



Strong wave amplification in the atmosphere with large temperature gradients

Ekaterina Batcyna (1), Nikolay Petrukhin (1), and Efim Pelinovsky (2)

(1) High School of Economics, Nizhny Novgorod, Russian Federation (batcyna@gmail.com), (2) Institute of Applied Physics, Nizhny Novgorod, Russian Federation

The popular point of view is that the acoustical gravity waves can not propagate on big heights in the atmosphere stratified on temperature and density due to strong reflection from the local inhomogeneties of medium parameters. In given paper we demonstrate the existence of the travelling waves in strongly inhomogeneous atmosphere for certain conditions on the vertical temperature profile. In such cases the waves can propagate on long distances generating the extreme events in upper atmospheric layers. The results of numerical calculations of the specific “non-reflected” temperature profiles are compared with observed profiles. It is shown that the atmosphere can be approximated by several “non-reflected” layers with a few reflected boundaries.