Correction of Terrestrial LiDAR Data Using a Hybrid Model

Wallace Mukupa (China, PR), Gethin Roberts (United Kingdom), Craig Hancock and Khalil Al-Manasir (China, PR)

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SUMMARY

The utilization of Terrestrial Laser Scanning (TLS) intensity data in the field of surveying engineering and many other disciplines is on the increase due to its wide applicability in studies such as change detection, deformation monitoring and material classification. Radiometric correction of TLS data is an important step in data processing so as to reduce the error in the data. In this paper, a hybrid method for correcting intensity data has been presented. The proposed hybrid method aims at addressing two issues. Firstly, the issue of near distance effects for scanning measurements that are taken at short distances (1 to 6 metres) and secondly, it takes into account the issue of target surface roughness as expounded in the Oren-Nayar reflectance model. The proposed hybrid method has been applied to correct concrete intensity data that was acquired using the Leica HDS7000 laser scanner. The results of this proposed correction model are presented to demonstrate its feasibility and validity.