Abstract Submitted
for the DFD11 Meeting of
The American Physical Society

Shooting inertial wave packets into rotating turbulence ERAN SHARON, EHUD YAROM, KOBI COHEN, The Hebrew University of Jerusalem — We experimentally study the effect of localized fluctuations in energy injection rate on existing rotating turbulent flow. We show that such fluctuations generate packets of inertial waves, propagating along the axis of rotation. Close to the energy source the propagating pulses leave the steady turbulent field unaffected. Energy is transferred from the pulses into the steady turbulent field only at height h above the injection plane. This height is determined by equating the propagation time of an inertial wave to h, with the time for nonlinear interaction between the wave and the turbulent field. This mechanism, which allows "shooting" turbulence to selected heights, is expected to be important in rapidly rotating geophysical flows.

Eran Sharon
The Hebrew University of Jerusalem

Date submitted: 15 Aug 2011 Electronic form version 1.4