GreenValley International

LiDAR360

Kokyo
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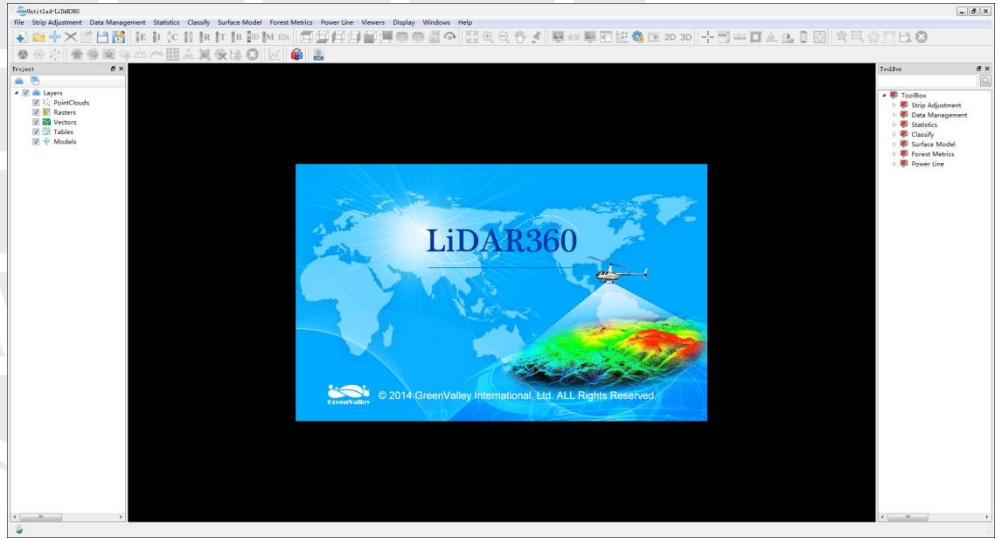
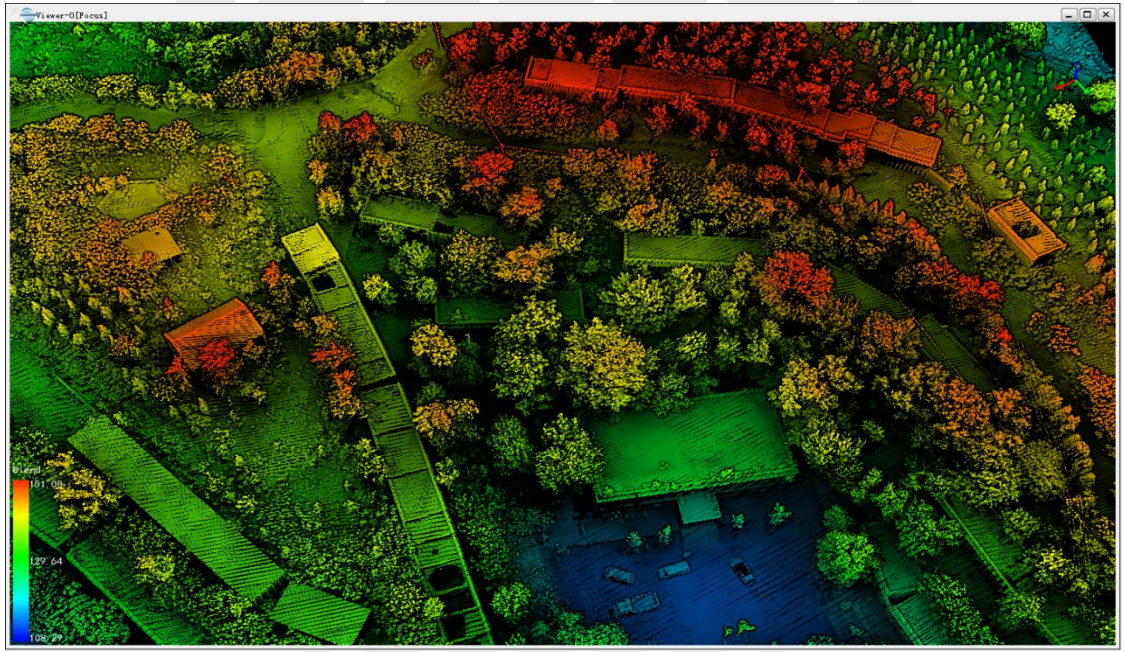
LiDAR360 Overview

LiDAR360 provides a platform that enables users to manipulate LiDAR point cloud and extract useful information from airborne/terrestrial LiDAR data. It has the ability to visualize large point cloud data and automatically align flight strips, classify points (ie: ground, vegetation, power lines, etc.) and generate spatial products. Some key tools include surface modeling, point cloud classification, strips alignment and mapping toolsets.



Main Functions

Massive data visualization and management



Display by

- Elevation
- Intensity
- Classification
- RGB
- Return Number
- Time
- Height Blend
- TreeID
- MIX
- EDL

Main Functions

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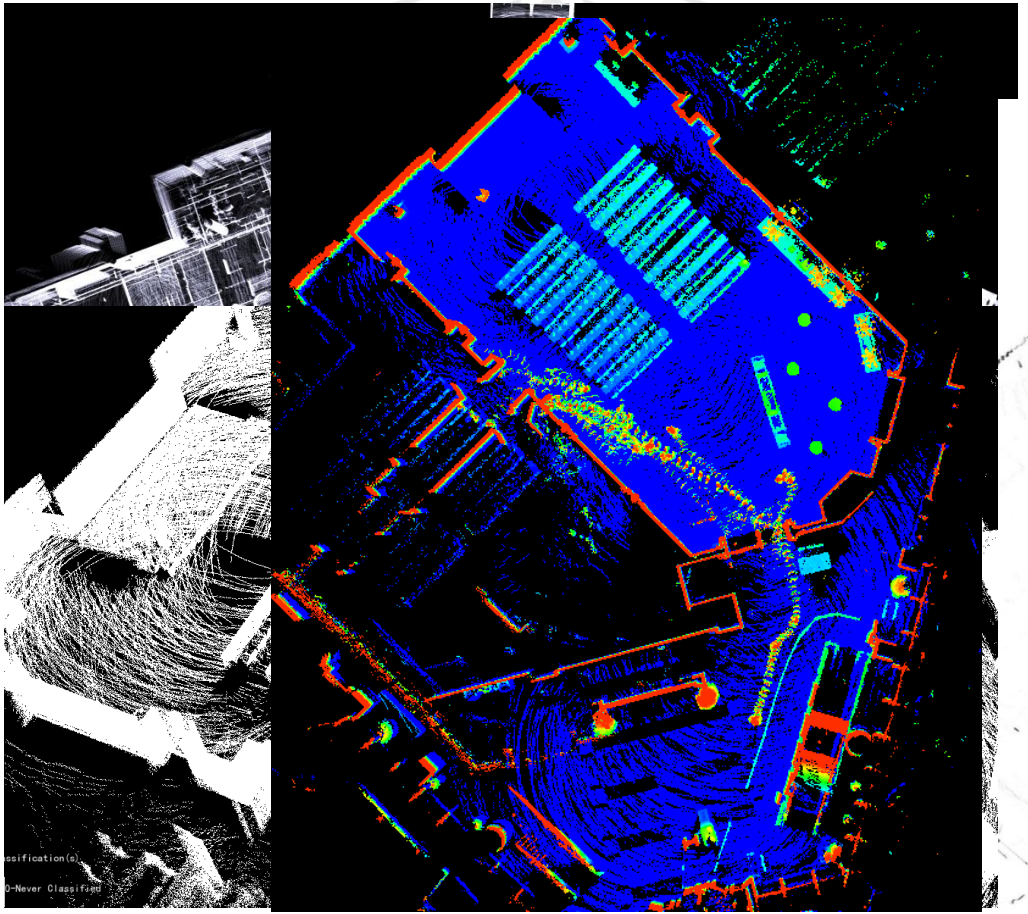
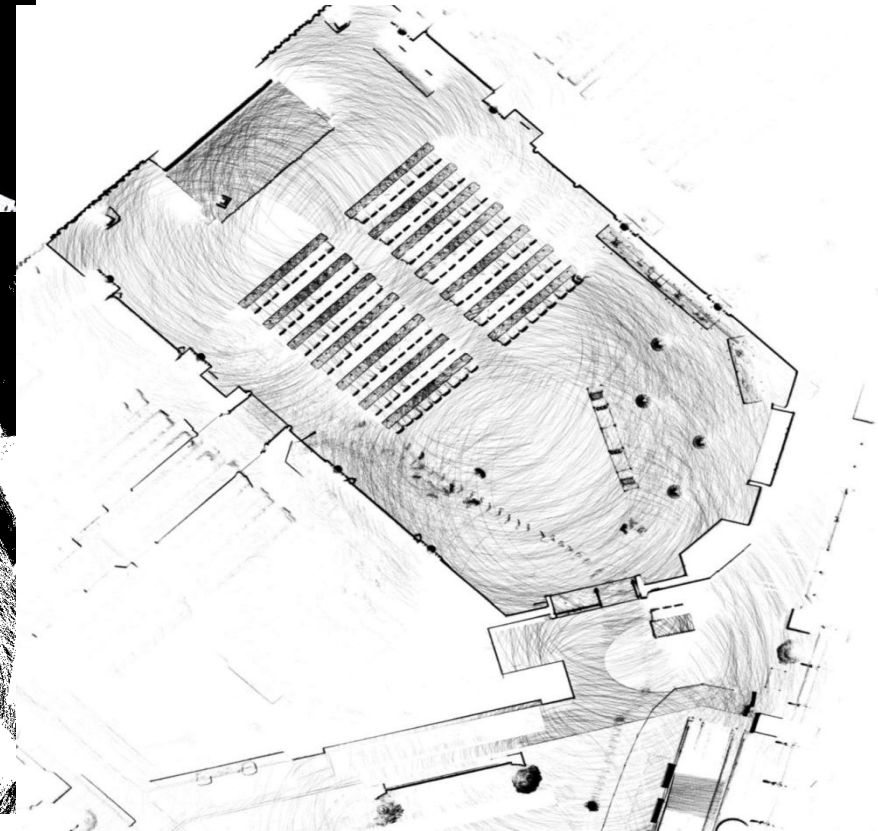
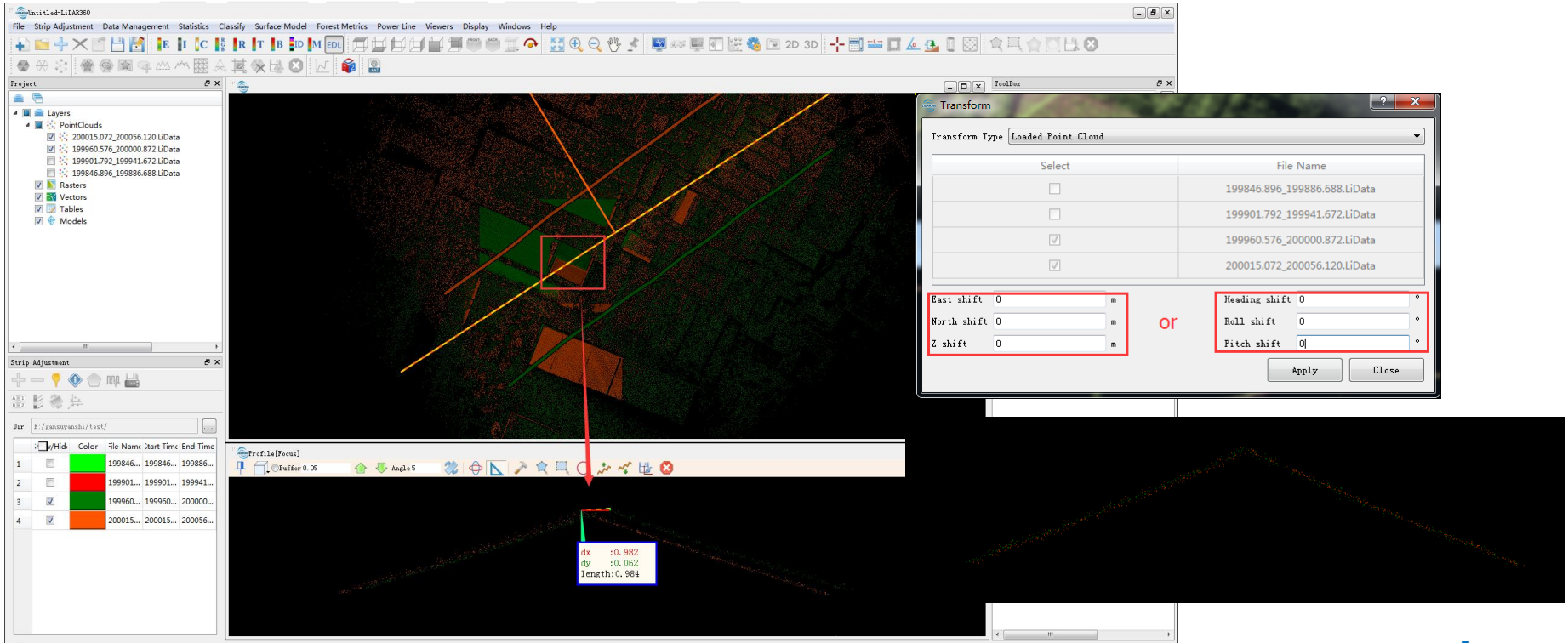




