Geophysical Research Abstracts, Vol. 7, 00823, 2005
SRef-ID: 1607-7962/gra/EGU05-A-00823


# Free and tips vortices in a homogeneous and stratified environment

**Yuli D. Chashechkin**, Vladimir Mitkin, Viktor E. Prokhorov, Evgenia V. Stepanova
Institute for Problems in Mechanics of the RAS, Moscow, Russia, chakin@ipmnet.ru

We study analytically and experimentally circular spiral tips vortices around circular discs performing uniform rotation and superposed torsion oscillations and free traveling vortex rings in a homogeneous and continuously stratified environment using markers, schlieren instruments, conductivity sensors and ultrasound backscattering technique. Transformation of boundary layers into internal waves and vortex systems is studied in tiny details. Dates of measurements are compared with analytical calculations of 3D periodic internal waves on a horizontal oscillating disc by methods of theory of disturbances. Singular surfaces inside traveling vortex ring and inside the downstream wake act as effective source of acoustic waves scattering.