

LOW LATITUDE F-REGION DYNAMICAL PROCESSES FROM
ATOMIC OXYGEN NIGHTGLOW EMISSIONS

by

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ABSTRACT

During recent years simultaneous observations of permitted and forbidden atomic oxygen airglow emissions have been used by several investigators to study nighttime dynamical processes in the low-latitude F-region ionospheric plasma. Simultaneous measurements of the emissions OI 135.6 nm, or OI 777.4 nm, and OI 630.0 nm, either from satellite or from ground-based instrumentation, can be used to infer the F-region peak electron density, $n_m(e)$, and height, $hmF2$. Results are presented showing the use of this remote sensing technique to study low-latitude ionospheric dynamical processes, including mapping of F-region plasma irregularities and transequatorial plasma bubbles, ionospheric effects due to thermospheric neutral winds and ionospheric response during magnetically disturbed conditions.