

Abstract Submitted  
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**Stability Analysis of a mortar cover ejected at various Mach numbers and angles of attack**<sup>1</sup> JANE SCHWAB, MARIA-ISABEL CARNASCIALI, JOE ANDREJCZYK, University of New Haven, MIKE KANDIS, Pioneer Aerospace — This study utilized CFD software to predict the aerodynamic coefficient of a wedge-shaped mortar cover which is ejected from a spacecraft upon deployment of its Parachute Recovery System (PRS). Concern over recontact or collision between the mortar cover and spacecraft served as the impetus for this study in which drag and moment coefficients were determined at Mach numbers from 0.3 to 1.6 at 30-degree increments. These CFD predictions were then used as inputs to a two-dimensional, multi-body, three-DoF trajectory model to calculate the relative motion of the mortar cover and spacecraft. Based upon those simulations, the study concluded a minimal/zero risk of collision with either the spacecraft or PRS.

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