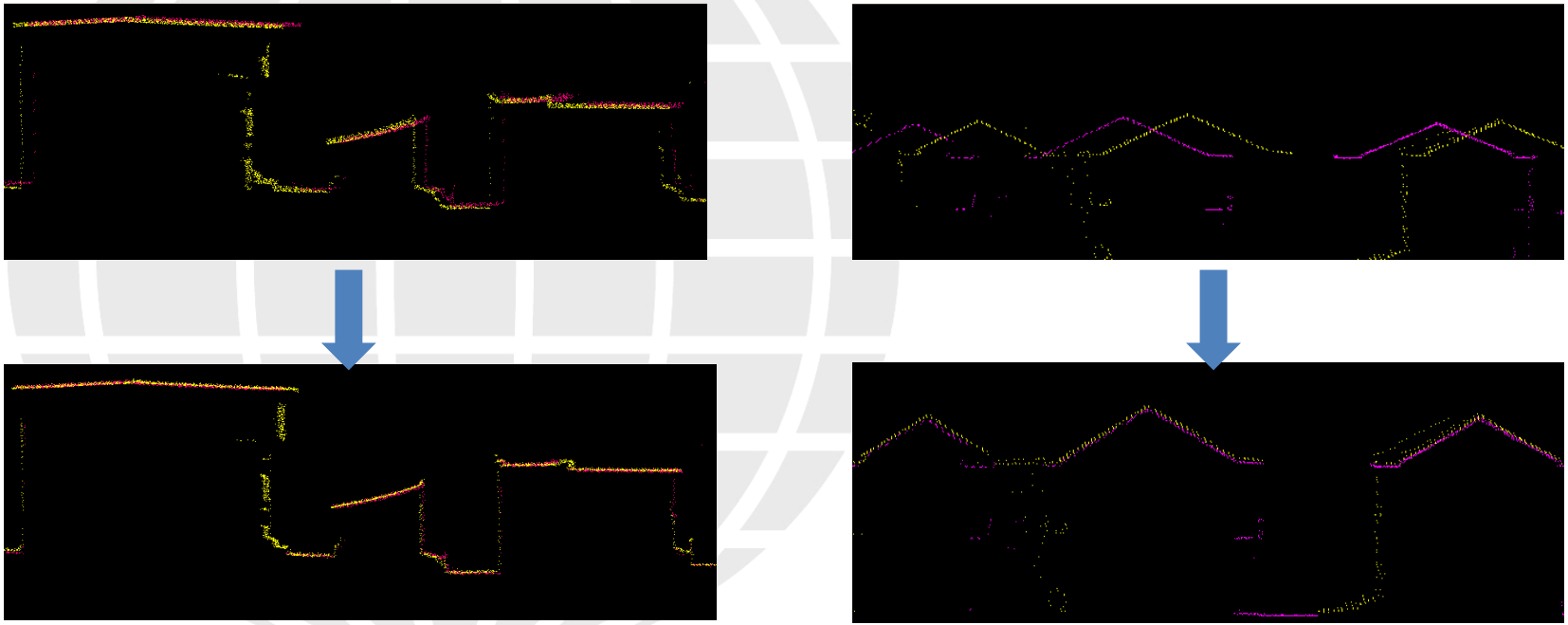
Main Functions

Strip Adjustment



Main Functions

Strip Adjustment



Main Functions

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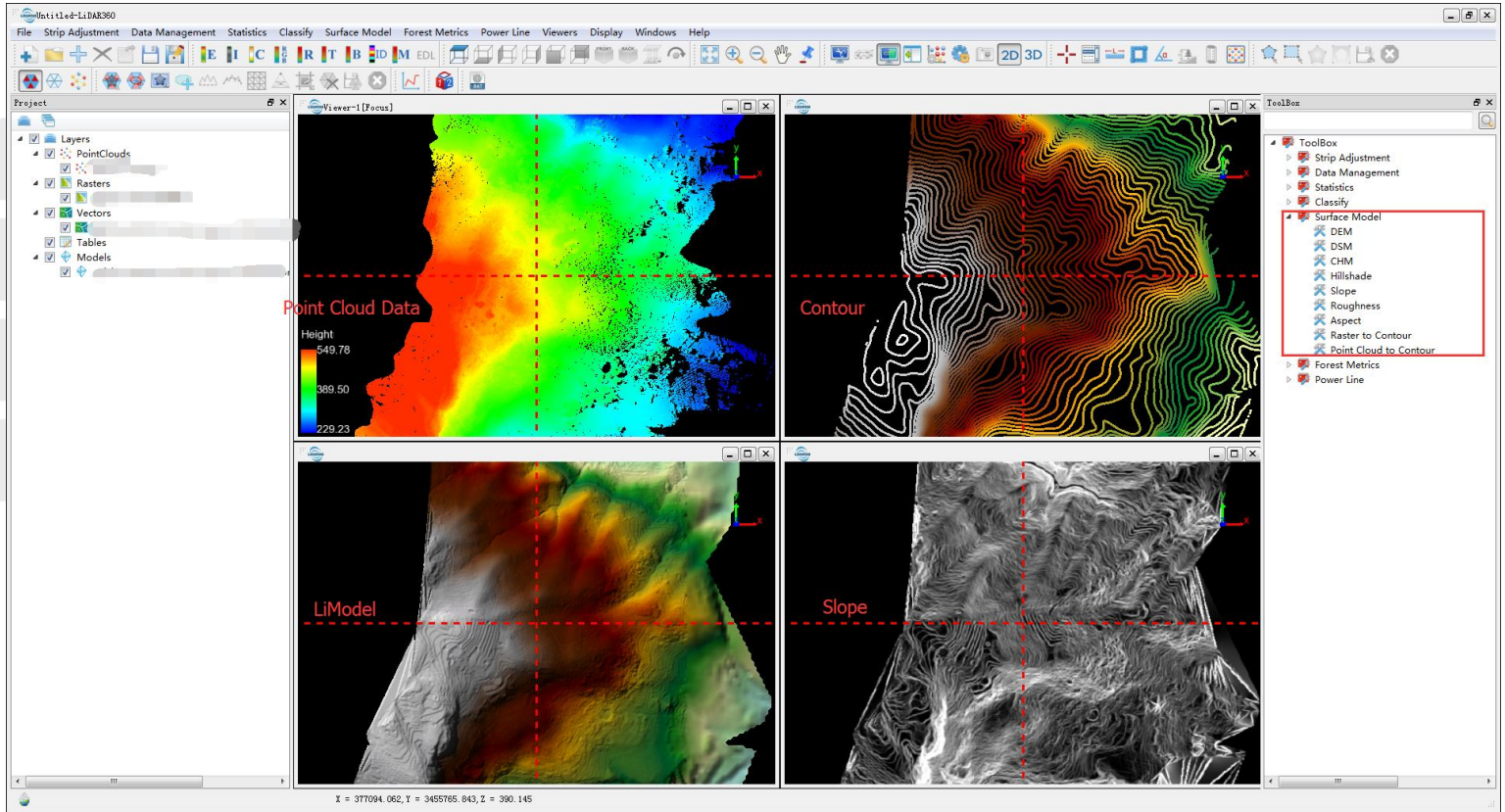
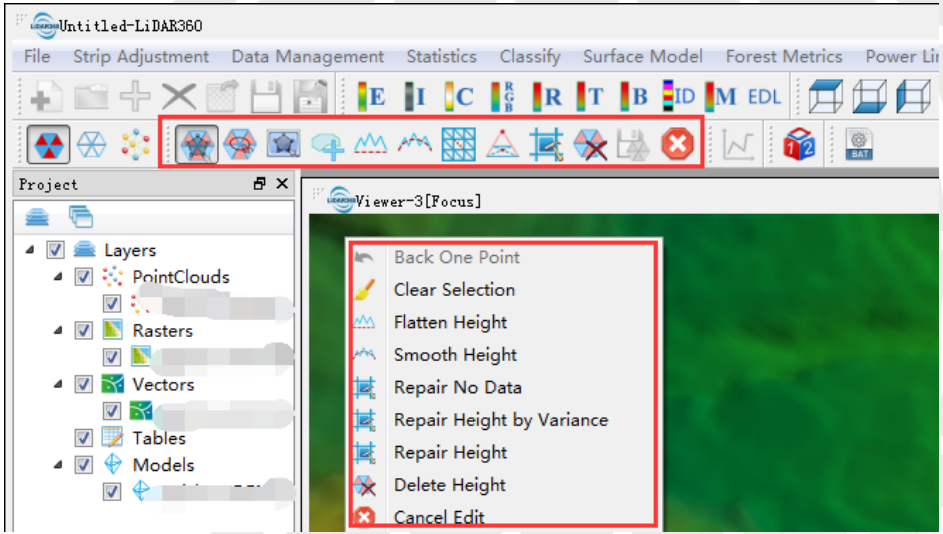
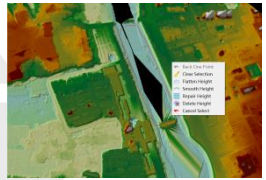
Surface Model Generation and Editing

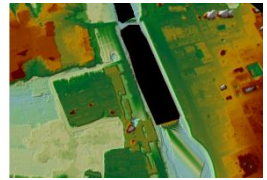


Main Functions

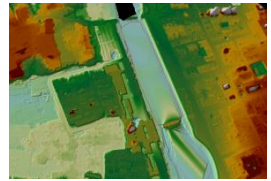
Surface Model Generation and Editing



