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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Radiant measurement accuracy of micrometeors detected by the Arecibo 430 MHz dual-beam radar" *by* D. Janches et al.

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1) Bimodal distribution question: It is not clear yet why AO sees a bimodal distribution while Jicamarca (Chau and Woodman, this issue) for instance does not sees this distribution. Most of the velocity distribution resulting from High Power and Large Aperture radars meteor observations are dominated by very high velocities when pointing into the Apex direction, implying that most of the observed meteor are in retrograde orbits aligned with the Earth's orbit (see Cahu and Woodman and Sulzer in this issue). The bimodal characteristics of the AO distributions, which at some degree were also observe by the ALTAIR radar (Close et al., 2002) can be due to several factors. While the fast distribution is probably the same population that the other radars see, the slow can be due to slow meteors with "asteroidal" type of orbits which are prograde, space debris and/or fast meteors that cross the AO beam with a significantly large across-the-beam component (although according to the results presented in this manuscript

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we expect this to be the minority). It is probably that the slower population is a mix of all these three groups of particles. Unfortunately with the present observations it is difficult to distinguish between each of these groups. We hope that detail orbital analysis will shed light on this. The final version of the manuscript will discuss this more clearly.

2) Differences in the velocity distributions question: The differences in the velocity distributions shown in figure 1 are the combination of two effects. The first one is the main result of this paper and the second is due to the relative angle between the axis beam and the apex direction (direction from which most of the meteor detected by AO come from) as shown by Sulzer (this issue). We will expand the discussion to make this point more clear.

3) Missing mass question: In the discussion section we presented all the facts the led us to believe that a portion of the meteoric mass will ablate a higher altitudes. We also discussed that this mass could constitute part of the discrepancy in the mass fluxes measured by classical meteor radars and satellite observations reported by Hughes 1978. We even use the word “missing" as pointed out by the referee. Perhaps, as suggested by the referee, we will add more wording to “spell out" this point better.

4) Technical corrections: All the technical corrections will be address in the final version.

Interactive comment on Atmos. Chem. Phys. Discuss., 4, 207, 2004.

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Interactive Comment