

GMD 2021-335: Responses to language copy-editor and typesetter remarks

July 2022

We thank the copyediting and typesetting team for including the changes suggested during the first proofreading stage.

1 Responses to the copy-editor and typesetter

1. CE1: We suggest moving the last statement in the *Acknowledgements* section to the *Financial support* section. The suggested modification would then include the statement (in blue), “Part of this research was carried out at the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration”, in the *Financial support* section. The changes are otherwise reasonable.
2. TS1: We suggest a modification to Eq. (A9) (in the version of the document titled gmd-2021-335-typeset_manuscript-version3.pdf) that provides an interpretation of boundary fluxes consistent with the bulk-formula form (or aerodynamic drag law, in the case of momentum terms) referred to in equation (A2). It also corrects an oversight in the original manuscript where Eq. (A9) reads

$$\vec{n} \cdot \rho(\vec{J} + \vec{D})_{\text{sfc}} = \text{MSE}(\vec{Y}; \vec{x}_{\text{sfc}}, t), \quad (1)$$

which implies that the MSE at the surface is applied as the boundary condition, whereas the correct equation is

$$\vec{n} \cdot \rho(\vec{J} + \vec{D})_{\text{sfc}} = \text{MSEF}(\vec{Y}; \vec{x}_{\text{sfc}}, t), \quad (2)$$

which implies that the MSE flux (MSEF) at the surface is applied as the boundary condition. Therefore, for correctness, and clarity, we suggest the following modification (in blue):

With known MSE, the moist static energy flux (MSEF) at the surface is given by

$$\vec{n} \cdot \rho(\vec{J} + \vec{D})_{\text{sfc}} = \text{MSEF}(\vec{Y}; \vec{x}_{\text{sfc}}, t) = -\rho C_{\text{h,int}} \|\vec{u}_{p,\text{int}}\| (\text{MSE}_{\text{int}} - \text{MSE}_{\text{sfc}}), \quad (3)$$

with $C_{\text{h,int}}$ the thermal exchange coefficient.

Thus, Eq. (3) in this document replaces Eq. (A9) in the proofreading copy, with the supporting text in blue. (The appropriate line has been highlighted in the accompanying proofreading document). The source code, and results presented in this manuscript are not affected by this change. We hope that this modification provides clarity to users intending to apply boundary conditions in this manner.