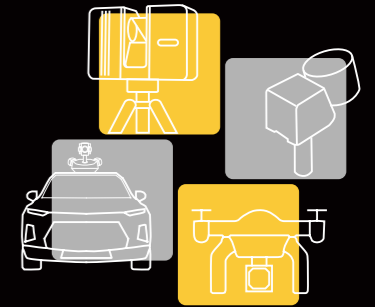


AcuteLas Studio V3.0 Functional Modules



Function	Module	Edition	
		Standard	Professional
Pre-process	TLS	√	√
	SLAM	√	√
	Airborne	√	√
	MLS	√	√
Tools	3D Measure	√	√
	Sectional View	√	√
	Cropping	√	√
	Point Cloud Optimization	√	√
	Accuracy Report	√	√
	Coordinate Transformation	√	√
	FPV Roaming	√	√
Applications	Classification	√	√
	Terrain	√	√
	Mining	√	√
	Volume Calculation	√	√
	Vector	√	√
	Tunnel	1-year official license	Optional license
	Power Survey	1-year official license	Optional license
	CAD Builder	1-year official license	Optional license
Publish	Rebuild3D (CAD output, Mesh, Mining, and Orthophoto)	×	Optional license
Publish	Publish	√	√
Authorization Access		Online/Offline	

AcuteLas STUDIO

- Supports data processing for various laser devices including stationary, vehicle-mounted, airborne, and handheld systems;
- Supports multi-source data fusion including laser point clouds, vectors, images, and models;
- Supports applications across various industries including land surveying and mapping, power line surveying, mine surveying, tunnel analysis, and traffic surveying;

Pre-process



Tools



Applications

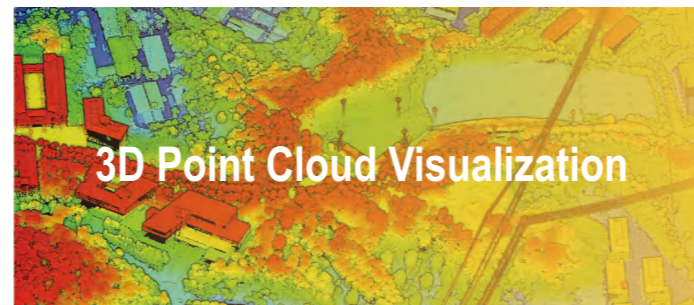


Publish



ALL-IN-ONE

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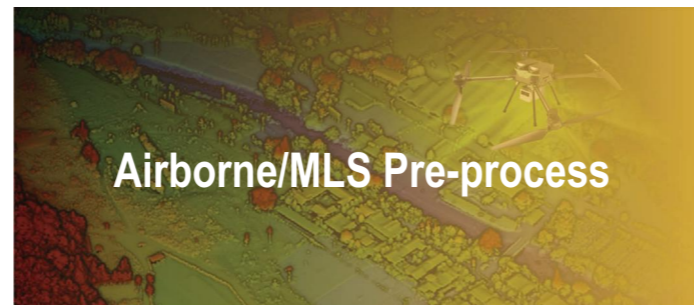
3D Point Cloud Visualization

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SLAM Pre-process

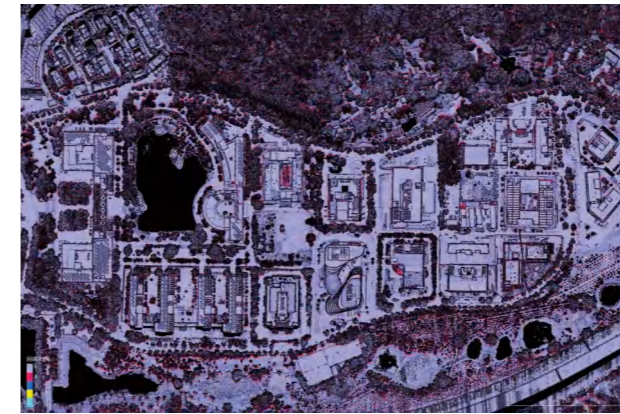
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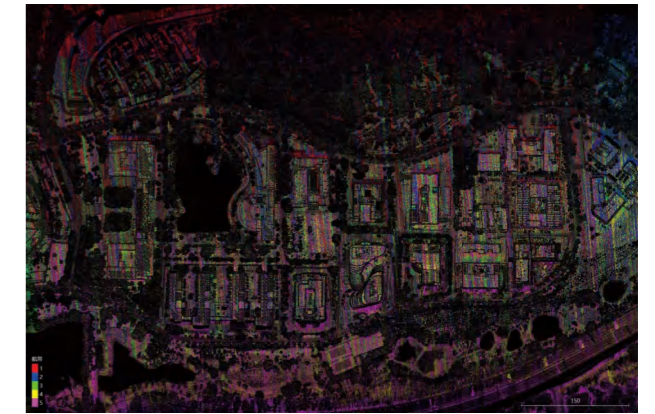
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3D Point Cloud Visualization



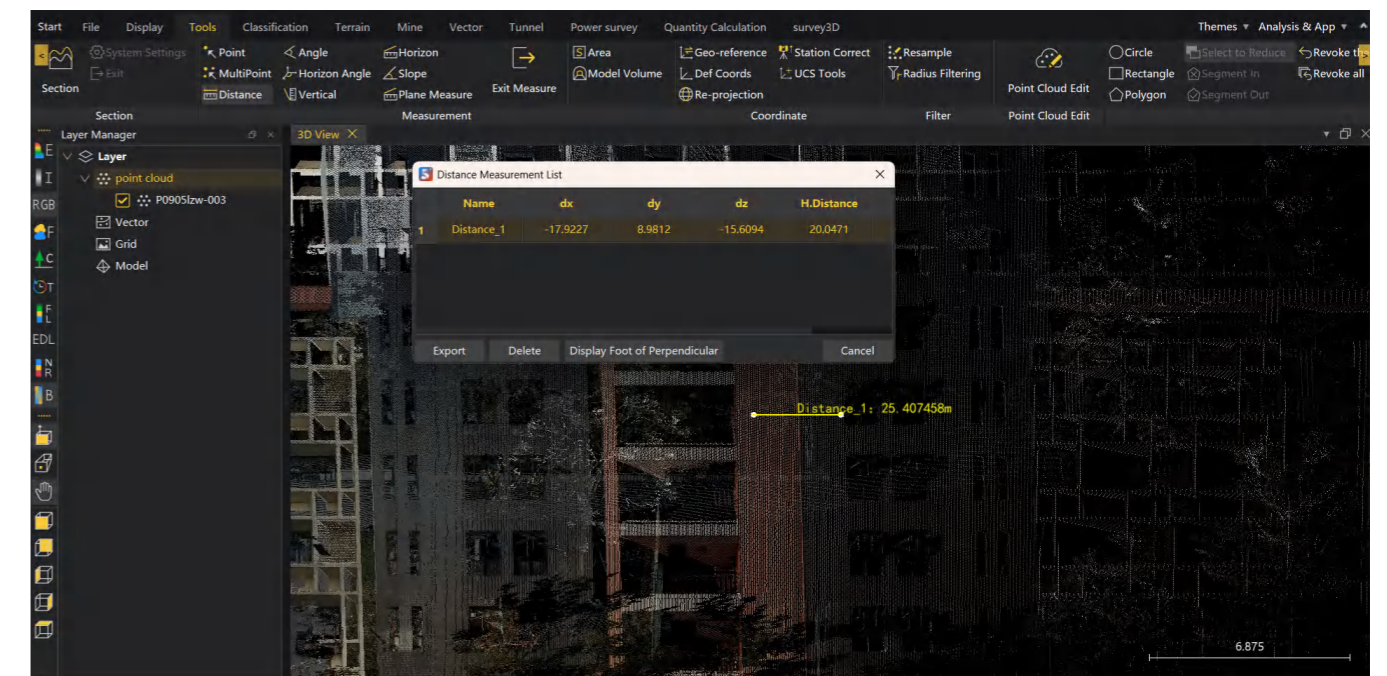
Point cloud echo display



Point cloud flight path display

Precision measurement tools

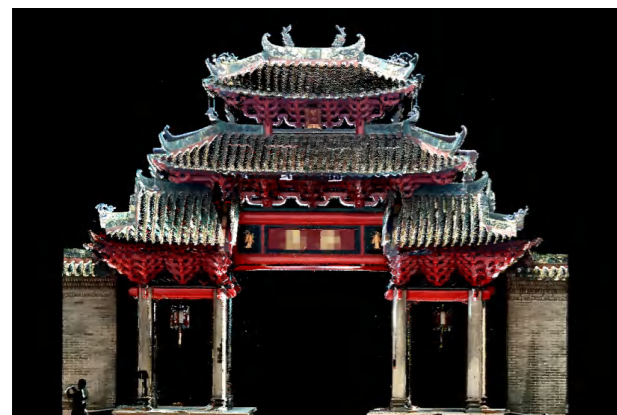
Three-dimensional spatial distance, area, volume, length, and cross-sectional analysis



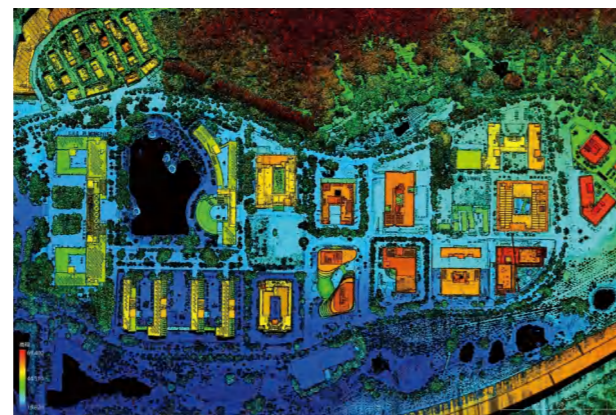
Intelligent point cloud processing engine

Coloring and rendering

Multi-dimensional point cloud visualization including intensity, elevation, time, true color, category, air band, and echo count, with one-click switching of analysis perspectives



True color point cloud + mixed intensity display



Point cloud elevation display



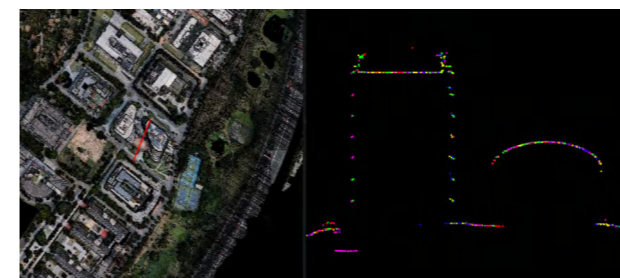
True Color Point Cloud Display



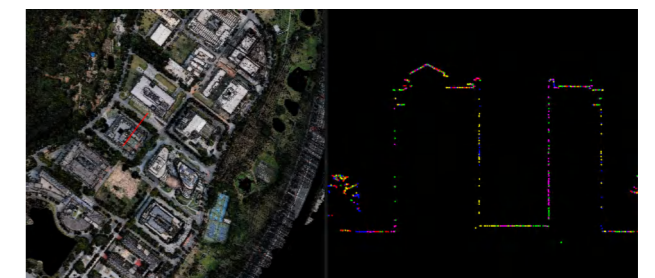
Point cloud intensity display

Point cloud profile

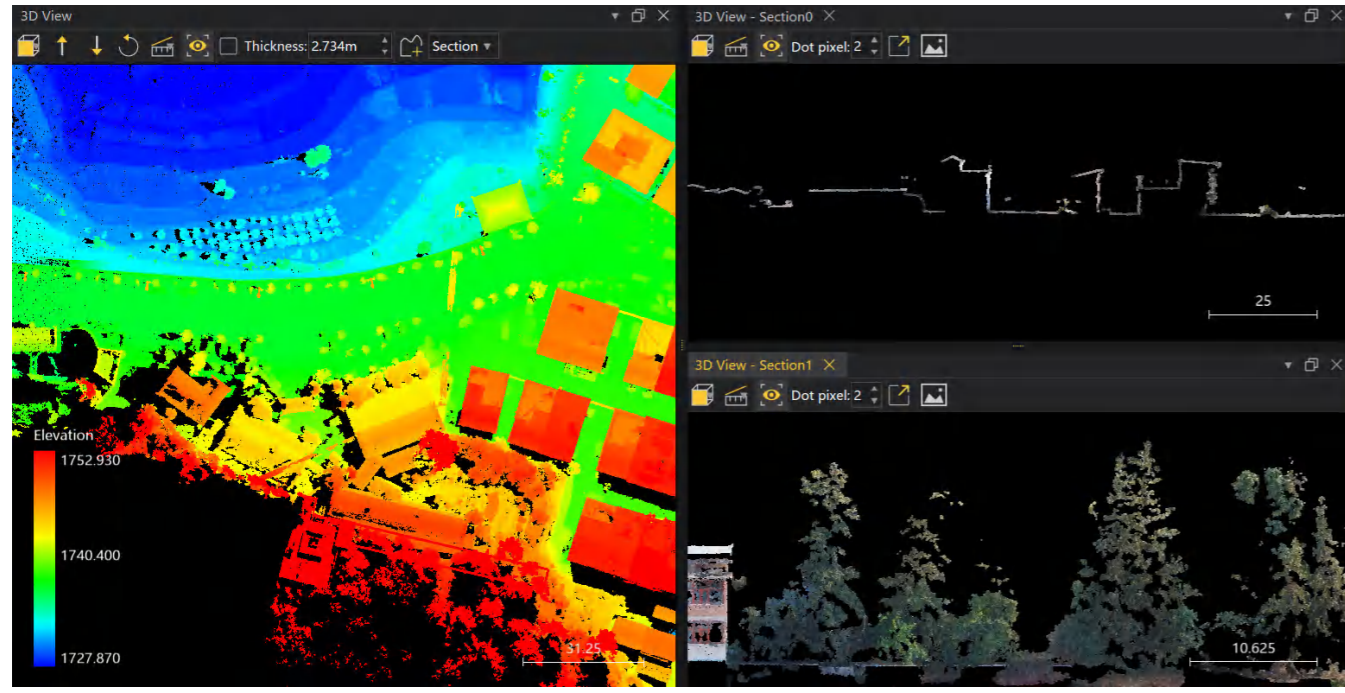
Supports generating point cloud profiles by selecting areas, allowing multiple profile displays, measurement editing, and export of profile data



