Geophysical Research Abstracts, Vol. 7, 06949, 2005
SRef-ID: 1607-7962/gra/EGU05-A-06949

A more accurate scheme for tracer advection in OGCM's

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The reliability of Ocean General Circulation Models (OGCMs) strongly depends on the quality of their tracer advection schemes. For the sake of simplicity and computing time, tracer advection schemes most commonly used in large-scale OGCMs tend to be low-order schemes, which suffer from spurious numerical diffusion and/or dispersion and result in distorted solutions. The second order momentum (SOM) advection scheme introduced by Prather (1986) combines low numerical diffusivity/dispersion with high computational efficiency and makes it suitable for high quality simulations at low computational costs. Here we present results of model runs employing the SOM scheme for tracer advection and compare it to simulations carried out with FCT and QUICKER.