Atmos. Chem. Phys. Discuss., 7, S2150–S2151, 2007
www.atmos-chem-phys-discuss.net/7/S2150/2007/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Wildfire particulate matter in Europe during summer 2003: meso-scale modeling of smoke emissions, transport and radiative effects" *by* A. Hodzic et al.

Anonymous Referee #2

Received and published: 29 May 2007

This paper describes the effect of wildfire particulate matter on air quality over a large part of Europe in 2003. It uses MODIS daily smoke emission inventory and a simple parameterization of injection altitude to prescribe the wildfire emissions in a meso-scale chemistry transport model. The authors conclude that the wildfire resulted in a significant enhancement of PM10 ground concentrations over a large part of Europe, exerted a strong radiative forcing and had a substantial effect of photolysis rates and photochemistry.

The paper is very well written, the methods are very well established and the results are interesting. The paper is an extension of the analysis presented in Hodzic et al.

(2006a). While I feel that the new manscripts contains a substantial amount of new work and therefore should be published in ACP, it would be desirable that the authors point out more clearly the new methods and results compared to the 2006 paper.

In addition to the comments by referee #1, I would ask the authors to consider the following minor comments:

p. 4713, l. 3-8: Fig. 1 should be referenced here.

p. 4714, l. 17: change "can be overestimated" to "can be an overestimate".

p. 4726, l. 16-17: the authors should consider directly reproducing Fig. 6 from Hodzic et al. (2006a).

Section 4.3.1: The authors demonstrate the effect wildfire particulate matter on photolysis rates by comparing the REF and H_FIRE runs. Furthermore, CHIMERE reference model ozone concentrations are compared with measurements. Is this reference model different from REF? Is an online ozone chemistry also included in the REF and H_FIRE model runs? If yes, ozone concentrations from both runs should be compared in order to directly identify the wildfire effect on ozone.

pp. 4736, l. 2-4: revise verb "can reinforced" in this sentence.

For many of the figures, fonts used for labels and numbering are too small even if the figures are scaled to ACP format (e.g., Figs. 4, 5, 6, 11, 12, 14). I would suggest using only one larger color bar for all model subfigures in Fig. 6 and, similarly, one for MODIS and one for the model results in Fig. 5.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 4705, 2007.

ACPD

7, S2150–S2151, 2007