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SPACE WEATHER OBSERVATIONS THROUGHOUT LATINOAMERICA

Session **Solar Physics, Inner Heliosphere, and Cosmic Rays**

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Observational Validation of the Modeling and Simulation of a CME

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Coronal mass ejections (CMEs), huge structures of plasma and magnetic field that are expelled from the solar corona into the solar wind, play a determining role in the evolution of space weather and climate. The detailed understanding of the physical mechanisms that govern CME dynamics requires the combination of observations with theoretical modeling and numerical simulation. In this work, we use the three-dimensional (3D) magnetohydrodynamic Alfvén Wave Solar Model to simulate the background corona and solar wind. To simulate the CMEs, we use the Eruptive Event Generator Gibson-Low module (EEGGL), which provides an initial flux-rope type magnetic configuration that is allowed to evolve into the interplanetary medium. Using images simultaneously provided by SOHO/LASCO-C2, STEREO /COR1, and STEREO /COR2, we apply the graduated cylindrical shell model to determine the 3D morphology of the CMEs. In this presentation, we show the analysis applied to a specific CME, whose observations are used to validate the ability of the simulation to successfully model this event.

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