diagrammatic cross-section



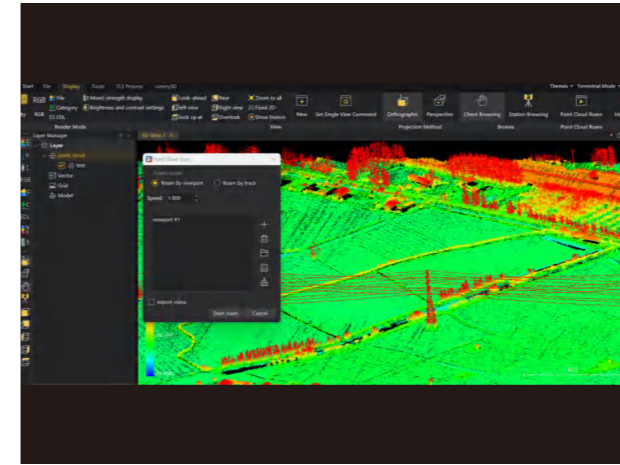
diagrammatic cross-section



Multi-surface schematic diagram

Point cloud navigation

Enables free 3D navigation and path browsing of point clouds, supporting multi-angle viewing and real-time interactive measurement.



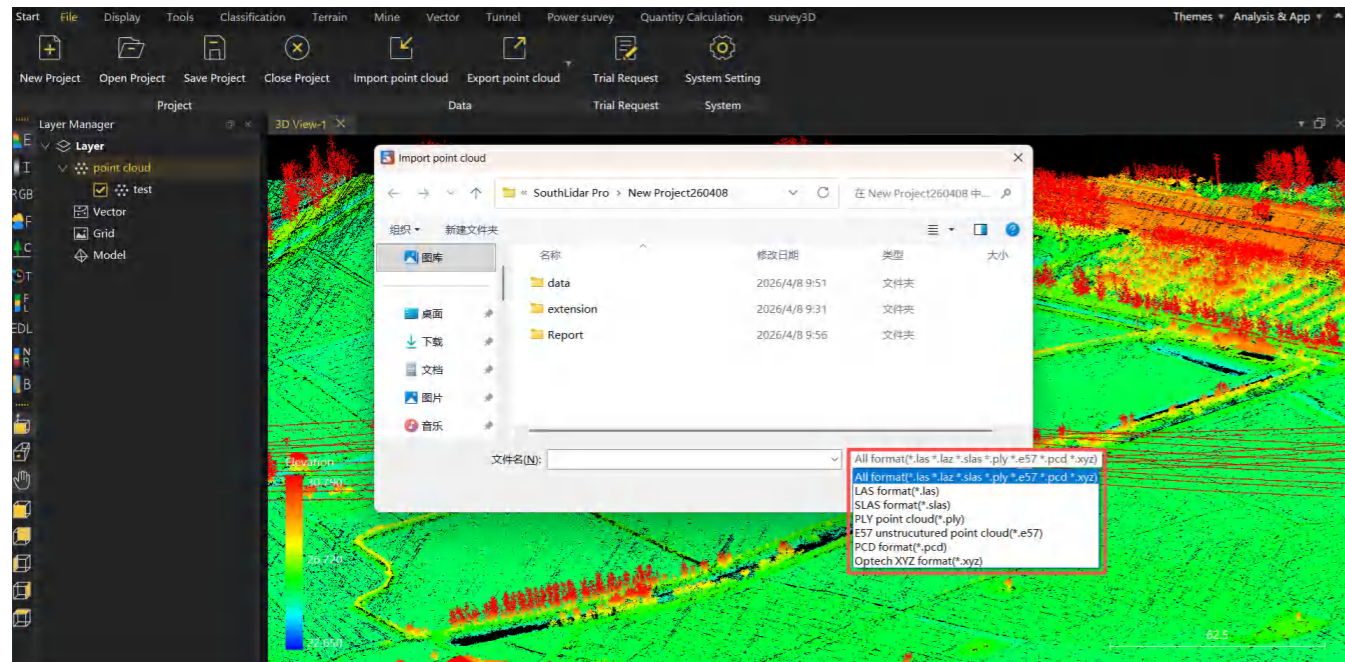
Point Cloud Roaming Schematic



Site roaming diagram

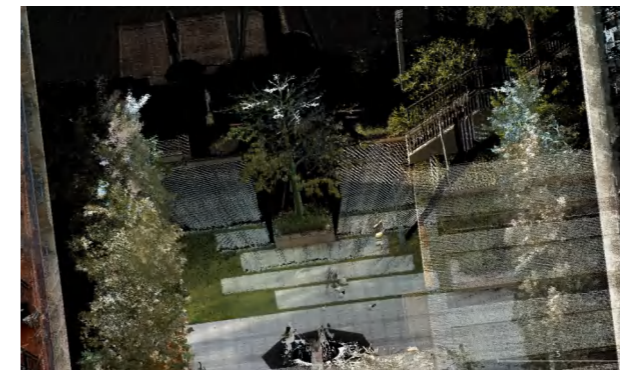
Multi-source data fusion

Compatible with data from multiple platforms including LiDAR, drones, fixed stations, handheld devices, backpack-mounted systems, and vehicle-mounted systems (e.g., LAS/SLAS, PLY, E57, PCD, XYZ).

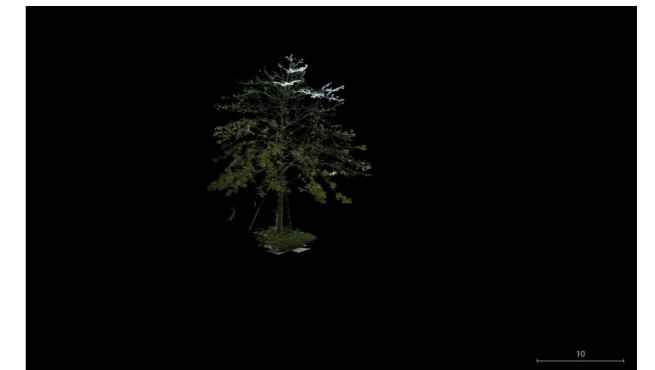


Point cloud cropping

Crop point cloud data with various methods including circles, rectangles, polygons, and range line cropping.



Before cropping



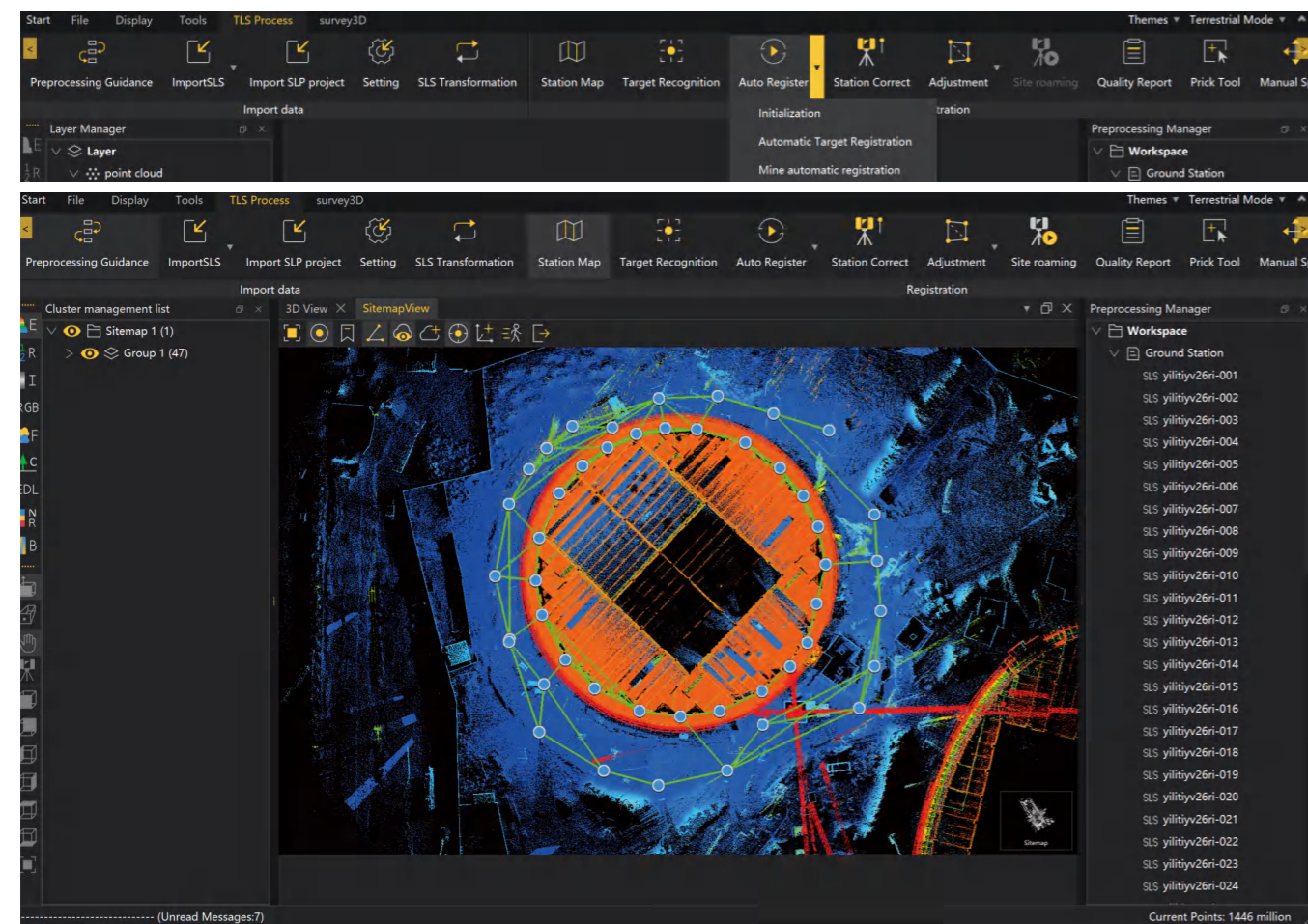
After cropping



TLS Pre-process

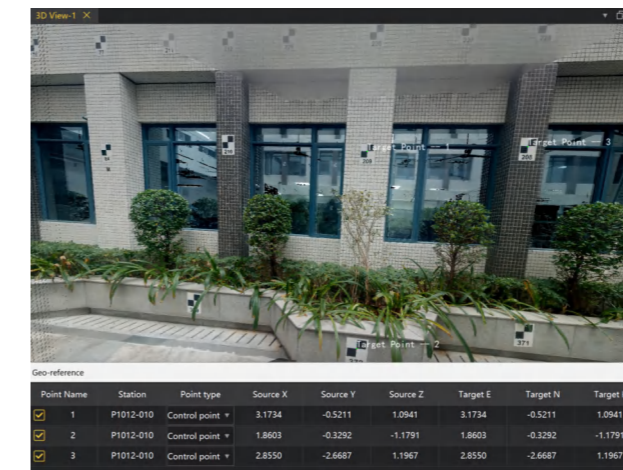
Station registration

The software offers automatic registration, manual registration, and target ball registration functions, supporting one-click automatic registration of over 200 data stations.



Coordinate transformation

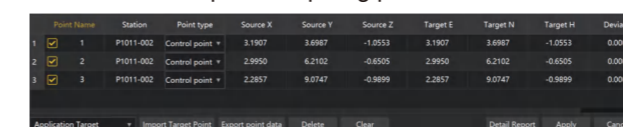
Provides multiple coordinate transformation methods, including feature point, target sphere, target paper conversion, and station correction. Assigns absolute coordinates to point cloud data.



