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PM10 monitoring in Penang Island, Malaysia from of Landsat TM images

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The present study is dealing with a new developed algorithm for determination the concentration of particulate matter of size less than 10-micron (PM10). The objective of this study was to evaluate the developed algorithm which incorporated Landsat TM thermal and visible bands for PM10 mapping. The corresponding PM10 data were measured simultaneously with the acquisition satellite scene for algorithm regression analysis. Our approach to retrieve the atmospheric component from satellite observation is by measuring the surface component properties. In this study, we determine the surface component properties by using ACTOR2 in the PCI Geomatica 9.1 image processing software. The proposed algorithm produced high correlation coefficient (R) and low root-mean-square error (RMS) between the measured and estimated PM10 values. Finally, a PM10 map was generated using the proposed algorithm. This study indicates the potentiality of using Landsat TM observation for PM10 mapping.

Keywords: PM10; ACTOR2

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