

Heliospheric Magnetic Field: The Bashful Ballerina dancing in Waltz Tempo

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The recent developments in the long-term observations of the heliospheric magnetic field (HMF) observed at 1 AU have shown that the HMF sector coming from the northern solar hemisphere systematically dominates in the late declining to minimum phase of the solar cycle. This leads to a persistent southward shift or coning of the heliospheric current sheet at these times that can be picturesquely described by the concept of the Bashful Ballerina. This result has recently been verified by direct measurements of the solar magnetic field. The average field intensity is smaller and the corresponding area is larger in the northern hemisphere. Also, ground-based observations of the HMF sector structure extend these results to 1920s. Moreover, it has been shown that the global HMF has persistent active longitudes whose dominance depicts an oscillation with a period of about 3.2 years. Accordingly, the Bashful Ballerina takes three such steps per activity cycle, thus dancing in waltz tempo. We discuss the implications of this behaviour.