Target paper punctate conversion



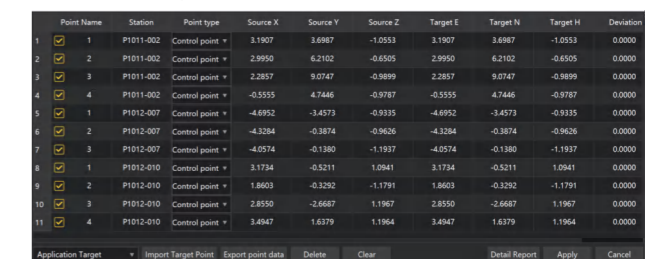
Feature point to spiking point conversion



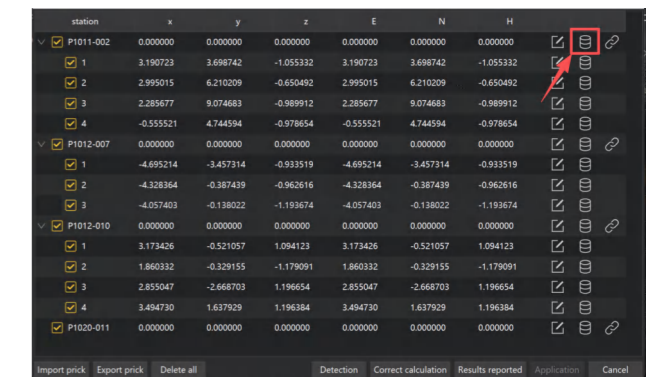
Target ball conversion



Target ball puncture point conversion



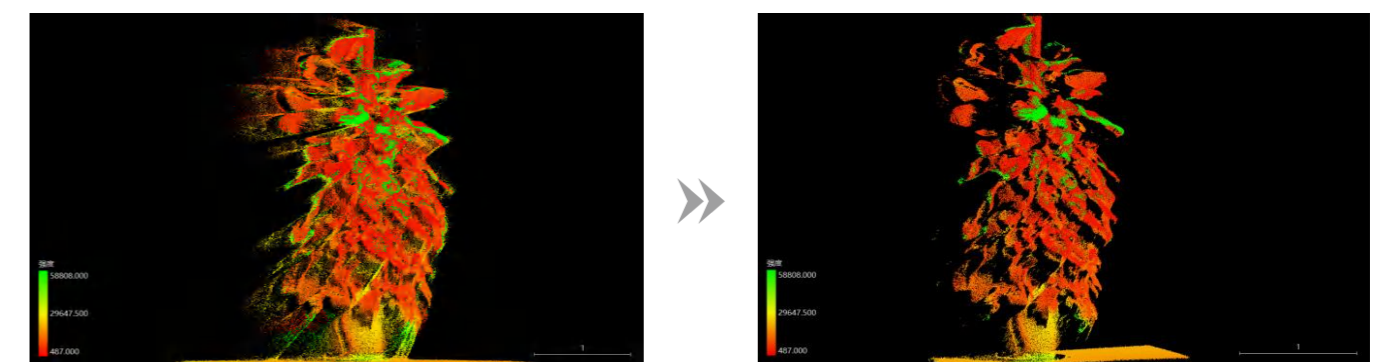
Multiple puncture methods



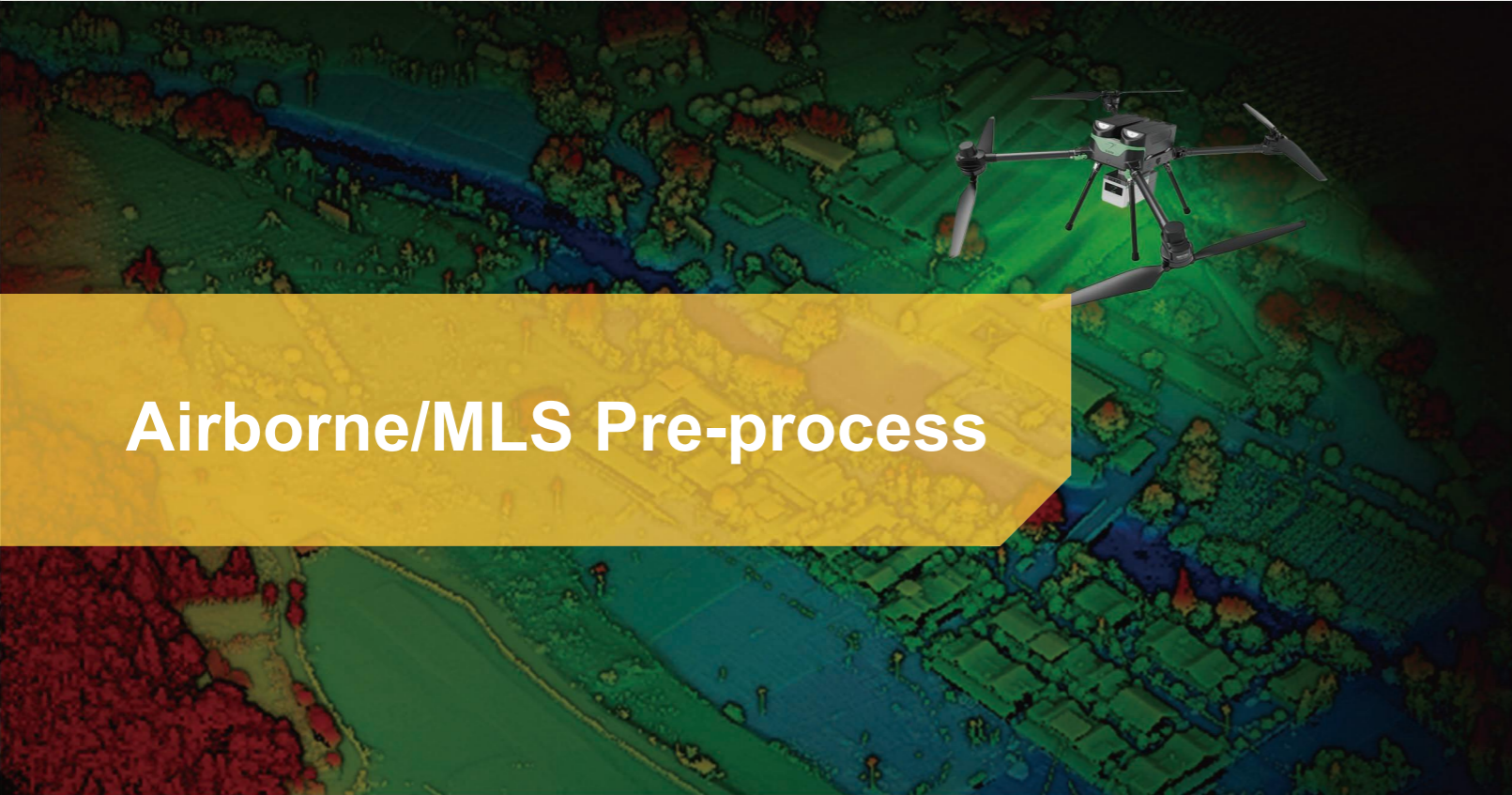
Station correction

Data optimization

Supports smoothing of station-scan data, removal of object edge point cloud artifacts, and elimination of isolated noise points.



Comparison of Broadleaf Noise Removal Methods



Airborne/MLS Pre-process

One-click colorization of true color point clouds

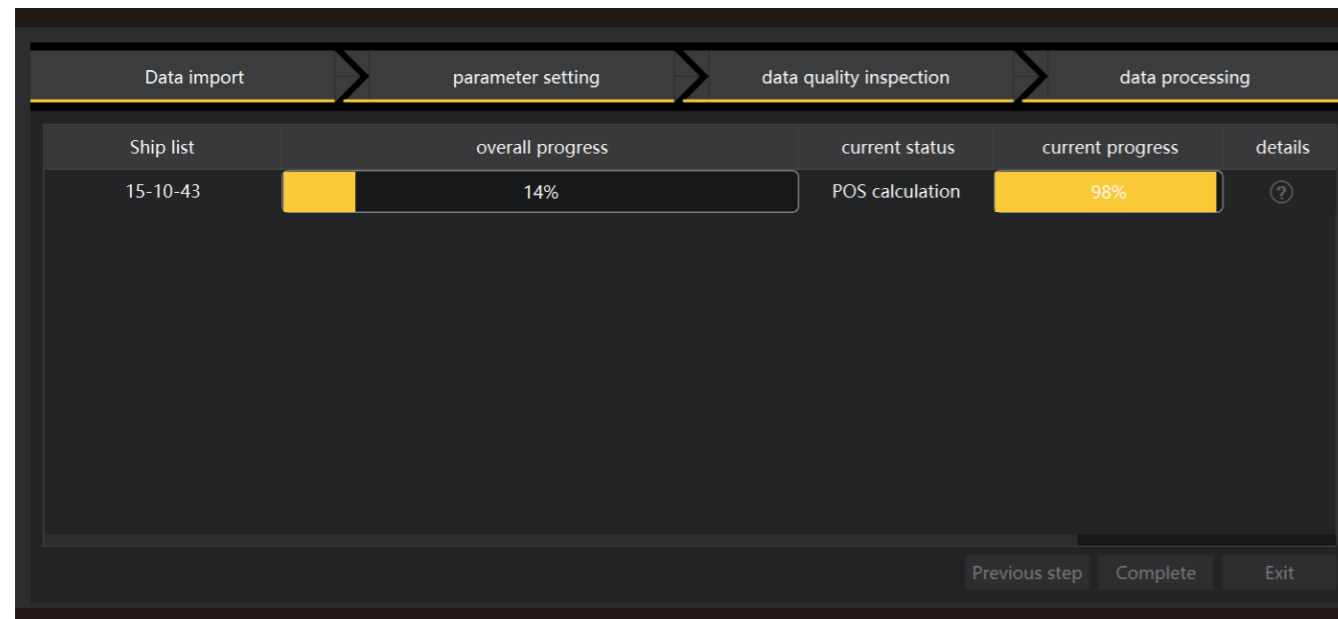
Performs one-click color assignment during point cloud data fusion.



True color point cloud

One-click processing of airborne point cloud data

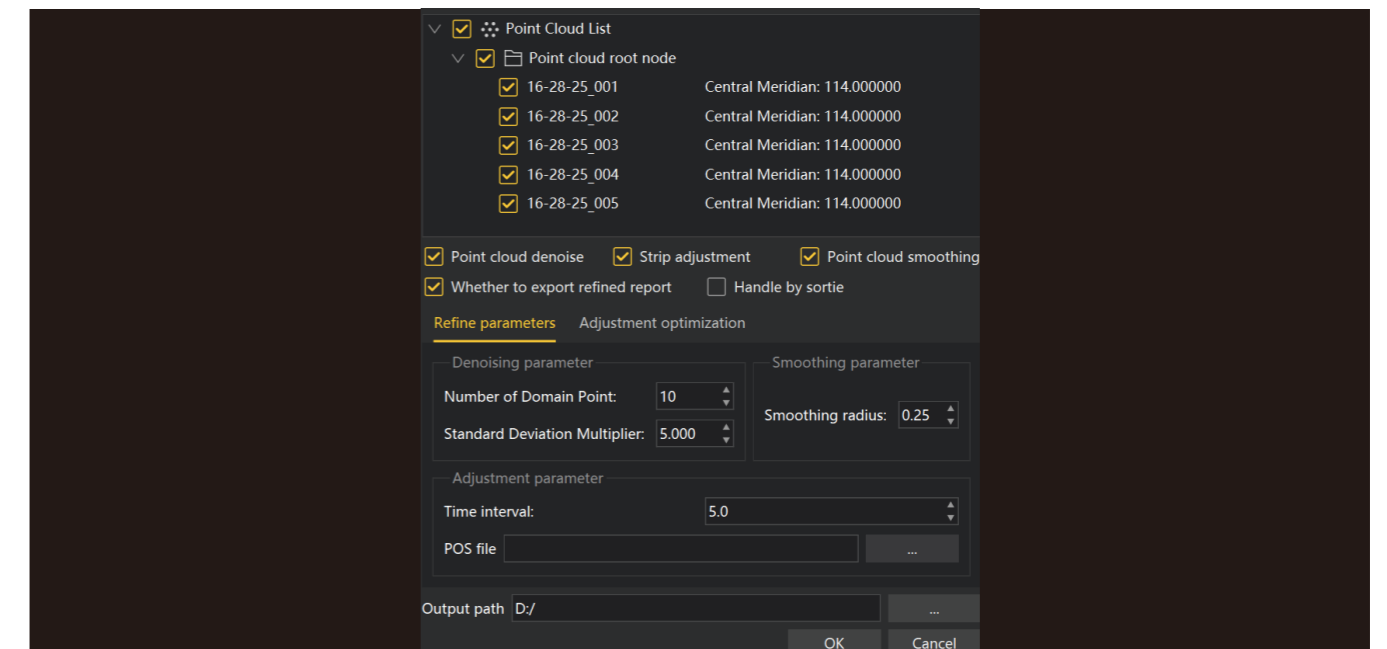
Supports one-click processing of multi-flight data to realize rapid calculation and one-click fusion of multi-flight datasets.



