Factor on ozone increase in Ibaraki, Japan

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While surface O3 concentration decreased in 1970-1980s by the regulation of ozone precursors, the O3 increase has been reported in various regions in Japan and other countries since 1990s in spite of more strict regulation. In East Kanto region (Ibaraki and Chiba), O3 increases have been occurred with the increase of relatively high concentrations of surface NOx. In order to identify the process of the ozone increase in this region, ground-based observation of O3, NOx, CO and J-values was carried out in Mito city in June, July, August, and November in 2005. The observed O3 concentration is compared with the F(O3)∗value, which is proportional to the ozone formation rate. The observation indicated that about 75% of high O3 concentration (higher than 60 ppb) events occurred due to the photochemical O3 production in Ibaraki local area, and that about 25% of the events occurred due to the transport of O3 rich air masses from Tokyo urban area.