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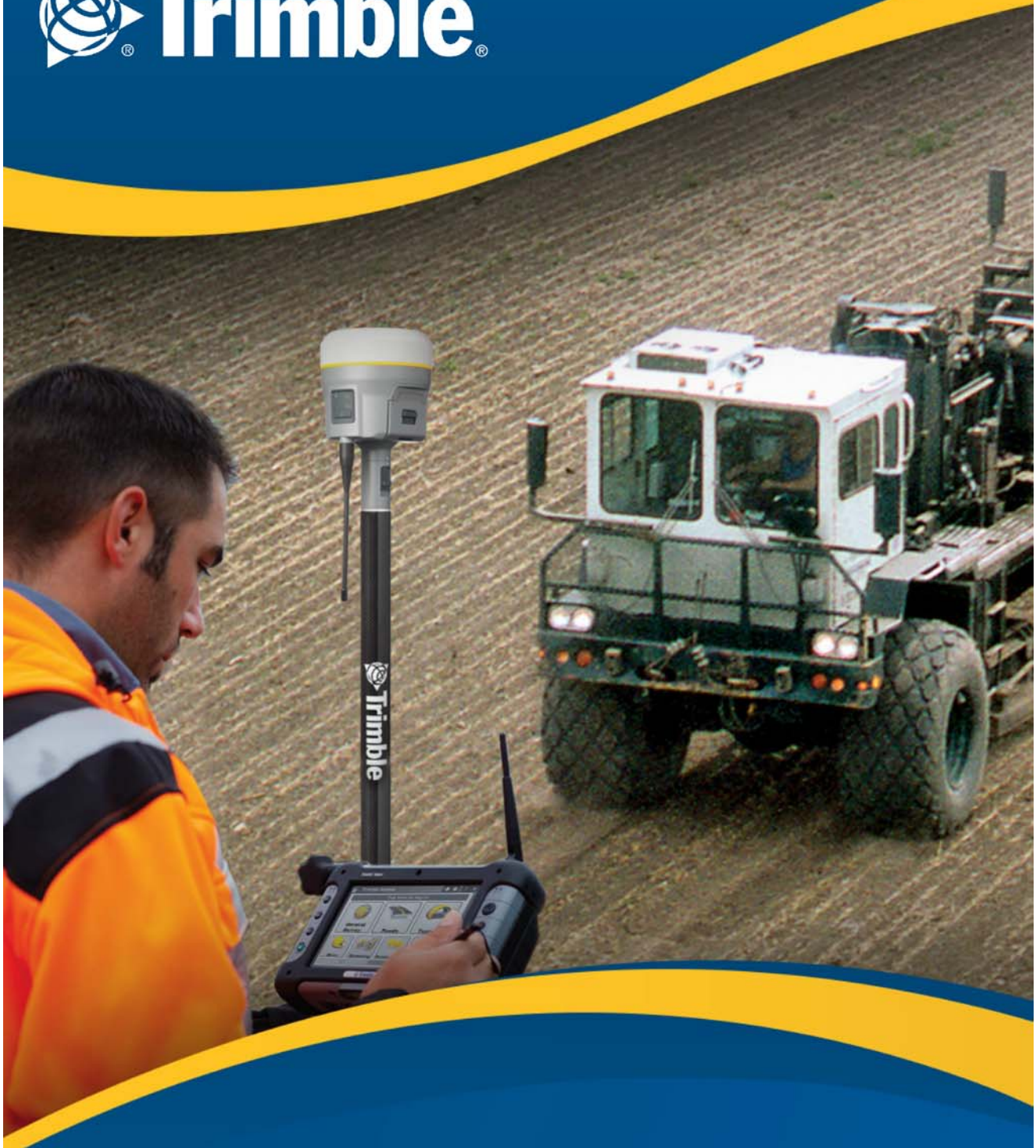

GPSeismic®

Survey, Mapping, and Data Management Applications

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GPSeismic is a suite of survey, mapping and data management applications to support Geophysical Exploration

GPSeismic has been continuously developed for twenty years by engineers whose combined professional backgrounds include geophysics, geodesy, mathematics, education, and survey. It is the result of literally thousands of suggestions from our extensive user base. It has hundreds of tools to solve your most complex survey problems and is fully integrated with Trimble field controllers and office software. GPSeismic applications offer advanced functionality to assist the GNSS and conventional surveyor with a variety of tasks including the following:

- A wide range of both graphical, numeric and SQL based controller upload point selection methods and direct raw data file processing capabilities. Support for numerous survey systems with provision for import of data from any ASCII or binary file with known structure.

