**Atmospheric
Chemistry
and Physics
Discussions**

Interactive
Comment

Interactive comment on "Chemical apportionment of southern African aerosol mass and optical depth" *by* B. I. Magi

Anonymous Referee #2

Received and published: 13 August 2009

The work of B.I.Magi presents data on mass concentration and optical properties of organic and inorganic species in southern Africa, a region with sparse previous measurements of this type. Rather than presenting any significant new scientific findings, the paper presents measurement data which are then compared to previous studies. However, given the sparse coverage of previous measurements in the location of the study, I recommend that a revised manuscript would merit publication subject to the following comments.

General Comments ——————-

The conclusions of this work rely wholly on proving beyond doubt the validity of the corrections, outlined in section 2, applied to the mass concentration measurements as a result of mis-calibrated flow meters. Unfortunately, the section is a little confusing

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

to follow, principally owing to the various different species under comparison. I would recommend emphasising how the mass trends vary with the different species measured, and perhaps reiterating at points in the text which filters correspond to which species/preivous study. This would help avoid frequent referral to Table 2 in order to comprehend the discussion.

Critically, the first paragraph of pg13447 must be altered to replace the vague statements such as "roughly similar" with quantified versions. "Quite good" is not sufficient agreement when the remainder of the paper relies on the results presented here. If the author can alter the text to help lend weight to this argument, this would help enormously in the reader's confidence in their conclusions.

Specific Comments ———————

P13440 L6 - "major source of PM in s.Africa is BB" - as derived from satellites? Clarify which observations lead to this statement L15 - "26-27%", this is a very small range, how about "approximately 26%" ?

P13441 L9 correct grammar is "aircraft on which the bulk of this study is based." L26 "usually" - quantify this statement. Which fraction of filters collected in tandem. %age is better than vague word like usually

P13442 L2 - require citation for the inlet used on the aircraft. Is it the one used in the G2003 or K2003 studies? Please clarify. L5 - Request details, however brief, on the methods of analysis of the filters. For example "the teflon filters were analysed for speciesX..." would read much better as "the teflon filters were analysed by GC-MS for speciesX". The methods should be stated. L11 - do you mean the *number* distribution here? or mass? L17 - as L5 comment, better to put "E2003 used <method> to report mass concentrations..."

P13443 L22 Don't feel last sentence in this para. is required L25 replace "Tropical aerosol properties have" with "Tropical aerosol distribution has"

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

P13444 L9 presume the "total flow" is really an integrated flow volume? L10 ***MANDATORY*** Make/model of the flow meters, since they are absolutely key to this discussion L11 make model of the bubble meter L15 "altitudes" for "atmospheric levels" L28 was the flow meter really defective?? sounds like it was working fine, but un-calibrated.

P13445 L13 append "as observed by satellites"

P13446 L9 "expected noise" - restate the magnitude of this at this point

P13447 L 29 "every year" is really "August/Sept for the years 2001-7"

P13448 L8 prefer "similarity" in place of "lack of difference"

P13449 Actually think the discussion would maintain more clarity without using SCA and ABS for acronymns

L13451 L1 which properties of OC does the study summarise?

P13464 Table 2. It would be useful to specify G2003 *and* K2003, and then clarify that the K2003 has a good cal., and that the E2003 was on an independent inlet. This would help the reader follow which values in the table are expected to be in error.

P13465 Table 3. I think writing "FlowMETER 1" etc would be clearer. In addition, recommend to state (again) that, for example, Flow 2 corresponds to the quartz filters and has a good cal., and so on.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 13439, 2009.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper