

Improving Land Cover Classification Using LiDAR Data: A Turtle Island Case

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Abstract: Among various land cover change monitoring technology, remote sensing has the advantages in getting data covering wide-range and in richness of spectral and spatial information. Moreover, LiDAR combines a laser scanner, a rover GPS, an IMU, and a ground GPS base stations for collecting a large number of high-density and high-precision point cloud in a short period of time. The most common six types of land-covers in a famous volcanic island of eastern Taiwan, named the Turtle island, are selected for understanding their spectral and geomorphometric characteristics which can be subsequently applied in the automatic classification. Moreover, interpretation keys with more information extracted from waveform LiDAR are also discussed in this study. The results of this work indicate that attributes of waveform features such as amplitude and width of waveform, and geomorphometric features such as nDSM and slopes are indeed helpful for improving the accuracies of land-cover classification.

Keyword: Land Cover, LiDAR, Classification, Geomorphometric, Spectrum