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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Space-borne observations link the tropical Atlantic ozone maximum and paradox to lightning" *by* G. S. Jenkins and J.-H. Ryu

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In Figure 5, upper tropospheric ozone amounts for January is identical to for SON at Natal. Jenkins and Ryu claimed that lightning and long-range transport are responsible for ozone enhancement in the upper troposphere. And they explained that the 3-ozonesonde stations are under the influence of 200hPa westerly for DJF. Because the ozone precursors and ozone produced by lightning transport from Natal, South America to Ascension Island, the Atlantic Ocean, it is not likely that ozone at Natal peaks for January with the same amounts as SON period. And lightning activity over South America is weaker for DJF than for SON period (Figure 9). Therefore these proofs are not sufficient to show that the lightning and transport cause the ozone peak

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at Natal for January. Moreover, in Figure 6, the seasonality of the lower troposphere at Natal shows the maximum in January and September-October. They claimed that the enhanced ozone in the lower troposphere is associated with biomass burning. However, the biomass burning activity over South America is weak (Figure 7). If the 3-ozonesonde stations are under influence of easterly and biomass burning over central Africa, lower tropospheric ozone at all stations would be higher. It suggests that ozone measurements at Natal are required to be reanalyzed.

Interactive comment on Atmos. Chem. Phys. Discuss., 3, 5725, 2003.