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Energy contributions to the TSI from the from the VUV (0.1–190 nm) for the impulsive and gradual phases of the solar flare on October 28, 2003

ABSTRACT

Variations in the Total Solar Irradiance (TSI) as measured by the Total Irradiance Monitor (TIM) on the Solar Radiation and Climate Experiment (SORCE) change by only parts per million [Woods et al., 2006]. When analyzing the solar irradiance changes in the VUV (0.1–190 nm) wavelengths the variations can be up to many magnitudes greater. With the help of the Flare Irradiance Spectral Model (FISM), which is based on data from the SEE instrument onboard the Thermosphere Ionosphere Mesosphere Energetics and Dynamics (TIMED) satellite; the variations can be analyzed at individual wavelengths. The different wavelengths give insight to the solar activity in different regions of the solar atmosphere. This data can also be decomposed into the two phases of a solar flare (Impulsive and Gradual). Furthermore, VUV estimations from FISM can be compared to the TSI measurements in order to obtain the fractional spectral contributions of the total energy released during the solar flare on October 28, 2003 in both the impulsive and gradual phases.