

## A New Algorithm for Retrieving Aerosol Optical Thickness Using TERRA/MODIS Satellite Images

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### Abstract

Aerosol detection and monitoring from satellite platforms has made significant advances over the past decade. While several state-of-the-art aerosol retrieval techniques provide aerosol properties at global scale, the more detailed spatial patterns remain unknown because most of the relevant satellite sensors operate at coarse resolution. A new aerosol retrieval algorithm for the Moderate Resolution Imaging Spectroradiometer (MODIS) 500m resolution data has been developed to retrieve aerosol properties over land, which helps to address the aerosol climatic issues at local and urban scales. The results show that 500m Aerosol Optical Thickness (AOT) data from MODIS are highly correlated ( $r = 0.94$ ) with AERONET sunphotometer observations in Hong Kong. This study demonstrates the feasibility of aerosol retrieval at "fine" resolution in urban areas, which can assist in studies of aerosol loading distribution and the location of pollution source areas.

### Keywords

aerosol optical thickness, look-up-table, MODIS, surface reflectance

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