

Abstract Submitted
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An implicit turbulence model for Preconditioned-Roe scheme by using Truncated Navier-Stokes Equations CHUNGGANG LI, MAKOTO TSUBOKURA, Complex Phenomena Unified Simulation Research Team, RIKEN Advanced Institute for Computational Science, Japan — A new turbulence model named dissipative model for Preconditioned-Roe scheme is proposed. The original Roe scheme employs the Roe upwinding dissipation term to stabilize the simulations. In this study, a free parameter ε is used to adjust the Roe upwinding dissipation term appropriately. Based on the procedure developed previously for the Truncated Navier Stokes (TNS) equations and the energy level of small resolved scales, the extra dissipation provided by the dissipative model for the turbulence is meaningful and of physical fundamental, which is the most different from other implicit turbulence models. With the advantages of easy implementation because no extra terms are needed to the equations and the availability on the curvilinear coordinate, the dissipative model is expected to be a promising tool for practical applications.

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