GUVI Observations of Thermosphere/Ionosphere Coupling

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The Global Ultraviolet Imager (GUVI) on the NASA TIMED satellite has established a unique and valuable record of the response of the ionosphere and thermosphere to changes in the solar cycle and the geospace environment. The GUVI data are available on the web site http://guvi.jhuapl.edu . We are working on developing, testing, and documenting new products. The GUVI instrument provides unique data on the composition and temperature of the dayside thermosphere and the nightside F-region ionosphere. In this paper we will present results from our study of special periods including the October and November 2003 superstorms, the November 2004 superstorm and compare these to the response during HILDCAA events. Because TIMED has been in continuous operation for 4 years and repeats its local solar time coverage from year to year (the local time of the ascending node covers 24 hours in 120 days), we can compare the behavior as a function of solar cycle and to impulsive events. We hope that TIMED will continue to be funded for operation through solar minimum in the hope that we will be able to observe the quiescent state of the thermosphere/ionosphere system.