

RiPROCESS

for *RIEGL* Scan Data

- **project-oriented software for managing and processing RIEGL ALS and MLS data**
- **operation in a multiple-workstation environment, parallel task processing**
- **fast access to data for inspection in different visualization formats**
- **system calibration and scandata adjustment**
- **statistical analysis of referencing, matching quality**
- **interfacing to third party software packages**

RiPROCESS is designed for managing, processing, analyzing, and visualizing data acquired with airborne laser scanning systems (ALS systems) and mobile laser scanning systems (MLS systems) based on *RIEGL*® Laser Scanners. Data export in geodetic systems is supported by the GeoSys Manager.

RiPROCESS is project-oriented and enables the user to manage all data acquired and processed within a single project. This data includes project data, scanning system information data such as mounting information and calibration data, laser raw data, e.g., the digitized echo signals from the *RIEGL* Laser Scanners LMS-Q780 or the VQ-450, position and orientation data from the INS/GNSS system, intermediate data files, search tree files for fast data access, and georeferenced point cloud data with additional attributes for every measured coordinate.

Data processing tasks include, e.g., full waveform analysis and georeferencing laser data by merging it with the trajectory data derived from INS/GNSS data. These functions are provided by the *RIEGL* Software RiANALYZE and RiWORLD, respectively. RiPROCESS is intended for mass data production in a multiple-workstation environment. RiPROCESS makes use of these programs, which can be installed on different workstations and are accessed via RiSERVER.



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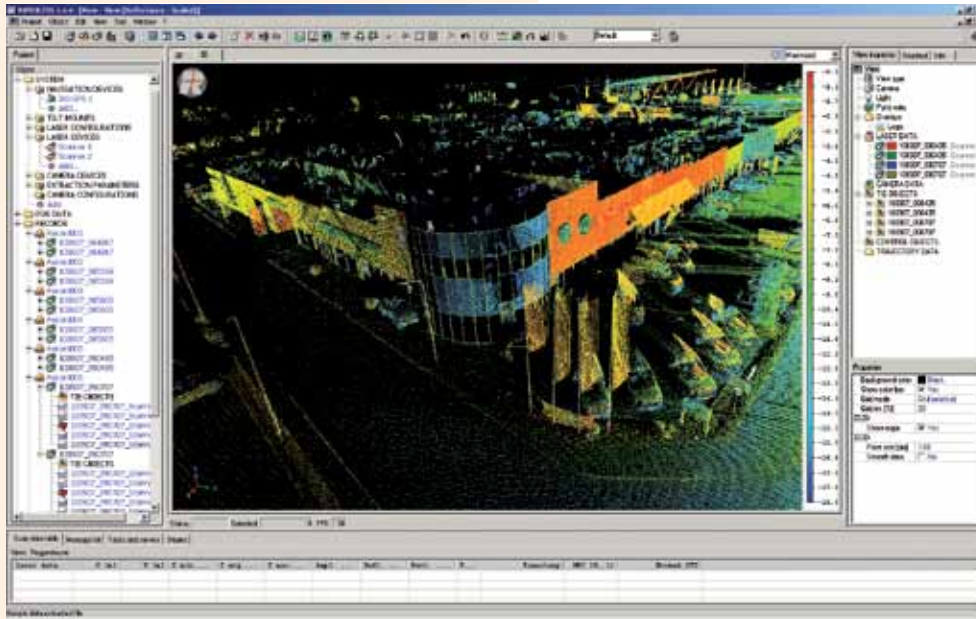


Fig. 1 Mobile laser scan data, color-coded reflectance

RiPROCESS distributes the computational load to the available server-enabled processing tools in the form of individual tasks thus optimizing data throughput.

For data quality analysis laser scans can be visualized in 2D and 3D in various ways, e.g., in true color, in color-encoded height, height differences, in point density, and many more. Even huge amounts of

data can quickly be accessed for display in 3D. Quality of scan data matching can be assessed in different ways, by visual inspection or by statistical analysis.

