



Mesospheric Temperatures and Winds measured by a VHF Meteor Radar at King Sejong Station (62.2S, 58.8W), Antarctica

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A VHF radar at King Sejong Station, Antarctica has been measuring meteor echoes since March 2007. Temperatures near the mesopause are derived from meteor decay times with an improved method of selecting meteor echo samples, and compared with airglow temperatures simultaneously observed by a spectral airglow temperature imager (SATI). The temperatures derived from meteor decay times are mostly consistent with the rotational temperatures of SATI OH(6-2) and O₂(0-1) emissions from March through October. During southern summer when SATI cannot be operated due to brief night time, the meteor radar observation shows cold mesospheric temperatures, significantly lower than the CIRA86 model. The meteor radar observation also provides wind field information between 80 and 100 km of altitude. The measured meridional winds seem to follow the summer pole to winter pole circulation, and thus are correlated with the measured seasonal temperature change. However, the correlation between meridional winds and temperatures is not found in day by day base, as a previous study reported. Tidal characteristics of both zonal and meridional winds will also be compared with those of other Antarctic stations.