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Observational evidence of a CME distortion directly attributable to a structured solar wind

Neel P. Savani (1), M. J. Owens (1), A. P. Rouillard (2), R. J. Forsyth (1), and J.A. Davies (3)

(1) Imperial College London, Space and Atmospheric Physics, United Kingdom (neel.savani02@imperial.ac.uk), (2) Naval Research Laboratory, USA, (3) Space Science and Technology Department, Rutherford Appleton Laboratory, Chilton, UK.

We present observational evidence of the near-Sun distortion of a coronal mass ejection (CME) by the ambient solar wind into a concave-outward structure. On November 14 2007, a CME was observed by coronagraphs onboard the STEREO-B spacecraft, possessing a circular cross-section. Subsequently the CME passed through the field of view of the STEREO-B Heliospheric Imagers where it was observed to distort into an increasingly concave-outward structure. The CME observations are compared to an analytical flux rope model constrained by a MHD solar wind solution. The resultant bimodal speed profile is used to kinematically distort a circular structure that replicates the initial topology of the CME. The CME topology is found to change rapidly over a relatively short distance. This indicates an approximate radial distance in the heliosphere where the solar wind forces begin to dominate over the magnetic forces of the CME influencing the topology of the CME.