

New Features in TerraMatch

Arttu Soininen
Software developer
Terrasolid Ltd

Tie line improvements

- **Save results after each block** setting when searching on a project
- **Tools / Transform tie lines** for applying a TerraScan transformation to tie lines
- **Delete / By criteria** menu command for deleting observations by tie line type, line number, scanner number, range, 3d mismatch, xy mismatch or z mismatch distance

Fluctuating Roll & Pitch Corrections

- **Find Tie Line Fluctuations** can now solve roll and pitch corrections which vary all the time

Find Tie Line Fluctuations

Source: Active tie lines

Use: All tie lines

Trajectory dir: D:\hut200\trajectory_scan\ Browse...

Average max: 5 obs forward + backward

Average max: 25.0 m forward + backward

Solve Xy Solve heading

Solve Z Solve roll

Solve pitch

OK Cancel

Tie Line Report

- More information in tie line report

Mismatches

Average 3d mismatch: 0.05821
Average xy mismatch: 0.03434
Average z mismatch: 0.04352

Comparison with known points/lines

18 known xyz points
0 known xy points
0 known z points
0 known lines

You should add +0.020 to laser eastings
You should add +0.022 to laser northings
You should add -0.050 to laser elevations

	X	Y	Z
Average magnitu	0.022	0.028	0.053
RMS values	0.028	0.035	0.069
Maximum values	0.063	0.083	0.149
Observation wei	34.0	34.0	34.0

Statistics for internal observations

4 ground points
0 xy points
0 elevation points
0 ground lines
0 section lines
0 roof lines

	X	Y	Z
Average magnitu	0.006	0.015	0.008
RMS values	0.008	0.017	0.009
Maximum values	0.013	0.028	0.016
Observation wei	9.0	9.0	9.0

Average magnitudes per line

Line	X	Y	Z
1	0.014	0.015	0.015
2	0.038	0.027	0.076
3	0.010	0.029	0.038

Ball target objects

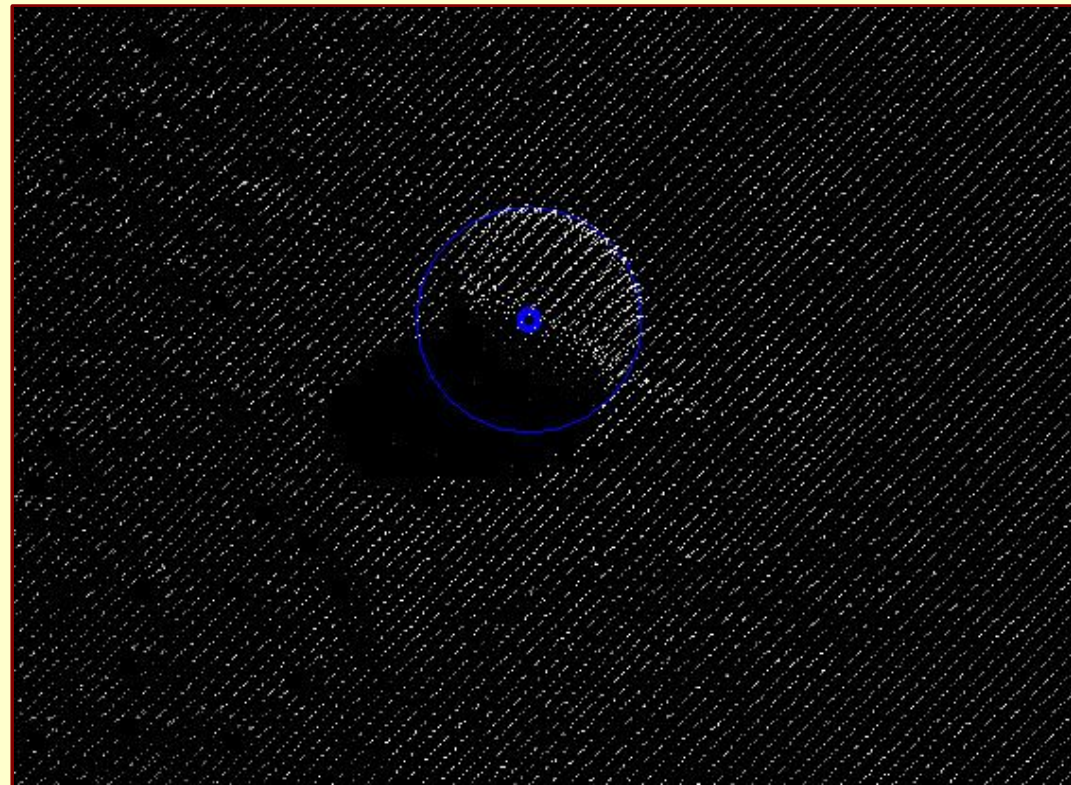
- Define ball target object in **Settings**
- **Import points / From text files** and **Import points / From selected vectors** can search for known points on ball target objects

