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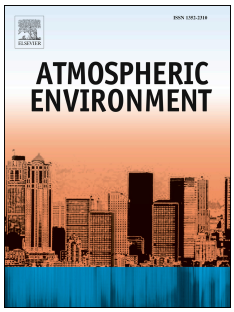

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Spatial distribution and temporal variation of aerosol optical depth and radiative effect in South China and its adjacent area

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Abstract

The spatio-temporal characteristics of aerosol loading over South China from 2001 to 2016 were investigated using aerosol optical depth (AOD) from the Moderate Resolution Imaging Spectroradiometer (MODIS) and NO_2 from the Ozone Monitoring Instrument (OMI). AOD values were high in the central part and low in the southeast and northwest parts of South China. High AOD (larger than 0.7) were found in the Pearl River Delta, Nanning, and Hanoi (Vietnam). The seasonal average AOD was high in spring (approximately 0.7) and low in winter (approximately 0.4). Generally, an increasing trend of AOD was found from 2001 to 2004 and a decreasing trend from 2004 to 2016 in the continent due to the change in pollutant discharging, which was verified by annual NO_2 data. Furthermore, the aerosol radiative effect