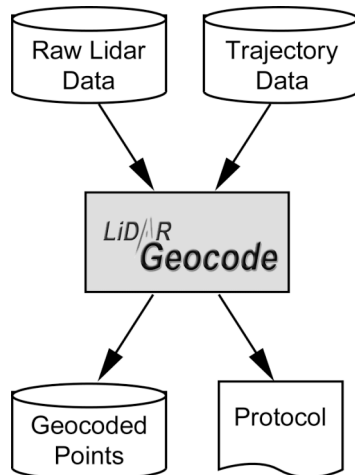# LiDAR Geocode

Geocode is the tool for converting the raw data collected by *Riegl LMS-Q120/140/240/280* series laserscanners into geocoded points in the desired coordinate system.
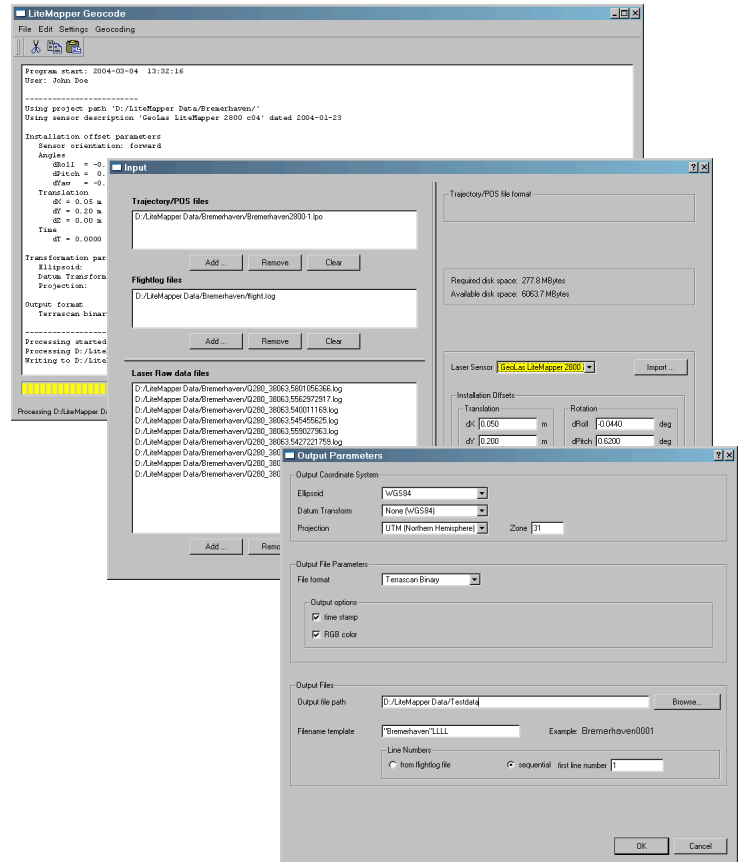
Geocode is a stand-alone application that interfaces smoothly with *Terrascan* and other lidar post-processing tools*. Geocode* reads native lidar raw data as collected using the *LiDAR Capture* software, and preprocessed trajectory and attitude data*,* to calculate 3-D point coordinates in the geographical reference frame. Several output formats are available to provide flexible input to lidar data post-processing tools.

Geocode has been designed for ease-of-use and efficient production. After selection of the input files and output parameters, it does not require further user interaction.

Context sensitive online help on several levels, automatic input file integrity and plausibilty checks support and guide the user and assist to avoid errors. Parameters and process status are displayed and logged, and data statistics are generated for quality assurance purposes.

The transformation and projection algorithms used are based on the EPSG standard to ensure fast and accurate geocoding of raw lidar data. *Geocode* uses sensor description files and the calibration information incorporated in the sensor data files in the geocoding process. Installation offsets and environmental parameters may be entered to further maximize geocoding accuarcy.

Geocode is able to extract data segments from large raw data files, so that time-intensive processing can be limited to the relevant sections. Variable offsets due to GPS fluctuations may also be incorporated into the geocoding process on a line-by-line basis to minimize subsequent processing.

Geocoded trajectory data may be output in Terrascan binary format using the same transformations in addition to geocoded laser measurements to simplify subsequent processing in Terrasolid products.

LiDAR Geocode   Rev. 10/2006   *Specifications subject to change without notice.*

Features

- Reads native binary lidar data files and trajectory and attitude data files
- Calculates the accurate location of the return in the selected projected coordinate system
- Selection of preset and user-defined ellipsoids, datums, and projections available
- Output format in ASCII, native Terrascan Binary, or LAS binary format
- Color adjustment for RGB output of LMS Q280 series sensors in Terrascan binary output
- Generation of processing protocol and output data statistics for quality control
- Batch processing of multiple flightlines
- Selectable calibration files for specific lidar sensors
- Provides control over installation-specific boresight offsets

File Input

- Single or multiple binary raw data files of LMS–Q120/140/240/280 laserscanners
- Binary trajectory and attitude files
- Lidar sensor description/calibration files
- Flightplan files for automatic output filename assignment, line adjustment, and line clipping

File Output

Available output formats:

- LAS format (Version 1.0/1.1)
- Terrascan binary format
- ASCII format, freely configurable with output of
  - time stamp,
  - zone number,
  - easting,
  - northing,
  - elevation,
  - intensity,
  - line number,
  - RGB surface color (LMS-Q280 only),
  - range,
  - scan angle
- Terrascan binary trajectory (.TRJ) format or ASCII format for output of geocoded trajectory data

User settings

- Installation offsets for boresight angles, translational offsets, timing offsets
- Atmospheric conditions (air pressure, temperature, relative humidity)
- Range gate
- Output ellipsoid, datum, map projection
- Output format
- Output path
- Output filename template, composed in any combinaton of
  - sequential line number
  - flight plan line number and sub line number or letter
  - date of flight
  - day-of-year
  - and characters and text

System Requirements

- Hardware: Standard Windows PC computer
- Operating system:
  - Windows XP SP2

Maintenance & Support

- 12 months of free maintenance (updates) and e-mail support included .

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