

# **What causes the increasing submillimeter spectral component of solar flares?**

**Adriana V. R. Silva**(1), J. E. R. Costa(2), C. G. Gimenez de Castro(1), J.-P. Raulin(1), P. Kaufmann(1), G. H. Share(3), R. J. Murphy(3)

(1) CRAAM/Mackenzie University, (2) CRAAM/INPE, (3) E. O. Hulburt Center for Space Research, NRL

The flare on November 2nd, 2003, at 17:17 UT, occurred on the very active region 486 located at S14W56. This flare, classified as a X8.3 and 2B event, is one of the few events detected simultaneously by RHESSI and the Solar Submillimeter Telescope (SST) at 212 and 405 GHz. Low energy X-ray images show source displacement very early in the flare, whereas the static higher energy sources are located at the footpoints of magnetic loops seen in UV images. The centroid position of the submm radiation is compared to the X-rays sources, as well as the time profiles at different energy bands. The main feature of this flare is that its submm spectra are distinct from the usual microwave spectra, showing an increase with frequency. Several possibilities to explain this second spectral component with increasing radio spectra are discussed, such as free-free emission, gyrosynchrotron radiation from accelerated electrons, and finally synchrotron emission from the positrons produced by the interactions of accelerated particles in this flare.