1096-76-618 **Vladimir A Chugunov** (vladimir.chugunov@kpfu.ru), Institute of Mathematics and Mechanics, Kazan Federal University, Kazan, 420008, Russia, **Sergei A Fomin*** (sfomin@csuchico.edu), Department of Mathematics and Statistics, CSU Chico, Chico, CA 95929, and **Ravi Shankar** (ravdogster@gmail.com), Department of Chemistry, UC Davis, Davis, CA. *Tsunami wave propagation over underwater obstacles and steps.*

Solitary wave propagation over underwater shelves and bumps is examined using straightforward analytical methods. Explicit solutions for wave propagation are obtained. The effects of topographical variety and proportion (steps, bumps, obstacles) on the incident wave are demonstrated using linear wave theory. At a step, the incident wave is shown to be more strongly reflected for increased barrier size. The incident wave also transmits an amplified wave with smaller wavelength onto the obstacle. After propagating off of a bump, the wave experiences an amplitude decay. The decay rate is shown to be exponential with a variable number of bumps. Over an infinitely long shelf, the amplified transmitted wave breaks. The time at which the wave breaks is predicted with weakly nonlinear wave theory and favorably validated against fully nonlinear numerical simulations. (Received September 08, 2013)