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Atmospheric Measurement Techniques Discussions
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# *Interactive comment on* "Resolving ambiguous direction of arrival of weak meteor radar trail echoes" *by* Daniel Kastinen et al.

**Daniel Kastinen et al.**

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Dear reviewer #2,
Thank you very much for the useful comments and suggestions! We have below addressed each of the comments individually:

Line 19-44: A reference to Herlofson (1947), McKinley (1961), or other similar early work on meteor radar would be appropriate.

> Done!

Line 28: ". . .phenomena occur lies between. . ."



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Discussion paper

> Thanks, done.

Line 107: The variable “ambig” is written here in all caps, but in an alternate font online 49. Change for consistency.

> Done!

Line 128: It also assumes that the antennas are electrically independent, i.e. no coupling.

> We have added this to the sentence.

Line 144-145: A comment on coupling errors (no change needed): phase calibration methods assign constant phase biases between antenna pairs, but this cannot account for coupling, as coupling is a function of DOA. The authors do however, explicitly state that they do not account for coupling.

> As that sentence did not add anything relevant to the discussion, we removed it and instead only stated directly what correction we applied to avoid confusion.
Figure 2: There are several issues with figure 2. The red and especially green lines are quite difficult to see, requiring a substantial zoom in and examination. Furthermore, green/red is the most common form of color blindness, so this choice of marking scheme may provide accessibility challenges for some readers. Also, in the top right panel, why is the signal discontinuous? There are large portions of white space between line segments that I assume are connecting sample points. Perhaps this is a plotting issue, or something going wrong in format conversion?

> We have improved the appearance of figure 2 following the recommendations.

The colors have been chosen from a color blind friendly palette. The discontinuous signal in the previous version was a plotting issue due to the line width unintentionally being too thin for the resolution down-conversion that occurred when compiling the pdf version of the manuscript.

Figure 3: Similar to figure 2, the red crosses and circles are hard to see without zooming in quite close. Changing the line thickness and increasing the symbol size would help with this.

> We have improved figure 3 according to the recommendations!

Line 268-269: I am curious as to the author's decision to include events that could not be unambiguously classified as meteor echoes. I understand that the purpose of the exercise is to push DOA analysis to low SNRs, but it seems that any confirmation of the technique relies on the example echoes being genuine meteor detections.

> We have included events that were classified as unambiguous and had nominal signal and confirmed that our DOA analysis in 100% of these cases found the same DOA as the original analysis. For ambiguous events, we have investigated whether the signal was nominal or anomalous and divided the results thereafter. As the reviewer points out, we will obviously not confirm the technique by applying it on events that are not genuine meteor detections.

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