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Atmospheric Chemistry and Physics Discussions

Interactive comment on "The EISCAT meteor-head method - a review and recent observations" *by* A. Pellinen-Wannberg

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1. Thanks, correct, I will change this sentence as the referee suggested.

2. To make relevant and comparable head echo altitude distributions, radars with different VHF/UHF frequency should be used at the same time and location. This since the distributions alter in height at least due to season and latitude (there is a comprehensive study about this in press in Ann. Geophys. by Westman et al (including me)). EISCAT's two frequencies are 224 MHz and 930 MHz, ALTAIR's 160 MHz and 422 MHz and Arecibo's 430 MHz and 46.8 MHz (Zhou et al., 1995). These pairs should be compared by taking into account all instrument effects (the wavelenght to diameter quotient etc). The Arecibo lower frequency radar has so low frequency that trail echo effects might dominate over head echo. In addition, Arecibo's power density at meteor altitudes is at least one order of magnitude higher than for any other radar in the world. It is known that Arecibo observes submicron particles while EISCAT size limit is around

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100 um. It also looks like the scattering mechanisms for the head echoes are different for Arecibo and the rest of the HPLA radars, since Arecibo observes much lower velocities than the others. Thus the distributions as they are measured isolated should not be compared.

Interactive comment on Atmos. Chem. Phys. Discuss., 4, 21, 2004.