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Characterizing transport using lagrangian trajectories in a two-dimensional electrostatic fluid turbulence model with an evolving background gradient and an external sheared flow D. OGATA, D.E. NEWMAN, Univ. of Alaska Fairbanks, R. SANCHEZ, Univ. Carlos III de Madrid — A two-dimensional three field electrostatic plasma fluid turbulence model with periodic boundaries is used in order to explore the turbulent transport properties in the presence of an evolving flux driven background gradient and an external shear flow profile. The basic underlying model evolves the fluctuating density and potential. To this the evolution of the flux driven background gradient has been added. This background gradient profile is advected and consequently relaxed by the ExB velocity from the potential fluctuations. In turn, the fluctuations respond to the local scale lengths of the background gradient. These local gradient scale lengths provide noticeable structure in the fluctuating field leading to a self-consistent evolution of the three fields. In the system with an evolving flux driven background profile and an externally applied flow, suppressed turbulence has been observed for certain ranges of external flow amplitudes. Preliminary results of transport properties in this coupled system of equations extracted from following the lagrangian velocities will be presented.

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