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**Magnetohydrodynamic (MHD) Modeling of Kelvin-Helmholtz Instability and Associated Magnetosonic Wave Emission in Solar Coronal Mass Ejections (CMEs).** SARA BUTLER, HAVA TURKAKIN, Bucknell University — Interrupted telegraphy systems, regional power outages, and damaged satellites demonstrate a few of the consequences to earth technology by mechanisms that can be analyzed and prevented. The impact of solar wind on the earth and other objects in interplanetary space is relatively understudied, yet has far-reaching applications. Previous related studies have observed through close study of shear flow regions in the Solar-terrestrial environment, that Kelvin-Helmholtz Instability (KHI) and Magnetohydrodynamics (MHD) wave emissions along these boundaries may be a method by which energy is transported from flow. In order to gain a deeper understanding of the non-linear dynamics that distribute energy throughout the Solar Corona, we expand upon these previous studies to investigate the nonlinear evolution of KHI and MHD waves along the boundaries of coronal mass ejections (CMEs), large eruptions of the corona that have a significant effect on satellites, earths power grids, and humans in space. We utilize different criteria for measuring efficiency, including 2-D/3-D magnetohydrodynamic modeling software. We also discuss in detail the implementation of this software in our analysis about the nature of MHD instabilities in astrophysical plasmas throughout the universe.

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