

Meeting: 1001, Evanston, Illinois, SS 14A, Special Session on Nonlinear Waves

1001-35-377 **Steven Ivan Dejak*** (sidejak@math.toronto.edu) and **I. M. Sigal.** *Long-time Soliton Dynamics of Variable Bottom KdVs.*

We study the variable bottom generalized Korteweg-de Vries (bKdV) equation $\partial_t u = -\partial_x(\partial_x^2 u + f(u) - b(t, x)u)$, where f is the nonlinearity and b is a small, bounded, and slowly varying function related to the bottom of the channel in the case of the variable bottom KdV. Many variable coefficient KdV-type equations, including the variable bottom KdV, can be rescaled into the bKdV. We study the long time behaviour of solutions with initial conditions close to a stable, $b = 0$ solitary wave. We prove that for long time intervals, such solutions have the form of the solitary wave, whose centre and scale move according to a certain dynamical law involving the function $b(t, x)$, plus an H^1 -small fluctuation. (Received August 31, 2004)