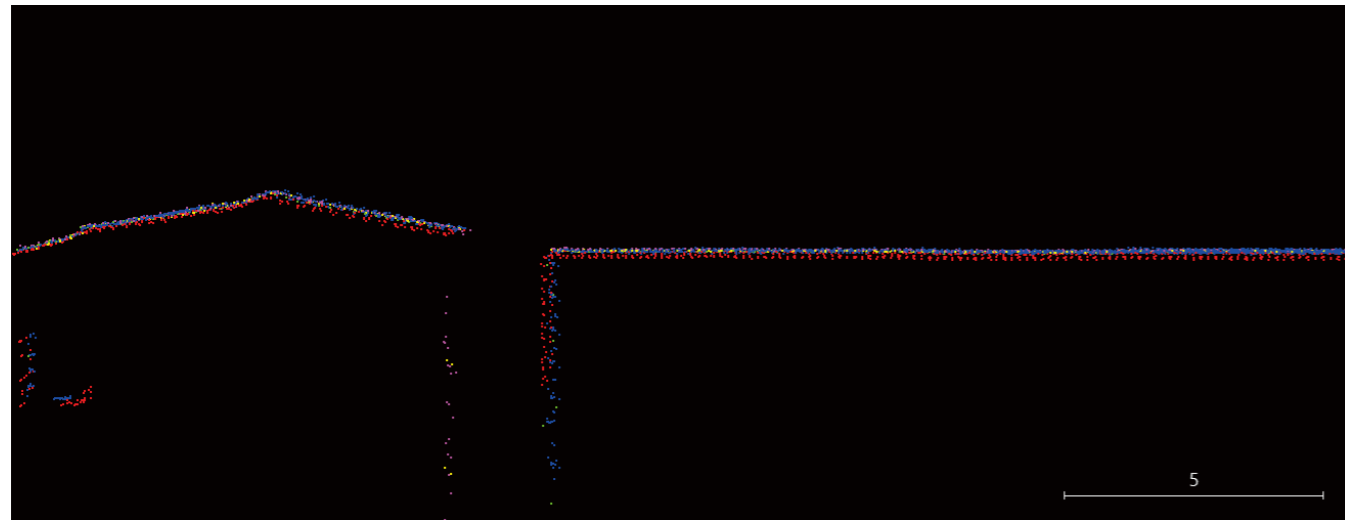
One-click calculation diagram

Point cloud refinement

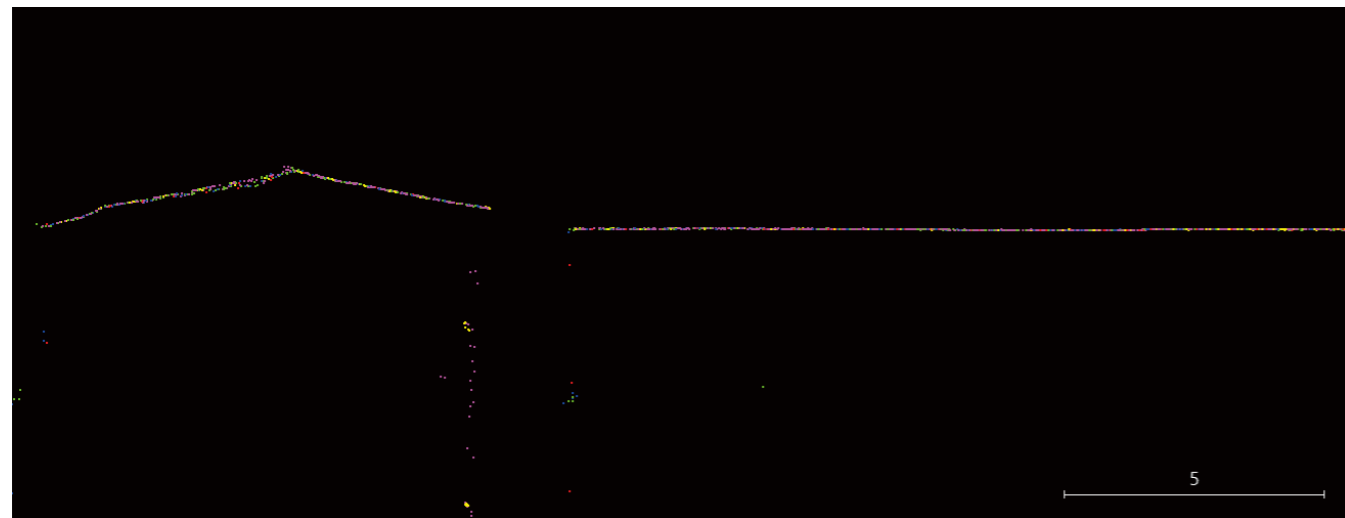
Perform one-click denoising, smoothing.



Schematic diagram of point cloud refinement



Before refinement



After refinement

Point cloud quality inspection

Generate a point cloud quality inspection report with one click, controlling point accuracy, point cloud density, and range line coverage.

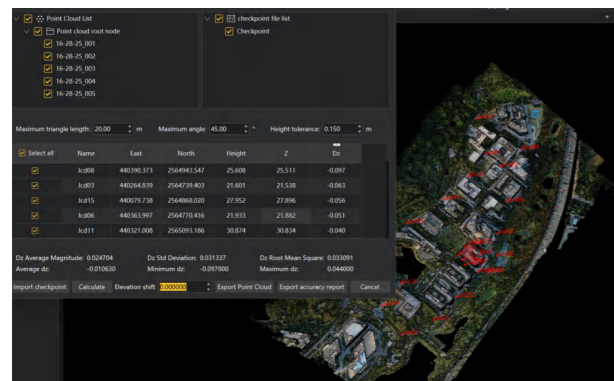
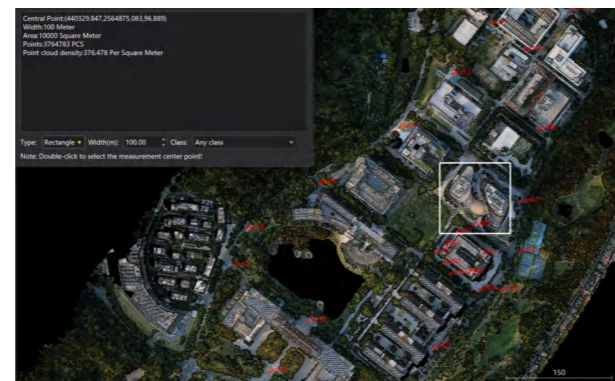


Figure control point accuracy



Point cloud density examination

Control Point Report

Control point comparison accuracy table

Point	dx	dy	dz	dx/dm	dy/dm	dz/dm
Prd01	482121.2	2564176.4	49.770	49.773	-0.001	
Prd02	482121.3	2564176.4	49.770	49.763	0.014	
Prd03	482121.0	2564176.0	49.770	49.761	0.006	
Prd04	482121.2	2564176.0	49.770	49.762	-0.001	
Prd05	482121.1	2564176.0	49.770	49.762	-0.001	
Prd06	482121.1	2564176.0	49.770	49.762	-0.001	
Prd07	482121.1	2564176.0	49.770	49.762	-0.001	
Prd08	482121.1	2564176.0	49.770	49.762	-0.001	
Prd09	482121.1	2564176.0	49.770	49.762	-0.001	
Prd10	482121.1	2564176.0	49.770	49.762	-0.001	
Prd11	482121.1	2564176.0	49.770	49.762	-0.001	
Prd12	482121.1	2564176.0	49.770	49.762	-0.001	
Prd13	482121.1	2564176.0	49.770	49.762	-0.001	
Prd14	482121.1	2564176.0	49.770	49.762	-0.001	
Prd15	482121.1	2564176.0	49.770	49.762	-0.001	
Prd16	482121.1	2564176.0	49.770	49.762	-0.001	
Prd17	482121.1	2564176.0	49.770	49.762	-0.001	
Prd18	482121.1	2564176.0	49.770	49.762	-0.001	
Prd19	482121.1	2564176.0	49.770	49.762	-0.001	
Prd20	482121.1	2564176.0	49.770	49.762	-0.001	
Prd21	482121.1	2564176.0	49.770	49.762	-0.001	
Prd22	482121.1	2564176.0	49.770	49.762	-0.001	
Prd23	482121.1	2564176.0	49.770	49.762	-0.001	
Prd24	482121.1	2564176.0	49.770	49.762	-0.001	
Prd25	482121.1	2564176.0	49.770	49.762	-0.001	

Control point error parameter

Control point position

Map Control Point Report

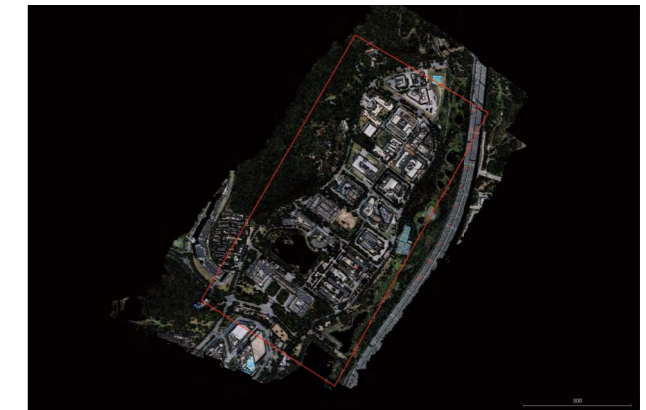


Figure range line coverage

Aerial coordinate transformation

Users can define and apply seven-parameter, four-parameter and coordinate transformation relationships for point cloud data.

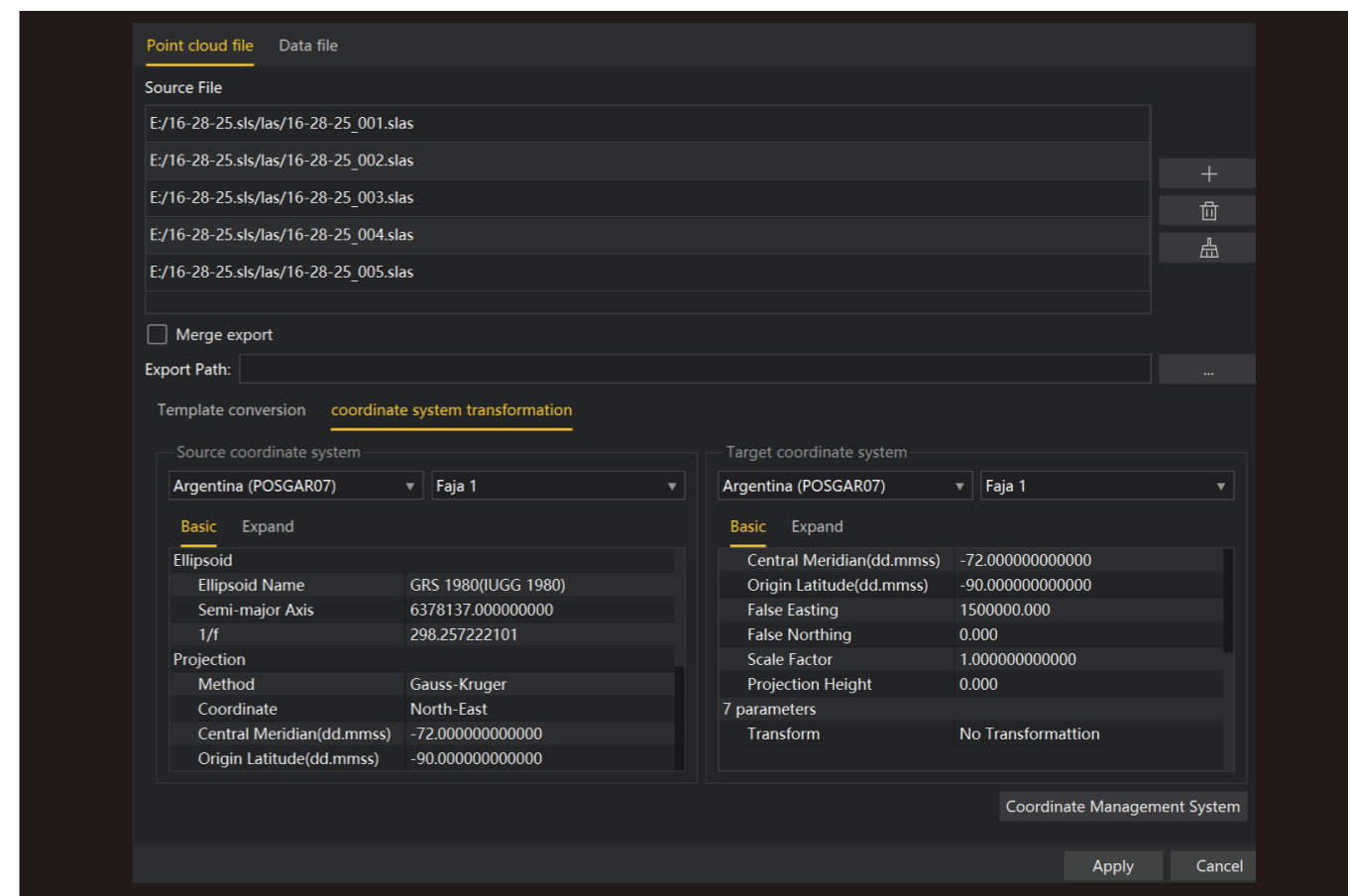
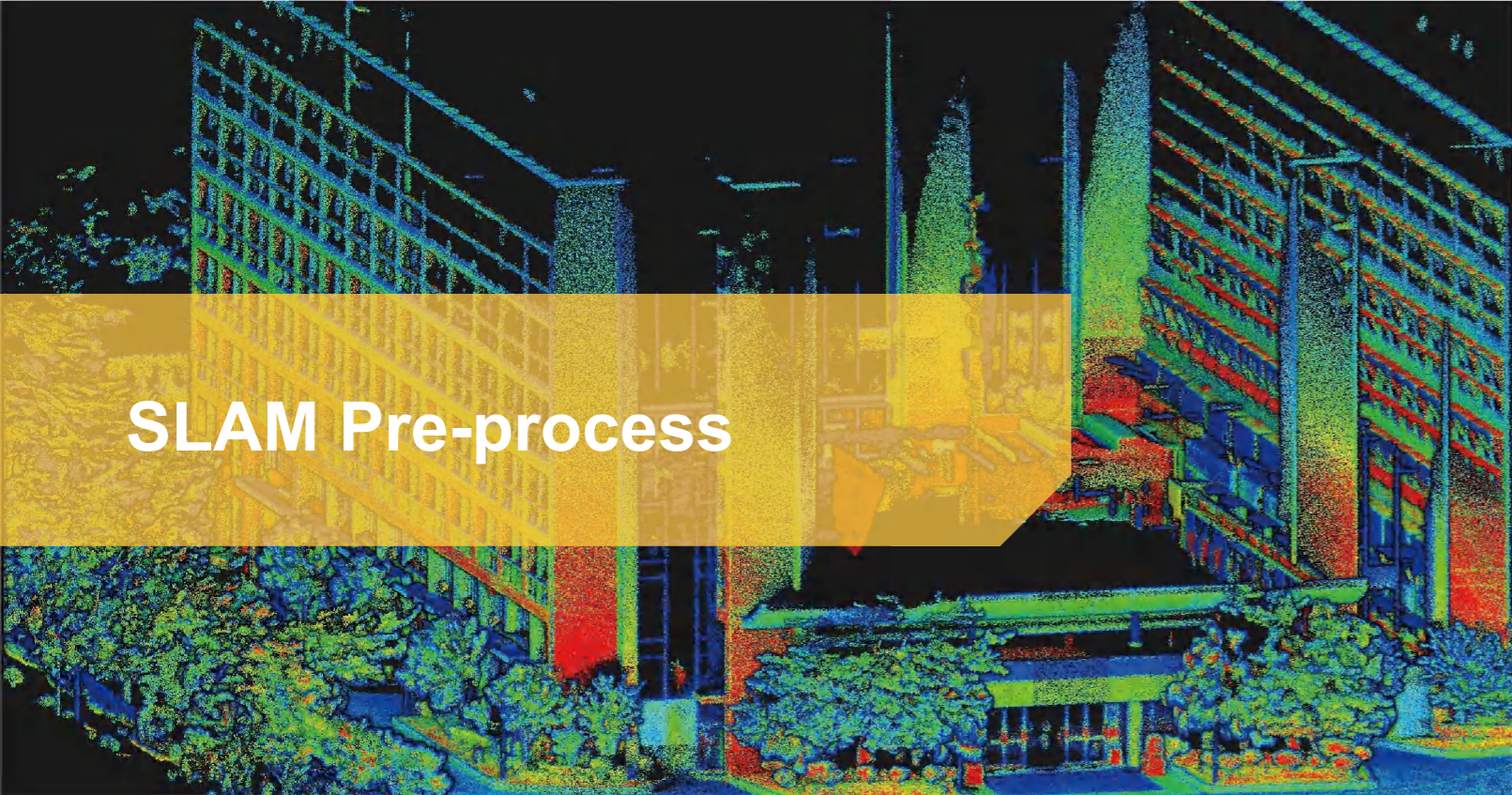


