

Abstract Submitted
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Direct Statistical Simulation: Ensemble Averaging and Basis Reduction¹ ALTAN ALLAWALA, BRAD MARSTON, Brown University — Low-order statistics of models of geophysical fluids may be directly accessed by solving the equations of motion for the equal-time cumulants themselves. We investigate a variant of the second-order cumulant expansion (CE2) in which zonal averaging is replaced by ensemble averaging. Proper orthogonal decomposition (POD) of the second cumulant is used to reduce the dimensionality of the problem. The approach is tested on a quasi-geostrophic 2-layer baroclinic model of planetary atmospheres by comparison to the traditional approach of accumulating statistics via numerical simulation, and to zonal averaged CE2.

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