



Nonlinear internal waves in shallow stratified lakes

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Weakly nonlinear model of internal waves based on the extended Korteweg-de Vries equation – Gardner equation is applied to analyze possible shapes in shallow stratified lake – Sankhar Lake, Russia. Series of temperature variation in space and time are collected and analyzed. The spectra of such variations can be fitted by power function of frequency with exponent minus one, minus two. It is shown that temperature variations influence on kinematic characteristics of internal waves, mainly on the coefficient of quadratic nonlinearity. The solitary wave (soliton) of the first mode is an elevation wave with amplitude less 3 m (total depth of 15 m). The solitons of the second mode can have any polarity. Also the breathers of second mode can be generated in such lake.