Image coordinate transformation



SLAM Pre-process

Process Settings | data processing

Engineering team	Overall Progress	Current status	Current progress	Details
2025-08-29_10-30-04	45%	SLAM Process	65%	ⓘ
2025-08-29_11-03-43	0%	Waiting for solution	0%	ⓘ
2025-09-22_14-47-49	0%	Waiting for solution	0%	ⓘ

Control point solution

Batch scan data processing, control points file import, control point calculation.

Pure SLAM solution

Batch scan data processing, data import and recognition, pure SLAM solution.

Process Settings | data processing

Task List

- 2025-09-22_14-47-49
- 2025-08-29_10-30-04
- 2025-08-29_11-03-43

Processing mode: Fast Precise

Scan Scene: Balance

point cloud processing: coloration

Process Mode:

Jobsite Type: Handheld Center Pole Pole height (m): 0.0

Import GCP file: GCP coordinates: Delimiter: Skip lines:

id	North	East	Elevation	Point type
1 A1	2564679.314	440127.952	25.516	control point
2 A2	2564657.285	440111.746	25.81	control point
3 A3	2564641.216	440109.412	26.038	control point
4 A4	2564650.252	440125.632	26.039	control point
5 A5	2564675.849	440144.958	26.198	control point

Define coordinate system:

Filter:

Select coordinate reference system:

Cloud based website download | Copy Settings | Next | Exit

Process Settings | data processing

Task List

- 2025-08-29_10-30-04
- 2025-08-29_11-03-43
- 2025-09-22_14-47-49

Processing mode: Fast Precise

Scan Scene: Balance

point cloud processing: coloration

Process Mode:

Jobsite Type: Handheld Center Pole Pole height (m): 0.0

Import GCP file: GCP coordinates: Delimiter: Skip lines:

id	North	East	Elevation	Point type
1 A1	2564679.314	440127.952	25.516	control point
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4 A4	2564650.252	440125.632	26.039	control point
5 A5	2564675.849	440144.958	26.198	control point

Define coordinate system:

Filter:

Select coordinate reference system:

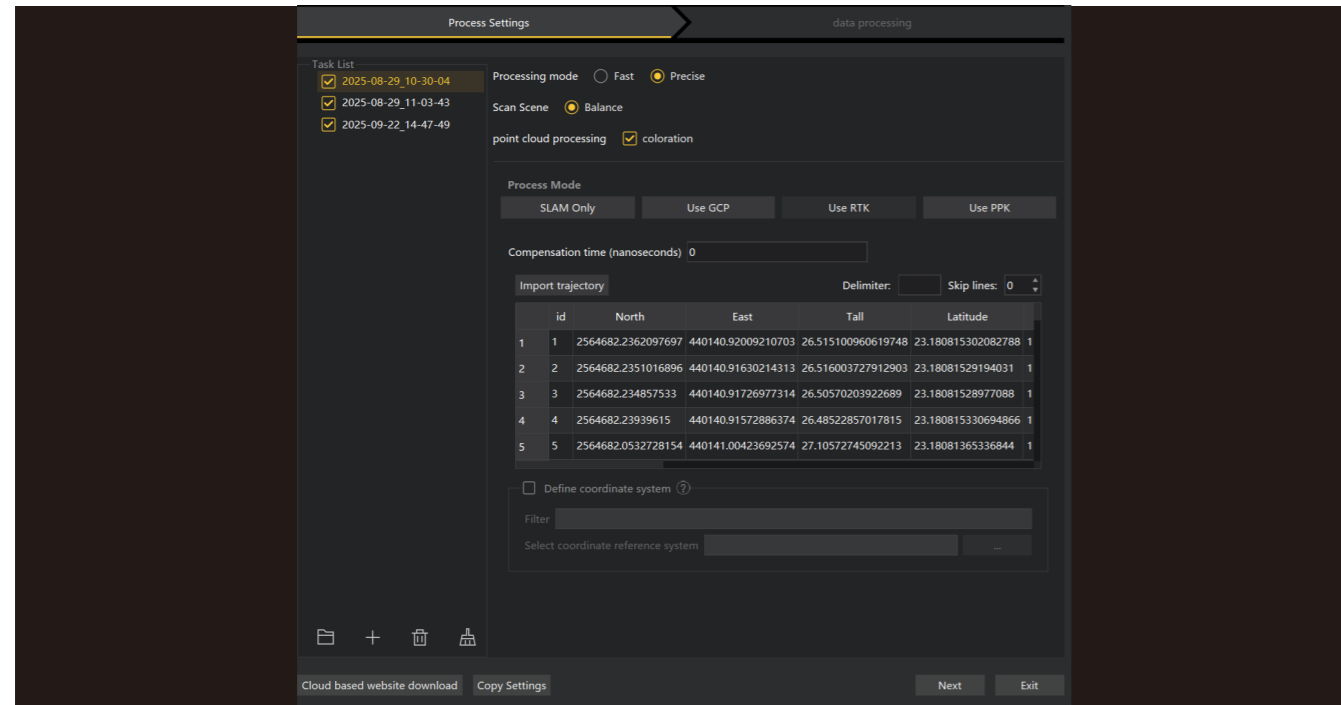
Cloud based website download | Copy Settings | Next | Exit

Process Settings | data processing

Engineering team	Overall Progress	Current status	Current progress	Details
2025-08-29_10-30-04	100%	Calculation completed	100%	ⓘ
2025-08-29_11-03-43	100%	Calculation completed	100%	ⓘ
2025-09-22_14-47-49	65%	SLAM Process	93%	ⓘ

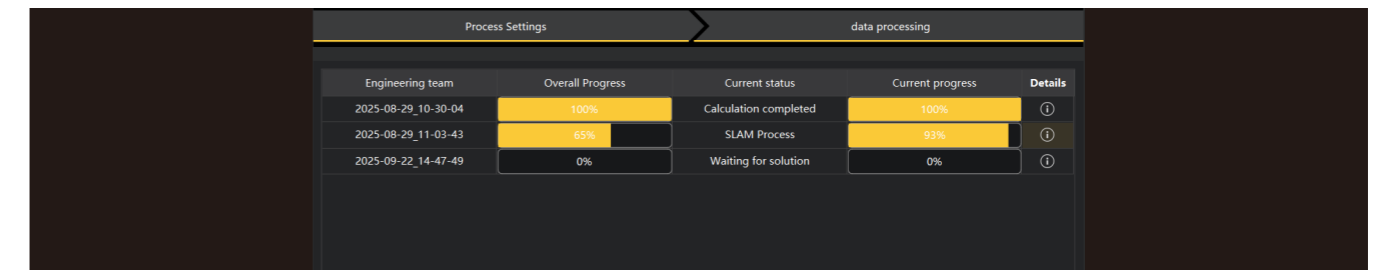
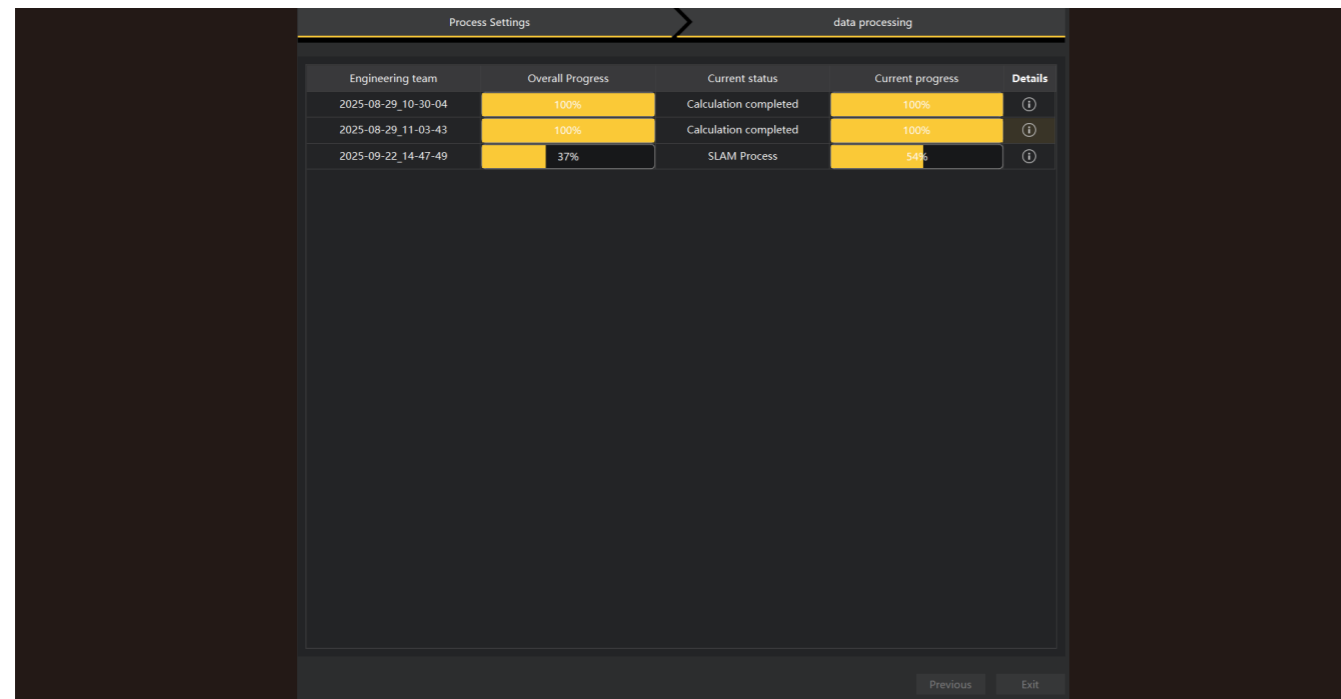
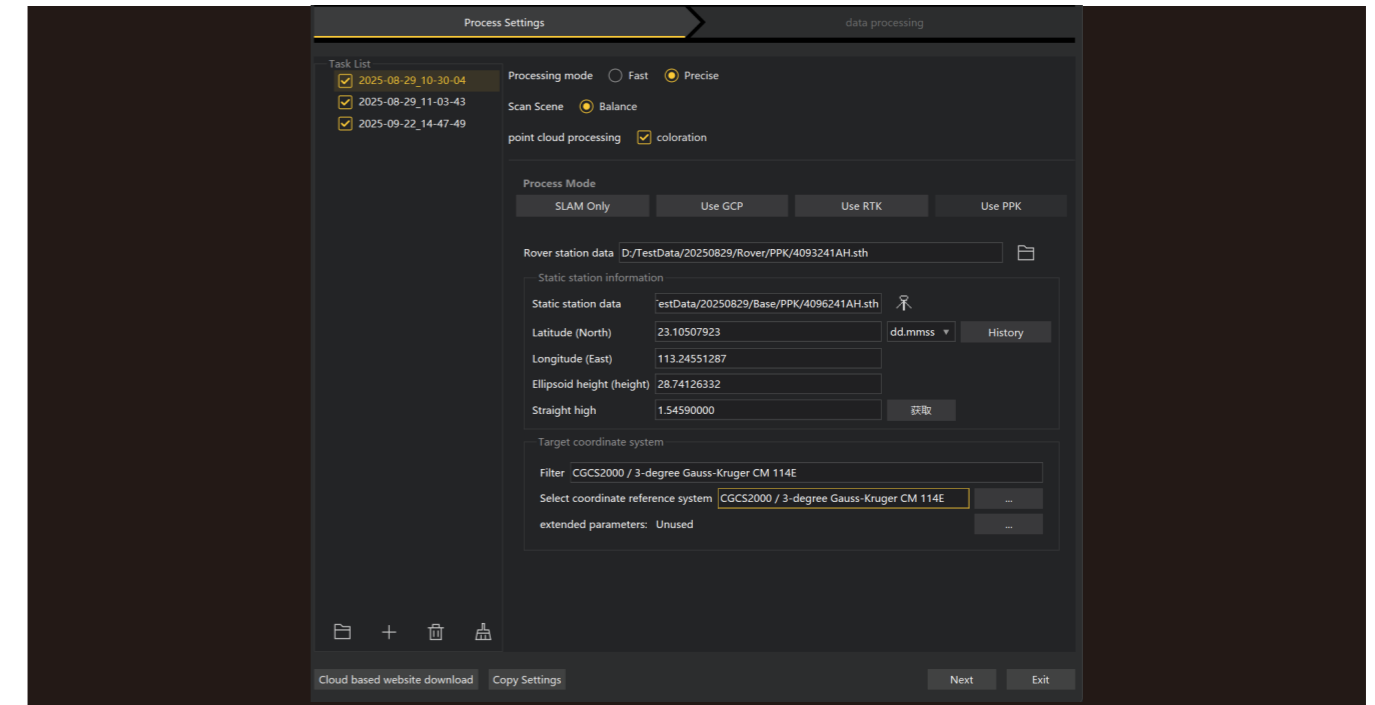
RTK solution

