Geophysical Research Abstracts
Vol. 15, EGU2013-4019, 2013
EGU General Assembly 2013

Energetic Neutral Hydrogen Atoms from the Heliosphere Measured with ASPERA-3 and ASPERA-4

André Galli (1), Peter Wurz (1), Peter Kollmann (2), Pontus C. Brandt (2), Maciej Bzowski (3), Justyna M. Sokół (3), Marzena A. Kubiak (3), Alexander Grigoriev (4), and Stas Barabash (5)

(1) Physics Institute, University of Bern, Bern, 3012, Switzerland, (2) The Johns Hopkins University, Applied Physics Laboratory, Laurel, 20723, USA, (3) Space Research Centre, Polish Academy of Sciences, Warsaw, 00-716, Poland, (4) Space Research Institute (IKI), Moscow 117997, Russia, (5) The Swedish Institute of Space Physics, Kiruna SE-981 28, Sweden

We re-analyze a residual signal of Energetic Neutral Atoms (ENAs) in the 0.4-5.0 keV range across the sky obtained from the Neutral Particle Detector of the ASPERA-3&4 experiments on board the Mars and Venus Express satellites. Due to improved knowledge of sensor characteristics and exclusion of datasets affected by instrument effects, the typical intensity of the ENA signal obtained by ASPERA-3 is an order of magnitude lower than in earlier reports. The discrepancy between ASPERA-3 and ASPERA-4 no longer exists. We now also correct the non-planetary signal for Compton-Getting and for ionization loss processes under the assumption of a heliospheric origin of the ENAs. We find spectral shapes and intensities (1×10^3 cm^{-2} sr^{-1} s^{-1}) consistent with those measured by the Interstellar Boundary Explorer (IBEX).

The principal advantage of ASPERA-3&4 with respect to the IBEX sensors is the higher spectral resolution. In this presentation we discuss the physical significance of the spectral shapes and their potential variation across the sky. At present, these observations are the only independent confirmation of the heliospheric ENAs measured with IBEX in this energy range. The ASPERA-3&4 measurements also allow to check for a temporal variation of the heliospheric signal as they were obtained between 2003 and 2007, whereas IBEX is operational since the end of 2008.