



## **Simulated CMEs and predictions for STEREO**

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We compare results our global MHD simulations of CMEs propagating from Sun-to-Earth to observations made with STEREO. We model a number of events of varying degree of complexity and model the observations that are made by the SECCHI coronagraph suit and in situ observations by IMPACT and PLASTIC. We make synthetic Thomson-scattered white light images from the simulations as they appear to the COR1, COR2, and wide-angle coronagraphs HI1 and HI2. We clearly identify shock structures in the coronagraph images and follow their evolution to Earth orbit. At large elongation, we find complex time evolution of the white-light images as a result of three-dimensional structures encountering large variations in scattering efficiency as they pass through the Thomson sphere. We then compare the modeled ICME plasma structures with observations from PLASTIC. We also model solar energetic particles and compare them with IMPACT observations.