Integrating the Geospatial Workplace

New Features in TerraMatch

Terrasolid Workshop

ILMF 2013

Denver, CO

14 February 2013

Darrick Wagg
GeoCue Corporation
9668 Madison Blvd., Suite 202
Madison, AL 35758
+1 (256) 461-8289
support@geocue.com
www.geocue.com

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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

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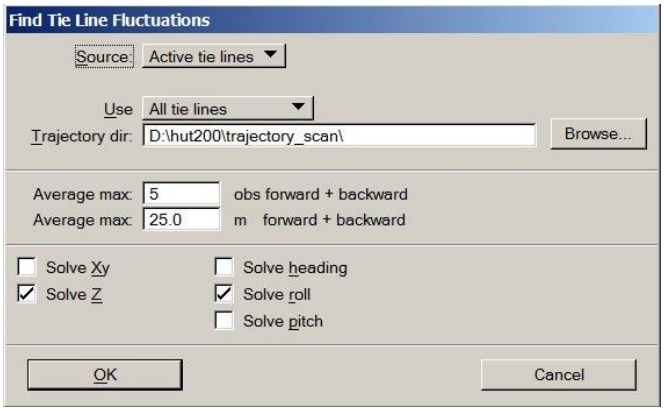
Fluctuating Roll & Pitch Corrections

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



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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
```

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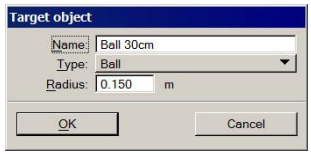
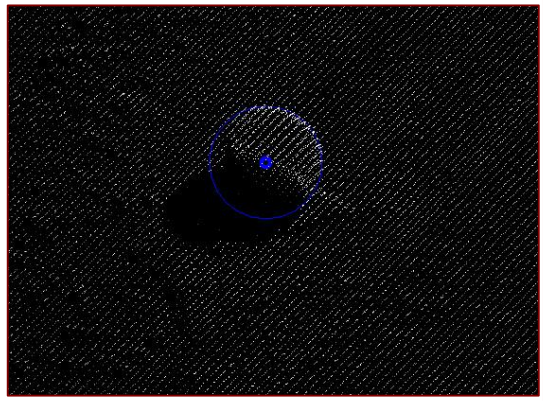
Ball Target Objects

- 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





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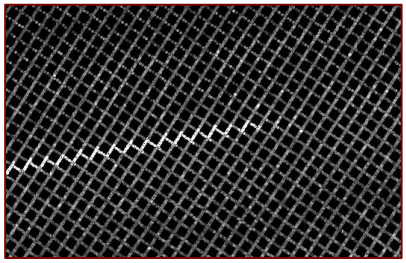
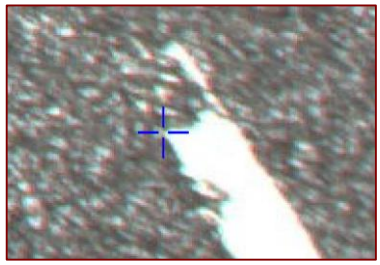
Positional Corrections from Images

- **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





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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 (+pitch) correction matching drive passes to each other

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