Batch scan data processing, RTKPoint file import, RTK solution.

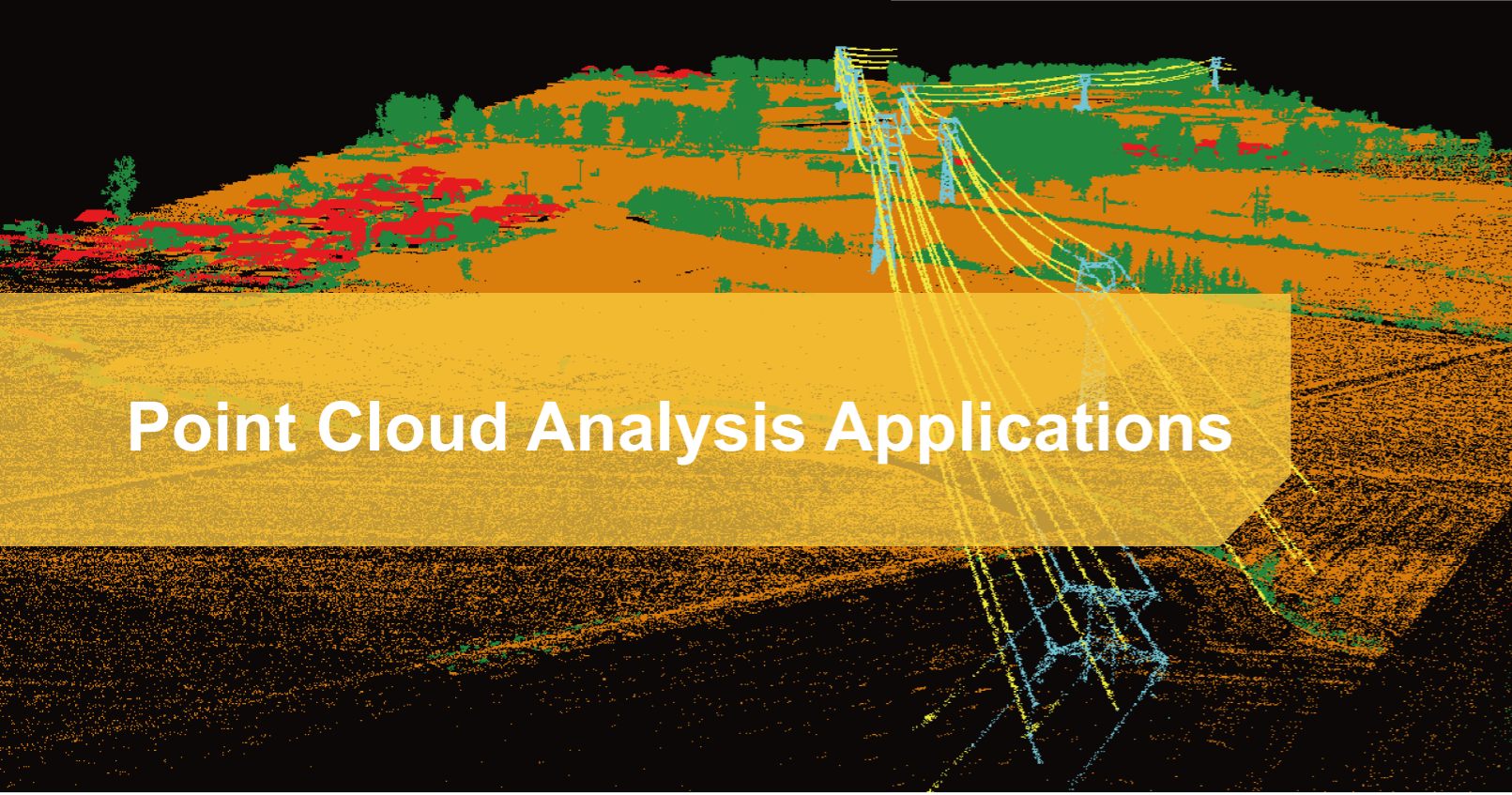


PPK solution

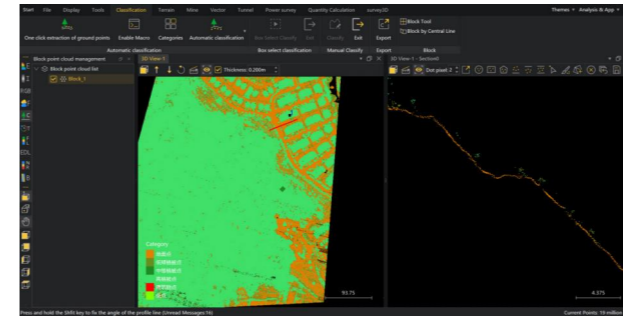
Multiple scan dataset processing, independent import of rover/base station data, EPSG coordinate system configuration, PPK solution.



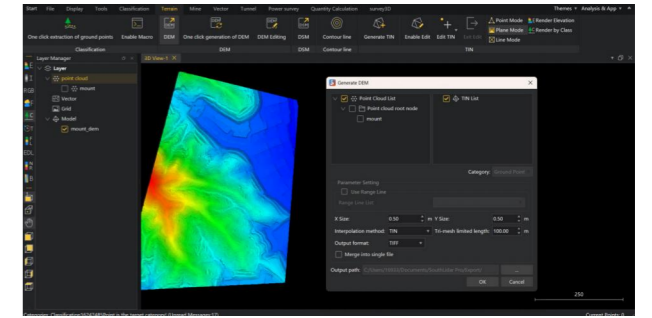
Point cloud effect display



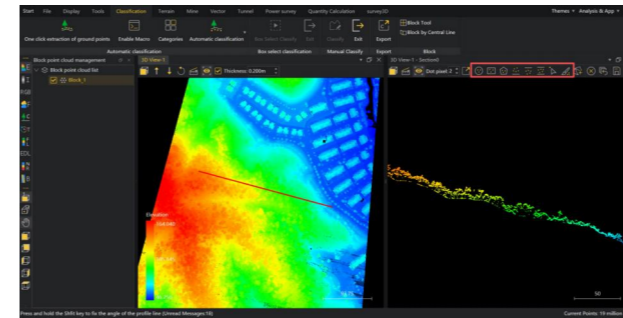
Point Cloud Analysis Applications



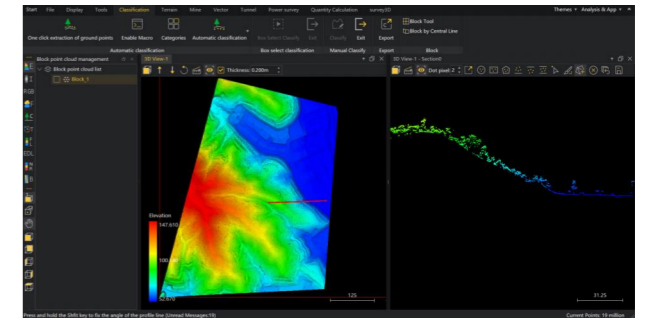
One-click extraction of ground points



One-click DEM generation



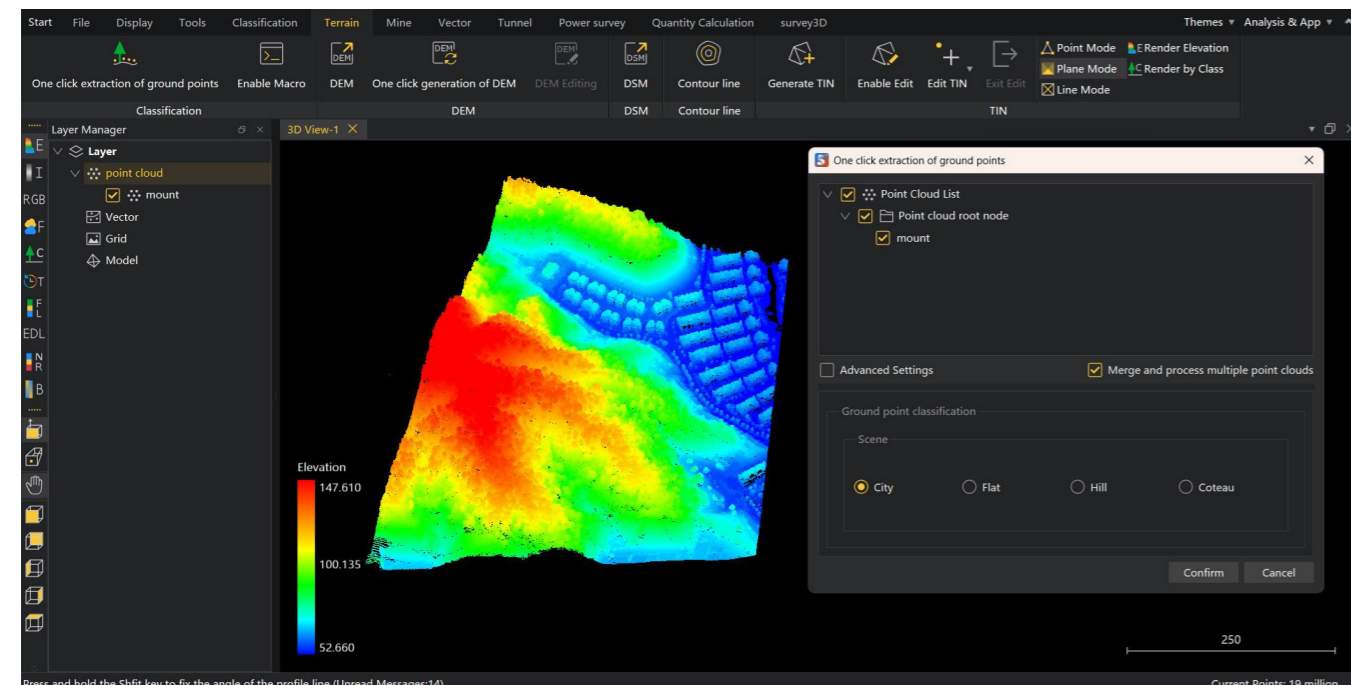
Various manual classification tools



Targeting ground point constructs for TIN

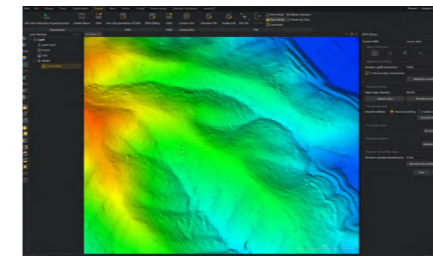
Point cloud classification

Classify raw data into point cloud categories such as ground points and vegetation. Enable one-click extraction of ground points and one-click generation of DEMs. Provide various manual classification tools including online, offline, in-line, polygon, rectangle, circle, and brush-based classification, supporting automatic 3D surface modeling and visualization.

