

## On the boundary layer effect in the gravitational flows of the Ocean and Atmosphere

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We consider the mathematical properties of the solution of a system of partial differential equations modelling 3-dimensional flows in the Ocean and Atmosphere taking into account the gravity force.

Due to the non-homogeneous distribution of density, there appear remarkable internal waves. We investigate the explicit mathematical representation of the solution, which contains the three components of the velocity field, and the scalar fields of the pressure and the density of the flow.

In the proximity of the bottom of the Ocean the "boundary layer effect" occurs: the asymptotical decay of the solution near the bottom is different from the asymptotical decay in other domains.