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Comparison of air pollutant emissions among mega-cities

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Ambient measurements of hydrocarbons, carbon monoxide and nitrogen oxides from three mega-cities (Beijing, Mexico City, Tokyo) are compared with similar measurements from US cities in the mid-1980s and the early 2000s. The common hydrocarbon pattern seen in all data sets suggests that emissions associated with gasoline-fueled vehicles dominate in all of these cities. This commonality suggests that relatively modest monitoring efforts with controls focused on vehicle emissions plus emissions from specific local industrial sources may provide the most efficient approach to controlling photochemical smog in emerging mega-cities. It is noted that over the two decades covered by the US data sets, the hydrocarbon emissions decreased by approximately an order of magnitude, which is greater than suggested by emission inventories. The ambient hydrocarbon and CO concentrations reported for the three non-US mega-cities are higher than present US ambient concentrations, but lower than those observed in the 1980s in the US. The one exception to the preceding statement is the high concentrations of CO observed in Beijing, which apparently have a large regional contribution.