



Analysis of the variability of the slow solar wind from a highly tilted neutral line: implications for the origin of the slow solar wind

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The continual emergence of small transient structures from helmet streamers is thought to constitute one of the sources of the Slow Solar Wind (SSW) and an important contribution to its variability. In Sanchez-Diaz et al. (2017), we found strong suggestion that these transients are continually released through magnetic reconnection above the helmet streamers. Determining the periodicity of release of these small transients, their size and their morphology is key to establishing whether they constitute the main source of the SSW or only a small contribution to its total mass flux. This type of analysis is not possible for small transients released from an East-West directed neutral line with images taken from the ecliptic plane because the white-light scattered by different transients is integrated along a same line of sight. We take advantage of a highly tilted neutral line that passed through the STEREO SECCHI-A field of view during Carrington rotation 2137, to separate individual transients in the images and characterize their rate of release, their size and their morphology in 3-D at different heliocentric distances. This study reveals for the first time that the periodic release of transients occurs over an extended area of the streamer simultaneously. This study allows to better recognize these small transients in-situ, in order to characterize their plasma and magnetic field properties.

This work was made with the funding from the HELCATS project under the FP7 EU contract number 606692.