Contribution ID: **17** Type: **Oral**

Characterizing the streamer belt with Metis and EUI instruments on Solar Orbiter

Friday 26 January 2024 11:30 (15 minutes)

We have analyzed combined coronal observations acquired by Metis and the Extreme Ultraviolet Imager (EUI) on Solar Orbiter, to infer typical physical parameters of the streamer belt, fundamental to better characterize the physical structure and properties of the slow solar-wind sources and to constrain global coronal models. This work aims to derive a set of physical parameters of streamers and nearby regions by using observations in March 2021, almost at the minimum of solar activity.
In particular, we use the Full Sun Imager (FSI) channel of EUI in coronagraphic mode, which allows stray-light free off-limb observations.
First, we superimpose the EUV images by EUI of the disk and of the inner corona in Fe ix/Fe x 17.4 nm with the images by Metis of the outer corona in HI Lya 121.6 nm and in visible light.
A comparison of the same radial structures is performed. Then, we compute the electron density from the polarized brightness measured by Metis and, using the emission measure analysis, an estimate of the electron temperature is obtained and discussed in the overlapping region between the fields of view of the two instruments (at 4-4.5 Rsun) as a function of the latitude across the streamer belt.
Moreover, through the Doppler dimming technique, the outflow velocity of the protons is derived from 4 to 6 Rsun in the regions nearby the streamers.

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Session Classification: Session 8