Geophysical Research Abstracts, Vol. 9, 00685, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-00685
© European Geosciences Union 2007

Coexistence of inertial competitors in chaotic flows

I.J. Benczik (1), G. Károlyi (2), I. Scheuring (3), and T. Tél (3)

Virginia Tech, Blacksburg, Virginia, USA, (2) Budapest University of Technology and Economics, Budapest, Hungary, (3) Eötvös University, Budapest, Hungary

We investigate the dynamics of inertial particles immersed in open chaotic flows. We consider the generic problem of competition between different species, e.g. phytoplankton populations in oceans. The strong influence from inertial effects is shown to result in the persistence of different species even in cases when the passively advected species cannot coexist. Multi-species coexistence in the ocean can be explained by the fact that the unstable manifold is different for each advected competitor of different size.