

On the Spectrum of Normal Vibrations of Viscous Compressible Stratified Fluid in the Atmosphere and the Ocean

GINIATOULLINE, andrei^{1*}

¹los andes university

The exponentially stratified fluid can be considered as describing the density of the Atmosphere or the Ocean in the homogeneous gravitational field of the Earth.

For the model of viscous compressible barotropic exponentially stratified three-dimensional fluid, we investigate the structure and localization of the spectrum for the problems of the normal oscillations. We find a sector of the complex plane to which all the eigenvalues belong. We consider both the cases of geophysical viscous fluid and the geophysical inviscid fluid.

Keywords: stratified fluid, internal waves in the Atmosphere and the Ocean, viscous barotropic fluid, normal oscillations, eigenvalues, spectrum, mathematical fluid dynamics