Global modeling of internal tides within an eddying ocean general circulation model

We present an overview of an ongoing collaboration between U-Michigan, NRL Stennis Space Center, and Florida State University to insert tides into eddying simulations of the HYbrid Coordinate Ocean Model (HYCOM). The work is primarily funded by the US Navy but has applications to NASA planning for the wide-swath satellite altimeter (SWOT) and to the NSF-funded Climate Process Team (CPT) on internal-wave driven mixing led by Jennifer MacKinnon. We briefly discuss progress made in several areas:

--implementation of tides into an eddying ocean model
--comparison of global 3-D tidal velocity field in model vs. current meter data
--comparison of low- and high-frequency available potential energy in model vs. moored observations
--comparison of model internal tide signature at sea surface with along-track altimeter data
--high- vs. low-frequency contributions to the sea surface height (SSH) wavenumber spectrum
--internal tide stationarity
--comparison of SSH frequency spectra in model vs. tide gauge data
--internal tide energy fluxes and conversion
--parametric subharmonic instability (PSI)
--frequency-wavenumber domain spectra and nonlinear spectral transfers in internal wave band
--usage of model to estimate sampling error in vertical mode estimation from vertically sparse moored observations
--usage of model to estimate tidal aliasing error in altimetric estimates of internal tides

Seminars are live webcast: http://www.fin.ucar.edu/it/mms/ml-live.htm

* Refreshments are served before seminar. *

For more information, contact Gaylynn Potemkin, email potemkin@ucar.edu, phone: 303.497.1618