1067-Z1-1838 **William Pachas-Flores*** (wpachas@uci.edu), 340 Rowland Hall, University of California, Irvine, Irvine, CA 92697, and **Michael Cranston**, Irvine, CA 92697. *Central Limit Theorem for Stochastic Flows.* Preliminary report.

The spread of a body of passive tracers within or on the surface of a turbulent fluid is of great interest to the various branches of science. Examples of this include an oil slick on the surface the ocean, a mass of plankton, or a pollutant in the atmosphere. The first two will be dispersed by the random current of the ocean, while the dispersion of the last one will depend on random atmospheric patterns. Since turbulent flows are characterized by chaotic and stochastic changes, it is reasonable to approximate them by stochastic flows. The advantage of using stochastic flows to model turbulent actions is the availability of the tools of stochastic differential equations.

We're interested in establishing an a.s asymptotic Central Limit theorem for the distribution of the evolution of the two point motion under the isotropic Brownian flow. We also interested at the invariance principle, independence of the one point distributions, and a CLT for the distributions of the one point motions for non-isotropic stochastic flows. An a.s asymptotic CLT for the one point motion distribution under the action of a standard isotropic Brownian flow has been established by M. Cranston and Yves Le Jan (2009). (Received September 22, 2010)