



Comparative study of high and mid latitude foF2 during low solar activity

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Abstract

In the present investigation we have compared the climatology of mid and high latitude F-layer ionosphere. To accomplish this study we have taken a high and a mid latitude station Soyawa (69.0° S, 39.6° E) and Bhopal (23.257° N, 77.402° E) respectively. The investigation is carried out during the extremely low solar activity period 2007, the deep minimum of cycle 24. To compare the variability of ionosphere at both stations we use the ionosonde measurements and considered the critical frequency of F2 layer (foF2). The foF2 is an important and most widely used parameter for studying the ionospheric variability. The variability of ionosphere through foF2 is studied diurnally, monthly and seasonally. We also derived the correlation between the changes in foF2 observed at two stations. We derived the ratio of foF2 observed at both stations and studied its behavior. Finally, we compared the variability of foF2 at both station with their IRI derived values. From our analysis we found that the value of foF2 is highest during Jan., Feb., Nov., and Dec., at Bhopal while at Soyawa the highest values of foF2 are achieved during Apr., May, Sep., and Oct. The correlation coefficients calculated between the Bhopal foF2 and Soyawa foF2 are 0.48, 0.47 and 0.64 during equinox, winter and summer respectively.