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Poster
The Eruptive Event Generator – Gibson-Low (EEGGL) uses a synoptic solar magnetogram to generate an unstable 3D flux rope which is then inserted into magnetohydrodynamic (MHD) simulations of the solar corona. EEGGL uses an empirical fitting of test events to find the relationship between the magnetogram, CME parameters, and flux rope geometry and strength. From this point, the resulting flux rope initiates a coronal mass ejection (CME) that can propagate into the heliosphere. Combined with the AWSoM-R solar and heliosphere model at the University of Michigan, EEGGL has been used extensively for CME simulation, studying the evolution of the CME and the resulting generation of solar energetic particles (SEPs). As part of the CLEAR NASA Center of Excellence at the University of Michigan, validation and enhancement of EEGGL is a key deliverable. We provide results from the updated EEGGL model with improvements to enhance the robust nature of the code. A statistical validation is performed comparing synthetic white-light coronal images generated by the simulation to coronagraph observations, focusing on CME speed and strength. While past publications have occasionally optimized the flux rope based on a priori knowledge, we use larger statistics from agnostic runs to evaluate model performance. Such steps prepare the model for running in a fully-automated low-latency configuration.

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