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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Optical properties of meteoric smoke analogues" *by* Tasha Aylett et al.

Anonymous Referee #2

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The paper by Aylett et al presents a laboratory study determining optical characteristics of analogs of meteoric smoke particles. Specifically, refractive indices for MSP analogs concluded to be maghemite are found. MSPs play a significant role in the atmosphere and so this is a worthwhile study.

The paper is well written with clear, succinct, and informative text. The analysis is well described. The methodology and logic are clear. My comments are only minor, but include one discussion that the authors should consider. Overall this is a high-quality paper that that is very appropriate for publication in ACP.

A significant motivation for this work is the SOFIE results. The authors state that those results are questionable due to the SOFIE-analysis assumption that MSPs are essentially crystalline i.e. refractive indices measured from crystal forms of possible MSP components can be utilized to infer MSP composition. In this study, the MSP analogs

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Discussion paper

were found to be amorphous and not crystalline. Does this result further call into question the SOFIE results? The authors were not able to determine optical properties at the wavelengths SOFIE utilized and so formed no conclusions regarding the SOFIE work. But couldn't the authors make the crystalline assumption as done with SOFIE to see if that resulted in large errors in the refractive indices they determined? And if done, would this impact the interpretation of the SOFIE data? More discussion with regard to the existing remote sensing results would strengthen this paper.

Other minor comments:

There are numerous places where space should be, but were not: For examples Line 173-174; 326-327

There is no Section 3.1

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