



Interaction of a solitary tsunami wave with river current

Y. Egorov

Institute for Advanced Studies, Vienna, Austria, E-mail: yegorov@ihs.ac.at

The present article considers theoretically the problem of interaction of long nonlinear tsunami waves with the river currents. In the case of simple topography of quasi-plane river flow the problem leads to an emergence of generalized Korteweg-de Vries equation with additional term describing interaction. The asymptotic solution of Cauchy problem using the method of Molotkov-Vakulenko is done. Interaction with river current leads to some slowdown of tsunami wave but an additional increase of soliton height, for which an upper estimate is obtained. These results can be used for estimation of potential hazards in coastal area with the presence of substantial rivers.