Characterization of Existing Sand Deposits in the Annapolis Valley Utilizing High-resolution LIDAR Digital Elevation Models

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The use of Light Detection and Ranging (LIDAR) data to characterize landforms associated with specific surficial aggregates is currently being investigated by the Applied Geomatics Research Group (AGRG), Centre of Geographic Sciences (COGS), Nova Scotia Community College. Traditional Digital Elevation Models (DEMs) produced from photogrammetry have limited resolution (ca. 20-50 m) and degraded accuracies (less than ± 2.5 m) in forested areas. The narrow laser beam of LIDAR systems allows penetration of the vegetation canopy and measurements of the ground to be made even in forested regions. The ability to remove the trees and anthropogeneric features allow bald-earth DEMs to highlight subtle geomorphic features. Different visual techniques are employed to produce colour shaded relief maps optimizing shading angles, perspective views and chromostereoscopy utilizing 2 m DEMs produced from airborne LIDAR data flown in the Annapolis Valley in May 2003. The LIDAR data are integrated with existing surficial geology maps in a GIS environment to refine these map products and better understand the formation of sand deposits.

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