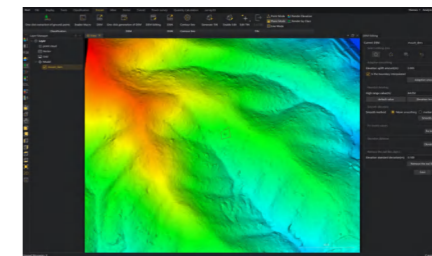


DEM editing

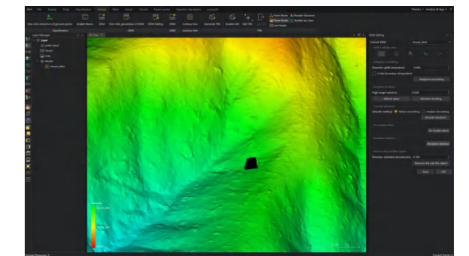
Perform rapid editing on the generated DEM data, including interpolation of model data, elevation leveling, patching invalid values, removing elevations, and eliminating spike features.



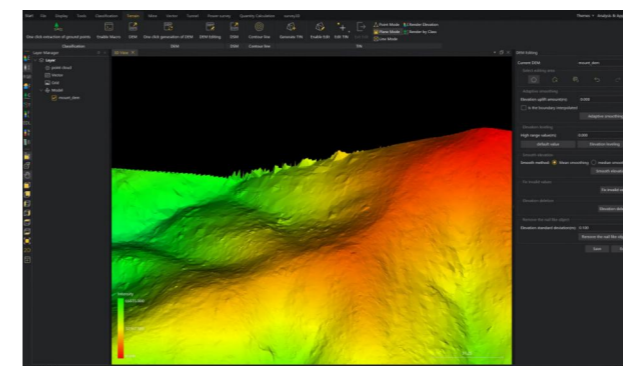
Adaptive smoothing



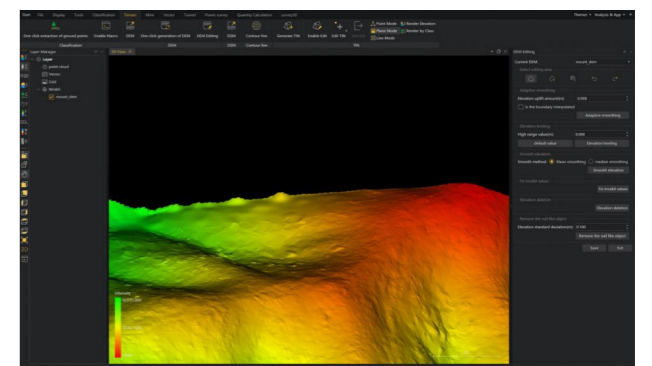
Elevation leveling



Delete elevation



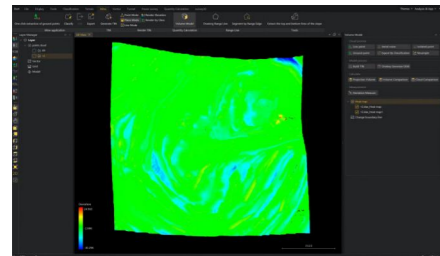
Removal of nail-like object (front)



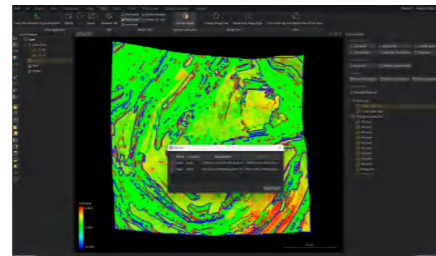
Removal of nail-like object (posterior)

Volume analysis of mining operations

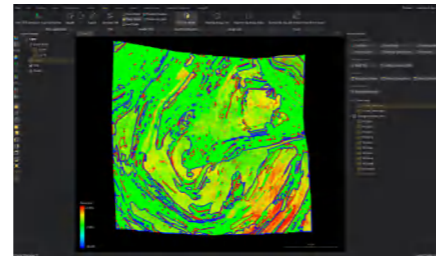
Compare point cloud data from two periods to generate 3D deviation heatmaps and threshold deviation contour lines; calculate the projection volume for a single-period model and conduct comparative analysis of fill/dig volumes between the two periods; produce a statistical report (including cut/fill volumes and deviation threshold distributions).



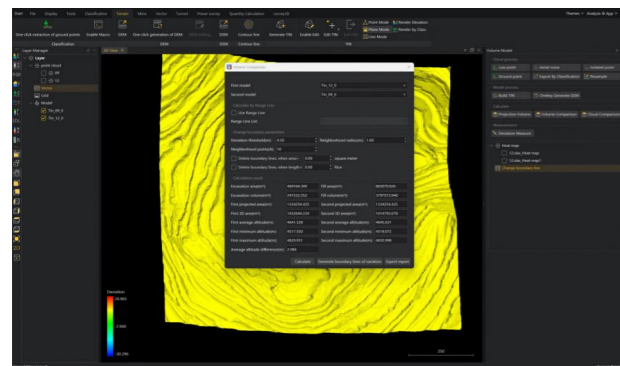
Thermal map comparison of two-phase point clouds



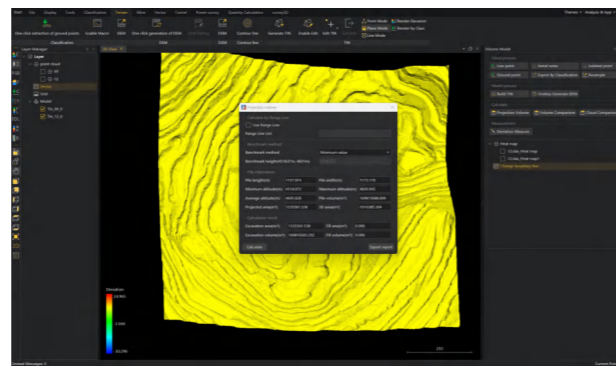
Range line of comparison deviation between two-phase point clouds



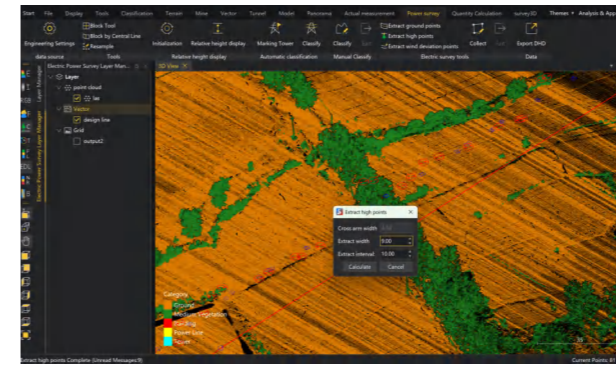
Deviation value measurement



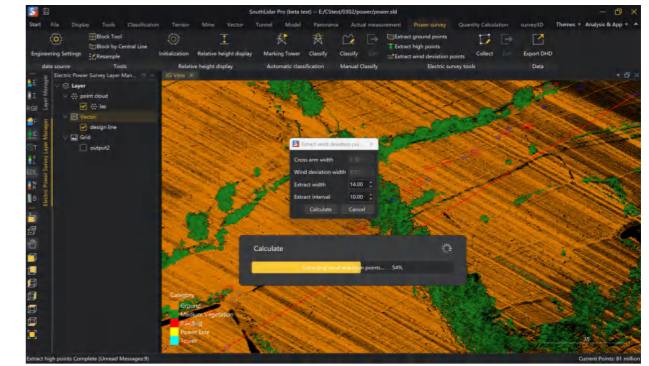
Results of single-period projection volume calculation



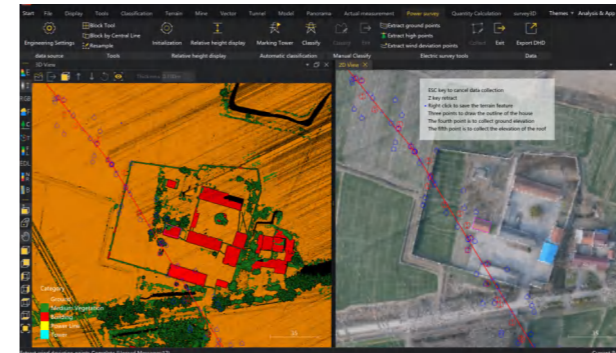
Results of covariance matrix calculation for the two-stage model



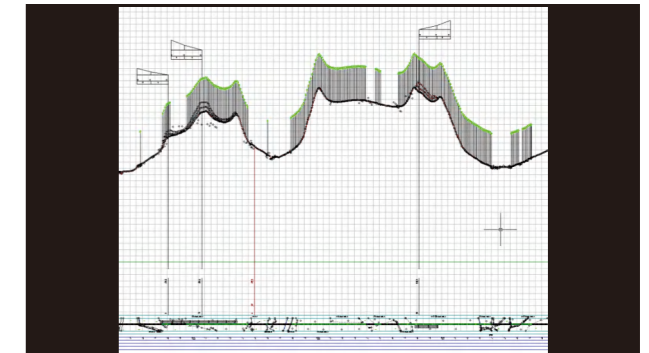
Extract high point data from the image



Extract wind deflection point from the image



Topographic features spanning design lines drawn based on symbol libraries



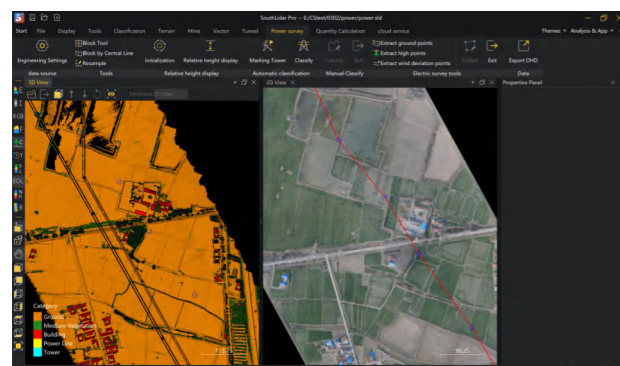
Power Survey Results Data

Tunnel post-processing

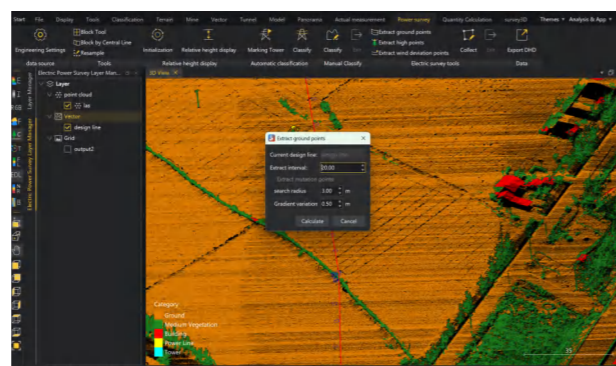
Supports over-excavation/under-excavation analysis, cross-sectional diagrams, and centerline image display. Enables generation and export of midline analysis reports, ovality analysis reports, and two-phase point cloud monitoring reports.

Power surveying

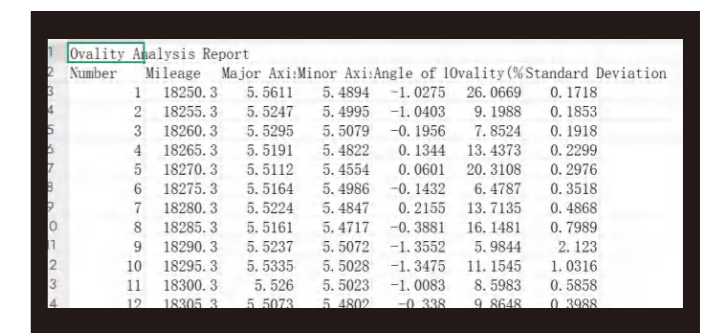
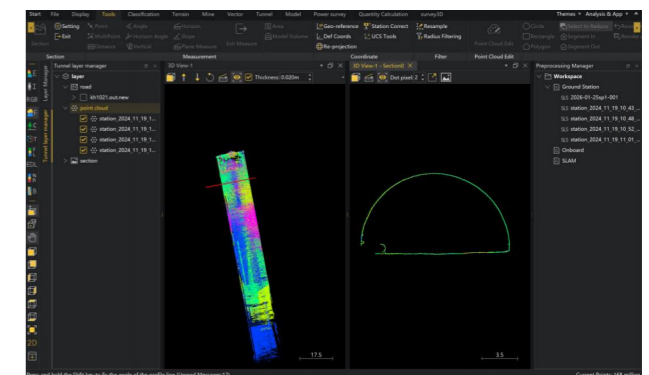
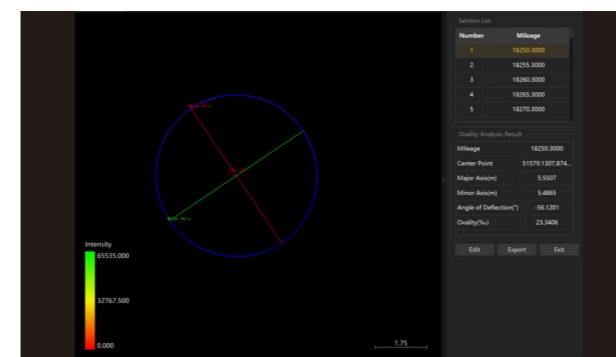
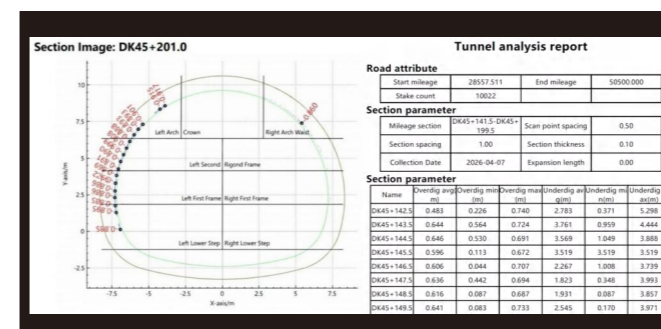
Supports one-click classification of point clouds for targets such as power towers, power lines, buildings and vegetation, enables rapid generation of longitudinal sections of the ground surface along design lines, supports direct drawing across ground features with dual-window linkage, allows one-click extraction of design lines, wind deflection lines, elevation points and highest points, and enables direct data export in a format compatible with Daoheng power design software.



