

Abstract Submitted
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Time variability of growth rates and transport fluxes in fixed-gradient turbulence¹ SANGEETA GUPTA, P.W. TERRY, D.A. BAVER, University of Wisconsin-Madison — Bursty transport fluxes are typically observed in local flux measurements, and naturally emerge from models with evolving gradients. In fixed-gradient models, transport fluxes are often regarded as stationary, as are growth rates. We examine time varying growth rates and transport fluxes in simple fixed gradient turbulence models, including ion temperature gradient (ITG), Rayleigh Taylor (RT), and trapped electron mode (TEM). We seek to understand the conditions under which the fixed gradient turbulence models give non-stationary transport fluxes. In the models studied, linearly damped/neutral eigenmodes are excited nonlinearly. We observe that the energy input rate fluctuates in time; however, the transport fluxes fluctuate from positive to negative only in ITG turbulence. A non-stationary energy spectrum is also observed. We will present detailed analyses of time variability in growth rates, transport fluxes, and energy spectrum, and study underlying components such as auto and cross correlation of different eigenmodes.

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