

Project Details

ROSES ID: NRA-00-OSS-01

Selection Year: 2001

Program Element: Independent Investigation: LWS

Project Title:

Characterization of the Time Series Behavior of Solar EUV Irradiances

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Summary:

We propose to study the solar EUV irradiance time series derived from the measurements of two instruments: the Solar EUV Monitor (SEM) and the EUV imaging Telescope (EIT) both aboard the Solar Heliospheric Observatory (SOHO). The SEM, a component of the Charge, Element, and Isotope Analysis System (CELIAS) experiment (Hovestadt, 1995), measures the EUV irradiance in two wavelength bands, 0.1-50 nm and 26-34 nm. After responsivity and its degradation have been accounted for, a standard spectrum was used to produce photon fluxes. The EIT images the sun at 4 distinct EUV wavelength bands centered on 17.1 nm, 19.5 nm, 28.4 nm, and 30.4 nm onto a 1K x 1K CCD (Delaboudiniere, 1995). After flat-fielding and other responsivity corrections, these images have been integrated to form irradiances. Further processing using emission measure modeling have yielded pure EUV line emission time series. The proposed research will be to analyze these time series along with a set of known EUV proxies (e.g F10.7 radio flux or the Mg II core-to-wing ratio) and other solar measurements (e.g. GOES x-ray flux). These analyses are expected to result in enhanced understanding of both the EUV flux which originates in the solar corona and transition region and of the behavior of instrument and algorithms used to produce these fluxes.

Publication References:

Summary: no summary

Reference: Floyd, Linton; Newmark, Jeff; Cook, John; Herring, Lynn; McMullin, Don; (2005), Solar EUV and UV spectral irradiances and solar indices, Journal of Atmospheric and Solar-Terrestrial Physics, Volume 67, Issue 1-2, p. 3-15, doi: 10.1016/j.jastp.2004.07.013