

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 NO_x. In order to identify the process of the ozone increase in this region, ground-based observation of O₃, NO_x, 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.