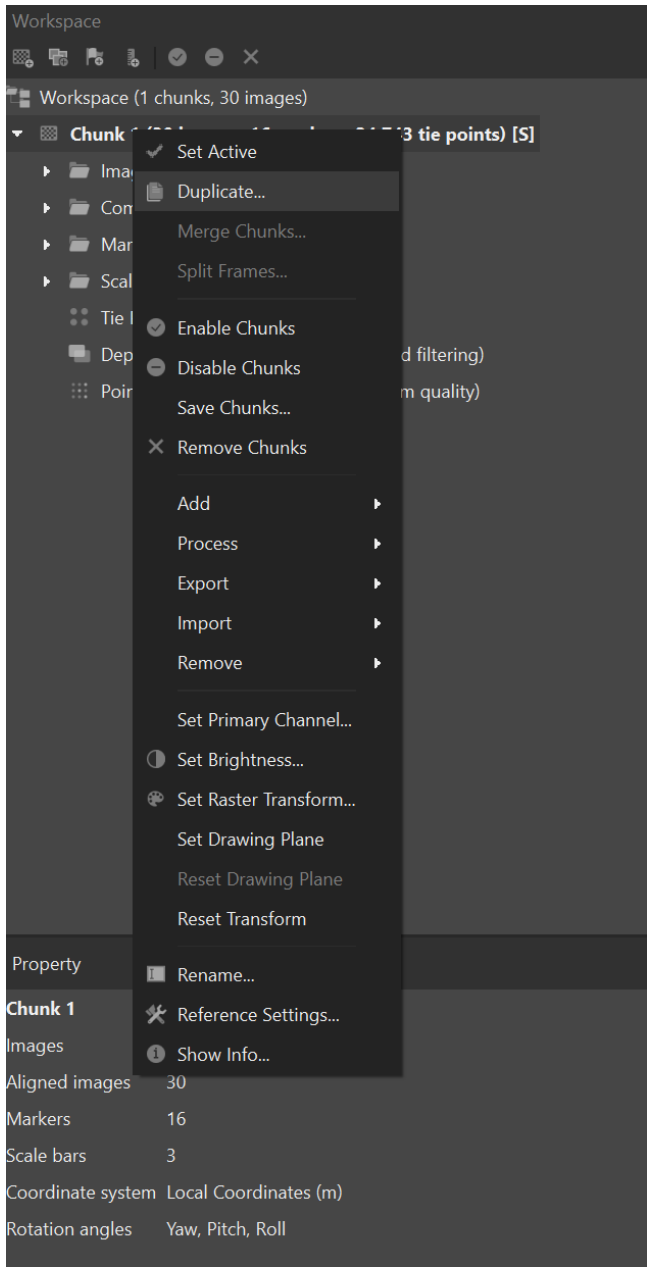

Ortho
Tools
Help
Markers
Tie Points
Point Cloud
Trajectory
Model
DEM
Orthomosaic
Camera
Camera Calibration...
Optimize Cameras...
Calibrate Reflectance...
Calibrate Colors...
Set Primary Channel...
Set Brightness...
Set Raster Transform...
Generate Contours...
Plan Mission...
Reduce Overlap...
Detect Powerlines...
Survey Statistics...
Run Script... Ctrl+R
Preferences...
Filter Point Cloud...
Smooth Point Cloud...
Colorize Point Cloud...
Invert Point Normals...
Classify Ground Points...
Classify Points...
Assign Class... Ctrl+Shift+C
Reset Classification
Select Points by Masks...
Select Points by Color...
Select Points by Shapes...
Filter by Class...
Filter by Return...
Filter by Confidence...
Filter by Selection
Reset Filter
Compact Point Cloud...
Restore Point Cloud...
Update Point Cloud...
Z (m)
(m)
Error (m)
-0.000255
0.000055
0.000210
5
1
1,686,721 points

