1106-76-2742 **Omid Khanmohamadi*** (okhanmoh@math.fsu.edu). *Simultaneous Space–Time Adaptive Wavelet Collocation for Modelling the Meditranian Eddies ("Meddies").* Preliminary report.

Developing physically-consistent and computationally-feasible ocean models is an integral component of modelling our local ecosystems and the global climate. This work concentrates on modelling "meddies", the salty, warm-water eddies which originate in the Meditranian Sea and sink in the Atlantic Ocean. Being isolated and rapidly-rotating bodies of water in the ocean, these meddies present a challenging tracking problem for whose solution an adaptive wavelet "collocation" method is introduced to vary *simultaneously in space and time* the underlying discretization of the continuum Navier–Stokes model, a posteriori, providing higher effective resolution and lower computational cost, as well as global control on the time integration error. Novel boundary conditions are introduced to model the transfer of salinity through the Strait of Gibraltar. Volume penalization methods are introduced to improve the representation of the bottom bathymetry and continental topology. (Received September 16, 2014)