Power Data Loading and Parameter Setting



One-click extraction of ground points



Experimental measurement

Simulate real-world use of a tape measure to measure flatness and perpendicularity in a 3D point cloud scene, generating a thermal map.

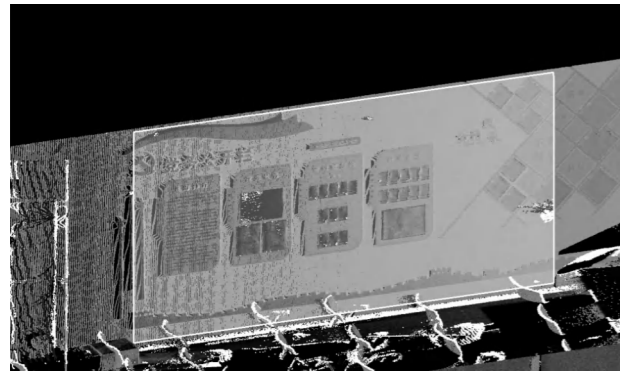
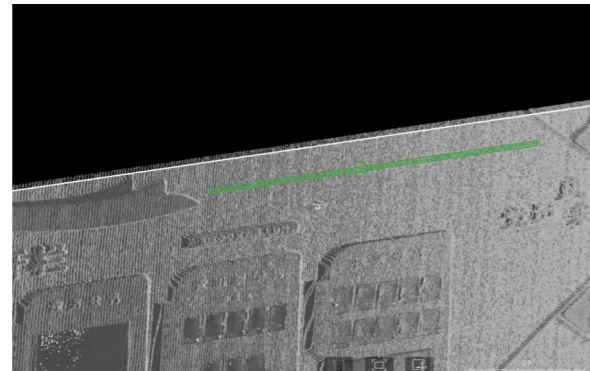
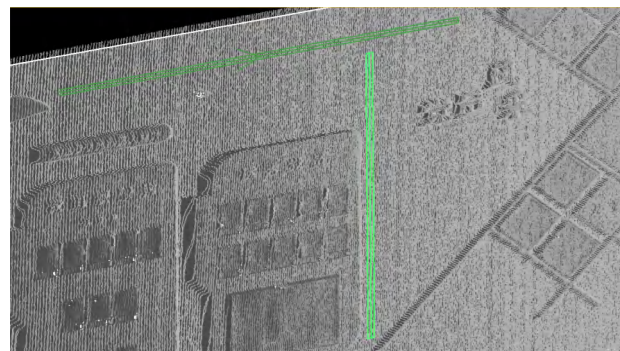


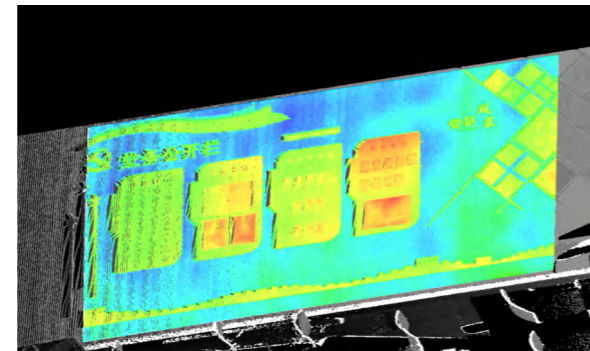
Image definition plane



Measurement of flatness



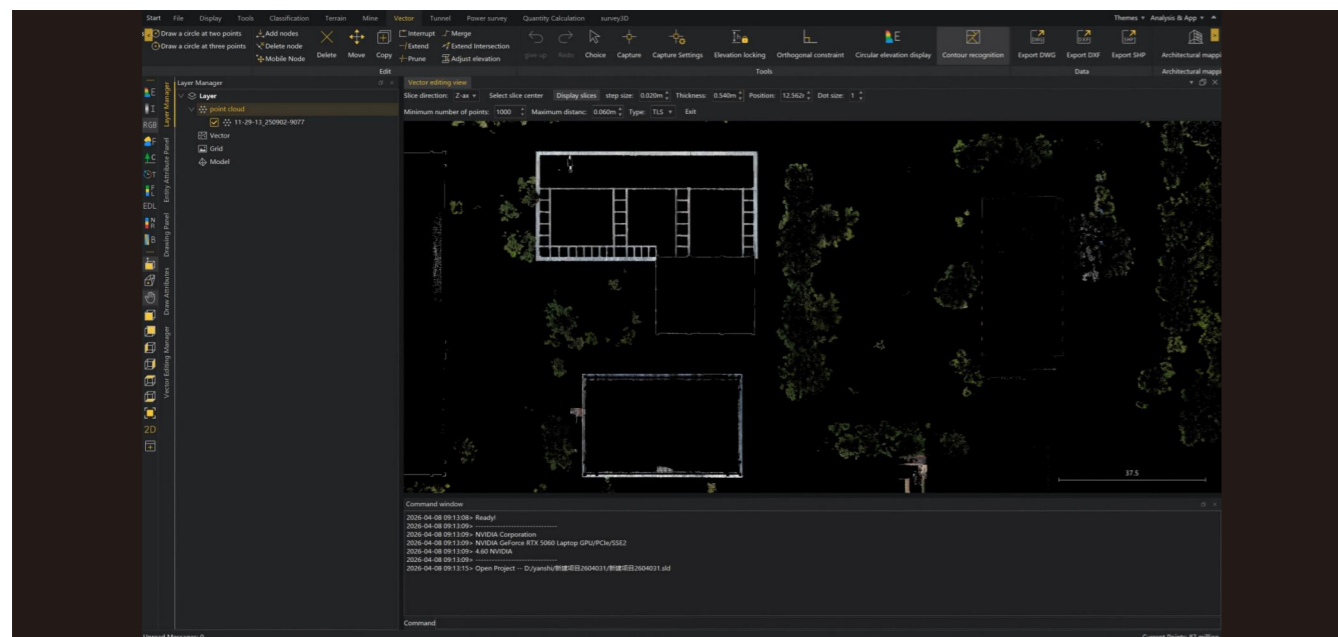
Verticality Measurement



Calculate thermal map

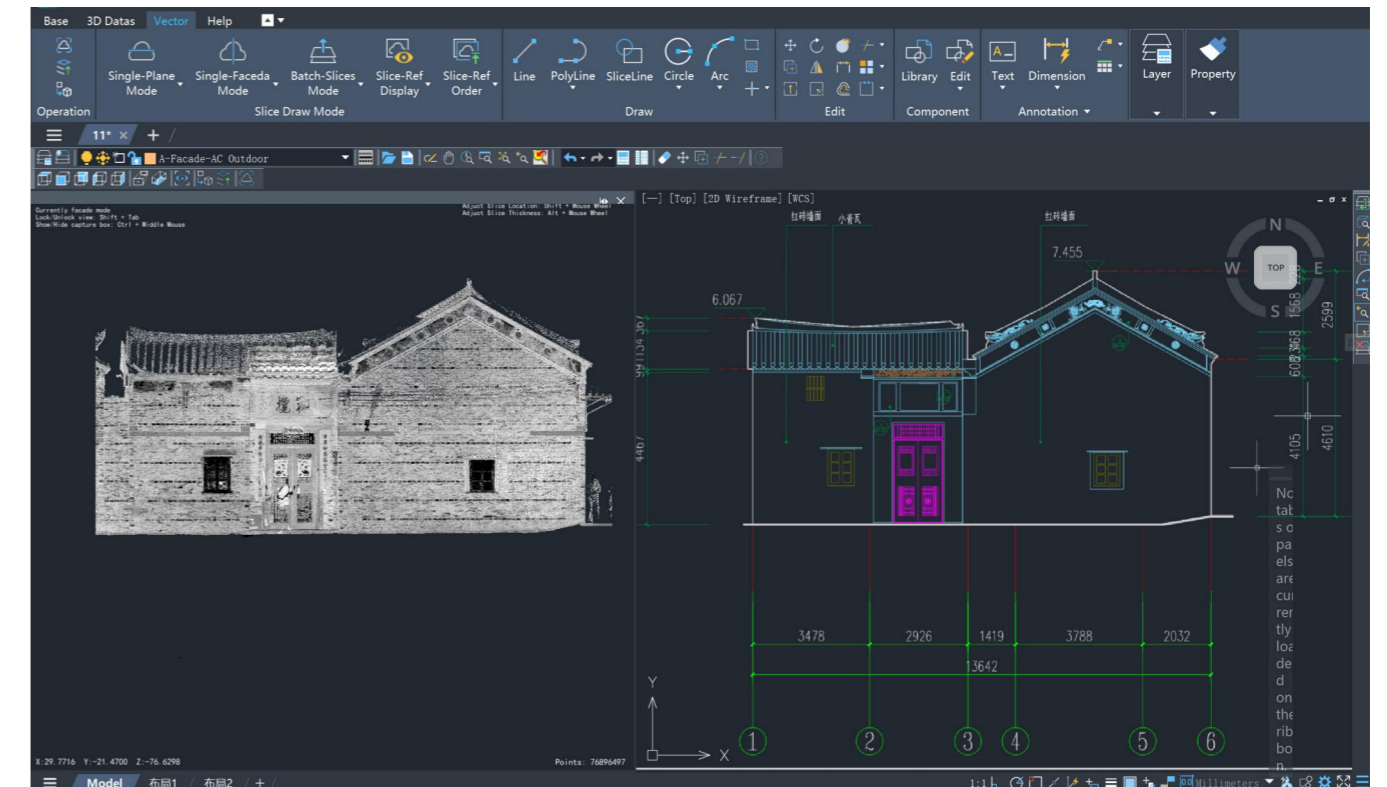
Intelligent building outline extraction

Enables 2D vector point, line, and polygon cadastral mapping; employs a layered point cloud cropping method to automatically extract object outlines from slice point clouds.

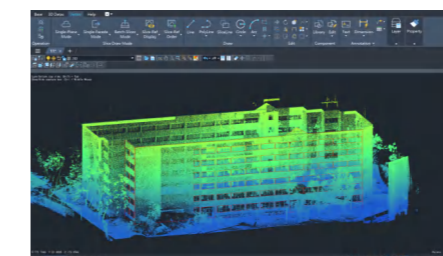


Building surveying

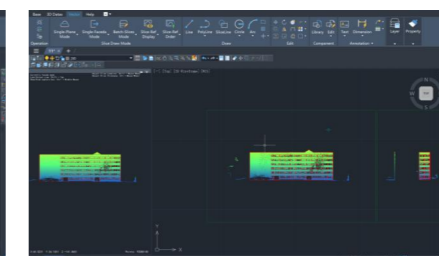
It simplifies the surveying and mapping process of architectural plan, elevation and section, supports custom point cloud axis orientation and rapid leveling, one-click extraction of plan and elevation and output of plan, elevation and section drawings, enables cutting at any horizontal, vertical and multi-angle, supports drawing at any plane height, precise single elevation drawing and one-click expanded drawing of batch plan and elevation, provides annotation functions such as text and dimension, allows one-click insertion of building components, title blocks and drawing frames, and realizes standardized drawing output.



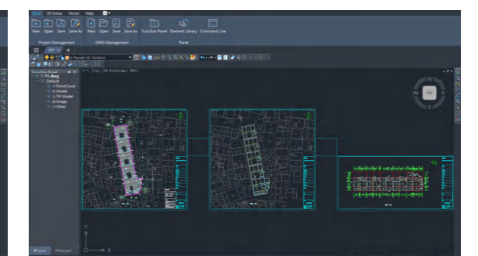
Plan & elevation drafting



One-click auto extraction of elevations



One-click unfolding & drawing for batch plans and elevations



Standardized drawing output