

***Interactive comment on* “Linking horizontal and vertical transports of biomass fire emissions to the Tropical Atlantic Ozone Paradox during the Northern Hemisphere winter season: climatology” by G. S. Jenkins and J.-H. Ryu**

**Anonymous Referee #1**

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This paper presents a qualitative analysis of the tropical tropospheric ozone distribution using a mix of model and satellite products from various sources. The subject has been under discussion since the seminal work of Fishman et al. [1990], and numerous authors have worked on aspects of the problem, both in the field of satellite and in-situ measurements (e.g. A.. Thompson and co-workers, many others); and modeling (e.g. Marufu et al., 2000, Martin et al. 2002, many others).

The positive aspects of this paper are that it brings together and presents several interesting existing datasets that contain pieces of information on the ozone paradox. The authors skillfully combine these pieces in a well-told analysis of the ozone anomaly.

To my knowledge this has not been done in such a systematical way before.

However, I feel that the paper fails in quantifying its statements- and in this respect is no progress compared to earlier analyses that indeed did try to quantify these processes. Most Figures are used in a suggestive way, but in the end prove nothing. Also a more critical evaluation of the usefulness of the various satellite and model products would be appropriate, e.g. it is well known that global weather forecast models do not do a particularly good job in tropical meteorology, and hydrological cycle.

Due to lack of quantification the analysis remains rather superficial- since there is little confrontation with measurements.

Furthermore, the authors did not carefully evaluate what is already known from previous analyses (both measurement and modeling) and what are really the new aspects being brought up by this work. In this respect, I find the referencing to earlier work quite incomplete.

In summary, in order for this paper to be acceptable for ACP, the authors should work on:

- showing the novel aspects, compared to previous works and give the appropriate credits to these papers (and measurements)
- quantify the statements made in this paper.

Minor comments:

- p 5973, l. 1 delete Discussion and conclusion.
- All Figures: identify the data-source + reference.
- Fig 14 (and some other figures), numbers are hardly readable in printed version.

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