Nonlinear and nonstationary dynamics of anomalous edge Stokes waves

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Nonlinear and nonstationary dynamics of anomalous edge Stokes waves on a shelf with linearly inclined bottom is investigated. The mechanism of formation of single-mode and multimode groups of edge Stokes waves of large amplitude is investigated in the framework of various models: kinematic equations, linear Fourier method and a nonlinear Schrodinger equations. Two mechanisms of a wave focusing are considered: modulation instability of nonlinear wave packets and nonlinear spatially - temporary enhancing. The nonlinear three-wave interactions of edge Stokes waves, extending both in one, and in opposite directions on a shelf with linearly inclined bottom are considered also. The conditions of a synchronism are determined and the coefficients of interaction for cases, when the waves of four lowest modes participate in interaction, are designed. Is shown that the coefficients of interaction between modes of edge Stokes waves extending in one direction, address in a zero for some triads. Spatially - temporary dynamics of one triad of edge Stokes waves is investigated.