Some observations on second-order models for stably stratified turbulence

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Abstract

We consider class of models based on the ensemble-averaged second-order turbulence equations for stably stratified fluids. Focusing on the parameterizations that concern the dissipation and the pressure-strain correlations, we discuss some properties of the models as well as the behavior of suitable non-dimensional quantities of interest. Applications for atmospheric flows and potential future research directions will be also discussed. This is a working in progress with Francesco Tampieri (CNR-ISAC - Bologna).

Keywords: Turbulence modeling, stratified fluids, second-order closure