RiPRECISION MLS automatically performs adjustments of GNSS/INS trajectories to merge overlapping mobile scan data. It further allows the scan data to be fitted to given control objects. This results in a consistent point cloud of enhanced precision and increased georeferencing accuracy.

The Next Generation of Mobile Scan Data Adjustment

Typical Applications of Mobile Laser Scanning
- Street Mapping
- Railway Mapping
- Marine Mapping
- Mapping of Transportation Infrastructure
- City Modeling
- Fast Mapping of Construction Sites
- Mapping of Coastal Lines
- Surveying of Mining / Bulk Materials
- Civil Engineering

Scan this QR code with your smartphone to get further information about RiPRECISION MLS.

www.riegl.com
Our Goal - More Precision in Less Time

- Initial Situation
- Concept of RiPRECISION MLS
- RiPRECISION MLS Working Principles
- RiPRECISION MLS Results

Initial Situation

The quality of point clouds acquired by a mobile laser scanning system like the RIEGL VMX-450 crucially depends on the quality of the underlying platform GNSS/INS trajectory. Due to variable GNSS accuracies in the trajectory solution the resulting point cloud shows discrepancies between overlapping scan data as well as deviations from the true position. Manually correcting these shortcomings is a time-consuming and extremely difficult job.

Concept of RiPRECISION MLS

RiPRECISION MLS automatically conducts the whole workflow from scan data analysis to trajectory adjustment without any user interaction. Applying highly efficient and powerful procedures RiPRECISION MLS is capable of processing large amounts of data with impressively short computation times. To facilitate utmost performance, RiPRECISION MLS has been tightly embedded into RiPROCESS.

RiPRECISION MLS Working Principles

RiPRECISION MLS rigorously incorporates all available input data.

- point cloud features
- trajectory accuracy
- initial trajectory
- smart data handling
- RIEGL VMX-450
- laser scanner accuracy
- external control objects
- feature correspondences
- rigorous statistics

RiPRECISION MLS estimation engine

- optimized trajectory
- final precise point cloud

RiPRECISION MLS input

RiPRECISION MLS output

RiPRECISION MLS processor
RiPRECISION MLS sets new standards for the quality of multi-pass scan data by transferring the extremely high precision of the raw laser measurements to the entire point cloud. As an option, RiPRECISION MLS additionally allows for the rigorous adjustment to external control objects.

- removal of offsets between multiple passes
- huge increase of point cloud precision and consistency
- statistically accurate data processing
- significant increase of point cloud accuracy
- efficient processing routines
- extremely fast processing time
- fully automatic
- cost effective data processing

RiPRECISION MLS delivers fully automatic precise and consistent point clouds!
Key Facts

- **RIEGL VMX-450 Technical Data**
- **Main Features**
- **RiPRECISION MLS Workflow within RiPROCESS**

### RIEGL VMX-450 Technical Data

- Eye safe operation at Laser Class 1
- Max. measurement range
- Pulse repetition rate PRR (peak)
- Optional digital camera
- Online waveform processing

### RiPRECISION MLS Main Features

- Fully automatic adjustment of mobile scan data
- Handles multiple scan data overlaps
- Optional adjustment to external control objects
- Point cloud features accurately merged with initial trajectory quality
- Extremely fast and robust processing
- Smooth improvement of both trajectory position and orientation

### RiPRECISION MLS Workflow within RiPROCESS

**RiPROCESS**

1. Raw laser scan data → **RIWORLD** → Georeferenced point cloud → Improved trajectory → Precisely consistent georeferenced point cloud

2. Raw trajectory from INS/GNSS (post-processed) → Control objects

**RiPRECISION MLS**

- Laser scan data analysis and trajectory adjustment

**Explanation:**

- Data acquired or generated by RIEGL hardware/software
- Data acquired or generated by third party hardware/software

Visit our website for further information about the full RIEGL hard- and software portfolio.

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