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Global Anisotropies in TeV Cosmic Rays Related to the Sun's Local Galactic Environment from IBEX

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The Interstellar Boundary Explorer (IBEX) observes enhanced Energetic Neutral Atom emission from a narrow "ribbon" centered on the local interstellar medium (LISM) magnetic field direction. IBEX has improved knowledge of the local interstellar velocity based on interstellar atom measurements and provides global views of the structure of the evolving heliosphere.
These determinations are consistent with the interstellar modulation of high energy (TeV) cosmic rays and diffusive propagation from supernova sources revealed in global anisotropy maps of ground-based high-energy cosmic-ray instruments (Milagro, Asγ and IceCube). We discuss recent observations of the global heliosphere, the ribbon, and the properties of the local interstellar medium, which have implications for observed global anisotropies in TeV cosmic rays.

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