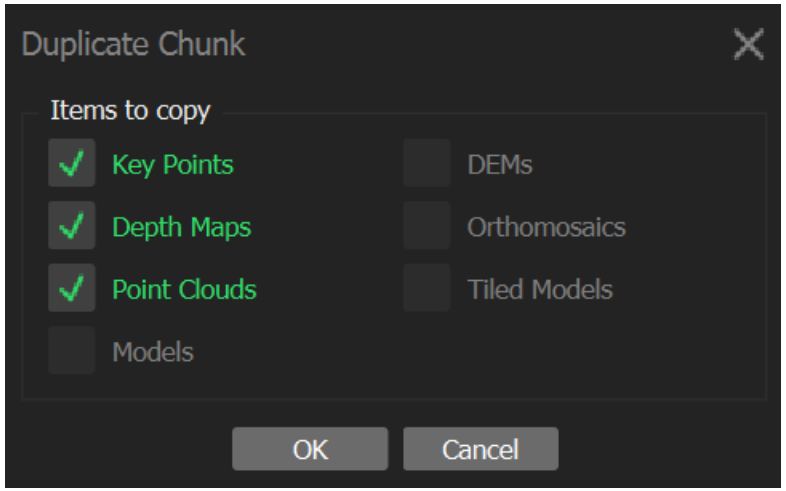

Perspective 30°
Snap: Axis, 3D
100
10
5
1
Y
Z
X
1,686,721 points

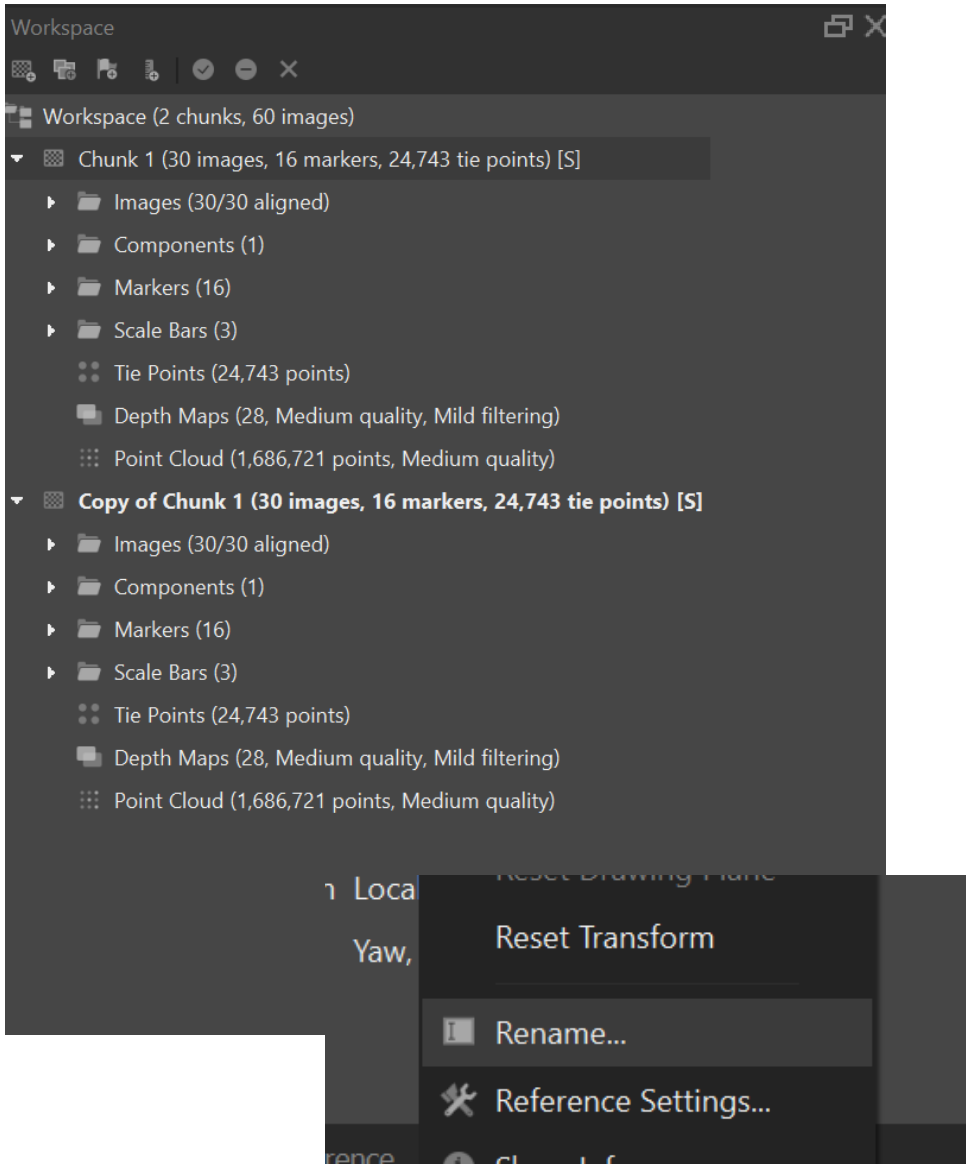
Clean the outliners

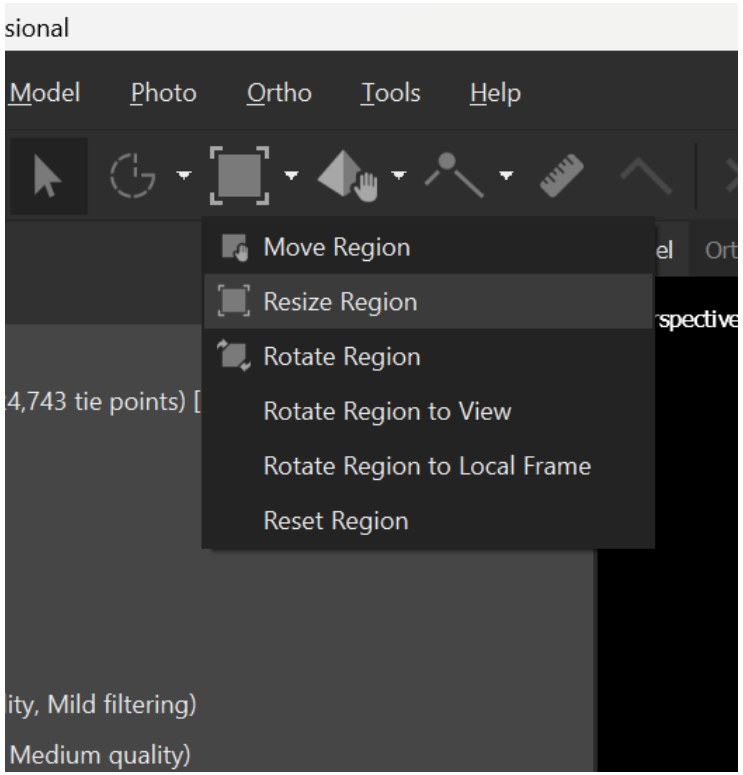


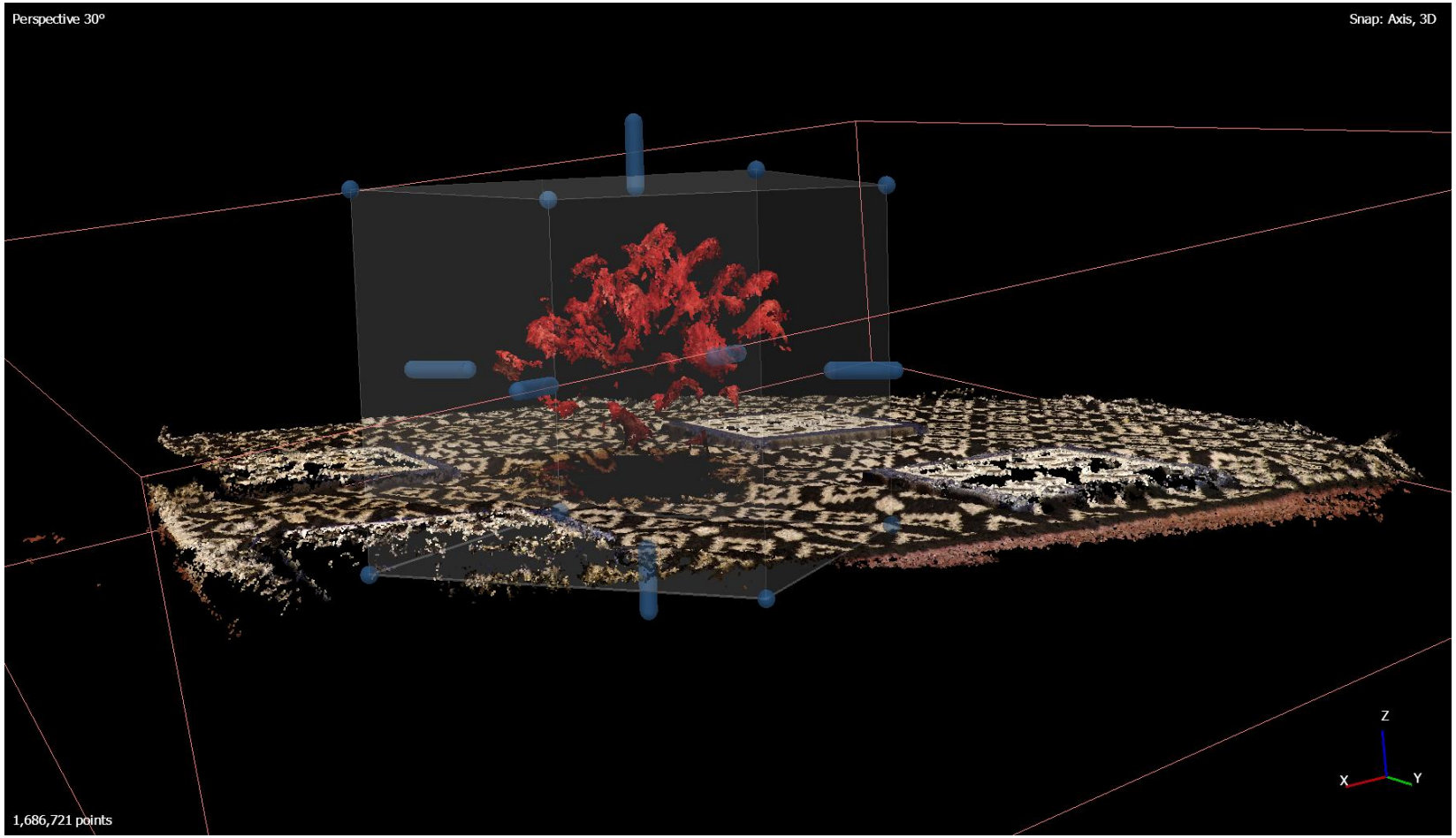
NOAA SOP 2/3 completed


Workspace
Workspace (1 chunks, 30 images)
Set Active
Duplicate...
Merge Chunks...
Split Frames...
Enable Chunks
Disable Chunks
Save Chunks...
Remove Chunks
Add
Process
Export
Import
Remove
Set Primary Channel...
Set Brightness...
Set Raster Transform...
Set Drawing Plane
Reset Drawing Plane
Reset Transform
Rename...
Reference Settings...
Show Info...
Property
Chunk 1
Images
Aligned images 30
Markers 16
Scale bars 3
Coordinate system Local Coordinates (m)
Rotation angles Yaw, Pitch, Roll

