# Abstract: NeSA202100oral-09: Strength of the Termination Shock Inferred from the Globally Distributed Energetic Neutral Atom Flux from IBEX

**Time: 2:36-2:48 PM**

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In this study, we estimate the heliospheric termination shock (HTS) compression ratio at multiple directions in the sky from a quantitative comparison of the observed and simulated inner heliosheath (IHS) energetic neutral atom (ENA) fluxes. We use a 3D steady-state simulation of the heliosphere to simulate the ENA fluxes by post-processing the MHD plasma using a multi-Maxwellian distribution for protons in the IHS. The simulated ENA fluxes are compared with time-exposure averaged IBEX-Hi data for the first three years of the mission. The quantitative comparison is performed by calculating the fractional difference in the spectral slope between the observed and simulated ENA fluxes for a range of compression ratios, where the simulated ENA spectrum is varied as a function of downstream PUI temperature as a function of compression ratio. The estimated compression ratio in a particular direction is determined by the minimum value of the fractional difference in spectral slope. Our study shows that the compression ratio estimated by this method is in close agreement with the large-scale compression ratio observed by Voyager 2 in its travel direction. Also, the compression ratio in other directions near the ecliptic plane is similar to the compression ratio at the Voyager 2 direction. The weakest shock compression is found to be on the port side of the heliosphere at direction (27◦, 15◦ 25). This is the first study to estimate the HTS compression ratio at multiple directions in the sky from IBEX data.

**Keywords:** Termination Shock, Compression ratio — Energetic Neutral Atom — Heliosphere — Plasma