

Subject: Request for Approval on Several Issues in the Proofs

Dear Prof. Guadagnini,

We kindly request your approval for the following revisions to be incorporated in the final proof of the manuscript to ensure clarity for future readers:

1. **Advection Timescale (t_A):** In the inline equation for advection timescale, which first appears in the introduction, we propose changing the velocity symbol ' u ' to the characteristic velocity ' u_A '.
2. **Subscript in Equation 3:** We request approval to modify the subscript in Equation 3 for clarity and consistency.
3. **Signs in Equations 12-14:** We request approval to correct the signs in Equations 12-14. We apologize for catching this error at this stage.
4. **Removal of Equation 16:** Since Equation 16 overlaps with Equation 8, we propose removing Equation 16.
5. **Characteristic Porosity Change (Equation B):** We request approval to revise the notation and definition of the characteristic porosity change in Equation B1 and the associated text.
6. **Nomenclature Table and Appendix F:** We also request approval for the associated updates in the nomenclature table, Appendix F, and a slight repositioning of the subheading in the table.

Thank you for your consideration of these changes. We look forward to your response.

Best regards,

Roi Roded on behalf of all the authors