

Abstract Submitted
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The Macroscopic Forcing Method and incorporating non-locality into macroscopic models¹ JESSIE LIU, ALI MANI, Stanford University — The Macroscopic Forcing Method (MFM) (Mani and Park (2019), arXiv:1905.08342) is a newly-developed technique that can be used to determine differential operators associated with turbulence closure. The results of MFM can then be used to improve macroscopic models, i.e. models that describe averaged quantities such as Reynolds-averaged Navier-Stokes (RANS) models. One issue is that often the found differential operators are non-local and may be difficult to incorporate into existing models. We present application of MFM to an example problem involving scalar transport and temporal non-locality. We then present a method for easily incorporating the effects of temporal non-locality into the macroscopic model for the averaged-scalar transport.

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