

Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Coherent Phase Events in 2D Turbulence J.M. REYNOLDS-BARREDO, Univ. of Alaska Fairbanks/Universidad Carlos III de Madrid, D.E. NEWMAN, Univ. of Alaska Fairbanks, P.W. TERRY, Univ. of Wisconsin Madison, R. SANCHEZ, Universidad Carlos III de Madrid — Interesting dynamics are found in the phase of Fourier modes in 2D turbulence simulations. The equations investigated can represent either 2D plasma drift wave turbulence or quasi-geostrophic turbulence. The interesting dynamics are found to be caused by the appearance of strong coupling in the phase of the Fourier modes. This happens in regions inside the high- k region of the spectrum where dissipation is dominant. In addition, a strong burst of energy transfer is associated with the phase-coupling event. Finally, these intermittent events can be shown to have strong connections with the saddle points of the velocity field. The mechanisms, importance and possible uses of these coherent events and their relation with the saddle points of the velocity field will be discussed.

David Newman
Univ. of Alaska Fairbanks

Date submitted: 20 Jul 2012

Electronic form version 1.4