

Well-Posedness for the Euler-Boussinesq equation with Stochastic Transport Noise

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We address the well posedness of the 3D Euler Boussinesq equations on a bounded domain. Such equations are widely used to model the dynamics of the ocean or the atmosphere. We treat a class of Euler Boussinesq equations for which the velocity part of the solution is perturbed by (Stratonovich) stochastic noise of Lie transport type. To avoid dealing with the pressure term, we analyse the corresponding vorticity of the fluid. We cover existence and uniqueness of the solution. We also present numerical algorithms and numerical results for solution of the 3D Euler Boussinesq equations as well as solution of the stochastic primitive equations.