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## Variations of Aerosol and Wet Deposition in Hong Kong: Preliminary Results

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### Abstract

Examination of Air Pollution Index (API) for the period 2000-2007 in Hong Kong general monitoring stations showed a summer maximum in Kwai Chung and winter maximum in Yuen Long. There is an east-west asymmetry, with higher API in the western than the eastern part of Hong Kong, which is consistent with Aerosol Optical Depth(AOD) pattern derived from the NASA/Moderate Resolution Imaging Spectroradiometer (MODIS). Cross border transport of pollution in Hong Kong was examined by compiling API data according to daily prevailing wind directions. In winter, the API is significantly higher when the prevailing wind direction is northerly and significantly lower for southerly flows. Assuming the API during southerly flow is the in situ ambient API, the cross border transports are estimated to be 33% and 23%, respectively for summer and winter. Both the AOD and API showed increase from 2000 to 2004, followed by slight dip and increases again to a secondary maximum in 2007. The decline may be related to the adoption of environmental policies and laws in Hong Kong and in Pearl River Delta region for the period. The scavenging of aerosol by rain is examined using changes in daily API after rain days. Our result showed a significant negative correlation between percentage decrease in API and rain rate for the winter, however, no significant empirical relation exists for the summer. This may be related to dynamics of rain clouds which overwhelms the microphysical effects in summer and points to the use of finer scale, such as hourly data to quantify the scavenging effect.

### Keywords

cross border pollution transport, MODIS, API, AOD, Hong Kong-Guangzhou

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