LiDARgrammetry

The Aeroquest Optimal Advantage: Delivering LiDAR Solutions

Key LiDAR Products:

- LiDARgrammetry
- Floodplain Mapping: Generate elevation contours or watershed analysis and environmental compliance
- County-Wide Mapping: Contouring and terrain modeling for expansion and GIS purposes
- Utility Corridor Mapping: Re-rating, Re-build studies
- Transportation Corridor Mapping: ROW studies, drainage studies
- Land Development: Drainage & topographic mapping
- Environmental Assessments and Inventory: Forestry, Beach erosion, clean-up studies
- Bare Earth, DSM, DTM

Company Key Facts:

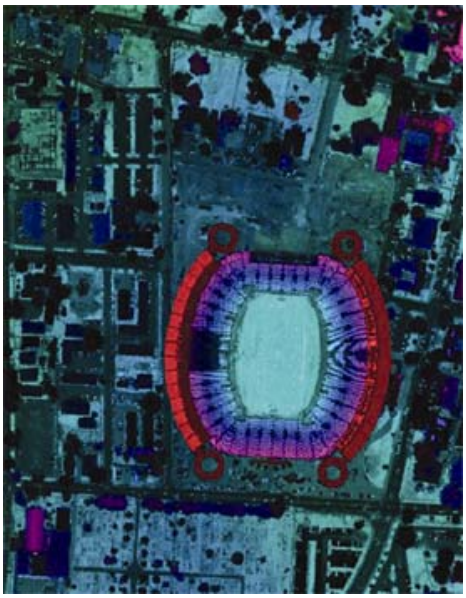
- *OPTECH LiDAR sensors and Leica RC-30 camera systems with IMU*
- *Lead Project Manager with 14 years of experience*
- *Certified Photogrammetrists*
- *Certified GIS Professionals*
- *Licensed Professional Surveyors*
- *Global experience*
- *ESRI Authorized Business Partner*
- *Bentley Developer Network Team Member*

Aeroquest Optimal

Aeroquest Optimal (OPTIMAL) is a full-service geospatial company with a commitment to quality and customer service.

With decades of professional service, our experienced team of LiDAR Analysts, Certified Photogrammetrists, Professional Land Surveyors, Certified GIS Professionals, Mapping Technicians and Flight Crew stand ready to provide timely information and project support.

OPTIMAL has successfully implemented LiDARgrammetry for the accurate capture of terrain breaklines and planimetric features. LiDARgrammetry is the process of creating synthetic stereo pairs from LiDAR intensity data and using long-standing, accepted photogrammetric techniques to delineate planimetric shapes and terrain features.

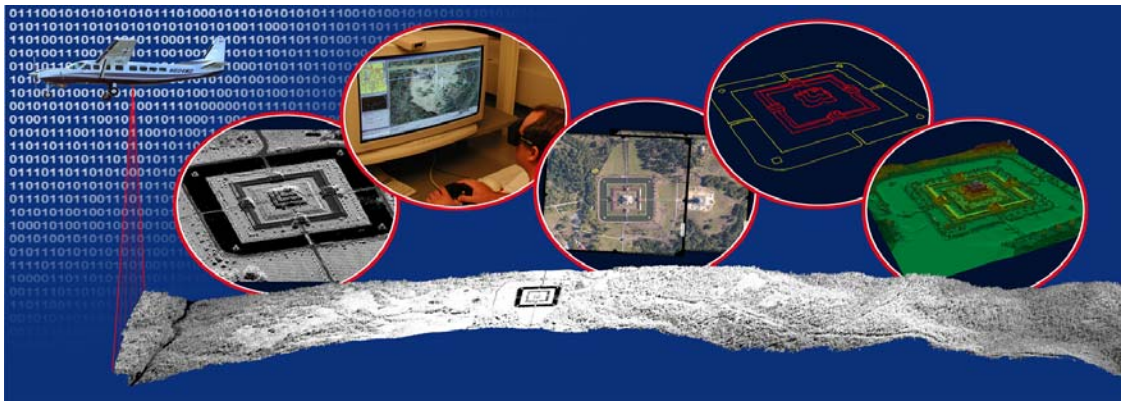


LiDAR Intensity Image

LiDARgrammetry Process

The LiDARgrammetry process does not require additional imagery, photo or otherwise. After initial classification of the LiDAR XYZs, stereo pairs are created utilizing the intensity data. The intensity is blended with a color based upon the classification of the point creating a RGB stereo pair. Using the methods and techniques proven and accepted by the photogrammetric industry for the past decade, features are collected from the stereo pairs. Using LiDARgrammetry, OPTIMAL's personnel can quality control and classify the LiDAR data.

Planimetry can also be collected from the LiDAR data. The use of synthetic LiDAR stereo imagery for feature collection and QC of the LiDAR data provides a cost-effective accurate method for DTM and DSM development. Without the requirement to collect additional photography, LiDARgrammetry is useful in producing terrain breaklines. The process of LiDARgrammetry, combined with the ability to collect LiDAR at night and in marginal weather conditions, provides OPTIMAL with the capability to create imagery and terrain data at a reduced cost and timeframe. Additionally, LiDARgrammetry is a valuable tool in identifying data voids and artifacts.