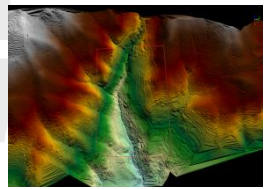


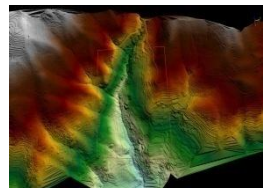


Delete Height

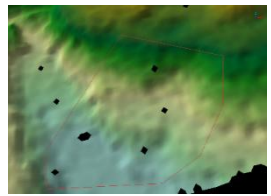


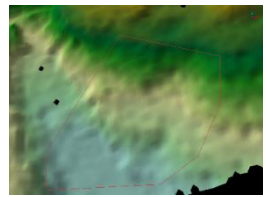
Flatten Height





Smooth Height





Repair Height

Main Functions

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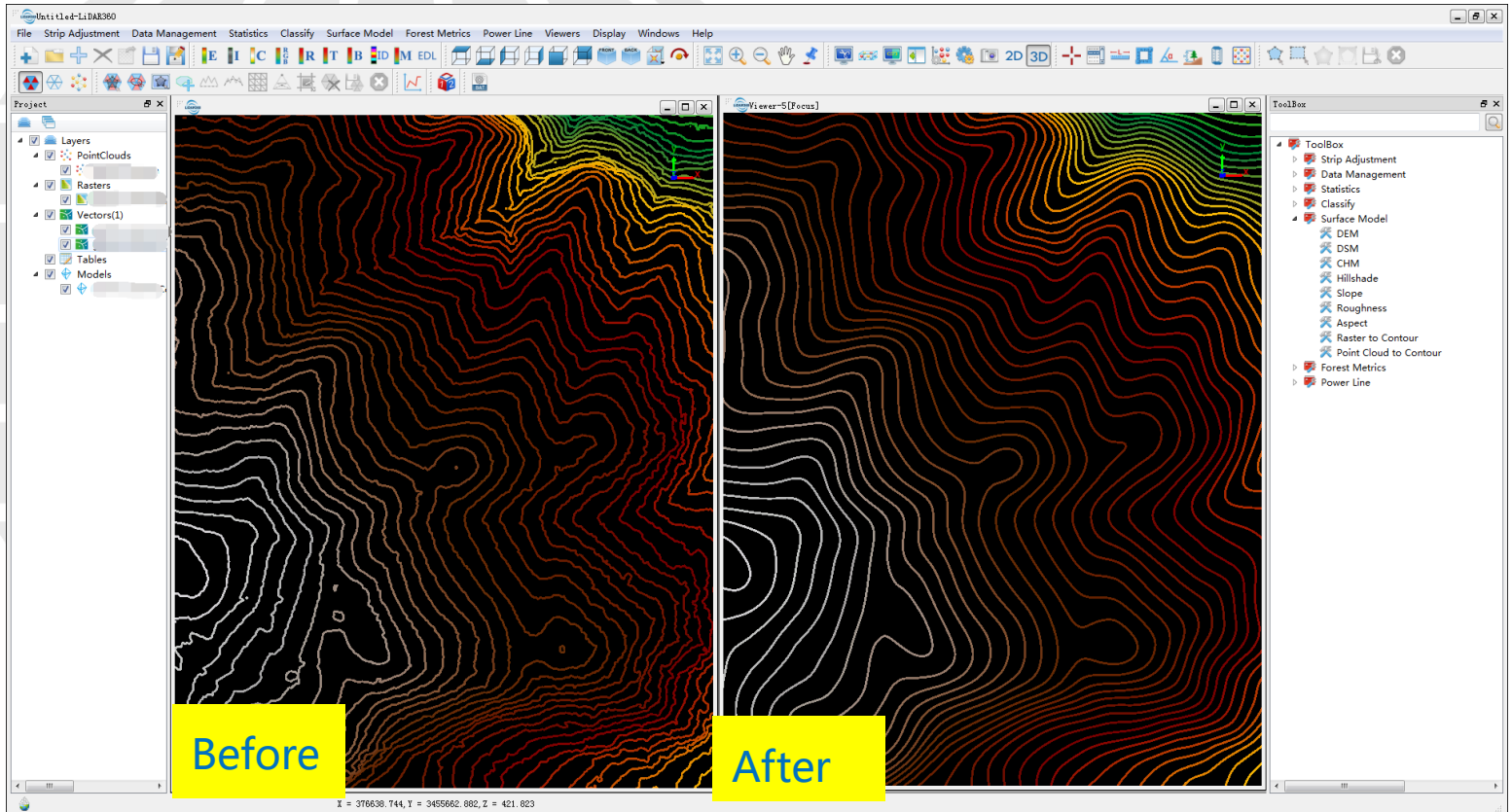
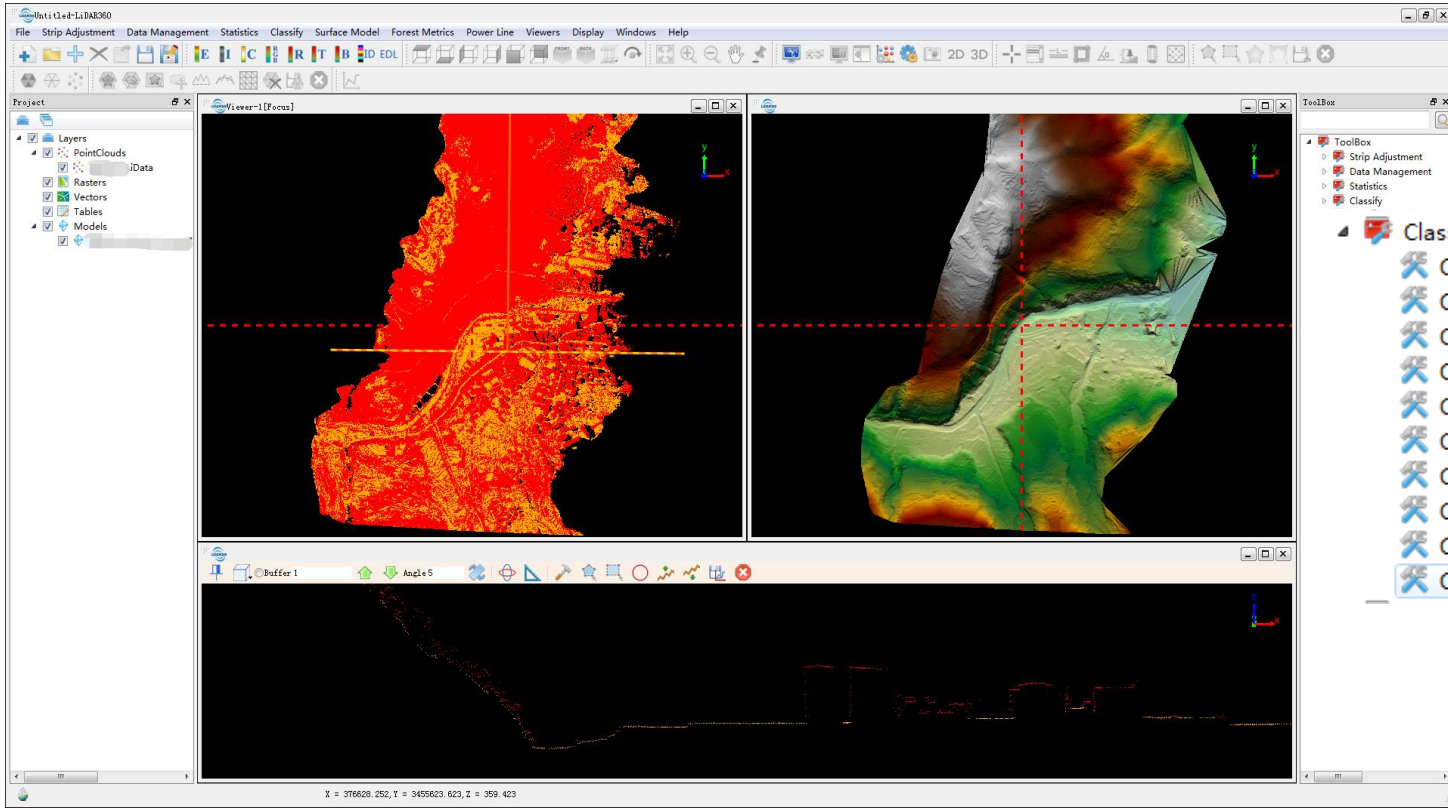
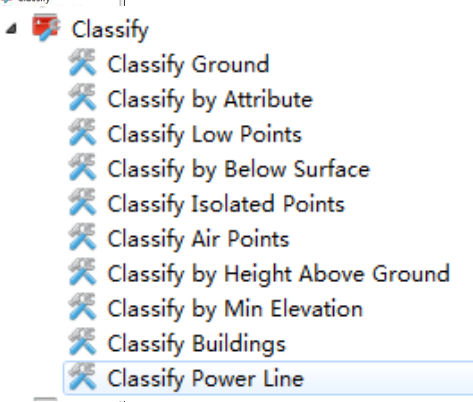
Contour Smoothing



