

A Semi-Automatic Method for Building Boundary Extraction from Airborne Lidar Data

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SUMMARY

This paper presents a semi-automatic approach to building boundary extraction using airborne lidar data. Three steps are proposed and implemented directly on the lidar points rather than on the rasters obtained from the lidar data. First, ground points and non-ground points are separated using an adaptive morphological filter in order to remove the ground points. Then a fusion of methods including Normalized Difference Vegetation Index (NDVI), hierarchical clustering and thresholding is employed to further remove unwanted objects such as trees and cars. Finally, the boundary polygons are extracted and delineated based on alpha-shape and Douglas-Peucker algorithms. The extracted polygons are assessed in terms of 11 indices categorized in three evaluation methods. The test results show that the proposed method can accurately extract urban residential buildings from airborne lidar data.