The Solar Moreton Wave of 6 December 2006: Evidence for a CME Driver

E.W. Cliver

Space Vehicles Directorate, Air Force Research Laboratory,
Hanscom AFB, MA 01731-3010, USA

ABSTRACT

We analyze ground- and space-based observations of the eruptive flare and associated Moreton wave on 6 December 2006. The wave spanned ~270° in azimuth and traveled ~1.2 R_O from the S06E63 site of the eruptive 3B/X6 flare toward the southwest in ~15 minutes where it disrupted a large quiescent filament. An accompanying coronal wave was observed in a single He I (λ10830) image. Various lines of evidence suggest that the Moreton wave was initially driven by a coronal mass ejection. These include: (1) onset of the wave during the rapid rise phases of the Hα and 1-8 Å time profiles; (2) comparison of a potential field model of the active region coronal magnetic field (augmented by Hα images of flare ribbons and bright points and TRACE images of loops at 195 Å) with subtracted off-band (red-blue) images of the wave; and (3) the observation of a darkening region in Hα at the inferred source of the wave.