

# CONVECTION IN ROTATING NON-UNIFORMLY STRATIFIED SPHERICAL FLUID SHELLS: A SYSTEMATIC PARAMETER STUDY

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A systematical parameter study of a rotating convection in non-uniformly stratified spherical shells in dependence on Prandtl number, Ekman number and Rayleigh number is presented. An attention is focused on the case in which the thickness of both sublayers (stable and unstable) is the same (which was not investigated before). In our case the convection is not suppressed in the stably stratified region but is developed in both sublayers. Cases of small and large Prandtl numbers are characterized by creating of multilayer convective structures. Convective motions take place simultaneously in the stable and unstable layers and form a multilayer structure. On the other hand, it is not possible to observe any multilayer convection for the Prandtl number equal one but it is possible to observe the small-scale structures. A conclusion is that our case is similar to the case in which the thickness of unstable sublayer is greater than stable one.

rotating convection, non-uniform stratification, multilayer convection

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