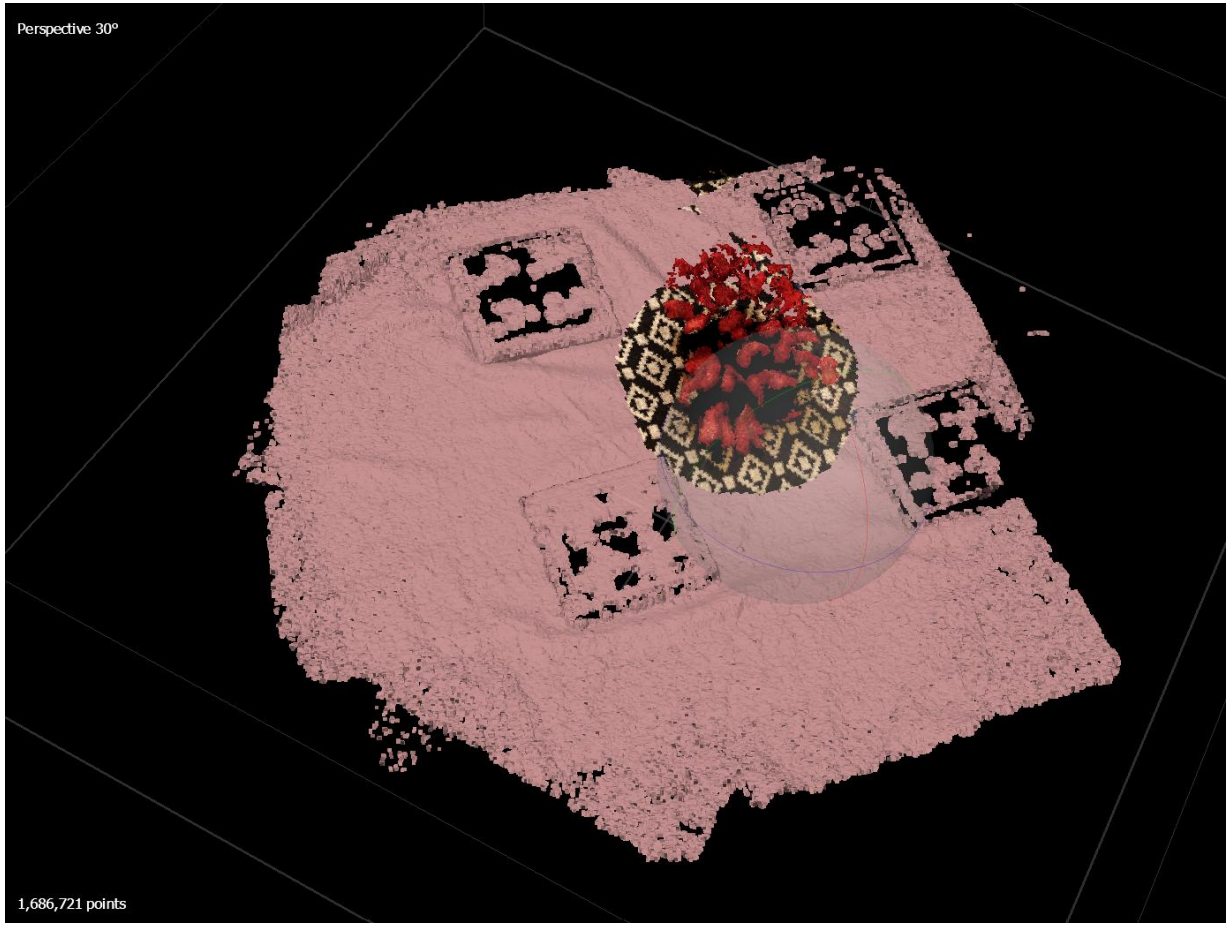

Duplicate Chunk
Items to copy
Key Points
Depth Maps
Point Clouds
Models
DEMs
Orthomosaics
Tiled Models
OK
Cancel

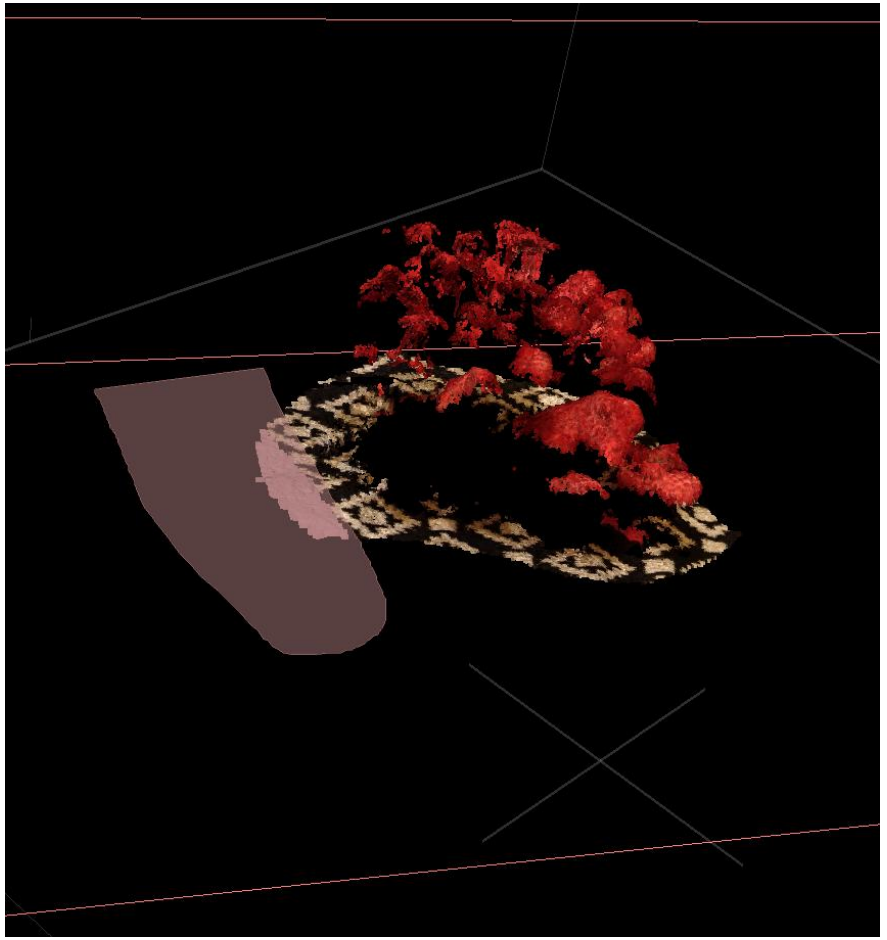

Workspace
Workspace (2 chunks, 60 images)
Chunk 1 (30 images, 16 markers, 24,743 tie points) [S]
Images (30/30 aligned)
Components (1)
Markers (16)
Scale Bars (3)
Tie Points (24,743 points)
Depth Maps (28, Medium quality, Mild filtering)
Point Cloud (1,686,721 points, Medium quality)
Copy of Chunk 1 (30 images, 16 markers, 24,743 tie points) [S]
Images (30/30 aligned)
Components (1)
Markers (16)
Scale Bars (3)
Tie Points (24,743 points)
Depth Maps (28, Medium quality, Mild filtering)
Point Cloud (1,686,721 points, Medium quality)
Reset Transform
Rename...
Reference Settings...

