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of atmospheric gravity wave perturbations and their effect on localization of infrasound field and its sources

The influence of anisotropic wind velocity and temperature inhomogeneities on the attenuation of infrasound field intensity with increasing distance from a point source and its altitude distribution is studied. The field is calculated as a function of receiver height and horizontal distance from the source using method of the pseudo-differential parabolic equation for the atmosphere with model realizations of anisotropic effective sound speed fluctuations. These realizations are obtained from the non-linear shaping model for the gravity wave perturbations, which produces the fluctuations with both the vertical and horizontal spectra consistent with the observed spectra. When propagating in the stratospheric and thermospheric wave guides the multiple scattering of infrasound field from the anisotropic fluctuations results in certain vertical wave number spectra of infrasound intensity fluctuations in the stratospheric (altitudes 30-40 km) and mesospheric layers (50-70 km). The statistical characteristics of the intensity fluctuations as a function of distance from the source (up to 2200 km) were studied

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