Main Functions

Point Cloud Classification





Main Functions

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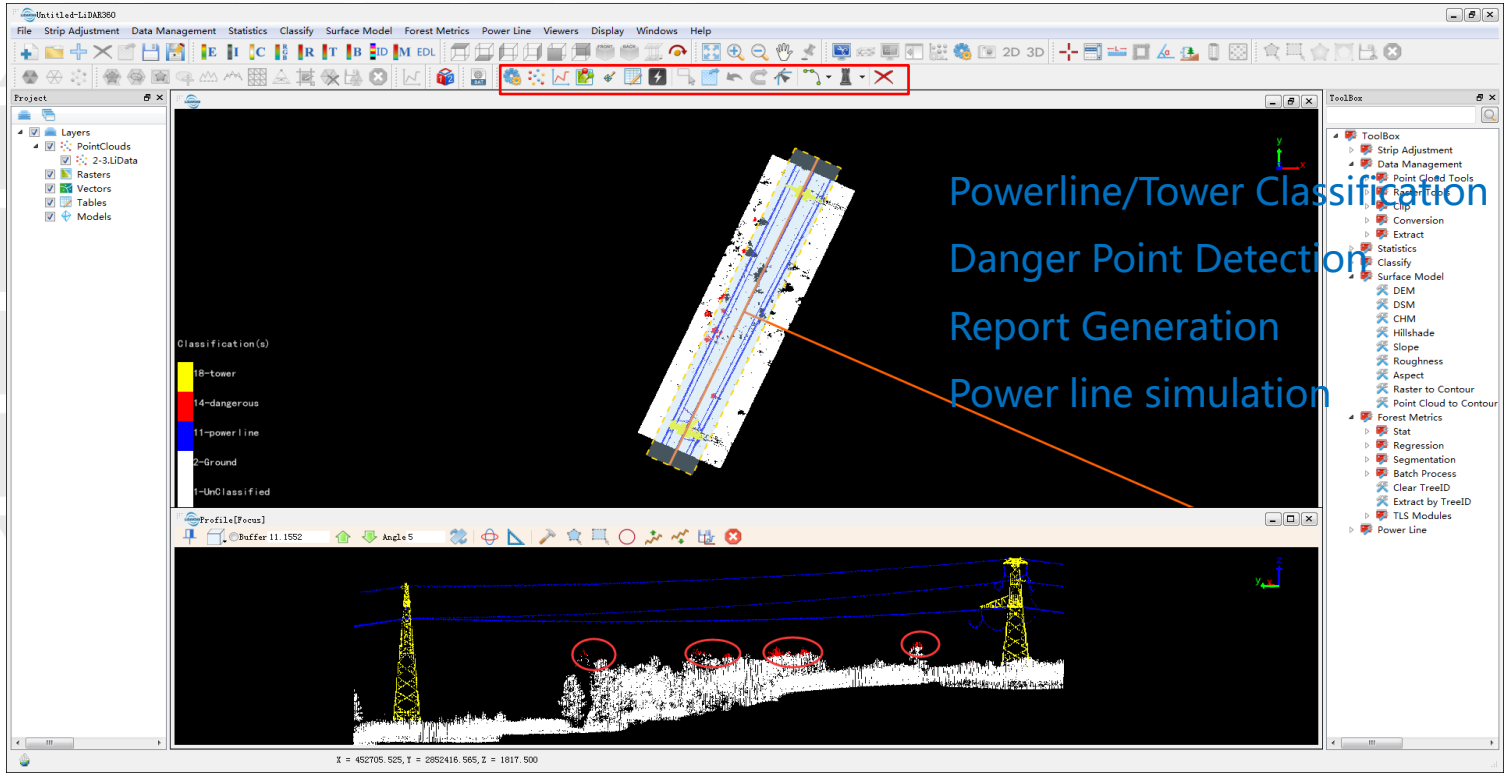
Powerline