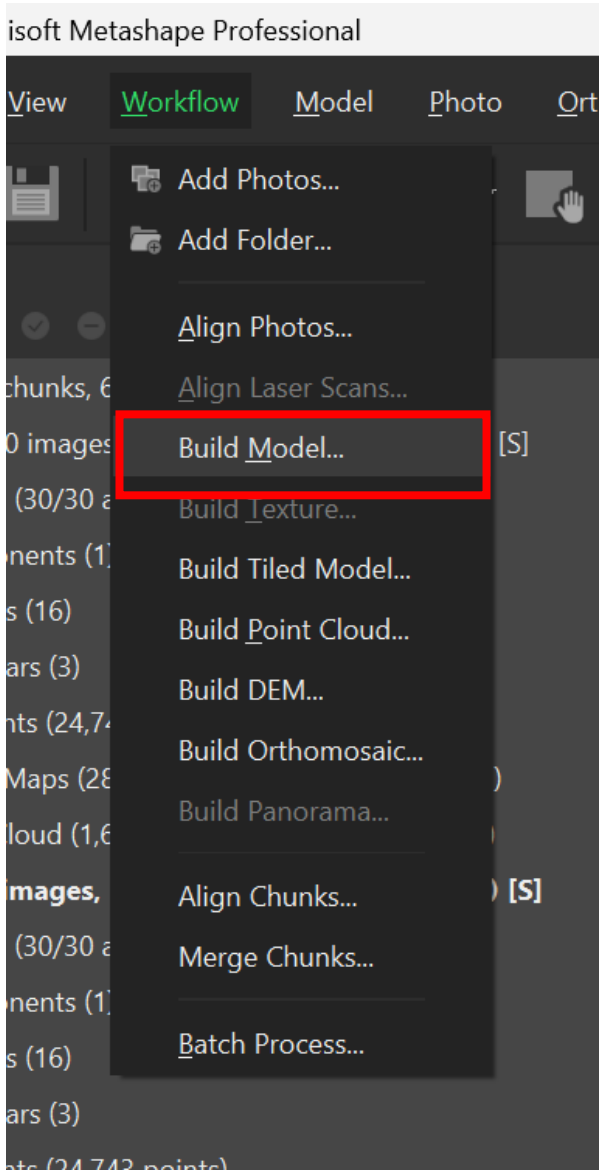

sional
Model
Photo
Ortho
Tools
Help
Move Region
Resize Region
Rotate Region
Rotate Region to View
Rotate Region to Local Frame
Reset Region
4,743 tie points) [
ity, Mild filtering)
Medium quality)

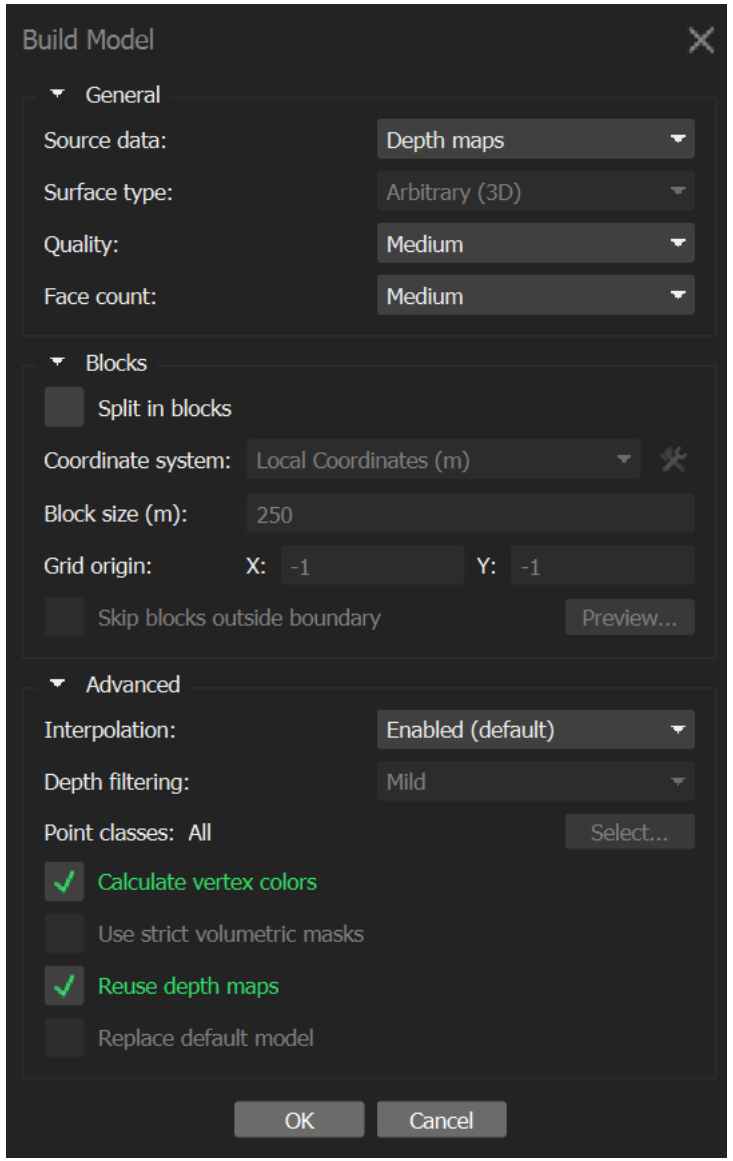

Perspective 30°
Snap: Axis, 3D
Z
X
Y
1,686,721 points

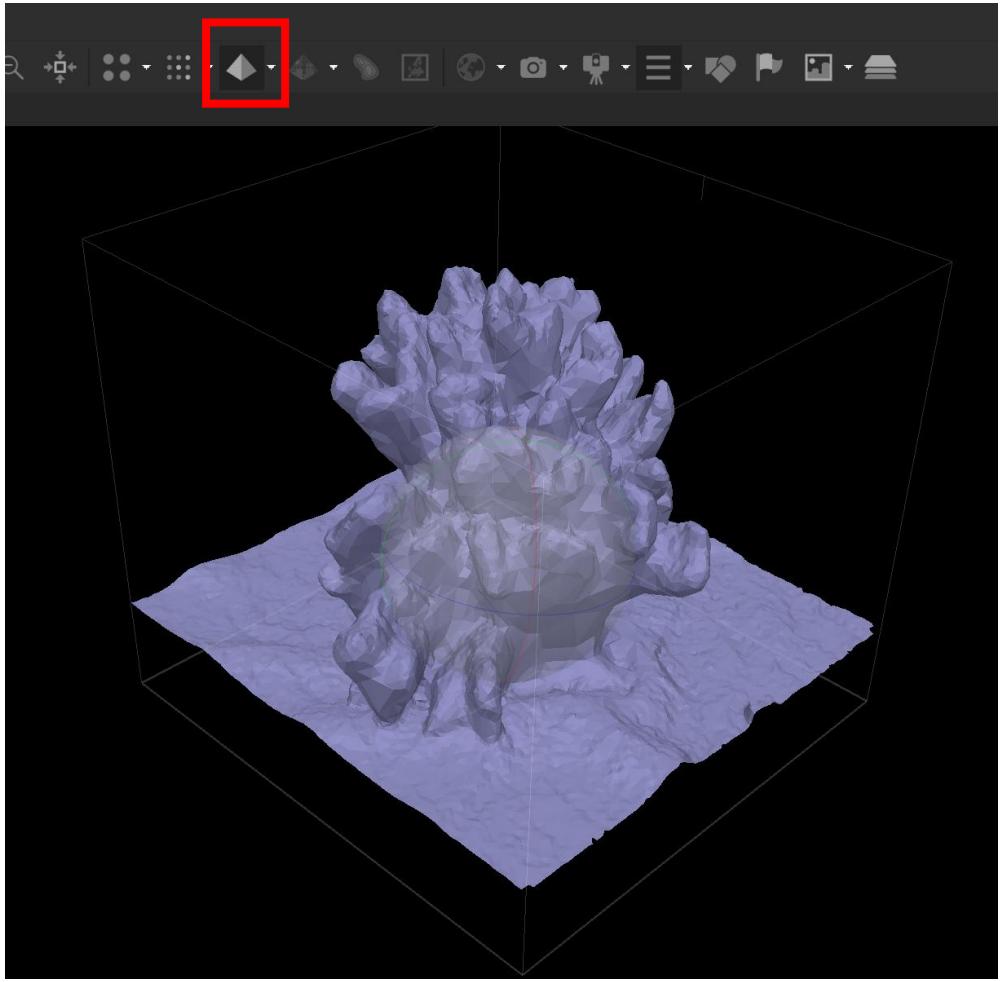
Plan B: Clean the surrounding points, only keep the object

