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The first STEREO multi-event: Numerical simulation of coronal mass ejections (CMEs) launched on August 1, 2010

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On 2010-08-01 at least four coronal mass ejections (CMEs) were observed by the Heliospheric Imagers (HIs) onboard STEREO spacecraft. These events originated at different parts of the solar corona and generated complex scenario of four mutually interacting CMEs. Real-time prediction of the arrival times to Earth failed and it is difficult to associate features observed by HIs with their solar sources and impacts at spacecraft. We use the heliospheric code ENLIL to show the global solution for various scenarios using fitted CME parameters from coronagraph observations by different techniques. We present the temporal profiles and synthetic white-light images that enables direct comparison with in-situ and remote observations. These results show that in addition to multi-perspective coronagraph observations, heliospheric imagers and numerical simulations are needed to understand and predict the impact of complex heliospheric disturbances.