

JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 106, NO. A12, PAGES 29,963–29,968, 2001

Space weather observations using the SOHO CELIAS complement of instruments

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## **Abstract**

The Solar and Heliospheric Observatory (SOHO) spacecraft located at L1 is well outside the Earth's magnetosphere and has been observing the Sun continuously since December 1995, except for relatively brief periods due to spacecraft operational interruptions. While a variety of instruments on the SOHO spacecraft investigate the solar properties important to an improved understanding of the Sun and its effect on space weather, the present work is limited to the observations provided by the Charge, Element, and Isotope Analysis System (CELIAS) proton monitor (PM) and Solar Extreme Ultraviolet Monitor (SEM) instruments and their relationship to other space weather observations. The CELIAS observations consist of particle and EUV/soft X-ray solar flux measurements. A brief description of the CELIAS instrumentation and examples of the precursor information signaling the possibility of coronal mass ejection events observed by the CELIAS/SEM are presented. In addition, the entire SEM database since commissioning is presented on both expanded and compressed timescales in order to provide both the long-term weather trends and short-term storm data. The SEM data presented are full-disk observations and have a 15 s sampling rate. © 2001 American Geophysical Union