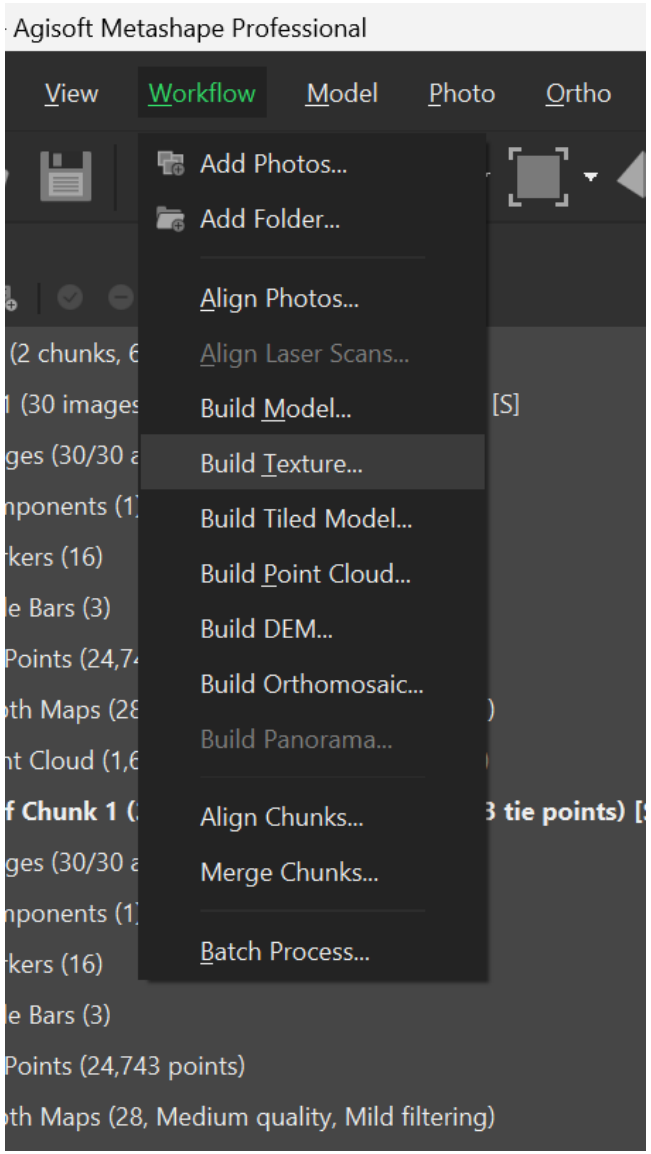


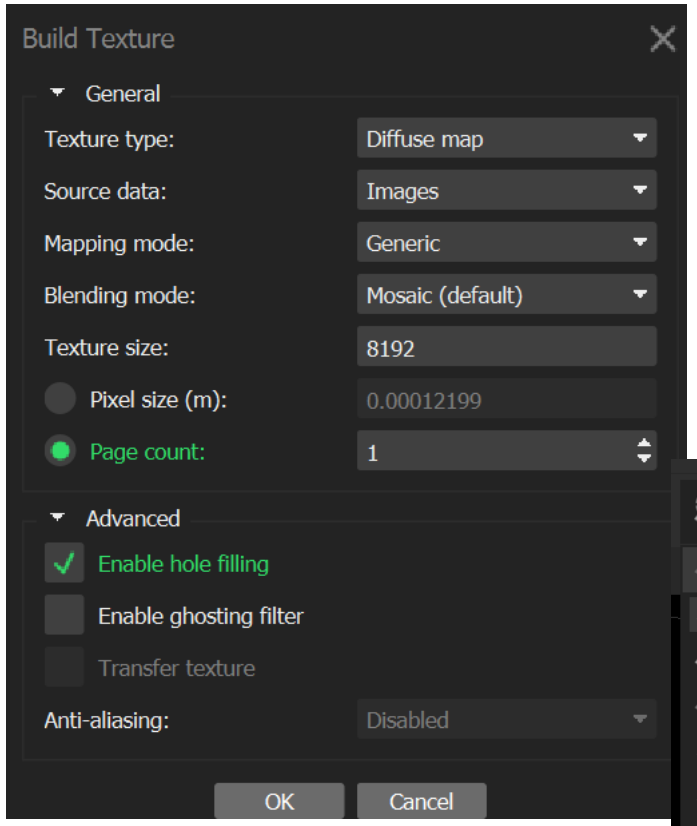


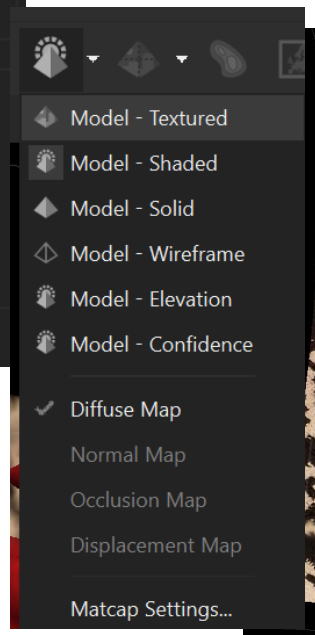

isoft Metashape Professional
View
Workflow
Model
Photo
Ort
Add Photos...
Add Folder...
Align Photos...
Align Laser Scans...
Build Model...
Build Texture...
Build Tiled Model...
Build Point Cloud...
Build DEM...
Build Orthomosaic...
Build Panorama...
Align Chunks...
Merge Chunks...
Batch Process...

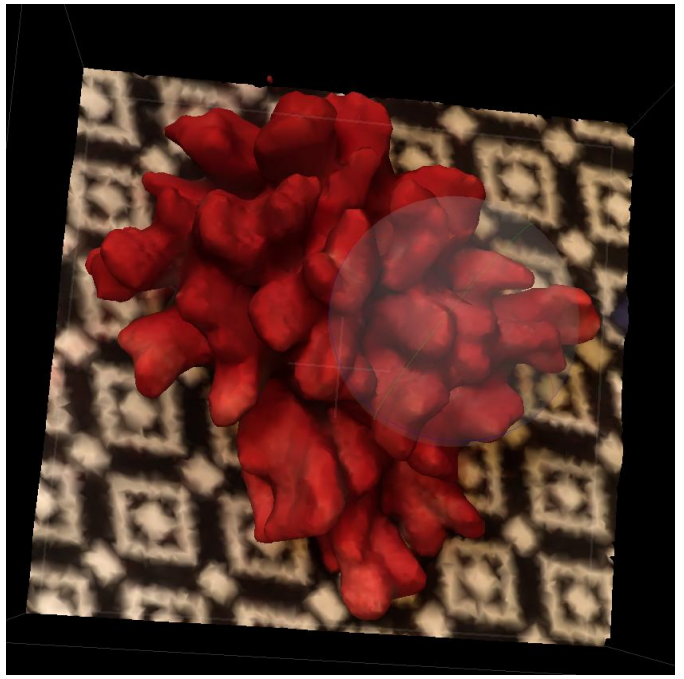

Build Model
General
Source data: Depth maps
Surface type: Arbitrary (3D)
Quality: Medium
Face count: Medium
Blocks
Split in blocks
Coordinate system: Local Coordinates (m)
Block size (m): 250
Grid origin: X: -1 Y: -1
Skip blocks outside boundary
Preview...
Advanced
Interpolation: Enabled (default)
Depth filtering: Mild
Point classes: All
Select...
Calculate vertex colors
Use strict volumetric masks
Reuse depth maps
Replace default model
OK
Cancel