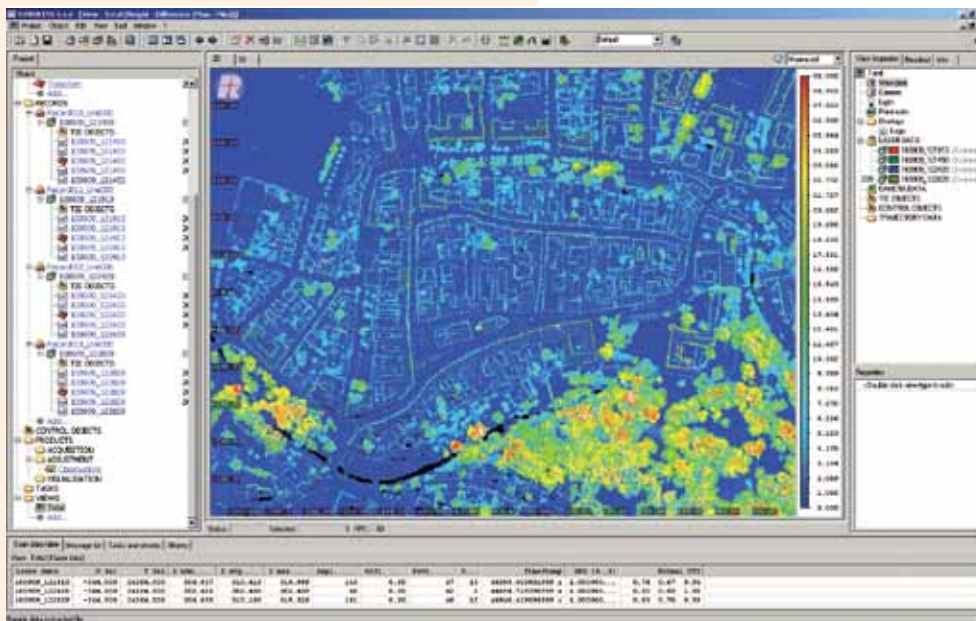
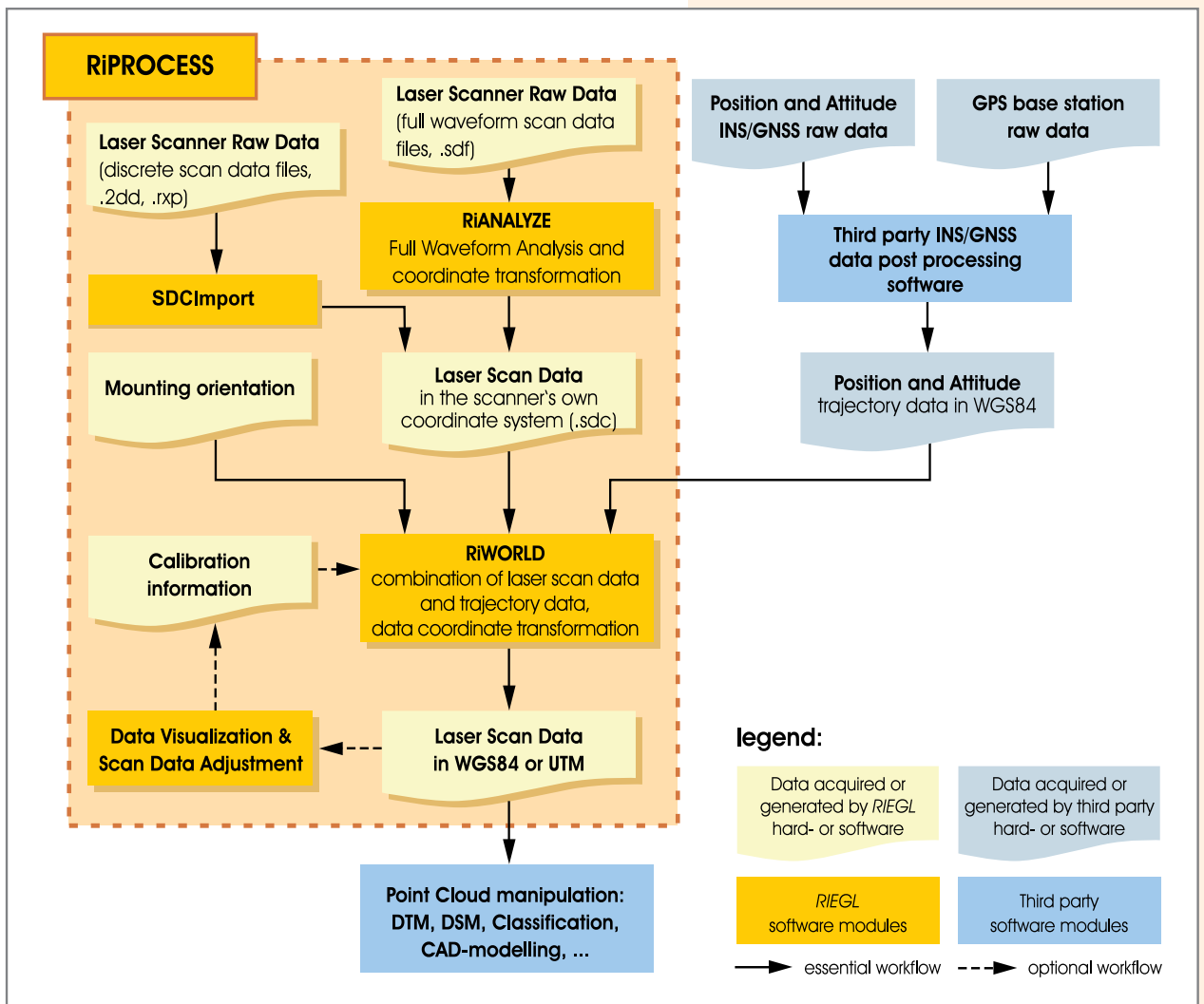


