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Lattice Boltzman Simulations for 2D Turbulence with Passive and Active Particles[1] YUEHONG QIAN, LUBING WANG, WANHENG HE, Shanghai University, HOWARD HU, University of Pennsylvania, LBM RESEARCH GROUP COLLABORATION, PARTICLES DYNAMICS AND SIMULATIONS COLLABORATION — We consider in this presentation the studies of two dimensional turbulence using the lattice Boltzmann approach. There has been a constant interest in 2D experimental investigations, and some interest is focused on the compressibility effect and air resistance mechanism. We try to address these issues by using the lattice Boltzmann approach in addition to simple and idealized 2D turbulence simulations. Passive particles (without feedback) and active particles (with feedback) will be studies as potential applications in geophysical flows. Some comparisons with experiments and finite element method will be also presented.

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