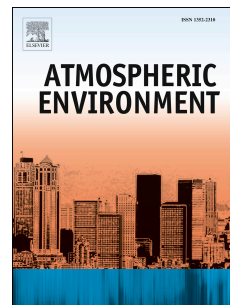


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# Downward transport of ozone rich air and implications for atmospheric chemistry in the Amazon rainforest

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## Abstract

From April 2014 to January 2015, ozone (O<sub>3</sub>) dynamics were investigated as part of GoAmazon 2014/5 project in the central Amazon rainforest of Brazil. Just above the forest canopy, maximum hourly O<sub>3</sub> mixing ratios averaged 20 ppbv (parts per billion on a volume basis) during the June–September dry months and 15 ppbv during the wet months. Ozone levels occasionally exceeded 75 ppbv in response to influences from biomass burning and regional air pollution. Individual convective storms transported O<sub>3</sub>-rich air parcels from the mid-troposphere to the surface and abruptly enhanced the regional atmospheric boundary layer by as much as 25 ppbv. In contrast to the individual storms, days with multiple convective systems produced successive, cumulative ground-level O<sub>3</sub> increases. The magnitude of O<sub>3</sub> enhancements depended on the vertical distribution of O<sub>3</sub> within storm downdrafts and origin of downdrafts in the troposphere. Ozone mixing ratios remained enhanced for

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