Geophysical Research Abstracts,
Vol. 10, EGU2008-A-02266, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-02266
EGU General Assembly 2008

A normal mode perspective on ocean circulation variability

H. A. Dijkstra

Institute for Marine and Atmospheric Reseach Utrecht, Utrecht University, the Netherlands
(email: dijkstra@phys.uu.nl ; fax: 030-2533163)

The ocean circulation shows variability on a multitude of spatial and temporal scales. Much of the variability on relatively small ($<$ interannual) time scales can be attributed to wave processes and meso-scale eddies. On interannual to millennial time scales, however, processes causing the variability are not that clear. Several different explanations have been suggested, for example, for the bimodal behavior of the Kuroshio. In recent years, many results have been obtained on normal modes of the ocean circulation in a hierarchy of ocean models. Interesting low-frequency modes of ocean variability, such as gyre, multidecadal, centennial and millennial modes have been found. In this presentation, I will focus on the relation between the normal modes found so far. It turns out that there is an elegant mathematical framework which shows the connection between the different normal modes. I will also address the issue of the relevance of the normal modes in observed variability.