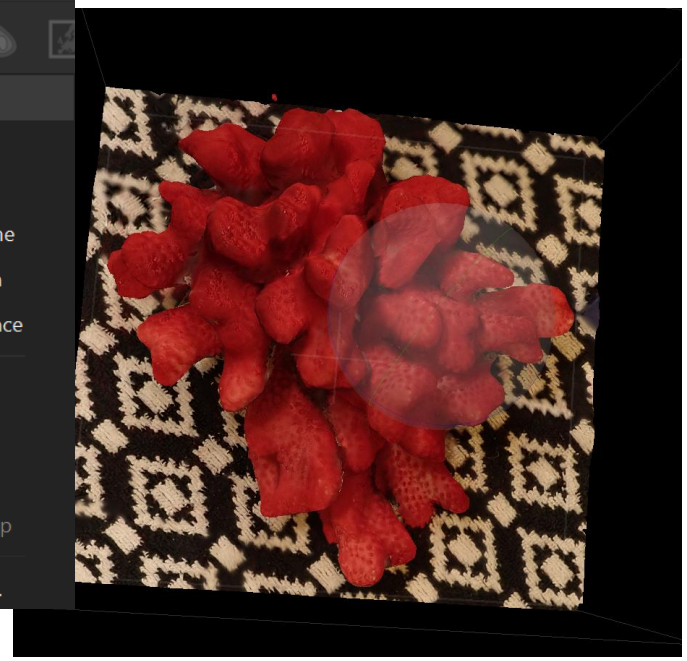


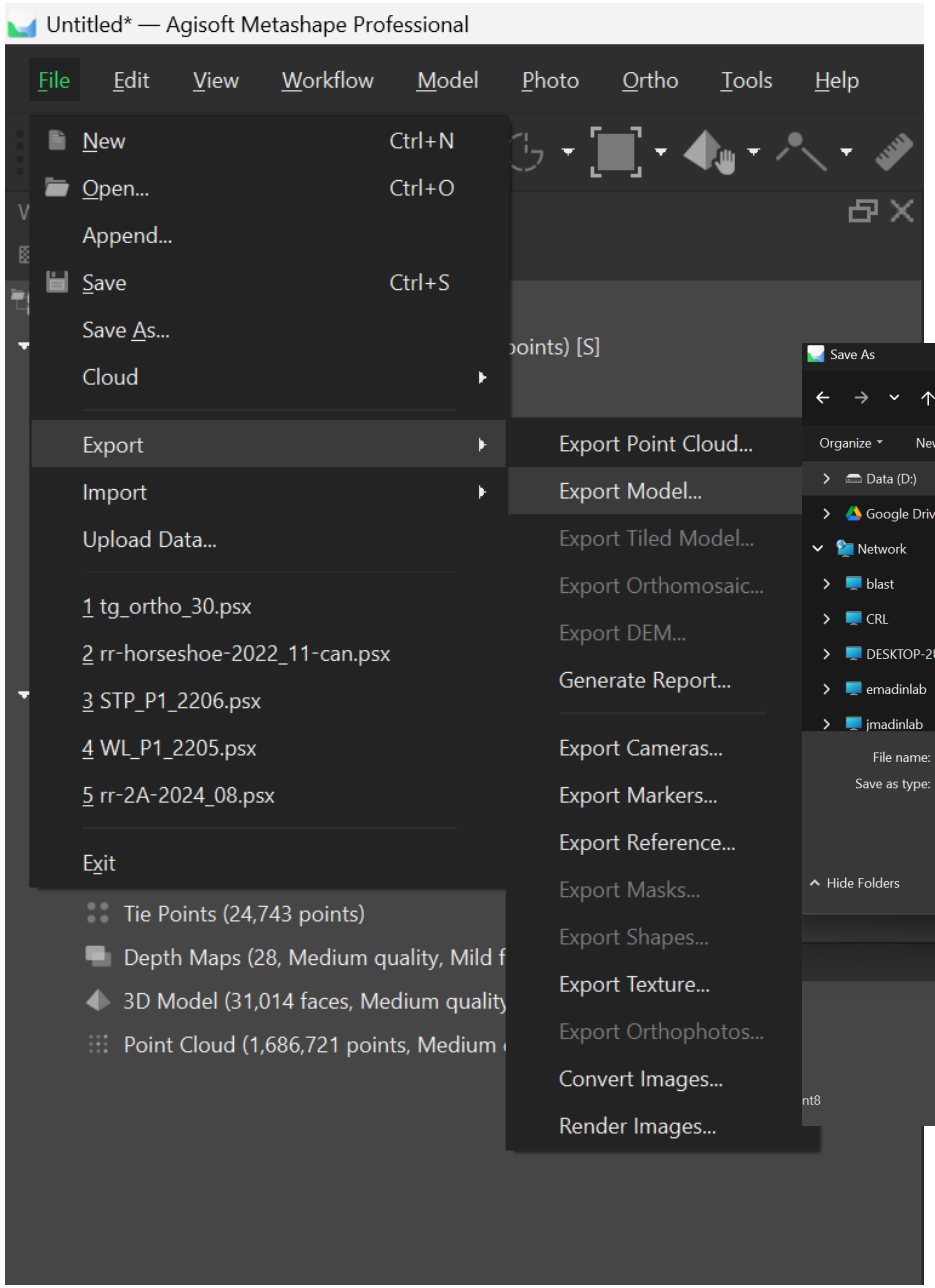

Agisoft Metashape Professional
View
Workflow
Model
Photo
Ortho
Add Photos...
Add Folder...
Align Photos...
Align Laser Scans...
Build Model...
Build Texture...
Build Tiled Model...
Build Point Cloud...
Build DEM...
Build Orthomosaic...
Build Panorama...
Align Chunks...
Merge Chunks...
Batch Process...
Points (24,743 points)
th Maps (28, Medium quality, Mild filtering)

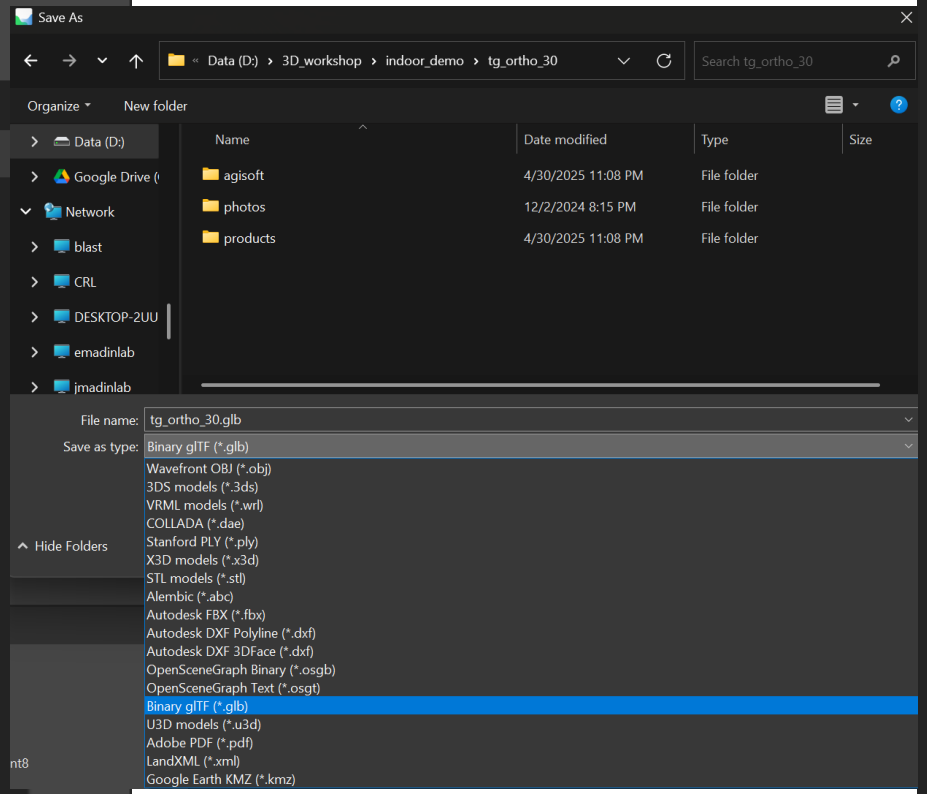

Build Texture
General
Texture type:
Diffuse map
Source data:
Images
Mapping mode:
Generic
Blending mode:
Mosaic (default)
Texture size:
8192
Pixel size (m):
0.00012199
Page count:
1
Advanced
Enable hole filling
Enable ghosting filter
Transfer texture
Anti-aliasing:
Disabled
OK
Cancel

