

# Review of: "Aerodynamic Design and Performance Analysis of Mars Ascent Vehicles"

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**Potential competing interests:** No potential competing interests to declare.

This research uses Computational Fluid Dynamics (CFD) simulations to provide a comprehensive analysis of Mid Lift-to-Drag Ratio Entry Vehicles (ML-DREVs). It analyses turbulence impacts, boundary-layer transition, and aerodynamic heating in four configuration comparisons. Although the study objectives are well outlined in the report, readability might be improved with better organisation. With the use of diagrams and figures, the study offers a thorough examination of aerodynamic behaviour. Although further research is needed to fully grasp the implications for vehicle performance, boundary-layer transition analysis improves our understanding of hypersonic flow behaviour. The trustworthiness of CFD simulations is increased by validation through comparison with experimental data; nonetheless, differences need to be addressed. The conclusion provides a summary of the main findings and research directions; however, it might provide more details about the real-world consequences for mission planning. The research provides a thorough analysis of the aerodynamics of ML-DREVs, with room for improvement.