

## **HIGH FREQUENCY DECIMETRIC PULSATIONS AND ASSOCIATED HARD X-RAY EMISSION IN THE 5 AUGUST 2003 (1249 UT) FLARE**

H. S. Sawant (1), R. A. Sych (1), S. R. Kane (2), F. C. F. Fernandes (1),  
M. C. Andrade (1), M. Karlický (3), H. Meszarosova (3)

(1) Instituto Nacional de Pesquisas Espaciais, São José dos Campos, SP, Brazil

(2) Space Sciences Laboratory, University of California, Berkeley, USA

(3) Ondrejov Observatory, Ondrejov, Czech Republic

[sawant@das.inpe.br](mailto:sawant@das.inpe.br)/Fax: 55 12 3945-6811

The flare on 5 August 2003 (1243-1251 UT) was observed at a variety of wavelengths. The H-alpha flare (importance SN) was located at S16, E33 in the active region NOAA 10424. The soft X-ray flare observed by GOES has been classified as M1.7. The spatial and spectral characteristics of the hard X-ray source were observed by the imaging spectrometer on the RHESSI satellite. In addition, white light observations at 1600Å and EUV observations at 171Å (TRACE) and 195Å (EIT) are also available. Ondrejov and BSS radio spectroscopes, operating in the frequency ranges of 800-2000 MHz and 1750 - 2200 MHz respectively, observed four groups of dm pulsations which covered the entire frequency range and lasted for 30 to 50 sec. Wavelet and Fourier analysis have shown that these groups of pulsations are composed of broad band 0.5 GHz subsecond pulses and narrow band 0.12 MHz millisecond spikes. Periodicity of these groups of pulsations is about 4 sec and with 2 and 3 harmonics. The periodicity of the broad band component is also same. Early in the flare RHESSI observed a double hard X-ray source which later developed into a single source. The fluctuations in the hard X-ray emission are similar to those at decimetric wavelengths. Big and small loops are seen in TRACE data and their foot points are nearly coincident with the appropriate polarity of magnetic field as seen from MDI maps of the associated active region. An analysis of these multi-wavelength observations of the 5 August 2003 flare will be presented and their implications regarding the acceleration and escape of energetic electrons will be briefly discussed.