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 paper investigates the aerodynamic heating of different aircraft shapes through numerical simulations. This paper is very comprehensive, but is too lengthy and needs to be more concise. Following are my detailed comments.

1. Figure 3-5 and 7 can be integrated and simplified.
2. The basic knowledge in this field, including governing equations, turbulence model, transition model, post-processing, can be deleted. This content is not the unique work pertinent to this paper.
3. What is the flow solver for your simulation? Is it ANSYS FLUENT, SU2, or others? Please describe the solver settings in detail, instead of its theoretical knowledge.
4. Table 4 overlaps with Table 3; please delete it.
5. Figure 14-22: By stating "laminar and turbulent conditions," what are the particular aerodynamic conditions (Reynolds number, etc.) you are referring to? From Table 5, all the simulations were conducted at the same Reynolds number (2.49E7). Is the flow laminar or turbulent under this condition? Why? I guess you are simply using two different flow models (laminar v.s. SST) in the solver to compute the flow; this is how you solve the flow, not the real flow state.