

# **TO THEORETICAL MODELING OF ACOUSTIC-GRAVITY WAVES PROPAGATION IN THE NONISOTHERMIC ATMOSPHERE**

OLGA SAVINA

Nizhny Novgorod State Technical University, Nizhny Novgorod, 603950 Russia, e-mail:  
savina@appl.sci-nnov.ru

Some aspects of an acoustic-gravity waves propagation in an atmosphere with the realistic temperature profile of the temperature are considered. The analytical models of the altitude temperature profile are examined. For the model profile the exact model solution for fields of internal and infrasonic wavers is founded. Particularly, for linear temperature dependence from a height the waves characteristic equation is obtained and stability problem stability is analyzed. The upper boundary conditions for the acoustic-gravity waves are discussed. Within framework of a new analytical formalism we studded of a Riccati type equation for the ratio of the velocity disturbances for vertical displacement and pressure, caused by acoustic-gravity waves. The numerical analysis of Riccati tipe equation for the realistic temperature profile taking into account of ihhomogeneous horizontal wind and viscosity of medium is executed. The proposed formalism is convenient for a study of the Earth nonisothermal atmosphere disturbances. The preliminary results this formalism application to the analytical examination of the acoustic gravity waves in the atmosphere with the realistic high-altitude profile of temperature are presented.

Acoustic-gravity waves

Olga Savina, Nizhny Novgorod State Technical University, Minina str., 24, Nizhny Novgorod, 603950, Russia, tel: +7-831-4368060, fax: +7-831-4160616,  
e-mail: savina@appl.sci-nnov.ru