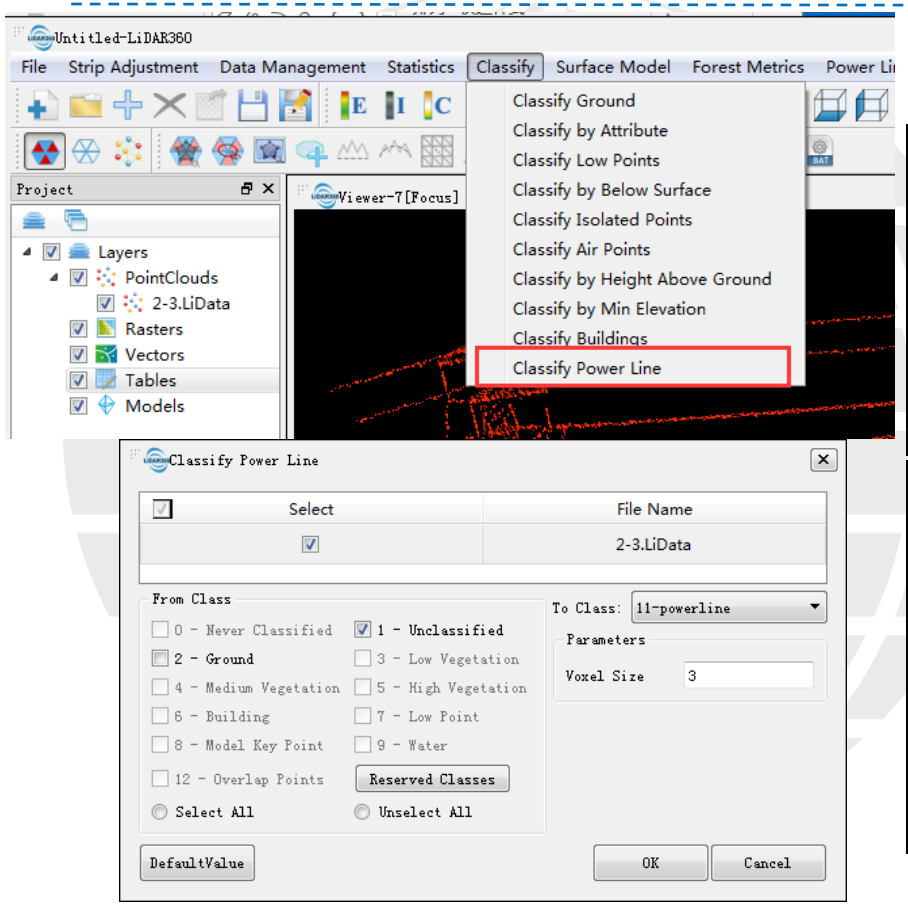
Powerline/Tower Classification

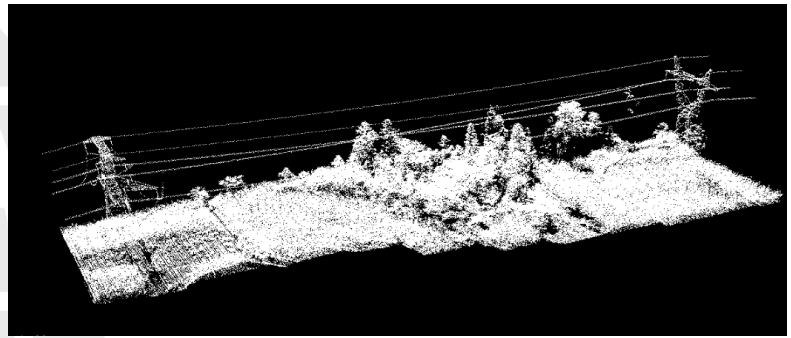
Danger Point Detection

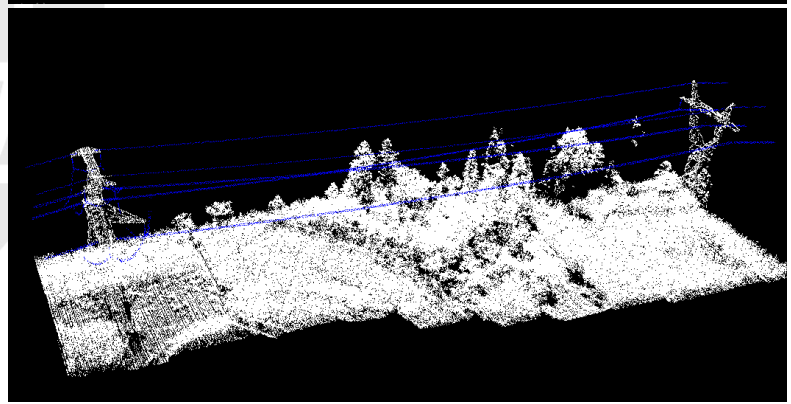
Report Generation

Power line simulation

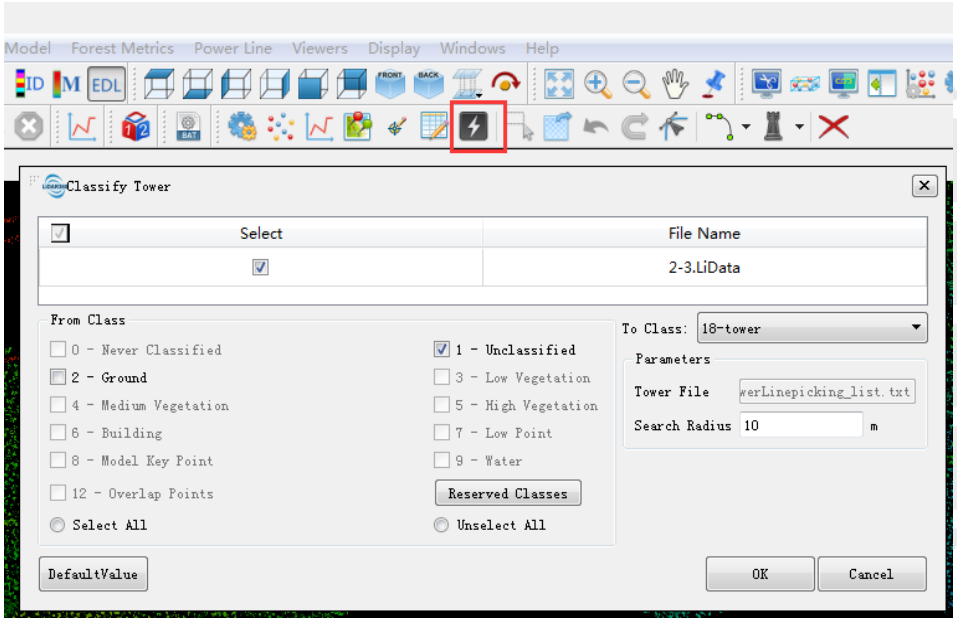
Main Functions

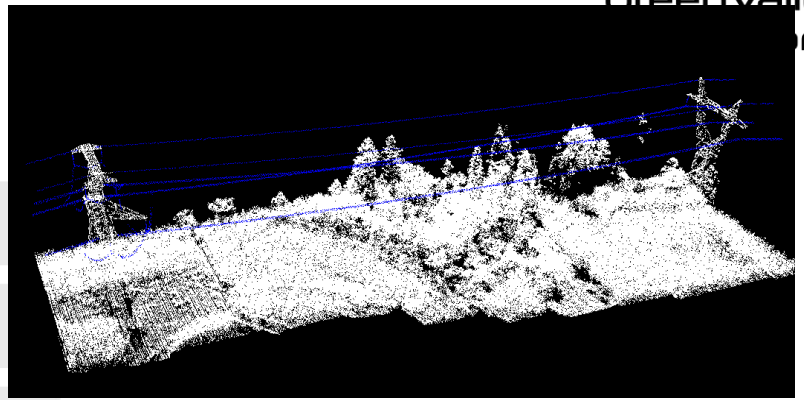


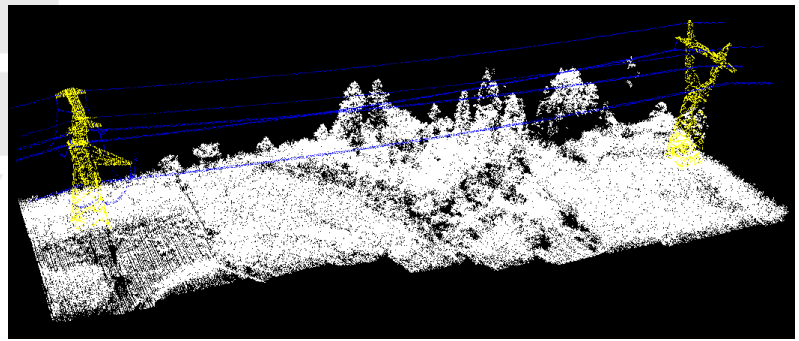




Main Functions

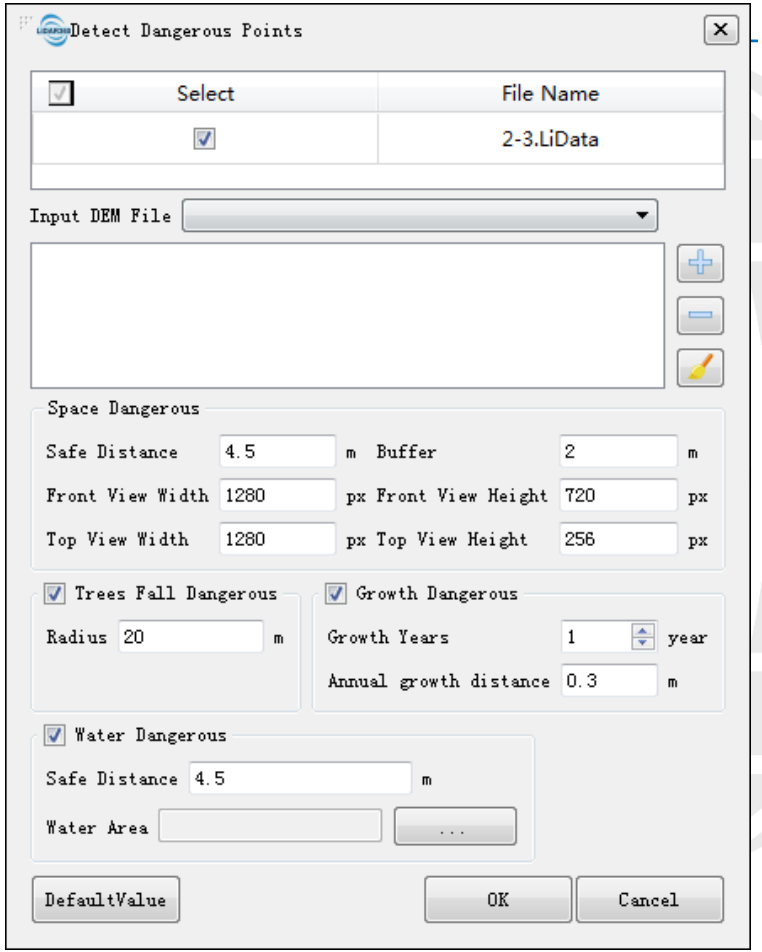


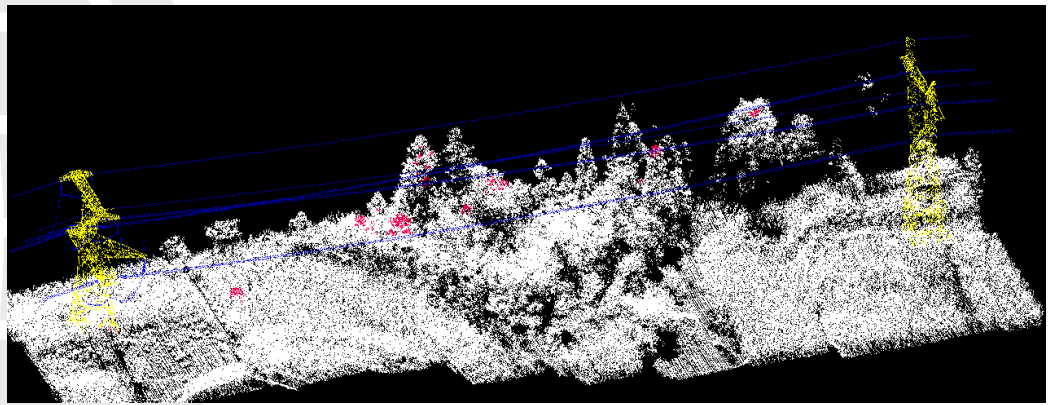




Classify Tower

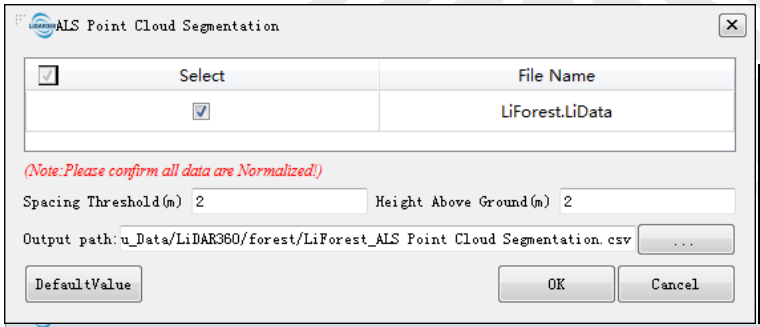
Main Functions



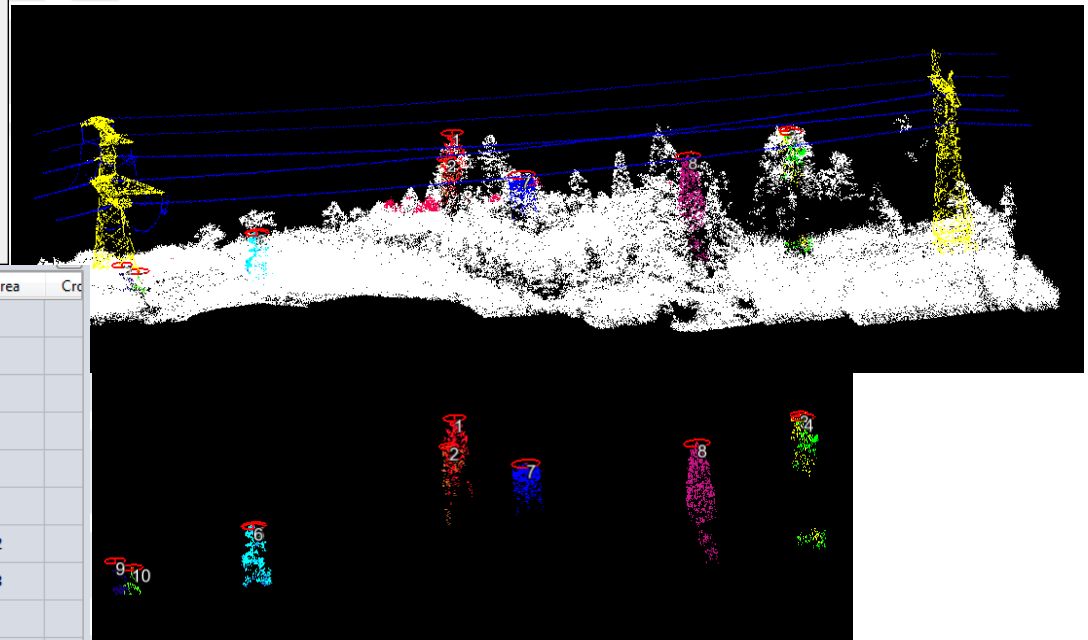


Detect Danger Points

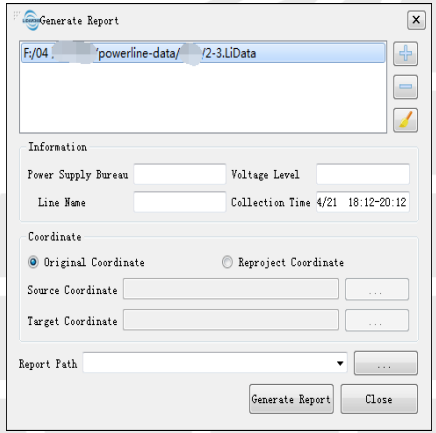
Main Functions

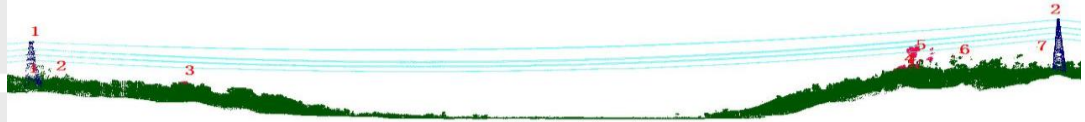


	TreeLocationX	TreeLocationY	TreeLocationZ	TreeHeight	CrownDiameter	CrownArea	Cro
1	452678.430	2852508.890	1825.270	15.040	3.140	7.743	
2	452679.330	2852506.870	1821.870	11.740	2.675	5.620	
3	452699.900	2852552.370	1819.880	18.380	2.474	4.808	
4	452701.540	2852551.790	1819.850	18.640	3.155	7.815	
5	452682.700	2852469.860	1819.490	8.210	3.393	9.042	
6	452682.930	2852469.550	1819.490	8.210	2.898	6.597	