Target object

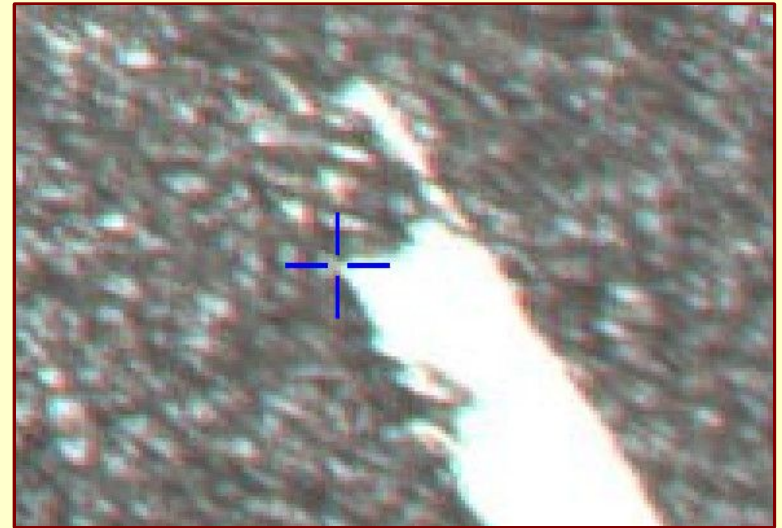
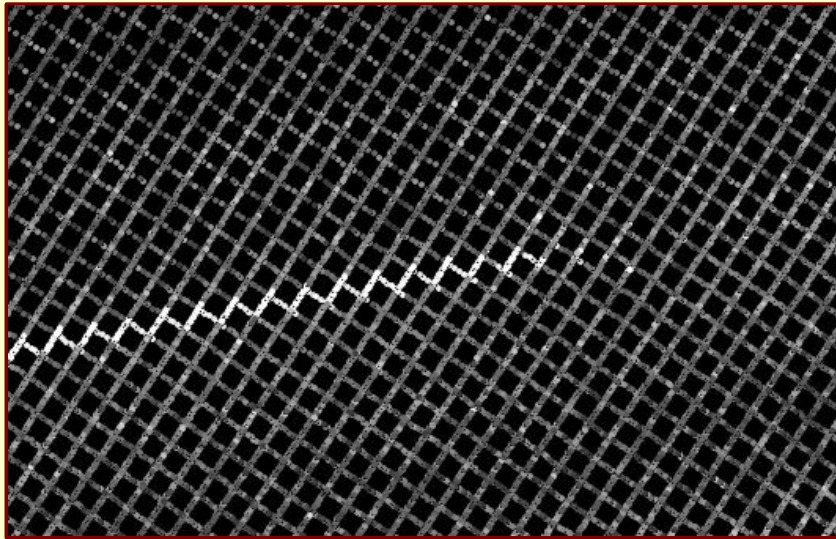
Name:

Type:

Radius: m



Positional Correction from Images



- **Find Tie Line Fluctuations** supports using image tie points as observations
- Makes it possible to match mobile drive passes to each other more precisely in xy
 - Positional accuracy of picking intensity features from laser data is limited by laser point density
 - Images provide higher resolution data on paint markings

Example Mobile Road Workflow

- Collect signal markers from laser data and apply fluctuating xyz correction to laser and images
- Collect tie points in signal marker area and solve camera misalignment angles
- Compute depth maps using laser data close in time
- Collect **Depth** tie points on paint markings seen by multiple drive passes (about 25 m spacing)
- Solve and apply fluctuating xyz correction matching drive passes to each other
- Search flat ground tie lines (about 2 m spacing)
- Solve and apply fluctuating z correction matching drive passes to each other