

## ***Interactive comment on “MIPAS observations of volcanic sulphate aerosol and sulphur dioxide in the stratosphere” by Annika Günther et al.***

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### **General remarks**

- The subject is an advance in knowledge, appropriate to the journal, and should be accepted, subject to minor corrections.
- The written English is clear and unambiguous, but has a rather stilted style and a sprinkling of grammatical errors. I note a couple of these below, but this is not a full proof-read.
- The figures are generally clear and well made; I have only a few suggestions for corrections.

C1

### **Specific corrections**

I use the notation “P5L27” to mean page 5, line 27.

- All pages: It grieves me to point it out, as, to me, the -f- spelling of “sulfur” is a horrid Americanism which grates on the eye. But the journal’s English guidelines state that *... it is our house standard to use the -f- spelling for sulfur (instead of sulphur) and related words for all varieties of English.*
- P3L16: The authors note that they use only the second of the two measurement periods, but do not spell out why. Was it not possible to estimate SO<sub>2</sub> from the first period data? Were there no volcanoes of interest during that period?
- P5L27 “The sulphur ... builds H<sub>2</sub>SO<sub>4</sub>.” The wording of this sentence and the use of the word “builds” in particular seems rather odd. A possible alternative wording is “The sulfur released from volcanic SO<sub>2</sub> reacts with OH to form H<sub>2</sub>SO<sub>4</sub>.”
- P7, Figure 1: The vertical axis of the graph is not labelled and it is not clear to me whether it applies both to the refractive index curves and to the transmission curve.
- P9L16–18: I would remove the comma after “Both” and insert one after “increasing temperatures”.
- Figure 3: The caption does not explain the difference between LPC 2m, LPC 1p and LPC 3m.
- Figure 5: It would be preferable to repeat the table of volcano names somewhere in this paper, rather than referring the reader to a different paper. Also, the levels in the filled contour plot are the rather odd choice of 100/7 units. The colour scale itself is a better choice than the dreadful “jet” scale that too many people still use.

C2

But I feel that there might nevertheless be a better choice. In particular, I feel that it would be better for the colours at the upper end to become paler (e.g. red → magenta → almost-white) rather than tending towards a purple colour which is very close to the blue at the bottom of the scale. In making any such change it should be ensured that adjacent colours are clearly distinguishable from each other. (This is currently the case except, perhaps, for the shades of blue around 200 ppbv.)

- P13L2: “built” is rather an odd word choice. Maybe “produced” would be better.
- P15, table 1: Pumphrey’s two estimates for Sarychev are the wrong way round, and one of them is missing its error. It should be  $571 \pm 42$  above 147 hPa, and  $1160 \pm 180$  above 215 hPa.
- P22L19: Remove comma after “Both”.
- P24L11: “were” should be “where”.
- P24L19: “hereby” should perhaps be “thereby”

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