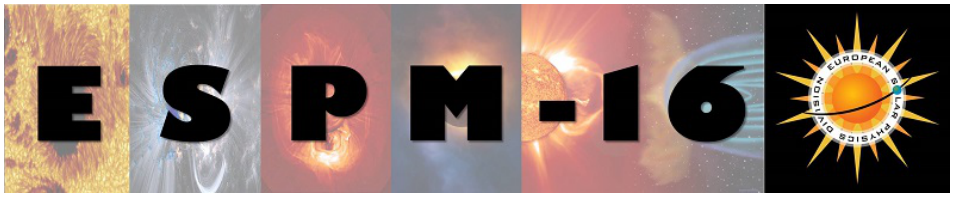

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Investigating Dynamics of Coronal Hole Jets

Wednesday, 8 September 2021 16:43 (13 minutes)

The solar wind is a stream of charged particles originating from the Sun and interacting‘ with Earth’s magnetic field. Any alterations in the solar wind affects Earth’s magnetic field and can cause geomagnetic storms. Thus, understanding the formation and acceleration of the solar wind is critical towards investigating the Sun-Earth connection and predicting space weather.

The solar chromosphere is a dynamic layer is filled with many features that vary in time and space. In this project we focus on plasma dynamics of jets observed along the coronal hole boundary. The interaction of these events with the neighboring plasma can influence solar wind.

We aim to address the questions:

A.1) What physical processes create upward propagating jets on coronal hole boundaries?

A.2) What physical processes are responsible for the acceleration and creation of jet turbulence?

We present a statistical study of jets formed along coronal hole boundaries. Jets can transfer mass and energy along open magnetic field lines and reach the solar wind. We investigate oscillations of different motions using CRISP (SST). We classify these oscillations as high-frequency (>5 mHz) and low frequency (<5 mHz) regions, and then investigate different waves that flow around the jets. We show whether such jets are observed in IRIS and SDO channels in higher solar atmospheric regions. We show how the morphology of the jets vary across the solar atmosphere and in future work, we will show how plasma properties change, to quantify their role as mass and energy channels that could accelerate solar wind.

Student poster?

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