

## The relationship between TIMED/GUVI and Global GPS-TEC measurements in the equatorial ionization anomaly region

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The Global Ultraviolet Imager (GUVI) onboard NASA TIMED spacecraft is currently mapping ionospheric radiation at six different wavelengths. The GUVI image from OI 135.6 nm emission shows clear signatures of the equatorial ionization anomaly (EIA). To analyze the relationship between the intensity of the ion emission and total electron content (TEC), the GUVI observed global EIA structures are compared with the Global Ionospheric TEC map derived from global GPS network during 2002-2003. We compare the peak density/intensity and location of the EIA peak observed by both GUVI radiance data and GPS-TEC. Results show that the GUVI radiances have linear relationship with the GPS-TEC but the slope of the linear relationship shows seasonal dependence. By determining the linear relationship between the GUVI radiance and GPS-TEC, the GUVI image provides additional information of the intensity/peak density and the location of the EIA peak, which can be the implement in constructing the global ionospheric TEC map especially at the location where no ground based GPS receiver is available.