

Supporting Information for “CME Magnetic Structure and IMF Preconditioning Affecting SEP Transport”

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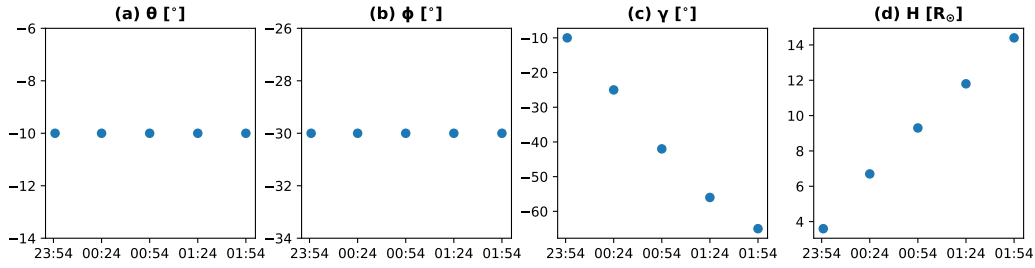
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Contents of this file

1. Figures S1 to S4
2. Captions for Movies S1 to S3

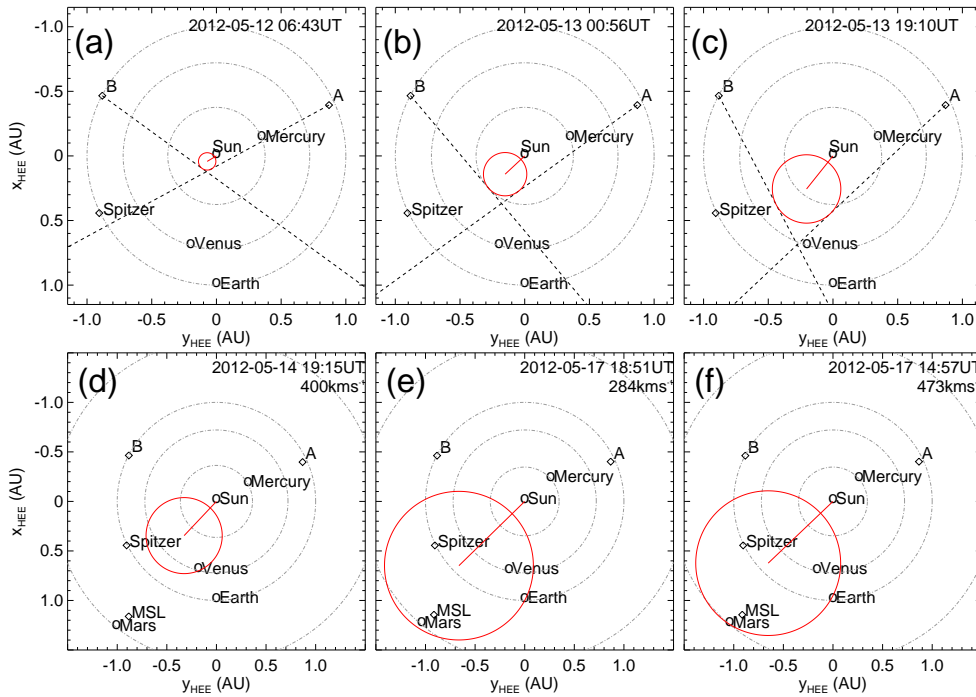
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Figure S1



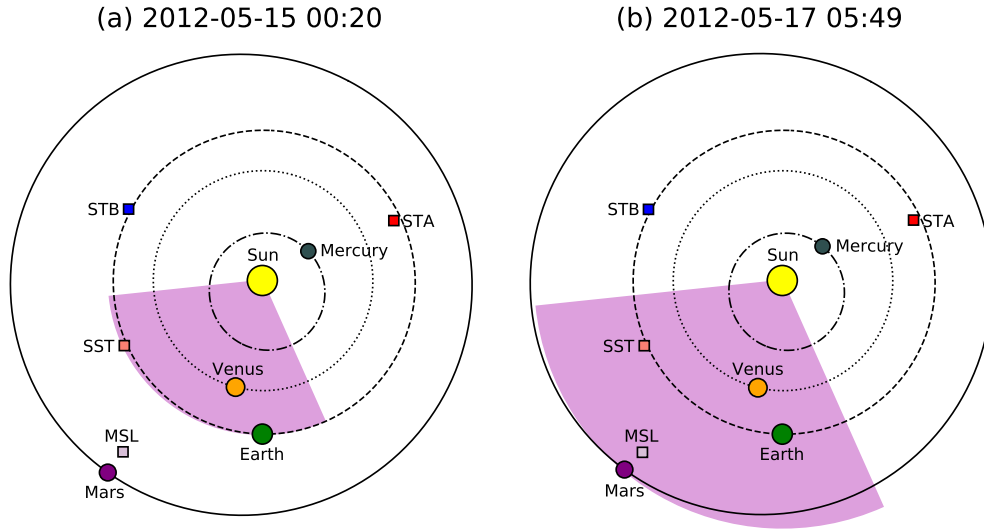
Kinematics of the 2012 May 11 CME derived from successive GCS reconstructions between May 11 at 23:55 UT and May 12 at 01:54 UT. The parameters shown are (a) latitude, (b) longitude, (c) axis tilt, and (d) apex height. Latitude and longitude are shown in Stonyhurst coordinates, and the tilt is defined positive for counterclockwise rotations.

