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# Characteristics and sources of isoprene in subtropical urban setting and its effect on peak ozone

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Isoprene has potentially a large impact on secondary oxidant formation, particularly in the polluted urban atmospheres. The environmental conditions in tropical and subtropical cities with high temperatures and light flux are conducive to the production of large amounts of biogenic isoprene. Measurement of speciated Volatile Organic Compounds (VOCs) was conducted from June 2011 to May 2012 was analyzed to obtain the characteristics, sources of isoprene and its effect on peak ozone. The daytime and nighttime average concentrations of isoprene at the subtropical urban setting were 2.04 and 0.25 ppbv, respectively, which were considerably higher than the concentrations of isoprene in most temperate cities. Furthermore, daytime isoprene ranked highest in OH reactivity and ozone formation potential (OFP) among 55 measured VOCs. The ratios of isoprene to 3-Methlpentane and Cis-2-Butene, exhaust tracers, were used to estimate the daytime and nighttime of fractions of biogenic and anthropogenic isoprene in four seasons. The results reveal that at night isoprene was mostly affected by vehicular emissions in winter, while less affected in autumn and spring and the least affected in summer. Furthermore, the higher isoprene concentrations in summer and autumn can maintain the time of peak ozone longer, thus affecting the shape of peak ozone.