

Abstract Submitted
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Flow structures and kinetic-potential energy exchange in forced rotating stratified turbulence¹ TIANYI LI, Peking University, MINPING WAN, JIANCHUN WANG, SHIYI CHEN, Southern University of Science and Technology — We investigate the long-time evolution of flow structures and the kinetic-potential energy exchange e_{KtoP} in rotating stratified turbulence. Numerical simulations of forced homogeneous rotating stratified turbulence with different Froude numbers are performed. In the presence of stratification, with two box scale structures with opposite signs of vertical vorticity formed at later times, there are numerous small vortices spreading in the flow. Cyclonic vortices, though being less numerous than anticyclonic vortices, grow faster, thus forming the box-scale structure earlier. Moreover, the intense area of e_{KtoP} is associated with the cyclonic structures. We also find a relation between vertical vorticity and the distribution of the density in the vortices during the evolution of turbulence.

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