Figure S2



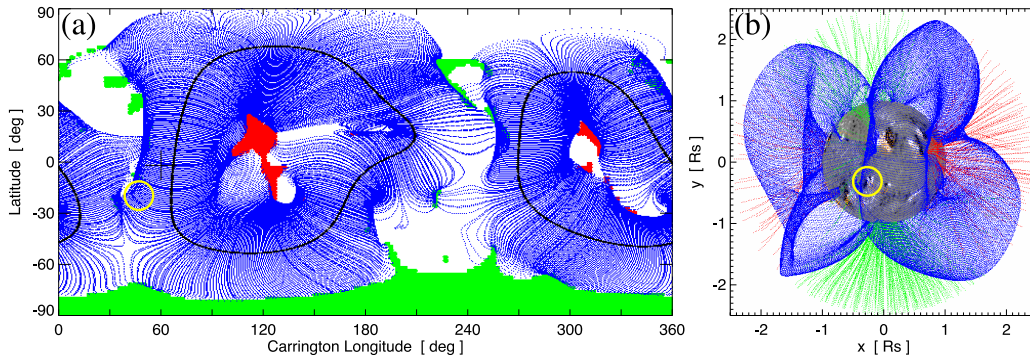
Schematic representation of SSSE fitting applied to the 2012 May 11 CME using HI data. (a–c) The position of the CME front within the ecliptic plane (red) is triangulated from the observed leading edge in the HI1 cameras (dashed lines). The position of the CME at ~ 18 -hour intervals is shown in the successive panels. (d–f) Beyond the final HI observations, the CME position is extrapolated to predict arrival times at three planets: (d) Venus, (e) Earth, (f) and Mars. The time and speed at which the CME is predicted to impact each planet is printed in the bottom left of each panel.

Figure S3



Visual representation of the 2012 May 11 CME propagated with the DBM. The pink circular arc represents the CME and the panels show (a) its arrival at Earth and (b) its arrival at Mars. The planets are marked with circles, whilst the spacecraft are marked with squares (STA = STEREO-A; STB = STEREO-B; SST = Spitzer Space Telescope; MSL = Mars Science Laboratory). The orbits of all planets in the inner heliosphere are also shown.

Figure S4



Potential field source surface (PFSS) reconstruction from NSO/GONG at the $2.5 R_{\odot}$ source surface for 2012 May 11 at 17:44 UT, i.e. a few hours before the eruption of the May 11 CME. (a) Synoptic PFSS reconstruction. Green (red) areas indicate positive (negative) polarity of open field and the black line shows the location of the heliospheric current sheet. (b) The same PFSS reconstruction viewed from Earth. The source region of the May 11 CME is highlighted with a yellow circle in both panels. The original figures can be retrieved at http://gong2.nso.edu/oQR/zqf/201205/mrzqf120511/mrzqf120511t1744c2123_121.gif and http://gong2.nso.edu/oQR/zq4/201205/mrzq4120511/mrzq4120511t1744c2123_121.gif, respectively.

Caption for Movie S1

Eruption of the 2012 May 11 CME as seen from (a) STEREO/SECCHI/EUVI-A, (b) SDO/AIA, and (c) STEREO/SECCHI/EUVI-B in the 304 Å channel. The field of view of all panels is 600" × 600".

Caption for Movie S2

Propagation through the solar corona of the 2012 May 11 CME as seen from (a) STEREO-A, (b) Earth, and (c) STEREO-B. Panel (a) consists of composite images from STEREO/SECCHI/EUVI-A, COR1-A, and COR2-A. Panel (b) consists of composite images from SDO/AIA and SOHO/LASCO/C2 and C3. Panel (c) consists of composite images from STEREO/SECCHI/EUVI-B, COR1-B, and COR2-B. All EUV images are taken in the 304 Å channel.

Caption for Movie S3

Propagation through the inner heliosphere of the 2012 May 11 CME as seen in running-difference images from the (a) HI1-A and (b) HI1-B cameras onboard the STEREO spacecraft.