7	452685.390	2852515.470	1818.520	13.430	3.937	12.172	
8	452696.140	2852537.190	1818.460	17.190	3.648	10.453	
9	452672.740	2852452.910	1816.470	4.310	2.898	6.598	
10	452673.690	2852455.040	1815.170	3.110	2.961	6.885	

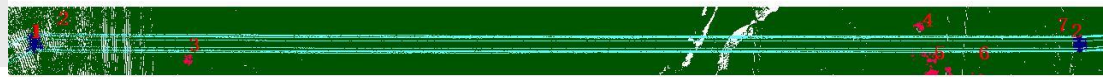


Main Functions





Front View

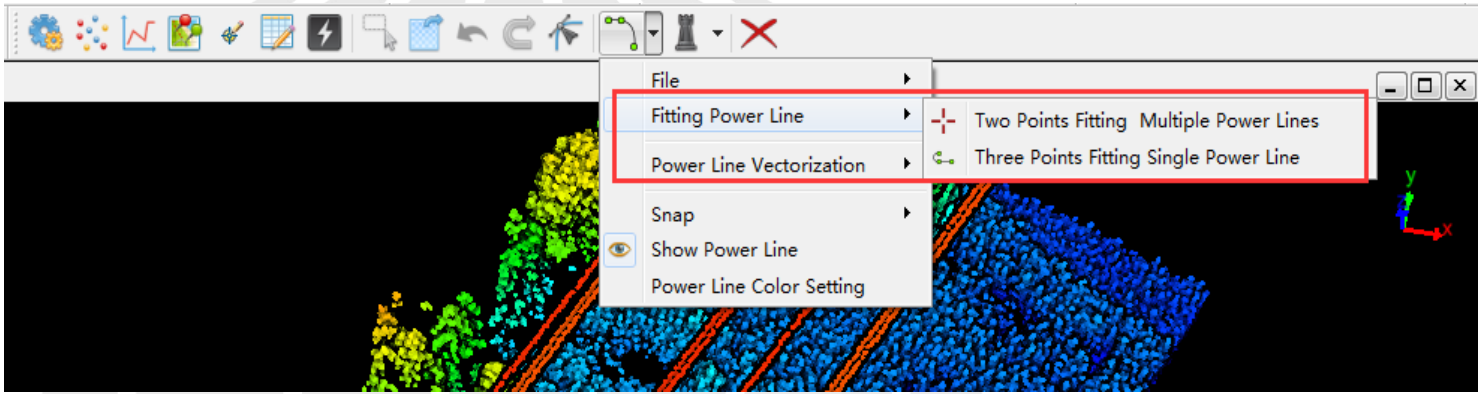


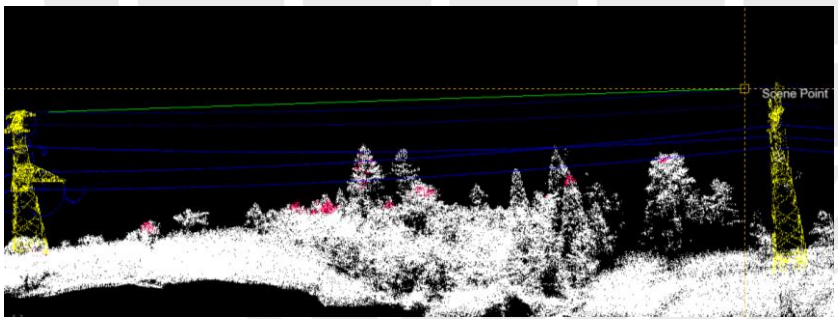
Vertical view

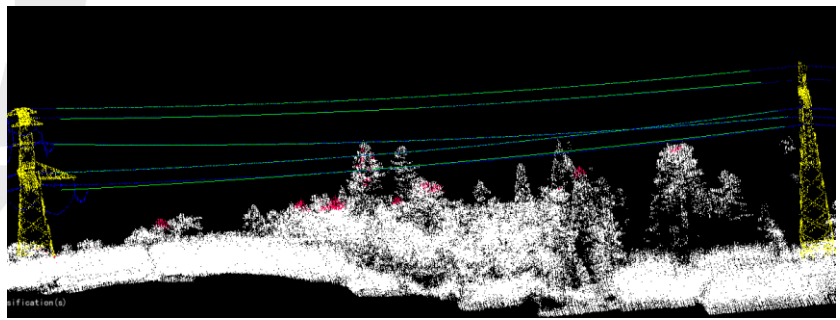
Index	TreeLocationX	TreeLocationY	TreeLocationZ	TreeHeight	CrownDiameter	CrownArea	CrownVolume
1	452678.430	2852508.890	1825.270	24.000	3.140	7.743	65.907
2	452679.330	2852506.870	1821.870	20.600	2.675	5.620	27.699
3	452699.900	2852552.370	1819.880	18.380	2.474	4.808	51.273
4	452701.540	2852551.790	1819.850	18.640	3.155	7.815	62.335
5	452682.700	2852469.860	1819.490	8.210	3.393	9.042	56.472
6	452682.930	2852469.550	1819.490	8.210	2.898	6.597	31.482
7	452685.390	2852515.470	1818.520	17.250	3.937	12.172	65.803
8	452696.140	2852537.190	1818.460	17.190	3.648	10.453	96.662
9	452672.740	2852452.910	1816.470	4.310	2.898	6.598	15.168
10	452673.690	2852455.040	1815.170	3.110	2.961	6.885	10.672

