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# Partial eruptions by breakout reconnection

Knowing how much of a particular magnetic system will erupt is, naturally, fundamental to predicting a CME event and the hazard it presents. Usually, we speak about full eruptions when most of the magnetic structure escapes from the Sun, producing a CME; and about failed/confined eruptions, when the eruptive process, including flares and filament activation, is halted in the low corona, with no magnetic structure escaping the Sun. However, there is a continuous transition between both cases, depending on the portion of the stressed magnetic system that is expelled. Commonly, these eruptions are denoted as partial filament eruptions and are the most frequently observed.

In this work we present, for the first time, three events of partial filament eruptions that suffer the splitting after the eruption started and produced a CME, instead of a jet outflow. The events were simultaneously observed by STEREO-A, SDO, and Solar Orbiter. Taking advantage of the multiple viewpoints we track the real three-dimentional evolution of different features and segments of the filament material. We model the background coronal magnetic field, showing an interaction between the filament and multipolar structures. We used the CORHEL-CME model to simulate the event and provide an explanation of the physical process behind this kind of partial eruptions. We conclude that the breakout reconnection within the null point of these structures allows the stressed magnetic system to partially erupt and to reconnect with the background field in order to produce a CME structure.

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