

Interactive
Comment

***Interactive comment on* “Formation and transport of photooxidants over Europe during the July 2006 heat wave – observations and GEM-AQ model simulations” by J. Struzewska and J. W. Kaminski**

Anonymous Referee #1

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The paper is dealing with the last-year heat wave in Europe and briefly compares it with the historical data. In general, the manuscript is pretty robust, interesting and well-written. It addresses one of the pressing modern problems of heat waves and mechanisms behind. Therefore, I support its publication after a few small issues mentioned below are sorted out.

Section 1, p.1, right-hand column, middle: "The increasing frequency... ": the sentence appears before the actual demonstration that the frequency has, in fact, increased. This leaves the reader confused. Putting it at the end of the same para would make more sense.

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Sct.2.1, 2nd para. "Warm air flowing..." The sentence seems to be directly contradicting the figure 1. With all my attempts, I could not find the hot air moving from Scandinavia towards the south (which sounds a bit peculiar by itself).

Figure 1. Legend is missing. What wind? What temperature (2m, I guess?)? Wind scale? ...

Figure 2 does not seem to be necessary.

P.5, left-hand column. The chemical scheme outline is entirely non-informative. At the very least the main groups of species considered must be named. A proper reference would be very good here. This would also partly eliminate the ambiguity about VOC disaggregation, which is mentioned but left unexplained.

Model evaluation. I appreciated very much the multi-dimensional evaluation: meteorology, surface concentrations, and vertical profiles. However, the authors seemingly missed a very interesting item: the model shows 2-3 times too slow wind speed - and still is nearly perfect with chemical species! The only explanation I can imagine is that the episode was not sensitive to the transport, all the stuff was produced locally. But was that really so? Or, the model is "right for wrong reason"? Again, I appreciate very much the honest demonstration of all the results but the striking difference between the supposedly strongly linked parameters really deserves discussion.

Conclusions are much too long and repetitive. Cutting them by half would only improve the paper.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 10467, 2007.

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