

Utilizing LiDAR Technology for Archaeological Surveys:

Unveiling Hidden Insights

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ABSTRACT

In this paper, we aim to showcase the application of advanced remote sensing LiDAR (Light Detection and Ranging) technology in archaeological surveys, with a specific focus on analyzing physical characteristics of historical and archaeological sites. The LiDAR survey methodology involves the use of equipment installed in unmanned aerial vehicles (UAVs) or large drones, in conjunction with control points marked using a global positioning system (GPS), followed by data processing using specialized software. The LiDAR survey was conducted during the archaeological survey of the ancient city of U Thong, located in Suphanburi, Thailand in 2022. The survey data encompasses a laser contact point density of 100 points per square meter on the terrain surface and utilizes the UTM coordinate system for the Point Cloud. Processed data includes Digital Surface Model (DSM), Digital Terrain Model (DTM), Digital Elevation Model (DEM), and Orthophoto aerial photography, offering high accuracies and resolutions. Importantly, the paper presents a significant discovery resulting from the LiDAR survey, where archaeologists uncovered new evidence pertaining to the structure and shape of a historically significant site named "Kok Chang Din No. 1", refining previous beliefs about its form and function. The findings highlight the efficacy of LiDAR technology in uncovering concealed evidence, particularly in environments with dense vegetation or featuring narrow and small embankments or shallow wells. This study establishes LiDAR technology as an indispensable tool for comprehensive analysis of ancient settlements, providing detailed insights to elucidate the nature of the settlements in the study area.

Keywords: archaeology, remote sensing, LiDAR