

## Mathematical description of the internal waves in a proximity of the bottom of the Ocean.

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We construct an explicit solution for a boundary value problem in a layer at the bottom of the Ocean for a system of partial differential equations which describes the motion of a viscous rotating stratified fluid. As an effect of Coriolis and gravitational forces, there arise internal waves in the fluid. We prove the existence and uniqueness of the solution.

For a model in the half-space, for the constructed solutions we find the asymptotical behavior for large values of  $t$ . We prove the existence of the following boundary layer phenomena: the asymptotical decay of the solution is slower as we approach the boundary plane of the bottom.

The obtained results can be used not only for modeling the flows at the bottom of the Ocean, but also for the flows in the lower Atmosphere.

Keywords: Internal waves, Stratified fluid, Rotating fluid, Boundary layer