Report Generation

Main Functions

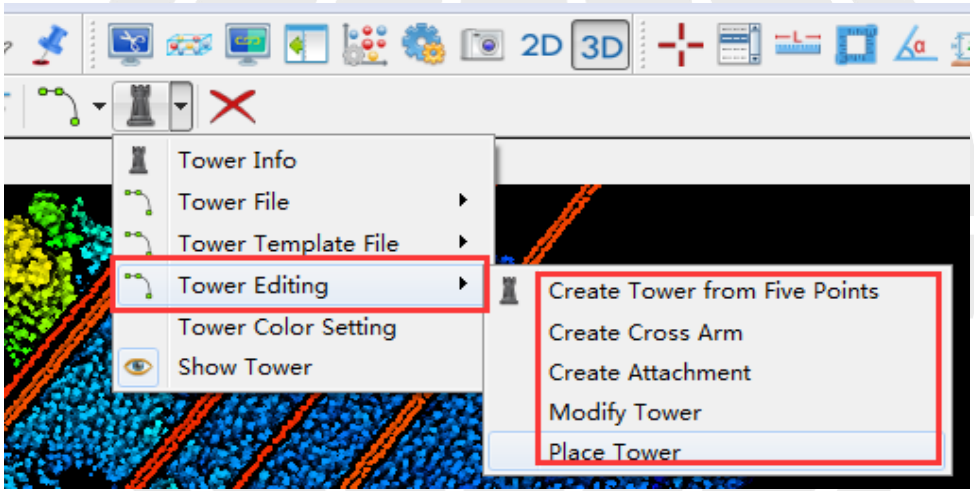


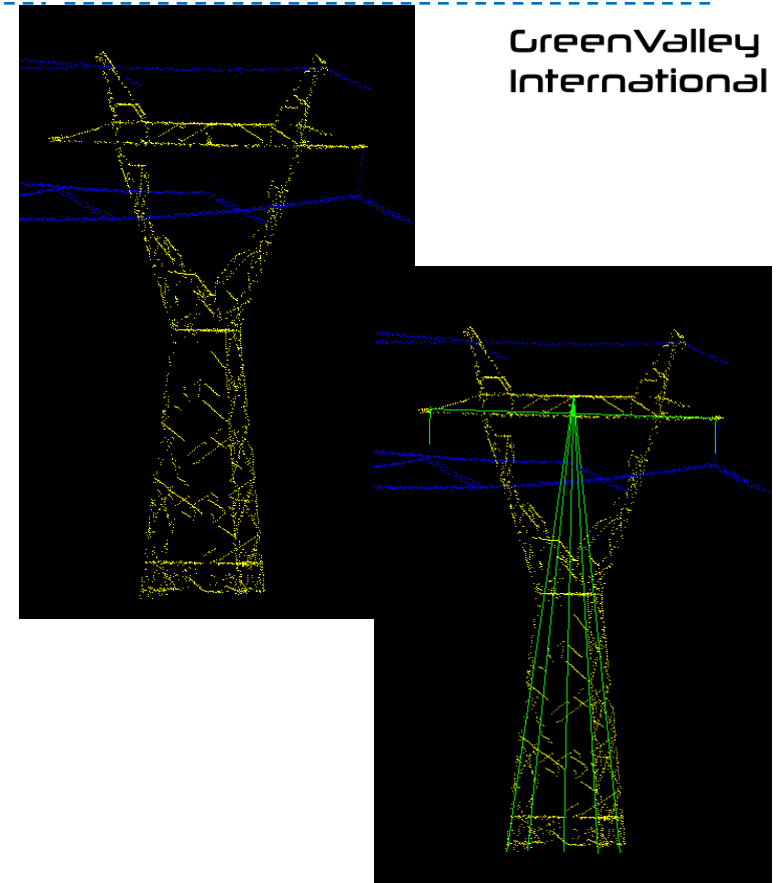




Power line simulation

Main Functions



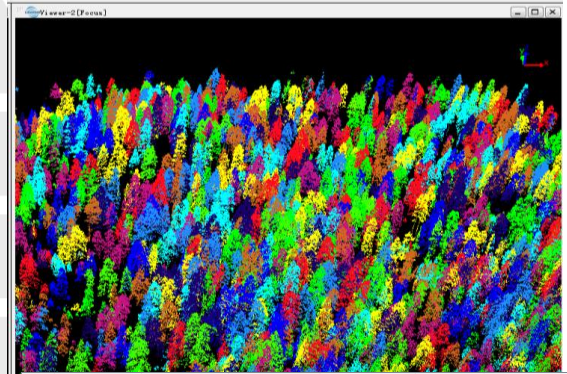


Tower Editing

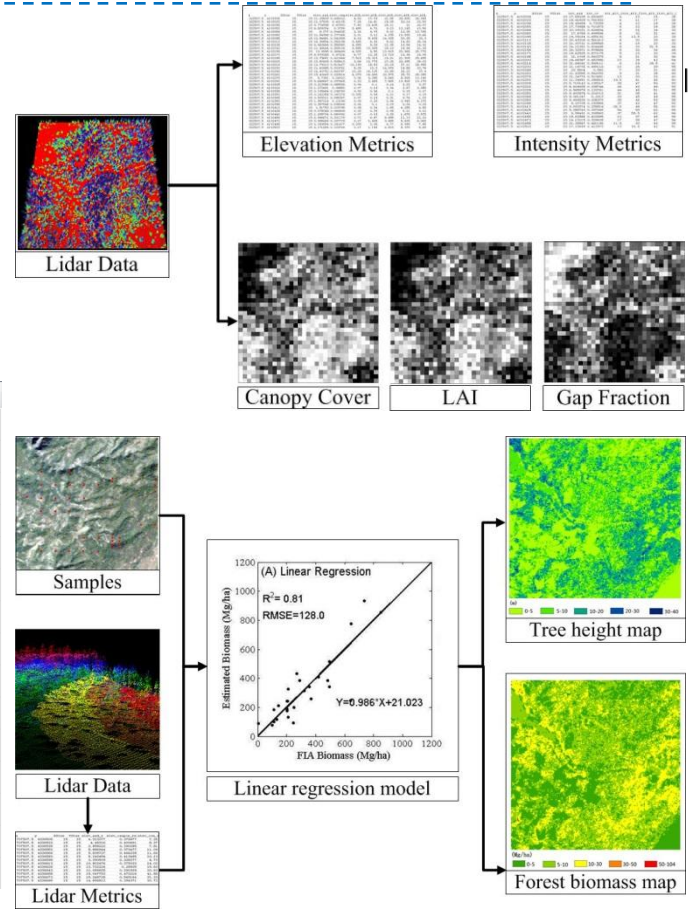
Main Functions

LiForest Analysis

- Forest Metrics
  - Stat
    - Elevation Metrics
    - Intensity Metrics
    - Canopy Cover
    - LAI
    - Gap Fraction
  - Regression
    - Linear Regression
    - Support Vector Regression
    - Fast Artificial Neural Network Regression
    - Regression Predict
  - Segmentation
    - CHM Segmentation
    - Point Cloud Segmentation
  - Batch Process
    - Stat Batch
    - Regression Batch
    - Segmentation Batch
    - CHM Segmentation Batch
  - Clear TreeID
  - Extract by TreeID
  - TLS Modules
    - Gaussian Mixture Model Classification
    - TLS Point Cloud Segmentation



	TreeLocationX	TreeLocationY	TreeHeight	CrownDiameter	CrownArea	CrownVolume
1	322511.520	4102089.780	60.850	14.604	167.500	3652.281
2	322511.810	4102015.140	57.060	15.757	195.000	5358.566
3	322727.360	4102365.710	56.320	22.183	386.500	2270.477
4	322537.430	4102062.510	55.660	23.015	416.000	7525.861
5	322771.800	4102019.730	55.300	20.940	344.375	8510.144
6	322757.300	4102007.580	55.260	14.318	161.000	3532.007
7	322771.730	4102005.960	54.460	14.489	164.875	3982.880
8	322758.300	4102005.050	54.320	4.039	12.813	71.226
9	322529.420	4102073.100	53.790	21.260	355.000	6584.296
10	322525.070	4102101.070	53.740	16.017	201.500	2940.393
11	322501.160	4102109.680	53.710	11.590	105.500	1539.960
12	322767.700	4102385.420	53.320	17.950	253.063	3597.838
13	322710.980	4102389.830	53.280	20.699	336.500	5947.070
14	322760.350	4102000.680	52.970	6.180	30.000	728.034
15	322521.910	4102143.630	52.740	12.393	120.625	1832.015



Comparison with TerraSolid

Feature Comparison Table

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Functions	LiDAR360	TerraSolid
Massive Data Capability	TB	4GB
Display	Elevation, Intensity, Classification, RGB, Return Number, Time and Height Blend.、TreeID、Blend、Shader	Elevation, Intensity, Classification, RGB, Return Number, Time and Height Blend
Strip Adjustment	Based on mathematical model	Under the condition of high point density, data will have deformation
DEM Editing	Powerful 3D editing functions	No editing features
Forest	Can segment individual trees and measure essential attributes	Doesn't have segmentation functions
Powerline	Powerline/Tower Classification、Danger Point Detection 、Report Generation、Power line fitting	Powerline/Tower Classification、Danger Point Detection 、Report Generation、Power line fitting
Operation-interface	Clear and simple interface and navigation functionality（ToolBox）	Need to switch interfaces
Platform independence	Independent base-developed	Based on Microstation
User-friendly interfaces	User-Friendly Operator Interface, Easy Manipulation	Inability to find information in a user-friendly way

GreenValley International

The List Prices of the Terrasolid Software Packages

Single licenses

Full versions

TerraScan	5.100 €
TerraModeler	3.400 €
TerraPhoto	5.100 €
TerraMatch	5.100 €
TerraSlave	3.000 €
TerraSurvey	3.400 €
TerraStreet	3.400 €
TerraStereo	3.400 €

