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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Evaporation of high speed sporadic meteors" *by* E. Murad and C. Roth

Anonymous Referee #2

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This is a valuable paper, the underlying physics is OK, and the conclusions appear reasonable, even though they refer to figure content that is different from the figures submitted. It is impossible however to substantiate the major conclusions - the proper figures need to be seen. I'd probably recommend it for publication with minor revisions if the correct figures were used and corroborate the statements made in the text.

Details:

Page 2

7th line: heating "of" meteoroids

7th line from bottom: low boiling "point"

Middle of page: Explain why pulse heating does not lead to differential ablation, and doesn't T increase from cold to hot along the meteoroid path resulting in altitude-dependent evaporation rates dependent on boiling temperature? Maybe I just don't

understand what "pulse" heating really means.

Page 3:

7th line from bottom: refers to Figures 1-4 as calculations for a single velocity and next page (2nd paragraph) however refers to Figure 2 as a calculation for all 4 velocities!

8th line from bottom: Incomplete sentence and grammar problem. Also, it refers to 2 masses that don't appear in any of the figures!

4th line from bottom: only one figure is referred to. Also, evaporation begins at higher altitudes, compared to what? Is a comparison meant between the more refractive and less refractive species?

Page 4: Top: T dependence on density is an interesting fact and it deserves an explanation as to why.

2nd paragraph: the figure submitted does not match the description of Figure 2 here.

Bottom paragraph: Na and Fe are stated to be the sources of most of the ionization. It would be helpful to explicitly state why Mg is not considered important and presumably because of differential ablation. Also, isn't molecular oxygen a player in the hyperthermal processes? It does have higher impact energy than atomic oxygen.

Figures: It would be helpful to have labels on the axes with coordinate units.

Interactive comment on Atmos. Chem. Phys. Discuss., 3, 6721, 2003.

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Interactive Comment