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# Ionospheric Response to the Acoustic Gravity Wave Singularity

Olga N. SAVINA[1] and Peter A. BESPALOV[2]

[1]National Research University, Higher School of Economics, Nizhny Novgorod, Russia; e-mail: ONSavina@mail.ru (corresponding author)

[2]Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russia; e-mail: PBespalov@mail.ru

Abstract

An original model of atmospheric wave propagation from ground sources to the ionosphere in the atmosphere with a realistic high-altitude temperature profile is analyzed. Shaping of a narrow domain with elevated pressure in the resonance region where the horizontal phase wave velocity is equal to the sound velocity is examined theoretically within the framework of linearized *Eq.s*. Numerical simulations for the model profiles of atmospheric temperature and viscosity confirm analytical result for the special feature of wave fields. The formation of the narrow domain with plasma irregularities in the *D* and low *E* ionospheric layers caused by the acoustic gravity wave singularity is discussed.

**Key words:** atmosphere, realistic temperature profile, ionosphere, acoustic gravity waves, *D* and *E* layers.

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