1014-60-1179   **Sivapragasam Sathananthan** (`satha@coe.tsuniv.edu`), Center of Excellence In ISEM, Holland Hall, Campus Box 9501, Tennessee State University, Nashville, TN 37209, **Mahmoud Anabtawi*** (`manabtawi@aus.ac.ae`), Department of Mathematics and Statistics, American University of Sharjah, Sharjah, United Arab Emirates, and **Gangaram Ladde** (`ladde@uta.edu`), Department of Msathematics, The University of Texas at Arlington, Campus Box 19408, Arlington, TX 76019. *Stochastic 2D Euler and Navier-Stokes Hybrid Dynamics of Fluid Flows under Markovian Switching.* Preliminary report.

A hybrid method is developed for simulating the dynamics of plane flows of incompressible viscous Newtonian mixture of fluids. The continuum stochastic Navier-Stokes equations are used for each fluid with limited domains under the assumptions that continuity of fluxes of fluid particles in the fluid-fluid interfaces. The Markovian switching is used to distinguish the motion of fluid flux in different fluids. We employ the comparison method with the concept of Lyapunov-like functionals to investigate different kinds of stability and convergence properties of the solutions of the model and characterize the effects of random switching on convergence and stability. (Received September 27, 2005)