A MULTISPECTRAL APPROACH FOR LIDAR SUPPORTED PREDEVELOPMENT MODELS

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A filtering mask was constructed for conversion of LIDAR based digital surface models into digital bare earth models and an accuracy assessment of the results was completed. Light Detection and Ranging (LIDAR) elevation data offers highly accurate topographic information. Filtering of LIDAR datasets enables analysis of terrain, devoid of vegetation and urbanization features [1]. Infrared and red spectral bands of Digital Orthophoto Quarter-Quadrangles (DOQQ) are employed to develop a vegetation classification filtering-mask in ERDAS, Imagine. A final mask created with the DOQQ is overlain on a LIDAR based digital surface model, allowing for manual removal of all vegetation and manmade structures, thus producing a digital elevation model. The study area, which includes the city of Boca Raton, is located in southeastern Florida and is equivalent in size to one DOQQ, approximately 4 miles by 4.5 miles. Twenty-five LIDAR tiles are mosaicked in an effort to correlate with the dimensions of the DOQQ. The LIDAR dataset was obtained via Florida International University's International Hurricane Center's website, which offers the datasets in filtered and unfiltered versions. A comparative analysis is performed by ground-truthing terrain within the study area along with spatial analysis of the data model. The results illustrate benefits as well as disadvantages for filtering the LIDAR datasets by means of the multispectral methodology.

REFERENCES

[1] Chen, X., Vierling, L., Rowell, E., DeFelice, T., 2004. Using lidar and effective LAI data to evaluate IKONOS and Landsat 7 ETM+ vegetation cover estimates in a ponderosa pine forest. *Remote Sensing of Environment* **91**, 14-26.