Lite versions

TerraScan Lite	1700 €
TerraModeler Lite	1700 €
TerraPhoto Lite	1700 €
TerraSurvey Lite	1700 €
TerraStreet Lite	1700 €

Bundles *(mostly the first selection)*

Full versions

TerraScan + TerraModeler	7.650 €
TerraScan + TerraPhoto	9.180 €
TerraScan + TerraMatch	9.180 €
TerraScan + TerraModeler+ TerraPhoto	10.880 €
TerraScan + TerraModeler+ TerraMatch	10.880 €
TerraScan + TerraMatch+ TerraPhoto	12.240 €
TerraScan + TerraModeler+ TerraPhoto + TerraMatch	13.090 €

Lite versions

TerraScan Lite + TerraModeler Lite	3230 €
TerraScan Lite + TerraPhoto Lite	3230 €
TerraPhoto Lite + TerraModeler Lite	3230 €
TerraScan Lite + TerraModeler Lite + TerraPhoto Lite	4590 €
4 different Lite applications	5780 €
5 different Lite applications	6800 €

Need to purchase Microstation

Our Core Algorithm

GreenValley International

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ISPRS Journal of Photogrammetry and Remote Sensing

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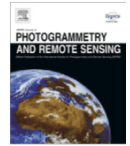
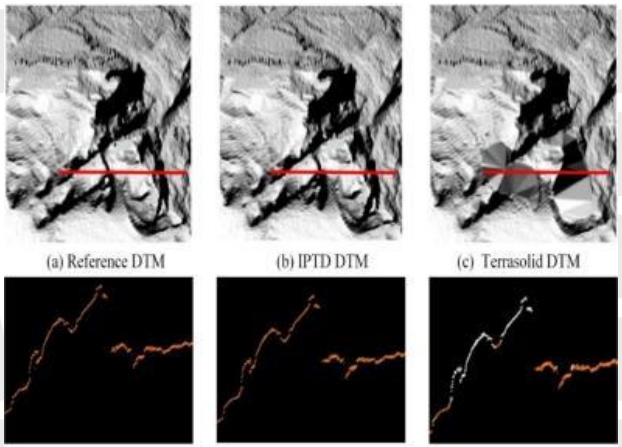


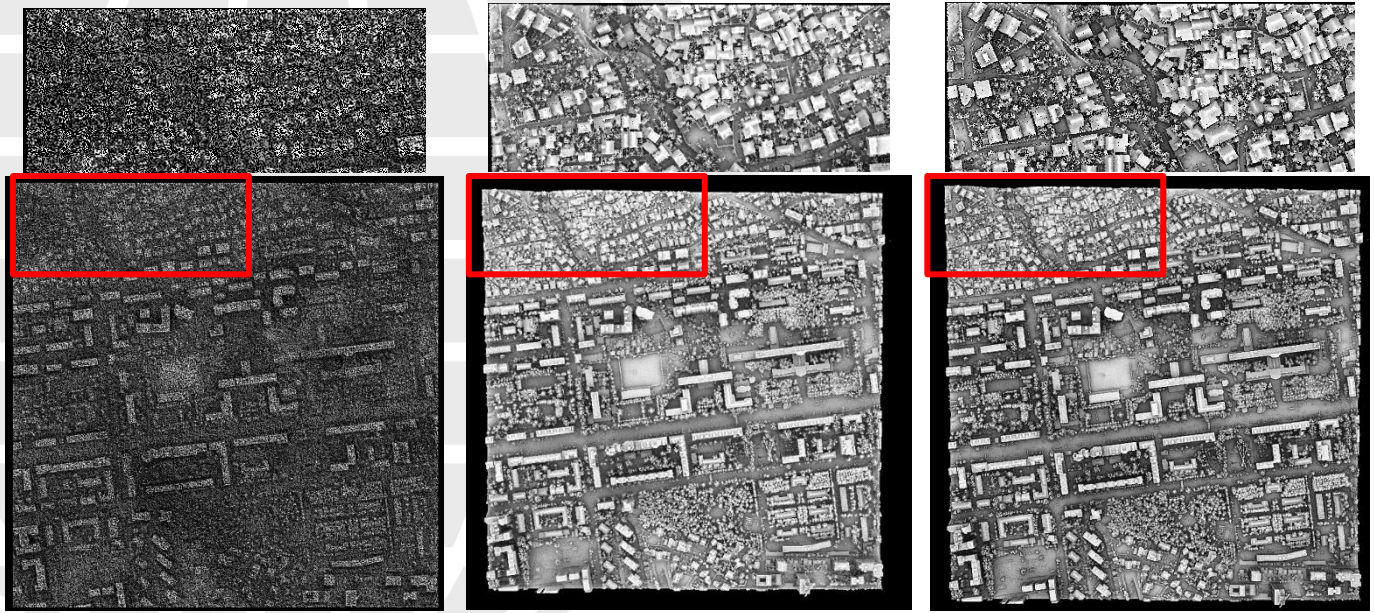


(a) Reference DTM (b) IPTD DTM (c) Terrasolid DTM

(d) Reference cross-section (e) IPTD cross-section (f) Terrasolid cross-section

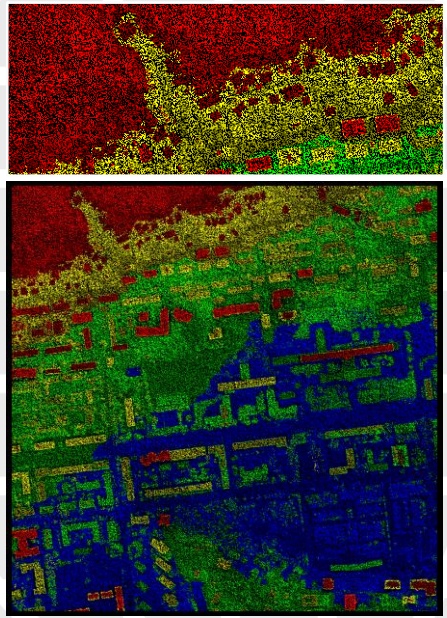
	Filtering algorithm *kp* (%)							
Site	IPTD	Terrasolid	Pingel (2013)	Mongus (2012)	Evans (2007)	Chen (2007)	Vosselman (2000)	Kraus (1998)
1	92.87	**94.06**	92.10	91.37	89.82	90.86	89.64	88.86
2	**96.26**	92.43	94.19	93.9	90.79	94.07	94.31	92.50
3	79.31	**84.42**	43.45	48.19	49.96	57.52	50.37	39.62
4	79.39	**83.65**	53.38	46.00	52.9	57.96	50.83	40.18
5	**97.21**	94.45	95.35	95.21	91.22	94.16	93.79	84.49
6	**96.47**	92.72	95.45	95.32	92.03	94.03	93.71	87.84
7	**94.98**	88.59	94.16	93.82	92.47	94.13	94.19	92.65
8	**94.97**	91.26	93.63	93.10	87.85	89.65	80.04	87.81
9	93.99	**96.63**	90.52	90.35	85.73	80.57	72.38	86.21
10	**72.77**	63.33	61.63	60.71	56.16	27.20	6.86	58.79
11	**94.85**	91.03	87.99	86.60	84.52	81.00	51.63	81.11
12	**89.23**	82.05	80.14	78.31	71.67	59.67	17.53	76.47
13	**80.78**	70.84	64.41	64.53	61.71	30.00	9.36	62.40
14	91.29	**93.69**	45.03	25.27	25.9	20.35	14.03	23.81
15	88.53	78.69	**94.25**	94.04	87.16	84.01	61.08	90.34
ave	**89.53**	86.52	79.05	77.11	74.66	70.35	58.65	72.87
sd	**7.48**	9.21	19.01	21.84	19.85	25.66	32.23	21.71

Display

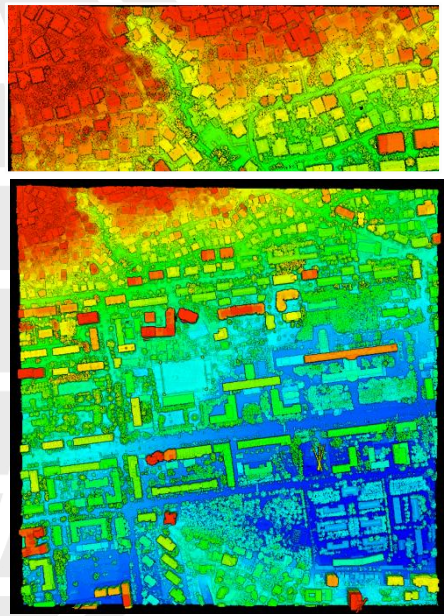


TerraSolid Intensity | LiDAR360 Intensity | LiDAR360 Intensity + EDL

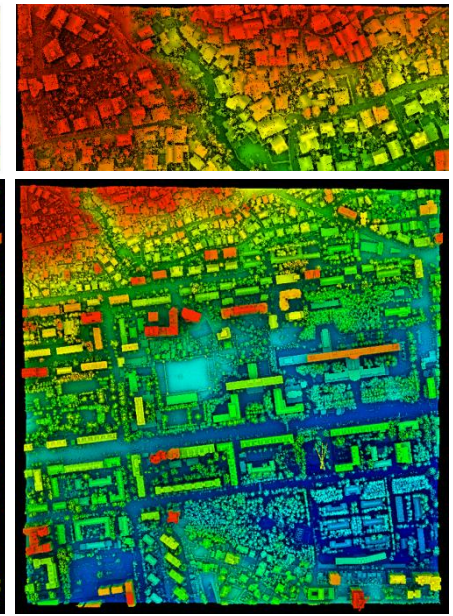
Display



TerraSolid Elevation



LiDAR360 Elevation



LiDAR360 Elevation +EDL