

**Space Science Seminar
Tuesday, 2021 November 2
10:30 a.m.
NASA/MSFC TEAMS**

Microstreams, Switchbacks, and Coronal Jets

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Host: Dr. Alphonse Sterling (Sponsored by NASA/MSFC/ST13)

When Ulysses passed over solar polar regions during periods of low solar activity, it observed consistently fast solar wind from polar coronal holes modulated by oscillations of about +/- 20 km/s called microstreams. Neugebauer (2012) concluded that the velocity peaks in the microstreams were caused by coronal x-ray jets. In 2020, Sterling and Moore suggested that such jets could be the source of magnetic switchbacks (folds in the interplanetary magnetic field). Such structures were observed by Ulysses in the polar solar wind and the Parker Solar Probe observed huge numbers of them close to the Sun. In this work we find that microstream peaks correspond to patches (or series) of closely spaced switchbacks while the microstream velocity dips correlate with periods of quiet (switchback-free) solar wind. Thus, a connection between microstream peaks and coronal jets could be related to a series of repeating x-ray jets.

[The speaker was the 2010 recipient of the of the American Astronomical Society Solar Physics Division's G. E. Hale Prize, the most prestigious solar-physics prize in the US, "for her seminal contributions to the discovery of the solar wind and her extensive and ongoing contributions to solar-heliospheric physics."]