Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

**Finite Size Effects in the Quasi-geostrophic Inverse Cascade**
COLM CONNAUGHTON, CNLS-LANL — In the standard statistical theory of quasi-geostrophic turbulence forced at intermediate scales, two cascades are produced. Energy flows to large scales and potential enstrophy flows to small scales. The inverse cascade of energy is very similar to that which occurs in purely two-dimensional hydrodynamics. In that case, interesting phenomena occur if the friction between the fluid layer and the substrate is sufficientlyweak to allow the inverse cascade to reach the size of the system. Most striking among these is the spontaneous emergence of very intense coherent vortices which suppress turbulent fluctuations. A similar situation can arise in the quasi-geostrophic inverse cascade if the Ekman damping is weak enough, the scenario which I will describe in this talk. The situation is richer because large scale coherence can be obtained either through the formation of large vortices or through the formation of zonal jets.

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Date submitted: 20 Nov 2006 Electronic form version 1.4