

Observations of gravity waves during daytime at F-region

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Ionospheric vertical sounding observations, using the Canadian Advanced Digital Ionosonde (CADI), are being carried out at Sao Jose dos Campos (23°S), Brazil, under the southern crest of the Equatorial Ionization Anomaly (EIA) region since August 2000. In this paper we present and discuss an important feature of observations carried out from September 2000 to August 2001. This is a period of high solar activity and observations during both quiet and disturbed geomagnetic conditions are presented. In this investigation strong wave-like structures propagating through the F-layer during the daytime, especially in summer, were observed. The observed wave structures during the daytime are consistent with the linear theory of gravity waves, having periods of about 30 to 90 minutes. The disturbed vertical variations on F-layer plasma density profiles caused by gravity waves were so intense that sometimes F3 layer were formed during the daytime. It appears that the observed oscillatory events during this period are possibly connected with the passage of cold front in South America.