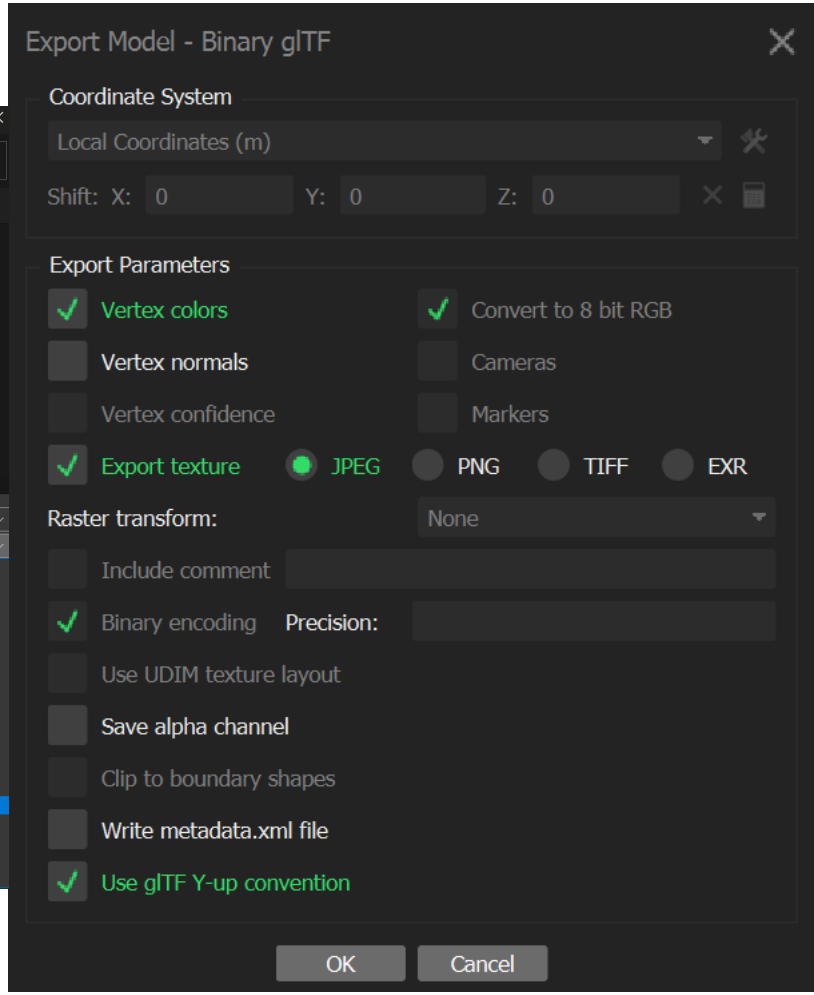

Model - Textured
Model - Shaded
Model - Solid
Model - Wireframe
Model - Elevation
Model - Confidence
Diffuse Map
Normal Map
Occlusion Map
Displacement Map
Matcap Settings...






Untitled* — Agisoft Metashape Professional
File Edit View Workflow Model Photo Ortho Tools Help
New Ctrl+N
Open... Ctrl+O
Append...
Save Ctrl+S
Save As...
Cloud
Export
Import
Upload Data...
1 tg_ortho_30.psx
2 rr-horseshoe-2022_11-can.psx
3 STP_P1_2206.psx
4 WL_P1_2205.psx
5 rr-2A-2024_08.psx
Exit
Export Point Cloud...
Export Model...
Export Tiled Model...
Export Orthomosaic...
Export DEM...
Generate Report...
Export Cameras...
Export Markers...
Export Reference...
Export Masks...
Export Shapes...
Export Texture...
Export Orthophotos...
Convert Images...
Render Images...
Tie Points (24,743 points)
Depth Maps (28, Medium quality, Mild f
3D Model (31,014 faces, Medium quality
Point Cloud (1,686,721 points, Medium


Save As
Data (D:) › 3D_workshop › indoor_demo › tg_ortho_30
Search tg_ortho_30
Organize
New folder
Name
Date modified
Type
Size
agisoft 4/30/2025 11:08 PM File folder
photos 12/2/2024 8:15 PM File folder
products 4/30/2025 11:08 PM File folder
File name: tg_ortho_30.glb
Save as type: Binary glTF (*.glb)
Wavefront OBJ (*.obj)
3DS models (*.3ds)
VRML models (*.wrl)
COLLADA (*.dae)
Stanford PLY (*.ply)
X3D models (*.x3d)
STL models (*.stl)
Alembic (*.abc)
Autodesk FBX (*.fbx)
Autodesk DXF Polyline (*.dxf)
Autodesk DXF 3DFace (*.dxf)
OpenSceneGraph Binary (*.osgb)
OpenSceneGraph Text (*.osgt)
Binary glTF (*.glb)
U3D models (*.u3d)
Adobe PDF (*.pdf)
LandXML (*.xml)
Google Earth KMZ (*.kmz)
Hide Folders


Export Model - Binary glTF
Coordinate System
Local Coordinates (m)
Shift: X: 0 Y: 0 Z: 0
Export Parameters
Vertex colors
Convert to 8 bit RGB
Vertex normals
Cameras
Vertex confidence
Markers
Export texture
JPEG
PNG
TIFF
EXR
Raster transform:
None
Include comment
Binary encoding
Precision:
Use UDIM texture layout
Save alpha channel
Clip to boundary shapes
Write metadata.xml file
Use glTF Y-up convention
OK
Cancel

glTF, PLY, OBJ…

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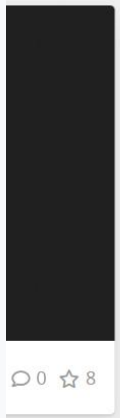
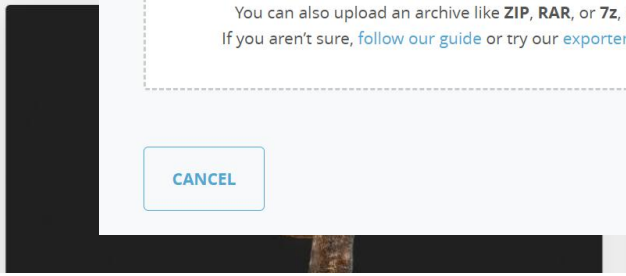
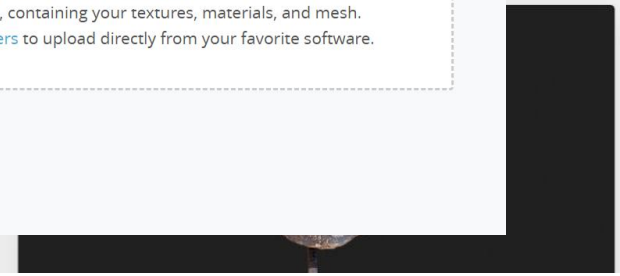
→ Help Center







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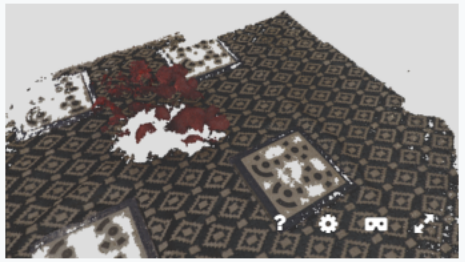
Drag & Drop or browse

We support **FBX**, **OBJ**, **DAE**, **BLEND**, **STL**, and many others.
You can also upload an archive like **ZIP**, **RAR**, or **7z**, containing your textures, materials, and mesh.
If you aren't sure, follow our guide or try our exporters to upload directly from your favorite software.

