

Ann. Geophys. Discuss., referee comment RC1  
<https://doi.org/10.5194/angeo-2021-39-RC1>, 2021  
© Author(s) 2021. This work is distributed under  
the Creative Commons Attribution 4.0 License.

## **Comment on angeo-2021-39**

Anonymous Referee #1

---

Referee comment on "Modelling the influence of meteoric smoke particles on artificial heating in the D-region" by Margaretha Myrvang et al., Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2021-39-RC1>, 2021

---

### **Review of Modelling of the influence of meteoric smoke particles on artificial heating in the D-region by Myrvang et al.**

This modelling study shows that meteoric smoke particles substantially modify the strength of ionospheric artificial heating (created by high frequency radio waves during active experiments). Even if the basic theory behind the heating is known, our understanding of the processes impacting the heating is far from complete, and, as the authors point out, there are unexplained discrepancies between the modelled and observed heating during this type of experiments. This paper brings an important part to the puzzle, and is worthy of prompt publication.

My only comment is that I would like to see some kind of sensitivity analysis on how some of the more uncertain aspects of meteoric smoke particles, in particular the electron attachment efficiency (which likely depends on the size of the particle), influence the heating. The influence of summer/winter meteoric smoke conditions would also be interesting.

Technical comments:

Title: I suggest to remove the first "of"

Line 175: Reference to SIC model is lacking, and the acronym is never written out.

Line 211: Well, technically there is a small biteout, so I suggest to soften the wording.

Line 246: Remove "s" in "shows".