

TACTICAL GEIGER-MODE LIDAR

Invaluable intelligence preparation of the battlefield for military operations

Being prepared is half the battle, but for warfighters it can be life-saving. Troops must be able to locate and track enemies without compromising the mission. L3Harris' Geiger-mode LiDAR offers better data accuracy and collection at faster speeds, improving military observation for superior situational awareness.

MISSION-CRITICAL INTELLIGENCE

L3Harris' Geiger-mode LiDAR provides invaluable intelligence preparation of the battlefield for military operations in forested, jungle, extremely rugged and urban terrain environments, and engagements within hostile compounds. Many of the 3D LiDAR products can be provided in near real time directly to the disadvantaged user and distributed ground systems, and in non-real time to customer organizations and posted in national data repositories.

The innovative approach achieves higher-quality results and delivers fine feature detail from higher flight altitudes for maximum efficiency. The system offers a unique design that collects data tied with a multiangle illumination pattern to improve foliage penetration, remove shadows and eliminate voids. It yields the most uniform, accurate, highest-resolution LiDAR data on the market today.

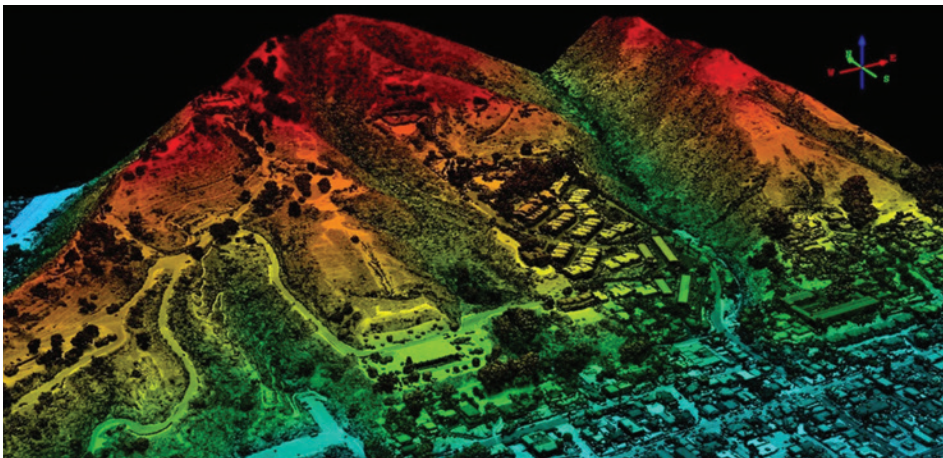
A TRUE TACTICAL LIDAR FOR ISR

Most LiDAR systems fielded by the Department of Defense to date have been linear-mode systems originally developed for commercial mapping applications. L3Harris' Tactical Geiger-mode LiDAR solutions have been designed from the ground up to meet the challenging requirements of intelligence, surveillance and reconnaissance (ISR) missions and provide orders of magnitude of superior performance. Reliable L3Harris ball turrets provide active thermal management and a stabilized optical bench to meet demanding military specs. Our precision pointing electronics and an innovative imaging concept of operations deliver the look diversity required to achieve targeting-level accuracies and defeat obscurants such as dense foliage and camouflage netting. The photon efficiency of Geiger-mode LiDAR enables higher resolution 3D imagery from higher altitudes or stand-off ranges, achieves more looks at point targets, and provides higher area coverage rates for tactical mapping.



BENEFITS

- > Ability to interactively view 3D LiDAR images from any aspect for increased interpretability
- > Accurately geo-registered 3D LiDAR points provide precise object mensuration and geolocation
- > 3D LiDAR images overlaid with other modalities enables even more dramatically increased interpretability
- > Intelligence analysts can access information and insights about object characteristics not available directly from other products
- > Reliably identifies safe helicopter landing zones and enables more robust visibility, mobility and trafficability studies for mission planning and rehearsal
- > Visibility analysis allows for force protection and adversary sites



END-TO-END LIDAR SOLUTIONS

Sensor Operations

- > Mission planning
- > Flight scheduling
- > Ground station communications
- > LiDAR asset management
- > Operation and maintenance

