

Project Title:

Ionospheric response to short term variations in the solar flux

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Project Information:

The proposed comparison of the electron density data with solar soft x-ray fluxes will provide quantitative measures of the dependence of the electron density, TEC and hmF2 on the solar measurements for a variety of time scales. While the solar flux is responsible for the ionization rate, it is also responsible for changes in other parameters which affect the observed electron density data. More specifically, while the ion production rates, neutral densities and winds all depend on the solar fluxes, the neutral parameters and ion production have different time dependencies on the solar flux. Ions are produced by the current solar flux. In contrast, there is a time lag of ~ 1 day between changes in the solar fluxes and neutral densities at F region altitudes. Analysis of the time dependencies is needed for the future use of solar soft x-ray fluxes. This information is needed for incorporating short wavelength solar flux measurements, rather than F10.7, into model calculations.

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Summary: no summary**Citation:** Wang, X.; Eastes, R.; Weichecki Vergara, S.; Bailey, S.; Valladares, C.; Woods, T.; (2006), On the short-term relationship between solar soft X-ray irradiances and equatorial total electron content (TEC), Journal of Geophysical Research: Space Physics, Volume 111, Issue A10, CiteID A10S15, doi: 10.1029/2005JA011488

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