



Properties of the very slow solar wind

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Solar wind plasma data taken between 0.29-0.9 AU by the twin HELIOS spacecraft reveals the frequent occurrence of very low radial wind speeds ($200 < V < 300$ km/s), very rarely measured near 1 AU.

By analysing the occurrence as a function of heliocentric distance and time, we show that it is primarily measured inside 0.5 AU and mostly during solar maximum, although some very slow wind events were also measured during short periods at solar minimum. We show that the very slow wind is frequently measured during the passage of the solar wind plasma sheet usually detected in the vicinity of the heliospheric current sheet. By tracing these slow events back to the Sun and using a potential field reconstruction of the coronal magnetic field based on magnetograms taken by Mount Wilson Observatory, we compare the speed of the very slow wind with the geometry of the magnetic flux tube at its source.

We discuss theoretical mechanisms that could explain the abundance and origin of this very slow wind, we also stress the importance of these findings for our understanding of solar wind structure.

This study was carried out as part of the HELCATS FP7 project.