

Interactive
Comment

Interactive comment on “Medium-range mid-tropospheric transport of ozone and precursors over Africa: two numerical case-studies in dry and wet seasons” by B. Sauvage et al.

Anonymous Referee #1

Received and published: 25 April 2007

This study combines observations and model simulations to explain physical mechanisms that govern spatial-temporal distribution of pollutants over equatorial western Africa. It is a useful study. The results of simulations are tested against observations. The model reproduces the local circulation very well for the 4-day period of simulation providing high-quality dynamic fields for the back-trajectory analysis. The paper provides a solid interpretation of MOZAIC observations. The paper could be published after minor revisions. The reviewer comments are as follows.

Figures are of good quality but too small.

Fig. 1 and 7: the line type in legend does not correspond to the line types in figure.

The authors provide a pretty convincing evidence that mesoscale transport could produce the observed features of pollutants distributions. However they did not discuss possible additional mechanisms that could contribute in the ozone concentration above boundary layer.

Ozone related to lightning could be mixed down from the middle and upper troposphere.

Pollutants could be released into the lower free troposphere during collapse of the boundary layer in the night.

Trajectory analysis does not predict concentrations. It would be useful to conduct direct tracer transport simulations using obtained downscaled meteorological fields to proof that observed concentration could be produced by the hypothesized sources.

Interactive comment on *Atmos. Chem. Phys. Discuss.*, 7, 4673, 2007.

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