

Satellite Observations of Mesospheric Potassium

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It is well recognized that the meteoroid influx and its subsequent ablation during entry in the upper atmosphere is the source of metal atoms, which are routinely observed in the mesosphere by lidar measurements. Here we present limb scattering profiles from mesospheric potassium acquired using data from the OSIRIS optical spectrometer onboard the Odin satellite. Potassium number densities are retrieved using an optimal estimation method (OEM) applied to limb measurements of the atomic K resonance scattering lines near 770 nm. Direct comparison is made to sodium densities retrieved from simultaneous limb measurements of the mesospheric sodium layer. In order to remove strong background scattering in this region of the Potassium spectrum, we least square fit the spectral shape of the O₂ atmospheric band. This fit provides us with simultaneous retrievals of mesospheric temperature profiles.