Geophysical Research Abstracts,
Vol. 10, EGU2008-A-11436, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-11436
EGU General Assembly 2008

The effect of tidal and inertial variability on Arctic sea-ice thickness

A. Roberts(1) and W. D. Hibler(1)
(1) University of Alaska Fairbanks

Recent simulations (Hibler, et. al, 2007) have shown that inertial variability in sea ice drift and deformation is substantially amplified by tidal forcing. In this paper, we investigate in some detail the effect of this tidal and inertial forcing on sea ice thickness over the period 1996-2002. For this purpose a full multi-level imbedded ice ocean circulation model for the Arctic is constructed. The ocean model is a z-level free surface ocean circulation model with about 50 levels and the imbedded ice model includes a full multi-level sea ice distribution model with a new mechanically consistent redistribution function. The main focus of this paper will be a simulation with a multi-level, but barotropic ocean circulation model, although some results from a diagnostic ocean circulation model may be presented. Comparisons of simulated buoy drift and its clockwise amplifification by tides with recently acquired high temporal resolution Arctic buoy data will also be presented.