Sensors

- > Radiometric modeling
- > Sensor modeling
- > 1,064-nanometer Geiger-mode terrestrial LiDAR
- > 532-nanometer Geiger-mode littoral LiDAR

Early Onboard Processing

- > Sensor calibration
- > Coordinate transforms
- > Noise filtering and local statistic attribution
- > Geo-registration
- > Data compression

Exploitation

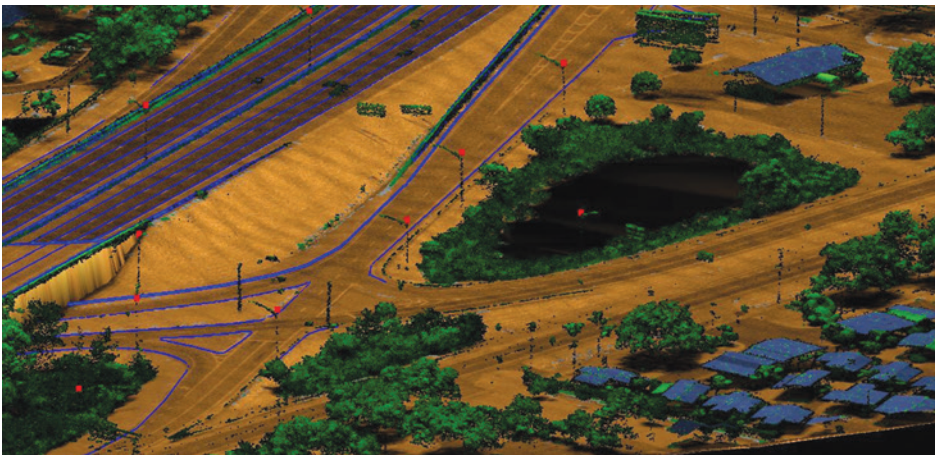
- > Target detection
- > Change detection
- > Digital surface model/digital terrain model generation
- > Automated feature localization
- > Volumetric analysis
- > Data fusion
- > Urban site models
- > Custom mission products
- > Artificial intelligence/machine learning

Data Management

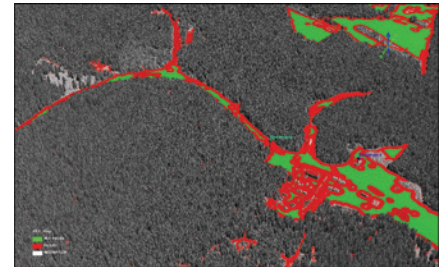
- > Scalable deployed ground PEDs
- > Quality control/quality assurance
- > Custom product archives

Data Dissemination

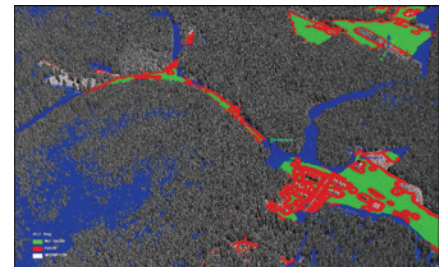
- > Factory enterprise ground PEDs
- > Service-oriented-architecture based dissemination tools
- > Custom mission-driven dissemination



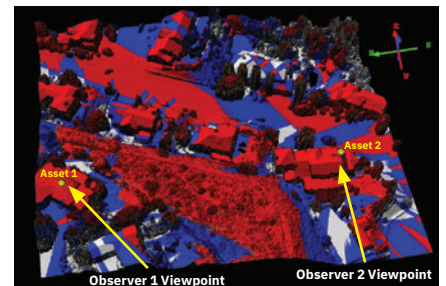
Automated point labeling and subsequent asset extraction.



Helicopter landing zone analysis



Helicopter landing zone analysis - flood event



ROBUST VISIBILITY ANALYSIS

- > Blue Observer 1 viewpoint
- > Red Observer 2 viewpoint
- > White invisible to both assets

Tactical Geiger-mode LiDAR

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Nonexport-controlled Information

L3Harris Technologies is an agile global aerospace and defense technology innovator, delivering end-to-end solutions that meet customers' mission-critical needs. The company provides advanced defense and commercial technologies across air, land, sea, space and cyber domains.



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