Geophysical Research Abstracts
Vol. 14, EGU2012-5776-3, 2012
EGU General Assembly 2012

Energetic Neutral Atoms of Heliospheric Origin Observed by SOHO/CELIAS/HSTOF

R. Kallenbach (1,2) and M. Hilchenbach (1)

(1) Max Planck Institute for Solar System Research, Max-Planck-Str. 2, 37191 Katlenburg-Lindau, Germany, (2) Physikalisches Institut, University of Bern, Sidlerstr. 5, 3012 Bern, Switzerland

Data from the CELIAS/HSTOF sensor onboard SOHO indicate an enhancement of the H and the He neutral atom flux at energies of 58-88 keV/amu and of 28-58 keV/amu, respectively, at heliolongitudes between 80° and 100° near the heliographic equator. An all-sky image of neutral atoms at energies larger than 6 keV recorded by the INCA instrument onboard Cassini revealed that the heliosheath contains a broad belt of energetic protons with a non-thermal pressure comparable to that of the local interstellar magnetic field. The belt is centered at about 260° ecliptic longitude extending from north to south, loops back through at about 80° ecliptic longitude, and appears to be ordered by the local interstellar magnetic field. We discuss explanations for the apparent differences in the observations of SOHO/CELIAS/HSTOF and of Cassini/INCA in the context of theoretical models on the asymmetric shape of the heliosphere. Furthermore, we discuss the source of the Anomalous Component of Cosmic Rays on the basis of combined data from the Voyager, IBEX, Cassini, and SOHO missions.