- Fully integrated geodetic transformations and geoid model support.
- Full featured mapping capabilities including support for ESRI SHP, AutoCAD® DXF, DWG and Microstation DGN layers as well as georeferenced raster images including TIF, JPG, BMP, PNG as well as the JPEG2000, Mr.SID and ECW multi-resolution formats. A registration utility shared between applications allows for the creation of world files or the transformation of existing ones.
- Numerous preplot generation routines including 2D lines, crooked lines, 3D grids, brick patterns, diagonal grids, zigzag patterns, and oblique grids and highly adaptable coordinate importing and format conversion capabilities including on-the-fly translation, rotation and transformation.
- Powerful graphical and analytical tools capable of solving the most complex survey and design problems including fold analysis, survey exclusion zone creation and use, automatic point offsetting, sorting, interpolation, intersection computations, production calculations, geocentric offset computations, proximity testing, point comparison, spread checks and elevation analysis.
- Flexible data management capabilities featuring point and click SQL query building and highly adaptive database functionality allowing for any conceivable report or graphic output.

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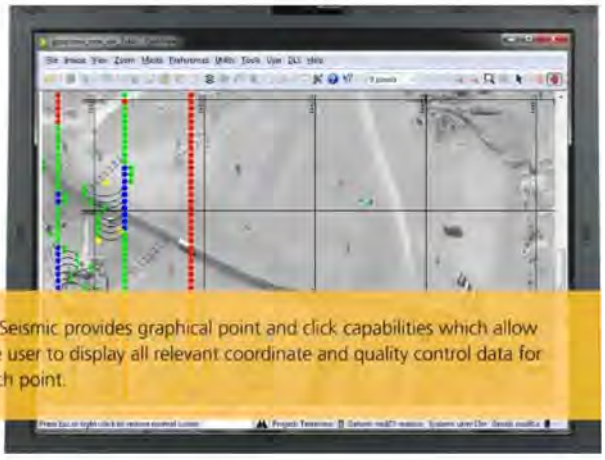
Applications

QUIKLOAD

QuikLoad computes or imports stakeout points (preplots) in grid coordinates and transforms them into WGS84 geographic coordinates. QuikLoad creates upload files in over twenty different formats including all versions of Trimble Access and Trimble Survey Controller software. QuikLoad provides numerous methods for the user to choose all or several preplots for upload to the rover data collector. It is also used to populate the project database with grid and geographic coordinate data. Registered raster images and vector files can be displayed in the background to assist in preplot selection.

QuikLoad is capable of creating the preplots for almost any type of project. This includes 2-D lines, crooked lines, standard and oblique 3-D grids, zigzag source patterns, diagonal grids and even circular patterns for vertical seismic profiling. There is also a preplot utility that provides a flexible way of creating almost any complex preplot pattern in one action as long as if the preplots adhere to grid definitions.



GPSeismic provides graphical point and click capabilities which allow the user to display all relevant coordinate and quality control data for each point.

QUIKVIEW

QuikView can import survey coordinates and related quality control information from numerous data collector files including all versions of Trimble Access and Survey Controller Job files. QuikView transforms the survey coordinates from geographic to grid and also converts ellipsoid heights to orthometric heights using a seamless link to any of several available geoid undulation models. There is provision for updating coordinates based on post processing results including a proprietary format file available from Trimble Business Office. QuikView allows the user to output coordinate data in any standard seismic or user defined format, and can produce a number of relevant quality control graphs and reports. QuikView also populates the project database with over fifty fields of information for each surveyed point. Image and vector files can be used in the map background to ensure that the survey was conducted as planned.

QuikView provides a base station summary and the means to update base coordinates (and as a result, all stations surveyed with that base).

Analysis and Mask utilities allow the user to create and instantly display the result of up to ten queries. These queries can represent exceptions to various quality control parameters.

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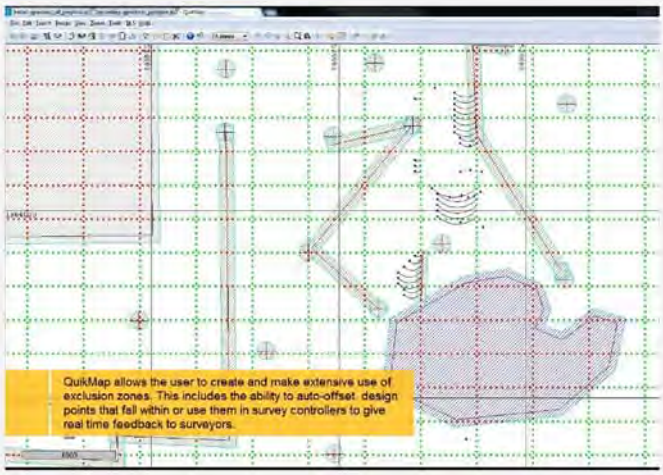
QUIKMAP

QuikMap is the industry-leading multipurpose coordinate handling application and offers specialized features supporting geophysical exploration activities. QuikMap is the most widely used application in the GPSeismic software suite. It has numerous coordinate handling and survey task capabilities. These capabilities range from those as sophisticated as fold analysis to basic preplot redesign. QuikMap is such a complete survey product, it is often sold as a standalone application to survey companies involved in legal and other non-seismic survey endeavors.

