



## **Solitary wave propagation in "non-reflected" medium**

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The problem of wave propagation in an inhomogeneous atmosphere is of great interest. Volcanoes, earthquakes, tsunamis, explosions, rocket launches can serve as a source of acoustic waves propagated vertically in the Earth's atmosphere. The typical duration of these sources varies from thousands of seconds to several hours, and such sources can be considered as close to point sources. Studies on the excitation of acoustic waves by a point pulse source are carried out mainly by numerical methods, and analytical solutions are obtained only for the case of an isothermal atmosphere. In this paper we study analytically the wave field of acoustic waves generated by a Gaussian pulse in the atmosphere with "reflectionless" profiles of the sound speed along which the acoustic waves propagate without reflection. As a result, such waves in upper atmosphere can be giant (extreme) waves. Due to the fact that the acoustic waves from such sources reach the ionosphere, the obtained results may be useful in meteorology and radio communication.