

Meeting: 1003, Atlanta, Georgia, SS 31A, AMS-SIAM Special Session on Integrable Systems and Special Functions, I

1003-35-505 **Lokenath Debnath*** (debnath1@panam.edu), Department of Mathematics, The University of Texas - Pan American, Edinburg, TX 78539. *Some Evolution Equations and Solitary Waves in a Beta Plane Ocean.* Preliminary report.

This paper deals with some recent evolution equations in fluid dynamics and solitary waves in a beta-plane ocean. Based on the asymptotic method of multiple scales, it is shown that the longtime evolution of finite amplitude water waves generated in a β -plane ocean can be described by a modified nonlinear Schrödinger equation. It is also shown that the finite amplitude waves evolve in the form of solitary waves. The problem has applications to dynamics of oceans. (Received September 17, 2004)