

Low ionosphere response to the solar flares occurred during the peak of solar cycle 24 .

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In this study, we have two TEC methods, effect of solar flares occurred during the peak of solar cycle 24 using the GPS TEC signal recorded as low latitude Indian station, Bangalore. The X-ray flux (0.1-0.8nm) was obtained from GOES and EUV flux (26-34 nm) was obtained from the solar EUV monitor (SOHO). TEC first method described in Hazarika(2016). TEC second method explain in Liu et al.(2004). Correlations between Δ TEC, Δ X-ray flux and Δ EUV flux are the bases of comparison between two TEC methods, time rate change $dTEC/dt$ also calculated. Central meridian distance (CMD) effect is also analysis by finding correlation between Δ X-ray flux*cos(CMD) with Δ TEC. A notable correlation by first TEC method is obtain ($R^2=0.35$) between Δ TEC and Δ X-ray flux for X class solar flares, this correlation ($R^2=0.78$) increased with effect of CMD. When TEC second method is applied on X class solar flares the obtained correlation ($R^2=0.22$) is less compared to first method, further after including the CMD effect the correlation is still less than TEC first method ($R^2=0.74$).

For M class solar flares significant correlation is $R^2=0.63$ between Δ TEC and Δ X-ray flux by second TEC method and $R^2=0.16$ by TEC first method. In C class solar flares TEC second method, shows significant correlation $R^2=0.03$ than TEC first method $R^2=0.007$. The detailed results will discuss during the conference.

References

Hazarika et al. *J.Earth.syst.Sci.*
DOI10.1007/s12040-016-0726-6, 125,(2016).
Liu et al *J. Geophys. Res.*, 109, A01307,
doi:10.1029/2003JA009931(2004).

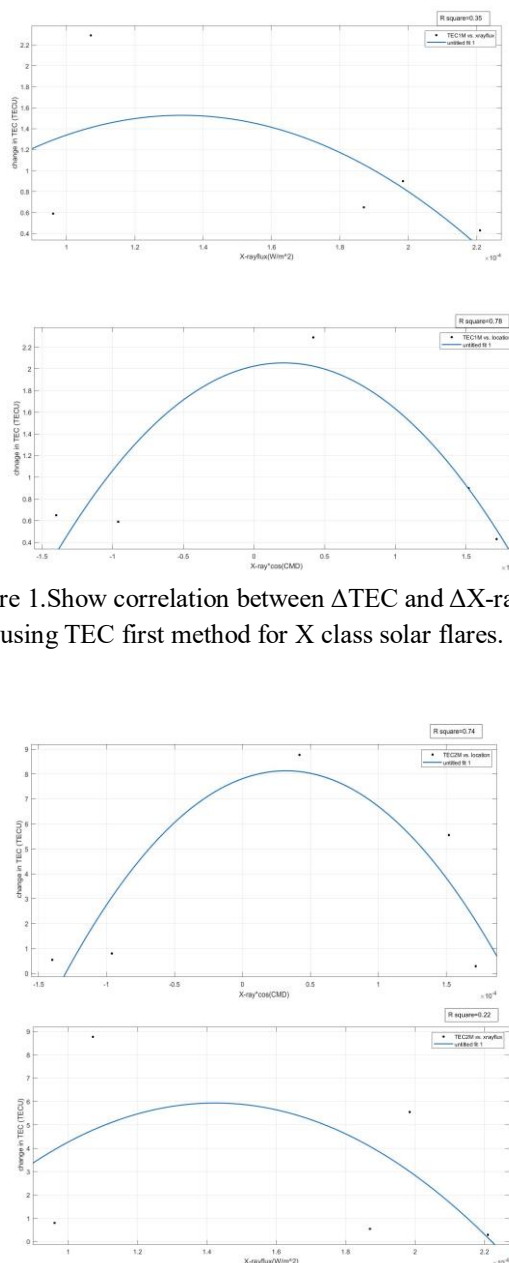


Figure 1. Show correlation between Δ TEC and Δ X-ray flux using TEC first method for X class solar flares.

Figure 2. Show correlation between Δ TEC and Δ X-ray flux using TEC second method for X class solar flares.

Note: Abstract should be in (full) double-columned one page.