

Climatology of the O(1S) and O(1D) emission rates from WINDII/UARS global measurements

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The Wind Imaging Interferometer (WINDII) on the Upper Atmospheric Research Satellite (UARS) has provided a large number of O(1S) green line (557.7 nm) and O(1D) red line (630.0 nm) emission rate profiles during 1991-1997 of unprecedented high quality. The daytime airglow emission is produced mainly by solar energy deposition, and vary according to changes of the solar zenith angle and solar irradiance. The nighttime airglow emission rates show strong latitudinal and local time dependences. Using both daytime and nighttime measurements the directly solar excited daytime emission rates can be removed, and the indirectly excited component is revealed. This study presents the seasonal and latitudinal variations of the indirect component of the two airglow emission rates, which may be due to tides, geomagnetic effects, and other physical and photochemical processes.