



Lidar Applications in a Temperate Rainforest Environment - Case Study: Kosciusko Island, Southeastern Alaska, Tongass National Forest

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Abstract

As part of ongoing environmental impact statements for proposed timber sales in the Tongass National Forest on Kosciusko and Tuxekan Islands, west of Prince of Wales Island in southeast Alaska, URS Corporation utilized Light Detection And Ranging (LIDAR) technology as part of field data collection in the temperate rainforest. EagleScan Remote Sensing Services/3Di, a subcontractor to URS, collected the data utilizing a combined LIDAR and digital camera unit. Data were generally collected utilizing a last pulse mode in order to map the “bald earth” for the majority of the study area. In addition, a test area was established within which both first and last pulse data were collected. A digital elevation model was developed from the LIDAR point data. Contour maps developed from the digital elevation models were successfully utilized to identify steep slopes, landslides, and karst features. The method also allowed for the characterization of canopy structure in conifer stands. The maps generated from the LIDAR data were found to be instrumental in better understanding the landscape for the variety of disciplines involved in the environmental impact statement process with significantly less effort and improved resolution than pre-existing methods. The LIDAR data aided in karst resource inventory and karst vulnerability classification of the project area.