



Observational Evidence for the Associated Formation of Blobs and Raining Inflows in the Solar Corona

Eduardo Sanchez-Diaz (1,2), Alexis P. Rouillard (1,2), Jackie A. Davies (3), Benoit Lavraud (1,2), Neil R. Sheeley (4), Rui F. Pinto (1,2), Emilia Kilpua (5), Illya Plotnikov (1,2), Vincent Genot (1,2)

(1) Université Paul Sabatier, IRAP, Toulouse, France (eduardo.sanchez-diaz@irap.omp.eu), (2) Centre National de la Recherche Scientifique, UMR 5277, Toulouse, France, (3) RAL Space, STFC-Rutherford Appleton Laboratory, Harwell Campus, UK, (4) Space Science Division, Naval Research Laboratory, Washington, DC, USA, (5) Space Physics Department, University of Helsinki, Finland

The origin of the Slow Solar Wind (SSW) is still a topic of much debate. The continual emergence of small transient structures from helmet streamers is thought to constitute an important source of the SSW. Determining the height at which these transients are released is an important factor in determining the conditions under which the SSW forms. To this end, we have carried out a multipoint analysis of small transient structures released from a north–south tilted helmet streamer into the slow solar wind over a broad range of position angles during Carrington Rotation 2137. During this period of time, the catalogue in Sheeley & Wang (2014) reported a big number of transient structures collapsing back toward the Sun, referred to as “raining inflows”. Combining the remote-sensing observations taken by the Solar-Terrestrial RELations Observatory (STEREO) mission with coronagraphic observations from the Solar and Heliospheric Observatory (SOHO) spacecraft, we show that the release of such small transient structures (often called blobs), which subsequently move away from the Sun, is associated with the concomitant formation of raining inflows. This is the first direct association between outflowing blobs and raining inflows, which locates the formation of blobs above the helmet streamers and gives strong support that the blobs are released by magnetic reconnection.

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