Rebinning Capabilities

Rebinning is the process of renumbering station values based on the set of theoretical grid definitions. QuikMap allows the user to provide the client with rebinned or non-rebinned station values or both.



QuikMap allows the user to create and make extensive use of exclusion zones. This includes the ability to auto-offset design points that fall within or use them in survey controllers to give real time feedback to surveyors.

Coordinate Handling Capabilities

- Coordinate Comparison
- Moving, Adding, and Deleting Points
- Intersection computation, proximity testing and many more
- Interpolation

Exclusion Zone Capabilities

Exclusion zones can be defined from imported sources or dynamically and then be used to determine which points fall inside and which fall outside. The points can then be automatically moved outside the exclusion zones using a variety of methods with support for prioritized moves.

Digital Elevation Capabilities

QuikMap can create DEMs or utilize existing ones and then be used to accomplish tasks that range from quality control of survey heights to assigning heights to points which are missing theirs. QuikMap provides a conversion tool that allows the user to convert any one of over 80 DEM formats into the format required by GPSeismic applications.

Fold Analysis

QuikMap provides fold analysis capabilities and allows the user to create a fold map of a prospect. Receiver bins are color coded according to the number of common mid-point 'hits' received as a result of the analysis.

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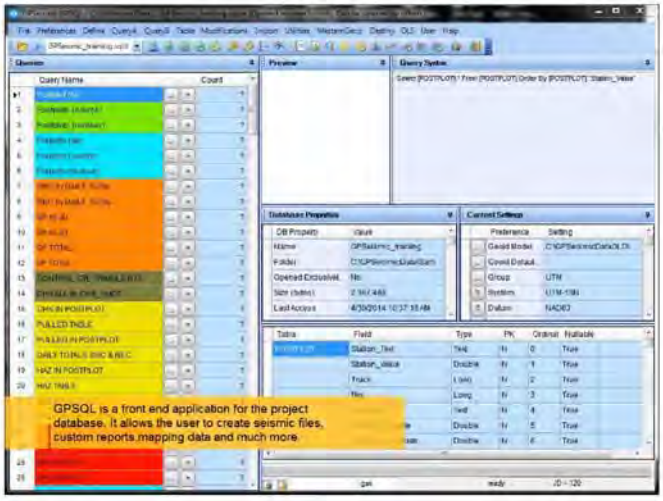
GPSQL

All processed information including GNSS and Conventional data is placed in a project database. GPSQL allows the user to open this database and create reports, seismic files, map files, and much more. It's the core application for all data management requirements, and when dealing with what could potentially be hundreds of thousands of survey positions with associated quality control information, data management is paramount.

Structured Query Language (SQL) is the de facto standard for accessing databases. It is a rich and powerful set of instructions that can be used to form what is called a query. The query is then executed on the database to retrieve only the records are of interest to the user. GPSQL makes query building easy by using point and click methods. Up to two hundred queries can be created, saved and immediately executed at any time.



GPSQL and QuikMap have a unique two way relationship. GPSQL can instantly send the coordinates of any query to QuikMap for quick visual inspection or for possible modifications (e.g., moves or deletion).

QUIKCON

QuikCon processes conventional survey data and is tailored towards reciprocal surveys. It provides numerous visual methods in the quality control of raw observations and processed coordinates. Graphs of rod heights, instrument heights, horizontal and vertical splits, and reciprocal values allow suspicious points to be clicked so that the specific raw observation record is highlighted.

Once the raw observations have been processed, takeoff information is appended and a file is created that can be processed. There are several options that can be used during processing. These include mean sea level adjustment, curvature and refraction, scale factor, and the use of known azimuths from sunshot observations. If azimuths are fixed during processing, the user has the option of prorating the difference between the known and computed azimuths backwards through the traverse.

Processed data can be exported directly to custom reports, shape files, DXF files, seismic files or QuikView. In QuikView the data can be further analyzed before it is sent to the project database.

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transforming the way the world works