**Ocean Science
Discussions**

Interactive comment on "Transient residence and exposure times" *by* E. J. M. Delhez

Anonymous Referee #1

Received and published: 19 August 2005

This paper investigates the effects of initial conditions and boundary conditions on formal calculation of residence times. Particularly it introduces a new differential equation which can be solved to identify the effects of finite integration time i.e. water parcels whose residence time is too long to be estimated by a particular length of integration. This work is somewhat outside my area of expertise so I am not able to comment on the details of the mathematics. Investigation of new diagnostic techniques for ocean model simulations is an important and interesting area of work and this paper appears to address the chosen diagnostics in a rigorous way. My main criticism is, however, the lack of relation to 'real-world' examples; only a very simple test case is described. A brief description of this technique applied to a 'real-sea' case would go a long way to clarify the concepts introduced and stimulate interest in these diagnostics in other model simulations. I think the discussion relating residence time to the water age concept (section 5) is worthwhile, however I am not too sure of the point of the final paragraph where a new definition of the mean residence time is introduced and immediately discredited.

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

EGU

Interactive comment on Ocean Science Discussions, 2, 247, 2005.

Interactive
Comment

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

EGU