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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Diurnal and annual variations of meteor rates at the Arctic circle" *by* W. Singer et al.

Anonymous Referee #1

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General comments

The paper at the first time reports on the results from the near polar latitude and provides very important data to the better understanding of the annual, as well as diurnal variation of meteor rates. However, it would be profitable to compare these results with results from other latitudes (McKinley 1961, Schmuda 1998, Poole 1995, etc.) and also with meteor radiant distributions first determined by Hawkins (1956) and Davies and Gill (1960) up to the paper by Ceplecha et al. (1998) respectively.

Specific comments

1. Some discrepancy is seen in the statements: "The daylight meteor showers ... supposedly contribute considerably to the June maximum of meteor rates" (page 1) and "Yet, it means that the strong June maximum in meteor rates persists even without a

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significant contribution of these daylight showers" (p. 4).
The reason of the last conclusion, according to the authors, is in low altitude radiants of Arietids, Zeta Perseids and Beta Taurids, which should cause higher altitude trails at which the detection sensitivity of the radar is already strongly reduced.
The problem may be different: The mentioned showers do not belong to the very strong showers and hence their contribution to the hourly rates is really not substantial. However it is not clear why this showers meteor “should occure at altitudes above 100 km" (page 1) and why is here the sensitivity of the radar “strongly reduced" (page 4), as these shower meteors occure near the zenith, to which is the antenna beam axis oriented and hence it has a maximum sensitivity. An extended study of the detection of shower meteor echoes with variable directions of the antenna beam has been published by Simek and Hajduk (1981).

2. It seems that the observed June maximum meteor rate corresponds to the maximum of the meteor radiant’s distribution near the ecliptic plane.

References

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