



## **Cylindrical divergence of internal solitary waves in the framework of Gardner equation**

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The cylindrical divergence of internal wave far from the source in the horizontally homogeneous ocean is considered. The transformation of cylindrical solitary waves is examined analytically and numerically in the framework of variable-coefficient Gardner equation. The derived equation describes the propagation of internal waves that are generated by axisymmetric disturbances, such as earthquakes, explosions, underwater volcano eruptions, and atmospheric impacts. The background conditions of the wave trace are supposed to be almost uniform, and the solitary wave amplitude changes along a ray are determined for different combinations of environmental parameters. The mechanism of internal soliton transformation into breather due to soliton amplitude damping as a result of cylindrical divergence is illustrated by the numerical modeling for the conditions of East Siberian Sea.