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Occurrence of High Nocturnal Surface Ozone at a Tropical Urban Area

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Abstract : The occurrence of high nocturnal surface ozone over a tropical urban area (23° 32′16.99″ N and 87° 17′ 38.95″ E) is analyzed in this paper. Five incidences of nocturnal ozone maxima are recorded during the observational span of two years (June, 2013 to May, 2015). The maximum and minimum values of the surface ozone during these five occasions are 337.630 μg/m³ and 13.034 μg/m³ respectively. HYSPLIT backward trajectory analyses and wind rose diagrams support the horizontal transport of ozone from distant polluted places. Planetary boundary layer characteristics, concentration of precursor (NO₂) and meteorology are found to play important role in the horizontal and vertical transport of surface ozone during nighttime.

Keywords : nocturnal ozone, planetary boundary layer, horizontal transport, meteorology, urban area
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