Halo Coronal Mass Ejections: Comparing Observations and Models

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Since 1996, the SOHO LASCO coronagraphs have detected “halo” CMEs that appear to be directed toward Earth, but information about the size and speed of these events seen face-on has been limited. From a single vantage point along the Sun-Earth line, the primary limitation has been ambiguity in fitting the cone model (or other forward-modeling techniques, e.g., Thernisian et al., 2006). But in the past few years, the STEREO mission has provided a view of Earth-directed events from the side. These events offer the opportunity to compare measurements (width and speed) of halo CMEs observed by STEREO with models that derive halo CME properties. We report here results of such a comparison on a large sample of LASCO CMEs in the STEREO era.