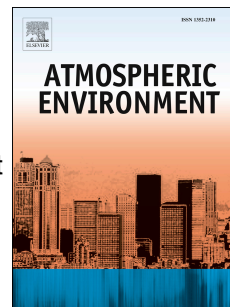


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1 **Spatial distribution and temporal variation of aerosol optical depth**
2 **and radiative effect in South China and its adjacent area**

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20

21 **Abstract**

22 The spatio-temporal characteristics of aerosol loading over South China from 2001
23 to 2016 were investigated using aerosol optical depth (AOD) from the Moderate
24 Resolution Imaging Spectroradiometer (MODIS) and NO₂ from the Ozone
25 Monitoring Instrument (OMI). AOD values were high in the central part and low in
26 the southeast and northwest parts of South China. High AOD (larger than 0.7) were
27 found in the Pearl River Delta, Nanning, and Hanoi (Vietnam). The seasonal average
28 AOD was high in spring (approximately 0.7) and low in winter (approximately 0.4).
29 Generally, an increasing trend of AOD was found from 2001 to 2004 and a decreasing
30 trend from 2004 to 2016 in the continent due to the change in pollutant discharging,
31 which was verified by annual NO₂ data. Furthermore, the aerosol radiative effect

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