Fig. 2 Airborne laser scan data, color-coded height

In order to improve data quality, RiPROCESS offers an integrated scan data adjustment feature based on matching data acquired on planar objects, e.g., roofs of buildings. Data acquired on planar objects is automatically detected within the scan data and displayed for inspection in 2D and 3D. Parameters optimized within the scan data adjustment include system calibration information, and up to 6 offsets (angular and

translational) for each single scan. Terrestrially surveyed control points or planar control objects can also be used to additionally improve absolute georeferencing of the data set.

RiPROCESS allows data export in the widely-used LAS format (amongst others) to execute common tasks such as classification, triangulation and decimation by third-party software packages. The included GeoSys Manager offers a powerful tool for exporting the geo-referenced point cloud in Cartesian ECEF, geographic and local grid coordinates. An interface to RiSCAN PRO, the accompanying software for RIEGL's terrestrial 3D scanners, allows utilizing further visualization and pointcloud manipulation tools.



RiPROCESS Key Features

- **Project-oriented managing software for processing of RIEGL airborne and mobile laser scanner data from raw data to point-cloud-based data in WGS84 or projection (e.g. UTM) utilizing RiANALYZE and RiWORLD in remote control mode**
- **Fast access to data for visual inspection in a large variety of visualization formats, ranging from color-coded raster data to digitized echo data for every laser measurement (depending on used laser scanner)**
- **System calibration and scan data adjustment based on matching data acquired on flat objects**
- **Statistical analysis of matching quality of scan data; comparison of laser data to surveyed reference objects**
- **Interface to further post-processing tools via LAS, Terrasolid, and ASCII data exchange**
- **Operation in a multiple-workstation environment enhancing data post-processing throughput by parallel computing**
- **Serves as platform for RiPRECISION MLS for point cloud adjustment of mobile scan data (optional)**
- **Operates different hydrographic processing tools (optional) for RIEGL's topo-hydrographic laser scanners**

RiPROCESS System Requirements

Operating systems:	Windows XP Professional, Windows Vista Professional, Windows 7 Professional, 32 or 64 bit operating system Note: In case of Windows Vista and Windows 7, please ensure that you have up-to-date device drivers installed (especially for the graphic card).
Memory requirements:	1024 MB RAM minimum, 2048 MB (32 bit) / 4096 MB (64 bit) or more recommended Note: On 32 bit operating systems, RiPROCESS can use up to 3 GB RAM and on 64 bit operating systems up to 4 GB RAM.
Disk space requirements:	approx. 130 MB of free disk space for the program and plugins (not including project data) at least 100 GB recommended for your own projects optional: Dedicated RAID controller (e.g. RAID 0 mode) and fast hard disks to speed up file access
Interfaces:	Network interface (Ethernet, LAN)
Graphics requirements:	Screen resolution at least 1024 by 768 pixels OpenGL accelerated graphics card (OpenGL 2.0 or higher required) nVIDIA GeForce series recommended (GeForce-7 or higher)
Peripherals:	3 button mouse, optical wheel mouse recommended standard keyboard

RiPROCESS Download Information

RiPROCESS is available for download in the members' area of www.riegl.com

In order to download RiPROCESS, it is necessary to be registered. After registration and activation, you will be able to download the current version. Subsequently, you will be kept updated in case of later software version releases.



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