



Radio triangulation of solar radio emissions associated with the 2012 July 23 CME

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Coronal mass ejections (CMEs) are large-scale eruptions of magnetized plasma that may cause severe geomagnetic storms if Earth directed. The backside CME from 2012 July 23 belongs among historical extreme solar events due to associated solar energetic particle fluxes and the CME-driven shock speed above 2000 km s^{-1} . Here, we focus on analysis of associated interplanetary (IP) radio emissions. The frequency drift of the IP type II burst provides us with a reasonable speed of the CME-driven shock. We have successfully applied a radio direction-finding technique to IP type II and type III bursts observed by the two identical radio receivers aboard the two STEREO spacecraft. The radio triangulation technique allows us to localize radio sources in the IP medium. The obtained locations of the type II and type III bursts are in a very good agreement with the CME direction. We demonstrate the complementarity between radio triangulation and 3D reconstruction techniques for space weather applications.