Geophysical Research Abstracts, Vol. 7, 06872, 2005 SRef-ID: 1607-7962/gra/EGU05-A-06872 © European Geosciences Union 2005



## 1 Vortices in time-periodic shear flow

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Vortices emerging in geophysical turbulence may experience deformations due to the non-uniform ambient flow induced by neighbouring vortices. As a first approximation this ambient flow is modelled by a linear shear flow. It is well known from previous studies that the vortex may be (partially) destructed through removal of weak vorticity at the vortex edge – a process referred to as 'stripping'.

While most previous studies considered a stationary external shear flow, we have examined the behaviour of the vortex embedded in a linear shear flow whose strength changes harmonically in time. Aspects of the vortex dynamics and the (chaotic) transport of tracers have been studied by both laboratory experiments and numerical flow simulations.