Fixed-FOV surveying has long been an underlying assumption for the collection of airborne geospatial imagery and data. However, the data footprint can be greatly affected by terrain variation and/or the relative height of the platform to the ground. This dynamic variation can greatly affect planned flightline spacing, and ultimately collection efficiency, by requiring operators to cluster flightlines together to accommodate for the worst-case scenario when data swaths are at their narrowest because the terrain is closest to the aircraft (e.g. mountain peaks). To overcome this efficiency limitation, greatly improve point distribution, and provide more consistent point density within a single swath, an innovative approach leverages an airborne laser terrain mapper (ALTM) GALAXY sensor equipped with a programmable oscillating scanner and a real-time sensor protocol to dynamically adjust the scan FOV in-flight in response to terrain variation. This patent-pending technique, known as SwathTRAK™ mode, dramatically increases collection efficiency and overall data quality over traditional fixed-FOV sensors. This presentation will provide an overview of the technique and a field comparison of data collected with and without SwathTRAK in a high-relief environment.