Evolution of Large-scale Structures in the Energetic Neutral Atom Sky Maps in Energy and Solar Activity

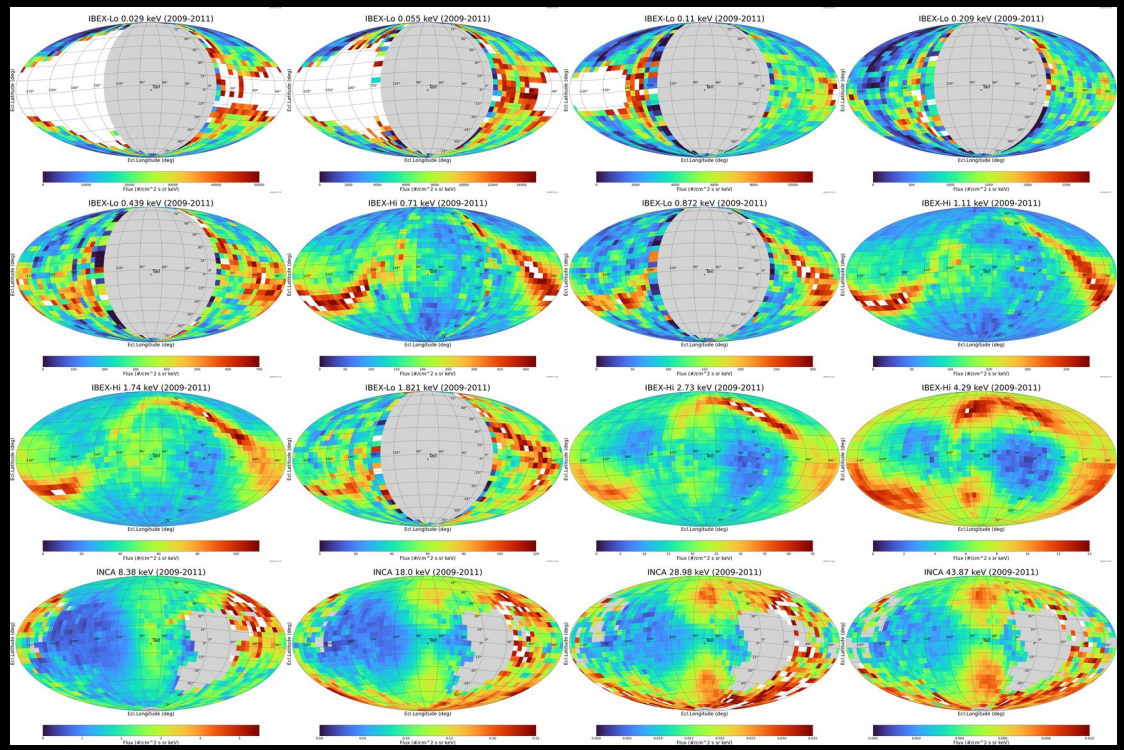
Sky maps of heliospheric energetic neutral atoms (ENAs) from three instruments, IBEX-Lo, IBEX-Hi, and INCA have been studied for the evolution of large-scale ENA structures in energy and solar activity.

Although different vantage points (IBEX and Cassini-Huygens), different observation techniques across the instruments, and only partially overlapping observation periods, IBEX-Lo, IBEX-Hi, and INCA show consistent evaluation of heliospheric ENA distribution in the sky. The similarities include

- a presence of ENA Ribbon from energies as low as 0.2 keV up to 2.7 keV,
- a change in the ENA enhancement in the heliotail from a single center lobe (0.7 - 1.7 keV) to two high-latitude lobes from 2.7 keV to 44 keV.

This study sheds light on expectations about ENA sky map structures across a wide energy range from the IMAP mission.

// Continuous presence of high-latitude heliotail lobes at high energies



ENA sky maps from 0.03 keV up to 44 keV averaged over years of low solar activity (2009-2011) centered in the Tail direction of the heliosphere show continuous presence of ENA intensity enhancement at high latitudes from 2.7 keV up to 44 keV.

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