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Dependence of F2 Layer Critical Frequency on Solar Activity Indices during the 23rd Solar Cycle over Low Latitude Station

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ABSTRACT

The aim of this paper is to investigate the dependence of the critical frequency of the F2 layer on solar indices viz solar radio flux 10.7 cm wavelength (F10.7) and smoothed twelve month running mean of the sunspot number (R12) during different solar activities of23rd solar cycle.fOF2 data required for this study were obtained from low latitude Australian station Darwin (12oS,1310N). Distinct features were observed during different solar activities and during each season. Sunspot number and solar radio flux agreed good during the year of moderate activity than during the year of high and low solar activity. The dependence of foF2 and other solar activity indices on each other were compared using correlation investigation.

The average correlation coefficients between foF2 and F10.7 obtained for high, moderate and low solar activity were -0.048,0.030 and 0.51 respectively; while correlation coefficients between foF2 and R12 obtained were -0.300,-0.504 and0.396 respectively.

Keywords: Low Latitude, foF2, Solar Cycle, Solar Indices.