



## **Interstellar Boundary Explorer (IBEX) Observations of Our Evolving Heliosphere**

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### Abstract

Over the past nine years, the Interstellar Boundary Explorer (IBEX) has made nearly continuous observations of Energetic Neutral Atoms (ENAs) from  $\sim 0.2$  to 6 keV, coming in from the outer heliosphere. These observations have reshaped our fundamental understanding of the outer heliosphere and its interaction with the local interstellar medium. In this talk we summarize these observations and how they have evolved over time. For most of this interval there has been an overall reduction in the ENA fluxes at all energies, reflecting a generally deflating heliosphere. The Ribbon, which is likely generated beyond the heliopause, in the outer heliosheath, has evolved differently from the globally distributed flux (GDF), which is primarily produced in the inner heliosheath, between the termination shock and heliopause. Most recently, IBEX has observed the initial response of the heliosphere to a persistent increase in the solar wind dynamic pressure that was observed at 1 AU in the second half of 2014. This enhanced pressure has arrived at the outer heliosphere as indicated by a strong enhancement in the ENAs returning from the closest regions of the inner heliosheath, and is re-expanding our heliosphere, with the termination shock and heliopause already driven outward in their locations closest to the sun. The coming years should see significant changes in anomalous cosmic rays, galactic cosmic radiation, and the filtration of interstellar neutral atoms into the inner heliosphere.