

Interactive comment on “Resolving ambiguous direction of arrival of weak meteor radar trail echoes” by Daniel Kastinen et al.

Anonymous Referee #2

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Overall, this is an excellently written manuscript that clearly lays out a new technique for determining the direction of weak meteor radar echoes. The structure is logical and easy to follow and the writing clear and nearly grammatically faultless. Of particular note is the authors characterization of directional ambiguity and confidence using statistical methods. I recommend that the manuscript be published after considering some minor suggestions.

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

Line 28: “. . .phenomena occur lies between. . .”

Line 107: The variable “ambig” is written here in all caps, but in an alternate font on

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line 49. Change for consistency.

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

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.

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?

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.

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.

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