Atmospheric gravity wave activity in the equatorial region observed by optical and radio-wave techniques

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Gravity wave signatures in the upper mesosphere to lower thermosphere (MLT) in the equatorial and low latitude regions have been investigated by airglow imaging technique from the south American sector at Cariri (7 S, 36 W). The wave characteristics, direction of propagation and frequency of occurrence, were analyzed in order to understand the wave generation and propagation schemes. Temperature variability in the stratosphere observed by CHAMP satellite GPS radio-occultation measurement was also used to find out a region of high gravity wave activity in the upper troposphere to stratosphere. It was found that at Cariri a major part of the observed waves (75 %) has characteristics of ducting and/or evanescent forms. Only 25 % of them showed the vertical propagation form from troposphere to mesosphere, and most of them came from an area of 250 km from the observation site. These results will be compared with the data from the western pacific region and presented.