



Strahl variations with the Solar Wind properties

T. Nieves-Chinchilla (1), A. F.- Viñas (1), M. L. Goldstein (1), and C. Gurgiolo (2)

(1) Laboratory for Geospace Physics, NASA/GSFC, Heliosphysics Science Division - Code 673, Greenbelt, MD 20771, U.S.A., 301-286-8681, teresa.nieves-chinchil-1@nasa.gov, adolfo.vinas@gsfc.nasa.gov, melvyn.l.goldstein@nasa.gov; , (2) Bitterroot Basic Research, Hamilton, MT 59840, U.S.A., 406-363-6163, chris@gurgiolo.com

In this work we make use of the high angular, energy and time resolution and three-dimensional data of the Cluster/PEACE electron spectrometer to identify and analyze the strahl component in the ambient solar wind since the launch of Cluster. The excursion of Cluster into the solar wind provides the opportunity to analyze this component of the electron velocity distribution function in a wide range of solar wind velocities and densities. The moment density and fluid velocity have been computed by spherical harmonic spectral model method. The analysis shows a correlation of the strahl density with the solar wind velocity and the time variation of the strahl density with solar cycle. This result agrees with the postulate that coronal holes are the source of this population. These preliminary results have been extended to include half solar cycle data (e.g., from 2001) to provide continuous results from solar maximum to minimum.