

Interactive comment on “Release and dispersion of vegetation and peat fire emissions in the atmosphere over Indonesia 1997/1998” by B. Langmann and A. Heil

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This is a pragmatic and straight-forward study on the effect of Indonesian Peat Fires on aerosol concentrations. The authors take an 0.5-0.5 degree CTM, choose the best meteorological set-up, and then put in 2 different emissions inventories. The 2 inventories (best and high) correspond roughly to emission totals circulating in the literature. Results for aerosols are then compared with TOMS aerosol index, and a set of aerosol PM10 measurements over Malaysia.

Despite the fact that there are a number of explicit and implicit assumptions being made in the model, the authors convince me that the claims of very high Indonesian emissions (e.g. 2570 Mt of Carbon) during the 1997/1998 period can not be corroborated

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by the aerosol model calculations presented here. For me this is the main outcome of the study- and it should be more clearly included in the abstract. It is important for understanding of the atmospheric CO₂ signal.

In the discussion, however, I miss some self-criticism of factors and processes that could possibly also explain the atmospheric signal. With other words, could the 'high' emission case be plausible- if somewhere else in the model there is a critical assumption made that could also explain the results?

Very critical in all atmospheric models is the way wet removal is treated. The authors verify that the model precipitation is consistent with measurements, but what about assumptions like 100 % solubility, scavenging efficiency in and below clouds?

A range of assumptions are made regarding emission factors and conversion to Aerosol Index and PM10. I would like to see some discussion on how strongly they would influence the results- to further strengthen the conclusions.

In conclusion- with some more discussion I recommend publication in ACP.

Minor comments:

On page 2122 I could not figure out the exact differences between the 'climate' mode and the 'forecast' mode. Do I understand correctly that both are constrained by ECMWF winds, however the climate mode only at the boundaries, while the forecast mode is initialized at all gridpoints using ECMWF and the 'forecasting' for 30 hours ahead? I don't understand 'particulate' processes are calculated continuously?

Interactive comment on *Atmos. Chem. Phys. Discuss.*, 4, 2117, 2004.

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