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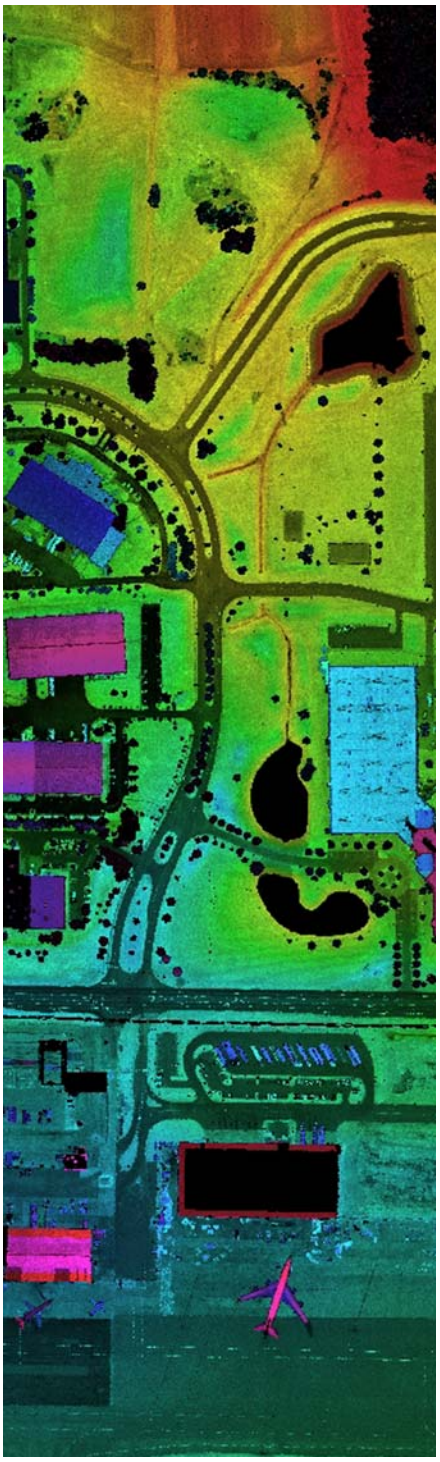
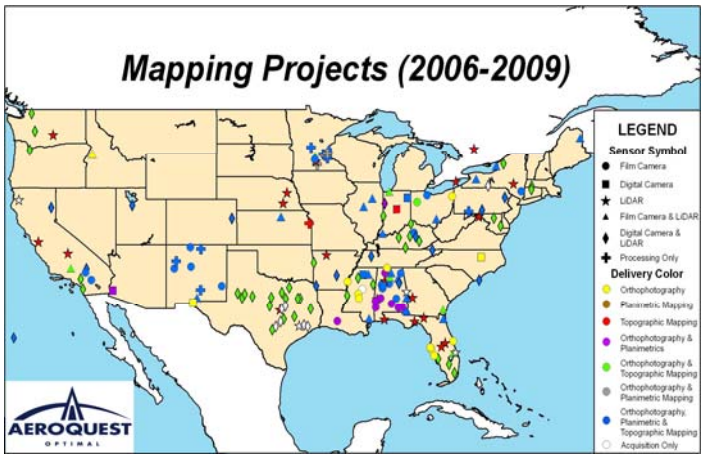
LiDARgrammetry Details

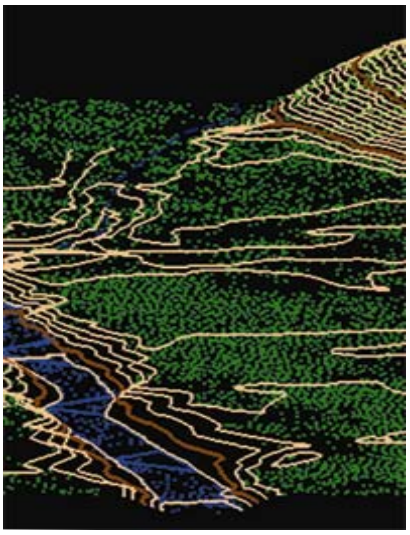


LiDAR Intensity Image

Planimetry

Planimetry can be collected from the LiDAR data. The use of synthetic LiDAR stereo imagery for feature collection and QC of the LiDAR data provides a cost-effective, accurate method for DTM and DSM development. LiDARgrammetry is useful in producing terrain breaklines without the requirement to collect additional photography.





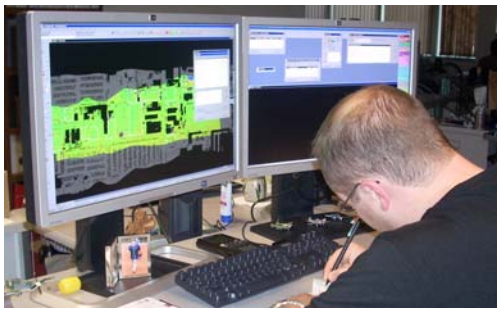
LiDARGrammetry

LiDAR Related Equipment List

- OPTECH 3100 LiDAR sensor; 100 KHz LiDAR system with built-in medium-format Digital Camera and ALTM-Nav aerial navigation system
- OPTECH 1210 LiDAR sensor
- Two (2) Applanix 510 Inertial Measuring Units (IMU)
- Two (2) Omnistar Systems
- Novatel Dual-frequency DL-4
- Two (2) NavCom VueStar Aerial Survey Navigation Systems
- Four (4) WEATHERPAK® Portable Weather Stations

Importance of LiDARgrammetry

LiDARgrammetry is used to reduce acquisition costs and to increase the accuracy of terrain models. As stated by the National Research Council of the National Academies, "The importance of LiDARgrammetry and its impact on the cost-benefit model for LiDAR mapping cannot be overstated." * OPTIMAL has been utilizing and refining this process since 2004, and was the first mapping company to use the process in map production.



*** National Research Council of the National Academies, Base Map Inputs for Floodplain Mapping, February 2007, p. 69**

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