

SIMULTANEOUS OBSERVATIONS OF THE OI 5577 NM, NaD, O<sub>2</sub> (0,1) AND  
OH (9,4) NIGHTGLOW EMISSIONS AT 23°S

by

Paulo R. Fagundes, H. Takahashi,  
Nelson R. Teixeira and  
Y. Sahai

Instituto de Pesquisas Espaciais - INPE  
São José dos Campos, SP, Brazil

ABSTRACT

Simultaneous measurements of the OI 557.7 nm, NaD, O<sub>2</sub> (0,1) and OH (9,4) nightglow emissions from the mesopause region have been carried out at Cachoeira Paulista (22.7°S, 45.0°W) since 1983. Both the O<sub>2</sub> and OH measurements are used to study rotational temperature, T(O<sub>2</sub>) and T(OH), respectively. All these emissions involve atomic oxygen and originate from a narrow region of about 15-20 km width centered on 90 km. Therefore observations of temporal intensity and rotational temperature variations provide an important remote sensing technique to study the mesospheric photochemistry and dynamics. A cross-correlation analysis between intensity variations of different emissions and rotational temperatures has been carried out and salient features from this analysis are presented and discussed in this paper.