CANCEL

Edit model



UPLOAD Finished
PROCESSED Finished
READY TO PUBLISH

EDIT 3D SETTINGS

DUPLICATE (PRO) REUPLOAD

Title

Tg_ortho_30_ply

Description

EDIT PREVIEW

A pratice for NMMBA workshop

996

Categories

Nature & Plants

Tags

taiwan × coral × Add another

Suggested tags: noai, createdwithai, biology, sponge, marinelife, keelung, iontu

Discoverability

Write a good description, add categories and tags to help your model get discovered.

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Max size: 2GB
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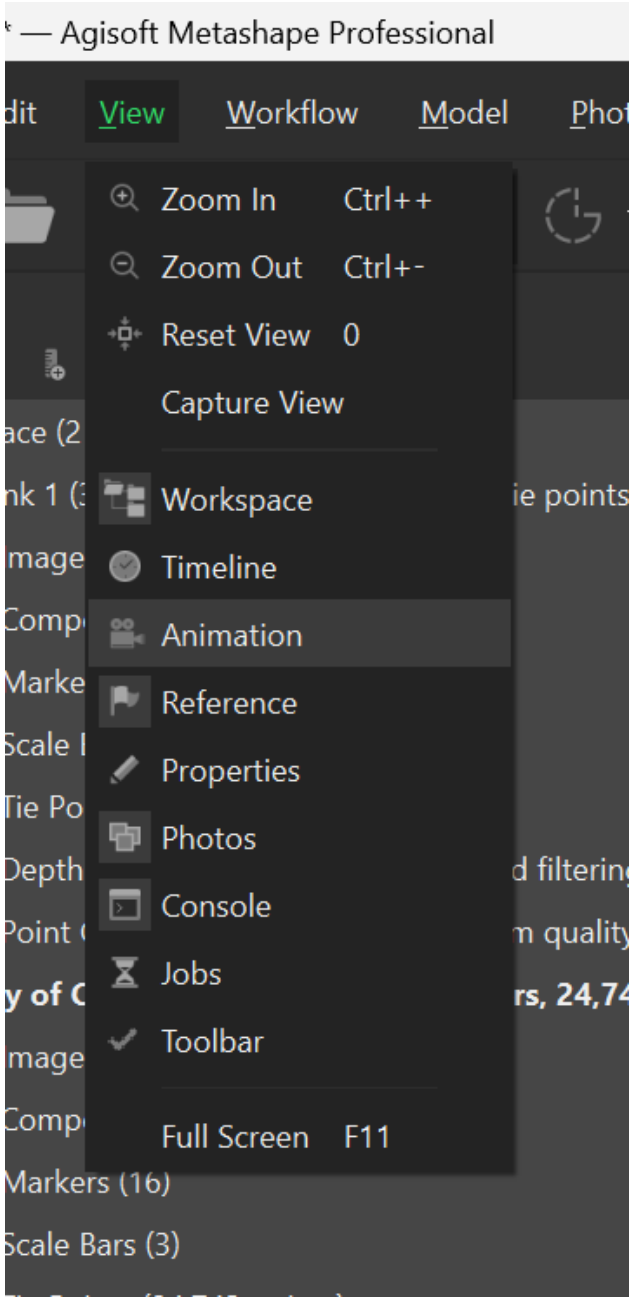
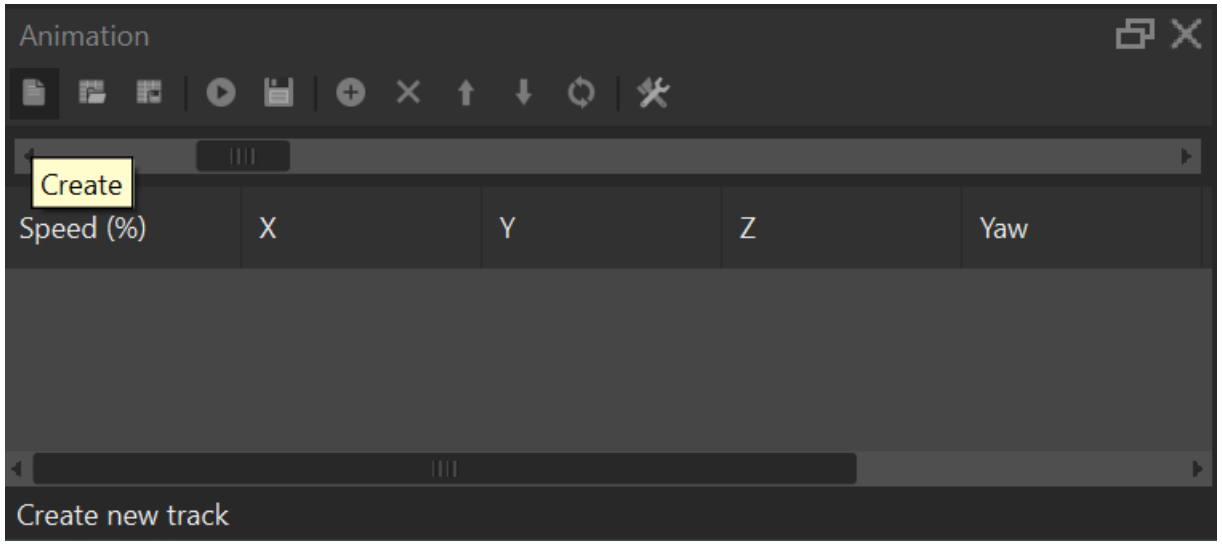
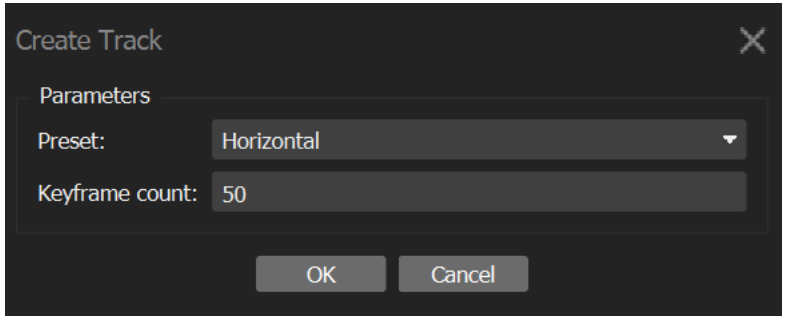
SAVE SAVE & PUBLISH


Currently editing Tg_ortho_30_ply
Help Center
EXIT
SAVE SETTINGS
SAVE VIEW
Shading
Shadeless
CAMERA
Field Of View
45°
Limit orbit camera
Upgrade to Sketchfab PRO to limit the camera
Show advanced camera settings
POINT CLOUD
Point size
33.333
VERTEX COLOR
ON
Linear
sRGB
BACKGROUND
ON
Background type
ENVIRONMENT
IMAGE
COLOR
clean_light
dirty_light
dirty_dark
clean_dark
Upgrade your account to upload your custom background images







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