



Real Time Ocean Tides from a High Resolution Model

P. Weis (1,2), M. Thomas (3) and J. Sündermann (1)

(1) Institute of Oceanography, University of Hamburg, (2) International Max Planck Research School on Earth System Modelling, (3) Institute for Planetary Geodesy, Dresden University of Technology

The hydrodynamic, global ocean model "TiME" forced by the complete lunisolar tidal potential has been developed. The forcing is computed from the precise ephemerides of the tide-generating bodies moon and sun. TiME describes tidal currents and resultant sea surface elevations in real-time whereas most currently-existing tidal models utilize selected partial tides. Ephemeral forcing and the application of non-linear model equations allows for interaction of partial tides and, consequently, for overtides and compound tides. The model's high horizontal resolution of 5 minutes globally provides details of complex tidal current patterns observed in areas of rough topography. Special interest lies in such regions where coarser-resolved partial tide models are weak. An assessment of the significance of non-linear shallow water tides in the Patagonian Shelf area will be presented. Model results of this region are being compared with data inferred from space-based altimeter missions (TOPEX/POSEIDON). Consequences for rotational parameters of the Earth due to lunisolar tides are also being investigated.