

Abstract Submitted
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Aerodynamic and Propulsion Assisted Maneuvering for Waverider Vehicles¹ PATRICK JOLLEY, USU — Waveriders have long been sought after as the ideal space vehicle for space based aero assist maneuvers. Theoretically, waveriders can significantly increase gravity assist missions by performing an aero assist maneuver. These maneuvers are possible due to their high lift over drag ratio. However, implementing the theory is more difficult when considering the actual flight aerodynamics and heating problems that will be encountered. An aerodynamic database was generated using hypersonic incidence angle analysis tools with a viscous skin-drag correction. A performance analysis is performed and analyzes stagnation point heating, handling qualities, and controllability, etc. Finally, a simulation is being built to analyze various trajectories and possible mission scenarios.

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