CASE STUDY

Wide-area LiDAR Data Completes Picture

HARRIS LIDAR FILLS CRITICAL DATA GAPS IN SOUTHERN CALIFORNIA

By providing a clearer, regional picture of the natural and manmade environment, Harris’ Geiger-mode LiDAR data is helping officials in Southern California make more confident decisions.

Harris, as partner to the Channel Islands Regional GIS Collaborative (CIRGIS) in Southern California, recently enhanced the quality of the geospatial information available to build regional base maps.

PROBLEM: A PUZZLE WITH MISSING PIECES

Since 2000, CIRGIS, a nonprofit public benefit corporation, has been empowering government and private agencies in Ventura, Santa Barbara, and surrounding areas by collaborating on spatial data acquisition projects, community meetings, and geospatial technology educational opportunities. Over the years, CIRGIS’ member agencies have collected geospatial survey data, or point clouds, across a myriad of infrastructure design and planning projects.

But when the data was compiled, members found what most local and state government agencies face: large areas where data was never collected, inconsistent resolution quality (number of points per square meter) for areas that have been collected, and data conflicts resulting from collections taken at different times. (Events like erosion and flooding, new road construction, and expanding community footprints change the earth’s surface.) The result was like a puzzle with missing pieces.

SOLUTION: HIGH-RESOLUTION REGIONAL COLLECTIONS WITH GEIGER-MODE LIDAR

To fill those data gaps and resolve inconsistencies, CIRGIS coordinated with Harris on behalf of stakeholders to procure LiDAR data collected through the company’s proprietary Geiger-mode LiDAR technology. Able to flyer at a greater altitude and collect higher resolution data than other LiDAR systems, Harris quickly collected high-resolution LiDAR data for more than 1,200 square miles over the southern part of Ventura and Santa Barbara counties. This collaborative collection not only saved CIRGIS stakeholders’ money and time, but also enhanced the value of their geospatial data by providing essential intelligence that enabled them to plan more effectively and make more confident decisions.

The data is used to build digital models of specific areas to interpret and extract intelligence that provides answers to questions across many departments, such as: How many homes will be impacted by flooding if a river rises above its bank? Where are the light posts located across the town, and how tall are they? Is the crown of a road sufficient to prevent stormwater accumulation?
Harris LiDAR Fills Critical Gaps in Southern CA

IMPACT: WIDE-AREA DATA COLLECTION THAT BENEFITS STAKEHOLDERS

According to CIRGIS’ LiDAR Project Manager at the time of the contract, Hassan Kasraie, the price per square mile for CIRGIS’ collection was less than half of what it would have been with independent acquisitions for each city due to Harris’ wide area Geiger-mode LiDAR collection capabilities and the joint procurement effort across the collaborative.

As CIRGIS stakeholders make use of their new high-resolution point cloud data, they are finding new applications where the increased level of detail helps them in their missions to better protect their community’s economic viability and the safety of their citizens.

The city of Fillmore is now using the data across many departments to complete a general plan buildout of the city, extract building footprints, and gain understanding of stormwater runoff that could cause flooding. The level of detail from the high-resolution LiDAR is also providing important insights to better understand a long-term and costly concern for the city: stormwater seeping into the sewer system. Having to treat increasingly higher volumes of water passing through the system has required more and more of city funds. The high-resolution LiDAR data provides the information engineers need to identify the high elevation areas where the stormwater was flowing into the sewer so they could design improvements to correct the issue.

“Initiatives like this can have a real and lasting impact for local and state governments,” says Erik Arvesen, vice president and general manager of Harris Geospatial Solutions. “With our Geiger-mode LiDAR, we can make a single wide-area data collection in a timely manner and at an unprecedented resolution for a more complete picture than they’ve ever had.”

For more information, contact: geospatialsolutions@harris.com | www.harris.com/LiDAR