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2008 Fall Meeting
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Cite abstracts as Author(s) (2008), Title, *Eos Trans. AGU,* *89*(53), Fall Meet. Suppl., Abstract xxxxx-xx

Your query was:
(meteor radar) and sc=sa

HR: 0800h
AN: SA41A-1552
TI: Seasonal Variation in Meteor Decay Time Profiles Measured by a Meteor Radar at King Sejong Station (62°S, 58°W), Antarctica
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AB: A VHF meteor radar at King Sejong Station (62°S, 58°W), Antarctica has been detecting echoes from more than 20,000 meteors per day since March 2007. Meteor echoes are decayed typically within seconds as meteor trail plasma spread away or are neutralized. Assuming that diffusion is the only process for decay of meteor echo signals, the atmospheric temperatures and pressures have been inferred from the measured meteor decay times at the peak meteor altitudes around 90 km. In this study, we analyze altitude profiles of meteor decay times in each month, which clearly show a maximum at 80 ~ 85 km. The maximum appears at higher altitude during austral summer than winter. The fast decay of meteor signals below the maximum cannot be explained by atmospheric diffusion which decreases with increasing atmospheric densities. We find that the measured meteor decay time profiles can be fitted with a loss rate profile, in addition to diffusion, with a peak altitude of 55 ~ 73 km and a peak rate of 4 ~ 15 sec^{-1}. The additional loss of meteor plasma may be due to electron absorption by icy particles in the mesosphere, but the estimated peak altitudes are much lower than the layers of NLC or PME. The estimated peak loss rates seem to be too large to be accounted by absorption by icy or dust particles. We will discuss other processes to explain the fast meteor times and their variation over season.
DE: 0341 Middle atmosphere: constituent transport and chemistry (3334)
SC: SPA-Aeronomy [SA]
MN: 2008 Fall Meeting

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