ROCKET MEASUREMENTS OF THE OI 557.7 NM AND O_2 (0,0) 761.9 NM EQUATORIAL EMISSIONS

by

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ABSTRACT

Airglow emissions are originated from the atmospheric photochemical processes, whose principal excitation is due to the absorbed solar energy during the daytime. However, at night, the source of photochemical excitation is removed, yet the existence of the nightglow shows that excited species persist. The subject of this work is to show the observed airglow profiles measured by two photometers on board a sounding rocket, Sonda III, launched in Natal (5.8°S, 35.2°W) on December 11, 1985, at 23:30 GMT (20:30 local time). The atomic oxygen OI 557.7nm, green line, and $O_2(b^1\Sigma_g^+ - X^3\Sigma_g^-)$ (0,0) Atmospheric Band have been measured. Both emissions come from 80 to 120 km altitudes. Taking in consideration of recent model calculation and using the present observed profiles numerical density of atomic oxygen are calculated. This is the first simultaneous measurement of the two emissions in the equatorial region.